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In vitro cytotoxic and quantitative evaluation of composite resin components associated with orthodontic adhesives

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In Vitro Cytotoxic and Quantitative Evaluation of Composite Resin Components Associated with Orthodontic Adhesives

by

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THESIS

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PREFACE AND ACKNOWLEDGMENTS

While writing the initial draft and proposal for this project I was concerned that my project design was too small to be really considered for a Masters in oral biology. Judging from the reception that the first draft received, however, I was surprised to hear that my goals may be a little too ambitious for a 3 year program. I greatly appreciate the instructors who took the time to speak to me personally at the beginning when this project was just starting. In particular, Dr. D. Richards, whose initial guidance (and gingival fibroblasts) regarding assay design was very helpful and Dr. C. Damsky, who kindly suggested scaling down the project design (just a little...).

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I am also particularly thankful to my mentors who thoroughly reviewed the entire thesis on several occasions. I relied heavily on suggestions and comments from Dr. W. Hume, Dr. A. Miller and Dr. R. Stern. I gratefully acknowledge their help and encouragement. Their numerous and detailed comments were accurate and precise. Their suggestions contributed greatly to the improvement of this thesis.

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TITLE: *In Vitro* Cytotoxic and Quantitative Evaluation of Composite Resin Components Associated with Orthodontic Adhesives

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PROJECT PERIOD: January 1993 to May 1994

PROJECT SUMMARY:

The underlying hypothesis for this investigation is that undetermined quantities of unpolymerized resin composite components remain in cured orthodontic bonding adhesives which can be leached out by aqueous solution to cause adverse tissue reactions *in vivo*. Orthodontic resins can easily come into contact with oral tissues and have long term contact with the gingival epithelium and connective tissue during treatment. Components of these materials may have the potential to diffuse into adjacent tissues or degrade chemically in the oral environment and contribute to inflammatory gingival reactions initiated by a cytotoxic reaction.

A progression of experiments was utilized to identify which components in resins have the potential to elicit cytotoxic reactions *in vivo*. Part I of this investigation evaluated the relative cytotoxicity and cell response of adhesives using the Agar Overlay protocol with human gingival fibroblast cells. Part II identified and quantified diffusing or leaching components from the resins that may be present in the oral environment by using High Performance Liquid Chromatography. It was then necessary to correlate the components identified in Part II as possible contributors to the local toxicity observed in Part I. Part III employed a cytotoxicity assay to asses cell survival in the presence of these identified components from the orthodontic resins.

In summary, bonding adhesives contain chemical irritants that have been shown to cause cell death and hypersensitivity reactions. Excluding plaque accumulation, these reactions could account for some of the gingival inflammation seen around orthodontic brackets. Further investigation is necessary to determine the concentrations of components that are leached from resins in a simulated oral environment over time and whether these amounts pose any cytotoxic threat.

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BACKGROUND

It has been well established that gingival inflammation is a common sequel of a failure to maintain appropriate oral hygiene during orthodontic treatment. Plaque accumulation around orthodontic brackets has been associated with chronic, hyperplastic marginal gingivitis in those individuals who demonstrate poor plaque control. There is overwhelming evidence that implicates oral microorganisms as the etiological agents of inflammatory gingival reactions seen in individuals who consistently lack proper oral hygiene during orthodontic treatment (Sinclair et al. 1987). While the local gingivitis associated with plaque deposits is most often attributed to an increase in plaque retention, there are cases that exhibit inflammatory gingival reactions in the absence of any observable material located supragingivally on the clinical crown of the tooth.

Orthodontic adhesives or resins used to bond appliances to teeth can easily come into contact with oral tissues and have long term contact with gingival epithelium and connective tissue during the course of treatment. Components of these materials include monomers, activators, initiators and fillers that may not be bound to the polymerized material. These products may have the potential to diffuse into adjacent tissues or degrade chemically in the oral environment. Orthodontic adhesive resins usually contain a mixture of high and low molecular weight monomers of methacrylic acid derivatives, such as Bis-GMA. Table 1 contains a partial listing of some components found in bonding resins. Bis-GMA, a principle component of resins, has been implicated in various cytotoxic reactions observed with cell culture assays *in vitro* (Rathbun et al., 1991; Hanks et al., 1991). A cytotoxic effect is caused by a primary irritant when it has been present for a sufficient amount of time and in sufficient concentrations to cause irreversible cell injury. The clinical manifestations of these reactions can be similar to allergic reactions accompanied by dermal or mucosal inflammation, erythema and necrosis. From previous work, observed *in vitro* cytotoxic reactions have been associated with orthodontic resins which are not inert and leach considerable quantities of unpolymerized components or residual monomer in aqueous solutions (Davidson et. al., 1982; Hanks et al., 1991; Tell et al., 1988; Rathbun et al., 1991; Hanks et al., 1981).

There are many causes of irreversible cell injury and cell death ranging from hypoxia, trauma, microbiological agents, immunological reactions, genetic defects, nutritional imbalance and *chemical agents.* Hypoxia, chemical injury and infection are the most common causes of cell injury, and, by themselves, the list of chemicals that can produce cytotoxic effects is enormous. Some simple agents like glucose or salt in hypertonic concentrations cause cell injury by deranging the fluid and electrolyte homeostasis of cells. Other chemicals more likely attributed to affecting cellular physiology and causing health problems include items that people are in contact with on a daily basis such as carbon monoxide, alcohol, asbestos, and narcotic drugs. How do the chemical components in orthodontic resins interact with the oral environment to be potential initiators of cell injury and inflammatory gingival reactions?

There are several intracellular biochemical mechanisms that are especially vulnerable to chemical agents. The first point of attack usually involves mitochondrial aerobic respiration, oxidative phosphorylation and the production of ATP (Robbins et al., 1987). A loss of ATP energy source effects many systems within a cell. In particular, it is needed for the maintenance and integrity of cell membranes which are vital for the ionic and osmotic homeostasis of the cell and its organelles. Impairment of aerobic respiration and the production of ATP quickly disrupt the energy dependent sodium pump that maintains the ionic and fluid balance resulting in cell swelling and lysis. The morphological changes that occur with cell injury such as swelling take time to develop at a level sufficiently visible with the light microscope. Ultrastructural alterations that lead to cell death can occur in minutes (i.e. ischemia to myocardium) but most cells do not appear histologically dead until 12 hours later. The reaction rate of a cell to injury is not only dependent on the agent but also on its duration and severity. Small doses of a chemical toxin of short duration may induce reversible disturbances in the cell's homeostasis, while large doses or more prolonged exposure may lead to either instantaneous cell death or to slow, irreversible injury leading in time to cell death (Cotran et. al, 1989).

The precise biochemical mechanisms responsible for many of the different types of cell injury related to chemical agents is poorly understood. Injury to cells can occur by many causes but there is no known common final pathway of cell death. The biochemical systems within a cell are closely interdependent and it is difficult to differentiate the primary target of injury from the secondary ripple effects. Also, various cell types have differences in their vulnerability, response and adaptability to specific stimuli. The point at which irreversible cell damage occurs is still a basic question that is largely undetermined with many injurious agents (Robbins et al. 1987).

Is it possible that certain components from resins are responsible for adverse tissue reactions in select orthodontic patients and be the result of diffusible or migrating products leaching from the adhesive material? Do certain resin systems (Two-Paste, Light-Cure, Single-Step) polymerize more completely initially or degrade less over a long period of time to offer a more biocompatible material? What is the cellular mechanism responsible for a particular cytotoxic reaction? At what concentration at the microenvironment of the cell are these components present to illicit a response? In order to answer all of these questions it would be necessary to examine the four aspects that comprise the disease process. They are as follows: 1) determine the cause or etiology of the problem with 2) the mechanism or pathogenesis of the inflammation and 3) describe the structural alterations or morphological changes induced in the cells and organs affected. Lastly 4) what is the clinical significance and functional consequence of these morphological changes? The focus of this investigation was to look at resin components as possible initiators of gingival inflammation and determine if they pose any threat in the clinical environment. **The underlying premise for this investigation was that undetermined quantities of unpolymerized resin composite components remain in cured orthodontic bonding resins which can be leached out by aqueous solution to cause adverse tissue reactions initiated by a cytotoxic response.** In order to answer the questions of etiology and clinical significance, a progression of *in vitro* experiments was utilized to determine which chemical components leach from orthodontic resins and if the quantities of such materials are sufficient to elicit a cytotoxic response in human gingival fibroblast cell lines.

Table 1. Components of Orthodontic Bonding Adhesives (Thompson, 1982)

MATERIAL		COMPONENT
Bis-GMA	Bis Glycidyl Methacrylate	High Molecular Weight Monomer
TEGDMA	Tri Ethylene Glycol Dimethacrylate	Low Molecular Monomer
MONOM,HQ	Monomethyl and Hydroquinone	Polymerization Inhibitor
BP	Benzoyl peroxide	Catalyst
DHEPT	N,N-dihydroxyethyl-para toluidine	Polymerization Accelerator

Review of the Literature

In Vivo Studies Reporting on Tissue Reaction to Orthodontic Adhesives

Davidson et al. (1982) evaluated the response of skin, oral mucosa and gingiva of hamsters to orthodontic adhesives. Animals were treated topically with separate components of the adhesives which were also allowed to polymerize and remain in contact with hamster oral tissue. Test sites were then examined at weekly intervals for six weeks and evaluated grossly and histologically for a toxic response. One product tested caused severe inflammation and tissue destruction but the cause of the response was unknown. No data was available from this study, however, to determine whether these results were due to direct tissue toxicity or an immune/hypersensitivity response.

Altuna et al. (1985) investigated primers used in single-step bonding systems for orthodontic appliances. The purpose of Altuna's study was to test multiple applications of the primer components of two resin systems on the free and attached gingiva in three *Macaca mulatta* monkeys. Biocompatibility of various products has been tested because contact with skin, oral mucosa and gingiva is very common. A number of studies have questioned the biocompatibility of bonding resins as they appear on the market (Fredericks et al., 1981; Cross et al., 1983; Davidson et al., 1982). It is the primer or the adhesive activator in some of the single-step resins that is of concern because it has shown mucosal tissue reactions *in vivo* and *in vitro*. Clinically, the primer and/or adhesive activator can come in contact with the free or attached gingiva during a bonding procedure. The results of this experiment showed that there was a variation in the severity of the response at the end of the test period. Two adult monkeys showed severe bleeding and inflammation of the areas where primer had been applied. In the one juvenile, the response was less severe. The gingiva that received the primer component of one brand of bonding agent exhibited ulceration and vesiculation of the epithelium. There was also an inflammatory cell infiltrate that was characterized by the appearance of numerous eosinophils. For this particular brand of primer, there was a severe gingival tissue reaction that could have been a nonspecific reaction caused by the chemical nature of the primer. There was a finding, however, of numerous eosinophils in the connective tissue that received application of this primer. At sites where a local allergic response has occurred eosinophils aggregate and result in an accumulation in the soft connective tissue. It was the author's opinion that the presence of numerous eosinophils in the connective tissue of the gingiva that received a certain primer in this investigation demonstrated tissue destruction as a result of a local allergic response.

In Vitro Cell Culture Studies Assessing Cytotoxicity of Orthodontic Adhesives

Hanks et al. (1981) looked at the cytotoxic effects of four dental cements and one Bis-GMA composite on two cell culture systems using human periodontal ligament fibroblasts and mouse 3T3 fibroblasts. They found the intensity of cytotoxic reactions varied between the different cell types, and that Bis-GMA had both positive and negative results when eluted with different solutions. For Bis-GMA, it was suggested that continued setting of the resin may have been partially responsible for reducing the toxicity to the cell types. Their data suggested that the chronic toxicity reported in clinical usage tests for Bis-GMA composites may be caused by either new toxic products which arise upon setting or by toxic products resulting from incomplete setting.

Terhune et al. (1983) used an *in vitro* cell culture agar overlay test to assess toxicity of common orthodontic adhesives immediately and up to 30 days after polymerization. In order to simulate the oral environment, adhesives were stored in a artificial saliva solution (phosphate buffered saline) for various time periods to allow any leachable substances to be extracted from the test sample. These test samples (resins) were then incubated with the cell monolayer and toxicity measured. The results of this study showed that polymerized adhesives decreased in toxicity following soaking in saline solutions and that orthodontic adhesives were toxic immediately after mixing and remained toxic for extended periods of time.

Tell et al. (1988) looked at long term cytotoxicity of orthodontic direct bonding adhesives by examining toxic effects of materials immediately after polymerization and over a 2 year period following immersion in simulated saliva solutions. Their experimental method used the culture agar overlay test and demonstrated some adhesives were still cytotoxic over a 2 year period which would correspond to the average time orthodontic appliances are in the patient's mouth. Further, their results indicated that different direct bonding adhesives were toxic to varying degrees and that toxicity decreased more rapidly for some adhesives than others.

Rathbun et al. (1991) investigated the cytotoxicity of a single Bis-GMA composite before and after leaching in organic solvents. The leachable components in the extracts were then identified by chromatographic and spectrographic analysis. The chromatographic results revealed that the extracts consisted mainly of one component and spectrographic analysis matched Bis-GMA as the primary component extracted from the composite. Additional cell culture testing showed Bis-GMA containing samples to be toxic while samples from which Bis-GMA had been extracted were non

toxic.

Hanks et al. (1991) looked at the actual concentrations of 11 components in composite resins that could have toxic reactions to fibroblast cells. This investigation also studied the cytotoxic effect of these components on DNA and protein synthesis by using radioactive isotope incorporation. The results of this study indicated that Bis-GMA depressed DNA synthesis, protein synthesis and total protein. From this research it was no possible to determine the exact concentration at which cytotoxic effects were initiated nor the concentrations to which tissues are exposed *in vivo*.

In addition to cytotoxicity testing with fibroblasts and other similar cell lines, two studies have examined the potential mutagenicity of orthodontic bonding materials. Fredericks et al. (1981) investigated eight orthodontic adhesives which were evaluated by the Ames test. This method provides a means of screening chemicals to which humans are exposed utilizing a simple bacterial assay for detecting chemical mutagens. Fredericks demonstrated that most orthodontic bonding systems tested negative for mutagenicity in the spot test mode while two showed signs of being weakly mutagenic. All the components for this study, however, were tested prior to polymerization and the extent of residual mutagenicity from the cured product is not known. Following this study, Cross et al. (1983) reviewed single-step orthodontic bonding systems as a possible mutagenic potential. Again utilizing the Ames test, six resins bonded to brackets and enamel as well as individual components were evaluated. Cross found two activator components (unpolymerized) to be mutagenic. The identification of the exact components responsible for their results, however, was not available and further work would be necessary to determine the more clinically relevant problem concerning mutagenic potential of cured resins.

In Vitro Studies Assessing Leachabiliy of Bis-GMA from Orthodontic Adhesives

Thompson et al. (1981) reported on materials leaching from unpolymerized orthodontic bonding resins. Test pellets and bracketed teeth were placed in various leaching solutions that included distilled water, 5% EtOH in water, 50% EtOH in water, 0.2M Citrate pH=2 and Schweppes soda water. The unpolymerized material that was extracted from these solutions was then analyzed by UV spectrophotometry. Their results demonstrated that there was a progressive leaching of unpolymerized components from test samples with increasing time of incubation. Also, 10 to 15 times more material was leached from the bracketed teeth than the test pellets. Finally, the UV absorption spectrum of the extractants showed a major absorbency peak which

coincided with Bis-GMA.

Inoue and Hayashi (1982) presented a method for measuring residual monomer (Bis-GMA) eluted into water from various composite resins. Test samples were soaked in water for 3, 7 and 13 days. Chloroform was then added to the residual water to extract the monomer. Using liquid chromatography, all the material extracts produced a peak in the position corresponding to the molecular weight of Bis-GMA monomer. They concluded that Bis-GMA was detected in all the composites investigated but that other residual monomers were also detected and could account for some adverse tissue reaction.

Ferracane and Condon (1990) monitored the elution of leachable components from a dental composite containing Bis-GMA and TEGDMA over time in water and ethanol/water mixtures. Their results showed that approximately 50% of the leachable species were eluted from the composite within 3 hours of soaking and that nearly all elution of components was complete within 24 hours. This study supported the authors view that dental composites do not provide a chronic source of unreacted monomers to the oral tissue due to the rapid and complete elution of the molecules. However, no component identification, quantification or cytotoxicity studies were used to confirm the identity of leachable components failing to demonstrate early component release as possible contributors to local toxicity.

Tanaka et al. (1991) examined a light cured dental composite resin after immersion in water for 7 days. The resulting eluate and composite were analyzed with gas-liquid chromatography to identify and measure the quantity of residual monomers after photocuring. They identified high concentrations of TEGDMA and small amounts of Bis-GMA and found the dissolution rate of TEGDMA to be initially rapid while Bis-GMA continued to elute into water over a longer period of time.

Other Potential Mechanisms of Cytotoxicity Associated with Orthodontic Materials

The cytotoxic effects of various metallic components used in orthodontics has been recently investigated by Grimsdottir et al. (1992). Multicomponent devices were tested including facebows, molar bands, brackets and archwires by using the agar overlay test with mouse fibroblast cells. The hypothesis for this study was that cytotoxic corrosion products from these appliances might contribute to localized gingivitis. It has been suggested by the authors that some of the complex orthodontic devices leach sufficient amounts of corrosion products to cause local cytotoxic effects which might contribute to a localized gingivitis with a toxic etiology. It must be pointed out, however, that

tissue damage caused by corrosion products cannot be clinically distinguished from gingivitis of bacterial origin or chemical origin.

Four different types of metallic devices were tested for cytotoxicity in the agar overlay test. The various components were either welded or brazed together. The most common brazing alloys consist of silver, copper and zinc. Copper and zinc have been previously shown to exhibit cytotoxic reactions and brazed appliances corrode to some extent which facilitates the release of metals into the local environment. The results from this investigation showed that devices containing silver, copper and zinc brazing material were more cytotoxic that one-piece devices. Appliances showing the greatest cytotoxic effects had the greatest amount of metals diffusing as soluble components from the test samples. For orthodontic brackets, the appliances fabricated from one piece and those containing no copper in the brazing alloy caused very little change in the cell culture. While the exact mechanism associated with cell death under these conditions is not fully understood, knowledge of the material composition, toxicity and allergic potential would be beneficial for assessing symptoms and formulating a diagnosis based on clinical presentation.

SUMMARY

Presented are possible explanations and observations that review cytotoxic reactions associated with various orthodontic bonding adhesives. Some investigations have looked at macroscopic cellular changes to assess cell death by using stains or dyes to determine cell viability. Others have tried to quantitate and establish which diffusible products leach from resin materials. Bonding adhesives and primers contain chemical irritants that have been shown to cause cell death and hypersensitivity reactions related to the allergic potential of these materials. Excluding plaque accumulation, these reactions could account for some of the gingival inflammation seen around orthodontic brackets. Further investigation is necessary to determine the concentrations of resin components that are leached from adhesives in a simulated oral environment and whether these amounts are toxic by evaluation with a cell culture system.

Table 2. CHRONOLOGICAL LITERATURE REVIEW SUMMARY

AUTHOR	YEAR	MATERIAL	METHOD	FINDINGS
Thompson, L.R.	1981	1 ortho resin (Endur)	*In vitro* study with pellets and bracketed teeth in various solutions.	UV spectrophotometry showed Bis-GMA in solutions extracted from resin. ***No toxicity testing***
Hanks, C.T.	1981	1 composite resin	*In vitro* cytotoxicity with two cell types (fibroblasts).	Toxicity of resin varied between cell types. ***No component identification.***
Fredericks, H. E.	1981	8 orthodontic resins	Mutagenic study with Ames protocol.	Two components weakly mutagenic in unpolymerized state. ***No component identification.***
Inoue, K.	1982	9 resins	*In vitro* study with HPLC to detect Bis-GMA.	Bis-GMA detected in all materials. ***No toxicity testing.***
Davidson, W.M.	1982	6 orthodontic resins	*In vivo* hamster model. Tested material on gingiva, skin and oral mucosa.	Histological exam revealed 1 product caused inflammation and tissue destruction. ***No component identification***
Terhune, W.F.	1983	6 orthodontic resins	*In vitro* cytotoxicity study with Vero cell agar overlay test.	All materials found to have some toxic effect that decreased after soaking in solutions. ***No component identification.***
Altuna, G.	1985	Primer component of 2 single step resins	*In vivo* test on M. mulatta	Histologic exam revealed inflammatory cell infiltrate of gingival epithelium with one primer. ***No component identification.***
Tell, R. T.	1988	5 orthodontic resins	Long Term *In vitro* cytotoxicity with Vero cell agar overlay test	2 years postpolymerizaton toxicity still evident in all but one resin. ***No component identification.***
Ferracane, J.L. Condon, J.R..	1990	1 composite resin (Silux)	*In vitro* study evaluated elution of resin components into water as a percent weight change over time.	50% of elution complete within 3 hrs and nearly complete after 24 hours. ***No component identification. No toxicity testing.***
Rathbun, M.A.	1991	1 composite resin (Silar)	Components identified with mass spectrograph and HPLC. *In vitro* cytotoxicity testing with fibroblasts.	Principal component extracted from resin was Bis-GMA and cell culture toxicity results correlated with this component ***Leachable materials extracted with organic solvents.***
Hanks, C.T.	1991	11 components of restorative resins	*In vitro* cytotoxicity study with fibroblasts. Determined ID50 of three metabolic parameters.	Bis-GMA depressed DNA and protein synthesis at 5 umol/L. ***Did not evaluate polymerized resins.***
Tanaka, K., Taira,H Shintani, K., Wakasa, K. Yamaki, M	1991	1 Light cure resin	*In vitro* study with GLC to detect Bis-GMA and TEGDMA in eluates and resin.	TEGDMA released early in high concentrations while Bis-GMA dissolution was slower. ***No toxicity testing..***
Cross, Nyla G. Taylor, R.F. Nunez, Loys J.	1983	6 single step orthodontic resins.	Mutagenic study with Ames protocol.	Two activator components mutagenic in unpolymerized state. ***No component identification.***

SPECIFIC AIMS

The aims of this study were: 1) to evaluate three resin systems with the agar overlay method to determine relative cytotoxicity in a cell culture system using human gingival fibroblasts; 2) to extract and identify leachable substances utilizing HPLC from the above resin systems over time in an *in vitro* environment that closely simulates the oral cavity and 3) to determine cytotoxicity of identified resin components with a rapid colorimetric assay for cell growth and survival.

Three orthodontic resins (1 Single-step, 1 Light-Cure, 1 Two-Paste) that vary in method of cure were evaluated at certain time intervals after incubation in aqueous solution to evaluate degrees of toxicity related to the method and completeness of polymerization. Adhesives that have been allowed to polymerize for longer periods of time and those that have been incubated in the aqueous environment should show less cytotoxicity. It is believed that fewer unreacted diffusible products would be present in adhesives that have polymerized more completely. Also, resins that have been incubated in aqueous solutions leach components into the surrounding media and when retested should demonstrate a less severe reaction in the cell culture. One test media was employed to represent oral conditions used for incubation of the adhesive resins. Considering the complexity of the oral environment and composition of natural saliva, as well as the requirements of the cell culture and HPLC techniques, the artificial saliva was simulated by phosphate buffered saline solutions.

For the HPLC analysis the same orthodontic adhesives were evaluated both in pellet form and bonded to extracted sterilized teeth with non-corrosive orthodontic bracket mesh pads. The teeth and stainless steel mesh pads provided inert materials that did not elicit a positive cytotoxicity response and at the same time simulated the tooth/resin/bracket interface which the pellets would not accurately model. Thus, a better representation of the exposed volume and surface area of composite resin present between the tooth surface and bracket in contact with the oral environment was characterized. The identification and quantification of water-soluble components of the resins was analyzed using High Performance Liquid Chromatography. The effects of the following variables on the release of diffusible components from the test materials was evaluated: (a) surface area of sample; (b) incubation time; c) method of polymerization. It is anticipated that the rate of leaching of resin components from adhesives will be slower in the simulated oral environment than in previously tested organic solvents as a result of decreased solubility. It would be feasible that tissue exposure to lower concentrations of diffusible components for longer periods of time

would be possible as leaching occurred into saliva resulting in a low level chronic response to extracted components. Low molecular weight components would be expected to leach at an earlier and faster rate than high molecular weight substances because of easier mobility from the resin into surrounding media.

The final phase of this project evaluated the toxicity of each component identified in Part II from each adhesive resin with an MTT colorimetric assay. Each component was examined as a possible contributor to the local toxicity of eluates by examining individual components in concentrations derived from the HPLC analysis to simulate the quantity of diffusible component present locally at the microenvironment of the cell.

Project Summary

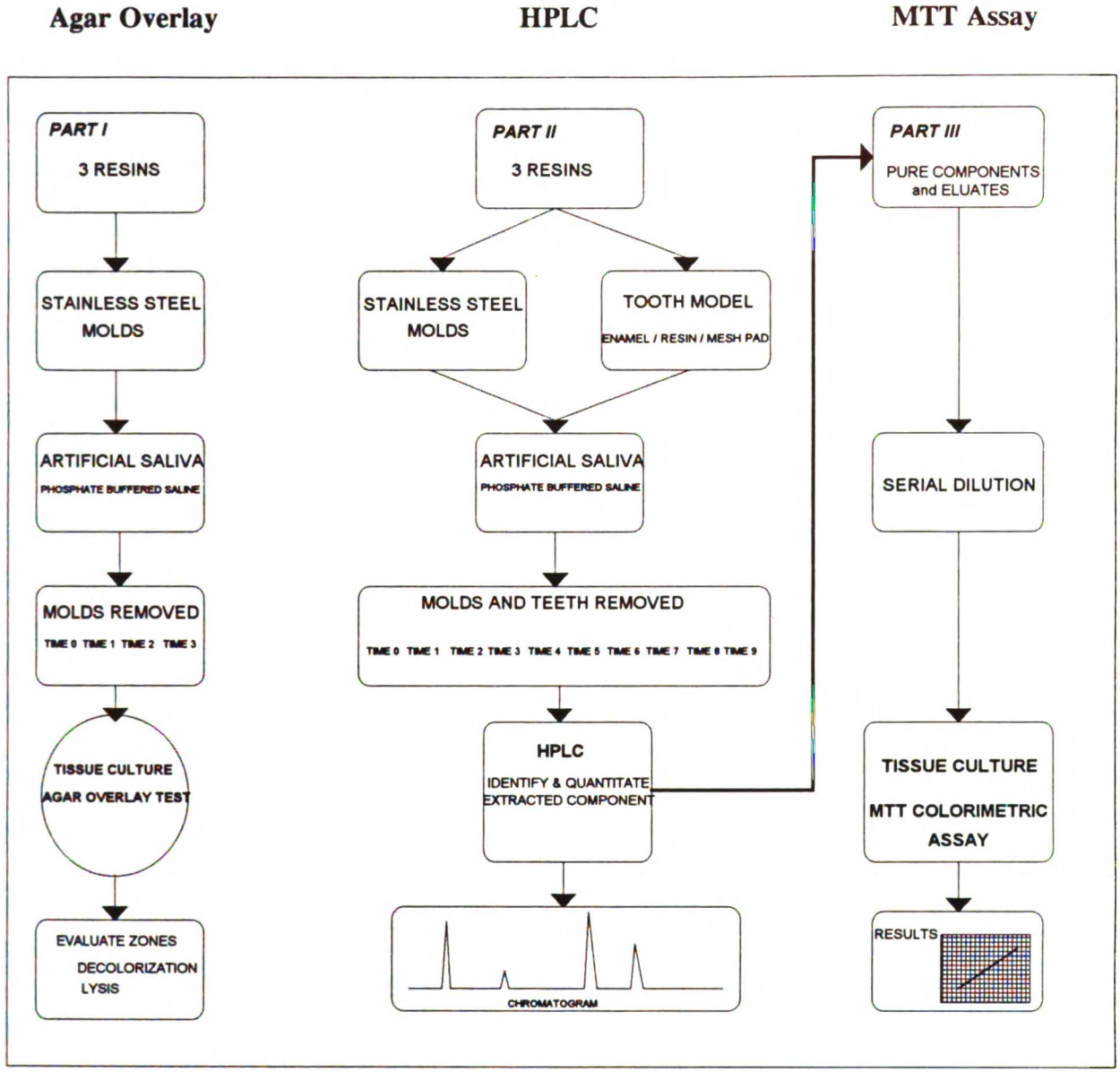


Figure 1. Flow Chart of Experimental Protocol. Part 1-Agar Overlay Test will be used with gingival fibroblasts to determine relative toxicity of three resins tested. Part II- Identification and quantification of leachable composite components with HPLC. Part III- MTT Colorimetric cytotoxicity assay will use HPLC information to determine if specific quantities leached *in vitro* may pose a toxic threat to fibroblasts.

MATERIALS AND METHODS: *PART I - Cytotoxicity Evaluation: Tissue Culture Agar Overlay Method*

TEST MATERIALS: Orthodontic resins: 1 Single-Step, 1 Light-Cure, 1 Two-Paste

TEST PROCEDURE: Tissue Culture Agar Overlay Method
OBJECTIVE: To detect the acute toxicity of leachable components of materials with a modified contact situation between cells and the test material.

One of the major criticisms of cell culture tests with direct material to cell contact is that this situation is often not clinically relevant. Most materials used in orthodontics do not necessarily come in direct contact with the oral mucosa and/or attached gingiva. The Agar Overlay Method modified the contact situation in that the cells were grown on the bottom of a petri dish and overlaid with agar. The test material was placed in contact with the agar surface overlaying a confluent monolayer of cells which had been previously stained with a vital stain. Any leachable substances must diffuse through the agar layer before exerting any toxic effect on the cells. After a 24 hour incubation time the presence of leachable toxic substances was manifested by the loss of dye (vital stain) from the cells within the diffusion zone of the soluble substance leaching from the sample and by lysis of the cells within the zone if the concentration and toxicity of the diffusing substance was high enough.

General Requirements and Procedures:

Human gingival fibroblast cells were used for this test. Cells harvested from stock suspensions at 3 x 10^6 cells per milliliter were seeded out on the bottom of 30mm 6-well tissue culture plates. The cells were incubated for 24 hours at which time the confluent monolayer was overlaid with a 1.5% agar and 1% neutral red vital stain. Test material was applied to the agar surface and incubated for another 24 hours and the stained monolayer was ranked based on a Zone and Lysis Index.

Evaluation:

The cells were examined microscopically and macroscopically. The appearance of the monolayer was registered according to the scoring system in Tables 4 and 5. The Zone Index was related to the size of the decolorized zone surrounding the test sample and the Lysis Index was related to the extent of cell lysis within the zone.

MATERIALS and SOURCES: *PART 1 - Cytotoxicity Evaluation: Tissue Culture Agar Overlay Method*

1. Orthodontic Adhesives A. Rely A Bond no mix (Single-Step) B. Phase II (Two-Paste) C. Light Bond (Light-Cure)	Reliance Orthodontic Products 1555 Industrial Drive Itasca, Illinois 60143
2. Human gingival fibroblast cells	Dr. Dave Richards, UCSF
3. Stainless Steal molds 6mm diameter, .25 depth	Dr. W. Hume, UCSF
4. Tissue Culture Supplies 6-well tissue culture plate Agar Alpha MEM w/o nucleosides	Dr. R. Stern, UCSF Costar DIFCO Bacto Agar UCSF Cell Culture Facility
5. Cellular stains Neutral red concentrate	Sigma Chemical Corporation
6. Millipore absorbent pad	Millipore Corporation, 448 Grandview Dr. South San Francisco, CA. 94080
7. Borosilicate Storage Vials 20ml #033375	Fisher Scientific, 711 Forbes Avenue Pittsburg, PA. 15219
8. Light Cure Unit	Optilux

EXPERIMENTAL DESIGN: *PART I - Cytotoxicity Evaluation: Tissue Culture Agar Overlay Method*

1. Preparation of Test Materials, Media and Reagents

The Agar Overlay technique does not require sterile samples for evaluation but all test materials should be maintained as free of contamination as possible. Chemical sterilization of the resin samples is not recommended. If a liquid or gaseous sterilizing agent is used, it must be completely removed ('de-gassed') from the sample before testing to ensure that any observed cytotoxicity is not due to residual sterilizing agent leaching from the sample. The resin samples used for Part I of this investigation were formed in sterile stainless steel molds, stored in phosphate buffered saline and washed using an aseptic technique with PBS before testing. The orthodontic adhesives tested included a representative selection of current products that are used to bond orthodontic appliances to teeth. They included Single-Step, Light-Cure and Two-Paste resins. These adhesive types were selected for the following reasons: a) they represent the full complement of resins systems that are employed in orthodontics for bonding procedures; b) they are the most likely adhesives to be in close contact with the gingival epithelium for prolong periods of time; c) they have different mechanisms of polymerization which will effect the quantity and quality of leachable components. Test material was prepared in the following manner.

A. Resin Disk preparation and Controls

Disk shaped specimens .25 mm tall and 6 mm in diameter were produced by placement of the adhesive resin into stainless steel molds. Each resin was tested with 6 replications and mixed according to manufacture's specifications. Sterilized stainless steel molds were used because it is unlikely that any chemical derived from the resin would interact with this material. The resin disk dimensions represent approximately twice the average size and amount of adhesive present at the bracket before bonding at the tooth interface (Figure 15). To represent positive and negative controls, 6mm diameter acetate-cellulose disks (Millipore corp.) were imbibed with Xylene and phosphate buffered saline, respectively. There was one positive control disk and one negative control in each 6-well tissue culture plate (Figure 2).

B. Media and reagents

The following preparations were used for the cultivation and maintenance of the human gingival fibroblasts, agar overlay and vital staining techniques. Unless otherwise noted, only reagents of recognized analytical grade and distilled water were used and stored at 4 °C prior to use. New-born calf serum was received frozen, stored at -15 °C , and thawed at 2 to 5 °C prior to use.

Alpha MEM without nucleosides, 1X stock

Glucose	1.0 g/l	Na Pyruvate	.11 g/l
L-Glutamine	.292 g/l	$NaHCO_3$	2.2 g/l

Alpha MEM without nucleosides, 2X stock

Alpha MEM agar medium

Agar 3% (m/m) = 30 g/l	1 part by volume
Alpha MEM, 2x stock	1 part by volume

Trypsin solution 10X

Trypsin .5%
Phosphate Buffered Saline Incomplete
Dilute to 1X strength

Phosphate Buffered Saline Incomplete (Calcium and Magnesium free)

NaCl	8.0 g	KCl	0.2 g
$Na_2 HPO_4$	2.16 g	KH_2PO_4	0.2 g

Phosphate Buffered Saline Complete (Above PBS contents in addition)

$CaCl_2H_2O$	0.132g	$MgCl_2$ $7H_2O$	0.10 g

Neutral red concentrate, 100X stock

Neutral red	2.0 g

Neutral red vital stain

Neutral red concentrate, 100x	1 ml
PBS-complete	99 ml

2. Procedure for Cell growth, Agar Overlay, and Vital Stain

Human gingival fibroblast cells were maintained in 1X Alpha MEM media supplemented with 10% new-born calf serum containing $1x10^5$ IU/1 penicillin and 100 mg/1 streptomycin. When an 80-90% confluent monolayer was established in a T-75 flask, the media was aspirated and replaced with 6 ml of a 1% trypsin solution and incubated for 3 minutes to facilitate release of the cells. The cells were examined with an inverted phase contrast microscope to ensure release and 24 ml (total volume 30 ml) of Alpha MEM added to inhibit the trypsin reaction. The cells were suspended in the flask by repeated forceful ejection of a 10 ml aliquot of media against the monolayer and the 30 ml volume transferred to a 50mm sterile centrifuge tube. Cells from the stock cultures that were harvested and suspended in fresh medium were adjusted to a cell concentration of $3x10^6$ cells/milliliter; that which gave a confluent cell monolayer when each 30 mm well of the 6-well plate was covered with 3ml of the cell suspension. Three equal volumes of the adjusted cell suspension were transferred to three new 50mm tubes. Each 50mm centrifuge tube had at least a 20 ml total volume before proceeding to the next step. To prepare one 6-well culture plate, one 20 ml tube of the suspension was used to deliver 3 ml to each well. The dish was gently swirled to ensure uniform distribution of the cells over the bottom. Two more 6 well plates were then prepared in a similar fashion. The dishes were incubated for 24 hours at 37 °C in a humidified atmosphere of 5% CO_2 until a confluent monolayer was established. One T-75 will yielded three 6-well plates which was used to test 18 resin samples at one time (Figure 2). After the 24 hour incubation time, the media was aspirated from the plate to be overlaid with the Alpha MEM agar, leaving the confluent monolayer of cells. 1.5 ml of the agar medium (45 to 50 °C) was delivered to each well of the 6-well plate. As the agar was delivered, the dish was rotated or swirled to evenly distribute the media and allow it to solidify at room temperature for 30 minutes. 3 ml of the prepared neutral red vital stain is pipetted onto the center of the solidified agar surface and incubated for 25 minutes. Neutral red vital stain was shielded from exposure to strong light as this will produce a stained monolayer that appears faded and would be difficult to read in subsequent steps. After incubation, excess stain solution was removed by aspiration. The test specimens were now ready to be placed on top of the agar and incubated for an additional 24 hours at 37 °C in a humidified atmosphere of 5% CO_2. The test material should be prepared prior to the initiation of the agar overlay procedure to prevent delay in application of the samples to the 6-well plates.

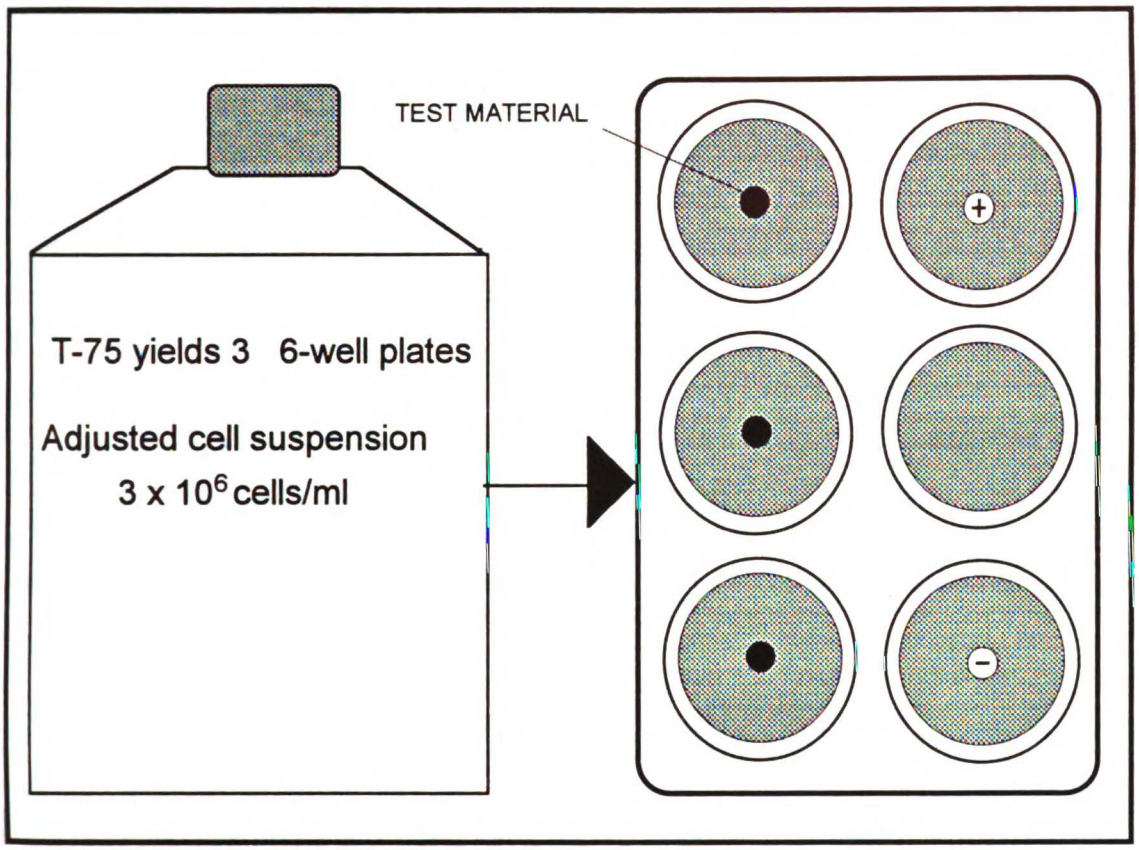


Figure 2. Setup of 6 well tissue culture plate with 3 test samples, 2 controls and 1 untreated well.

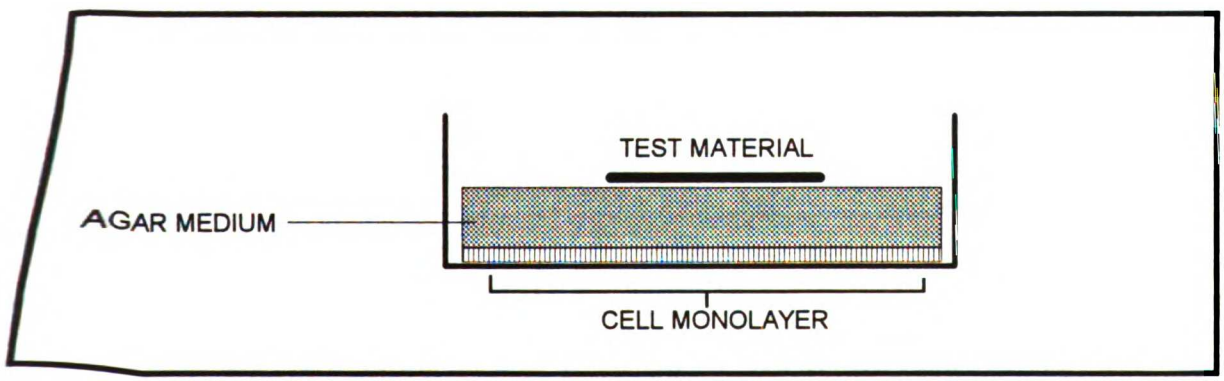


Figure 3. Cross section of 1 well from 6 well plate.

3. Testing Method

Resin samples were tested immediately after preparation in the freshly mixed state, or placed in 4 ml of phosphate buffered saline and incubated. Considering the similarity between previously published data on artificial saliva composition and PBS, saline was used to simulate the oral environment. See Table 3 for comparisons. Rapid immersion of the specimens into the aqueous solutions was performed because it is more clinically relevant than allowing the specimens to cure for 24 hours before being soaked. Six specimens were made for each of the test conditions for 4 different storage periods. The sample storage times in PBS at 37 °C were; 1 day, 10 days, 30 days, and 100 days. After incubation and storage in the solutions, 3 specimens were placed in the center of the agar in one 6-well plate and incubated for 24 hours as described in Section 1 Figure 2. A toxic positive control (Xylene imbibed disk) and a negative control (phosphate buffered saline) were applied to two wells and one remaining well was used to evaluate the stained monolayer of cells in the absence of any test material. The following chart illustrates the matrix that was employed to test 3 resins utilizing PBS as an artificial saliva.

FLOW CHART FOR TESTING REGIMEN -- ALL RESIN TYPES

	INITIAL	1 day	10 days	30 days	100 days
Fresh mix before cure	•				
Phosphate buffered saline		•	•	•	•

Figure 4. • = Resin sample removed and evaluated. Final set or cure time will vary depending on the manufactures specifications for a particular resin. 6 specimens for each resin evaluated, 3 resins tested.

Table 3. Artificial Saliva Composition VS Phoshpate Buffered Saline

HUMAN SALIVA (BEN-ARYEH. 1989)		ARTIFICIAL SALIVA (FUSAYAMA ET AL. 1963)		PHOSPHATE BUFFERED SALINE	
Na	4.6 mmol/L	NaCl	0.400g	NaCl	8.0 g
K	20.1 mmol/L	KCl	0.400g	KCl	0.2 g
Ca	1.1 mmol/L	$CaCl_2H_2O$	0.795g	$CaCl_2H_2O$	0.132g
Mg	.26 mmol/L	NaH_2PO_4 H_2	0.69 g	Na_2 HPO_4	2.16 g
Protein	138.6 mg/dL	Na_2S $9H_2O$	0.005 g	$MgCl_2$ $7H_2O$	0.10 g
Amylase	4710 IU/1x10$_2$	Distilled water	1000 ml	KH_2PO_4	0.2 g
IgA	7.0 mg/dl	pH	5.525-6.75		

4. Evaluation of the Cell Response

At the end of the 24 hour period chosen for the cell-material contact, the plates were removed from incubation and general observations made regarding the stained monolayer before quantitative assessment. Cell monolayers appeared uniformly pink under and around the negative control well, the well containing no test sample, and in areas unaffected by diffusion of soluble components from the test material. The positive control exhibited the standard response as determined in independent control tests with the toxic control materials. Yellow or orange irregular regions of discoloration were an indication of high carbon dioxide levels causing a decreased pH in the medium during incubation. Also, plates not protected from light or plates having too few cells or improperly stained monolayers appeared faded. The wells or plates that did not meet these criteria were rejected.

A. Macroscopic evaluation of the Zone Index

The zone of decolorization under and around the test sample was evaluated by viewing the vitally stained monolayer against a white background after each plate had been allowed to sit at room temperature for 15 minutes. Decolorization of cells precedes lysis and is bordered by a region of fully stained vital cells and a region of cell lysis that is maximal under the sample and decreases with distance from the sample within the zone. Loss of color of the stained cells is considered to be a physiologically significant response and the extent of decolorization and cell lysis of the monolayer was confirmed microscopically with an inverted phase microscope. The Zone Index is related to the size of the decolorized area within a well of the plate and was ranked according to the following scale (Figure 5).

Table 4. Macroscopic Zone Index Evaluation

Zone Index	Description of Zone
0	No detectable zone around or under sample
1	Zone limited to area under sample
2	Zone not greater than 5mm in extension from sample
3	Zone not greater than 10 mm in extension from sample
4	Zone greater than 10 mm in extension from sample
5	Zone involving entire plate

B. Microscopic evaluation of Lysis Index

Evaluation of the cell response was also be based on registration of loss of structural integrity of the cells (lysis) and the results assessed and interpreted according to the Lysis index. A visible marker for cell viability is the absorption of neutral red vital stain. Cytotoxic materials can affect cell physiology by changing membrane permeability and impairing metabolism all of which can lead to death, lysis and loss of dye from the cell. The presence of leachable toxic substances manifested by the loss of dye (vital stain) from the cells within the diffusion zone (Part A) can also lyse cells if the concentration and toxicity of the diffusing substance are high enough.

Table 5. Microscopic Lysis Index Evaluation

Lysis Index	Description of Zone
0	No lysis
1	20% of zone lysed
2	20% to 40 % of zone lysed
3	40% to 60% of zone lysed
4	60% to 80% of zone lysed
5	Over 80% lysis

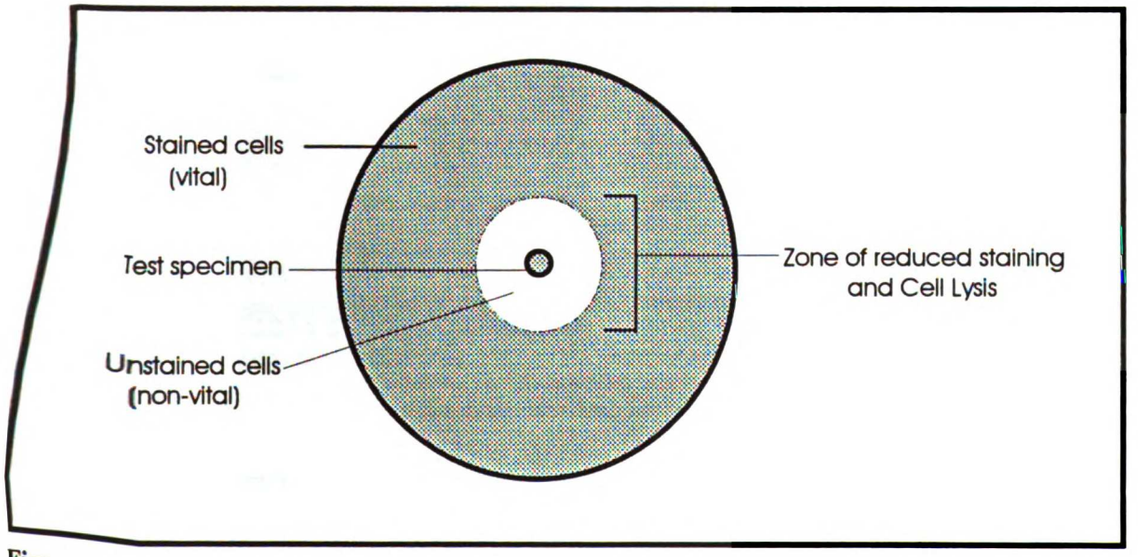


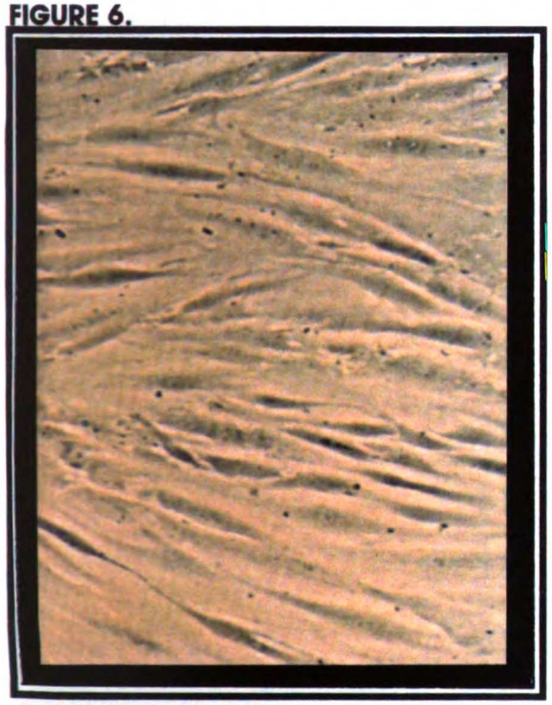
Figure 5. Macroscopic evaluation of one well in tissue culture plate. 6mm diameter resin sample in center.

RESULTS and STATISTICS: *PART I - Cytotoxicity Evaluation: Tissue Culture Agar Overlay Method*

1. Evaluation of cell response using Zone and Lysis Indices

The Agar Overlay method provided consistent results that were easy to measure and reproducible. The morphology of normal human gingival fibroblasts is shown in figure 6. The cells appear as elongated, spindle shaped elements that from a confluent monolayer 24 hours after incubation. Figure 7 is an example of an intact monolayer of fibroblasts stained with Neutral Red indicating dye uptake by viable cells. For controls, absorbent cellulose pads soaked with either PBS or Xylene were used. Figure 8 is a negative control, no toxic reaction is observed and Figure 9 is a positive control demonstrating cytotoxicity.

FIGURE 6.



Human Gingival Fibroblasts

FIGURE 7.

Fibroblasts stained with Neutral Red

Figure 6. Photomicrograph of untreated human gingival fibroblasts at confluency prior to staining.

Figure 7. Photomicrograph of fibroblasts stained with Neutral Red for 25 minutes.

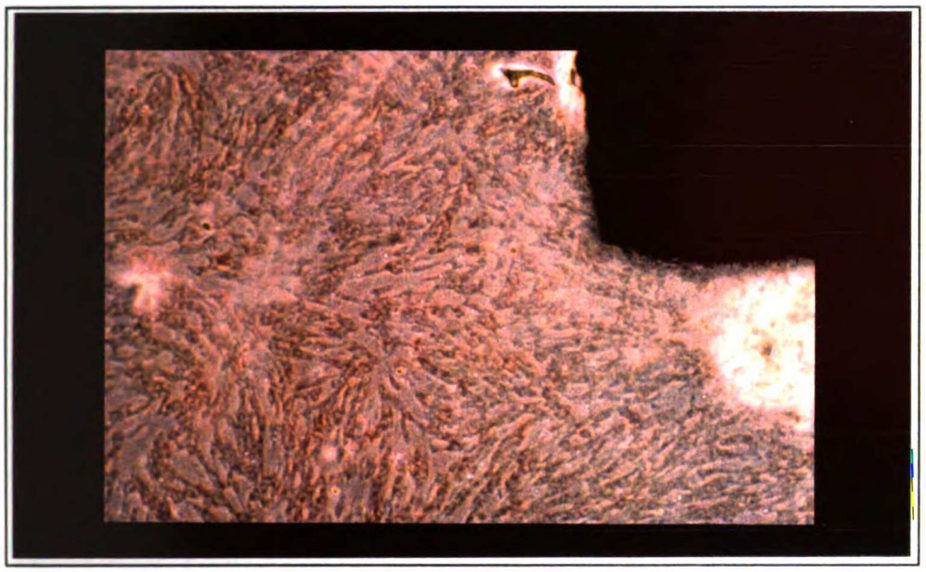


Figure 8. Photomicrograph of negative control with absorbent cellulose pad soaked in PBS in upper right corner. Fibroblasts exhibit normal morphology and retain pink color up to border of pad indicating non-toxic response.

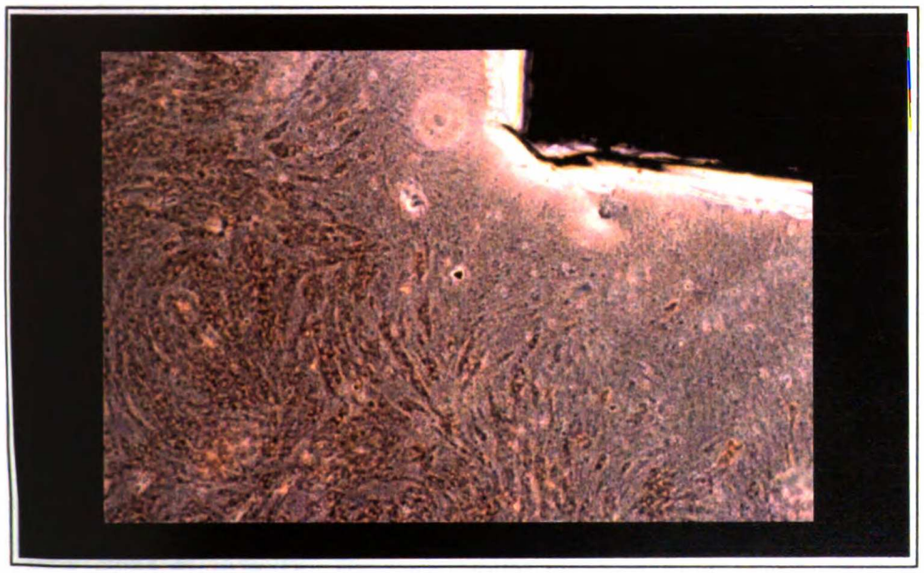


Figure 9. Photomicrograph of positive control with absorbent cellulose pad soaked in Xylene in upper right corner. The presence of a leachable toxic substance is manifested by fibroblasts directly adjacent to pad (Zone of Decolorization and Lysis). These cells exhibit autolysis and have lost normal morphology and pink color. Normal fibroblasts appear past the zone of diffusion apparent by no decolorization or cell lysis.

Tables 6-11 summarizes each Zone of Decolorization and Lysis for the three resins evaluated from initial preparation through 100 days. All adhesives were shown to be toxic as has been demonstrated in previous studies.

Table 6. Ordinal data from Decoloriztion and Lysis Indices

TIME	INITIAL	1 DAY	10 DAYS PBS	30 DAYS	100 DAYS
Single-Step	+ L=5 D=3	+ L=5 D=3	+ L=5 D=3	+ L=5 D=2	− L=0 D=0
Two-Paste	+ L=5 D=3	+ L=5 D=3	+ L=5 D=2	+ L=5 D=2	− L=0 D=0
Light Cure	+ L=5 D=3	+ L=5 D=3	+ L=5 D=3	− L=0 D=0	− L=0 D=0

+ = Cytotoxic, L=Lysis, D=Decolorizatiion

Six samples of each resin were tested and evaluated after initial preparation, 1 day, 10 days, 30 days and 100 days. Macroscopic evaluation of the decolorized zone (D) surrounding each resin sample was ranked according to the scale in Table 4. Microscopic evaluation was recorded with the Lysis Index (L) as described in Table 5. All three resins showed initial positive cytotoxicity with over 80% cell lysis and a decolorized zone extending 5 to 10 mm from each resin sample. In order to simulate the bathing of materials by intraoral fluids, additional samples of each resin were stored in the PBS solution for 1, 10, 30 and 100 days prior to testing. Each resin sample was removed from the solution and incubated for 24 hours with the cell monolayer stained with the neutral red vital stain. By the end of 10 days, all three resins continued to show signs of toxicity. The Single-Step and Light-Cure resin both had decolorized zones that extended between 5 and 10 mm from each sample with 80% cell lysis. The Two-Paste resin, however, demonstrated slightly reduced toxicity with a decolorized zone that did not extend past 5mm from the sample. At the end of 30 days, the Single-Step resin exhibited decreased cytotoxicity with a decolorized zone less than 5 mm while the Two-Paste resin continued to show similar toxicity to the 10 day point. In

contrast, the light-cure resin showed no toxicity by day 30 with no decolorization or lysis of fibroblasts noted. At the end of 100 days all three resin systems showed no cytotoxicity with the Agar Overlay method.

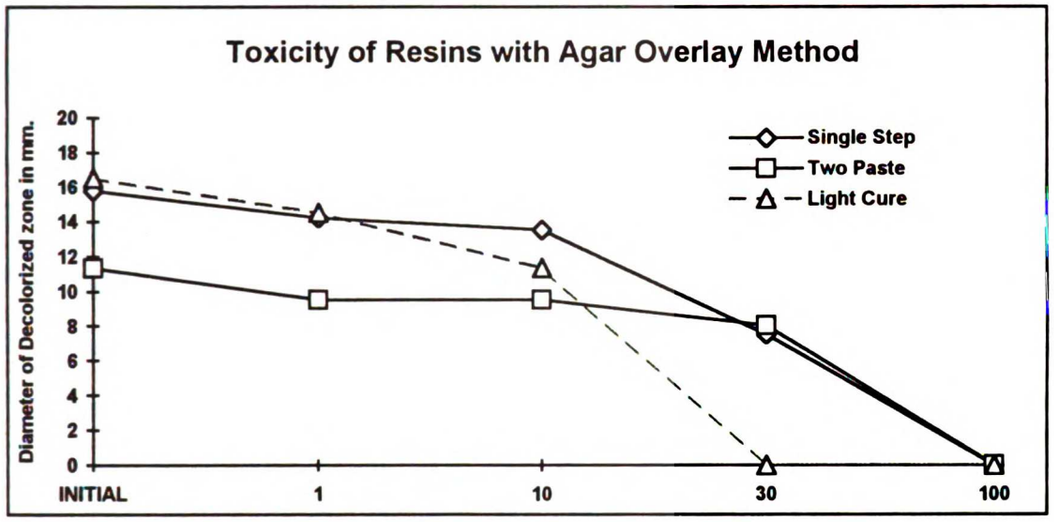


Figure 10. Toxicity of resins from initial preparation through 100 days. Light-Cure resin non-toxic at 30 days. Single-Step and Two-Paste non-toxic by 100 days.

2. Statistics

The data derived from this test are not normally distributed and the results in Table 6 are given as ordinal data ranked according to Tables 4 and 5. In an ordinal scale such as the decolorizaton and lysis indices the cytotoxic response was graded (0 - 5), but there is no arithmetic relationship between the different possible responses. For example, a decolorization rating of 4 denotes more cytotoxicity than a rating of 2 but is not necessarily twice the toxicity. In order to determine significant differences in toxicity between the three resin systems and at various time points the results of each adhesive were ranked on the basis of the diameters of decolorized zones surrounding each resin sample (Tables 7-11). The decolorized zone diameters were measured, the means calculated and tested by the Friedman and Student-Newman-Keuls tests with a level of significance of $p < 05$.

Table 7. Diameters of Decolorized Zone immediately after preparation

	SAMPLE	*(mm)* TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 4	TRIAL 5	TRIAL 6	*MEAN ± SD*
1	***Single-Step***	*16*	*17*	*16*	*16*	*15*	*15*	*15.8 ± .75*
2	***Two-Paste***	*11*	*11*	*12*	*12*	*12*	*10*	*11.33 ± .82*
3	***Light-Cure***	*18*	*18*	*18*	*16*	*12*	*17*	*16.5 ± 2.35*

Table 8. Resin Samples after 1 Day incubation in PBS

	SAMPLE	*(mm)* TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 4	TRIAL 5	TRIAL 6	*MEAN ± SD*
4	***Single-Step***	*15*	*15*	*13*	*15*	*13*	*14*	*14.17 ± .98*
5	***Two-Paste***	*10*	*10*	*10*	*10*	*9*	*8*	*9.5 ± .84*
6	***Light-Cure***	*17*	*16*	*16*	*14*	*9*	*15*	*14.5 ± 2.88*

Table 9. Resin Samples after 10 days incubation in PBS

	SAMPLE	*(mm)* TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 4	TRIAL 5	TRIAL 6	*MEAN ± SD*
7	***Single-Step***	*15*	*14*	*13*	*13*	*13*	*13*	*13.5 ± .84*
8	***Two-Paste***	*10*	*10*	*10*	*10*	*9*	*8*	*9.5 ± .84*
9	***Light-Cure***	*13*	*13*	*11*	*10*	*9*	*12*	*11.33 ± 1.63*

Table 10. Resin Samples after 30 days incubation in PBS

	SAMPLE	*(mm)* TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 4	TRIAL 5	TRIAL 6	*MEAN ± SD*
10	***Single-Step***	*8*	*8*	*8*	*8*	*6*	*7*	*7.5 ± .84*
11	***Two-Paste***	*6*	*8*	*9*	*9*	*8*	*8*	*8.0 ± 1.10*
12	***Light-Cure***	*0*	*0*	*0*	*0*	*0*	*0*	*0*

Table 11. Resin Samples after 100 days incubation in PBS

	SAMPLE	*(mm)* TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 4	TRIAL 5	TRIAL 6	*MEAN ± SD*
13	***Single-Step***	*0*	*0*	*0*	*0*	*0*	*0*	*0*
14	***Two-Paste***	*0*	*0*	*0*	*0*	*0*	*0*	*0*
15	***Light-Cure***	*0*	*0*	*0*	*0*	*0*	*0*	*0*

Table 12. FRIEDMAN STATISTIC: NONPARAMETRIC TEST

$\chi^{2}r$ =	DF =	P =	k =	n =
78.983	*14*	*.05*	*15*	*6*

Table 13. SNK NONPARAMETRIC TEST
MULTIPLE COMPARISONS BETWEEN ALL GROUPS

COMPARISONS	*DECOLORIZED DIAMETERS COMPARED*	*p*	*q*	*P<.05*
1 vs. 10	*15.8 7.5*	*10*	*4.747*	*YES*
1 vs. 12	*15.8 8.0*	*12*	*6.253*	*YES*
1 vs. 13	*15.8 0.0*	*14*	*6.253*	*YES*
1 vs. 14	*15.8 0.0*	*11*	*6.253*	*YES*
1 vs. 15	*15.8 0.0*	*13*	*6.253*	*YES*
3 vs. 13	*16.5 0.0*	*15*	*6.481*	*YES*
3 vs. 15	*16.5 0.0*	*14*	*6.481*	*YES*
3 vs. 12	*16.5 0.0*	*13*	*6.481*	*YES*
3 vs. 14	*16.5 0.0*	*12*	*6.481*	*YES*
3 vs. 10	*16.5 7.5*	*11*	*4.975*	*YES*
3 vs. 11	*16.5 8.0*	*10*	*4.610*	*YES*
6 vs. 13	*14.5 0.0*	*13*	*5.432*	*YES*
6 vs. 15	*14.5 0.0*	*12*	*5.432*	*YES*
6 vs. 12	*14.5 0.0*	*11*	*5.432*	*YES*
6 vs. 14	*14.5 0.0*	*10*	*5.432*	*YES*
4 vs. 13	*14.17 0.0*	*12*	*5.340*	*YES*
4 vs. 15	*14.17 0.0*	*11*	*5.340*	*YES*
4 vs. 12	*14.17 0.0*	*10*	*5.340*	*YES*
4 vs. 14	*14.17 0.0*	*9*	*5.340*	*YES*
7 vs. 13	*13.5 0.0*	*11*	*4.975*	*YES*
7 vs. 15	*13.5 0.0*	*10*	*4.975*	*YES*
7 vs. 12	*13.5 0.0*	*9*	*4.975*	*YES*
7 vs. 14	*13.5 0.0*	*8*	*4.975*	*YES*

The Friedman test statistic showed that a significant difference in toxicity existed (P=.05) between the three resin systems (Table 12). Multiple comparisons between the 15 different groups demonstrated that all resins showed a significant decrease in cytotoxicity (P=.05) between the initial preparation and after 30 days when the decolorized zone was approximately half of its original value (Table 13). There were no significant differences, however, between resin systems within the same time point.

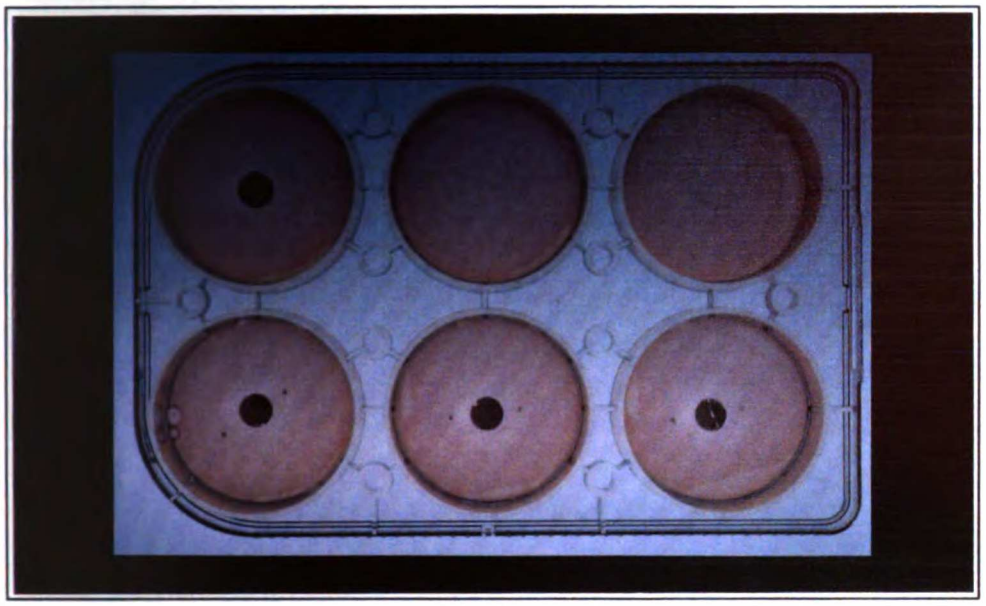


Figure 11. Single-Step resin at 1 day in 6-well tissue culture plate. 3 6mm resin disks demonstrate a zone of decolorization and lysis approximately 14 mm. in diameter surrounding each sample. Positive control has slight zone of decolorization at periphery of cellulose pad.

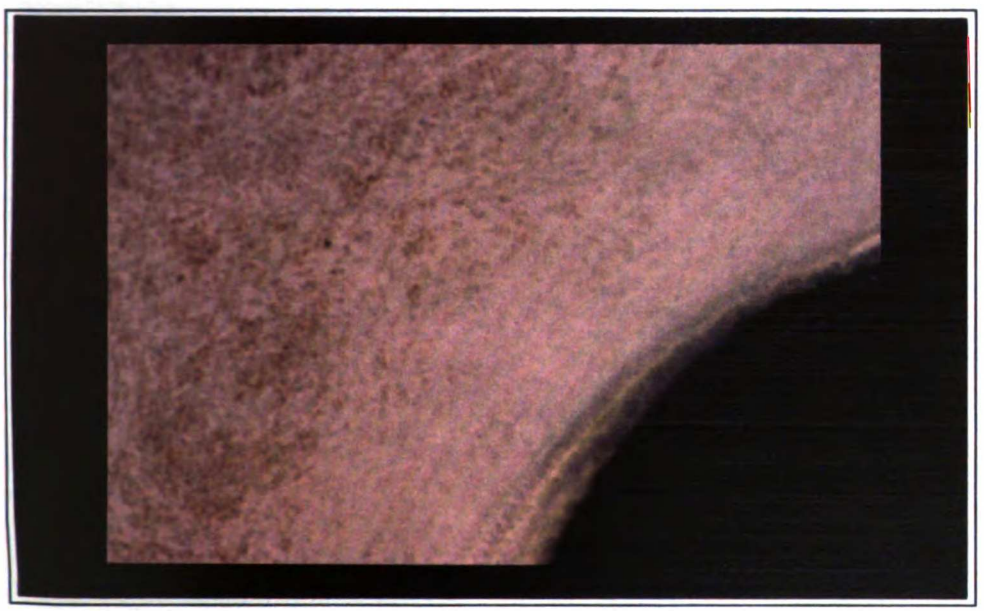


Figure 12. Photomicrograph of 1 Single-Step resin at 1 day. Cells adjacent to sample exhibit autolysis and have lost normal morphology and vital stain. Normal fibroblasts appear past the zone of diffusion apparent by no decolorization or cell lysis.

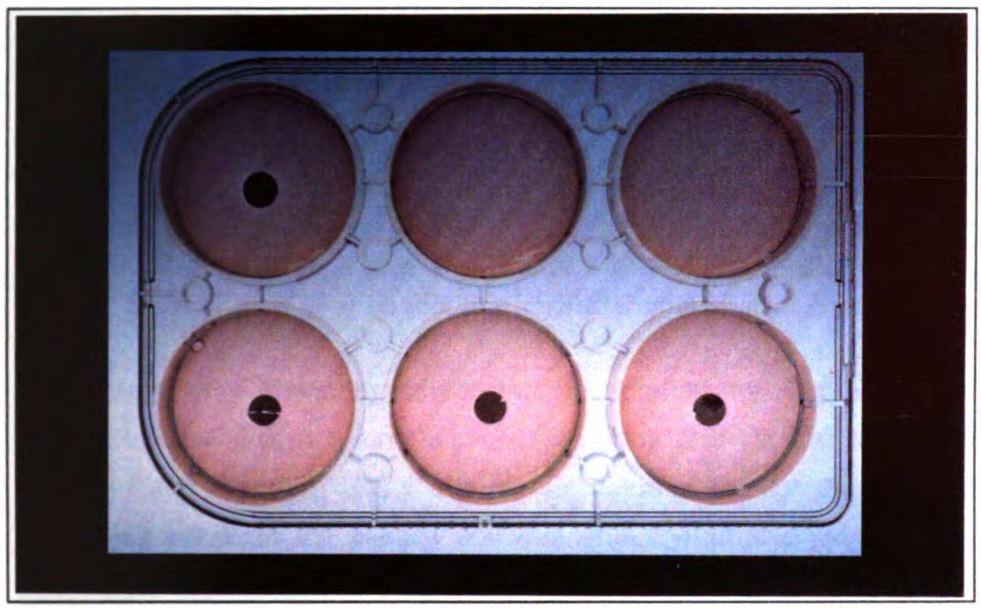


Figure 13. Single-Step resin at 100 days in 6-well tissue culture plate. 3 resin disks demonstrate no zone of decolorization or lysis surrounding each sample. Positive control has slight zone of decolorization at periphery of cellulose pad.

Figure 14. Photomicrograph of 1 Single-Step resin at 100 days. Cells adjacent to sample exhibit normal morphology and pink color.

MATERIALS AND METHODS: *PART II - Identification of Resin Components Extracted from Aqueous Solution*

TEST MATERIALS: Orthodontic bonding adhesives
1 Single-Step, 1 Light-Cure, 1 Two-Paste

TEST PROCEDURE: High Performance Liquid Chromatography (HPLC)
OBJECTIVE: To identify leachable components from adhesive resins

Chromatography separates compounds in solution using differences in equilibrium distribution by passing a mobile phase (solution) through a selectively reactive medium or stationary phase. In HPLC the mobile phase is the solvent under pressure and the stationary phase is the packed contents of a cylindrical column through which the mobile phase must pass. As the mobile phase and sample enter the column, migration of a particular component is proportional to its distribution coefficient between the phases. This determines the relative speed of the compound's passage through the column. As each component exits the column it is separated from the remaining components or mobile phase and moves through a UV or electrochemical detector.

General Requirements and Procedures:

To accurately identify and quantify the adhesive resin components in aqueous solutions, the purified components of the resins were prepared as individual or mixed solutions and analyzed with HPLC to optimize characterization. Using methods already described by Gerzina et al. (1992), for identification of resin composite components with HPLC, chromatographic conditions have already been established and provided satisfactory analytic separation (Table 14). It was necessary, however, to modify these chromatographic conditions to improve quantification of the components resulting from the diversity of resins examined in this investigation.

Evaluation:

An elution chromatogram is generated and provides the basis from which the qualitative and quantitative data was derived. Column elution time is the basis of compound identification, using comparison with standards. Quantitative evaluation was based on ratio comparisons between integrated peak areas at observed elution times and peak areas at the same elution times for known (standard) solutions of known concentrations (Hume, 1993).

MATERIALS and SOURCES: *PART II - Identification of Resin Components Extracted from Aqueous Solution*

1. Orthodontic Adhesives A. Rely-a-Bond (Single-Step) B. Phase II (Two-Paste) C. Light-Cure	Reliance Orthodontic Products, Inc., 1555 1555 Industrial Drive Itasca, Illinois 60143
2. Stainless Steel molds Floss Sticky wax	Dr. W. Hume, UCSF
3. Human Teeth	UCSF Department of Oral Surgery
4. Phosphate Buffered Saline (Artificial Saliva)	UCSF Cell culture facility
5. Mesh backing Cuspid mesh pad 3mm X 3mm	Ormco Corporation
6. Borosilicate Storage Vials 20ml #033375	Fisher Scientific, 711 Forbes Avenue Pittsburg, PA. 15219
7. HPLC Equipment	Millipore Corporation, 448 Grandview Drive. South San Francisco, CA 94080

EXPERIMENTAL DESIGN: *PART II - Identification of Resin Components Extracted from Aqueous Solutions*

1. Preparation of test materials

Initially, quantitative analysis was performed for a range of concentrations of known components in resins separately. These preliminary studies were designed to confirm the efficacy of HPLC as a technique for separation, identification, and quantification of individual components in aqueous solutions. The orthodontic adhesives tested were the same as those used in PART I - Preparation of Test Material. Each component or eluate in aqueous solution was analyzed from 100ul injection volumes. Data from each compound using six replications from the resin disk and tooth model was used to derive standard curves relating mean peak area to concentration. These curves were used for subsequent quantification of unknowns. The quantity of any component released from an adhesive resin into an aqueous solution may depend on one or more variables related to the composite mass, composite-aqueous phase interface, placement, curing, method of polymerization and use conditions. The following section examines several of these variables that are appropriate to clinical practice using the orthodontic adhesives in a resin disk and tooth model.

A. Resin disk preparation

Disk shaped specimens .25 mm tall and 6 mm in diameter were produced by placement of the adhesive resin into stainless steel molds (Figure 15). Resins were mixed according to manufacture's specifications. Stainless steel molds were used because it is unlikely that any chemical derived from the resin would interact with this material. The disk dimensions represent approximately twice the average size/amount of adhesive present at the bracket before bonding at the tooth interface. The resin disk and mold were suspended from the lid of a borosilicate vial into the test media as depicted in Figure 17.

B. Tooth preparation

To simulate clinical bonding, extracted human teeth were prepared to test each resin with a sterilized mesh pad. Teeth selected to receive bracket mesh pads were soaked in PBS immediately after extraction, thoroughly cleaned with a bristle brush and pumiced to remove soft tissue debris, and Gamma irradiated to

sterilize. Chemical methods of sterilization can introduce components into the enamel that would have the potential to leach into surrounding media and possibly effect the setting reactions of composite resins. Autoclaving would also tend to dry enamel effecting the tooth/composite/mesh bond and subsequent test results. Irradiation was therefore chosen as the best means of sterilization over autoclaving and chemical methods. Since only a small area of enamel (approximately 5mm in diameter) was needed for the bonding procedure, the roots were removed and the crown sectioned to produce thin wafers of enamel. Resins were mixed according to manufactures' specifications and placed on non-corrosive mesh pads which were then seated on the sterile enamel wafer. Excess resin was cleaned from the periphery of the mesh pad (Figures 15).

C. Controls

To eliminate the possibility of other materials interacting with the elution of components from the test material, a series of controls with PBS, floss, stainless steel molds, mesh pads and enamel sections without resin were setup at each time point used for evaluation.

Table 14. Chromatographic Conditions for HPLC Analysis of Eluates

	METHANOL AS SOLVENT
COLUMN:	Resolve 150 x 3.9mm silica C18, 5um
MOBILE PHASE:	A. 100% Water B. 100% methanol 1. Gradient 35% A to 65% B over 17 min.
FLOW RATE:	.8 ml/min (gradient)
DETECTOR:	UV 215 nm.

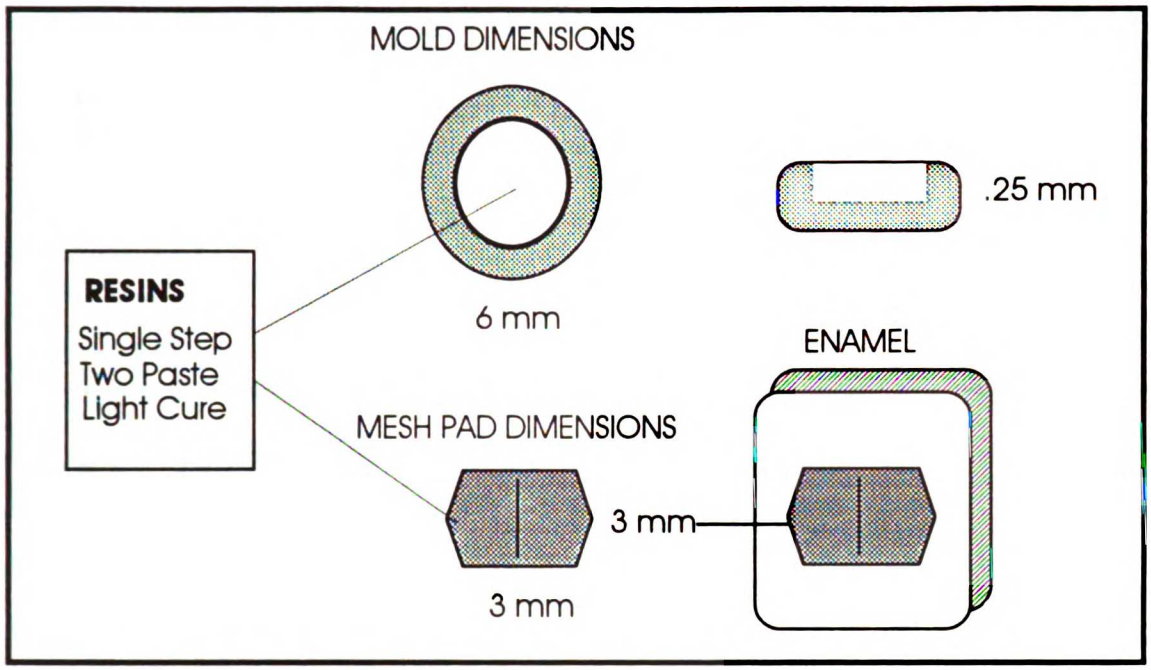


Figure 15. Mold and Mesh pad dimensions for Agar Overlay and HPLC methods.

2. Testing Method

A. Elution

The amount of release of individual components from the resin disks and tooth/composite/mesh samples stored in PBS at 37 °C were determined using six replications. All resins were prepared according to manufactures' specifications before immersion of the specimen. During elution the resin disks were not removed from the molds and only the surface area of composite was exposed to the liquid phase. The size of the resin disk does not represent the amount of composite that is exposed *in vivo*. The clinical situation was best represented by the composite mesh pad samples used for this study. The volume of medium (PBS) was the minimum that met the HPLC requirements and at the same time maximized the eluate concentration. The temperature (37 °C) was similar to the temperature of the mouth. Eluates were made from resin specimens at the following sample times: 4.32 min (0.003d), 14.4 min (0.01d), 43.2 min (0.03d), 144 min (0.1d), 432 min (0.3d) 1 day, 3 days, 10 days, 30 days, 100 days. Specimens were placed in individual vials containing 4ml of the phosphate buffered saline, then each sample moved to a fresh vial at the end of each time point. Each determination was made using six replications with each solution analyzed for identifiable components using HPLC (Figure 16).

FLOW CHART FOR TESTING REGIMEN -- ALL RESIN TYPES

	4.32 m	14.4m	43.2m	144 m	432 m	1 d	3 d	10 d	30 d	100 d
Mold	•	•	•	•	•	•	•	•	•	•
Tooth/Mesh	•	•	•	•	•	•	•	•	•	•

Figure 16. •= sample removed and solution tested with HPLC; m=minute, d=day
*Final set or cure time will vary depending on the manufactures specifications for a particular resin.

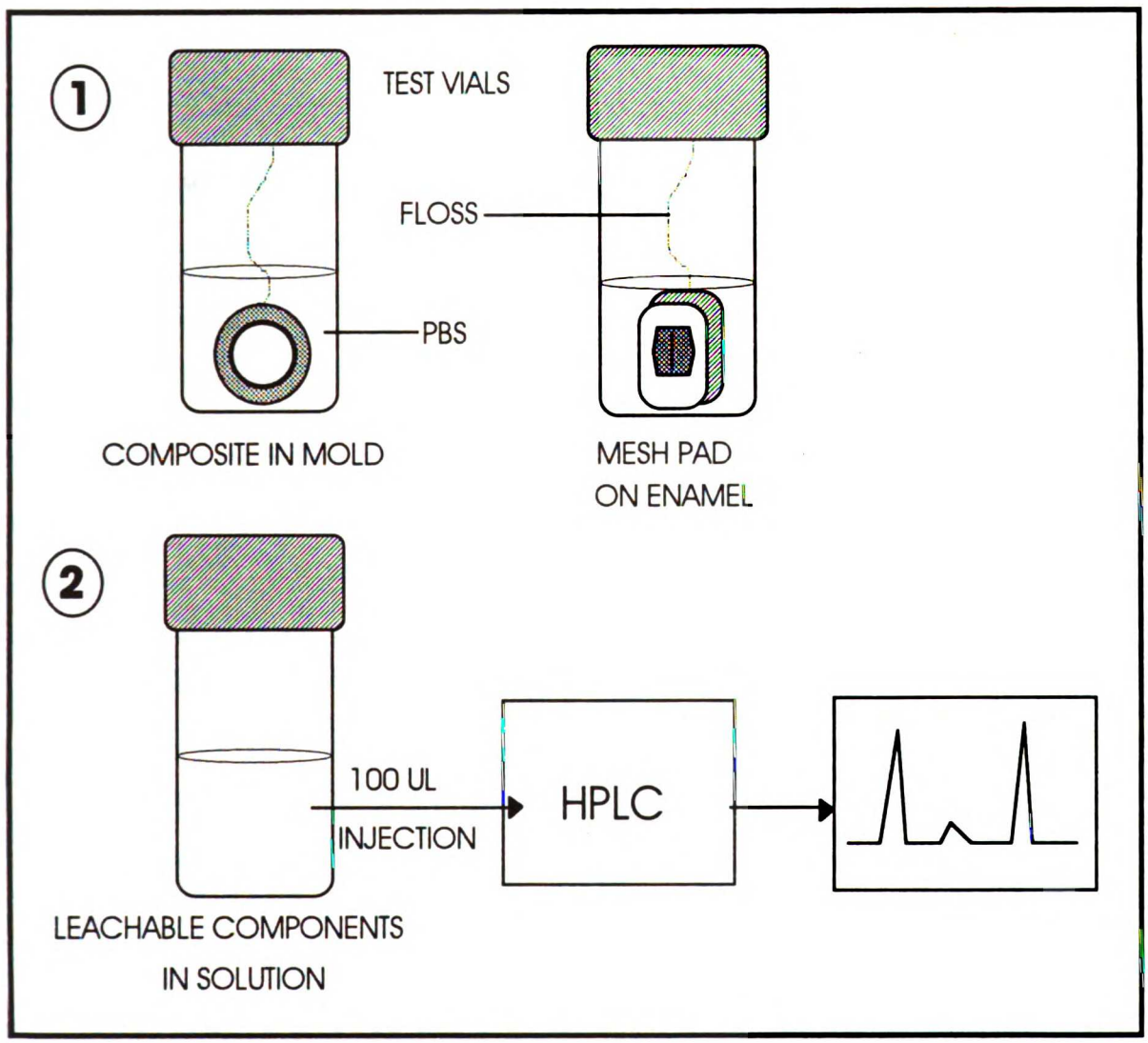


Figure 17. Experimental flow for obtaining eluates for HPLC analysis. 1. Mold and Tooth models setup in PBS and stored at 37 °C for 10 time points. 2. At specified time, mold or tooth model removed and transferred to new vial. Eluate is then injected into HPLC for leachable component analysis.

3. Evaluation

This diagram shows representative peaks obtained for a mixture of various composite resin components using the chromatographic conditions with methanol as the solvent. An elution chromatogram is generated and provides the basis from which the qualitative and quantitative data can be derived. Column elution time is the basis of compound identification, using comparison with standards. Quantitative evaluation is based on ratio comparisons between integrated peak areas at observed elution times and peak areas at the same elution times for known (standard) solutions of known concentrations.[9]

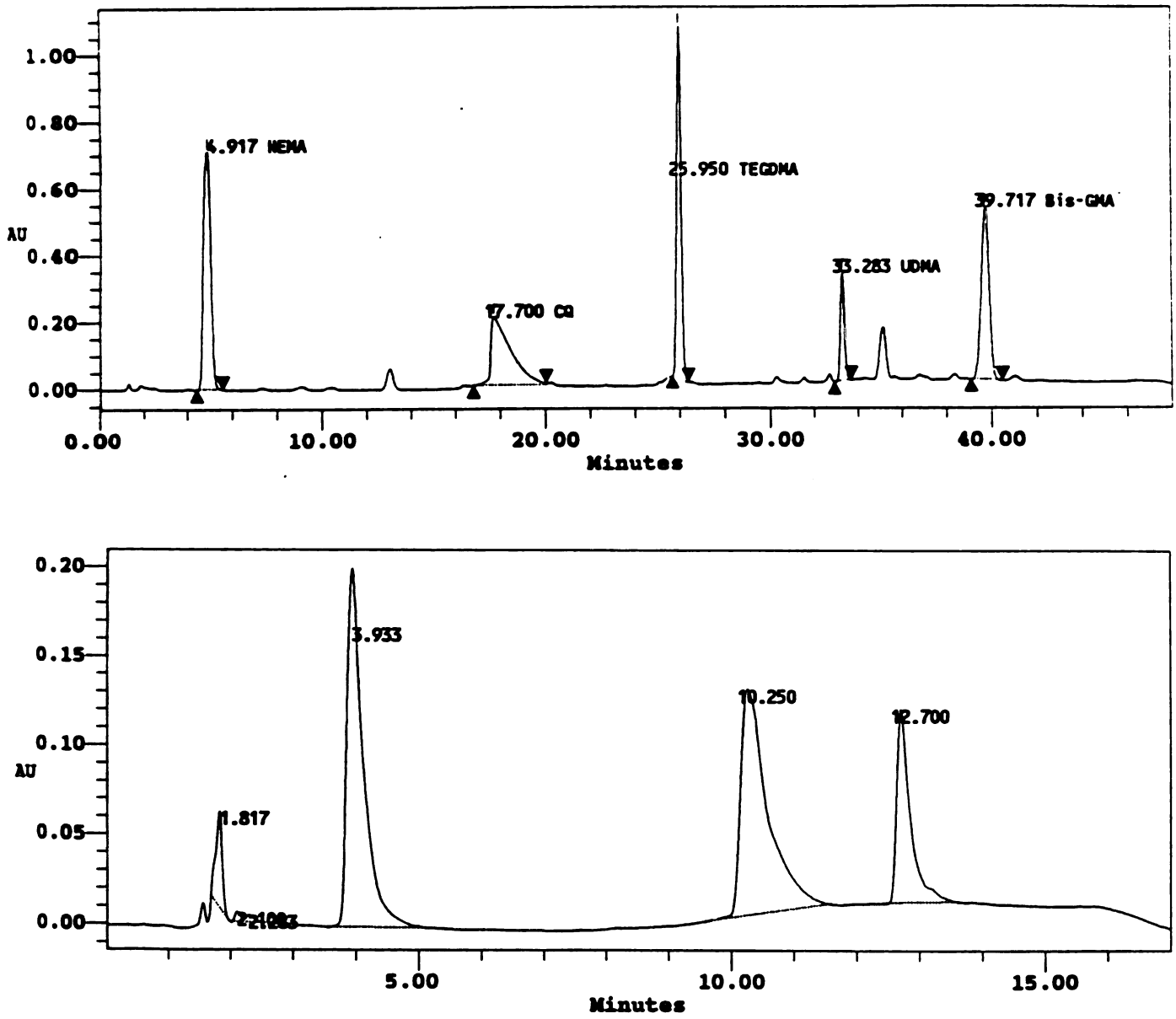


Figure 18. Top graph exhibits excellent separation of resin components. Bottom graph shows alteration in chromatographic conditions with run time of 16 minutes and isolation of TEGDMA at 3.3 minutes, B.Peroxide at 10.25 minutes, and Bis-GMA at 12.7 minutes

RESULTS: *Part II - Identification of Resin Components Extracted from Aqueous Solutions*

HPLC analysis showed that triethylene glycol dimethacrylate (TEGDMA), Bis glycidyl methacrylate (Bis-GMA) and benzoyl peroxide were present in some of the eluates of each adhesive system from tooth and mold models at concentrations between .001 ug/ml and 13 ug/ml. These compounds were identified based on comparisons to known standards from injections of pure components of known concentration. Column elution time for TEGDMA was approximately 4.1 minutes, benzoyl peroxide was 10.9 minutes and Bis-GMA was identified at 13.1 minutes. Raw data and chromatograms for all three resin adhesives obtained from the HPLC work is contained in Appendices 1-3. Appendix 1 contains eluate analysis for the single-step resin, tooth and mold data, through 100 days. Appendix 2 has data for the two-paste resin and Appendix 3 is for the light-cure resin. Each appendix summarizes the quantitative findings into the following tables: A. Component Identified in **ug. per 100 ul** - actual amount of identified resin adhesive component in the volume of the injection; B. **ug/ml** - amount of component from injection converted to micrograms per milliliter; C. **Cumulative ugs.** - is the sum total of a component released through a particular time point; D. **umol and cumulative umol** - micromoles of component calculated and cumulative totals; F. Rate in **ug/min** - the amount of component released per unit of time; G. Log of rate = **$\log_{10}$(ug/min)** - used to plot log(time point) vs. log(release rate) to evaluate if release kinetics of a component can be described by a specific plot.

To illustrate and explain the data found in the Appendices, one example of the chromatographic results is described and shown in Figures 19-28. A summary of the quantitative data for Part II follows in Tables 15-38. The chromatograms in the next examples show a time course from the initial event of 4.32 minutes through 100 days for *one of the six mold samples of the single-step adhesive resin.*

Figure 19 represents the first time point at which one mold was removed from the PBS solution and 100 ul. of the eluate evaluated. At 4.32 minutes, there are several peaks on the graph which can be located based on column elution time. The first very tall spike at 2 minutes is present in all the injections and simply represents the point at which the 100 ul. injection first exits the HPLC column and the mobile phase is read by the UV detector. The next smaller, more blunt peak (3 min.) is not well defined and related to the salts dissolved in the PBS. This was confirmed by comparison with PBS controls (Figure 29). The third peak at 4 minutes represents the first chemical component identified from the adhesive (single-step resin) which was TEGDMA,

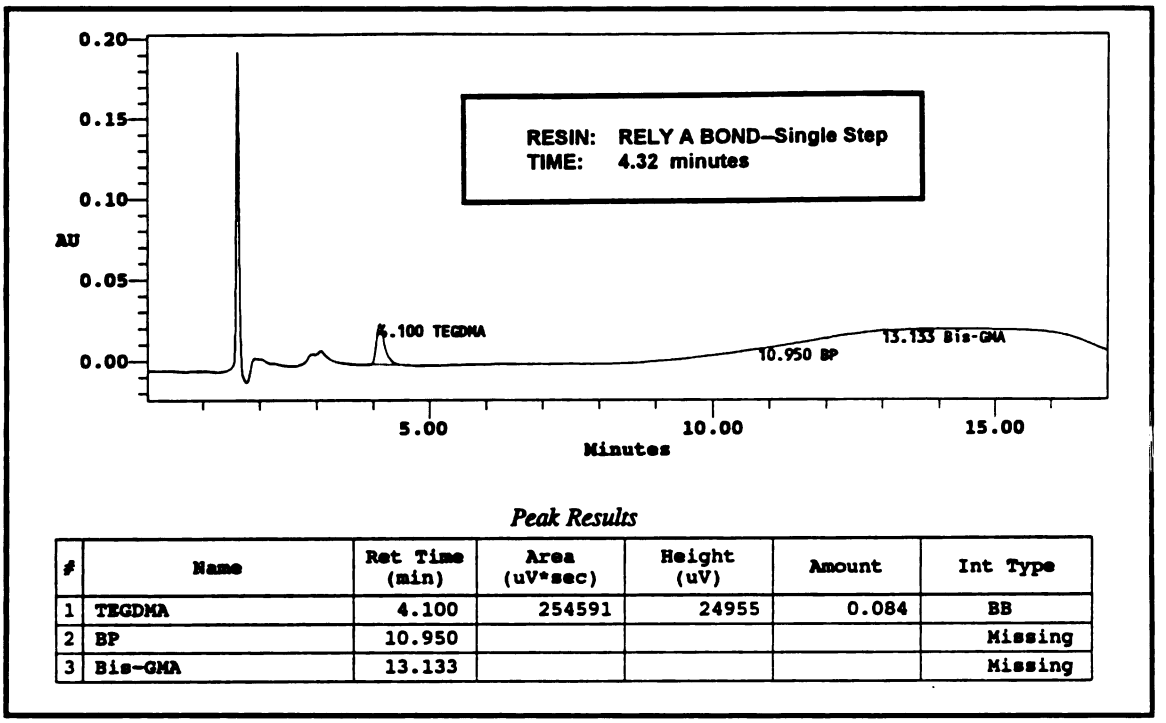
present at 0.084 ug. per 100 ul. injection. If benzoyl peroxide or Bis-GMA were released by 4.32 minutes they would appear farther down the graph with elution times of approximately 11 and 13 minutes. The second chromatogram generated is at 14.4 minutes (Figure 20). The adhesive resin has been in contact with the PBS for approximately 10 minutes (14.4-4.32 min) and at this point the amount of TEGDMA released for this particular sample has decreased but Bis-GMA has been identified at 13 minutes in very small quantities. The Bis-GMA peak is barely visible on this and subsequent graphs but the HPLC computer automatically locates these blips based on the change in slope of the peak compared to the baseline generated.

At 43.2 minutes, the third time point, TEGDMA concentrations have increased slightly from initial amounts released at 4.32 minutes while benzoyl peroxide and Bis-GMA were not detected in this sample at this time (Figure 21). The fourth time point, 144 minutes or 2.4 hours, shows TEGDMA concentrations 2.5 times greater than previous measurements. Bis-GMA is present but still in small quantities (Figure 22).

At 432 minutes, both TEGDMA and Bis-GMA again appear. TEGDMA concentrations have continued to remain at similar levels to the previous time point while Bis-GMA has increased slightly (Figure 23). For the next two time points, 1 and 3 days, this particular sample had the greatest concentration of TEGDMA in the eluates. Bis-GMA was also present but no benzoyl peroxide was detected (Figures 24 and 25). When reviewing these graphs, it is important to not only look at the general shape or height of a particular peak but also the actual numerical information under PEAK results. Under results, the computer will calculate the elution time and the actual area under an identified peak. It is the area under a specific peak that is used to determine the quantity of resin component present at the given elution time. For example, at 1 day, in this sample, 0.405 ugs. of TEGDMA in the 100 ul. injection were identified (Figure 24). Two days later, at the 3 day time point, a little over twice the amount of TEGDMA was detected from the previous 1 day time point (Figure 25).

At 10 days, TEGDMA concentrations have decreased and no benzoyl peroxide or Bis-GMA were detected. At this point, the only component to be detected in this sample and at later times was TEGDMA. There is also a small unidentified peak appearing at approximately 9 minutes that is also present at the next time point (Figure 25). By day 30, TEGDMA has continued to show a decline in concentration and an unknown peak first noticed at day 10 is again present (Figure 27). The last time point, 100 days, shows very low detectable levels of TEGDMA. For this particular sample of a single-step resin in the mold, no benzoyl peroxide was ever detected in any of the 6 replications (Figure 28).

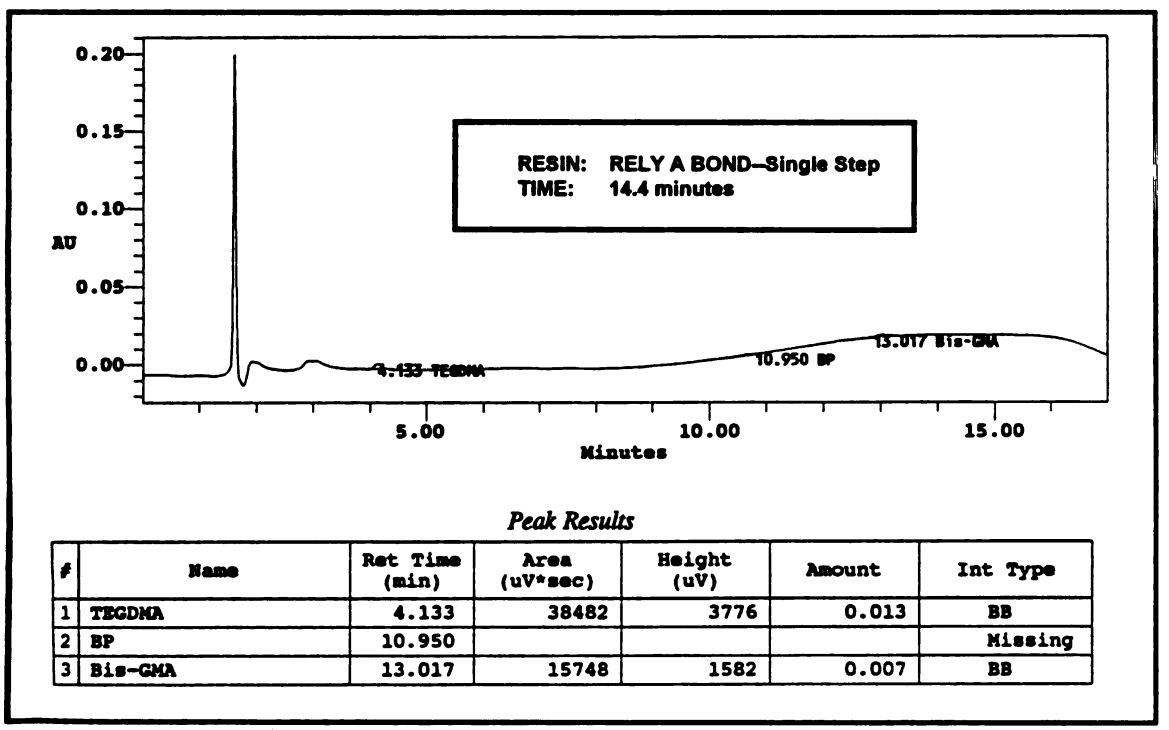
RESULTS: *PART II - Identification of Resin Components Extracted from Aqueous Solutions from Single-Step Resin: Time course through 100 days.*



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.100	254591	24955	0.084	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

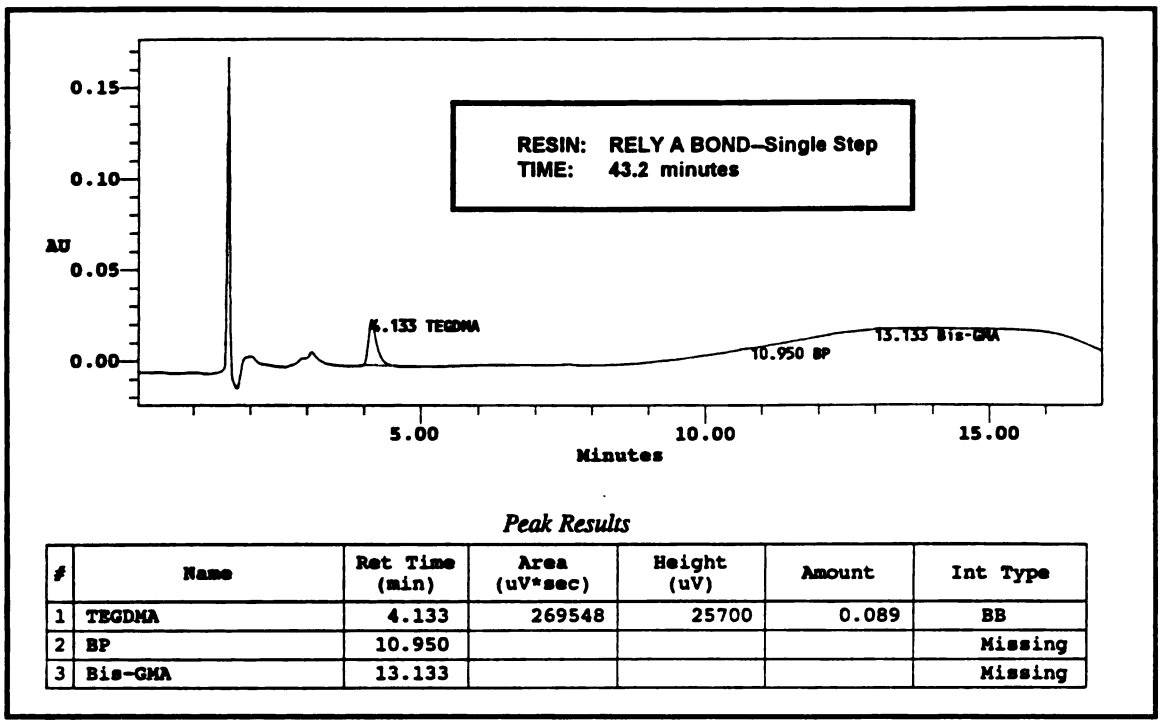
Figure 19. Component Identification at 4.32 minutes. TEGDMA identified at 4.1 minutes. Benzoyl Peroxide and Bis-GMA not identified.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	38482	3776	0.013	BB
2	BP	10.950				Missing
3	Bis-GMA	13.017	15748	1582	0.007	BB

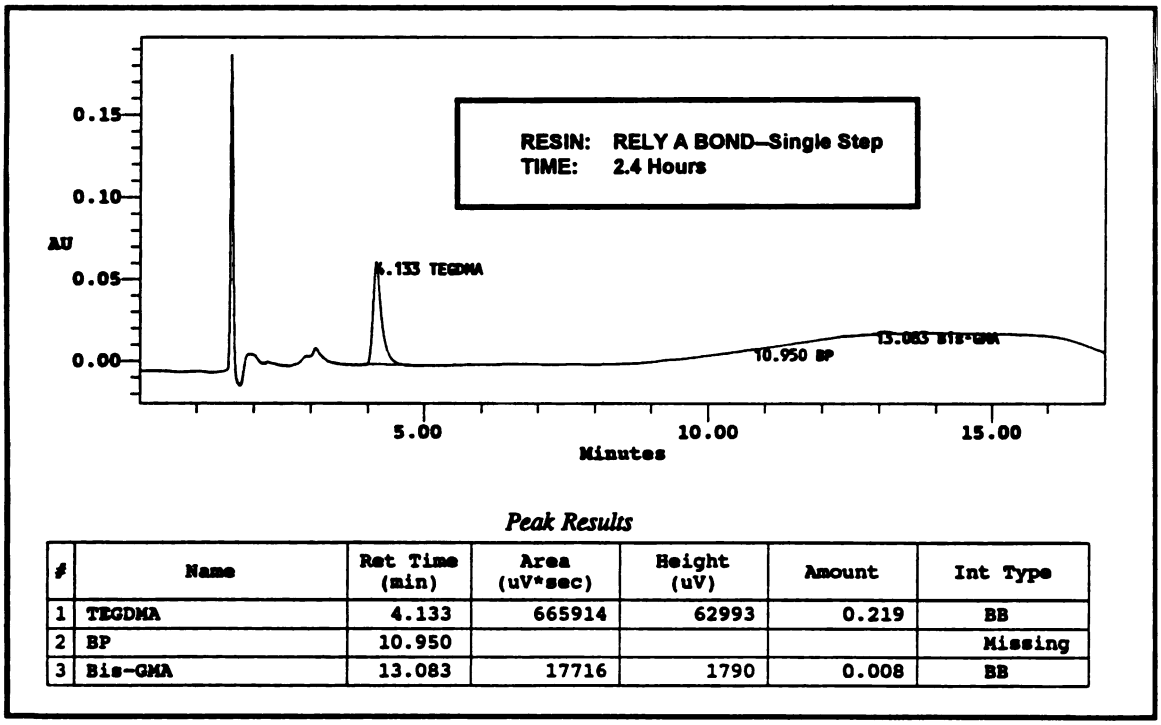
Figure 20. Component Identification of TEGDMA and Bis-GMA at 14.4 minutes.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	269548	25700	0.089	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

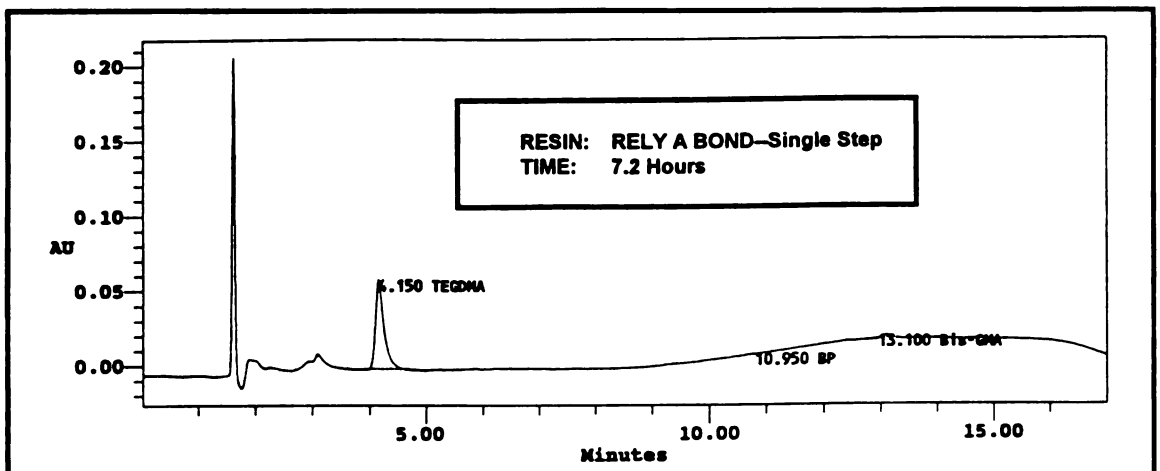
Figure 21. Component Identification at 43.2 minutes. TEGDMA present at 4.1 minutes, with no other components found at this time point.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	665914	62993	0.219	BB
2	BP	10.950				Missing
3	Bis-GMA	13.083	17716	1790	0.008	BB

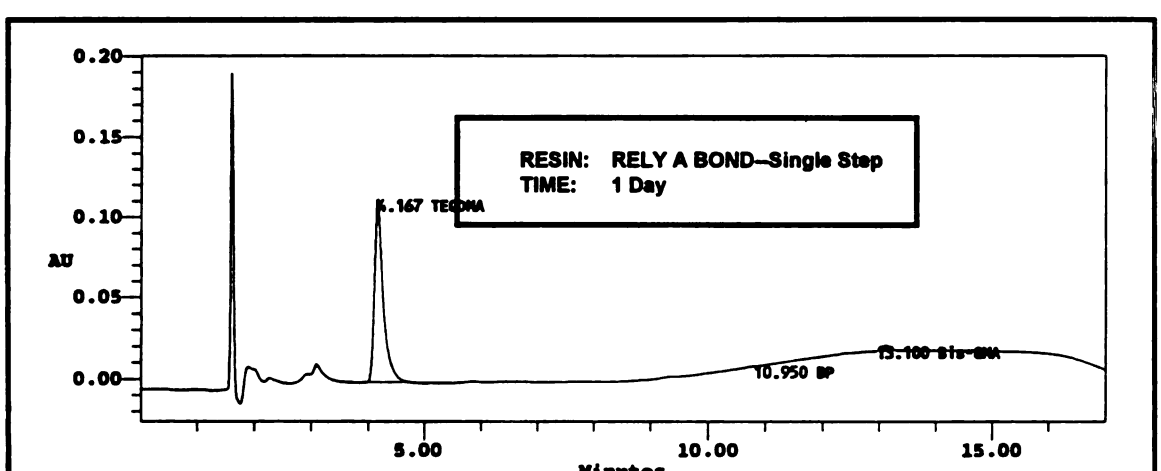
Figure 22. Component Identification at 144 minutes. 2.5 times greater concentrations of TEGDMA identified than previous time point.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	629502	60109	0.207	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	29235	2851	0.013	BB

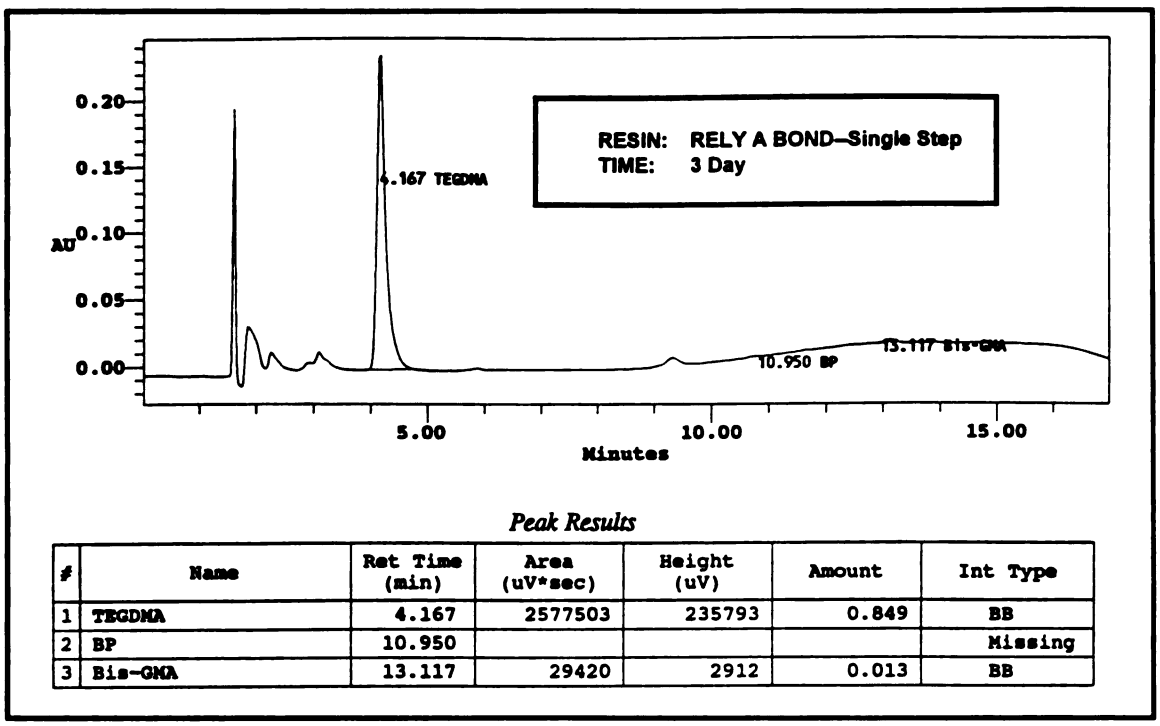
Figure 23. Component Identification at 432 minutes. TEGDMA and Bis-GMA identified.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	1229555	113571	0.405	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	36414	3533	0.016	BB

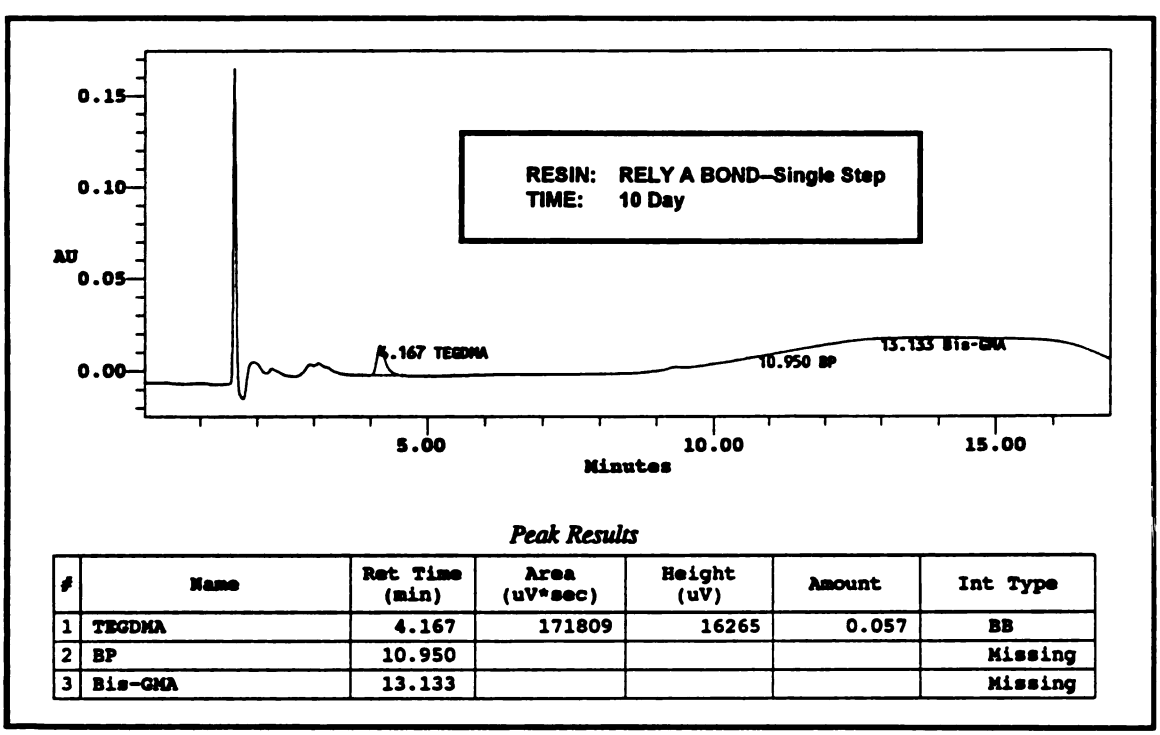
Figure 24. Component Identification at 1 day. High concentration of TEGDMA from this sample identified at 4.1 minutes. Bis-GMA present in small quantities.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2577503	235793	0.849	BB
2	BP	10.950				Missing
3	Bis-GMA	13.117	29420	2912	0.013	BB

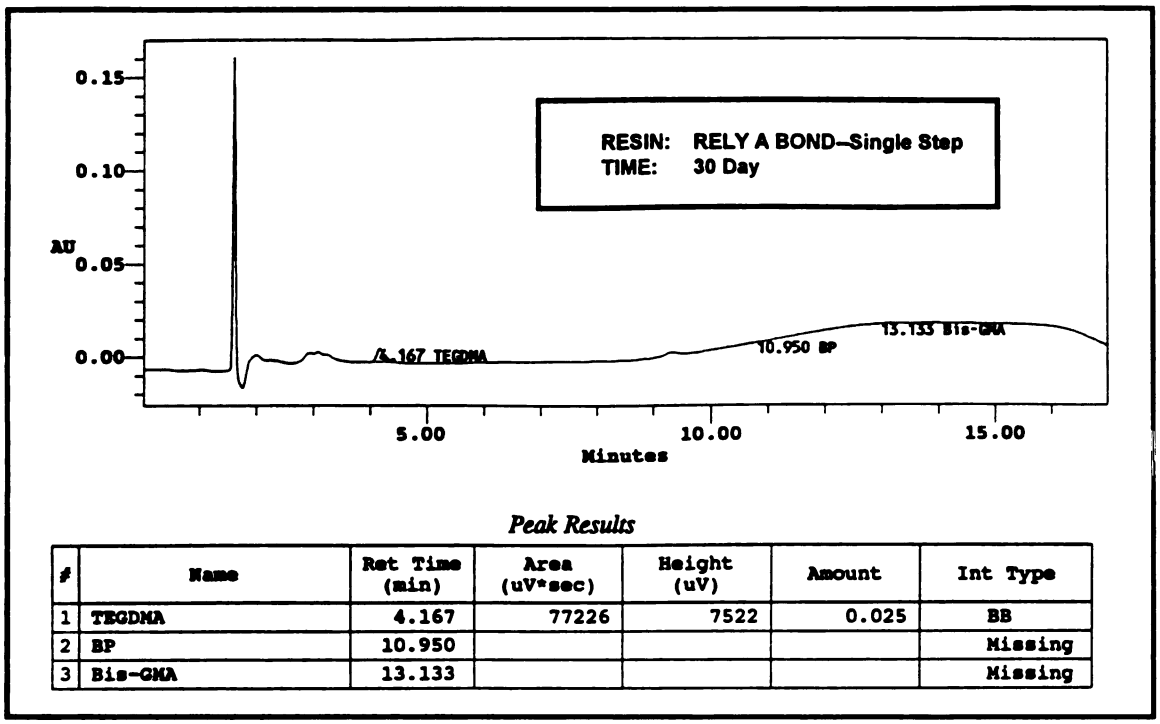
Figure 25. Component Identification at 3 days. TEGDMA concentration 2 times that of 1 day time point. Unidentified peak appearing at 9 minutes.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	171809	16265	0.057	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

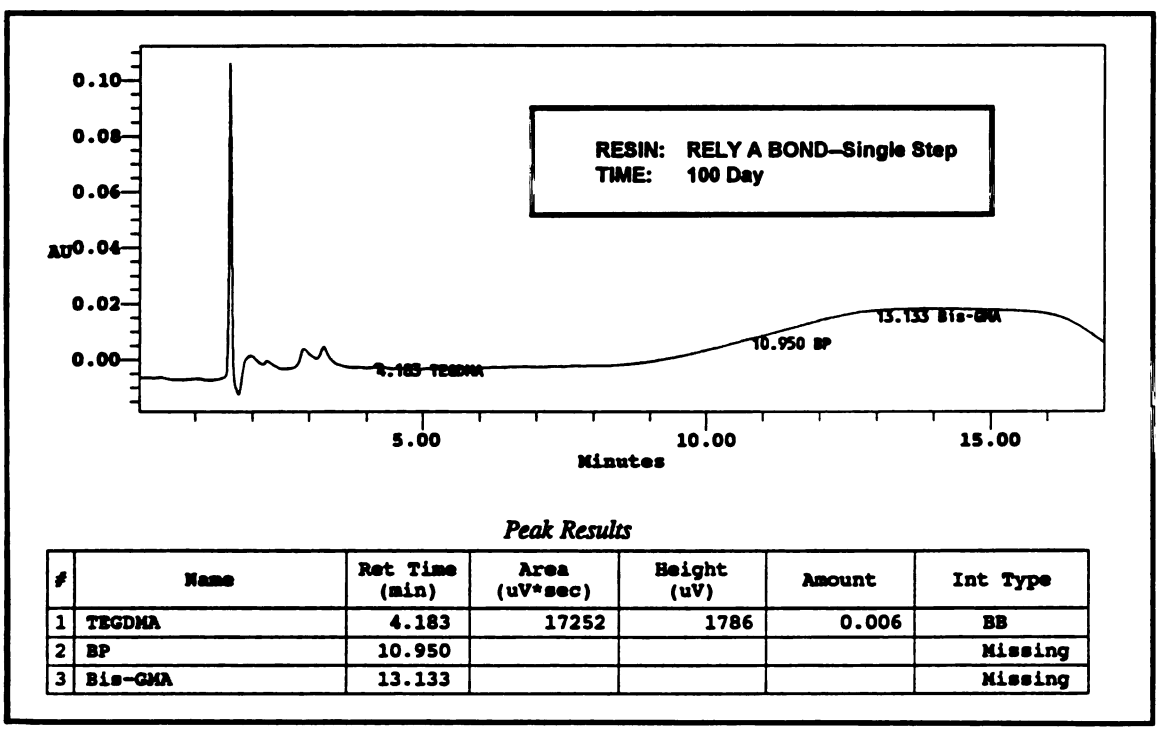
Figure 26. Component Identification at 10 days. TEGDMA levels decreasing. Bis-GMA not present. Small unidentified peak present at 9 minutes.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	77226	7522	0.025	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

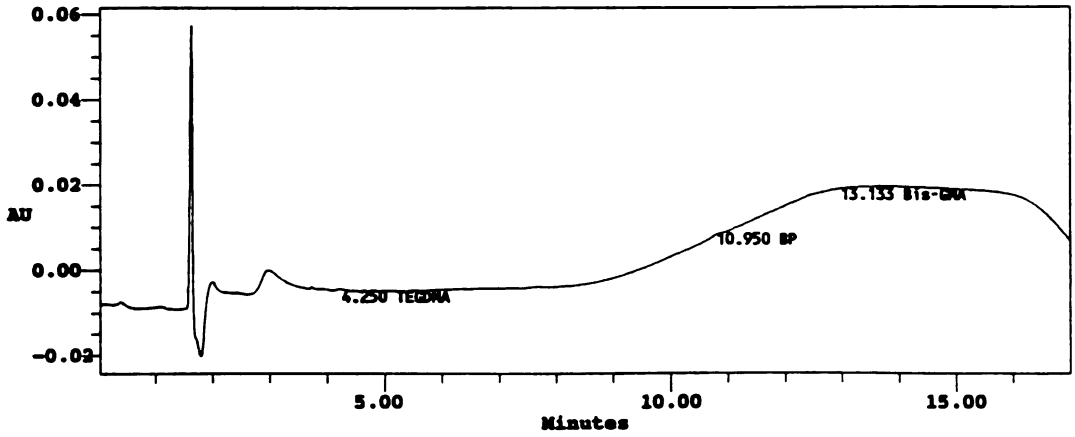
Figure 27. Component Identification at 30 days. TEGDMA levels half those at day 10. Small unidentified peak at 9 minutes present.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	17252	1786	0.006	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

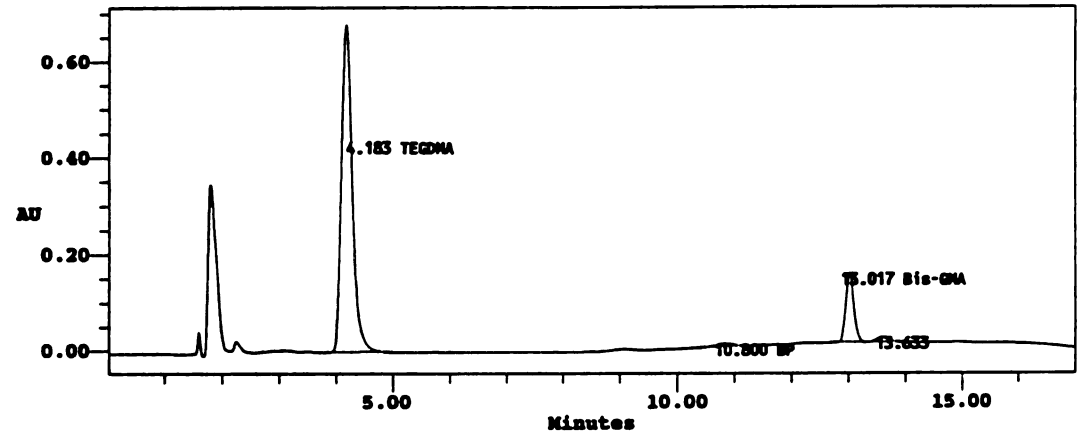
Figure 28. Component Identification at 100 days. TEGDMA concentrations very low. No other components identified.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Figure 29. Control chromatogram. Sample included PBS, stainless steel mold, wax and dental floss. Small peak at 3 minutes PBS solutes.



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	9154159	680234	3.016	BB
2	BP	10.800	159484	7188	0.055	BB
3	Bis-GMA	13.017	1457013	145814	0.646	BV

Figure 30. Spiked Sample for Component Verification. Pure components of known concentration of TEGDMA and Bis-GMA are added to eluate from specific time point. Peaks appear at same column elution time to identified peaks from resin samples and concentrations are additive.

RESULTS: *Part II - Summary of Quantitative Data from the Single-Step Resin*

Tables 15-17 describe the amounts of TEGDMA, benzoyl peroxide and Bis-GMA that were released from the single-step resin for both the tooth and mold models. It is important to note that no specific comparisons at individual time points can be made between tooth and mold data since the surface area or amount of adhesive resin exposed to the PBS was not quantified for either system. For that reason, only descriptive general characteristics of release patterns of components from the two systems will be compared. The tooth and mold data should be reviewed as two separate and independent studies with no correlations derived on release of components between the two models.

For the single-step resin, TEGDMA and Bis-GMA were eluted into the PBS in both the tooth and mold systems. Benzoyl peroxide, however, was only identified from the single-step resin with the tooth model. The release of TEGDMA from the tooth model showed high concentrations initially at 5.91 ug/ml that gradually declined to lower levels by the 100 day point to 0.35 ug/ml (Figure 31). The highest levels of TEGDMA were eluted between 14.4 minutes and 144 minutes with approximately 7 ug/ml of component released at these time points. By the end of 3 days, most of the TEGDMA had been eluted into solution and only low levels were detectable. There was a very slight increase in these concentrations, however, at day 30 which eventually lowered again by the last time point. In contrast, the release of TEGDMA from the mold model showed a different release pattern with most of the component eluting between 1 day and 10 days (Figure 32). There was a very low initial concentration of TEGDMA at 0.87 ug/ml at the first time point which gradually increased up to 10 days reaching 4.23 ug/ml. After day 10, the concentrations of TEGDMA declined and reached a final level of 0.42 ug/ml by 100 days.

Table 16 shows the cumulative amount of TEGDMA in micrograms that was released for this adhesive through 100 days. The amount of TEGDMA that collected was near its maximum by the first day in the tooth model at 34.41 ug/ml with little increase afterward. Total TEGDMA accumulation for the resin disk from the mold reached a peak at 10 days (14.34 ug/ml) with only slightly more component release by day 100 to finish at 15.94 ug/ml (Figure 33).

To demonstrate the release kinetics of TEGDMA from the tooth and mold, the log of the concentration of the component in picograms was plotted against log time in minutes. The resulting graph shows the release rate for both models to be a fairly straight line indicating that TEGDMA release declined exponentially with time for the tooth and mold models (Figure 34).

Table 15. Release of TEGDMA from Single-Step Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	5.91	7.36	7.53	7.08	4.89	1.65	0.05	0	0.64	0.35
S.D.	1.11	2.75	2.65	2.14	2.04	2.05	0.11	0	1.56	0.86
MOLD										
Mean ug.	0.87	0.31	0.57	1.34	1.31	2.15	3.56	4.23	1.19	0.42
S.D.	0.66	0.37	0.64	2.04	2.03	3.31	5.33	6.22	2.26	0.70

N=6

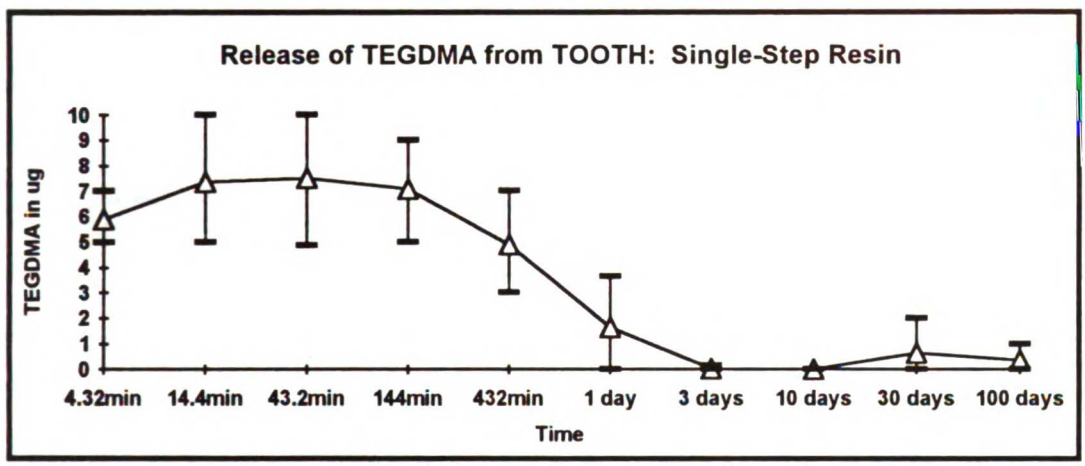


Figure 31. Quantity of TEGDMA eluted from Tooth Model into PBS solution at each time point.

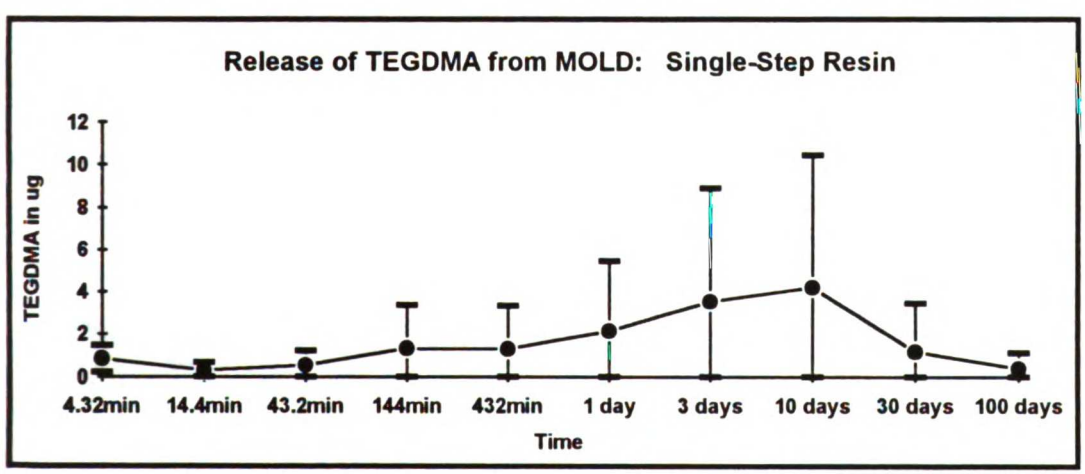


Figure 32. Quantity of TEGDMA eluted from Mold Model into PBS solution at each time point.

Table 16. Cumulative Release of TEGDMA from Single-Step Resin: Tooth and Mold data

TOOTH	4.32min	14.4 in	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	5.91	13.27	20.80	27.87	32.76	34.41	34.46	34.46	35.09	35.44
S.D.	1.11	3.57	5.96	7.42	7.62	7.36	7.41	7.41	8.27	8.19
MOLD										
Mean ug.	0.87	1.18	1.75	3.09	4.40	6.55	10.11	14.34	15.53	15.95
S.D.	0.66	0.92	1.45	3.44	5.46	8.73	13.91	19.87	21.95	22.64

N=6

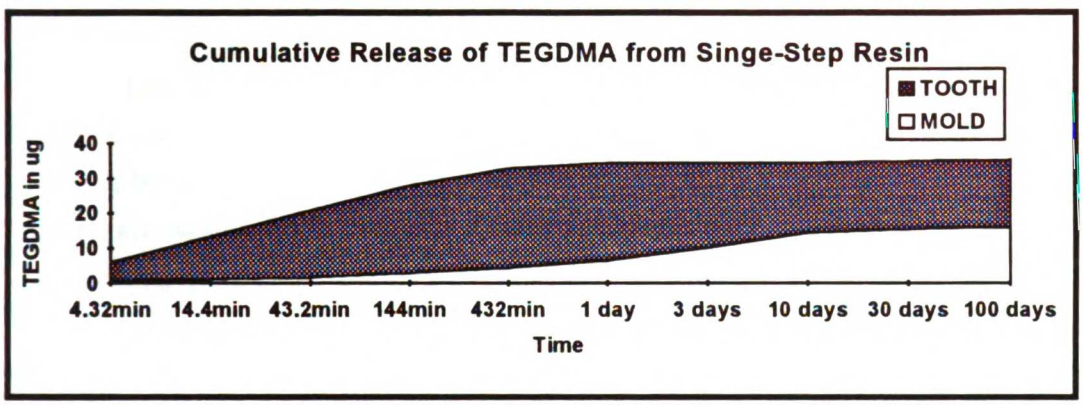


Figure 33. Total amount of TEGMA released through 100 days for Tooth and Mold Models.

Table 17. Log of Release RATE (pg./min.) of TEGDMA from Single-Step Resin

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean	6.13	5.84	5.40	4.83	4.20	2.86	1.99	0	2.12	1.32
S.D.	0.09	0.17	0.16	0.14	0.19	0.69	0	0	0	0
MOLD										
Mean	5.34	4.26	4.02	3.65	3.18	2.71	2.52	2.05	1.09	1.04
S.D.	0.20	0.46	0.55	0.69	0.69	0.83	0.99	0.98	0.82	0.27

N=6

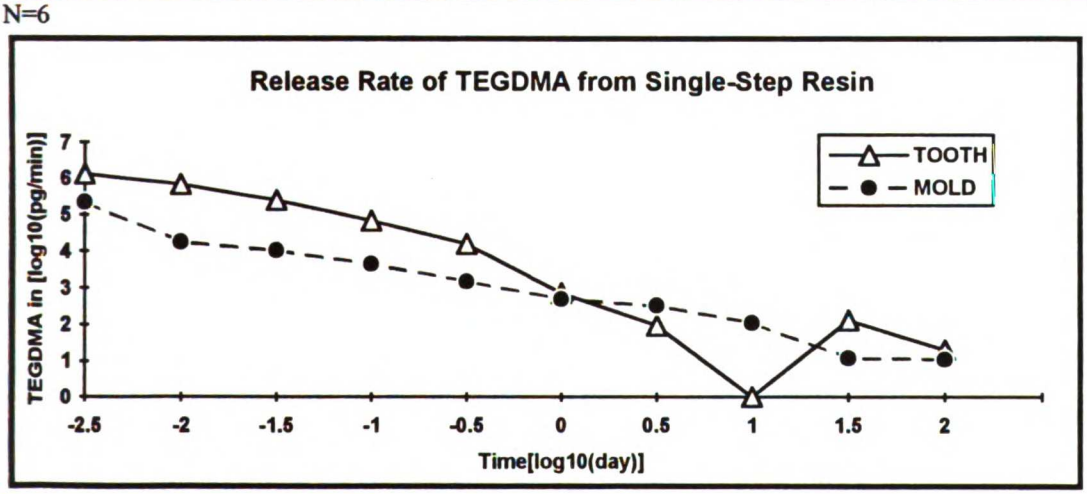


Figure 34. Release Rate of TEGDMA from Tooth and Mold Models in Log10[picograms/minute]

The second component to be identified from the single-step resin with an elution time of 10.95 minutes was benzoyl peroxide (B.P.). This component was only identified from the tooth model with no apparent release from the resin disk in the mold. The release of benzoyl peroxide from the tooth model was not detectable until 1 day, at which time a very small quantity was identified (0.03 ug) (Table 18). From 1 day, there was a gradual increase in B.P. release up to 10 days when the concentration of this component was at its highest level of 0.24 ug/ml. After 10 days the levels of this resin component decreased and were not detectable by day 100 (Figure 35).

Table 19 shows the cumulative amount of benzoyl peroxide released. The rate of release of benzoyl peroxide from the single-step resin shows zero B.P. release up to 1 day. The rate afterwards demonstrates a straight line which may indicate exponential release for this particular component eluting from this model in PBS (Figure 38).

The third component to be eluted and identified in solution from the single-step resin was Bis-GMA. It had a column elution time of 13.1 minutes and was released from the tooth and mold model (Table 21). The initial release of Bis-GMA from the tooth model was relatively low (0.02 ug/ml) through the fourth time point of 144 minutes (Figure 39). At this time the concentration of this resin component began to increase and reached a maximum level at 1 day with 0.35 ug/ml detected. After 1 day the concentration of Bis-GMA dropped precipitously with no amount detected from 3 days through 100 days.

The release of Bis-GMA from the mold model was somewhat similar to the tooth system in that there were low amounts detected at the beginning which gradually increased by the fourth time point reaching a high level at 432 minutes of 0.17 ug/ml. Both the tooth and mold model had the greatest amount of Bis-GMA release between 144 minutes and 1 day. After 432 minutes the concentration of this component released from the resin disk diminished slowly through 100 days to finish at 0.02 ug/ml. The gradual release of Bis-GMA was more constant after its highest concentration level compared to the tooth model which dropped to zero immediately after 1 day.

The cumulative amount of Bis-GMA that was released from the tooth and resin disk is summarized in Table 22. Both models demonstrate that the majority of component release can be accounted for by the earlier time points up to the first day. After day 1, there is very little change in total amount of resin component from the tooth model and only a slight increase for the resin disk.

The log plot in Figure 42 shows different release kinetics for the Bis-GMA from the tooth and resin disk mold model. The release rate of Bis-GMA from the mold does not show any consistent pattern due to no component being identified at the initial time point of 4.32 minutes and 43.2 minutes.

Table 18. Release of Benzoyl Peroxide from Single-Step Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	0	0	0	0	0	0.03	0.11	0.24	0.08	0
S.D.	0	0	0	0	0	0.03	0.03	0.09	0.07	0
MOLD										
Mean ug.	0	0	0	0	0	0	0	0	0	0
S.D.	0	0	0	0	0	0	0	0	0	0

N=6

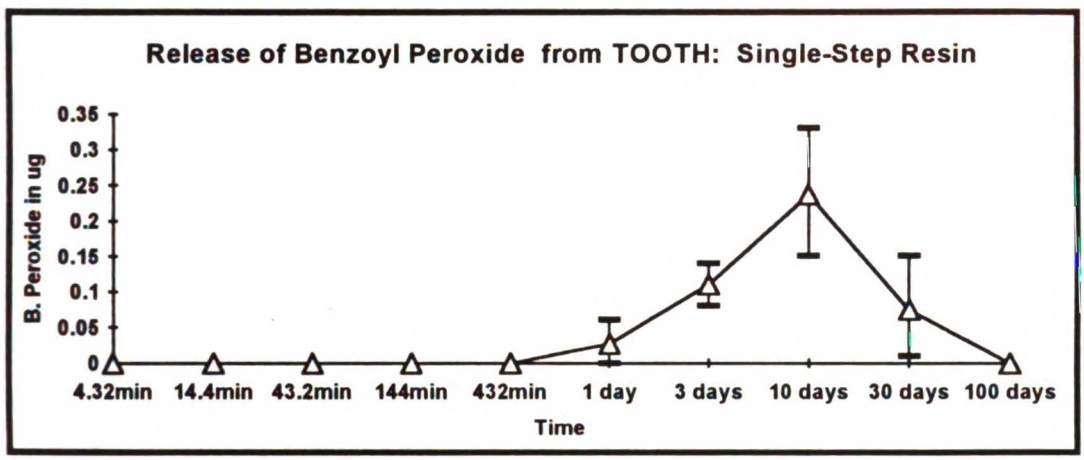


Figure 35. Quantity of B. Peroxide eluted from Tooth Model into PBS solution at each time point.

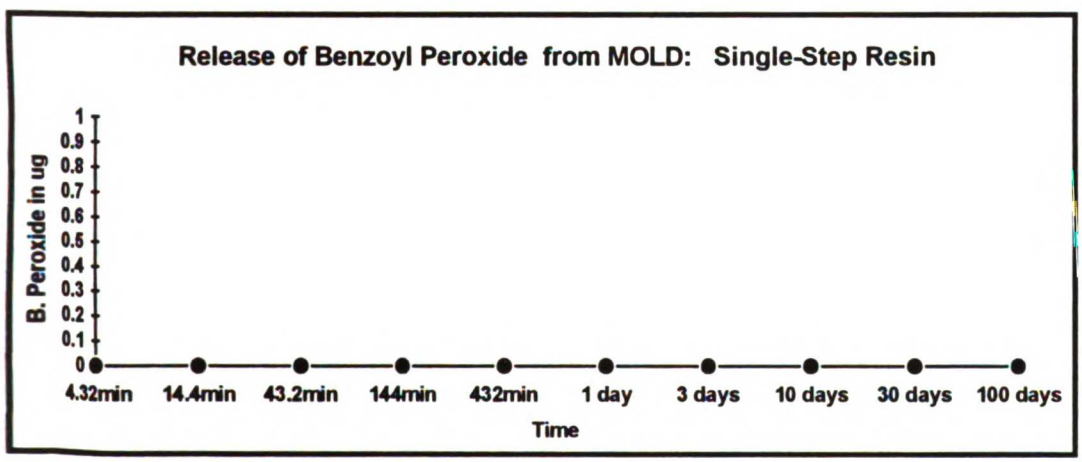


Figure 36. Quantity of B. Peroxide eluted from Mold Model into PBS solution at each time point.

Table 19. Cumulative Release of Benzoyl Peroxide from Single-Step Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	0	0	0	0	0	0.03	0.14	0.37	0.45	0.45
S.D.	0	0	0	0	0	0.03	0.055	0.12	0.15	0.15
MOLD										
Mean ug.	0	0	0	0	0	0	0	0	0	0
S.D.	0	0	0	0	0	0	0	0	0	0

N=6

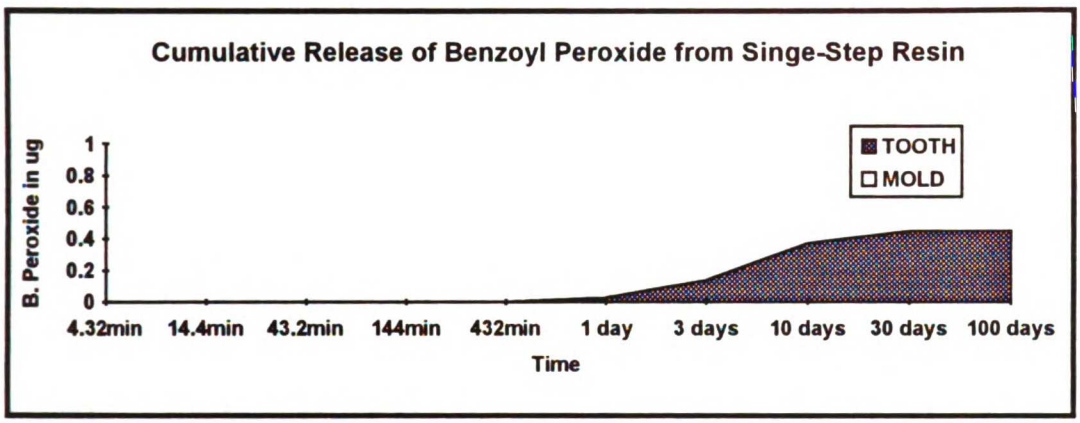


Figure 37. Total amount of Benzoyl Peroxide released through 100 days for Tooth and Mold Models.

Table 20. Log of Release RATE (pg./min.) of Benzoyl Peroxide from Single-Step Resin

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean	0	0	0	0	0	1.716	1.56	1.35	0.55	0
S.D.	0	0	0	0	0	0.10	0.16	0.14	0.21	0
MOLD										
Mean	0	0	0	0	0	0	0	0	0	0
S.D.	0	0	0	0	0	0	0	0	0	0

N=6

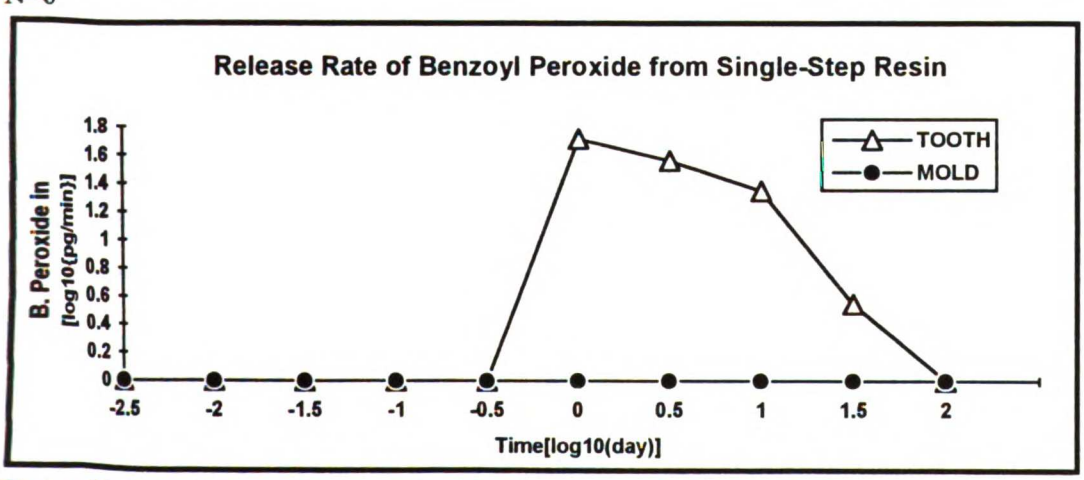


Figure 38. Release Rate of Benzoyl Peroxide from Tooth and Mold Models in Log10[picograms/minute]

Table 21. Release of Bis-GMA from Single-Step Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	0.02	0.14	0.07	0.15	0.31	0.35	0	0	0	0
S.D.	0.05	0.35	0.06	0.06	0.12	0.58	0	0	0	0
MOLD										
Mean ug.	0	0.04	0	0.07	0.17	0.08	0.04	0.04	0	0.02
S.D.	0	0.05	0	0.04	0.04	0.07	0.06	0.06	0	0.04

N=6

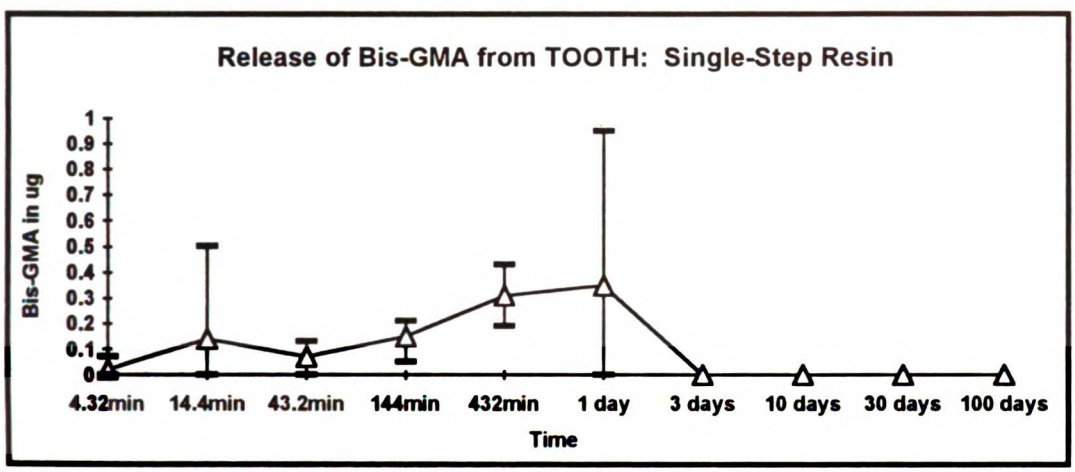


Figure 39. Quantity of Bis-GMA eluted from Tooth Model into PBS solution at each time point.

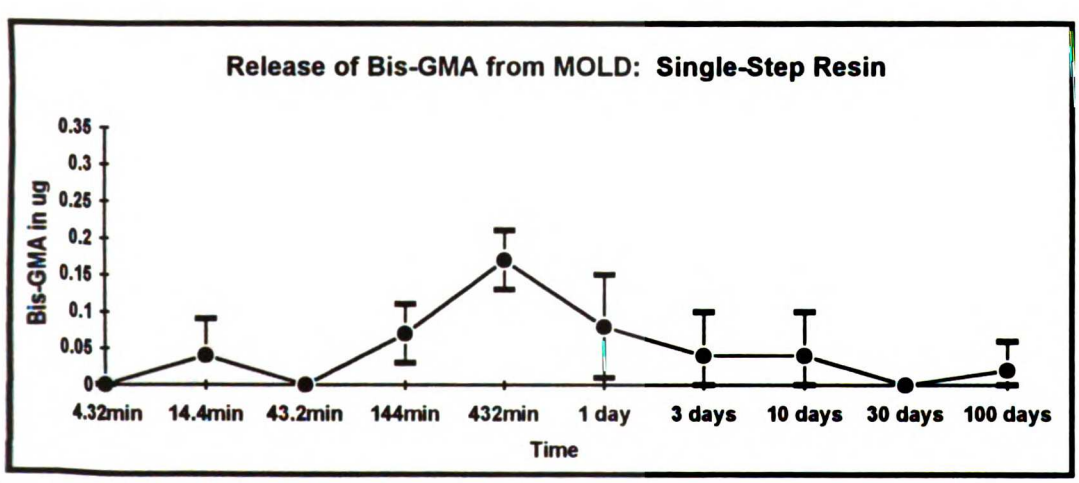


Figure 40. Quantity of Bis-GMA eluted from Mold Model into PBS solution at each time point.

Table 22. Cumulative Release of Bis-GMA from Single-Step Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	0.02	0.16	0.23	0.38	0.69	1.04	1.04	1.04	1.04	1.04
S.D.	0.05	0.40	0.43	0.48	0.57	1.09	1.09	1.09	1.09	1.09
MOLD										
Mean ug.	0	0.04	0.04	0.11	0.28	0.36	0.40	0.43	0.43	0.45
S.D.	0	0.05	0.05	0.04	0.04	0.08	0.12	0.17	0.17	0.18

N=6

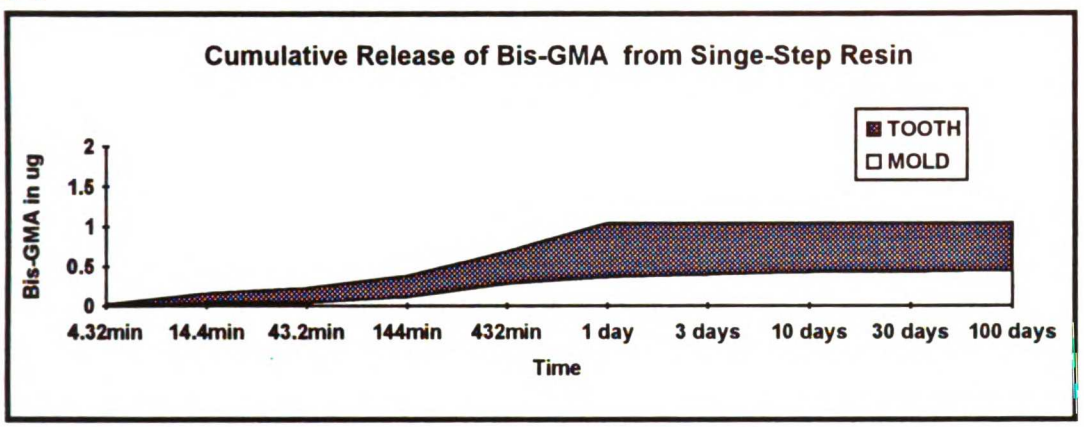


Figure 41. Total amount of Bis-GMA released through 100 days for Tooth and Mold Models.

Table 23. Log of Release RATE (pg./min.) of Bis--GMA from Single-Step Resin

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean	4.41	4.93	3.55	3.15	2.99	2.99	0	0	0	0
S.D.	0	0	0.13	0.193	0.183	0	0	0	0	0
MOLD										
Mean	0	3.91	0	2.92	2.76	2.04	1.57	1.08	0	1.09
S.D.	0	0.08	0	0.09	0.088	0.13	0.11	0	0	0

N=6

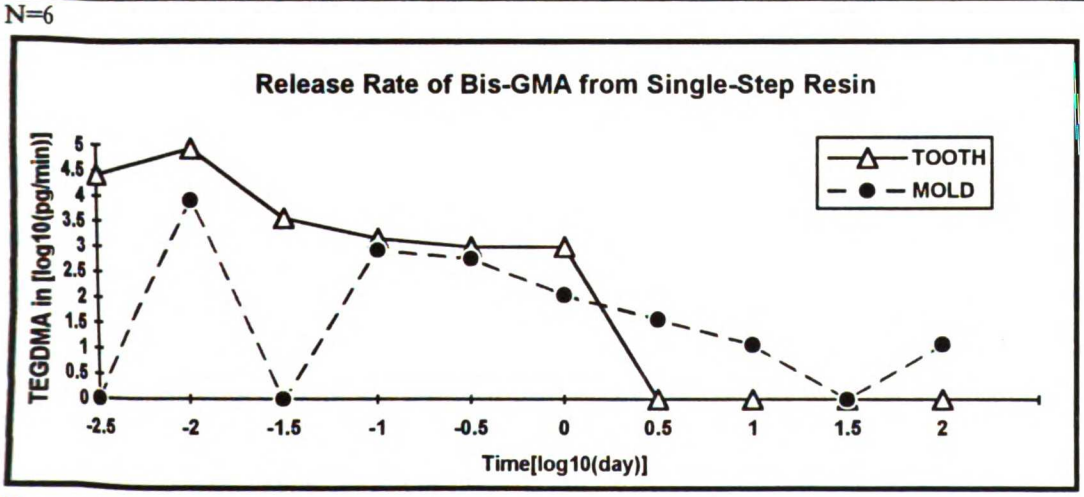


Figure 42. Release Rate of TEGDMA from Tooth and Mold Models in Log10[picograms/minute]

RESULTS: *Part II - Summary of Quantitative Data from the Two-Paste Resin*

Tables 24-32 summarize the HPLC quantitative results of the eluates from the two-paste resin. TEGDMA, benzoyl peroxide and Bis-GMA were released from this adhesive resin for both the tooth and mold models. The release of TEGDMA from the tooth model showed that concentrations ranged from 0 ug/ml to 12.91 ug/ml. Initially, high concentrations were detected at 4.32 minutes that eventually tapered off to lower levels by the 100 day point until no component could be detected (Figure 43). The greatest amount of TEGDMA was eluted between 4.32 minutes and 144 minutes with a highest concentration (12.91 ug/ml) at the initial time point. By the end of 1 day, most of the TEGDMA had been eluted into solution and only very low levels were detectable through 100 days.

The release of TEGDMA from the mold model showed a similar release pattern with most of the component eluting between 4.32 minutes and 432 minutes (Figure 44). There was a very high initial concentration of TEGDMA (4.40 ug/ml) at the first time point which decreased immediately by 14.4 minutes to 1.4 ug/ml. At 14.4 minutes the levels of this component remained fairly constant until the 1 day point when concentrations of TEGDMA dropped to very low levels ranging from 0.09 to 0 ug/ml.

Table 25 shows the cumulative amount of TEGDMA in micrograms that was released for the two-paste resin through 100 days for both the tooth and mold models. The amount of TEGDMA collected was near its maximum by 432 minutes for both the tooth and resin disk model with little increase afterward. Total TEGDMA accumulation for the tooth reached 38.38 ug/ml at the end of 100 days while total release for the resin disk was 9.61 ug/ml (Figure 45). Both models showed that a majority of TEGDMA was released early by day 1.

To demonstrate the release kinetics of TEGDMA from the tooth and mold the log of the concentration of the component in picograms was plotted against log time in minutes (Figure 46). The resulting graph shows the release rate for both models to be a fairly straight line.

Table 24. Release of TEGDMA from Two Paste Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	12.91	8.53	8.46	6.11	1.57	0.48	0.29	0.03	0.01	0
S.D.	2.57	2.76	2.65	1.18	0.48	0.45	0.31	0.05	0.02	0
MOLD										
Mean ug.	4.40	1.40	1.50	1.31	0.62	0.24	0.09	0.04	0	0
S.D.	1.88	1.00	1.57	1.35	0.57	0.19	0.11	0.04	0	0

N=6

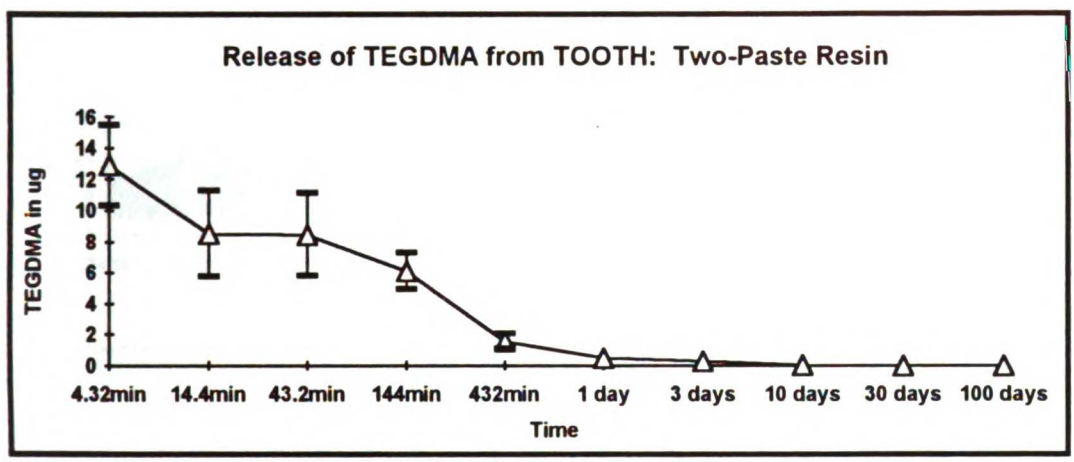


Figure 43. Quantity of TEGDMA eluted from Tooth Model into PBS solution at each time point.

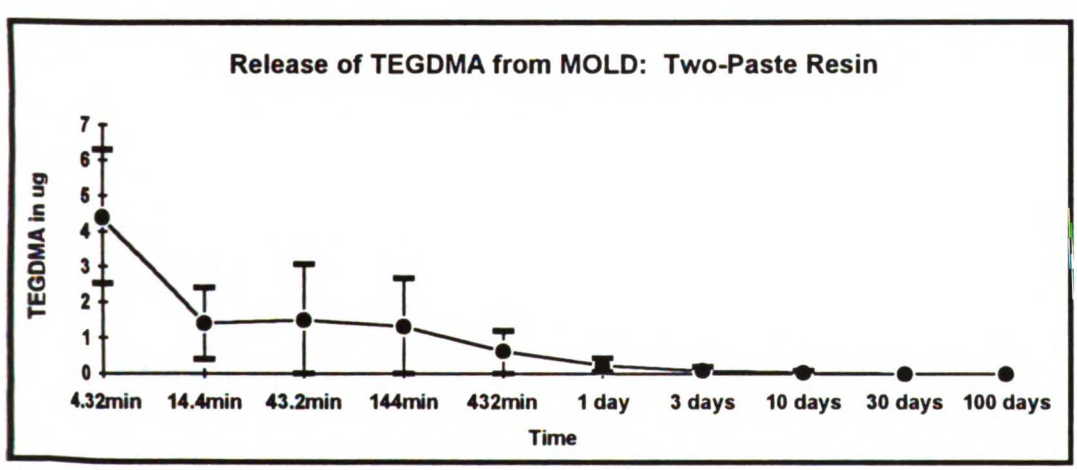


Figure 44. Quantity of TEGDMA eluted from Mold Model into PBS solution at each time point.

Table 25. Cumulative Release of TEGDMA from Two-Paste Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	12.91	21.44	29.89	36.00	37.58	38.06	38.34	38.37	38.38	38.38
S.D.	2.57	5.07	7.47	8.63	8.50	8.37	8.29	8.31	8.34	8.34
MOLD										
Mean ug.	4.40	5.80	7.30	8.61	9.23	9.47	9.57	9.61	9.61	9.61
S.D.	1.88	2.83	3.91	5.02	5.56	5.69	5.77	5.79	5.79	5.79

N=6

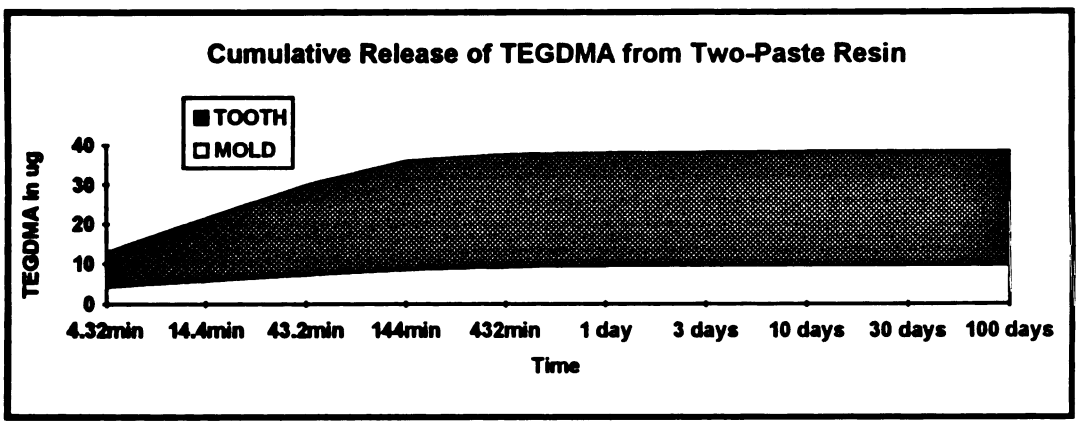


Figure 45. Total amount of TEGMA released through 100 days for Tooth and Mold Models.

Table 26. Log of Release RATE (pg./min.) of TEGDMA from Two-Paste Resin

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean	6.47	5.91	5.45	4.78	3.72	2.58	1.84	0.94	0.32	0
S.D.	0.09	0.15	0.14	0.09	0.11	0.28	0.37	0.14	0	0
MOLD										
Mean	5.97	5.04	4.54	3.98	3.22	2.28	1.49	0.78	0	0
S.D.	0.21	0.35	0.42	0.34	0.33	0.28	0.31	0.12	0	0

N=6

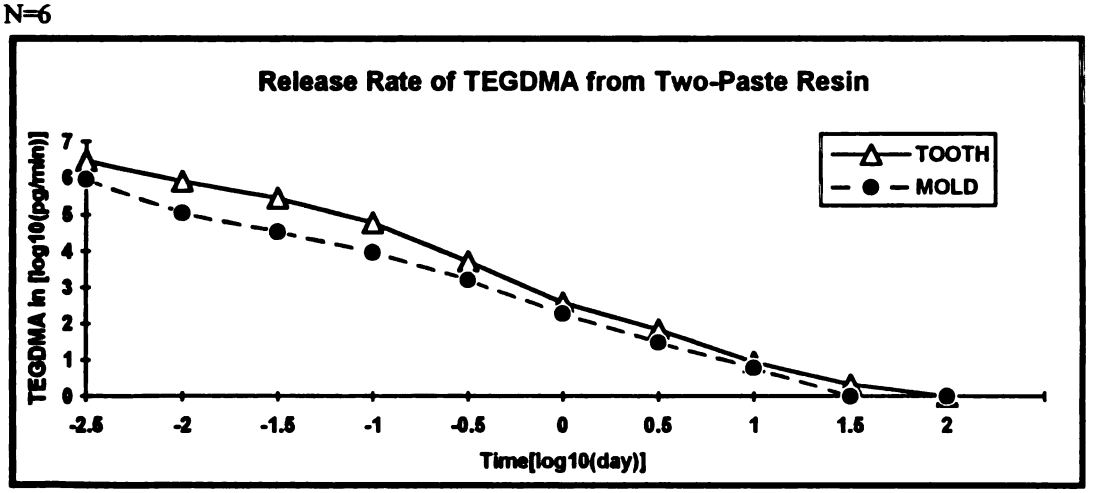


Figure 46. Release Rate of TEGDMA from Tooth and Mold Models in Log10[picograms/minute]

The second component to be identified from the two-paste resin based on an elution time of 10.95 minutes was benzoyl peroxide. This component was identified from the tooth and resin disk model and showed very similar release patterns from both adhesive systems (Figure 47-48). The release of benzoyl peroxide from the tooth model was not detectable until 432 minutes, at which time a very small quantity was identified (0.03 ug) (Table 27). From this time point, there was a gradual increase in B.P. release up to 10 days when the concentration of this component was at its highest level of 0.26 ug/ml. After 10 days the levels of this resin component decreased markedly and were not detectable by day 100 (Figure 47). The benzoyl peroxide release from the resin disk in the mold was first detected at 1 day in very small quantities which also increased to a maximum at 10 days reaching a concentration of 0.06 ug/ml before dropping to zero by day 100. The release pattern for B.P. was very similar between the mold and tooth model for the two-paste resin although the concentration of material released at the 10 day mark was very different.

Table 28 shows the cumulative amount of benzoyl peroxide that was eluted from the two-paste resin through 100 days for the tooth and mold model. B.P. levels reached a fairly constant level by day 10 for both adhesive systems. The final concentration for the tooth model by day 100 was 0.40 ug/ml and 0.15 ug/ml for the resin disk.

The rate of release of benzoyl peroxide from the two-paste resin shows zero B.P. release up to 432 minutes for the tooth model and 1 day for the resin disk mold model. The rate afterwards demonstrates a straight line for this particular component eluting from this model in PBS (Figure 50).

The third component to be eluted and identified in solution from the two-paste resin was Bis-GMA. It had a column elution time of 13.1 minutes and was released from the tooth and mold model (Table 30). The initial release of Bis-GMA from the tooth model was relatively high at 4.32 minutes, gradually decreased through 144 minutes, and began to rise again up through 3 days. At this point component concentrations were 1.87 ug/ml and very close to the initial high level of 2.09 ug/ml at 4.32 minutes. After 3 days the level of Bis-GMA began to drop and by day 100 there were no detectable amounts of this resin component remaining in the eluates (Figure 51). The initial release of Bis-GMA from the mold model was low at 4.32 minutes (0.04 ug/ml) and gradually increased with time to a maximum level at 1 day when the concentration was 0.33 ug/ml. After 1 day this level began to decrease and there was no Bis-GMA detected by day 10. The tooth model had the greatest amount of Bis-GMA release at 4.32 minutes and between 432 minutes and 3 days. The resin disk in the mold model, however, eluted more resin component only between 144 minutes and 1 day (Figure 52).

The cumulative amount of Bis-GMA that was released from the tooth and resin disk is summarized in Table 31. By 10 days the tooth model had released a majority of this component with levels reaching 9.67 ug/ml at the final time point. The release of Bis-GMA from the mold was completed by 3 days with concentrations only reaching 0.76 ug/ml by 100 days. Both models demonstrate that the majority of component release can be accounted for by the earlier time points up to the third day. After day 3, there is no change in total amount of resin component from the mold model and only a slight increase for the tooth model.

The log plot in Figure 54 shows different release kinetics for the Bis-GMA from the tooth and resin disk mold model. The release rate of Bis-GMA from the mold does not show any consistent pattern due to no component being identified at 14.4 minutes. For the tooth model, there is a straight line relationship from the beginning through 100 days.

Table 27. Release of Benzoyl Peroxide from Two-Paste Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	0	0	0	0	0.03	0.04	0.04	0.26	0.03	0
S.D.	0	0	0	0	0.02	0.01	0.01	0.12	0.05	0
MOLD										
Mean ug.	0	0	0	0	0	0.02	0.05	0.06	0.03	0
S.D.	0	0	0	0	0	0.02	0.03	0.04	0.05	0

N=6

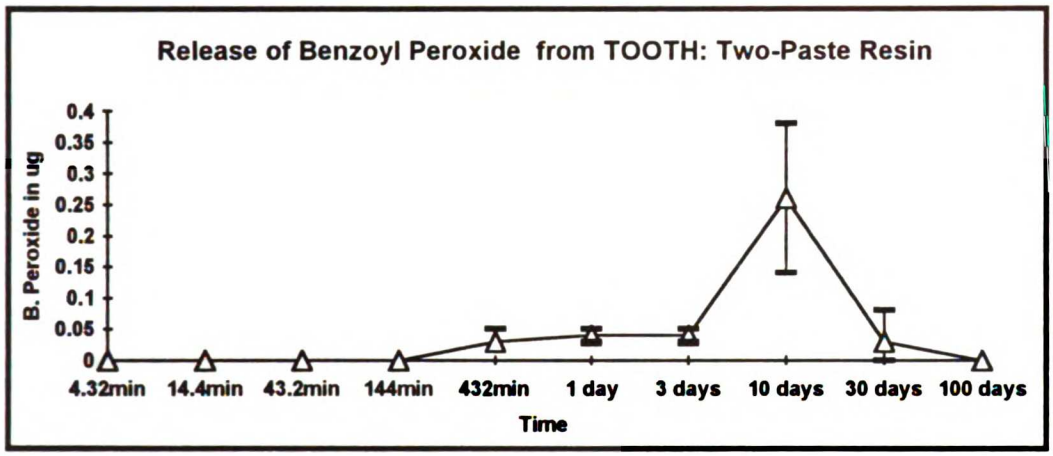


Figure 47. Quantity of Benzoyl Peroxide eluted from Tooth Model into PBS solution.

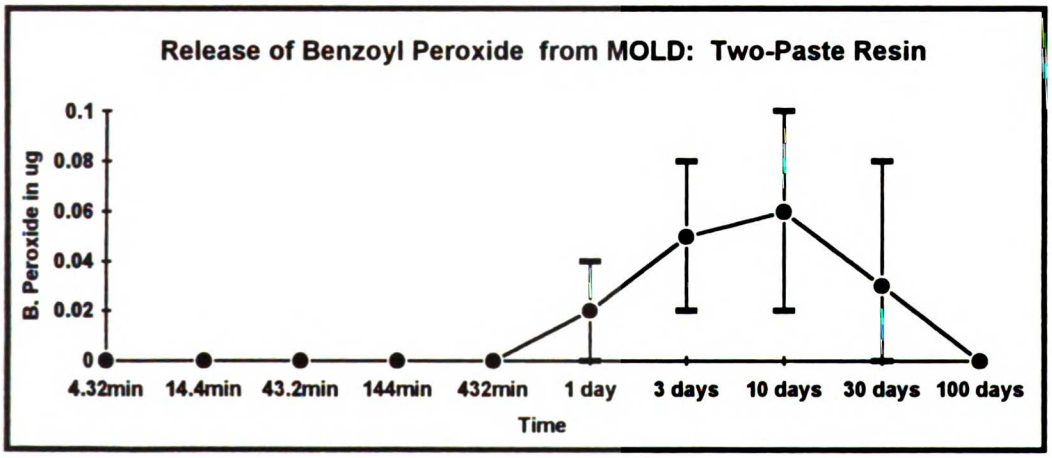


Figure 48. Quantity of Benzoyl Peroxide eluted from Mold Model into PBS solution.

Table 28. Cumulative Release of Benzoyl Peroxide from Two-Paste Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	0	0	0	0	0.03	0.07	0.11	0.37	0.40	0.40
S.D.	0	0	0	0	0.02	0.03	0.04	0.12	0.09	0.09
MOLD										
Mean ug.	0	0	0	0	0	0.02	0.07	0.13	0.15	0.15
S.D.	0	0	0	0	0	0.02	0.05	0.09	0.12	0.12

N=6

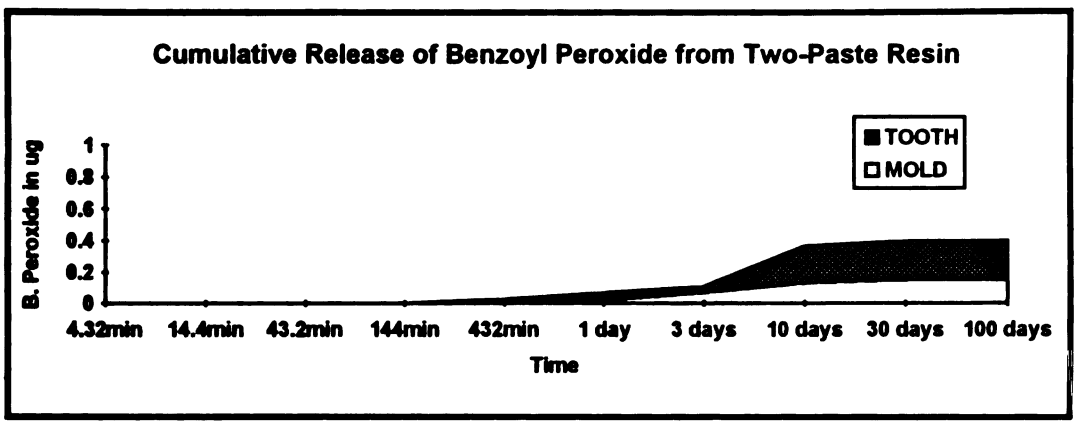


Figure 49. Total amount of Benzoyl Peroxide released through 100 days for Tooth and Mold Models.

Table 29. Log of Release RATE (pg./min.) of Benzoyl Peroxide from Two-Paste Resin

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean	0	0	0	0	2.11	1.62	1.12	1.34	0.52	0
S.D.	0	0	0	0	0.06	0.14	0.09	0.34	0.03	0
MOLD										
Mean.	0	0	0	0	0	1.59	1.33	0.78	0.32	0
S.D.	0	0	0	0	0	0.11	0.09	0.21	0.43	0.70

N=6

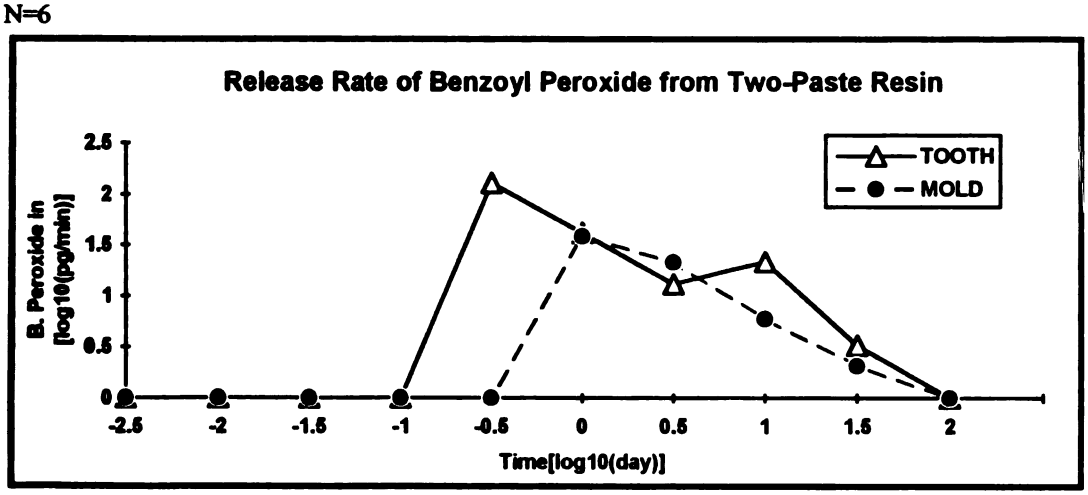


Figure 50. Release Rate of Benzoyl Peroxide from Tooth and Mold Models in Log10[picograms/minute]

Table 30. Release of Bis-GMA from Two-Paste Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	2.09	1.08	0.70	0.64	0.95	1.56	1.87	0.41	0.36	0
S.D.	0.96	0.72	0.48	0.29	0.34	0.22	0.24	0.99	0.89	0
MOLD										
Mean ug.	0.04	0	0.03	0.05	0.24	0.33	0.07	0	0	0
S.D.	0.06	0	0.05	0.09	0.11	0.10	0.08	0	0	0

N=6

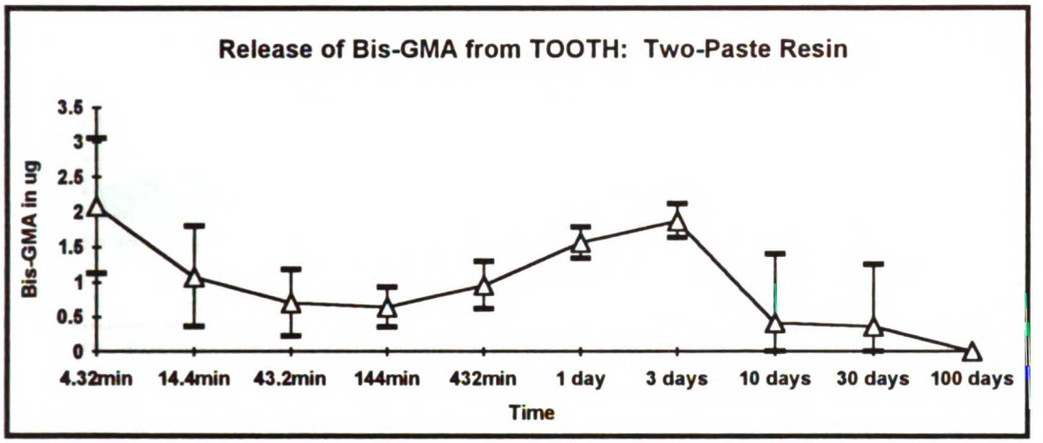


Figure 51.. Quantity of Bis-GMA eluted from Tooth Model into PBS solution at each time point.

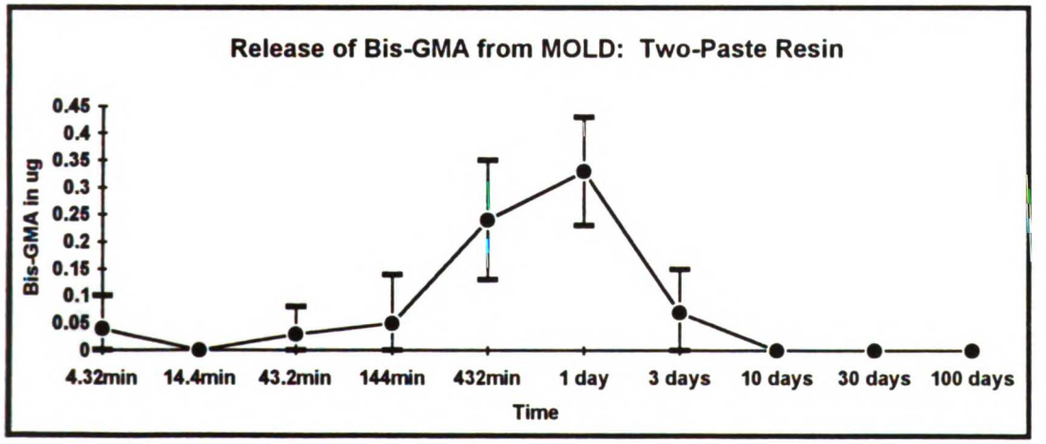


Figure 52. Quantity of Bis-GMA eluted from Mold Model into PBS solution at each time point.

Table 31. Cumulative Release of Bis-GMA from Two-Paste Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	2.09	3.17	3.88	4.52	5.47	7.03	8.90	9.31	9.67	9.67
S.D.	0.96	1.60	2.06	2.28	2.49	2.63	2.68	3.34	4.05	4.05
MOLD										
Mean ug.	0.04	0.04	0.07	0.12	0.37	0.69	0.76	0.76	0.76	0.76
S.D.	0.06	0.06	0.11	0.17	0.24	0.30	0.35	0.35	0.35	0.35

N=6

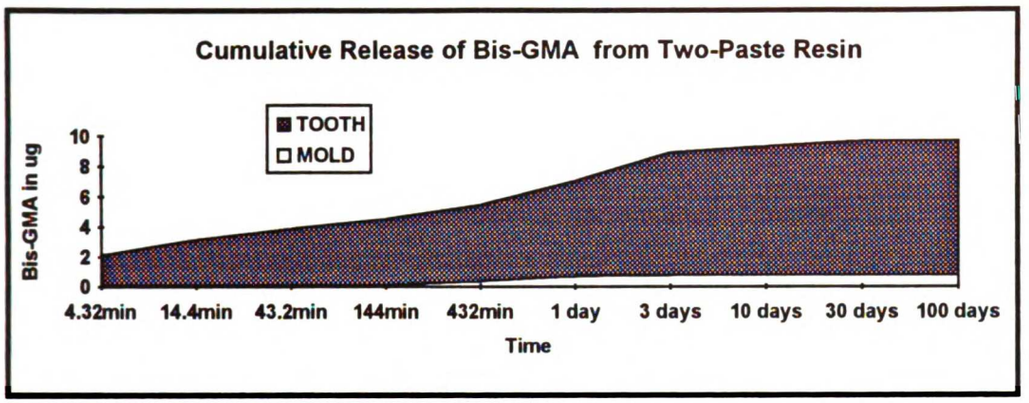


Figure 53. Total amount of Bis-GMA released through 100 days for Tooth and Mold Models.

Table 32. Log of Release RATE (pg./min.) of Bis-GMA from Two-Paste Resin

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean	5.63	4.94	4.29	3.76	3.49	3.19	2.81	2.38	1.88	0
S.D.	0.25	0.32	0.35	0.22	0.20	0.07	0.06	0	0	0
MOLD										
Mean	4.44	0	3.50	3.13	2.89	2.49	1.66	0	0	0
S.D.	0.05	0	0.17	0.32	0.20	0.13	0.19	0	0	0

N=6

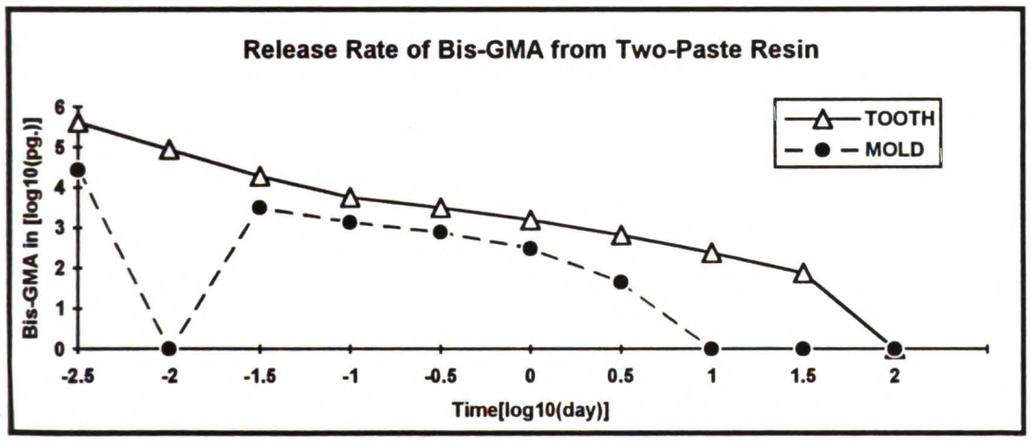


Figure 54. Release Rate of Bis-GMA from Tooth and Mold Models in Log10[picograms/minute]

RESULTS: *Part II - Summary of Quantitative Data from the Light-Cure Resin*

For the light-cure resin, TEGDMA and Bis-GMA were eluted into the PBS in both the tooth and mold systems. Benzoyl peroxide, however, was not identified from this resin with the tooth or resin disk model. The release of TEGDMA from the tooth model showed high concentrations initially of 11.86 ug/ml that tapered off to lower levels by the 432 minutes (Figure 55). After 432 minutes, however, the concentrations of TEGDMA began to rise reaching a peak at 10 days of 5.71 ug/ml. At 10 days the level of TEGDMA decreased but was still detectable at 100 days at 0.72 ug/ml. The highest levels of TEGDMA were eluted initially at 4.32 minutes and between 1 day and 30 days.

In contrast, the release of TEGDMA from the mold model showed a different release pattern with most of the component eluting between 43.2 minutes and 3 days. There was a high initial concentration of TEGDMA at the first time point (3.32 ug/ml) which decreased rapidly by 14.4 minutes. By 100 days, the concentrations of TEGDMA dropped to zero (Figure 56).

Table 34 shows the cumulative amount of TEGDMA in micrograms that was released for the light-cure resin through 100 days for. The amount of TEGDMA that collected was near its maximum at 35.87 ug/ul by the tenth day in the tooth model with a slight increase afterward ending with a total accumulation of 38.86 ug/ul. Total TEGDMA accumulation for the resin disk from the mold reached a peak at 1 day at 6.03 ug/ul before leveling to end with a final concentration of 6.60 ug/ml (Figure 57).

To demonstrate the release kinetics of TEGDMA from the tooth and mold the log of the concentration of the component in picograms was plotted against log time in minutes. The resulting graph shows the release rate for both models to be a fairly straight line (Figure 58).

The second component usually to be identified from the previous two adhesive resins with a retention time of 10.95 minutes was benzoyl peroxide. This component was not detectable from the tooth or resin disk model from the light-cure adhesive.

Table 33. Release of TEGDMA from Light-Cure Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	11.86	4.82	2.51	2.07	1.70	2.86	4.35	5.71	2.27	0.72
S.D.	2.85	1.39	1.35	1.49	1.13	2.12	3.60	5.30	3.17	0.66
MOLD										
Mean ug.	3.32	0.52	0.45	0.73	0.53	0.48	0.27	0.19	0.11	0
S.D.	1.59	0.16	0.12	0.12	0.07	0.06	0.05	0.03	0.07	0

N=6

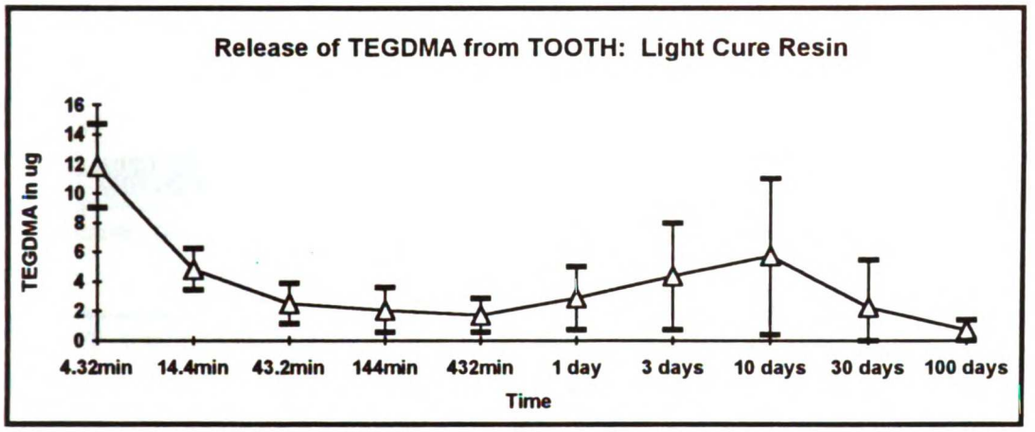


Figure 55. Quantity of TEGDMA eluted from Tooth Model into PBS solution at each time point.

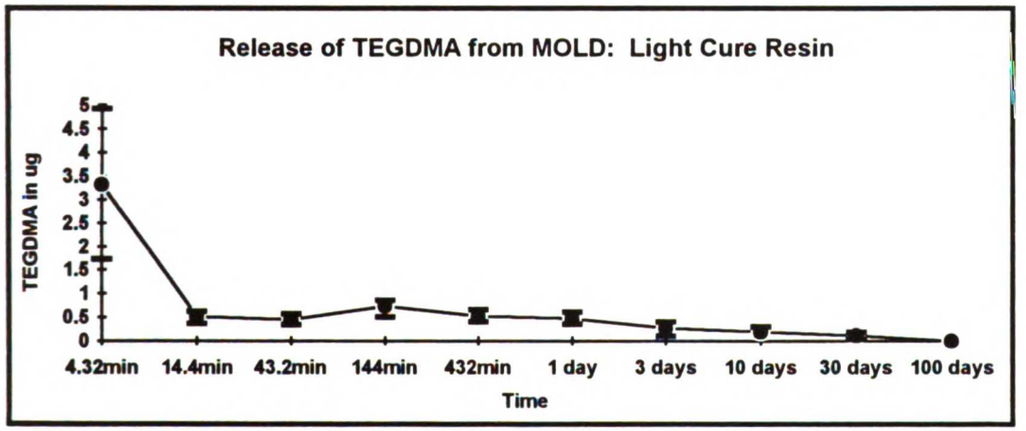


Figure 56. Quantity of TEGDMA eluted from Mold Model into PBS solution at each time point.

Table 34. Cumulative Release of TEGDMA from Light-Cure Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	11.86	16.68	19.19	21.25	22.96	25.81	30.17	35.87	38.15	38.86
S.D.	2.85	3.54	4.41	5.43	6.17	7.58	9.66	13.65	14.66	15.28
MOLD										
Mean ug.	3.32	3.84	4.29	5.02	5.55	6.03	6.29	6.49	6.60	6.60
S.D.	1.59	1.62	1.62	1.63	1.64	1.66	1.69	1.69	1.68	1.68

N=6

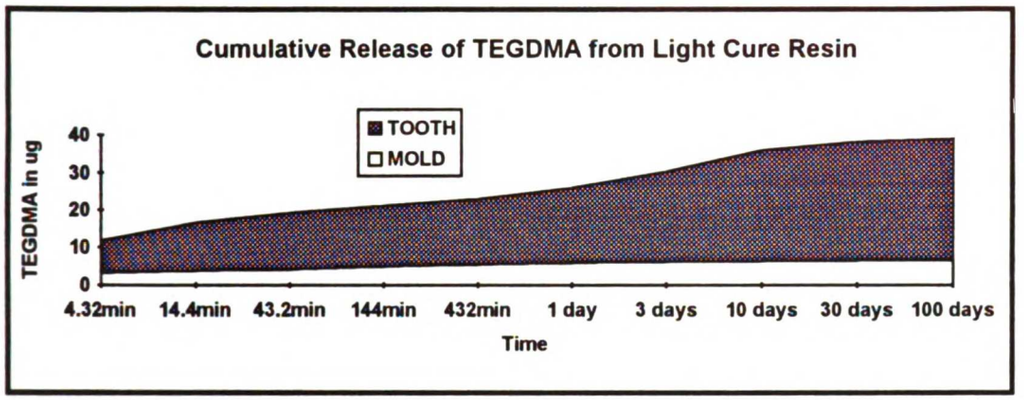


Figure 57. Total amount of TEGMA released through 100 days for Tooth and Mold Models.

Table 35. Log of Release RATE (pg./min.) of TEGDMA from Light-Cure Resin

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean	6.43	5.67	4.89	4.24	3.69	3.36	2.90	2.58	1.53	0.81
S.D.	0.12	0.13	0.23	0.26	0.27	0.31	0.70	0.53	.83	.40
MOLD										
Mean	5.85	4.7	4.17	3.86	3.26	2.68	1.97	1.28	0.64	0
S.D.	0.18	0.12	0.13	0.07	0.06	0.06	0.07	0.07	0.15	0

N=6

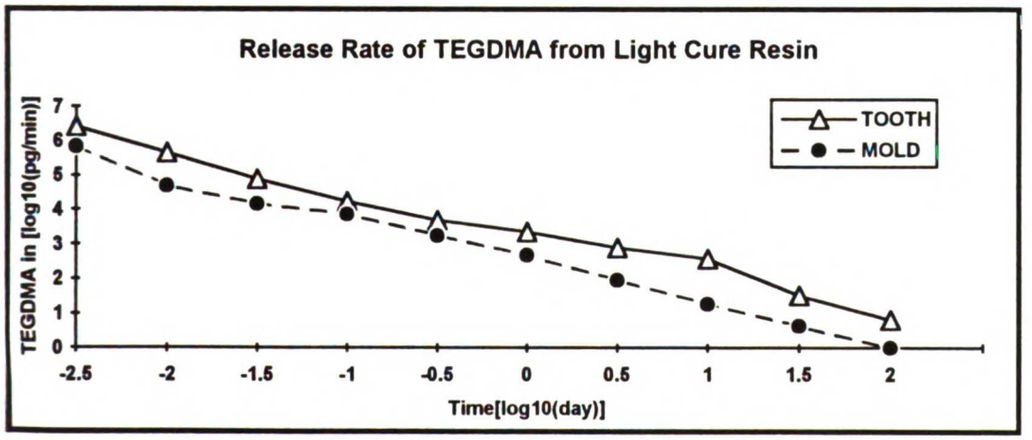


Figure 58. Release Rate of TEGDMA from Tooth and Mold Models in Log10[picograms/minute]

The third component to be eluted and identified in solution from the light-cure resin was Bis-GMA. It had a column elution time of 13.1 minutes and was released from the tooth and mold model (Table 36). The initial release of Bis-GMA from the tooth model was relatively high at 4.32 minutes, decreased rapidly by 14.4 minutes, and began to rise again up through the first day. At 1 day, Bis-GMA concentrations were 0.66 ug/ml before tapering off to zero by day 100 (Figure 59). The initial release of Bis-GMA from the mold model was high at 4.32 minutes (0.07 ug/ml) and decreased to zero through 43.2 minutes. At 43.2 minutes, the levels of this component began to rise up through the next time point reaching concentrations of 0.05 ug/ml. After this, Bis-GMA release dropped gradually with time until no component was detectable by the tenth day. The tooth model had the greatest amount of Bis-GMA release at 4.32 minutes and between 144 minutes and 3 days. The resin disk in the mold model also eluted high concentrations initially with a majority of Bis-GMA elution occurring between 144 minutes and 3 days.

The cumulative amount of Bis-GMA that was released from the tooth and resin disk is summarized in Table 37. By 3 days the tooth model had released a majority of this component with levels reaching 3.02 ug/ml and gradually increasing to 3.08 ug/ml total accumulation by 100 days. The majority of release of Bis-GMA from the mold was completed by 1 day with concentrations only reaching 0.17 ug/ml by 100 days. Both models demonstrate that the majority of component release can be accounted for by the earlier time points up to the third day. After day 3, there is no appreciable change in total amount of resin component from the tooth or mold model.

The log plot in Figure 62 shows different release kinetics for the Bis-GMA from the tooth and resin disk mold model. The release rate of Bis-GMA from the mold does not show any consistent pattern due to no component being identified at 14.4 minutes and 43.2 minutes. For the tooth model, there is a straight line relationship from the beginning through 100 days indicating exponential release with time for this particular component.

Table 36. Release of Bis-GMA from Light-Cure Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	1.02	0.22	0.10	0.29	0.38	0.66	0.36	0.04	0.02	0
S.D.	0.58	0.16	0.02	0.11	0.18	0.25	0.34	0.07	0.03	0
MOLD										
Mean ug.	0.07	0	0	0.05	0.02	0.02	0.01	0	0	0
S.D.	0.01	0	0	0.02	0.03	0.04	0.03	0	0	0

N=6

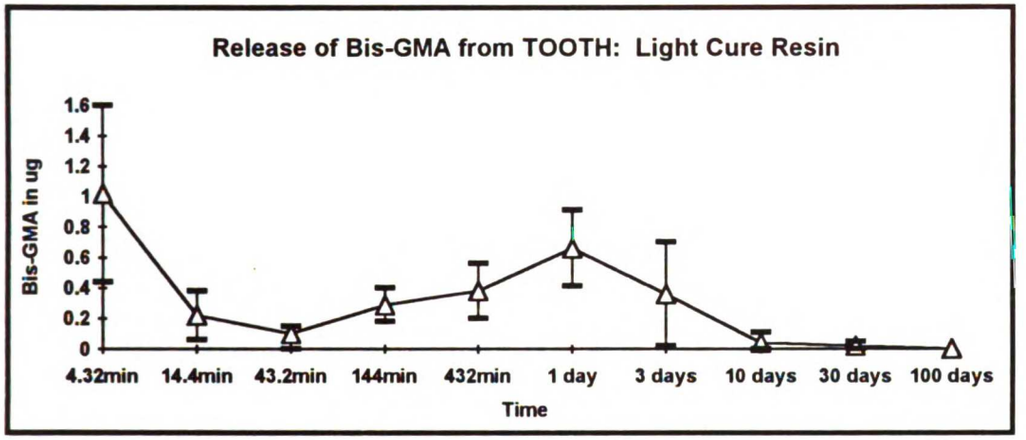


Figure 59. Quantity of Bis-GMA eluted from Tooth Model into PBS solution at each time point.

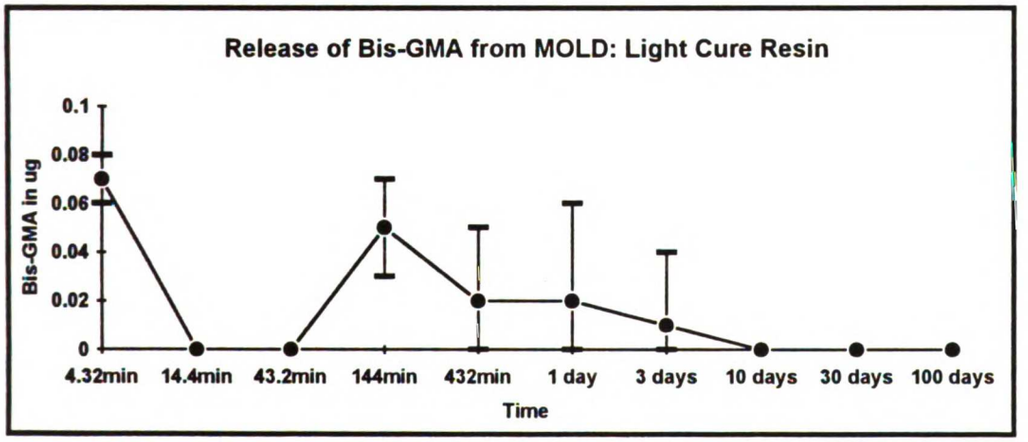


Figure 60. Quantity of Bis-GMA eluted from Mold Model into PBS solution at each time point.

Table 37. Cumulative Release of Bis-GMA from Light-Cure Resin: Tooth and Mold data

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean ug.	1.02	1.24	1.34	1.63	2.00	2.67	3.02	3.06	3.08	3.08
S.D.	0.58	0.48	0.49	0.58	0.75	0.99	1.10	1.11	1.11	1.11
MOLD										
Mean ug.	0.07	0.07	0.07	0.11	0.13	0.16	0.17	0.17	0.17	0.17
S.D.	0.01	0.01	0.01	0.03	0.05	0.09	0.11	0.11	0.11	0.11

N=6

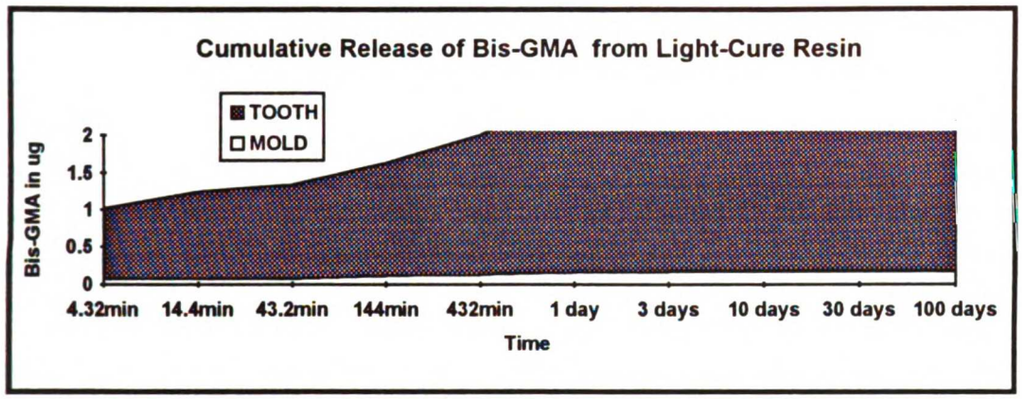


Figure 61. Total amount of Bis-GMA released through 100 days for Tooth and Mold Models.

Table 38. Log of Release RATE (pg./min.) of Bis-GMA from Light-Cure Resin

TOOTH	4.32min	14.4min	43.2min	144min	432min	1 day	3 days	10 days	30 days	100days
Mean	5.28	4.22	3.51	3.42	3.07	2.79	1.99	0.97	0.23	0
S.D.	0.35	0.36	0.07	0.21	0.23	0.19	0.52	0.39	0.30	0
MOLD										
Mean	4.18	0	0	2.74	2.32	1.84	.144	0	0	0
S.D.	0.09	0	0	0.09	0	0.09	0	0	0	0

N=6

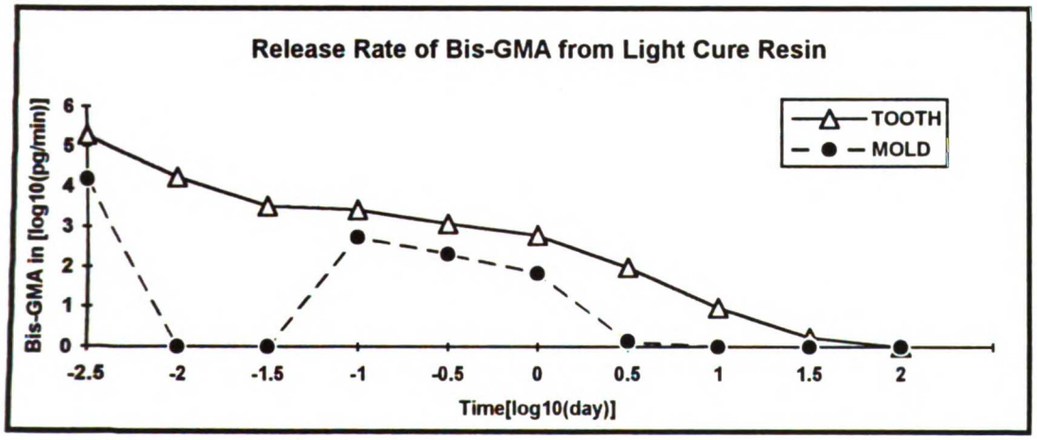


Figure 62. Release Rate of Bis-GMA from Tooth and Mold Models in Log10[picograms/minute]

MATERIALS AND METHODS: *PART III - Cytotoxicity of Resin Components and Eluates Identified in Part II*

TEST MATERIALS: Individual components identified from Part II

TEST PROCEDURE: Rapid Colorimetric Assay utilizing a tetrazolium salt
OBJECTIVE: To determine the correlation between cytotoxicty and component analysis from adhesive resins

There are several methods available to measure surviving and/or proliferating cells in biological assays. Staining cells that include or exclude a dye (Millipore Filter, Agar Overlay Test), measuring the release of ^{51}Cr-labeled protein after cell lysis or measuring the incorporation of radioactive nucleotides during cell proliferation are all alternatives. For this investigation, a colorimetric assay was employed because it is rapid, precise, lacks the use of any radioisotope and is fairly inexpensive compared to other techniques. What is more important, it was possible to administer known concentrations of components into the assay and develop dilution cytotoxicity curves for each resin component identified in Part II.

General Requirements and Procedures:

Colorimetric assays for living cells utilize a colorless substrate that is modified to a colored product by any living cell, but not by dead cells or tissue culture medium. Tetrazolium salts have been used for this purpose because they measure the activity of various dehydrogenase enzymes which are utilized by a cell for the transfer of hydrogen atoms to hydrogen acceptors. These enzymes are detected histochemically by substituting an artificial electron acceptor for the naturally occurring substances in the electron transport chain. Tetrazolium salts have been used as the "electron receptor" because they become insoluble producing a colored precipitate in the reduced state. The tetrazolium ring of the salt is cleaved when hydrogen is released at the sites of active mitochondria, i.e., dehydrogenase activity, and so the reaction occurs only in living cells. This assay based on the tetrazolium salt MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide; Sigma catalog no. M2128 responds to changes in activity of mitochondrial dehydrogenases and can be read on a scanning multiwell spectrophotometer.

EXPERIMENTAL DESIGN: *PART III - Cytotoxicity of Resin Components and Eluates Identified in Part II*

1. Procedure for Cell growth and Preparation of MTT Colorimetric Assay

Human gingival fibroblast cells were maintained in 1X Alpha MEM media supplemented with 10% new-born calf serum containing $1x10^5$ IU/1 penicillin and 100 mg/ 1 streptomycin. When an 80-90% confluent monolayer had been established in a T-75 flask, the media was aspirated and replaced with 6 ml of a 1% trypsin solution and incubated for 3 minutes to facilitate release of the cells. The cells were examined with an inverted phase contrast microscope to ensure release and 24 ml (total volume 30 ml) of Alpha MEM added to inhibit the trypsin reaction. The cells were suspended in the flask by repeated forceful ejection of a 10 ml aliquot of media against the monolayer and the 30 ml volume transferred to a 50mm sterile centrifuge tube. Cells from the stock cultures were harvested and suspended in fresh medium and adjusted to a cell concentration of 3 x 10^6 cells/milliliter; that which gave a confluent cell monolayer when each well of a 96-well flat bottomed tissue culture plate was covered with 100ul of the cell suspension. To prepare the 96-well culture plate, 100 ul of the suspension was delivered to each well in rows B-H. Row A of the plate was used for one of 2 controls needed to establish baseline spectrophotometer readings. The dishes were incubated for 24 hours at 37 °C in a humidified atmosphere of 5% CO_2 until a confluent monolayer was established. One T-75 yielded 1 96-well plate which was used to test 2 composite components with 6 replications at 6 dilutions. After the 24 hour incubation time, 100 ul of the resin component to be tested was added to each well of the plate and incubated for an additional 20-24 hours. To prepare the tetrazolium salt, MTT was dissolved in PBS at 2.5 mg/ml and filtered (.2u pore size). 20 ul of the stock MTT solution (10ul per 100 ul medium) was then added to all wells of the assay, and plates incubated at 37 °C for 4 hours. After incubation, acid-isopropanol (100 ul of 0.04 N HCl in isopropanol) was added to all wells and mixed thoroughly to dissolve the dark blue formazan crystals. Plates were read on a Microelisa reader using a test wavelength of 595nm and a reference wavelength of 630 nm.

2. Preparation of Test Materials

Saturated solutions of known liquid components identified in PART II were dissolved in Acetonitrile and diluted with 1X Alpha MEM tissue culture medium. Serial dilution from full strength, 1:100, 1:1000, 1:2000, 1:2500, 1:5000, 1:10,000 was made to establish a range of concentration versus cytotoxicity for each component. This data provided standardization for a dilution-cytotoxicity curve.

3. Testing method

For each resin component the dilutions were separately analyzed for cytotoxcity using the MTT assay with fibroblast cells until there was no detectable effect to establish a dilution-cytotoxicity curve from which an IC_{50} calculation could be made. IC_{50} is the concentration which reduces the index of cell survival to 50% of the control.

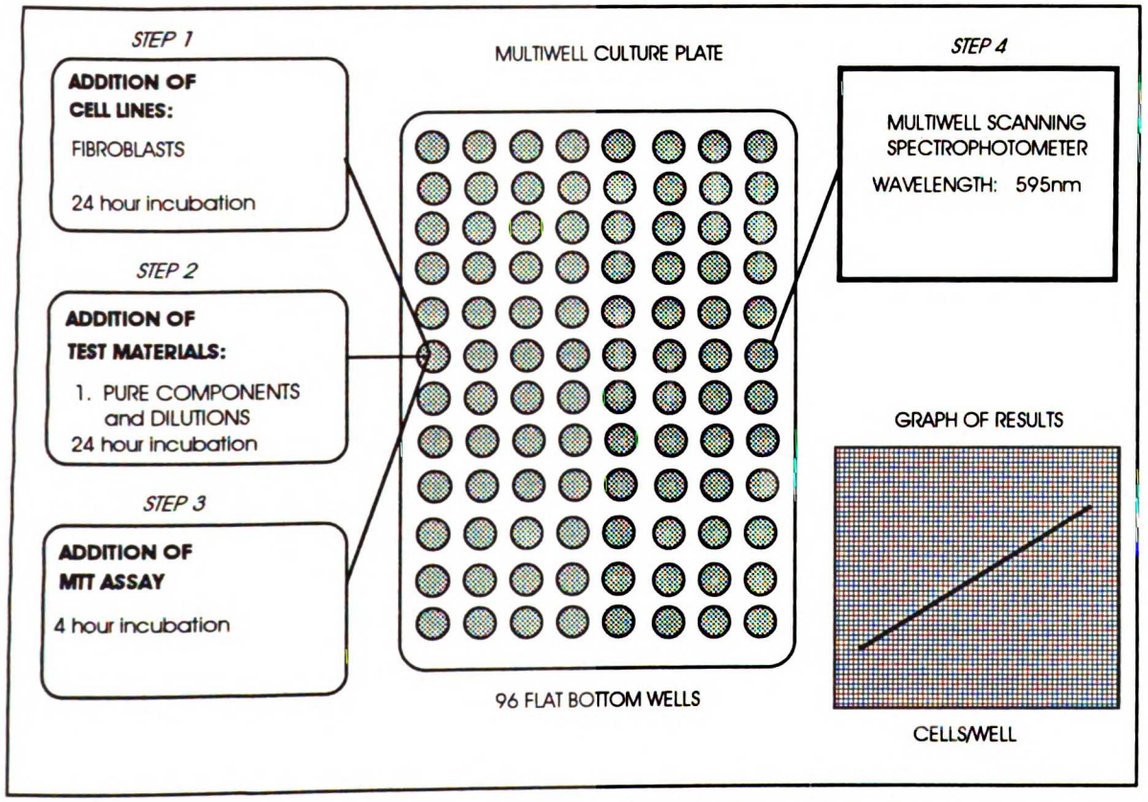


Figure 63. Experimental flow for MTT Colorimetric Cytotoxicity Assay.

RESULTS: *PART III - Cytotoxicity of Resin Components Identified in Part II*

The results of the MTT Colorimetric Cytotoxicity Assay are summarized in Tables 40-41. Initial stock solutions and dilutions of TEGDMA and Bis-GMA were prepared at the following concentrations:

Table 39. Concentrations of Resin Components used with MTT Assay

DILUTION	TEGDMA CONCENTRATION (ug/ml)	Bis-GMA CONCENTRATION (ug/ml)
STOCK	10.7×10^4	6.2×10^4
1:100	10.7×10^2	6.2×10^2
1:1000	10.7×10^1	6.2×10^1
1:2000	5.35×10^1	3.2×10^1
1:2500	4.28×10^1	2.48×10^1
1:5000	2.14×10^1	1.24×10^1
1:10,000	10.7	6.2

For TEGDMA and Bis-GMA, 100 ul of each dilution was added to a 96 well plate and incubated with the gingival fibroblasts for 24 hours. Control wells were setup with the growth media alone and media with cells but no composite component. After the addition of the MTT solution, spectrophotometer readings were taken at 595nm for both resin components (Figure 64).

	1	2	3	4	5	6	7	8	9	10	11	12
A CONTROL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B CONTROL	298	364	322	329	330	402	307	302	308	299	287	303
C 1:100	0.00	0.00	0.00	0.00	0.00	0.00	001	000	004	002	003	010
D 1:1000	052	057	056	049	049	047	050	039	032	033	029	032
E 1:2000	199	187	213	204	205	190	170	218	226	237	231	222
F 1:2500	292	283	311	306	308	296	238	191	244	244	232	198
G 1:5000	362	382	369	406	393	337	305	340	305	336	296	371
H 1:10,000	386	383	433	403	404	404	427	444	413	413	390	385

TEGDMA **Bis-GMA**

Figure 64. Example of printout from spectrophotometer showing O.D. readings for each well. A. control was Alpha MEM media without cells and B. control included fibroblasts. Each component at each dilution was tested 6 times.

Table 40 summarizes the optical density measurements of the formazan precipitate generated by surviving cells in the presence of TEGDMA. The control wells without fibroblasts read 0.00 for optical density which is expected in the absence of metabolically active cells. For control wells with cells but no resin component, the average MTT formazan precipitate reading was 321 which was taken as 100% cell survival. The first dilution (1:100), which represented 107 ug/ml of TEGDMA, demonstrated 0% cells surviving with a mean O.D. of 0.00. Subsequent dilutions of TEGDMA and decreasing concentration showed increased cell survival percentages with increasing optical density readings. Sixteen percent of the cells were viable at a TEGDMA concentration of 10.7 ug/ml while 62% were living at half this concentration (5.35 ug/ul). When the concentration of TEGDMA decreased approximately 1 ug/ml to 4.28 ug/ml, cell viability increased to 93% with an O.D. of 299. At half this level (2.14 ug/ul) cell proliferation increased to a point that was 16% greater than that of the control cells. This increase in cellular activity was further demonstrated with a TEGDMA concentration of 1.07 ug/ml which yielded a cell proliferation rate 25% more than controls with an optical density measurement of 402.

Table 40. Summary of Results for TEGDMA cytotoxicity with MTT Assay

ROW	DILUTION		CONTROL O.D.	TEGDMA CONCENTRATION (ug/ml)	TEGDMA MEAN O.D.	% CELL SURVIVAL
A	CONTROL	[MEDIA NO CELLS]	0.00	0.00	---	---
B	CONTROL	[MEDIA W/CELLS]	321 ± 33	0.00	---	100
C	1:100			107	0	0
D	1:1000			10.7	52 ± 4	16
E	1:2000			5.35	200 ±10	62
F	1:2500			4.28	299 ±11	93
G	1:5000			2.14	375 ± 24	116
H	1:10,000			1.07	402 ± 18	125

N=6, O.D.= Optical Density

For Bis-GMA, the results of the MTT cytotoxicty assay are summarized in Table 41. At the strongest concentration (62 ug/ml), cell viability approached 0% with an optical density measurement of only 3. Similar to the previous toxicity results with TEGDMA, when the dilution of this component was increased survival percentages also increased. At 6.2 ug/ml, a 10 fold dilution from 0% cell survival, viability increased to 11%. Sixty-eight percent to seventy percent cell survival rates were reached with Bis-GMA concentrations of 3.2 and 2.48 ug/ml respectively. When the dilution factor reached 1:5000, there was an increase in cell proliferation which resulted in an O.D. of 326, 2% higher than controls. At the lowest concentration of 0.62 ug/ml, cellular activity was also increased 28% over controls.

Table 41. Summary of Results for Bis-GMA cytotoxicity with MTT Assay

ROW	DILUTION		CONTROL O.D.	Bis-GMA CONCENTRATION (ug/ml)	Bis-GMA MEAN O.D.	% CELL SURVIVAL
A	CONTROL	[MEDIA NO CELLS]	0.00	0.00	---	---
B	CONTROL	[MEDIA W/CELLS]	321 ± 33	0.00	---	100
C	1:100			62	3 ± 4	0.1
D	1:1000			6.2	36 ± 8	11
E	1:2000			3.2	217 ± 24	68
F	1:2500			2.48	225 ± 24	70
G	1:5000			1.24	326 ± 29	102
H	1:10,000			0.62	412 ± 22	128

N=6, O.D. = Optical Density

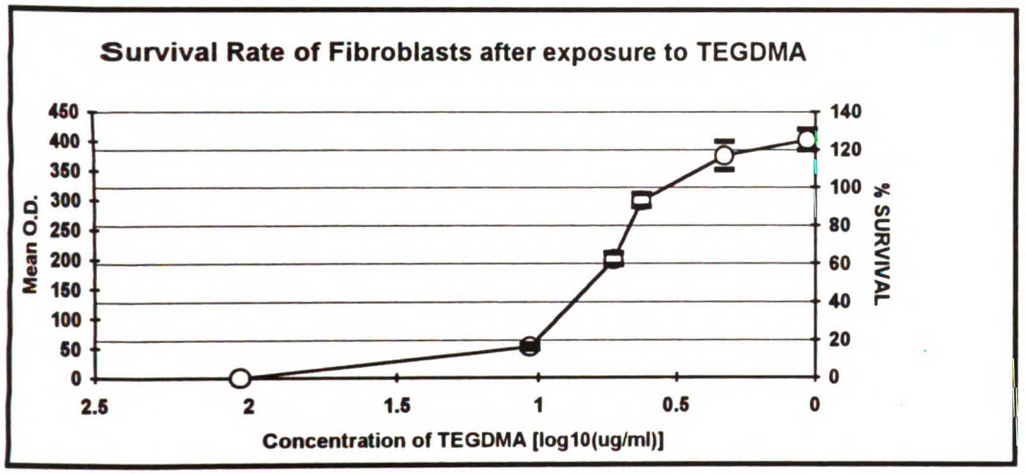


Figure 65. Cell viability at varying TEGDMA concentrations is shown as % Survival compared to control cells. Mean spectrophotometer readings (O.D.) for corresponding survival rates is also shown. $IC_{50} \cong 6.8$ ug/ml.

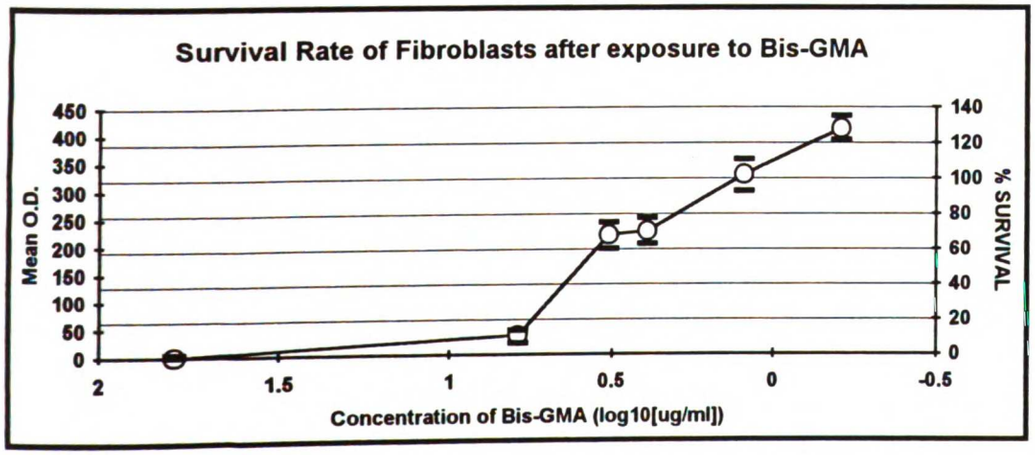


Figure 66. Cell viability at varying Bis-GMA concentrations is shown as % Survival compared to control cells. Mean spectrophotometer readings (O.D.) for corresponding survival rates is also shown. $IC_{50} \cong 4.6$ ug/ml.

DISCUSSION

The Agar Overlay Method originally developed by Guess (1965) as a standard procedure for the evaluation of the cytotoxicity of biomaterials was modified in this investigation with respect to the type of agar layer and cell line utilized. This cell culture test used in PART I as an initial screening assay was selected to compare the cytotoxic effects of orthodontic adhesives by judging the biocompatibility of the resins with differentiated human gingival fibroblasts. In Part 1 of this investigation, the results indicate that all three orthodontic adhesives are cytotoxic and that this toxicity decreased with longer incubation times in the aqueous environment. Also, the method of polymerization for the Light-Cure resin decreased cytotoxicity in this assay when compared to the two chemically cured orthodontic adhesives.

The objective of Part 1 was to evaluate three resins that varied in method of cure and determine if cytotoxicity decreased with longer incubation times in PBS through a time course of 100 days. The results of the Agar Overlay method support this hypothesis. For the Single-Step and Two-Paste resins, both chemically cured adhesives, the resin disks tested were toxic through 30 days. At 100 days, no observable cytotoxic effect could be determined with the Agar Overlay assay. Although both resins were toxic through 30 days, the Single-Step resin had slightly larger zones of decolorizaton at each time point compared to the Two-Paste resin. This response is most likely related to differences in the degree of polymerization related to the proportion and concentration of initiators and monomers in the formulation of each resin system. In contrast, the Light-Cure resin was only cytotoxic through 10 days with no reaction visible by 30 or 100 days. Decreased toxicity of this resin is probably related to a higher polymerization rate due to the efficiency of the UV activating source leaving fewer unreacted composite components in the resin matrix with the potential to leach into the surrounding environment. All three resins demonstrated that longer incubation times in the PBS solution most likely allowed unreacted composite components to diffuse into solution. When the resin disks were removed form the media and retested, all demonstrated decreased diameters of decolorization from initial testing through 100 days. The Light-Cure resin showed high levels of toxicity that diminished much faster than the chemically cured adhesives. The extended toxicity of the Single-Step and Two-Paste adhesives is most likely due to continued extraction of unpolymerized resin components related to the chemical curing method.

The materials tested for the Agar Overlay Method can be divided into two categories based on the polymerization method for the orthodontic adhesives. The

basic principles to cure these adhesives follow three stages that include initiation, propagation and termination which begin by reaction of a free radical with a molecule of the monomer (i.e. Bis-GMA, TEGDMA). To generate the free radicals needed for initiation, two of the orthodontic resins tested utilized an organic peroxide or chemical method to begin polymerization. The Light-Cure resin used a UV light source in conjunction with a chemical photoinitiator to produce free radicals capable of initiating the polymerization.

The Rely-A-Bond Single-Step resin consists of a single paste containing Bis-GMA, Benzoyl Peroxide and Polyethyleneglycol Dimethacrylate (TEGDMA) which is mixed with a liquid initiator containing Bis-GMA and Isobutyl methacrylate to start the reaction process. The Two-Paste resin, as the name implies, contains two pastes each containing Bis-GMA, TEGDMA and Benzoyl Peroxide which are mixed together usually in equal proportions with two sealants which also contain Bis-GMA, TEGDMA and Benzoyl Peroxide to start polymerization. These two resins represent orthodontic adhesives that utilize chemical activation to initiate, propagate and terminate the polymerization process which is highly dependent on the initiator or activator concentrations present at the beginning of the reaction. The Light-Cure resin, in contrast, consists of one paste containing Bis-GMA, TEGDMA and a photoinitiator which are mixed with a sealant containing the same components and is polymerized directly by UV light activation. Whether the free radicals are produced by chemical or photochemical reactions, at initiation, the radical produced reacts with the monomer and activates it so that bonding to another monomer molecule is possible. The addition of monomer molecules to an already existing chain is called propagation and continues until all free radicals have been joined or none are available. At this point, the termination stage, the reaction stops (Roulet, 1987).

A problem inherent with all adhesive resins after termination is that there is incomplete conversion between initiators and monomer molecules leaving unreacted components with the potential to diffuse out of the resin matrix into the surrounding environment. Conversion rate between composite resins has been shown to be influenced by the curing system (heat, chemical, UV light), initiator concentration, and chemical properties of the cross-linking monomers (TEGDMA, Bis-GMA). Stupp and Weertman (1979) have reported that for chemically activated resins, between 30 and 70% of the resin matrix contains unreacted double bonds. Other studies by Ruyter and Svendsen (1978) have shown that 25 to 48% of the monomers in chemically cured resins have not reacted 24 hours after polymerization. In contrast, UV polymerized resins have demonstrated conversion rates between 70 and 95% at a depth of 5mm after

a curing time of 20 seconds (Ruyter and Oysaed, 1982).

The influence of the polymerization method was most likely responsible for the differences in release of composite components from the orthodontic resin disks and the subsequent cytotoxicy observed with the Agar Overlay method. Secondarily, the initiator and monomer concentrations would have also been significant sources of toxicity if there was a large variance in formulation between the adhesive systems. Both the Single-Step and Two-Paste resins had extended toxicity when compared to the Light-Cure adhesive. These results seem reasonable when compared to previous studies that have evaluated the differences between the degree of polymerization between chemical and light-cured resins. A higher degree of conversion should lead to less diffusion of unreacted chemical components and possible toxicity. The concentrations of each component in the adhesive formulations were not known but these results as well as the subsequent HPLC data do not seem to reflect large differences in the amounts of monomer and initiator present in the cured product. The Agar Overlay data show that there were no statistically significant differences in the diameters of decolorization between the resin types within each time point. Instead, the observation is that all three resins show similar degrees of toxicity initially with the Light-Cure resin toxicity decreasing sooner. This early decrease in cytotoxicity is most likely attributable to the higher degree of conversion between the monomer and photoinitiator. There should therefore be less unreacted product available in the resin matrix which could diffuse into the surrounding media and initiate a cytotoxic response. While the Agar Overlay test does not differentiate between cytotoxic effects of different components, a positive response is a definite indication of the presence of a diffusible toxic substance in the test sample (ISO Technical Report 7405-1984). Part 1 of this study does not deal directly with the mechanisms by which the test materials exerted their toxicity, but diffusible products were probably responsible for the observed effect.

An important component in PART I of this investigation is the requirement and utilization of a vital staining technique to differentiate living from non-living cells immediate to the diffusion zone around resin samples. The technique for the Agar Overlay method describes the application of Neutral Red vital stain but does not explain the physio-chemical mechanisms and theory behind the observed effect. The observation is that living cells appear red while non-vital cells do not stain. How does this happen? Why do dead cells not absorb Neutral Red similar to vital cells? Unfortunately, the physico-chemical aspects of vital staining of cells and organelles have yet to be fully understood and pertain more to cell physiology than to a particular histological technique. The mechanisms and theories involved in the entire

phenomenon of staining of diverse structures from the absorption, distribution, accumulation and chemical nature of a specific stain are numerous and varied. The principal classical theories demonstrate that it is quite impossible to reduce all vital staining to a common denominator and that no one concept can entirely account for the staining observed in a given situation (Barka et al., 1963).

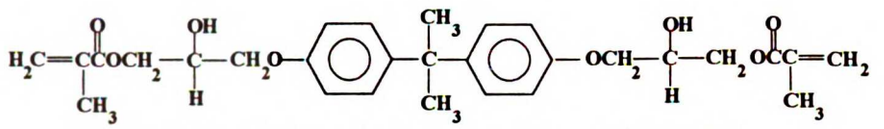
The agar diffusion test is a very simple but also a very effective cell culture procedure, which compared with other *in vitro* methods can be easily and rapidly performed. However, the data can only be interpreted as characteristic of basic biological properties, perhaps comparable with data from physical or chemical tests. No direct transformation of the data to usage tests or to man is possible, but the basic biological information helps to explain observations from the HPLC data in PART II of this investigation (Schmalz, 1988).

It is presumed that when cytotoxicity is observed, either some chemical degradation of the composite resin has occurred or leaching of the components has occurred, or both. A general problem in comparing the results obtained with cytotoxicity assays similar to the Agar Overlay technique is that these methods do not assess the concentration and identity of substances to which the cells are exposed. The direct exposure of freshly mixed materials and cured products to the test cells or tissues should allow the assessment of their toxicity, identity and quantity. In addition, the presence of more long-term effects can also be evaluated by collecting eluates of the material over appropriate periods of time and assessing the toxic properties of the eluate (Brown, 1988).

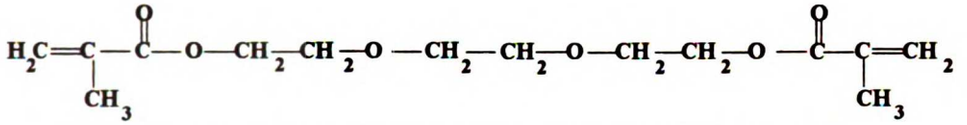
Orthodontic adhesives used for bonding are introduced into the mouth in a freshly mixed, incompletely polymerized form, and it is likely that, during the relatively short period immediately after the insertion of the material into the mouth, it will be the most irritant. During this period resin components will be only partially or as yet unreacted, and thus free to cause tissue damage. However, even after the period of setting is complete, it is still possible that potentially toxic components may be released from a material, either by leaching, if they are soluble, into the saliva, or gingival fluids, or by corrosion, physical wear, or degradation. The second part of this investigation, identification of resin composite components with HPLC, was designed to evaluate the release of diffusible components from the test materials using the resin disk and tooth/mesh model.

The HPLC results demonstrate that the three orthodontic bonding adhesives evaluated were not inert even when mixed and cured according to the manufacturers' instructions. Considerable quantities of TEGDMA and Bis-GMA and trace amounts of

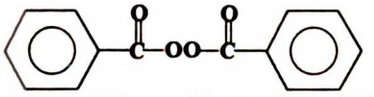
Benzoyl Peroxide were leached from the adhesives into the PBS solution.



Bis-GMA - Bis Glycidyl Methacrylate M.W. 512



TEGDMA - Tri Ethylene Glycol Dimethacrylate M.W. 286



Benzoyl Peroxide M.W. 242

Figure 67. Chemical Structure of Components Identified from Three Resins.

The release rate of TEGDMA into solution for the tooth model for all three resin types was very rapid and essentially completed by three days. The Light-Cure resin did, however, demonstrate a second smaller release of TEGDMA at 10 days. This rapid and complete release of TEGDMA from the tooth model is probably related to its low molecular weight and ease of mobility into the surrounding solution (Ferracane et al., 1990; Ban et al., 1986). From the Light-Cure data for the tooth model, it is reasonable to speculate the second peak later in the time course is residual TEGDMA that remained inside the set composite. With time the unreacted TEGDMA present in the resin under the mesh (farther from the UV-light) would elute from the adhesive with the rate diminishing with time and eventually becoming negligible similar to the other two resin types.

The release of this component from the tooth model and resin disk were exponential but in greatly reduced concentrations from the three adhesives cured within the stainless steel molds. This finding corresponds to work by Thompson (1982) who also demonstrated that more material leached from bracketed teeth than test pellets. He concluded that this difference was thought to be due to differences in the ratios of volume to surface area exposed to the leaching solutions between the tooth and resin pellet models. For this experiment, however, the surface area of the resin under the

mesh at the periphery was not measured but can arguably be considered much less than the 6mm surface of the resin disk. Another explanation for the large differences in TEGDMA release between the tooth and mold models may be related to the manner in which the resin disks were prepared.

Inhibition of polymerization in surface layers of composite resins exposed to oxygen or air is an additional problem with the use of adhesives. If not removed or limited, such layers will release an amount of monomer or degradation products from the composite corresponding to the thickness of the unpolymerized layer (Roulet, 1987). In addition, any surface layer exposed to oxygen or air will be incompletely polymerized, including those resin molecules lining porosities within the bulk material (Ferracane, 1990). For the resin disk model, the paste of each adhesive was mixed, placed within the mold and *sealed* with a mylar strip to facilitate packing of the material. The mylar strip was removed after each resin type had polymerized for the manufactures' recommended curing time. In contrast, for the tooth model, resin was placed on the back of the mesh pad which was directly placed on the enamel wafer and allowed to cure. Since this represented the clinical situation, no exclusion of the air inhibited layer was possible and this may be one explanation as to why more residual TEGDMA eluted from the tooth models for all three resin types. Since this component elutes early (by day 3) from the tooth model, the implication is that these composites do not provide a chronic source of exposure of unreacted, low-molecular weight monomer to the oral tissues during normal use. This is in contrast to findings by Rathbun (1991). It is not possible to exclude, however, the fact that concentrations of TEGDMA eluted early during the time course still have the potential to diffuse into adjacent tissues in the oral environment and initiate inflammatory gingival reactions from a cytotoxic reaction.

Benzoyl Peroxide was a minor component identified from both chemically cured orthodontic adhesives. Since its primary use is that of a chemical initiator, the photocured resin formulation does not contain this component and it was not identified in the eluates of either the tooth or mold models. As with TEGDMA release, the tooth models eluted slightly more B.P. into solution than the resin disk. The diffusion of B.P from the resin matrix was much slower than TEGDMA even though their molecular weights are similar. B.P did not show early release from any of the models and only started to appear around 1 day. It may be possible that this later release of the material is not actually the unreacted initiator B.P. but instead benzoic acid. This component has been identified as an eluted species in other studies and is expected to be a product from hydrolization of the initiator benzoyl peroxide (Ruyter and Oysaed,

1987).

Polymers and residual monomers can degrade either by oxidation or hydrolysis. It has been shown that degradation products from composites include formaldehyde, methacrylic acid and benzoic acid. Other unidentified species observed are suspected to be degradation products of the other additives (catalyst, inhibitor, accelerator, uv-stabilizer) to adhesive resins (Ruyter, 1988). Studies have shown that the degradation of resins is a slow process. *In vitro* tests tell us that certain substances or elements are constantly eluted. During a short initial period, the elution rate is high (i.e. TEGDMA release) and thereafter stabilizes at a low, but constant value. For benzoyl peroxide, however, the release was very slow and possibly related to the degradation and hydrolysis of this initiator to benzoic acid before its elution into PBS.

The trend for residual TEGDMA to dissolve from the set composite into PBS differs from that for residual Bis-GMA (Tanaka et al., 1991). This may be due to the different mobility of each monomer inside the set composite stored in PBS. Low-molecular weight TEGDMA appears to flow more easily into solution than the higher molecular weight Bis-GMA (Ban et al., 1986; Rathbun et al., 1991). Bis-GMA, the principle monomer in all three orthodontic adhesives was detected in the eluates of both the tooth and mold models. The concentrations of this chemical, however, were substantially lower than TEGDMA. Chromatographic data confirm other studies that support the slower and lower diffusion potential of this component (Tanaka et al., 1991; Rathbun et al., 1991).

Several other studies have identified extracted Bis-GMA as the primary component in the eluates of various chemical and light cure restorative resins (Inoue et al., 1982; Rathbun et al., 1991; Thompson et al. 1982). In this study, however, Bis-GMA was detected as a secondary component in lower concentrations over a time course of 100 days compared to TEGDMA. It should be noted, however, that the orthodontic resins evaluated may not be similar in composition to other restorative resins used by different investigators. There has only been one study by Thompson (1991) that tested a similar model (pellet and tooth) with an orthodontic resin. The findings were similar to previously published material in that Bis-GMA was suspected to be the primary component identified. No identification of TEGDMA was confirmed or attempted by Thompson. The discrepancy between this investigations' findings from previous work on release of Bis-GMA and TEGDMA is most likely related to adhesive formulation. Most restorative resins will contain more Bis-GMA by weight (improved physical properties) than orthodontic adhesives because increased strength and wear resistance are not needed for bonding. Changing the ratio between Bis-GMA and TEGDMA

concentrations in restorative resins would most certainly alter the release characteristics of these two components and probably explains why Bis-GMA is reported as the primary component in the eluates of resins from previous work. Also, there has been little work with orthodontic resins to specifically identify leachable components from these adhesives. The slower release of Bis-GMA from these resins does not preclude it from being a potentially cytotoxic material, however, as has been shown by other investigators (Hanks et al., 1981; Rathbun et al., 1991).

The release rate of Bis-GMA for the tooth and mold models was the same or slower than that of TEGDMA which coincides with previously published data (Tanaka et al., 1991). It is speculated that the higher molecular weight Bis-GMA would not diffuse as readily into solution at earlier time points and appear only after longer incubation times. Similar to TEGDMA and Benzoyl Peroxide, Bis-GMA release from the molds was less than that of the tooth model presumably related to the technique of curing the adhesives in the mold with a clear plastic strip partially eliminating the air inhibited layer responsible for incomplete conversion of the resin monomers. Also, it has been shown that the degree of polymerization is greater for resins cured in pellets than thin films. This is explained by the exothermic nature of the polymerization reaction raising the temperature of the resin pellet internally thus improving the cure rate by the localized heating effect (Ferracane and Greener, 1984). The bulk of the adhesive resin in the mold coupled with less air-inhibited layers compared to that of the tooth would explain this significant difference in release of components from the two models.

The differences of release of TEGDMA, Bis-GMA and Benzoyl Peroxide from the tooth and mold models are most likely attributable to the degree of polymerization within each resin system which is dependent on the concentration of the polymerization monomers and catalysts present within the various systems, the presence of an air-inhibited layer, the molecular weights of diffusing species and potentially the mode of activation (chemical or light). Also, very important, the difference in surface area between models would effect the cumulative release of any diffusible components from test resins. Diffusion for all three components identified was essentially complete by day 100 and the lack of species in the eluates from the orthodontic adhesives does confirm the observation with the Agar Overlay method where no toxicity was observed in any of the three resins by day 100. It was anticipated that the rate of leaching of resin components from the adhesives would be slow and that tissue exposure to lower concentrations of diffusible components for long periods of time would be possible resulting in a low level chronic response to extracted components. Early diffusion of the components, however, did not confirm this hypothesis. Low molecular weight

TEGDMA, as expected, did leach at an earlier and faster rate than higher molecular weight Bis-GMA. Benzoyl Peroxide, a low molecular weight substance did not leach early. This is most likely explained by its low initial concentrations in the chemically cured resins and the possibility that it was degraded to benzoic acid before elution into the surrounding media.

From the HPLC data eluted species and their concentrations were determined. To evaluate if the two principle components identified (TEGDMA and Bis-GMA) could potentially be cytotoxic, these components in concentrations derived from Part II from the tooth model were tested with a cell assay to simulate the quantity of diffusible component that may be present locally at the gingival tissues. The results of Part III confirm that levels of TEGDMA from all three resins at 24 hours eluted from bracketed teeth are sufficient to inhibit human gingival fibroblast survival rates while Bis-GMA was only present in high concentrations from the Two-Paste resin to initiate a cytotoxic reaction. Cell viability decreased as the concentration of TEGDMA and Bis-GMA was increased in the MTT assay. These findings agree with Hanks (1991) and Rathbun (1991). The exact concentration at which cytotoxic effects were initiated was not discernible from this assay but a range of toxicities was determined for the two components. For TEGDMA, the range of concentrations that had a cytotoxic effect were between 107 ug/ml (0% survival) to 4.28 ug/ml (93% survival). Bis-GMA was toxic at levels between 62 ug/ml (0% survival) to slightly less than 2.48 ug/ml (>70% survival). Cell death is both concentration and time-dependent for any chemical. The highest release rate for any of the three chemicals identified from the tooth model was 12.91 ug/ml of TEGDMA from the Two-Paste resin at 4.32 minutes. It is not known, however, if this level of component is actually available at the microenvironment of the cell since additional dilution and dispersion of the material by intraoral fluids is likely over a given time period. The continued elution of TEGDMA from all three resins, however, and the cumulative total of this chemical released at 24 hours certainly place it at the appropriate concentration range to initiate a cytotoxic response. In contrast, the highest concentration of Bis-GMA to be released at any time point was significantly lower than TEGDMA. 2.09 ug/ml of this component were released from the Two-Paste resin at 4.32 minutes. It is unlikely, from the MTT assay data generated, that this concentration would have a significant effect on fibroblast activity since there would be greater than 70% cell survival rate at this level and does not account for any dilution of the monomer in the oral cavity. Only at 144 minutes would the Two-Paste resin elute sufficient quantities of Bis-GMA to initiate a cytotoxic reaction (approx. 50% cell death) based on the cumulative totals of this component. Even after 100 days

the cumulative totals of Bis-GMA from the Single-Step and Light-Cure resins would be at levels too low (<3 ug/ml) to initiate a significant cytotoxic response. The results from the HPLC analysis and MTT assay suggest that the quantity of TEGDMA that is leached from all three resins from the tooth model are in sufficient concentrations to cause a cytotoxic response *in vitro* and that Bis-GMA, while present in the eluates, is only leached at sufficient levels from the Two-Paste resin to have a significant effect on gingival fibroblasts with the MTT assay.

Table 42. Summary of Cumulative Release of Components through 100 Days.

Resin Model	Benzoyl Peroxide ug.	Bis-GMA ug.	TEGDMA ug.
Single-Step Mold	0.00	0.45	15.95
Single-Step Tooth	0.45	1.04	**35.44**
Two-Paste Mold	0.15	0.76	9.61
Two-Paste Tooth	0.40	**9.67**	**38.38**
Light-Cure Mold	0.00	0.17	6.60
Light-Cure Tooth	0.00	3.08	**38.86**

Bold-face areas indicate which resin and component are cytotoxic with the MTT Assay (>50% cell death) and may be ***clinically* significant. Benzoyl Peroxide not tested.

The exact mechanism by which these chemicals elicited the cytotoxic response is not determinable with this assay. Two recent studies, however, by Terakado et al. (1984) and Fujisawa et al. (1988) suggest a mechanism of action by composite components on biological membranes. A few components identified as causing peroxide formation of the cellular phospholipid bilayer include benzoyl peroxide, TEGDMA and Bis-GMA. If these chemicals act primarily on the cell membrane to cause damage they would possibly lead to an increase in permeability of the cell membrane and exposure of the internal plasma membranes to more chemical assault. The subsequent swelling of the cell due to increased permeability with the deterioration of the phospholipids to peroxides could inhibit synthetic processes of the cell (Cotran et al., 1989).

One of the earliest manifestations of cell damage is an alteration in the permeability of the mitochondrial membranes; in addition, a change in the amount of enzymes present in this organelle may also occur. Using a suitable marker such as tetrazolium salts, mitochondrial membrane permeability and enzyme activity can be assessed by scanning spectrophotometry. Many enzymes which are essential to the cell's

respiratory activity are found in association with the inner membrane of the mitochondria. This membrane in general is relatively impermeable to many substances. However, as a result of cell injury, permeability increases and the amounts of a given enzyme may also decrease in the injured cell (Chayen and Bitensky, 1968). The technique for measuring mitochondrial membrane permeability involves using the tetrazolium salt MTT. A suitable marker enzyme in mitochondria to test for increased permeability and resulting cellular injury is succinic dehydrogenase. The tetrazolium salt MTT added to the incubation media becomes permeable to the inner mitochondrial membrane by the action of a phosphate buffer. In the presence of dehydrogenase activity (vital cells) succinate is oxidized and the hydrogen ion liberated reduces MTT to the blue formazan product which is insoluble and precipitates at the sites of enzyme activity (Tyas, 1988). This final colored reaction product is then read with a microelisa reader and has been shown to be linearly related to the viable cell number (Mossman et al., 1983).

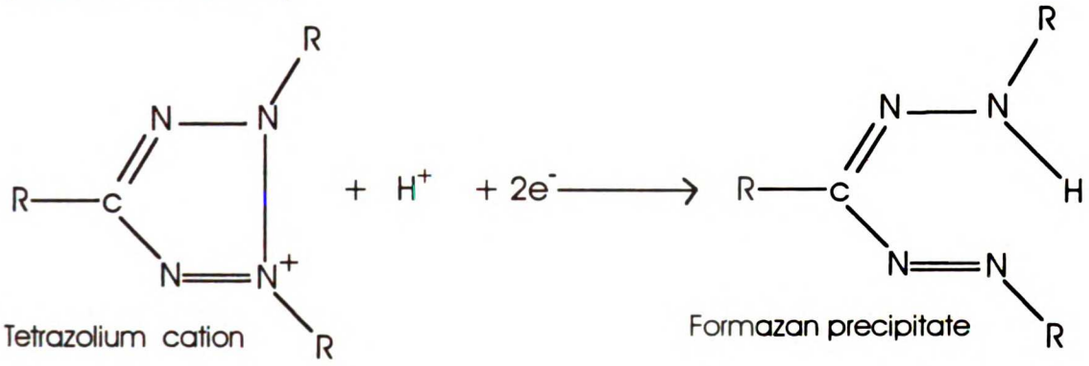


Figure 68. Tetrazolium salt MTT acts as artificial hydrogen acceptor and becomes insoluble and colored in its reduced state to form the formazan precipitate.

From his original article describing this technique for assessing toxicity with a tetrazolium salt, Mossman demonstrated that the cleavage of MTT has several desirable properties for assaying cell survival and proliferation. MTT is cleaved by all living, metabolically active cells, but not by dead cells or metabolically inactive cells such as erythrocytes. Also, the amount of colored precipitate (formazan product) is directly proportional to the viable cell number when using a homogeneous cell population. Dead cells are unable to cleave MTT within 30 minutes of lysis, indicating that this assay has potential value for quantitative and rapid measurement of cell death. The main advantage of this assay is that no radioisotopes are used, and no scintillation counter is needed and the speed at which samples can be processed. The final stages of

the assay, adding MTT, reading the plate and printing data, take much less time than setting up the assay. The assay can be read a few minutes after the addition of acid-isopropanol, and the color is stable for a few hours at room temperature. The results are also apparent visually, which is very helpful if qualitative results are required immediately. Also, it is important to remember the differences between this assay and radioactive nucleotide incorporation and to distinguish between cell death, survival and proliferation for a specific application. The colorimetric assay measures the number and activity of living cells at the end of the test, whereas ^{3}H thymidine incorporation measures the number of cells synthesizing DNA during the last few hours of the assay (Mossman et al., 1983).

A variety of cell types have been used for the testing of toxicity of dental materials. The rational for using human gingival fibroblasts with the tissue culture systems utilized in this investigation is that the connective tissue originally containing these cells is separated from the resins placed near the gingival structures by only a thin epithelial layer. Also, from a biological point of view, the use of diploid human gingival fibroblasts as the responding cells for screening agents is more credible than using aneuploid cell lines or other tissues (Kasten et al., 1982).

Several aneuploid cell lines employed for this purpose have included Strain L mouse fibroblasts, NCTC 25544 human skin epithelial cells, BHK-21 baby hamster kidney cells, and 3T3 mouse fibroblasts. It has been argued that these different continuous cell lines react uniformly to toxic substances but this point is controversial (Spanberg et al., 1978). Some results support this idea while other data indicate that cell sensitivity to materials varies on cell type. It has been reported that lymphoblasts are more sensitive than fibroblasts in assessing the cytotoxicity of root canal therapy solutions. Hanks (1981) demonstrated that PDL fibroblasts were less severely affected than 3T3 cells by dental cements and eluates. A difference in response was expected because many cell membrane properties are altered when transformation occurs and a cell line becomes continuous. A continuous cell line offers a number of advantages for standardized materials testing which include a single, consistent cell type for which the history and many metabolic functions are known and the lack of a senescent stage with loss of cellular functions. (Hanks et al., 1991)

Continuous cell lines offer certain practical gains for cytotoxicity experiments because they allow for reproducibility of the test system but there are now alternatives to the use of aneuploid cells or cells derived from regions of the body distant from the oral cavity. New cell strains of human gingival fibroblasts that exhibit differentiated properties in culture similar to those found *in vivo* are available. There is

overwhelming evidence, based largely on the human diploid lung fibroblast Strain WI-38, that the cells display predictable biochemical properties *in vitro* during the early and late phases of their life history. It has also been shown that fibroblastlike cells from the PDL have unique properties that distinguish them from fibroblastlike cells of the skin, when both are maintained in culture. There seems to be more agreement that toxicity studies with cultivated cells should employ human target cells that are diploid and demonstrate differentiated features during the test period. For this reason secondary cultures and strains of human diploid gingival fibroblasts, which retain specialized properties, were the cells of choice for the Agar Overlay and MTT cytotoxicty assays.

Toxicity testing of dental materials by means of cell culture methods has been claimed to be fairly simple to perform, reproducible, cost-effective, relevant and suitable as an alternative to animal experiments. Furthermore, the methods have been claimed to be suitable for toxicity screening of new materials, identification of cytotoxic substances and appropriate for the biological quality control of production batches. There may be some substance in each of these claims but further correlation studies between *in vitro* tests, physical and chemical data and *in vivo* studies is clearly needed (Hensten-Pettersen, 1988).

Tissue culture tests like the Agar Overlay and MTT assays offer distinct advantages in initial screening programs. *In vitro* tests used in assaying cytotoxicity of dental materials are well documented and have been shown to be valuable for routine quality control of materials that have been established as being histologically compatible. Tissue culture tests can further be used to determine which component of a material is toxic and to determine the relative order of toxicity of materials under identical conditions. The shorter study time *in vitro* permits more variables to be examined and more materials to be tested. The system lends itself to quantification, thereby permitting statistical comparison of the relative toxicities among materials. It is recognized, however, that there is less biological variability *in vitro* than in humans due to homogenous cell populations and that the toxicity assays employed are more sensitive to toxic substances than to *in vivo* implantation (Kasten et al., 1982).

There have also been numerous criticisms of the *in vitro* methods that have been used. The major criticism has arisen from the fact that, *in vivo*, the interaction between a material and a tissue is dependent upon a combination of factors, many of which involve the biological interplay between the variety of cells which are either resident within or attracted into the tissue concerned. Such interactions may involve metabolic, inflammatory and immunological responses. Most *in vitro* methods use single cell

types in which such interactions cannot take place. This criticism, therefore, has much validity for materials in most clinical situations. Another criticism of *in vitro* methods arises from the poor correlation between results obtained *in vitro* and *in vivo*. This lack of correlation is particularly great with ZOE based materials which are consistently bland when tested intradentally *in vivo* but highly toxic *in vitro*. It has been argued that *in vitro* tests are too sensitive and so provide meaningless data. However, their great sensitivity in not suprising for the design of the *in vitro* methods has concentrated upon providing the greatest possible contact between the material and the test cells. With such emphasis on the maximum possible exposure between the two components, *in vitro* methods have been regarded as being clinically unrealistic and thus used essentially as screening tests (Browne, 1988).

A major requirement of dental materials is that these items have low or negligible solubility in the set stage. There are many different applications of these materials, "it does not follow that if materials are biocompatible in one situation, like ZOE cement in dentine cavities, that the same materials are biocompatible when contacting other oral tissues. The results of cell culture methods used to assess biocompatibility have demonstrated that any dental material can be shown to be toxic or non-toxic, depending on the test conditions. This fact has been considered a draw back in assessing the relevance of cell culture studies, however this may be the real situation in selected instances." (Hensten-Pettersen, 1988).

Many investigators feel that tissue culture methods are inappropriate at present as screening systems for dental materials, largely because of lack of correlation with *in vivo* usage tests of the same material (Schmalz, 1988). Results from correlation studies between cell culture and usage tests are contradictory; most authors claim that there is only a little correlation. This may be due to the following basic problems associated with all *in vitro* systems: 1) They are closed systems, without metabolic change; 2) cells *in vitro* undergo changes which make them different from cells *in vivo*. 3) no simulation of the oral ecosystem is possible; especially since the presence of bacteria, the influence of physico-chemical properties of the material, and the loading of masticatory forces onto the tissue, cannot be taken into account; 4) the influence of the operating technique cannot be evaluated. However, the advantage of cell culture methods in general is that basic biological properties of biomaterials can be quickly and easily evaluated at low cost. A lack of correlation between *in vivo* usage tests and *in vitro* cell culture screening tests has been shown by Mjor et al. (1977) and Langeland (1978). However, Spangberg (1978) suggests that *in vitro* cell culture techniques provide a simple means of screening toxic effects of materials. Because of the relative

simplicity of these *in vitro* systems, and because of their capability of separating different experimental parameters, cell culture methods are an effective means of investigating mechanisms of toxic responses (Rathbun et al., 1991). When *in vitro* methods have been criticized for a lack of reproducibility, it is most likely because the details of the test methods have not been defined sufficiently (Browne, 1988).

A lack of correlation between *in vitro* and *in vivo* usage in clinical orthodontics may also be due to several factors including distance of adhesive material around the bracket to the gingival epithelium and complexity of the inflammatory response to the material. At sites where local inflammatory reactions occur, a cellular infiltrate of neutrophils, macrophages, and leukocytes aggregate and produce enzymes that activate the mediators of inflammation released by mast cells. Few people have considered as the immediate cause of the inflammatory infiltrate a chemotactic response, either to the adhesive resin, to bacteria associated with the resin or to complement activation by the tested material. Testing for the validity of this sequence, chemotaxis of neutrophils followed by necrosis, cannot be accomplished by simple cytotoxicty experiments *in vitro*. The critical clinical question in attempting to correlate *in vivo* usage tests with *in vitro* cytotoxicity tests in the sequential relationship between neutrophilic response and cell death, following placement of the adhesive (Hanks et al., 1991). The long term reactions are dependent on composition of the materials, the toxic components, degradation products, absorption, accumulation, and other factors associated with leachable substances from the materials.

If an *in vitro* method is to be used for purposes other than screening, then it must be designed so that it resembles as closely as possible the clinical situation in which the material is to be used. The surface area of the material exposed to the test cells should resemble that encountered in normal clinical practice (i.e. tooth model vs. mold model). Other than the composition of the specimen itself, surface area is probably the most important variable. Although its importance in the control of individual experiments has been long appreciated, there has been considerable variation in the size of specimens used in different studies. It has been stated that any material can be found to be toxic in studies *in vitro*. Whereas this is undoubtedly true, the same statement can be made of *in vivo* situations where, if given in absurd dosages, virtually any substance can be demonstrated to be toxic. The important point is that the test system posses clinical realism, and one of the most important features in the evaluation of resin materials is their surface area. The effect of varying surface area has been clearly demonstrated by studies carried out by Hume (1991) and Thompson (1982). The other important aspects of a test method are the test cells and the method of measuring the

cytotoxic effects upon them (Hensten-Pettersen, 1988). The connective tissue of the gingiva forms the bulk of the tissue and is covered by a continuous layer of epithelium extending from sulcus to the outer attached gingiva. It would thus seem that the most appropriate test cells are either the epithelium or fibroblasts. Gingival epithelium cells are specialized cells and are difficult to grow in culture. Fibroblasts, on the other hand, are relatively undifferentiated cells and can be quite readily cultured. (Browne, 1988).

From the data presented, it is obvious that cured orthodontic bonding resins are far from inert. Even when mixed and cured according to the manufacturers instructions, considerable quantities of unpolymerized components of the resins are readily leached from the cured product by aqueous solution. This study does not deal directly with the mechanisms by which test materials exert their toxicity, but diffusible products were probably responsible for the toxic effects. "Ideally, a dental material that is to be used in the oral cavity should be harmless to the pulp and the soft tissues, should contain no toxic diffusible substance that can be absorbed into the circulatory system to cause a systemic toxic response, should be free of potentially sensitizing agents that could lead to an allergic response, and should have no carcinogenic potential" (Phillips, 1991). It is presumed that when cytotoxicity is observed, either some chemical degradation of the composite resin has occurred or leaching of materials has occurred, or both. Tissue culture testing of dental and biomaterials is important for the future development of new and improved products by defining which components cause a deleterious response in test cells. Also, *in vitro* testing will help identify discrepancies between clinical observations *in vivo* with *in vitro* usage. Further work is also needed to investigate the mechanism of cell injury and necrosis by the components of biomaterials through *in vitro* testing. (Hanks et al., 1991).

The need for the biological evaluation of dental materials is unquestioned. Many materials, in particular restorative materials, remain in contact with the vital tissue components of the dentine, pulp, the periodontal and periapical tissues and the oral mucosa for prolonged periods of time, often for many years. It is essential, therefore, that such materials are evaluated for any possible adverse effects prior to their widespread clinical use (Browne, 1988). Even if dental materials show little, if any, clinical adverse effects in the majority of the populations, there will always be instances where the materials are used in persons very sensitive to one substance or another. Further cell culture studies, coupled with studies *in vivo*, will enable the toxic and non-toxic components released from the various dental materials to be identified and possibly their mode of action on living cells (Hensten-Pettersen, 1988).

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In Vitro Cytotoxic and Quantitative Evaluation of Composite Resin Components Associated with Orthodontic Bonding Materials

HPLC DATA
LIGHT CURE RESIN

APPENDIX - III

University of California San Francisco
Department of Oral Biology

Michael V. Palasz, D.M.D.

4	0.194	0.049	[illegible]	0.094	0.064	0.041	0.026	[illegible]		
5	0.372	0.08	0.052	0.059	0.044					
6	0.269	0.033	0.029							

SUMMARY-LIGHT CURE TEGDMA, n=6, µg in 100 µl

Mold	4 V	144	A(432)	B(144)	C(432)	D(1.0)	E(50)	F(100)	G(300)	H(1000)
mean	[illegible]	0.0521	0.0445	0.071	0.0578	0.048	0.022	0.019	0.011	0
SD	[illegible]	0.0133	0.0124	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0

SUMMARY LIGHT CURE [illegible]

LIGHT CURE-TEGDMA, n=6, μg in 100 μl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	1.178	0.692	0.464	0.502	0.361	0.587	0.624	0.822	0.013	0.131
2	1.445	0.412	0.167	0.154	0.124	0.175	0.012	0	0.013	0.029
3	1.46	0.423	0.169	0.155	0.127	0.201	0.9	1.152	0.819	0.164
4	0.711	0.307	0.113	0.081	0.068	0.117	0.18	0.299	0.32	0.021
5	1.026	0.461	0.232	0.191	0.25	0.522	0.723	1.124	0.198	0.085
6	1.293	0.598	0.36	0.157	0.092	0.113	0.174	0.026	0	0

SUMMARY-LIGHT CURE-TEGDMA ,n=6, μg in 100 μl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	1.1855	0.4822	0.2508	0.2067	0.1703	0.2858	0.4355	0.5705	0.2272	0.0717
sd	0.2846	0.1393	0.1345	0.1491	0.1125	0.2118	0.3597	0.5298	0.3172	0.066

LIGHT CURE-TEGDMA, n=6, μg in 100 μl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.299	0.047	0.059	0.072	0.048	0.043	0.023	0.016	0.018	0
2	0.227	0.056	0.055	0.074	0.053	0.044	0.023	0.019	0	0
3	0.631	0.049	0.038	0.065	0.05	0.047	0.029	0.018	0.01	0
4	0.194	0.049	0.034	0.074	0.058	0.052	0.025	0.022	0.015	0
5	0.372	0.08	0.052	0.094	0.064	0.059	0.036	0.024	0.008	0
6	0.269	0.033	0.029	0.059	0.044	0.043	0.026	0.017	0.015	0

SUMMARY-LIGHT CURE-TEGDMA ,n=6, μg in 100 μl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.332	0.0523	0.0445	0.073	0.0528	0.048	0.027	0.0193	0.011	0
sd	0.1588	0.0155	0.0124	0.0119	0.0072	0.0064	0.0049	0.0031	0.0065	0

LIGHT CURE-TEGDMA, n=6, μg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	11.78	6.92	4.64	5.02	3.61	5.87	6.24	8.22	0.13	1.31
2	14.45	4.12	1.67	1.54	1.24	1.75	0.12	0	0.13	0.29
3	14.6	4.23	1.69	1.55	1.27	2.01	9	11.52	8.19	1.64
4	7.11	3.07	1.13	0.81	0.68	1.17	1.8	2.99	3.2	0.21
5	10.26	4.61	2.32	1.91	2.5	5.22	7.23	11.24	1.98	0.85
6	12.93	5.98	3.6	1.57	0.92	1.13	1.74	0.26	0	0

SUMMARY-LIGHT CURE-TEGDMA,n=6,μg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	11.86	4.822	2.508	2.067	1.703	2.858	4.355	5.705	2.272	0.7167
sd	2.846	1.393	1.345	1.491	1.125	2.118	3.597	5.298	3.172	0.6595

LIGHT CURE-TEGDMA, n=6, μg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	2.99	0.47	0.59	0.72	0.48	0.43	0.23	0.16	0.18	0
2	2.27	0.56	0.55	0.74	0.53	0.44	0.23	0.19	0	0
3	6.31	0.49	0.38	0.65	0.5	0.47	0.29	0.18	0.1	0
4	1.94	0.49	0.34	0.74	0.58	0.52	0.25	0.22	0.15	0
5	3.72	0.8	0.52	0.94	0.64	0.59	0.36	0.24	0.08	0
6	2.69	0.33	0.29	0.59	0.44	0.43	0.26	0.17	0.15	0

SUMMARY-LIGHT CURE-TEGDMA,n=6,μg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	3.32	0.523	0.445	0.73	0.528	0.48	0.27	0.193	0.11	0
sd	1.588	0.155	0.124	0.119	0.072	0.064	0.049	0.031	0.065	0

LIGHT CURE-TEGDMA, n=6, µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	11.78	18.7	23.34	28.36	31.97	37.84	44.08	52.3	52.43	53.74
2	14.45	18.57	20.24	21.78	23.02	24.77	24.89	24.89	25.02	25.31
3	14.6	18.83	20.52	22.07	23.34	25.35	34.35	45.87	54.06	55.7
4	7.11	10.18	11.31	12.12	12.8	13.97	15.77	18.76	21.96	22.17
5	10.26	14.87	17.19	19.1	21.6	26.82	34.05	45.29	47.27	48.12
6	12.93	18.91	22.51	24.08	25	26.13	27.87	28.13	28.13	28.13

SUMMARY-LIGHT CURE-TEGDMA,n=6,µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	11.86	16.68	19.19	21.252	22.955	25.81	30.168	35.873	38.145	38.862
sd	2.846	3.543	4.409	5.4313	6.1736	7.581	9.6596	13.652	14.6638	15.284

LIGHT CURE-TEGDMA, n=6, µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	2.99	3.46	4.05	4.77	5.25	5.68	5.91	6.07	6.25	6.25
2	2.27	2.83	3.38	4.12	4.65	5.09	5.32	5.51	5.51	5.51
3	6.31	6.8	7.18	7.83	8.33	8.8	9.09	9.27	9.37	9.37
4	1.94	2.43	2.77	3.51	4.09	4.61	4.86	5.08	5.23	5.23
5	3.72	4.52	5.04	5.98	6.62	7.21	7.57	7.81	7.89	7.89
6	2.69	3.02	3.31	3.9	4.34	4.77	5.03	5.2	5.35	5.35

LIGHT CURE-TEGDMA, n=6, µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	3.32	3.843	4.288	5.0183	5.5467	6.027	6.2967	6.49	6.6	6.6
sd	1.588	1.615	1.617	1.6263	1.6352	1.654	1.685	1.6888	1.67851	1.6785

LIGHT CURE-TEGDMA, n=6 µmol										
tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.041	0.024	0.016	0.018	0.013	0.0205	0.022	0.029	5E-04	0.0046
2	0.05	0.014	0.006	0.005	0.004	0.0061	4E-04	0	5E-04	0.001
3	0.051	0.015	0.006	0.005	0.004	0.007	0.031	0.04	0.029	0.0057
4	0.025	0.011	0.004	0.003	0.002	0.0041	0.006	0.01	0.011	0.0007
5	0.036	0.016	0.008	0.007	0.009	0.0182	0.025	0.039	0.007	0.003
6	0.045	0.021	0.013	0.005	0.003	0.0039	0.006	9E-04	0	0

SUMMARY-LIGHT CURE-TEGDMA, n=6, µmol										
tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.041	0.017	0.009	0.007	0.006	0.01	0.015	0.02	0.008	0.0025
sd	0.01	0.005	0.005	0.005	0.004	0.0074	0.013	0.019	0.011	0.0023

LIGHT CURE-TEGDMA, n=6 µmol										
mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.01	0.002	0.002	0.003	0.002	0.0015	8E-04	6E-04	6E-04	0
2	0.008	0.002	0.002	0.003	0.002	0.0015	8E-04	7E-04	0	0
3	0.022	0.002	0.001	0.002	0.002	0.0016	0.001	6E-04	3E-04	0
4	0.007	0.002	0.001	0.003	0.002	0.0018	9E-04	8E-04	5E-04	0
5	0.013	0.003	0.002	0.003	0.002	0.0021	0.001	8E-04	3E-04	0
6	0.009	0.001	0.001	0.002	0.002	0.0015	9E-04	6E-04	5E-04	0

LIGHT CURE-TEGDMA, n=6 µmol										
mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.012	0.002	0.002	0.003	0.002	0.0017	9E-04	7E-04	4E-04	0
sd	0.006	5E-04	4E-04	4E-04	3E-04	0.0002	2E-04	1E-04	2E-04	0

LIGHT CURE-TEGDMA, n=6, μmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.041	0.065	0.0815	0.0991	0.1117	0.1322	0.154	0.183	0.183	0.1877
2	0.05	0.065	0.0707	0.0761	0.0804	0.0865	0.087	0.087	0.087	0.0884
3	0.051	0.066	0.0717	0.0771	0.0815	0.0885	0.12	0.16	0.189	0.1946
4	0.025	0.036	0.0395	0.0423	0.0447	0.0488	0.055	0.066	0.077	0.0774
5	0.036	0.052	0.06	0.0667	0.0754	0.0937	0.119	0.158	0.165	0.1681
6	0.045	0.066	0.0786	0.0841	0.0873	0.0913	0.097	0.098	0.098	0.0983

SUMMARY-LIGHT CURE-TEGDMA, n=6, μmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.041	0.058	0.067	0.0742	0.0802	0.0902	0.105	0.125	0.133	0.1357
sd	0.01	0.012	0.0154	0.019	0.0216	0.0265	0.034	0.048	0.051	0.0534

LIGHT CURE-TEGDMA, n=6, μg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	2.727	0.687	0.161	0.05	0.013	0.0058	0.0022	0.0008	5E-06	1E-05
2	3.345	0.409	0.058	0.015	0.004	0.0017	4E-05	0	5E-06	3E-06
3	3.38	0.42	0.059	0.015	0.004	0.002	0.0031	0.0011	0.0003	2E-05
4	1.646	0.305	0.039	0.008	0.002	0.0012	0.0006	0.0003	0.0001	2E-06
5	2.375	0.457	0.081	0.019	0.009	0.0052	0.0025	0.0011	7E-05	8E-06
6	2.993	0.593	0.125	0.016	0.003	0.0011	0.0006	3E-05	0	0

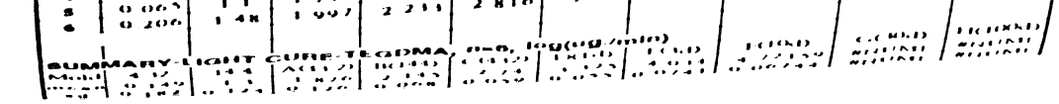
SUMMARY-LIGHT CURE-TEGDMA ,n=6, μg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	2.744	0.478	0.087	0.021	0.006	0.0028	0.0015	0.0006	8E-05	7E-06
sd	0.659	0.138	0.047	0.015	0.004	0.0021	0.0012	0.0005	0.0001	7E-06

LIGHT CURE-TEGDMA, n=6, μmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.01	0.012	0.0141	0.0167	0.0183	0.0198	0.021	0.021	0.022	0.0218
2	0.008	0.01	0.0118	0.0144	0.0162	0.0178	0.019	0.019	0.019	0.0192
3	0.022	0.024	0.0251	0.0273	0.0291	0.0307	0.032	0.032	0.033	0.0327
4	0.007	0.008	0.0097	0.0123	0.0143	0.0161	0.017	0.018	0.018	0.0183
5	0.013	0.016	0.0176	0.0209	0.0231	0.0252	0.026	0.027	0.028	0.0276
6	0.009	0.011	0.0116	0.0136	0.0152	0.0167	0.018	0.018	0.019	0.0187

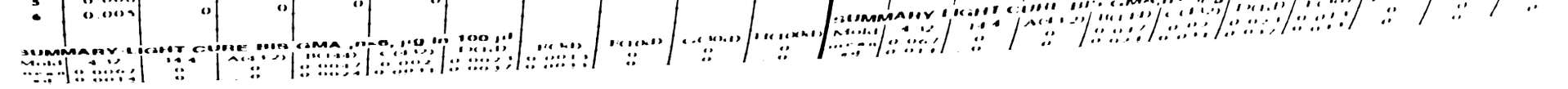
SUMMARY-LIGHT CURE-TEGDMA, n=6, μmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.012	0.013	0.015	0.0175	0.0194	0.0211	0.022	0.023	0.023	0.0231
sd	0.006	0.006	0.0056	0.0057	0.0057	0.0058	0.006	0.006	0.006	0.0059

LIGHT CURE-TEGDMA, n=6, μg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.692	0.047	0.02	0.007	0.002	0.0004	8E-05	2E-05	6E-06	0
2	0.525	0.056	0.019	0.007	0.002	0.0004	8E-05	2E-05	0	0
3	1.461	0.049	0.013	0.006	0.002	0.0005	0.0001	2E-05	3E-06	0
4	0.449	0.049	0.012	0.007	0.002	0.0005	9E-05	2E-05	5E-06	0
5	0.861	0.079	0.018	0.009	0.002	0.0006	0.0001	2E-05	3E-06	0
6	0.623	0.033	0.01	0.006	0.002	0.0004	9E-05	2E-05	5E-06	0

SUMMARY-LIGHT CURE-TEGDMA ,n=6, μg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.769	0.052	0.015	0.007	0.002	0.0005	9E-05	2E-05	4E-06	0
sd	0.368	0.015	0.004	0.001	3E-04	6E-05	2E-05	3E-06	2E-06	0



LIGHT CURE-TEGDMA, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.436	-0.16	-0.793	-1.303	-1.902	-2.235	-2.664	-3.08859	-5.3454	-4.8862
2	0.524	-0.39	-1.237	-1.816	-2.366	-2.76	-4.38	#NUM!	-5.3454	-5.5411
3	0.529	-0.38	-1.232	-1.813	-2.356	-2.7	-2.505	-2.94201	-3.5461	-4.7886
4	0.216	-0.52	-1.406	-2.095	-2.627	-2.935	-3.204	-3.52779	-3.9542	-5.6812
5	0.376	-0.34	-1.094	-1.722	-2.061	-2.286	-2.6	-2.95269	-4.1627	-5.074
6	0.476	-0.23	-0.903	-1.808	-2.496	-2.95	-3.219	-4.58849	#NUM!	#NUM!
SUMMARY-LIGHT CURE-TEGDMA, n=6, log(ug/min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.426	-0.34	-1.111	-1.759	-2.301	-2.644	-3.095	#NUM!	#NUM!	#NUM!
sd	0.118	0.125	0.229	0.257	0.271	0.313	0.701	#NUM!	#NUM!	#NUM!
LIGHT CURE-TEGDMA, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	-0.16	-1.33	-1.689	-2.146	-2.778	-3.37	-4.098	-4.79934	-5.2041	#NUM!
2	-0.279	-1.26	-1.719	-2.134	-2.735	-3.36	-4.098	-4.72471	#NUM!	#NUM!
3	0.165	-1.31	-1.88	-2.191	-2.76	-3.331	-3.997	-4.74819	-5.4594	#NUM!
4	-0.348	-1.31	-1.928	-2.134	-2.696	-3.287	-4.061	-4.66104	-5.2833	#NUM!
5	-0.065	-1.1	-1.743	-2.03	-2.653	-3.233	-3.903	-4.62325	-5.5563	#NUM!
6	-0.206	-1.48	-1.997	-2.233	-2.816	-3.37	-4.044	-4.77301	-5.2833	#NUM!
SUMMARY-LIGHT CURE-TEGDMA, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	-0.149	-1.3	-1.826	-2.145	-2.74	-3.325	-4.034	-4.72159	#NUM!	#NUM!
sd	0.182	0.124	0.126	0.068	0.059	0.055	0.0741	0.06744	#NUM!	#NUM!



LIGHT CURE-BIS-GMA, n=6, µg in 100 µl

Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.156	0.03	0.012	0.029	0.045	0.082	0.089	0	0	0
2	0.151	0.009	0.01	0.038	0.058	0.092	0	0	0	0
3	0.14	0.008	0.01	0.039	0.057	0.09	0.025	0.018	0.008	0
4	0.041	0.035	0.008	0.019	0.016	0.032	0.004	0.005	0.003	0
5	0.023	0.043	0.008	0.012	0.021	0.049	0.039	0	0	0
6	0.101	0.007	0.009	0.037	0.031	0.051	0.058	0	0	0

SUMMARY-LIGHT CURE-BIS-GMA ,n=6, µg in 100 µl

Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.102	0.022	0.0095	0.029	0.038	0.066	0.0358	0.0038	0.0018	0
sd	0.0578	0.0159	0.0015	0.0113	0.0181	0.0252	0.0339	0.0072	0.0033	0

LIGHT CURE-BIS-GMA, n=6, µg in 100 µl

Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.007	0	0	0.006	0.006	0.008	0	0	0	0
2	0.009	0	0	0.005	0	0	0	0	0	0
3	0.007	0	0	0.005	0	0	0	0	0	0
4	0.006	0	0	0.005	0	0	0	0	0	0
5	0.006	0	0	0.007	0.006	0.006	0.008	0	0	0
6	0.005	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-BIS-GMA ,n=6, µg in 100 µl

Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.0067	0	0	0.0047	0.002	0.0023	0.0013	0	0	0
sd	0.0014	0	0	0.0024	0.0031	0.0037	0.0033	0	0	0

LIGHT CURE-BIS-GMA, n=6, µg

Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	1.56	0.3	0.12	0.29	0.45	0.82	0.89	0	0	0
2	1.51	0.09	0.1	0.38	0.58	0.92	0	0	0	0
3	1.4	0.08	0.1	0.39	0.57	0.9	0.25	0.18	0.08	0
4	0.41	0.35	0.08	0.19	0.16	0.32	0.04	0.05	0.03	0
5	0.23	0.43	0.08	0.12	0.21	0.49	0.39	0	0	0
6	1.01	0.07	0.09	0.37	0.31	0.51	0.58	0	0	0

SUMMARY-LIGHT CURE-BIS-GMA,n=6,µg

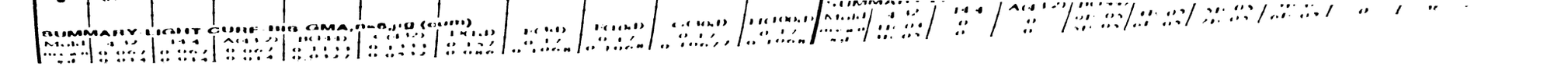
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	1.02	0.22	0.095	0.29	0.38	0.66	0.358	0.038	0.018	0
sd	0.578	0.159	0.015	0.113	0.181	0.252	0.339	0.072	0.033	0

LIGHT CURE-BIS-GMA, n=6, µg

Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.07	0	0	0.06	0.06	0.08	0	0	0	0
2	0.09	0	0	0.05	0	0	0	0	0	0
3	0.07	0	0	0.05	0	0	0	0	0	0
4	0.06	0	0	0.05	0	0	0	0	0	0
5	0.06	0	0	0.07	0.06	0.06	0.08	0	0	0
6	0.05	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-BIS-GMA,n=6,µg

Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.067	0	0	0.047	0.02	0.023	0.013	0	0	0
sd	0.014	0	0	0.024	0.031	0.037	0.033	0	0	0



LIGHT CURE-BIS-GMA, n=6, µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	1.56	1.86	1.98	2.27	2.72	3.54	4.43	4.43	4.43	4.43
2	1.51	1.6	1.7	2.08	2.66	3.58	3.58	3.58	3.58	3.58
3	1.4	1.48	1.58	1.97	2.54	3.44	3.69	3.87	3.95	3.95
4	0.41	0.76	0.84	1.03	1.19	1.51	1.55	1.6	1.63	1.63
5	0.23	0.66	0.74	0.86	1.07	1.56	1.95	1.95	1.95	1.95
6	1.01	1.08	1.17	1.54	1.85	2.36	2.94	2.94	2.94	2.94

SUMMARY-LIGHT CURE-BIS-GMA,n=6,µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	1.02	1.24	1.335	1.625	2.005	2.665	3.0233	3.0617	3.08	3.08
sd	0.578	0.482	0.497	0.5811	0.7469	0.985	1.1012	1.1119	1.1161	1.1161

LIGHT CURE-BIS-GMA, n=6, µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.07	0.07	0.07	0.13	0.19	0.27	0.27	0.27	0.27	0.27
2	0.09	0.09	0.09	0.14	0.14	0.14	0.14	0.14	0.14	0.14
3	0.07	0.07	0.07	0.12	0.12	0.12	0.12	0.12	0.12	0.12
4	0.06	0.06	0.06	0.11	0.11	0.11	0.11	0.11	0.11	0.11
5	0.06	0.06	0.06	0.13	0.19	0.25	0.33	0.33	0.33	0.33
6	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

SUMMARY-LIGHT CURE-BIS-GMA,n=6,µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.067	0.067	0.067	0.1133	0.1333	0.157	0.17	0.17	0.17	0.17
sd	0.014	0.014	0.014	0.0327	0.0532	0.086	0.1068	0.1068	0.10677	0.1068

LIGHT CURE-BIS-GMA, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.003	6E-04	2E-04	6E-04	9E-04	0.0016	0.002	0	0	0
2	0.003	2E-04	2E-04	7E-04	0.001	0.0018	0	0	0	0
3	0.003	2E-04	2E-04	8E-04	0.001	0.0018	5E-04	4E-04	2E-04	0
4	8E-04	7E-04	2E-04	4E-04	3E-04	0.0006	8E-05	1E-04	6E-05	0
5	4E-04	8E-04	2E-04	2E-04	4E-04	0.001	8E-04	0	0	0
6	0.002	1E-04	2E-04	7E-04	6E-04	0.001	0.001	0	0	0

SUMMARY-LIGHT CURE-BIS-GMA, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.002	4E-04	2E-04	6E-04	7E-04	0.0013	7E-04	7E-05	4E-05	0
sd	0.001	3E-04	3E-05	2E-04	4E-04	0.0005	7E-04	1E-04	6E-05	0

LIGHT CURE-BIS-GMA, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	1E-04	0	0	1E-04	1E-04	0.0002	0	0	0	0
2	2E-04	0	0	1E-04	0	0	0	0	0	0
3	1E-04	0	0	1E-04	0	0	0	0	0	0
4	1E-04	0	0	1E-04	0	0	0	0	0	0
5	1E-04	0	0	1E-04	1E-04	0.0001	2E-04	0	0	0
6	1E-04	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-BIS-GMA, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	1E-04	0	0	9E-05	4E-05	5E-05	3E-05	0	0	0
sd	3E-05	0	0	5E-05	6E-05	7E-05	6E-05	0	0	0

5	1E 04	1E 04	[illegible]	1E 04	1E 04
6	1E 04	1E 04	1E 04		

SUMMARY-LIGHT CURE BIS-GMA, n=6, µmol (cum)

Mold	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	0.0001	0.0002	0.0001	0.0001	[illegible]	[illegible]	[illegible]	0.0001
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0002

SUMMARY-LIGHT [illegible]

LIGHT CURE-BIS-GMA, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.003	0.004	0.0039	0.0044	0.0053	0.0069	0.009	0.009	0.009	0.0086
2	0.003	0.003	0.0033	0.0041	0.0052	0.007	0.007	0.007	0.007	0.007
3	0.003	0.003	0.0031	0.0038	0.005	0.0067	0.007	0.008	0.008	0.0077
4	8E-04	0.001	0.0016	0.002	0.0023	0.0029	0.003	0.003	0.003	0.0032
5	4E-04	0.001	0.0014	0.0017	0.0021	0.003	0.004	0.004	0.004	0.0038
6	0.002	0.002	0.0023	0.003	0.0036	0.0046	0.006	0.006	0.006	0.0057

SUMMARY-LIGHT CURE-BIS-GMA, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.002	0.002	0.0026	0.0032	0.0039	0.0052	0.006	0.006	0.006	0.006
sd	0.001	9E-04	0.001	0.0011	0.0015	0.0019	0.002	0.002	0.002	0.0022

LIGHT CURE-BIS-GMA, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	1E-04	1E-04	0.0001	0.0003	0.0004	0.0005	5E-04	5E-04	5E-04	0.0005
2	2E-04	2E-04	0.0002	0.0003	0.0003	0.0003	3E-04	3E-04	3E-04	0.0003
3	1E-04	1E-04	0.0001	0.0002	0.0002	0.0002	2E-04	2E-04	2E-04	0.0002
4	1E-04	1E-04	0.0001	0.0002	0.0002	0.0002	2E-04	2E-04	2E-04	0.0002
5	1E-04	1E-04	0.0001	0.0003	0.0004	0.0005	6E-04	6E-04	6E-04	0.0006
6	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04

SUMMARY-LIGHT CURE-BIS-GMA, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	1E-04	1E-04	0.0001	0.0002	0.0003	0.0003	3E-04	3E-04	3E-04	0.0003
sd	3E-05	3E-05	3E-05	6E-05	0.0001	0.0002	2E-04	2E-04	2E-04	0.0002

LIGHT CURE-BIS-GMA, n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.361	0.03	0.004	0.003	0.002	0.0008	0.0003	0	0	0
2	0.35	0.009	0.003	0.004	0.002	0.0009	0	0	0	0
3	0.324	0.008	0.003	0.004	0.002	0.0009	9E-05	2E-05	3E-06	0
4	0.095	0.035	0.003	0.002	6E-04	0.0003	1E-05	5E-06	1E-06	0
5	0.053	0.043	0.003	0.001	7E-04	0.0005	0.0001	0	0	0
6	0.234	0.007	0.003	0.004	0.001	0.0005	0.0002	0	0	0

SUMMARY-LIGHT CURE-BIS-GMA ,n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.236	0.022	0.003	0.003	0.001	0.0007	0.0001	4E-06	6E-07	0
sd	0.134	0.016	5E-04	0.001	6E-04	0.0003	0.0001	7E-06	1E-06	0

LIGHT CURE-BIS-GMA, n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.016	0	0	6E-04	2E-04	8E-05	0	0	0	0
2	0.021	0	0	5E-04	0	0	0	0	0	0
3	0.016	0	0	5E-04	0	0	0	0	0	0
4	0.014	0	0	5E-04	0	0	0	0	0	0
5	0.014	0	0	7E-04	2E-04	6E-05	3E-05	0	0	0
6	0.012	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-BIS-GMA ,n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.015	0	0	5E-04	7E-05	2E-05	5E-06	0	0	0
sd	0.003	0	0	2E-04	1E-04	4E-05	1E-05	0	0	0

1.857	#####	#NUM!	#NUM!	#NUM!	[illegible]
-1.937	#####	#NUM!	#NUM!	#NUM!	

IMMARY-LIGHT CURE BIS-GMA, n=6, log(ug/min)

[illegible]	4.32	14.4	A(432)	B(144)	C(432)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
[illegible]	[illegible]	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

LIGHT CURE-BIS-GMA, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	-0.442	-1.53	-2.38	-2.541	-2.806	-3.09	-3.51	#NUM!	#NUM!	#NUM!
2	-0.457	-2.05	-2.459	-2.424	-2.696	-3.04	#NUM!	#NUM!	#NUM!	#NUM!
3	-0.489	-2.1	-2.459	-2.412	-2.704	-3.049	-4.061	-4.74819	-5.5563	#NUM!
4	-1.023	-1.46	-2.556	-2.725	-3.255	-3.498	-4.857	-5.30449	-5.9823	#NUM!
5	-1.274	-1.37	-2.556	-2.924	-3.137	-3.313	-3.868	#NUM!	#NUM!	#NUM!
6	-0.631	-2.16	-2.505	-2.435	-2.968	-3.296	-3.696	#NUM!	#NUM!	#NUM!
SUMMARY-LIGHT CURE-BIS-GMA, n=6, log(ug./min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	-0.719	-1.78	-2.486	-2.577	-2.928	-3.214	#NUM!	#NUM!	#NUM!	#NUM!
sd	0.348	0.362	0.068	0.207	0.233	0.185	#NUM!	#NUM!	#NUM!	#NUM!
LIGHT CURE-BIS-GMA, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	-1.79	#####	#NUM!	-3.225	-3.681	-4.1	#NUM!	#NUM!	#NUM!	#NUM!
2	-1.681	#####	#NUM!	-3.304	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
3	-1.79	#####	#NUM!	-3.304	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
4	-1.857	#####	#NUM!	-3.304	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
5	-1.857	#####	#NUM!	-3.158	-3.681	-4.225	-4.556	#NUM!	#NUM!	#NUM!
6	-1.937	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
SUMMARY-LIGHT CURE-BIS-GMA, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	-1.819	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
sd	0.086	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

SUMMARY: LIGHT CURE & PEROXIDE

LIGHT CURE-B.PEROXIDE, n=6, µg In 100 µl

Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE ,n=6, µg In 100 µl

Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, µg In 100 µl

Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE ,n=6, µg In 100 µl

Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, µg

Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE-TEGDMA,n=6,µg

Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, µg

Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE,n=6,µg

Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

4	0		0	0		0				
5	0	0	0	0	0					
6	0	0	0							

SUMMARY-LIGHT CURE B.PEROXIDE,n=6,μg (cum)

Mold	4 12	14 4	A(4 12)	B(144)	C(4 12)	D(1d)	E(1d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, μg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE-TEGDMA,n=6,μg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, μg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE,n=6,μg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE ,n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-LIGHT CURE-B.PEROXIDE ,n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

LIGHT CURE-B.PEROXIDE, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
2	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
3	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
4	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
5	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
6	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

SUMMARY-LIGHT CURE-B.PEROXIDE, n=6, log(ug./min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

LIGHT CURE-B.PEROXIDE, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
2	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
3	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
4	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
5	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
6	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

SUMMARY-LIGHT CURE-B.PEROXIDE, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

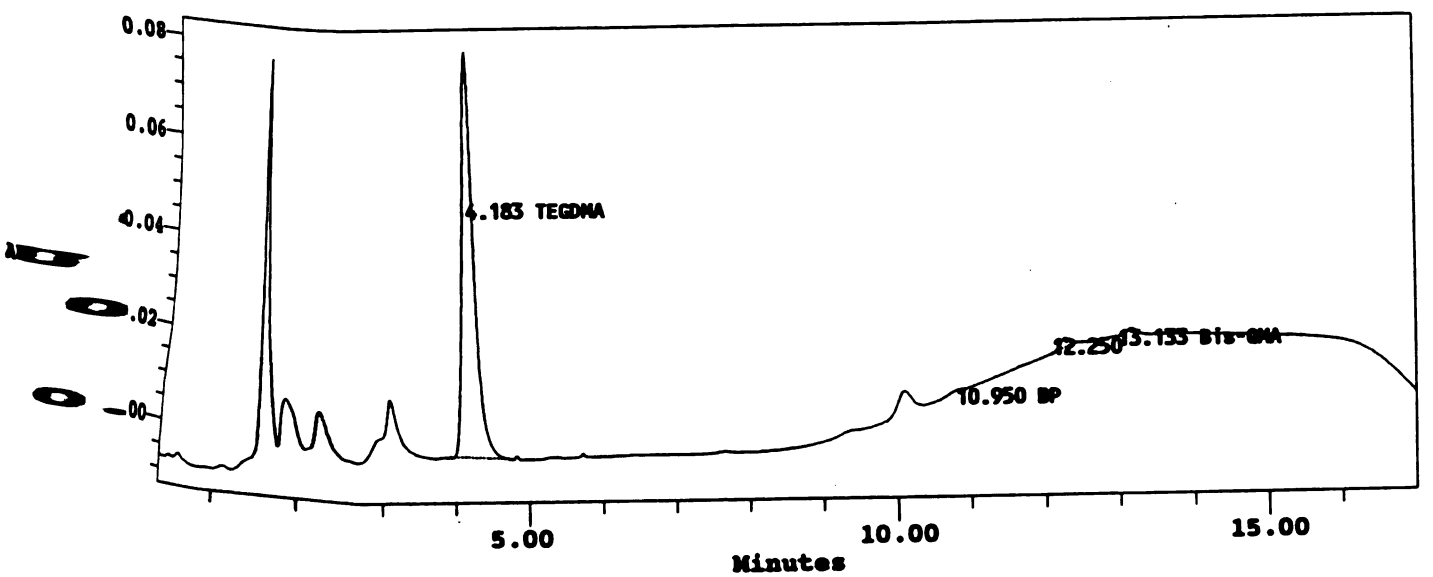
Mold Model

HPLC DATA

LIGHT CURE RESIN

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T1 MOLD		
Vial:	61	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 01:11 AM	Date Processed:	10/20/93 08:57 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

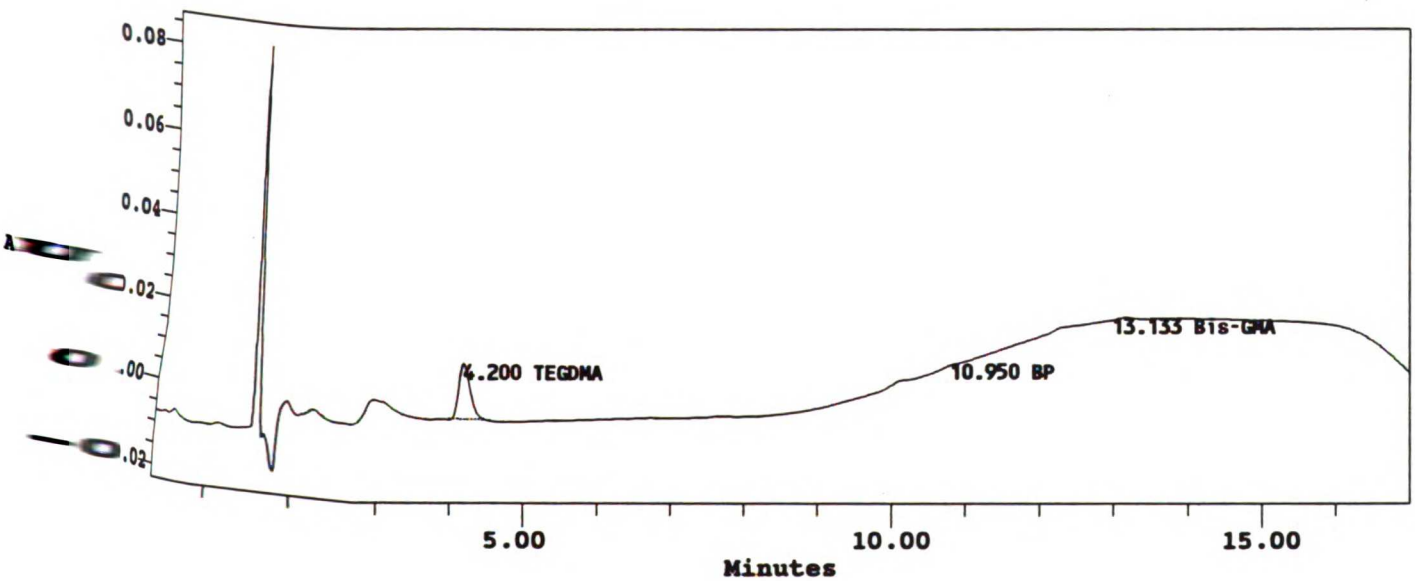
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	906320	82746	0.299	BB
2	BP	10.950				Missing
3		12.250	18221	2015		BB
4	Bis-GMA	13.133				Missing

For Sample: R3S1T2 MOLD Vial: 67 Inj: 1 Chan: 486 Date Processed 10/20/93 08:59 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T2 MOLD		
Vial:	67	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 03:04 AM	Date Processed:	10/20/93 08:59 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

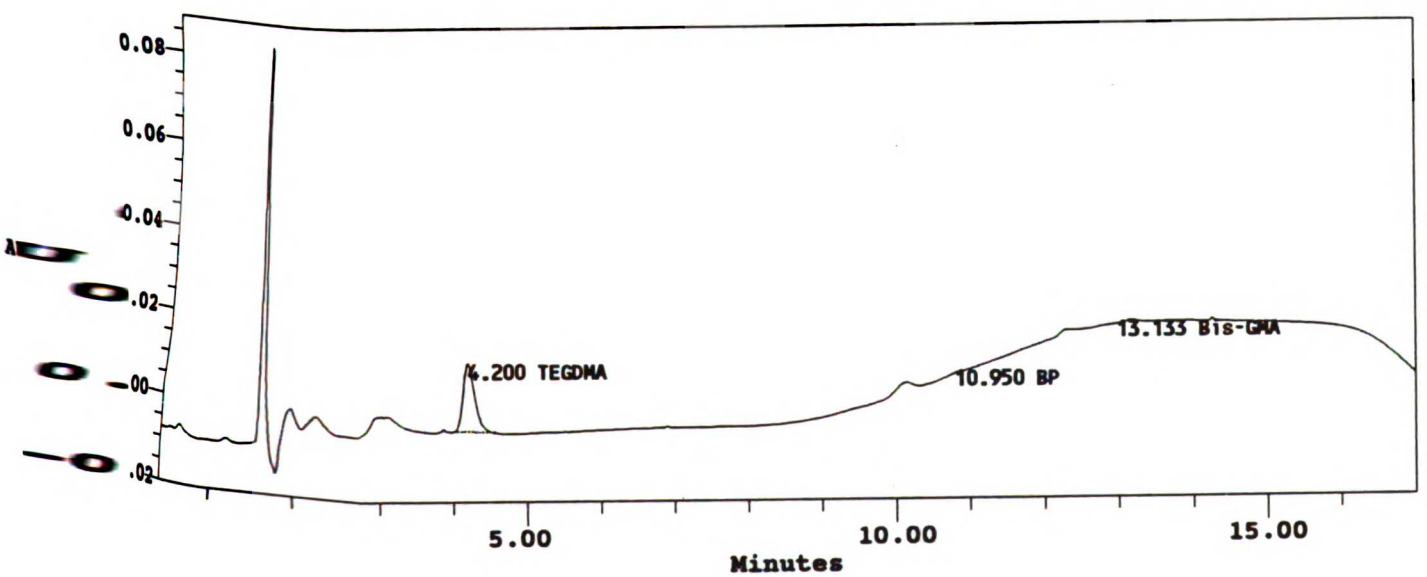


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	142688	13080	0.047	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T3 MOLD		
Vial:	73	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 04:56 AM	Date Processed:	10/20/93 09:02 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

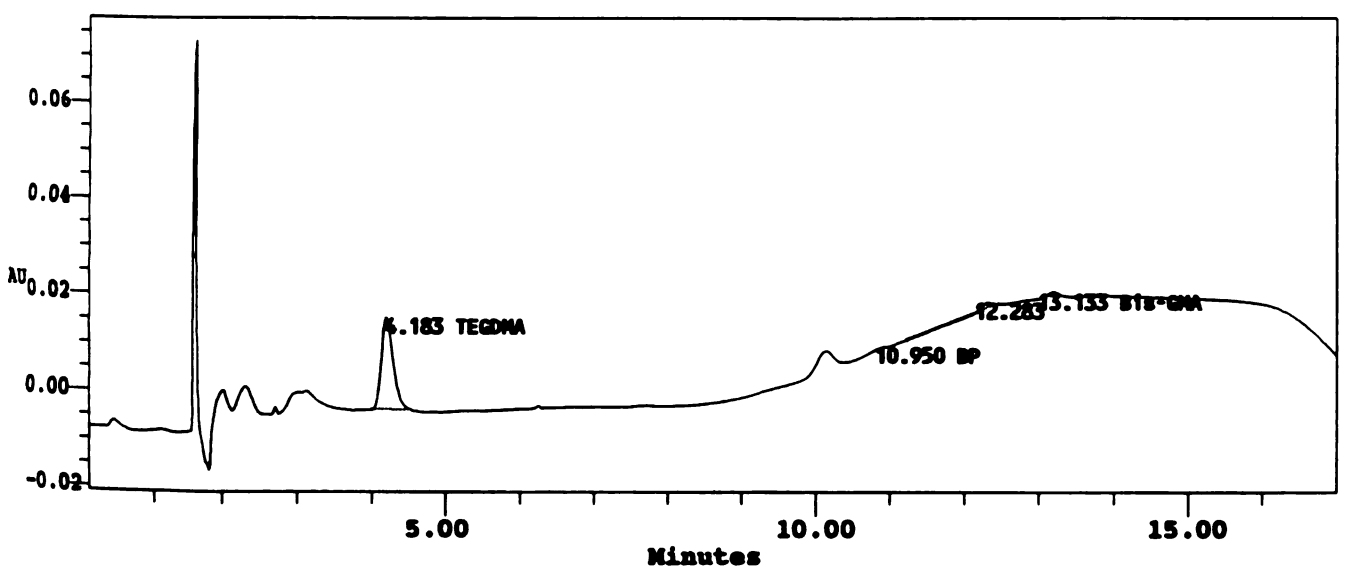


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	178426	15777	0.059	VB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

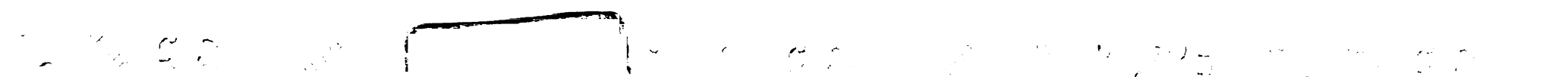
Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T4 MOLD		
Vial:	79	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 06:49 AM	Date Processed:	10/20/93 09:05 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

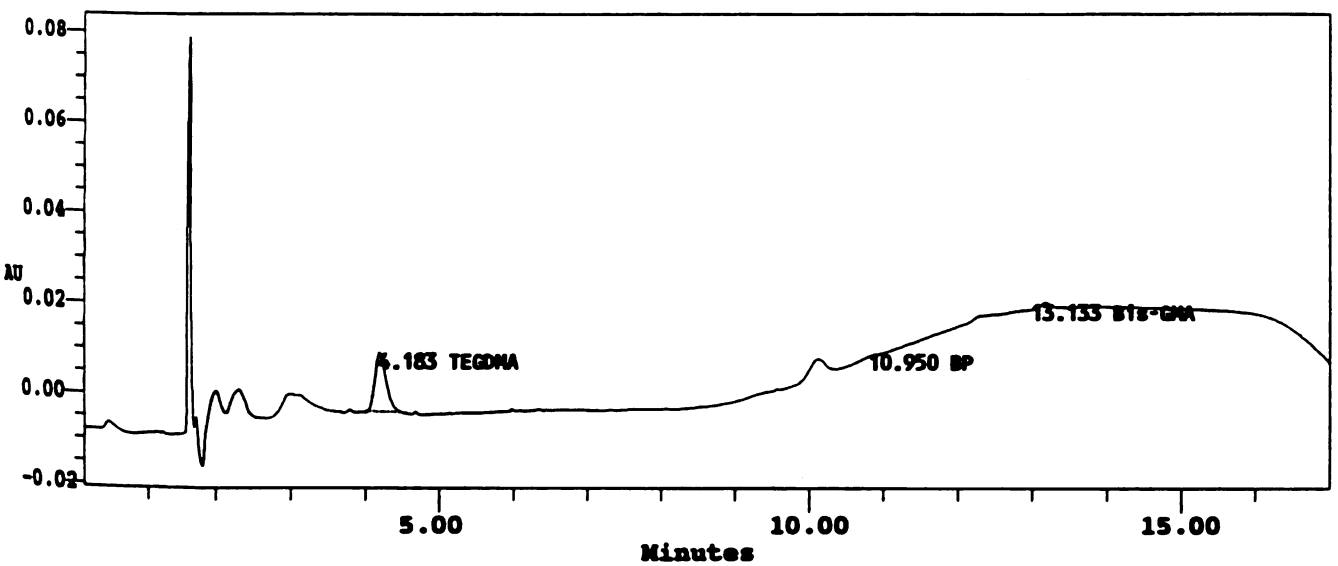
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	218450	19186	0.072	BB
2	BP	10.950				Missing
3		12.283	15384	1336		BB
4	Bis-GMA	13.133				Missing



For Sample: R3S1T5 MOLD Vial: 85 Inj: 1 Chan: 486 Date Processed 10/20/93 09:07 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T5 MOLD		
Vial:	85	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 08:42 AM	Date Processed:	10/20/93 09:07 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

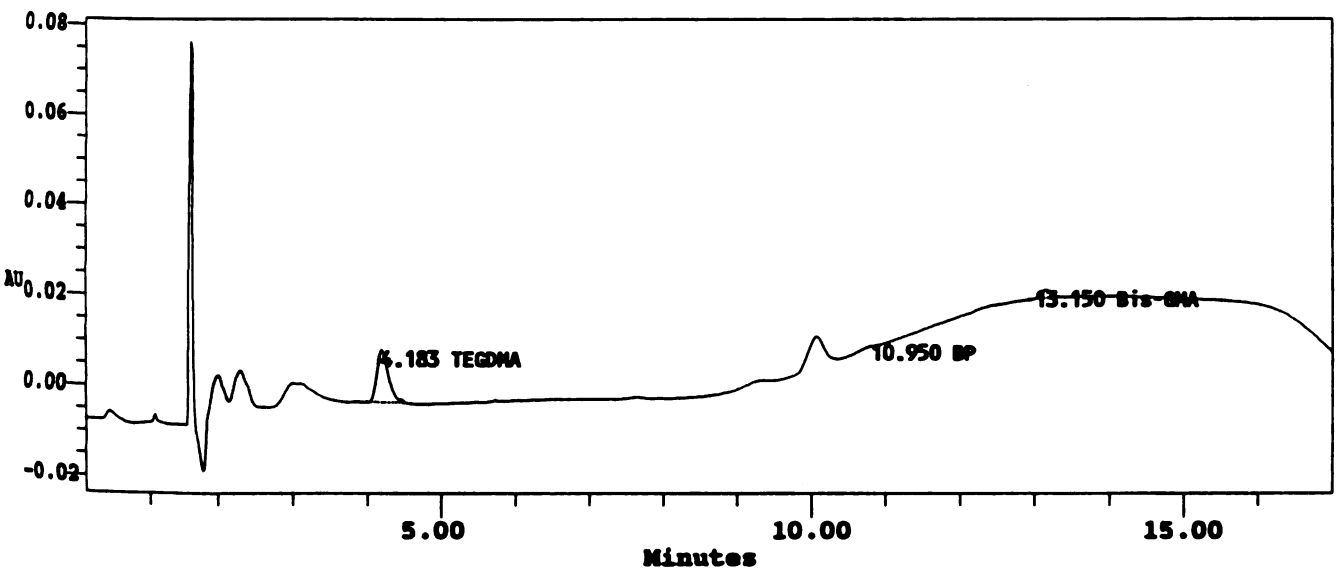
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	146353	13176	0.048	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S1T6 MOLD Vial: 91 Inj: 1 Chan: 486 Date Processed 10/20/93 09:09 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T6 MOLD		
Vial:	91	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 10:34 AM	Date Processed:	10/20/93 09:09 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



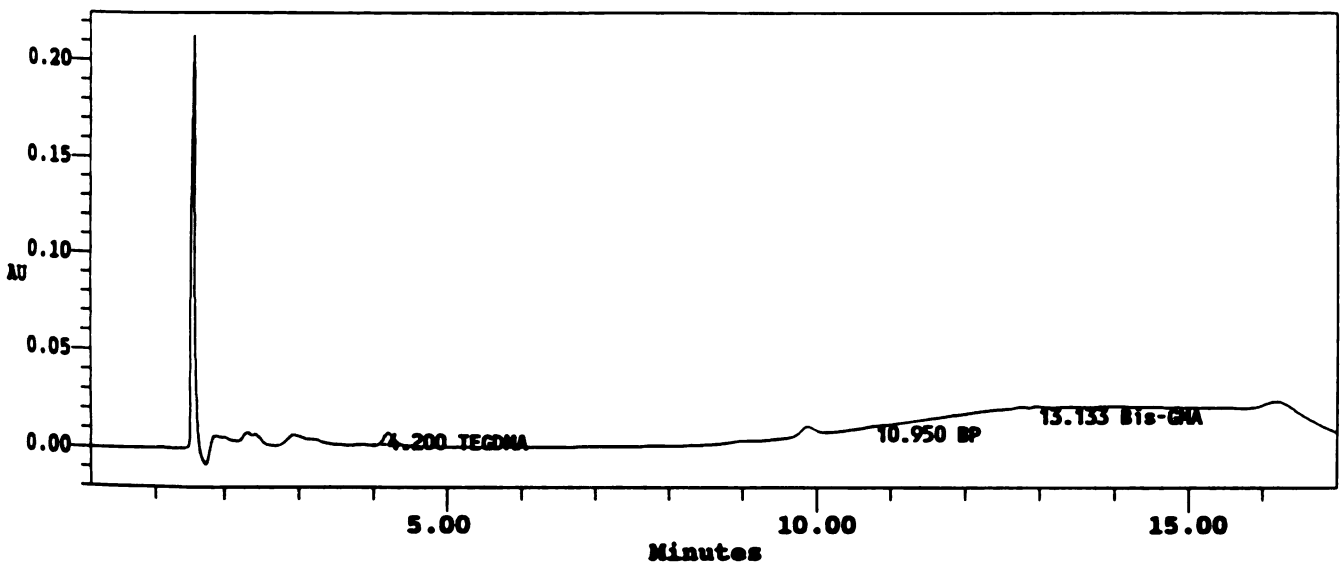
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	131515	11653	0.043	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	18508	1846	0.008	BB

For Sample: R3S1T7 MOLD Vial: 1 Inj: 1 Chan: 486 Date Processed 10/20/93 10:20 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T7 MOLD		
Vial:	1	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 05:56 PM	Date Processed:	10/20/93 10:20 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

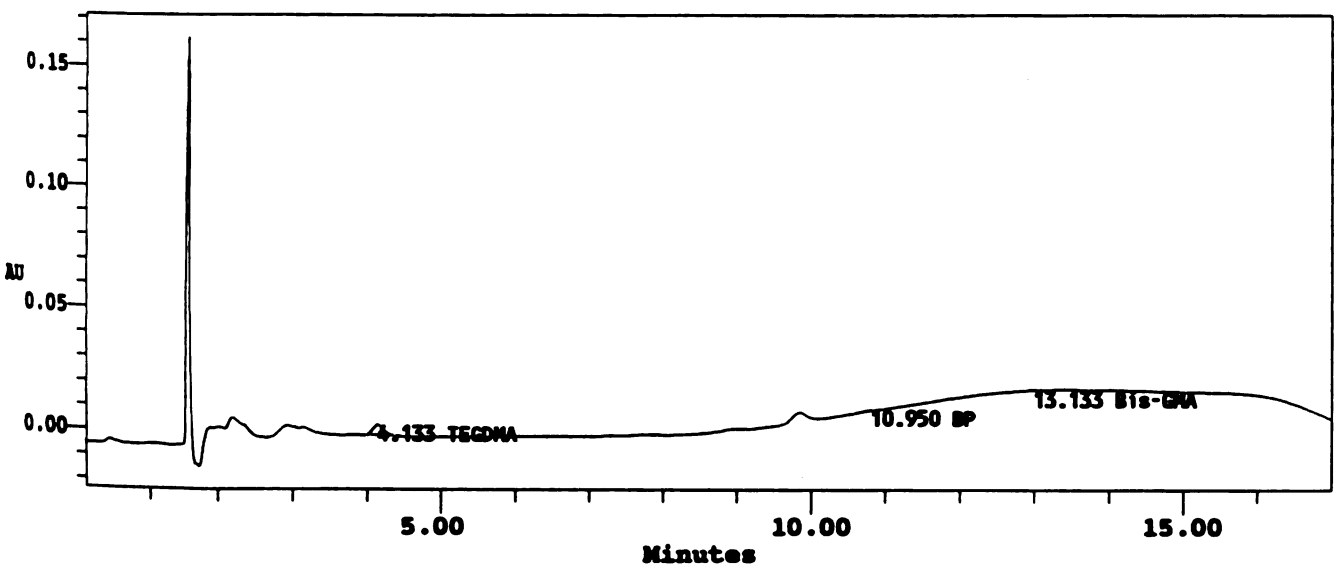
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	71034	6629	0.023	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S1T8 MOLD Vial: 7 Inj: 1 Chan: 486 Date Processed 10/20/93 10:22 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T8 MOLD		
Vial:	7	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 07:49 PM	Date Processed:	10/20/93 10:22 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

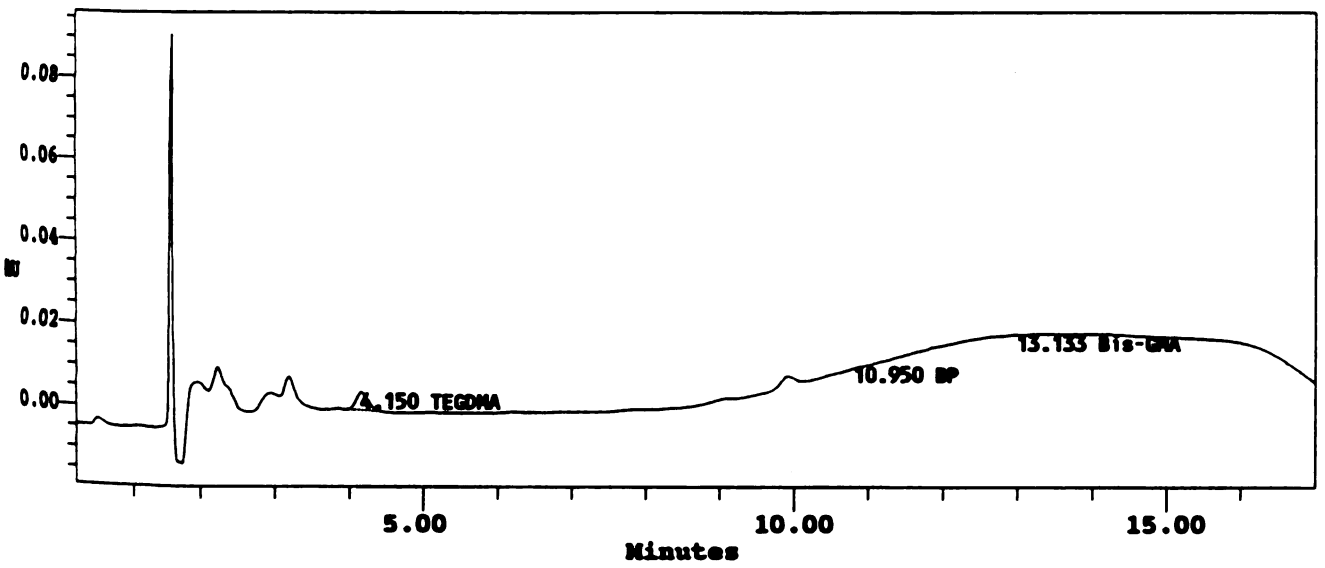
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	49760	4562	0.016	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S1T9 MOLD Vial: 13 Inj: 1 Chan: 486 Date Processed 10/20/93 10:24 AM

Channel Descr: A=water, B=MeOH

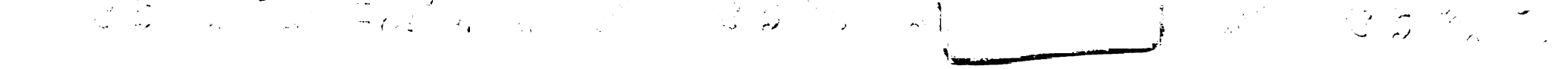
Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T9 MOLD		
Vial:	13	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 09:41 PM	Date Processed:	10/20/93 10:24 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	53591	4456	0.018	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

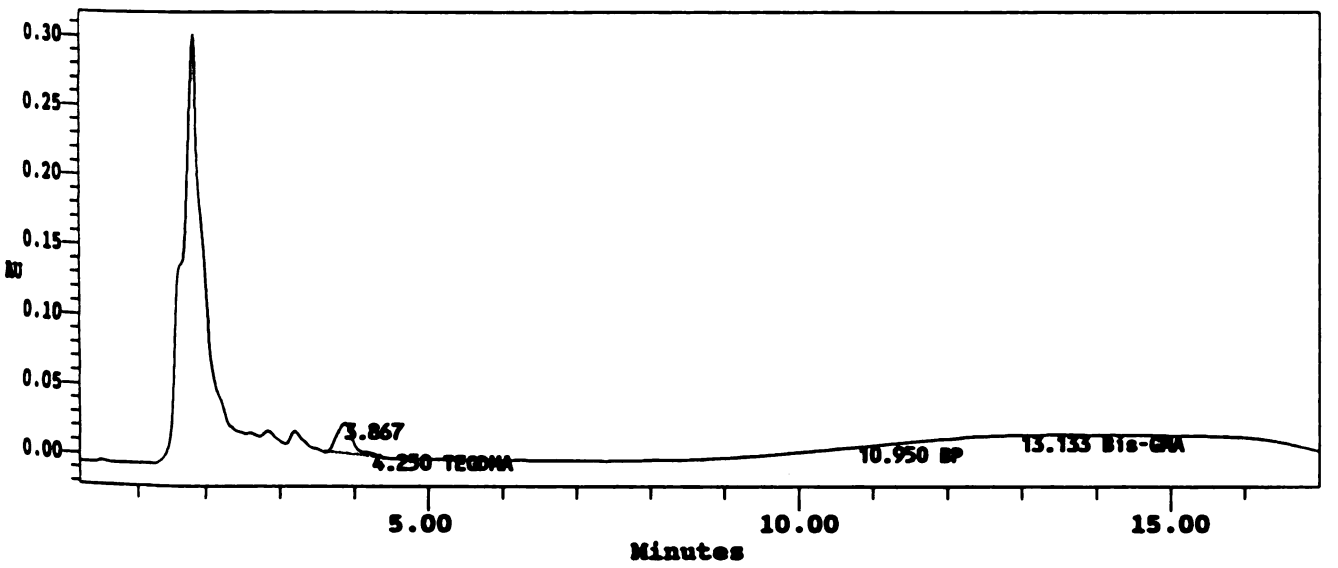


For Sample: R3S1T10 MOLD Vial: 19 Inj: 1 Chan: 486 Date Processed 10/20/93 10:26 AM

Channel Descr: A=water, B=MeOH

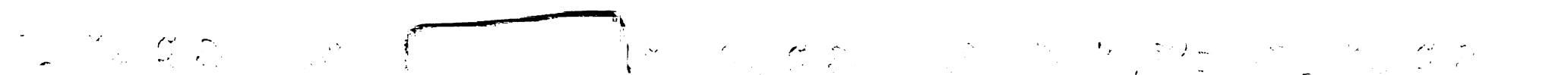
Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T10 MOLD		
Vial:	19	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 11:34 PM	Date Processed:	10/20/93 10:26 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.867	359909	22359		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

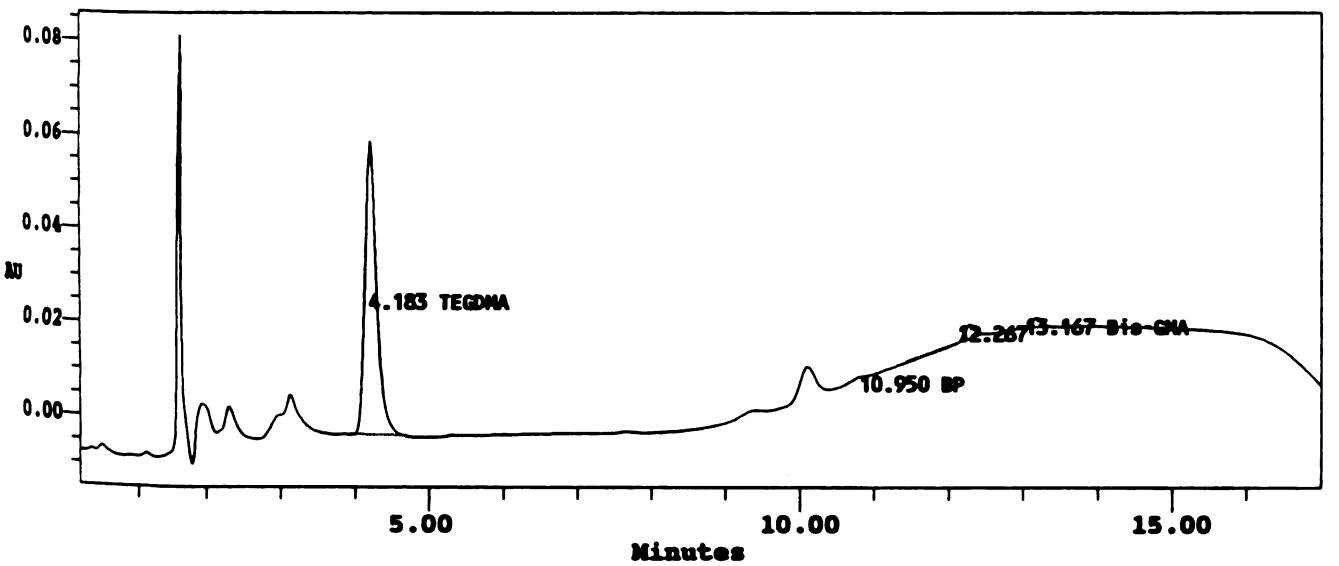


For Sample: R3S2T1 MOLD Vial: 62 Inj: 1 Chan: 486 Date Processed 10/20/93 08:57 AM

Channel Descr: A=water, B=MeOH

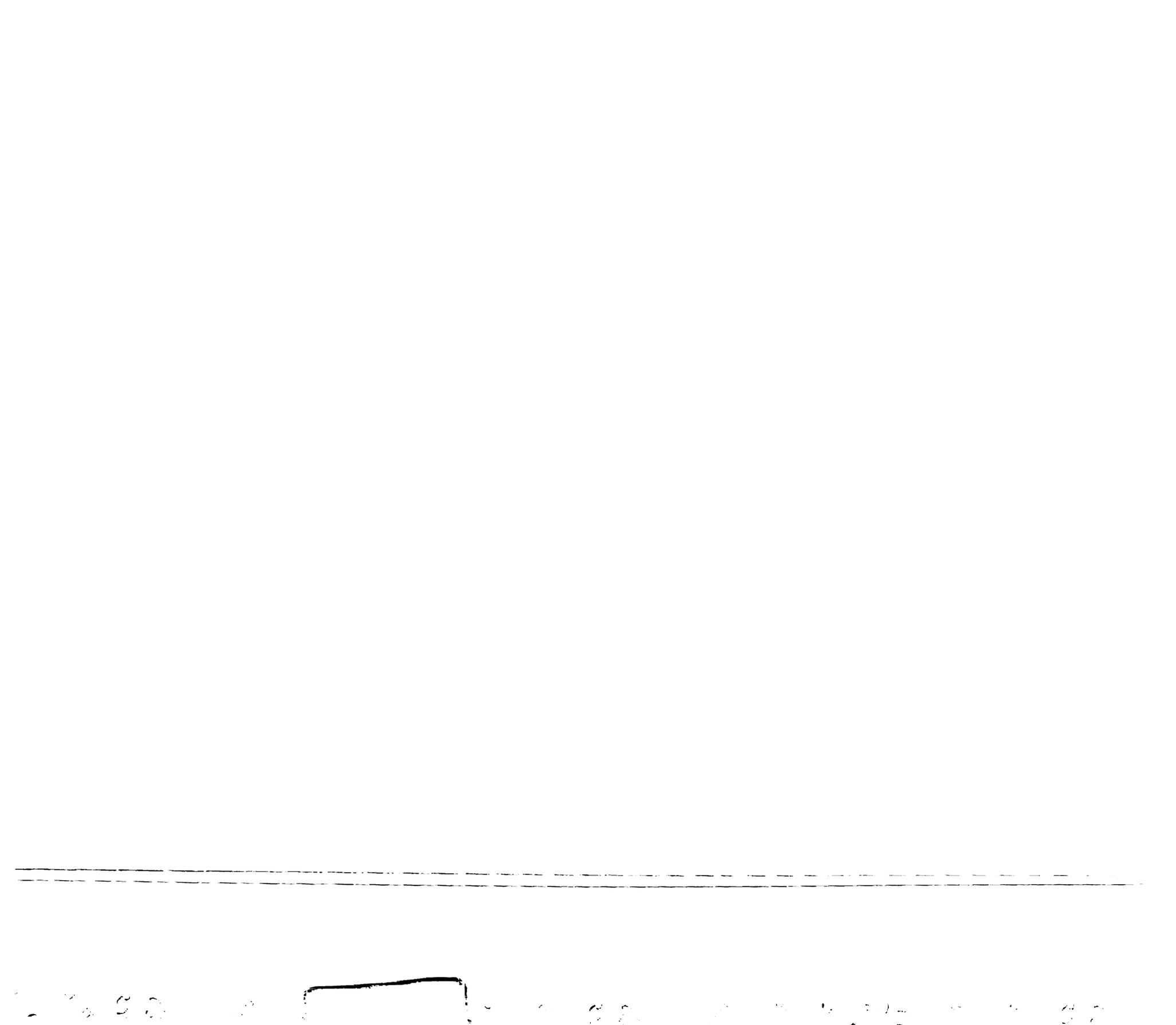
Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T1 MOLD		
Vial:	62	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 01:30 AM	Date Processed:	10/20/93 08:57 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



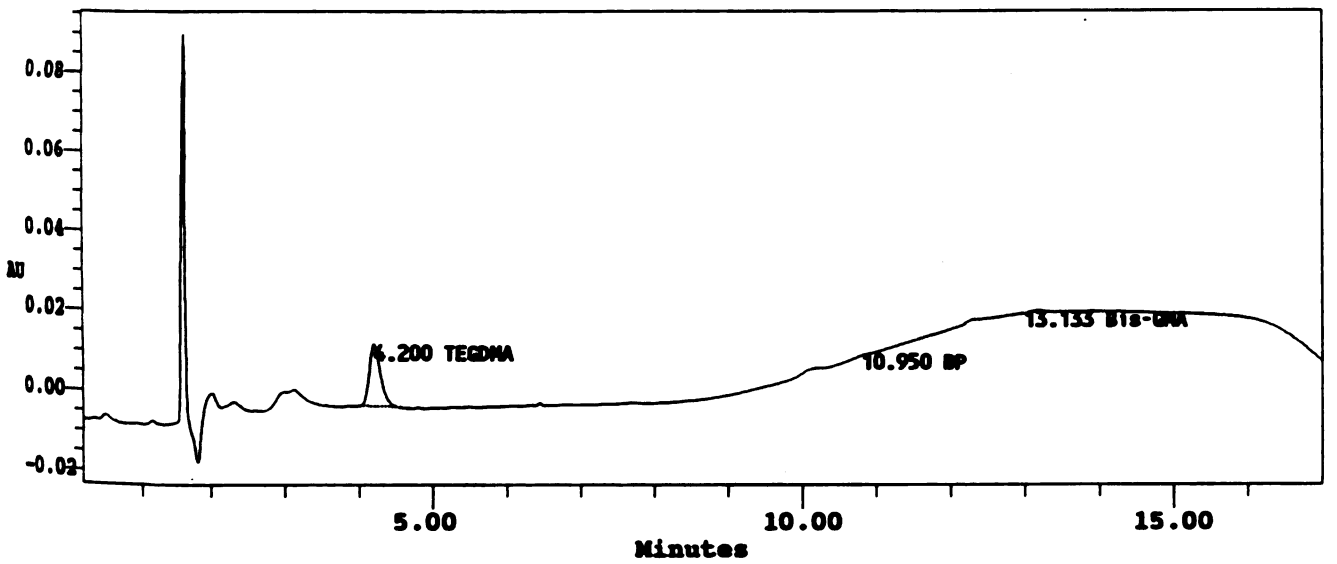
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	689680	62465	0.227	BB
2	BP	10.950				Missing
3		12.267	32068	3073		BB
4	Bis-GMA	13.167	21190	2093	0.009	BB



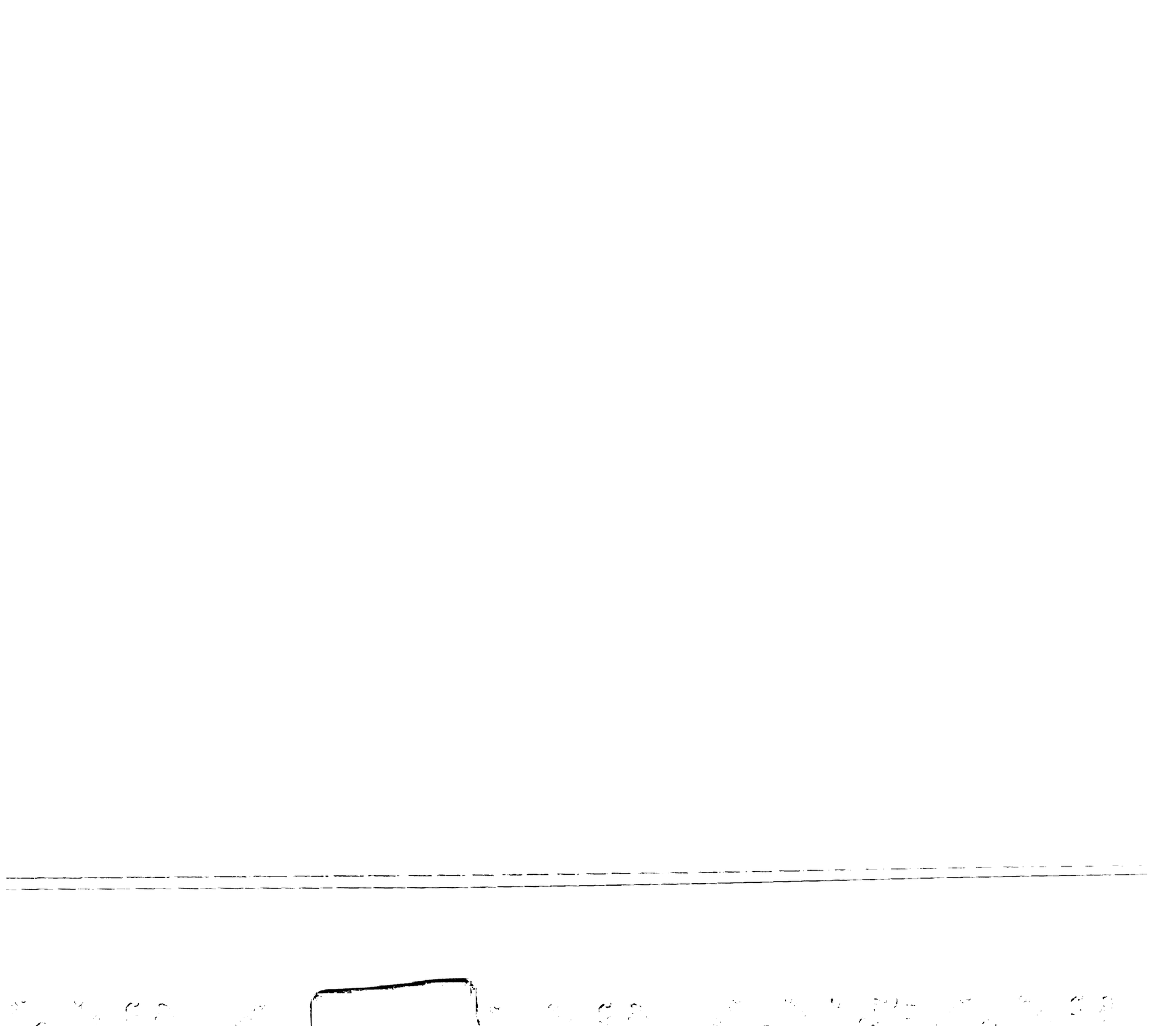
Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T2 MOLD		
Vial:	68	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 03:23 AM	Date Processed:	10/20/93 09:00 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	169180	15612	0.056	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

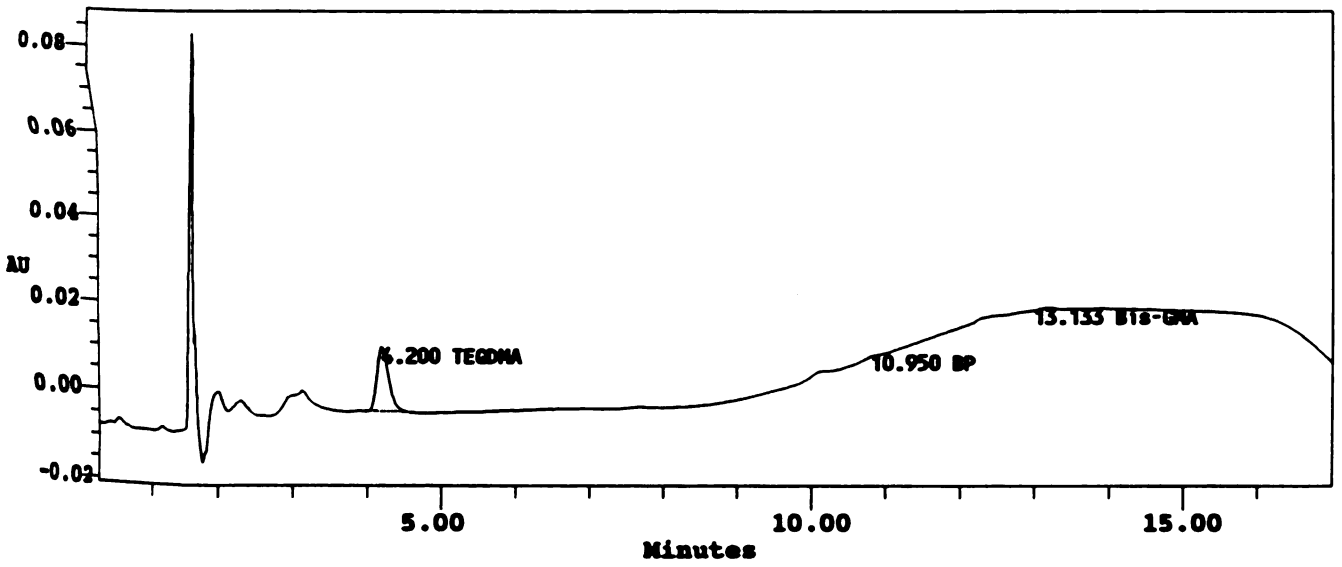


For Sample: R3S2T3 MOLD Vial: 74 Inj: 1 Chan: 486 Date Processed 10/20/93 09:03 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T3 MOLD		
Vial:	74	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 05:15 AM	Date Processed:	10/20/93 09:03 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

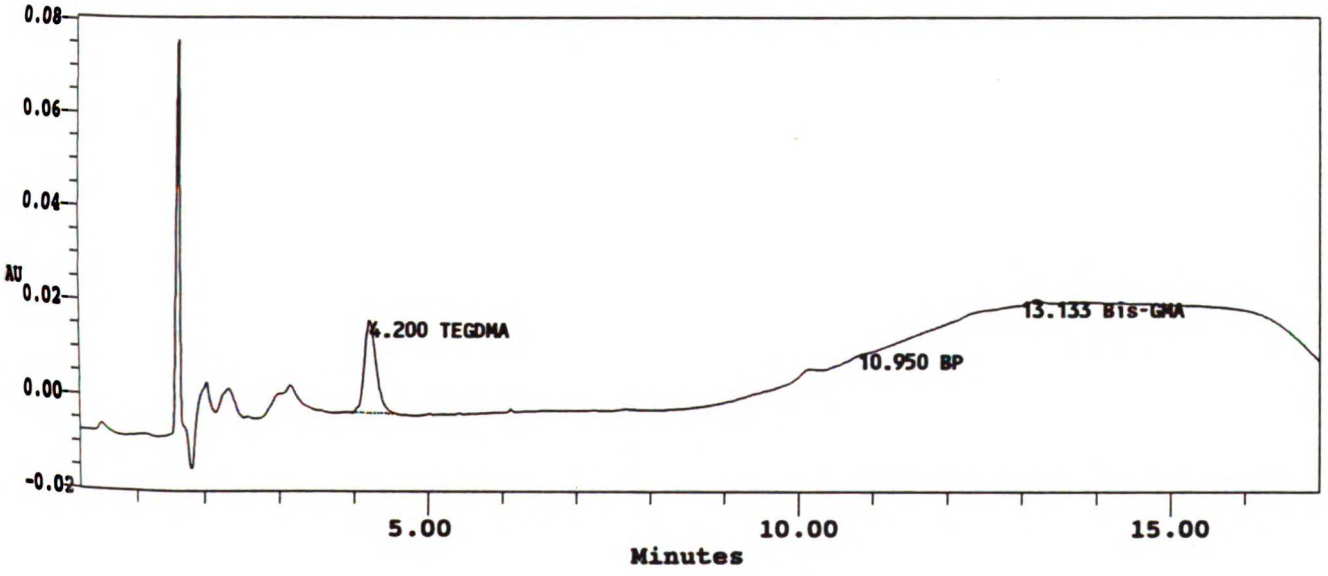
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	166408	14811	0.055	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S2T4 MOLD Vial: 80 Inj: 1 Chan: 486 Date Processed 10/20/93 09:05 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T4 MOLD		
Vial:	80	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 07:08 AM	Date Processed:	10/20/93 09:05 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



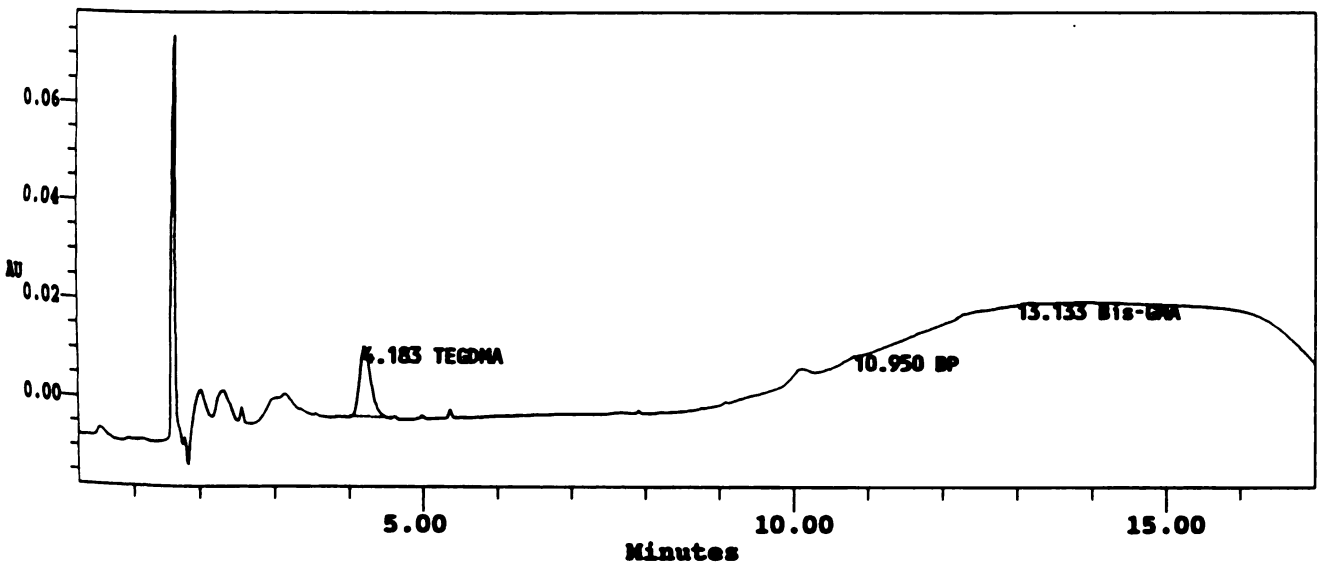
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	223223	19601	0.074	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S2T5 MOLD Vial: 86 Inj: 1 Chan: 486 Date Processed 10/20/93 09:07 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T5 MOLD		
Vial:	86	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 09:00 AM	Date Processed:	10/20/93 09:07 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

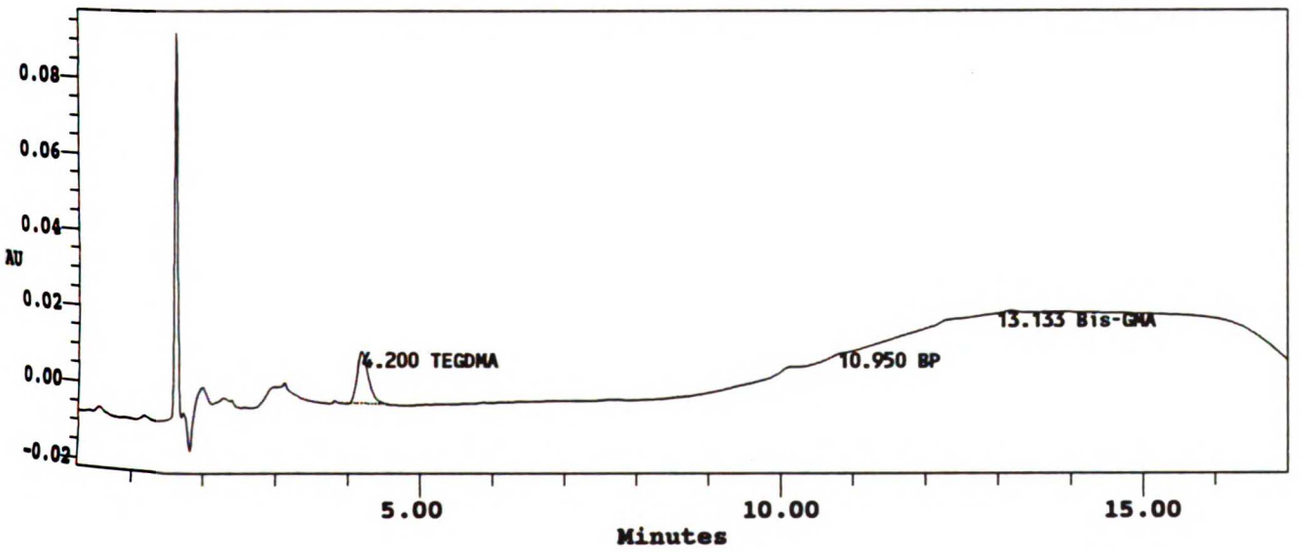
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	160094	14481	0.053	BV
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S3T2 MOLD Vial: 69 Inj: 1 Chan: 486 Date Processed 10/20/93 09:00 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S3T2 MOLD		
Vial:	69	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 03:41 AM	Date Processed:	10/20/93 09:00 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	150030	13502	0.049	VB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

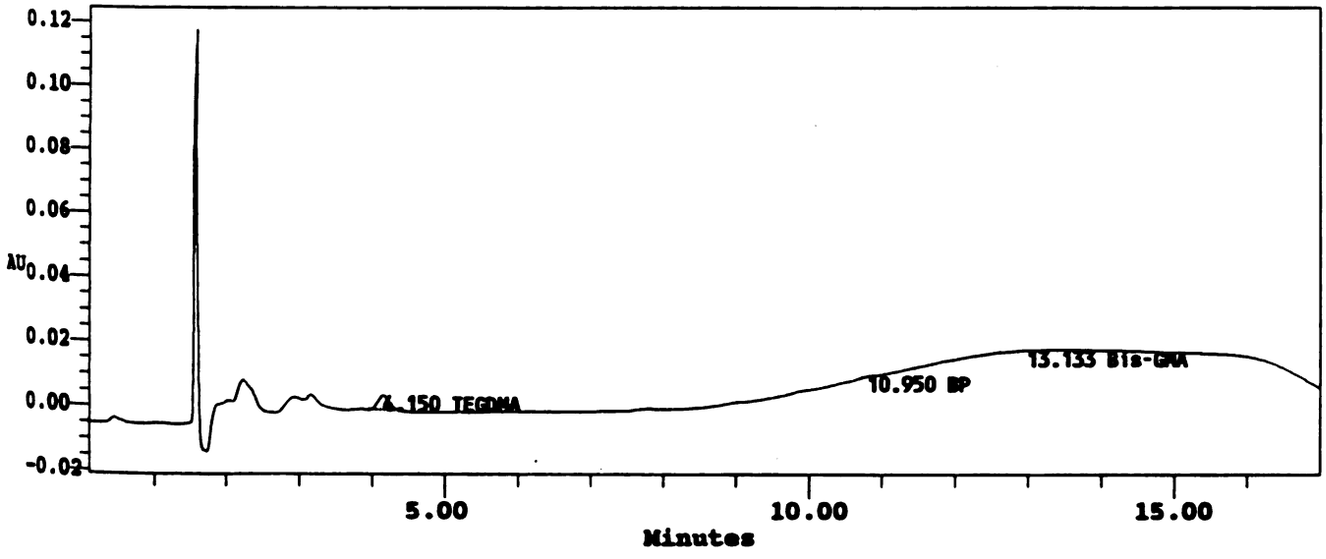
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R3S3T8 MOLD Vial: 9 Inj: 1 Chan: 486 Date Processed 10/20/93 10:22 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S3T8 MOLD		
Vial:	9	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 08:26 PM	Date Processed:	10/20/93 10:22 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	54725	4718	0.018	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

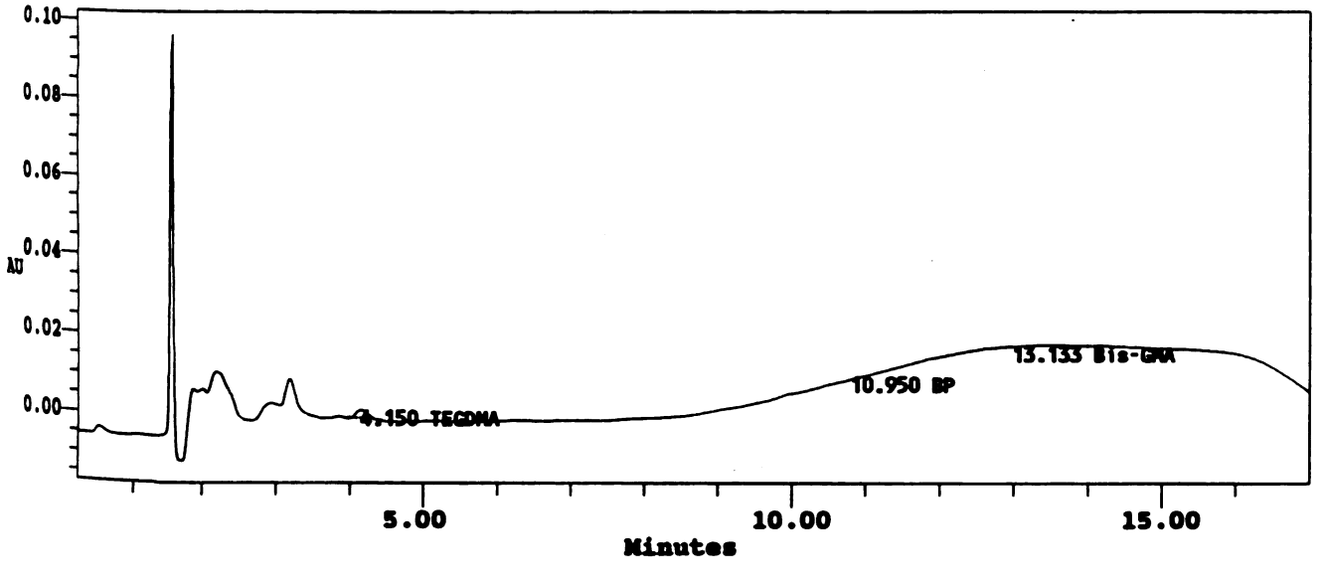
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R3S3T9 MOLD Vial: 15 Inj: 1 Chan: 486 Date Processed 10/20/93 10:25 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S3T9 MOLD		
Vial:	15	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 10:19 PM	Date Processed:	10/20/93 10:25 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	29549	2374	0.010	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

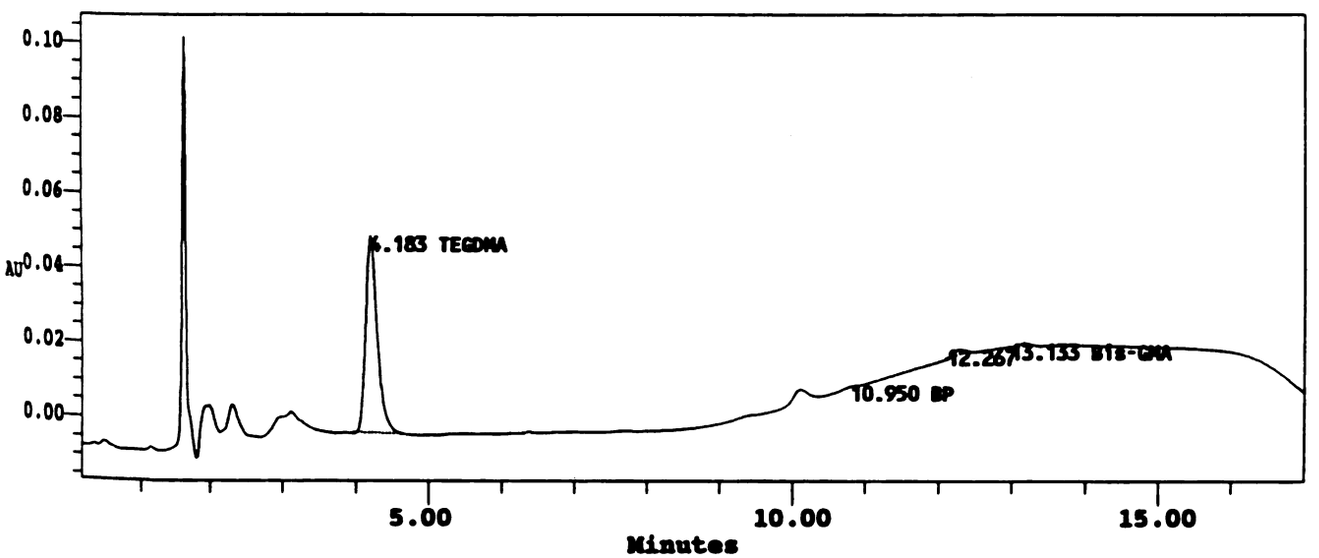
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R3S4T1 MOLD Vial: 64 Inj: 1 Chan: 486 Date Processed 10/20/93 08:58 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S4T1 MOLD		
Vial:	64	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 02:07 AM	Date Processed:	10/20/93 08:58 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	588934	52696	0.194	BB
2	BP	10.950				Missing
3		12.267	15119	1665		BB
4	Bis-GMA	13.133				Missing

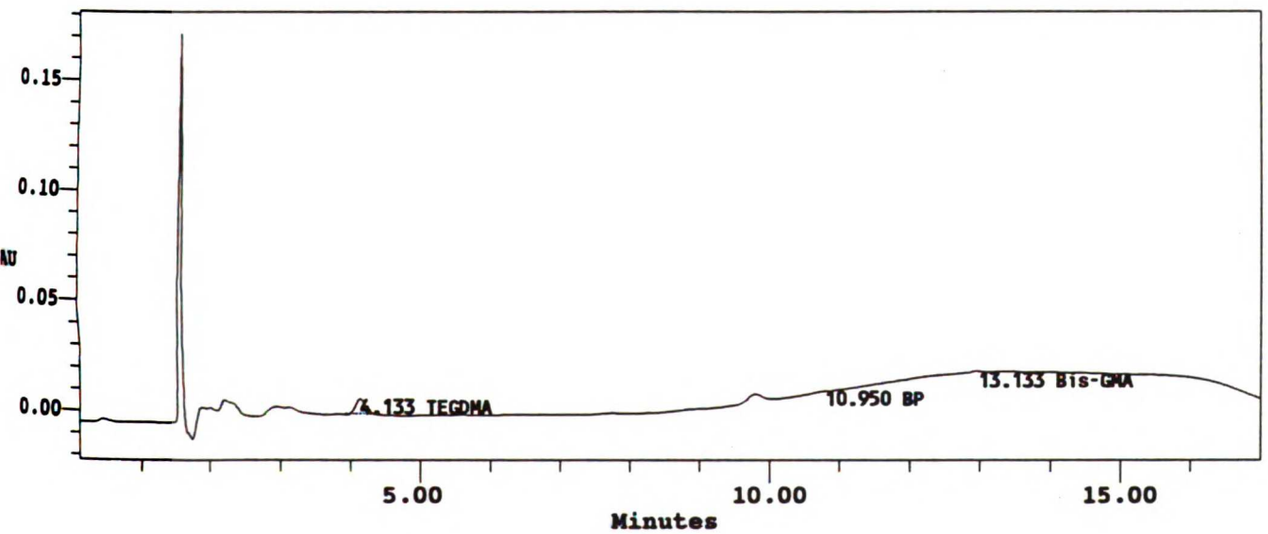
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R3S4T7 MOLD Vial: 4 Inj: 1 Chan: 486 Date Processed 10/20/93 10:21 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S4T7 MOLD		
Vial:	4	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 06:52 PM	Date Processed:	10/20/93 10:21 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

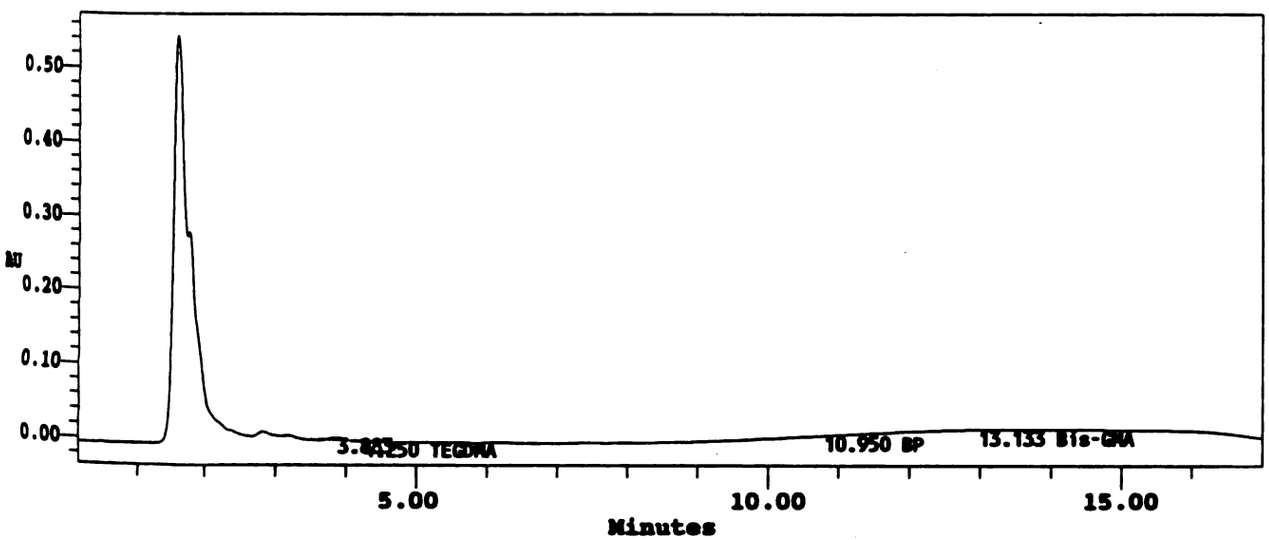
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	76462	7216	0.025	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S4T10 MOLD Vial: 22 Inj: 1 Chan: 486 Date Processed 10/20/93 10:27 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S4T10 MOLD		
Vial:	22	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 12:30 AM	Date Processed:	10/20/93 10:27 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

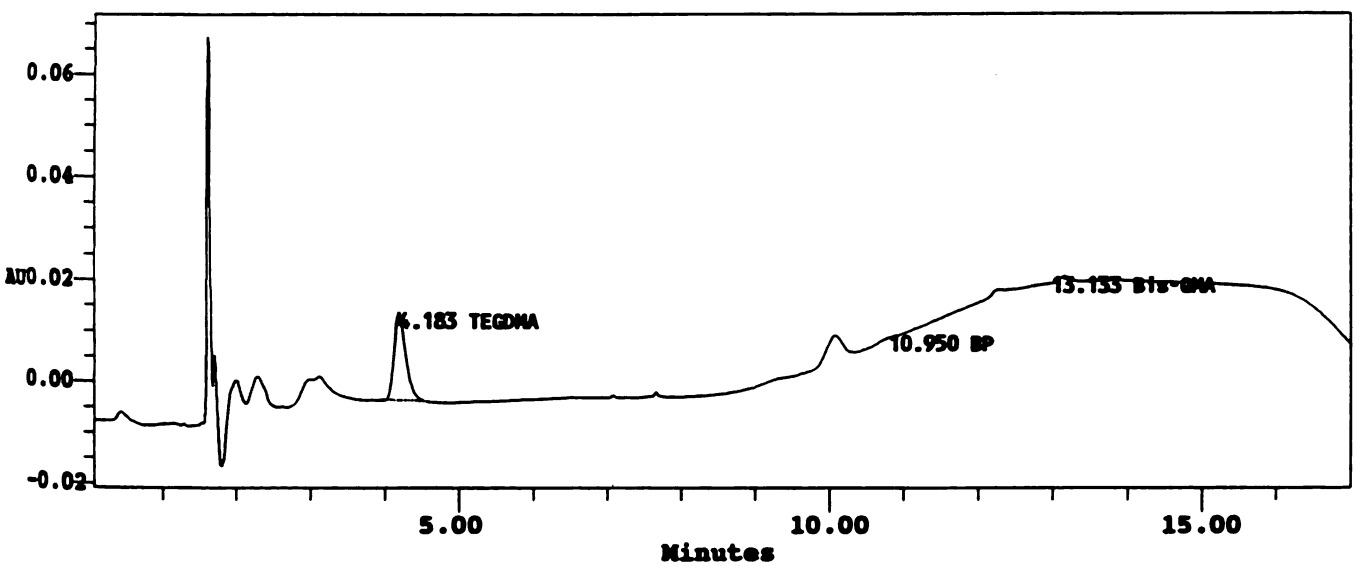


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.883	59921	4098		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S5T5 MOLD		
Vial:	89	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 09:57 AM	Date Processed:	10/20/93 09:08 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

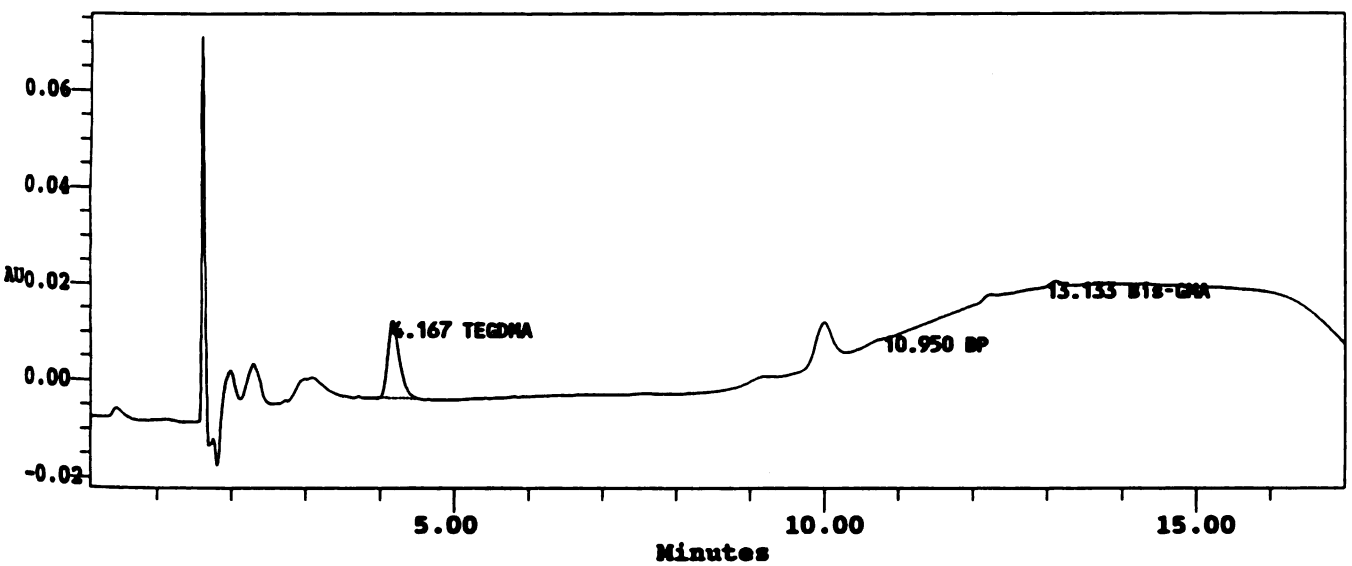


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	193554	17451	0.064	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S5T6 MOLD		
Vial:	95	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 11:49 AM	Date Processed:	10/20/93 09:11 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

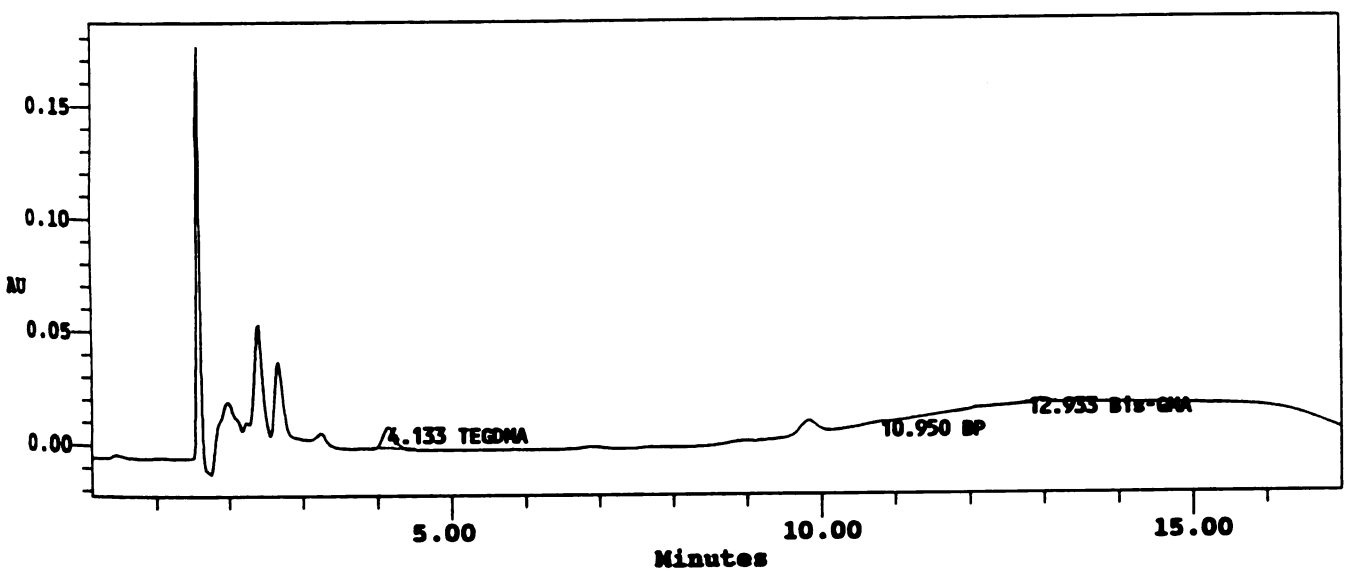


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	178035	15981	0.059	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S5T7 MOLD		
Vial:	5	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 07:11 PM	Date Processed:	10/20/93 10:21 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

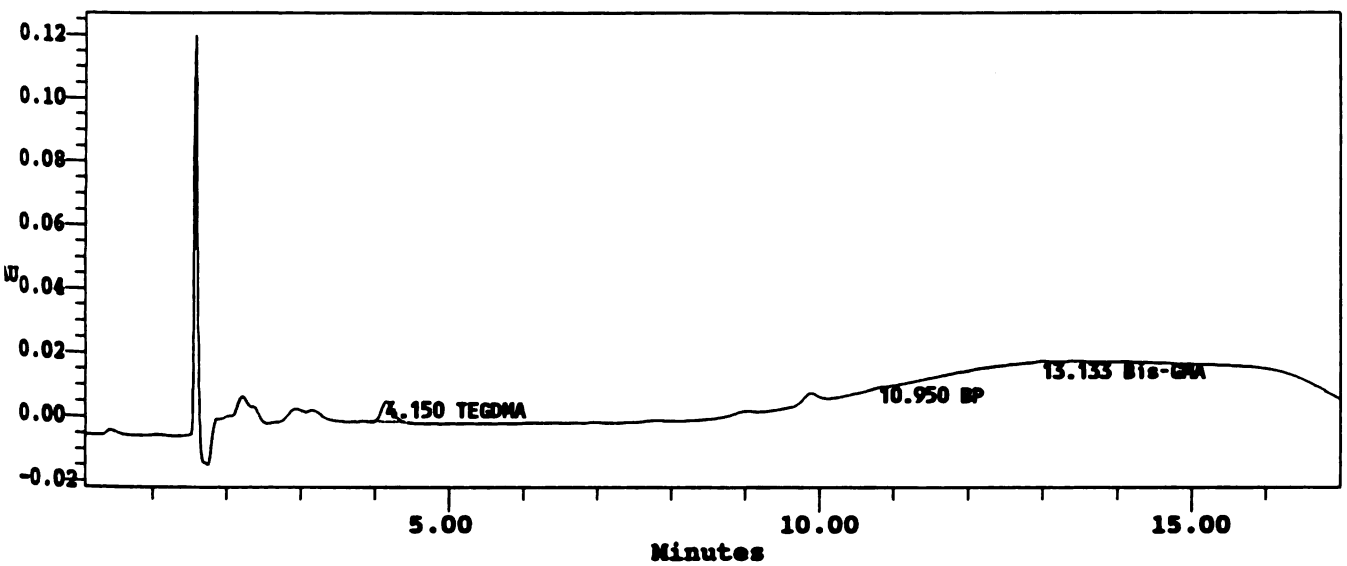
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	108796	9591	0.036	BB
2	BP	10.950				Missing
3	Bis-GMA	12.933	17467	1856	0.008	BB

For Sample: R3S5T8 MOLD Vial: 11 Inj: 1 Chan: 486 Date Processed 10/20/93 10:23 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S5T8 MOLD		
Vial:	11	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 09:04 PM	Date Processed:	10/20/93 10:23 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

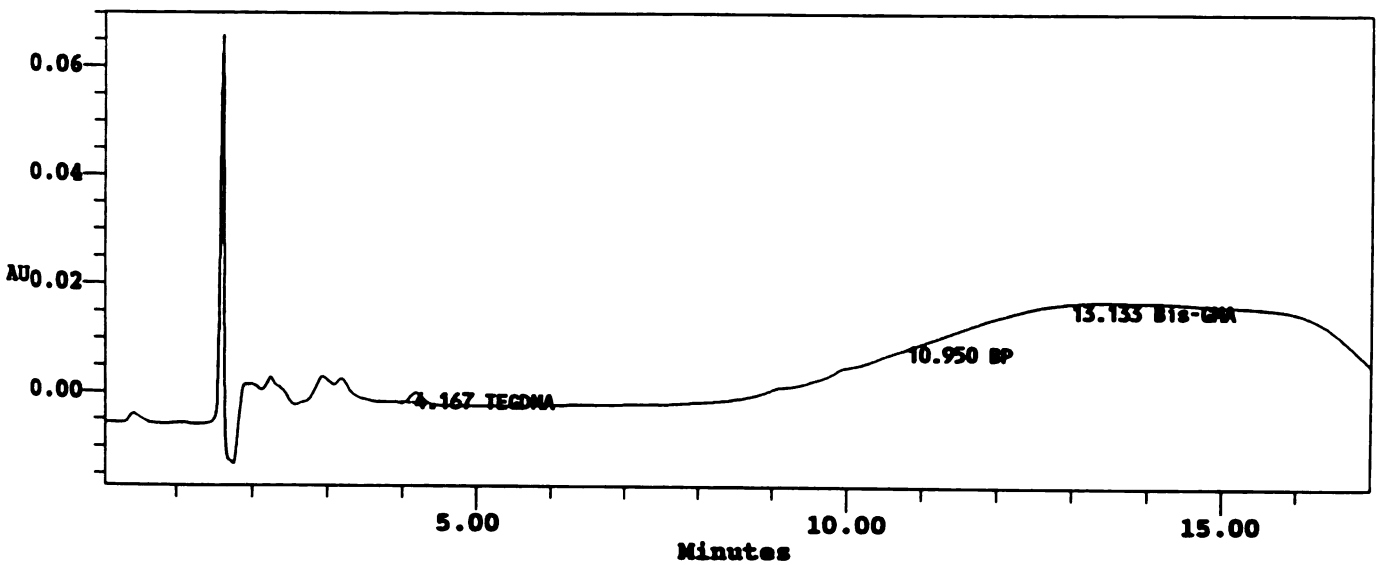


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	73894	6576	0.024	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S5T9 MOLD		
Vial:	17	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 10:56 PM	Date Processed:	10/20/93 10:26 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

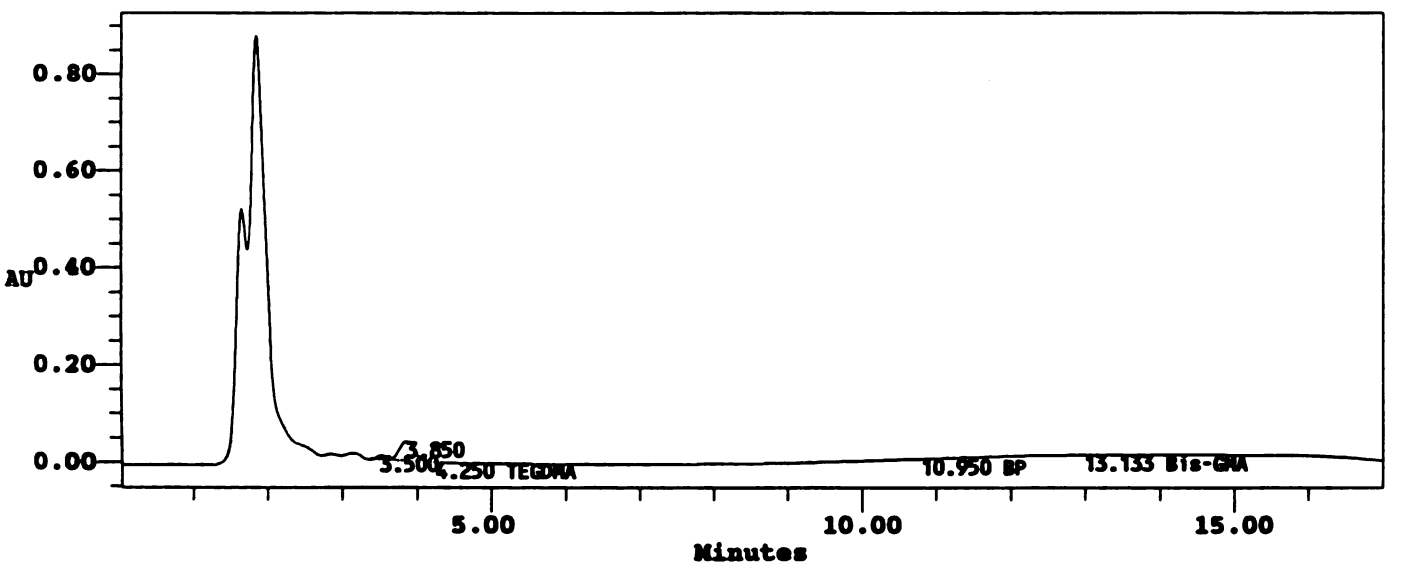


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	23324	2005	0.008	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S5T10 MOLD		
Vial:	23	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 12:49 AM	Date Processed:	10/20/93 10:28 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

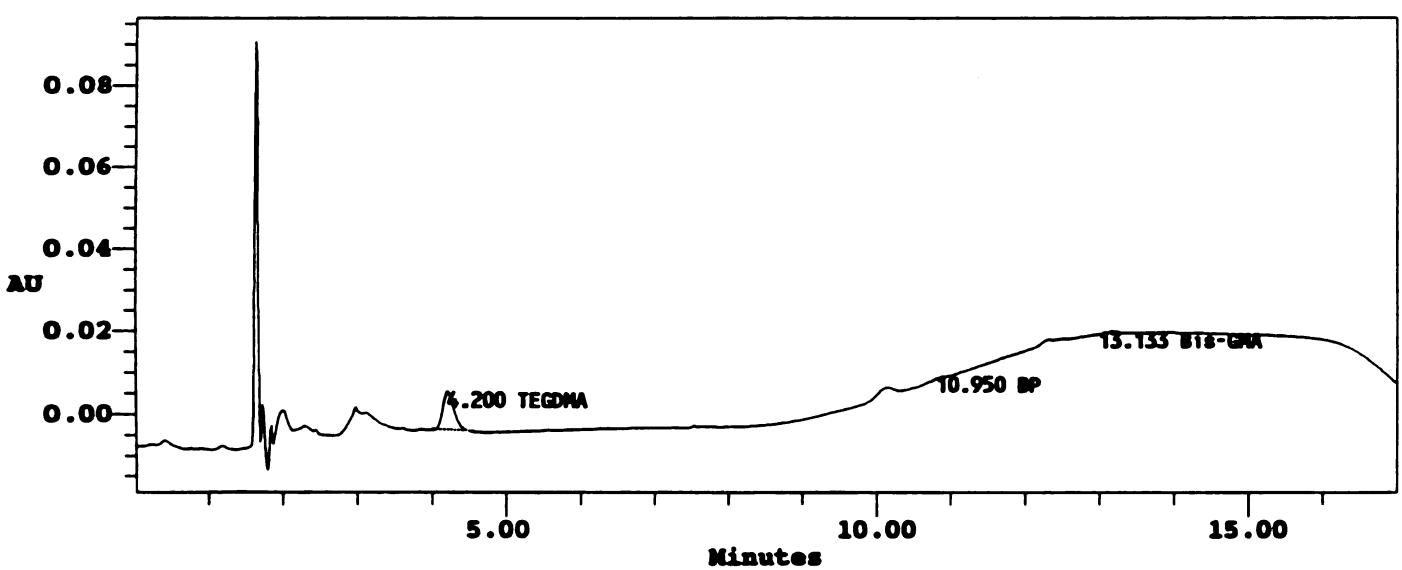
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.500	77522	9294		BV
2		3.850	603382	40717		VB
3	TEGDMA	4.250				Missing
4	BP	10.950				Missing
5	Bis-GMA	13.133				Missing

For Sample: R3S6T2 MOLD Vial: 72 Inj: 1 Chan: 486 Date Processed 10/20/93 09:02 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T2 MOLD		
Vial:	72	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 04:38 AM	Date Processed:	10/20/93 09:02 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

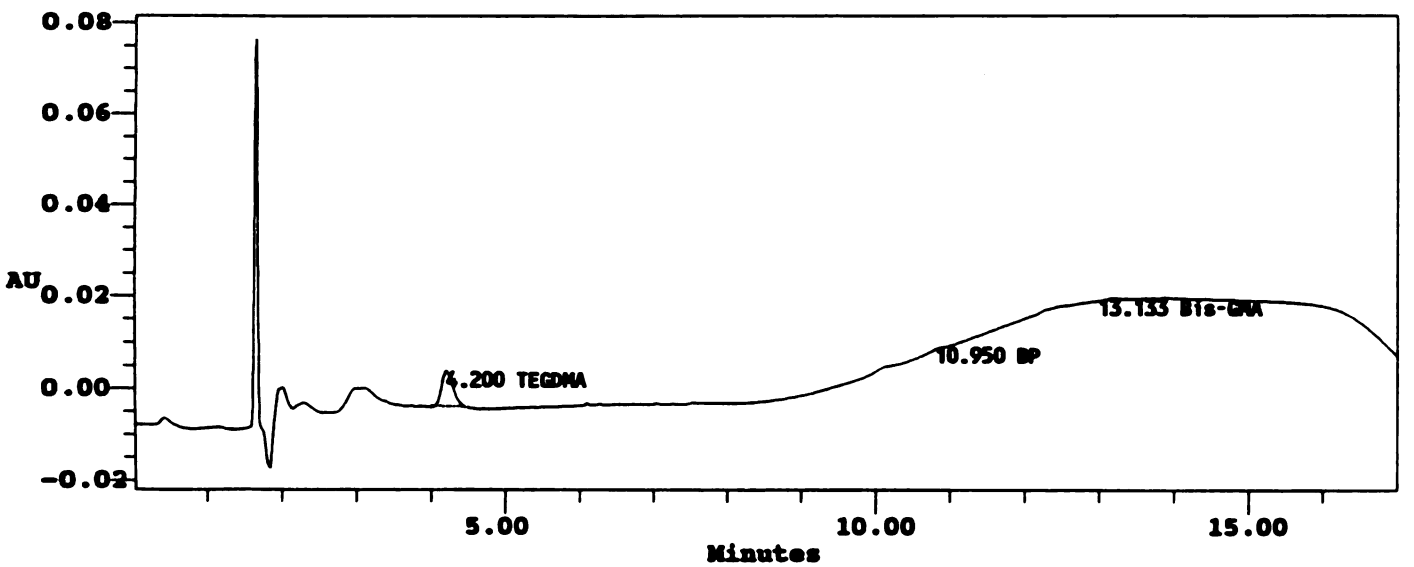


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	101492	9384	0.033	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T3 MOLD		
Vial:	78	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 06:30 AM	Date Processed:	10/20/93 09:04 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

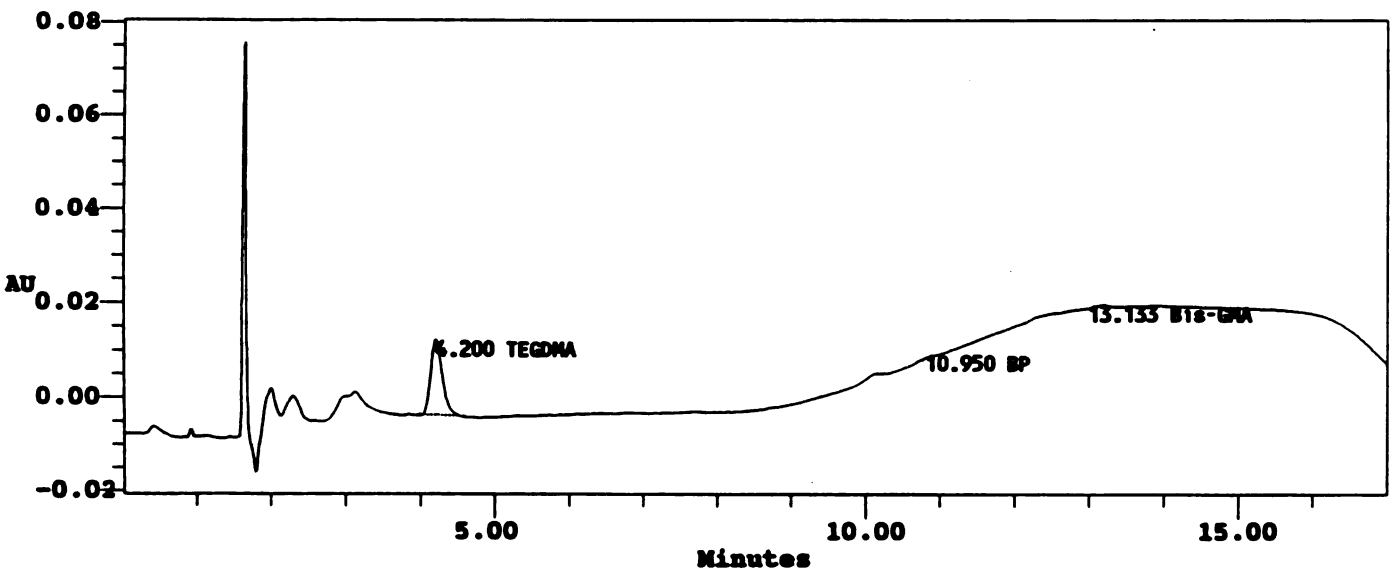


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	87859	7936	0.029	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T4 MOLD		
Vial:	84	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 08:23 AM	Date Processed:	10/20/93 09:07 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

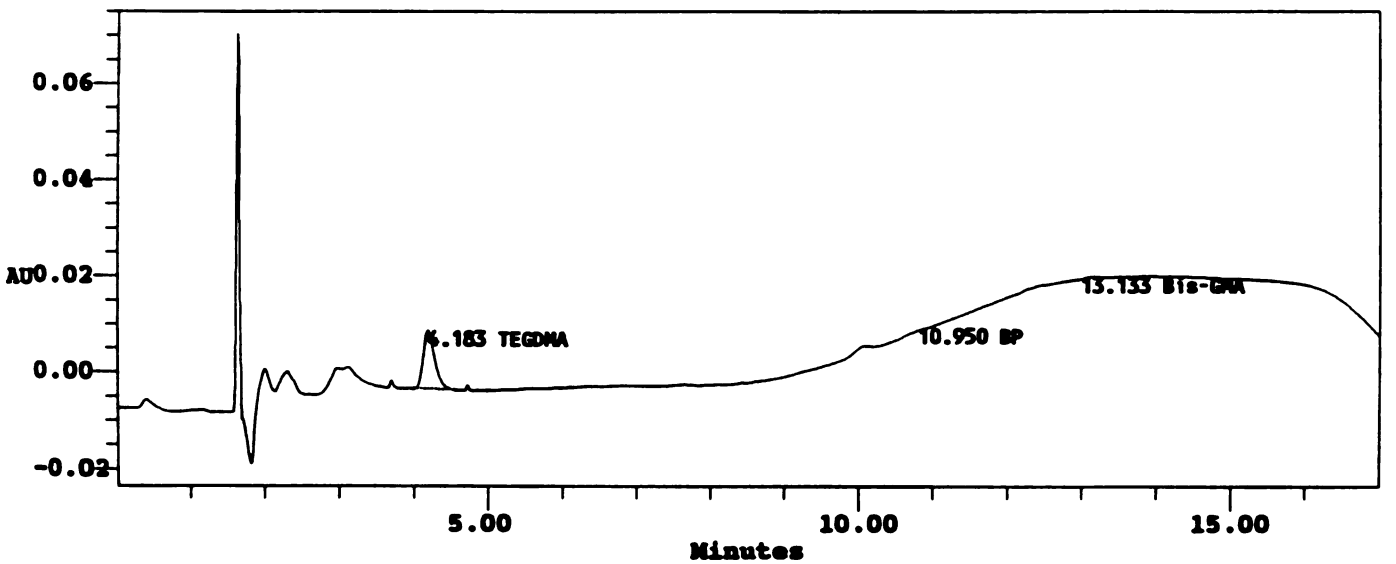
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	179173	16051	0.059	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S6T5 MOLD Vial: 90 Inj: 1 Chan: 486 Date Processed 10/20/93 09:09 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T5 MOLD		
Vial:	90	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 10:15 AM	Date Processed:	10/20/93 09:09 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

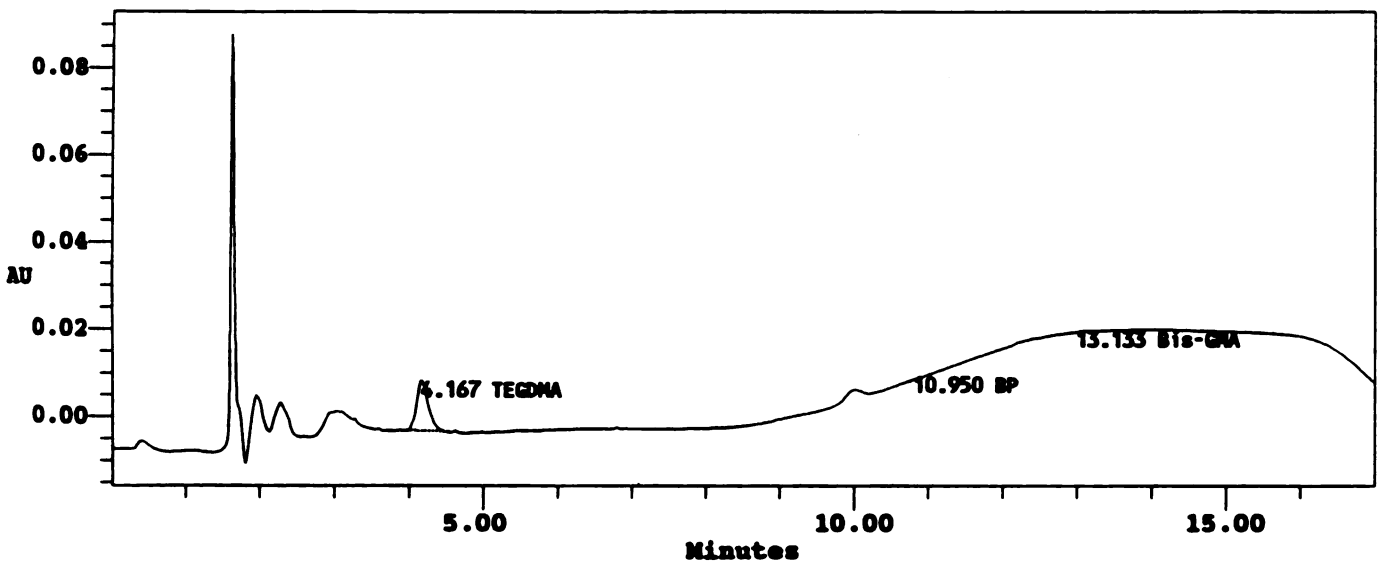


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	134285	12295	0.044	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T6 MOLD		
Vial:	96	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 12:08 PM	Date Processed:	10/20/93 09:11 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

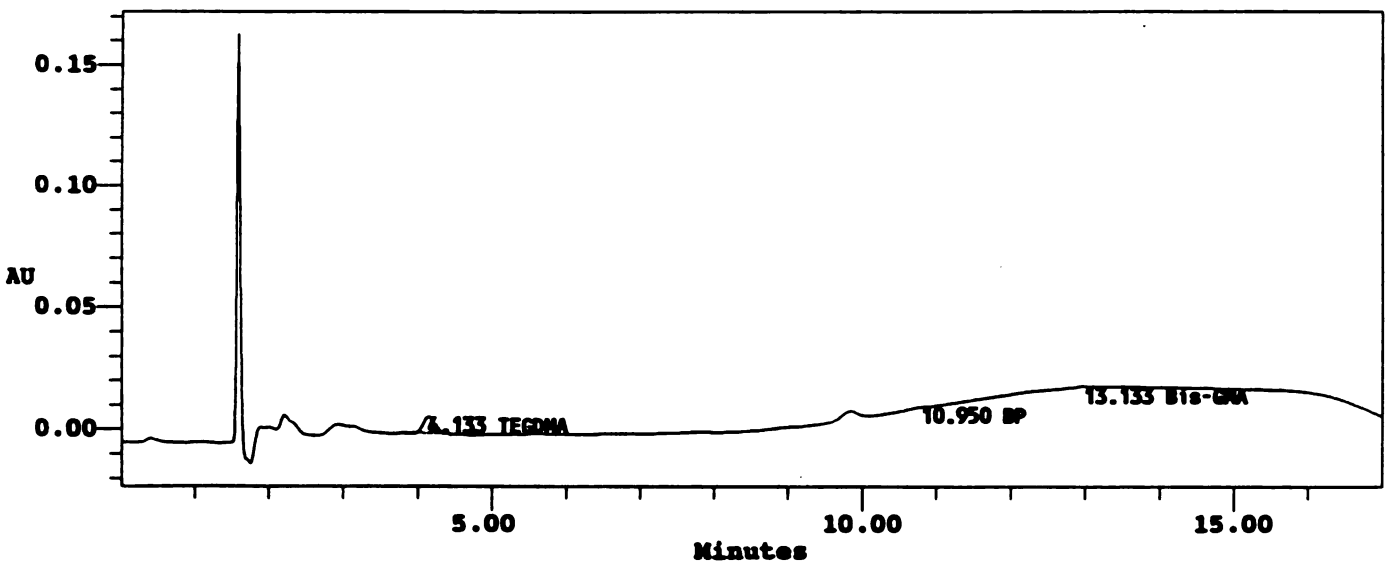
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	130349	11577	0.043	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S6T7 MOLD Vial: 6 Inj: 1 Chan: 486 Date Processed 10/20/93 10:21 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T7 MOLD		
Vial:	6	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 07:30 PM	Date Processed:	10/20/93 10:21 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

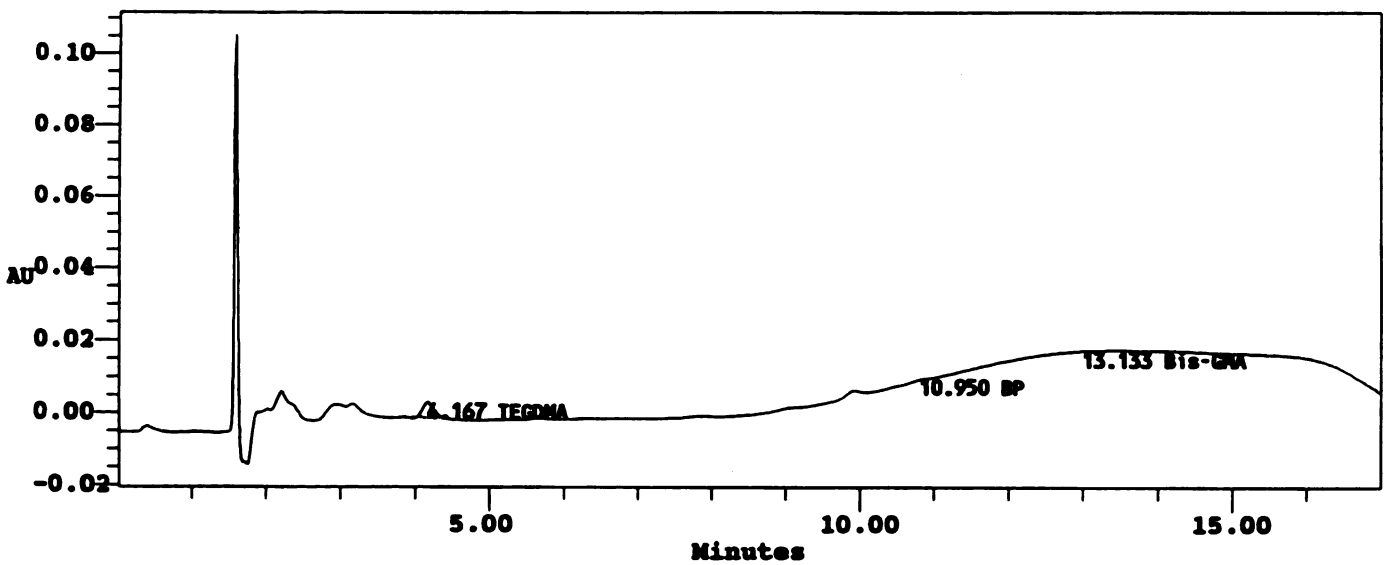


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	78289	7075	0.026	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T8 MOLD		
Vial:	12	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 09:23 PM	Date Processed:	10/20/93 10:24 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

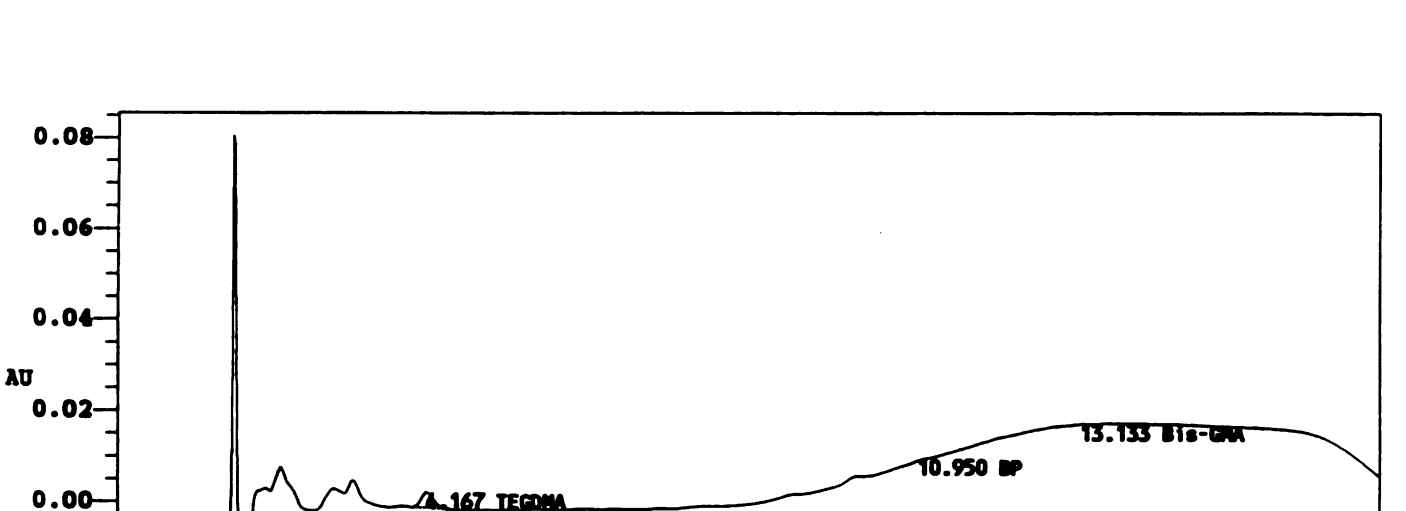
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	50994	4494	0.017	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S6T9 MOLD Vial: 18 Inj: 1 Chan: 486 Date Processed 10/20/93 10:26 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T9 MOLD		
Vial:	18	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/10/93 11:15 PM	Date Processed:	10/20/93 10:26 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

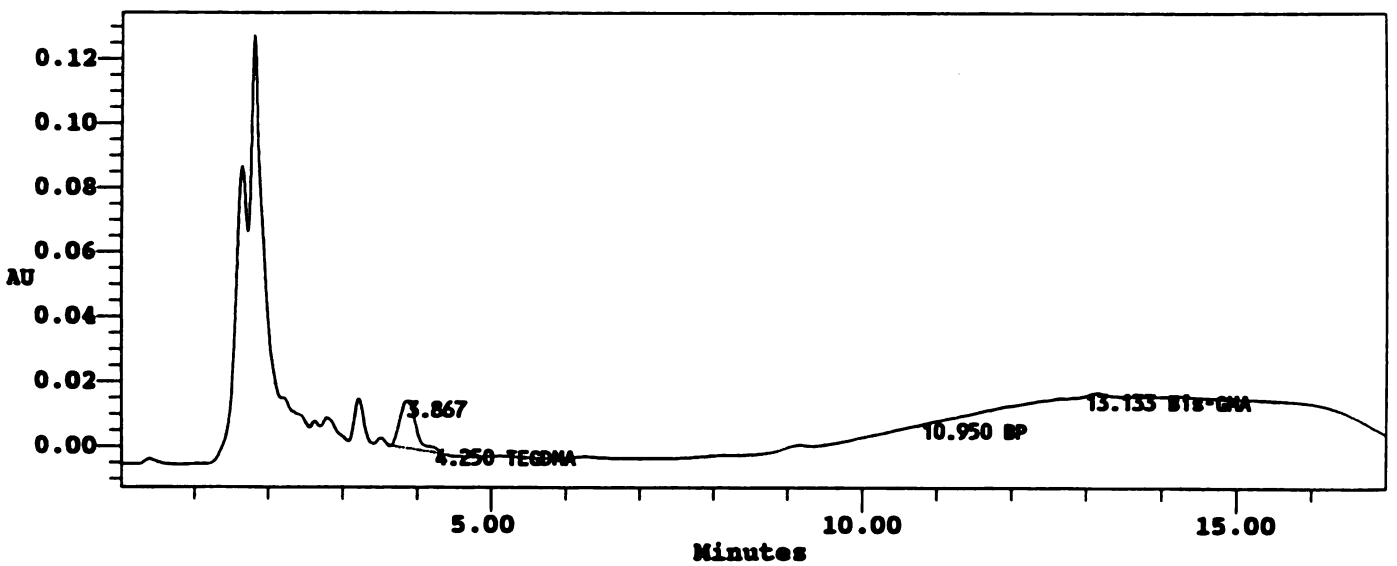


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	44059	3550	0.015	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T10 MOLD		
Vial:	24	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 01:08 AM	Date Processed:	10/20/93 10:28 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.867	239526	14928		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Tooth Model

HPLC DATA

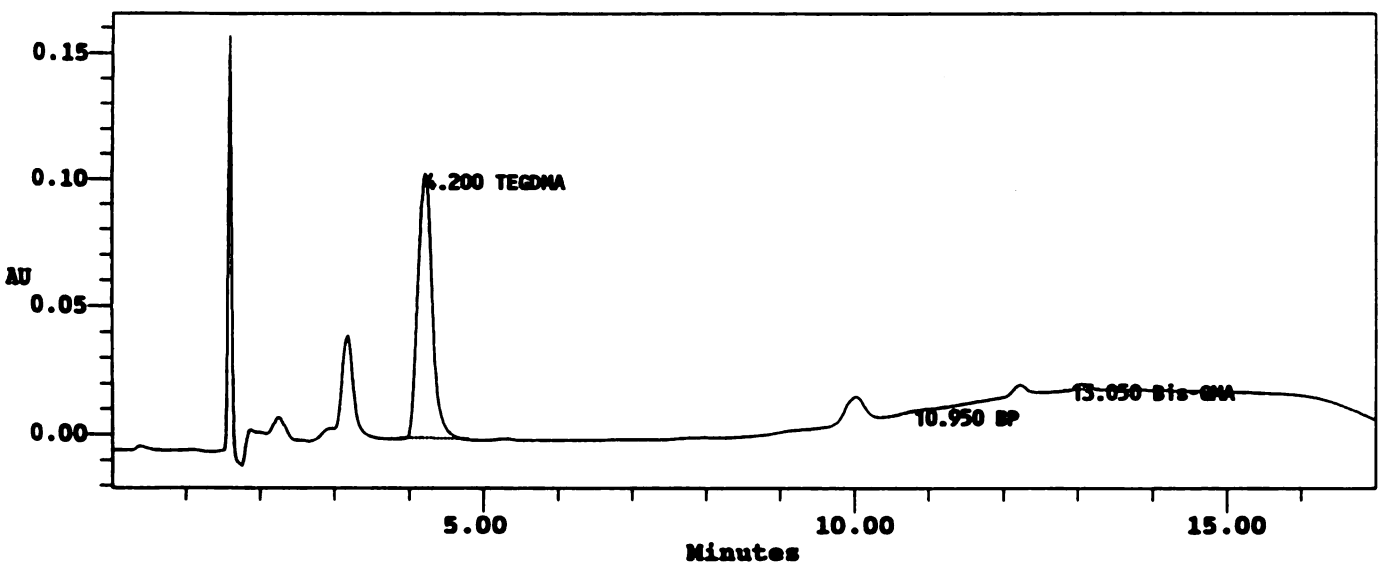
LIGHT CURE RESIN

For Sample: R3S1T3 TOOTH Vial: 37 Inj: 1 Chan: 486 Date Processed 10/20/93 10:33 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T3 TOOTH		
Vial:	37	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 05:12 AM	Date Processed:	10/20/93 10:33 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

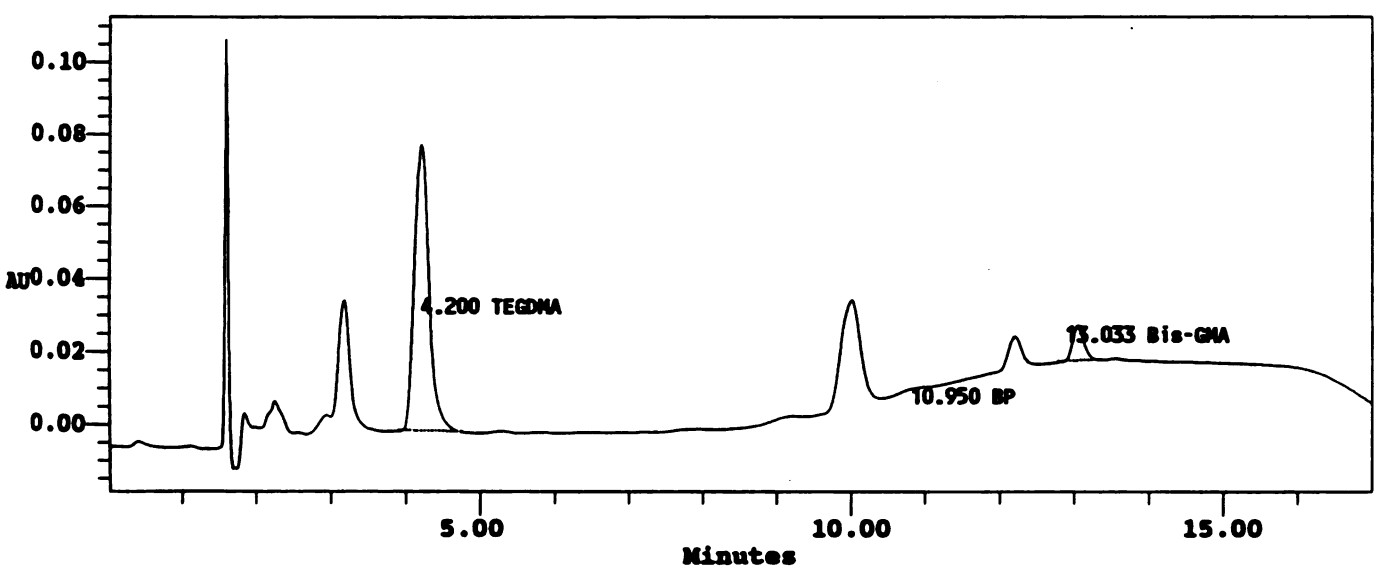


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	1408276	103975	0.464	BB
2	BP	10.950				Missing
3	Bis-GMA	13.050	27446	2637	0.012	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T5 TOOTH		
Vial:	49	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 08:57 AM	Date Processed:	10/20/93 10:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

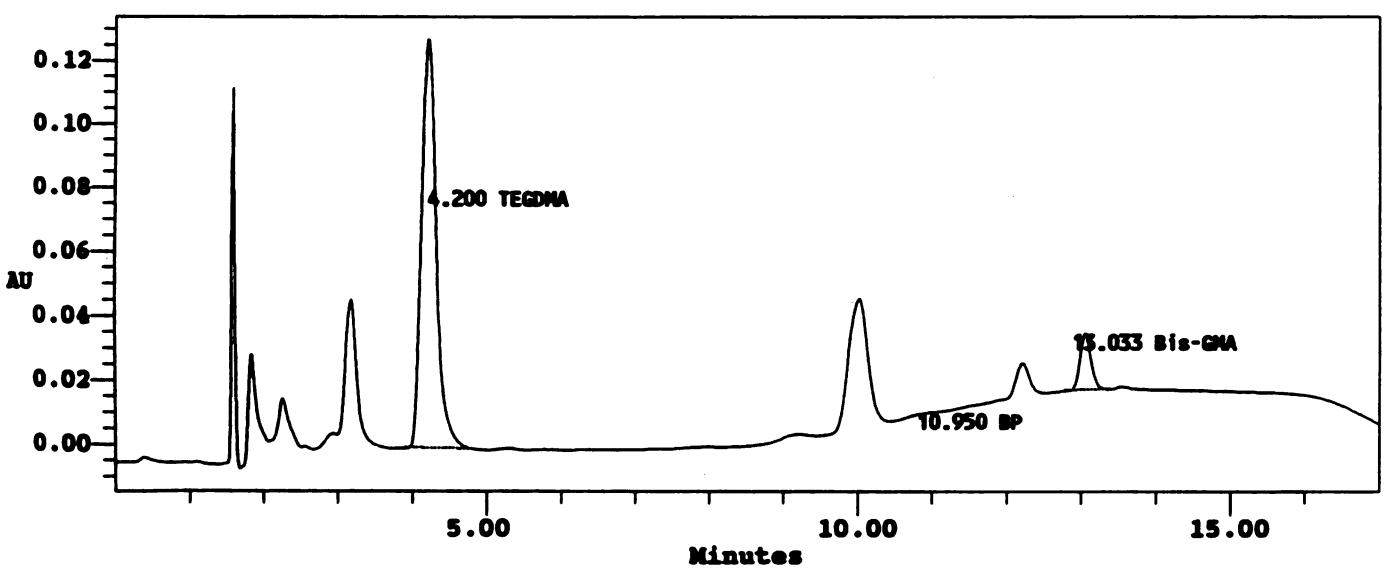


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	1094245	78929	0.361	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	101744	9741	0.045	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T6 TOOTH		
Vial:	55	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 10:49 AM	Date Processed:	10/20/93 10:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

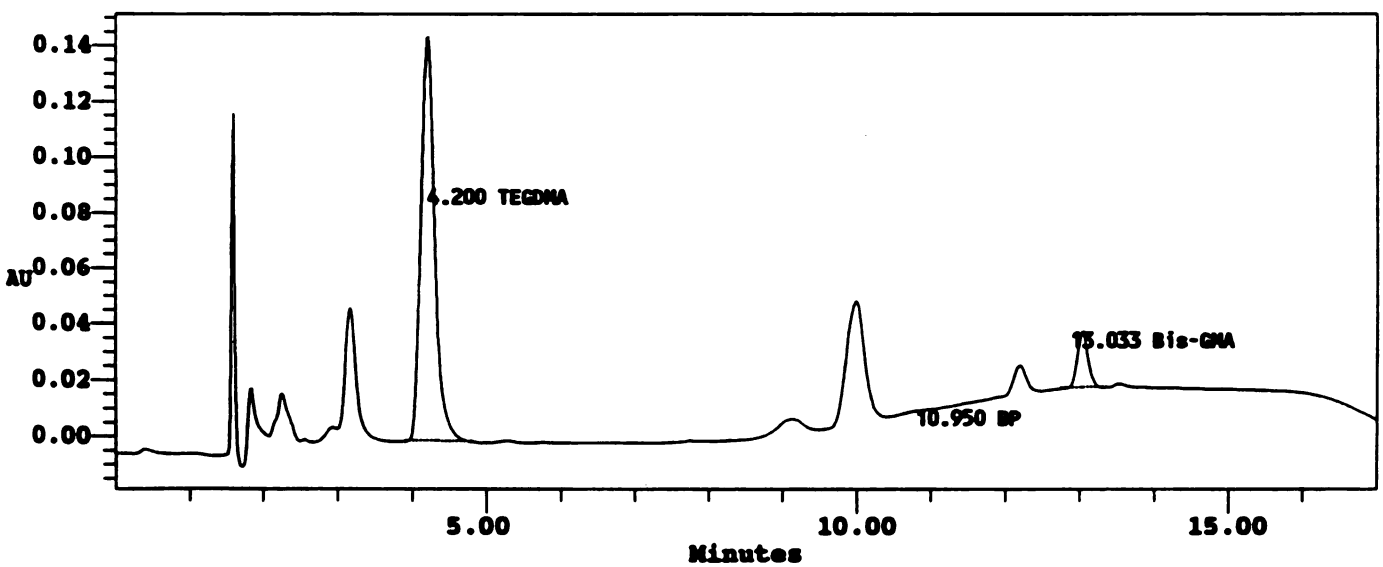
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	1781036	128181	0.587	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	185602	17868	0.082	BV

For Sample: R3S1T7 TOOTH Vial: 61 Inj: 1 Chan: 486 Date Processed 10/20/93 10:42 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T7 TOOTH		
Vial:	61	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 12:42 PM	Date Processed:	10/20/93 10:42 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

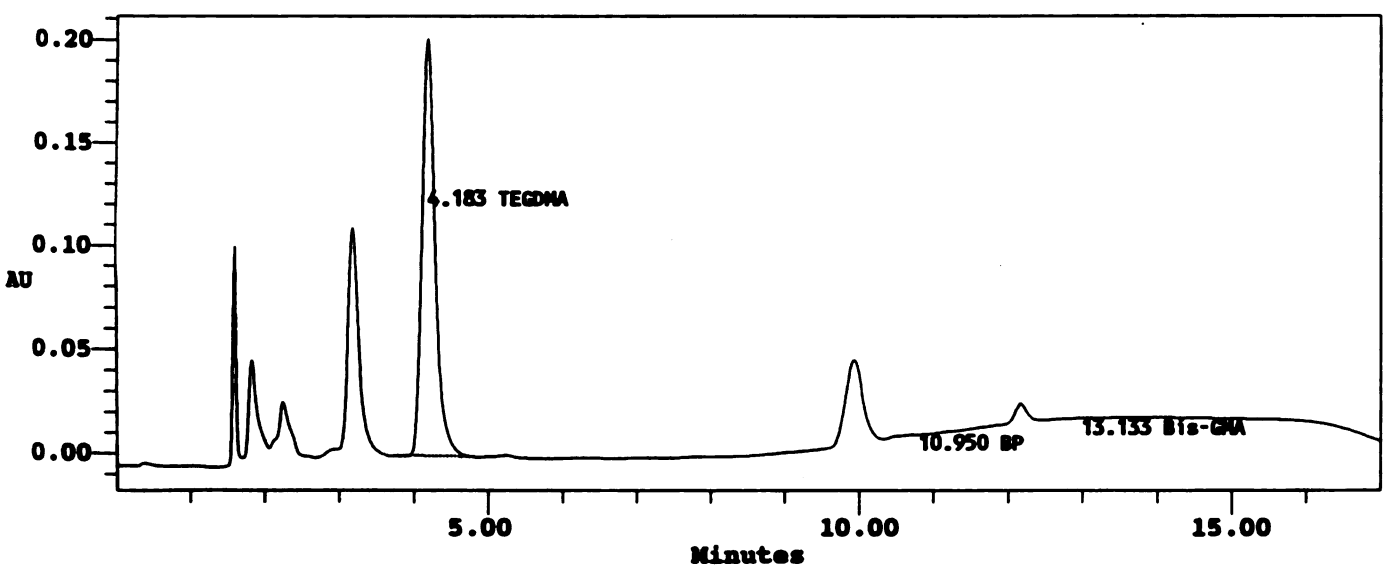


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	1893554	145033	0.624	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	199749	19931	0.089	BV

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T8 TOOTH		
Vial:	67	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 02:35 PM	Date Processed:	10/20/93 10:44 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

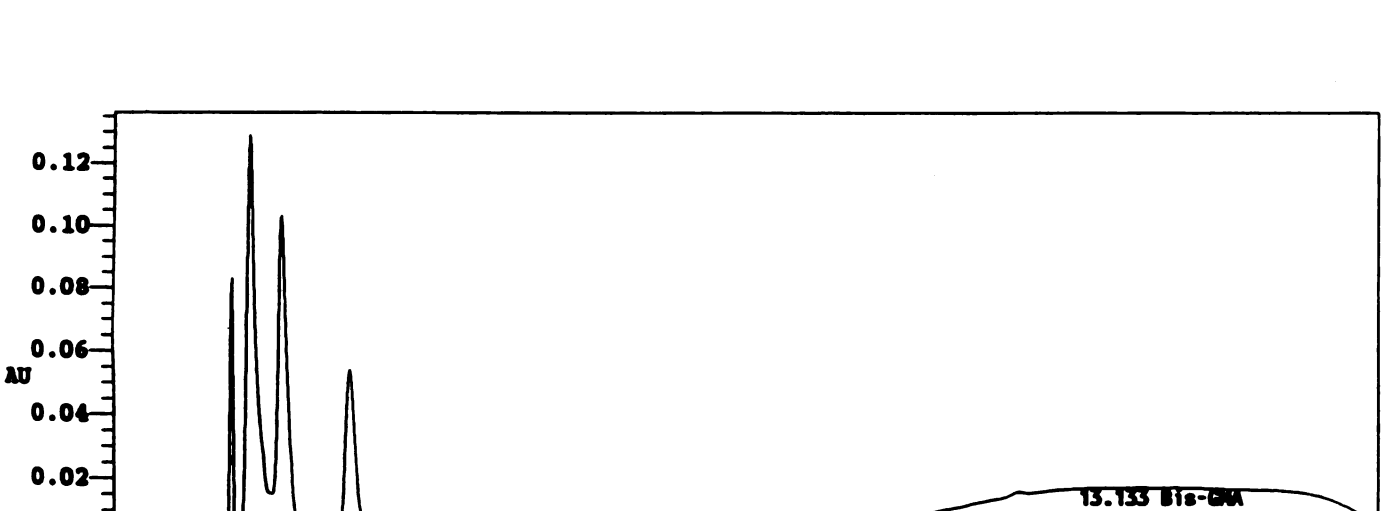
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	2495712	201967	0.822	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S1T9 TOOTH Vial: 73 Inj: 1 Chan: 486 Date Processed 10/20/93 10:46 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T9 TOOTH		
Vial:	73	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 04:27 PM	Date Processed:	10/20/93 10:46 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



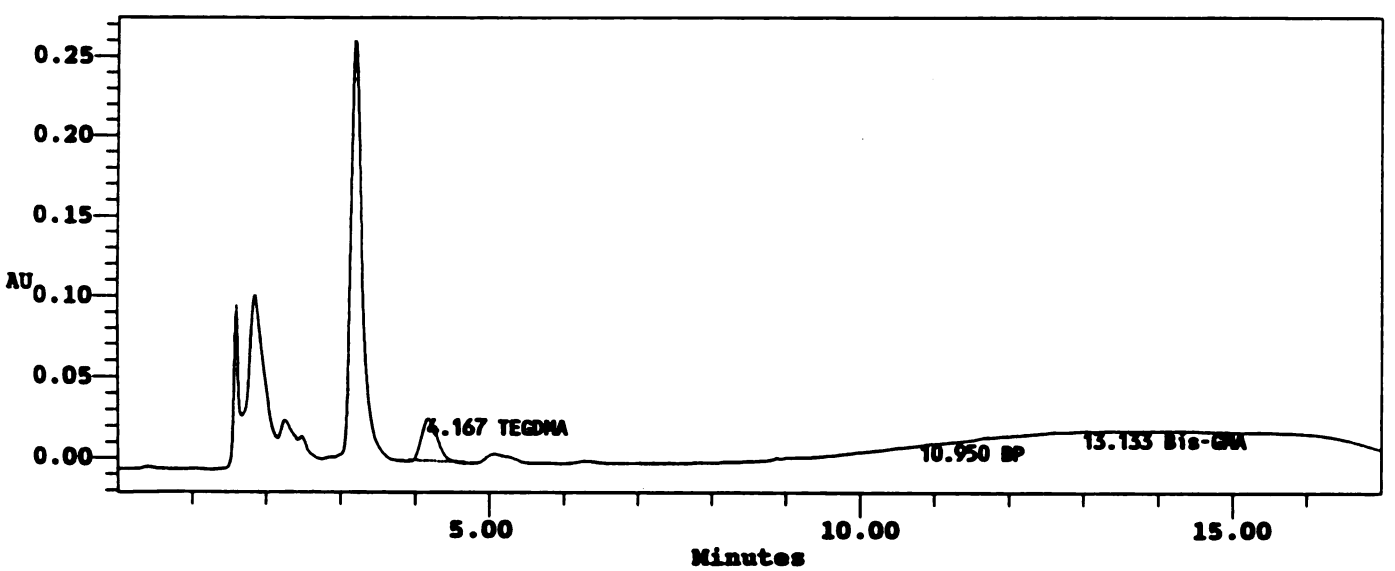
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	39656	3557	0.013	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S1T10 TOOTH Vial: 79 Inj: 1 Chan: 486 Date Processed 10/20/93 10:49 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S1T10 TOOTH		
Vial:	79	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 06:20 PM	Date Processed:	10/20/93 10:49 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

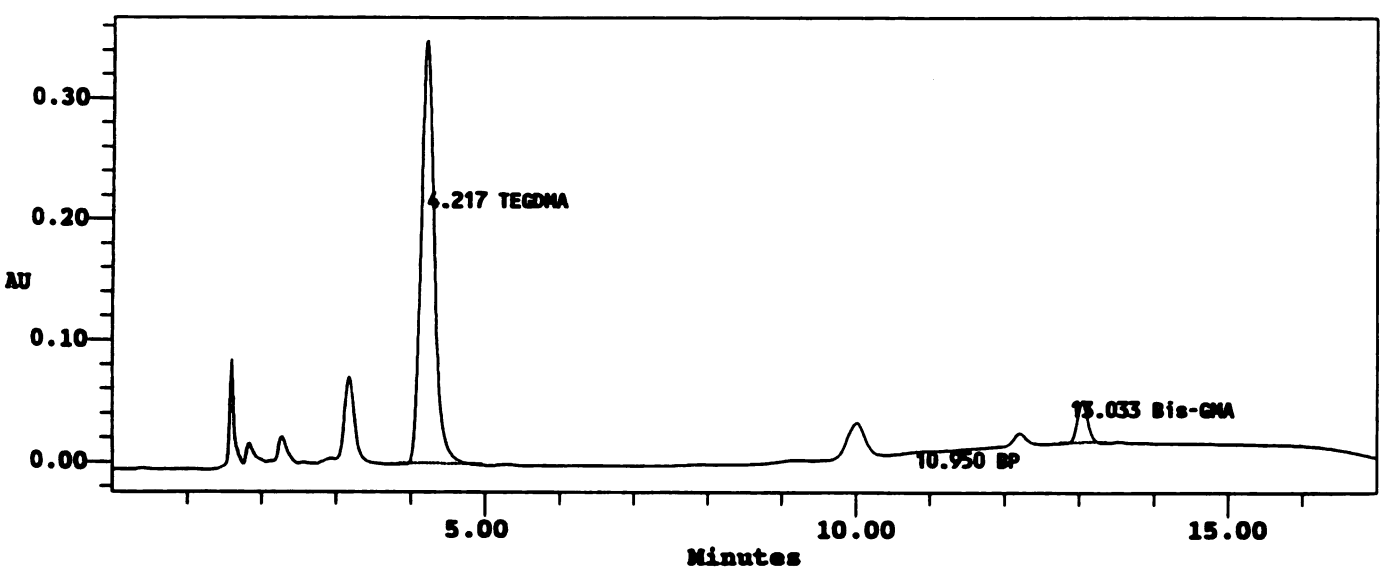
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	398352	26484	0.131	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R3S2T1 TOOTH Vial: 26 Inj: 1 Chan: 486 Date Processed 10/20/93 10:29 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T1 TOOTH		
Vial:	26	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 01:45 AM	Date Processed:	10/20/93 10:29 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

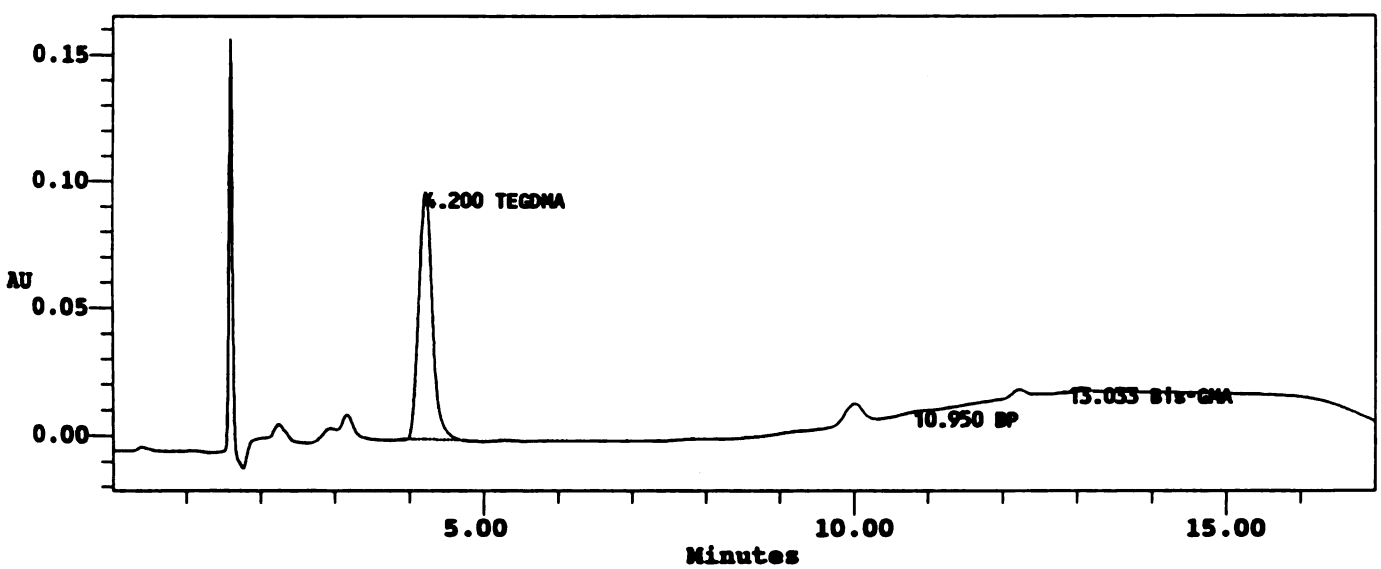


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.217	4386073	350142	1.445	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	339986	34787	0.151	BV

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T2 TOOTH		
Vial:	32	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 03:38 AM	Date Processed:	10/20/93 10:31 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

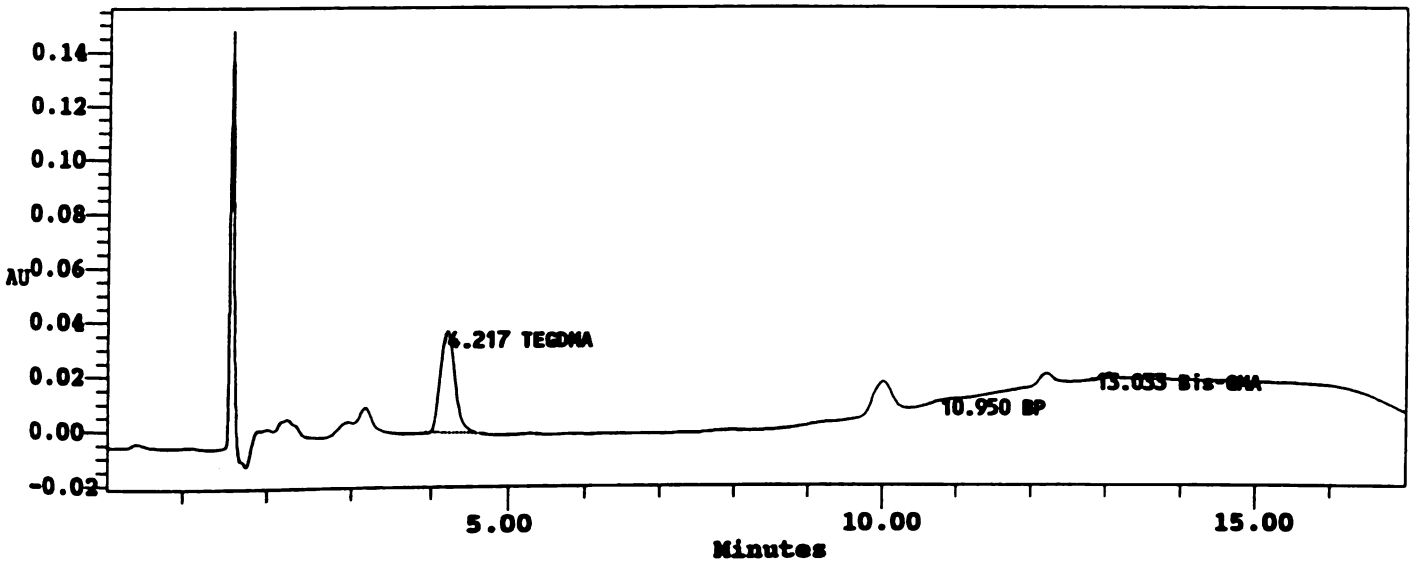


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	1249674	97583	0.412	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	19231	1936	0.009	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T3 TOOTH		
Vial:	38	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 05:30 AM	Date Processed:	10/20/93 10:33 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

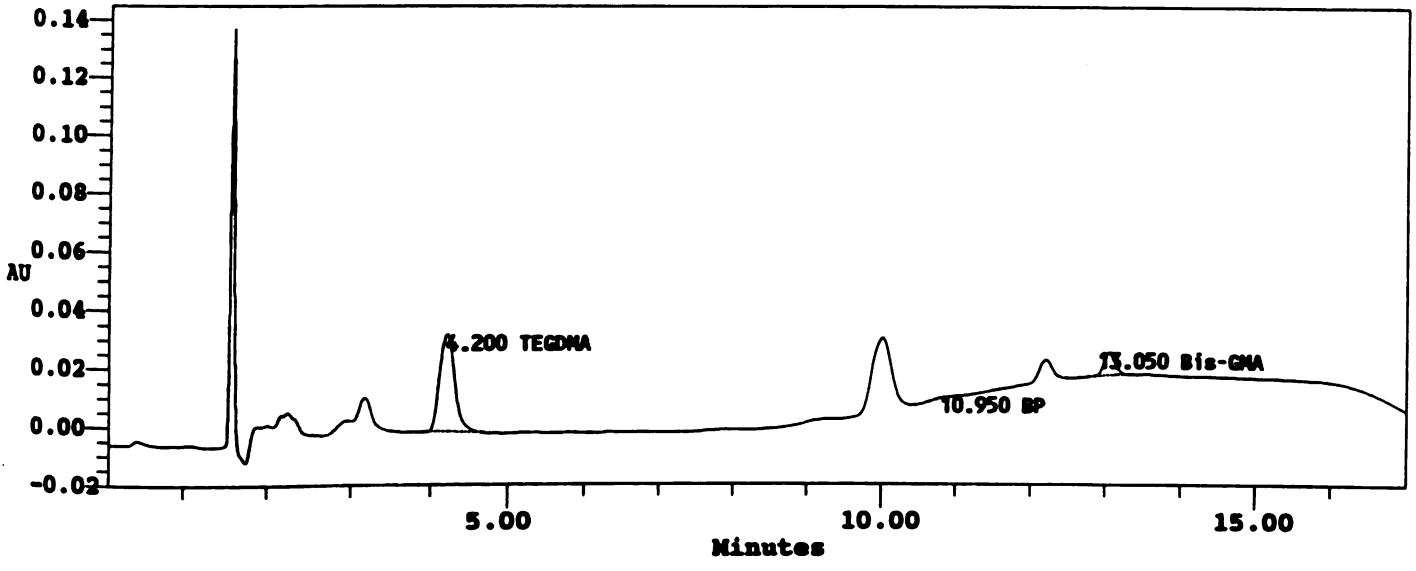


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.217	505715	37587	0.167	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	23196	2263	0.010	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T4 TOOTH		
Vial:	44	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 07:23 AM	Date Processed:	10/20/93 10:36 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

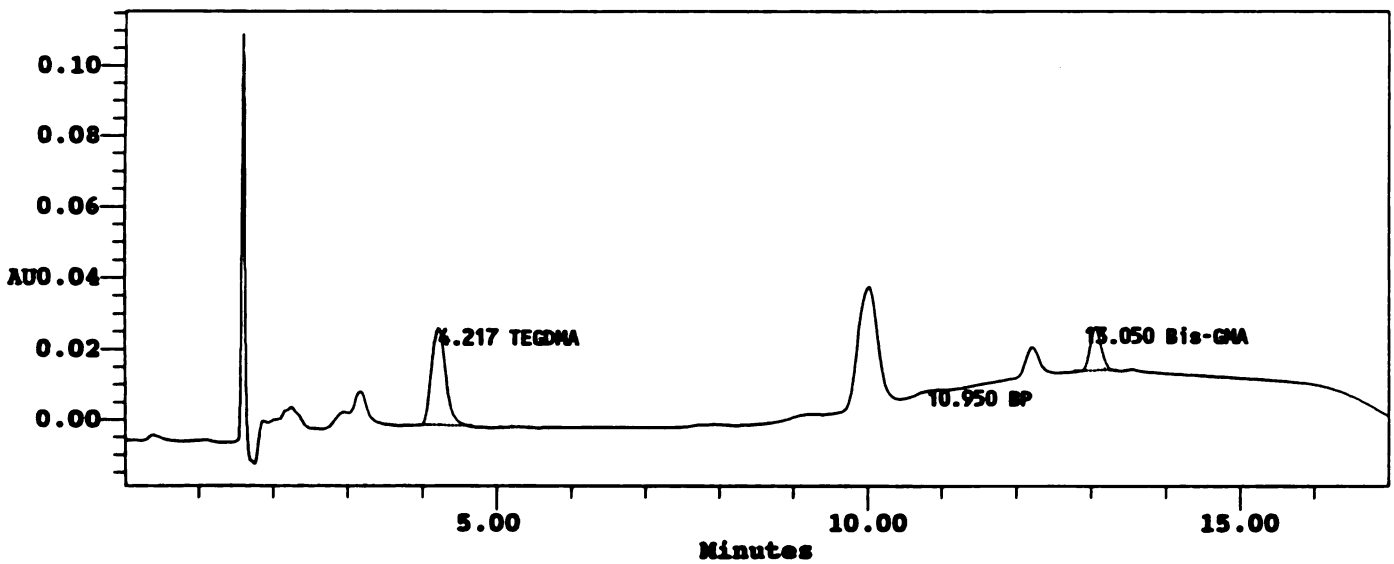


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	465944	33747	0.154	BB
2	BP	10.950				Missing
3	Bis-GMA	13.050	84720	8162	0.038	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T5 TOOTH		
Vial:	50	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 09:16 AM	Date Processed:	10/20/93 10:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

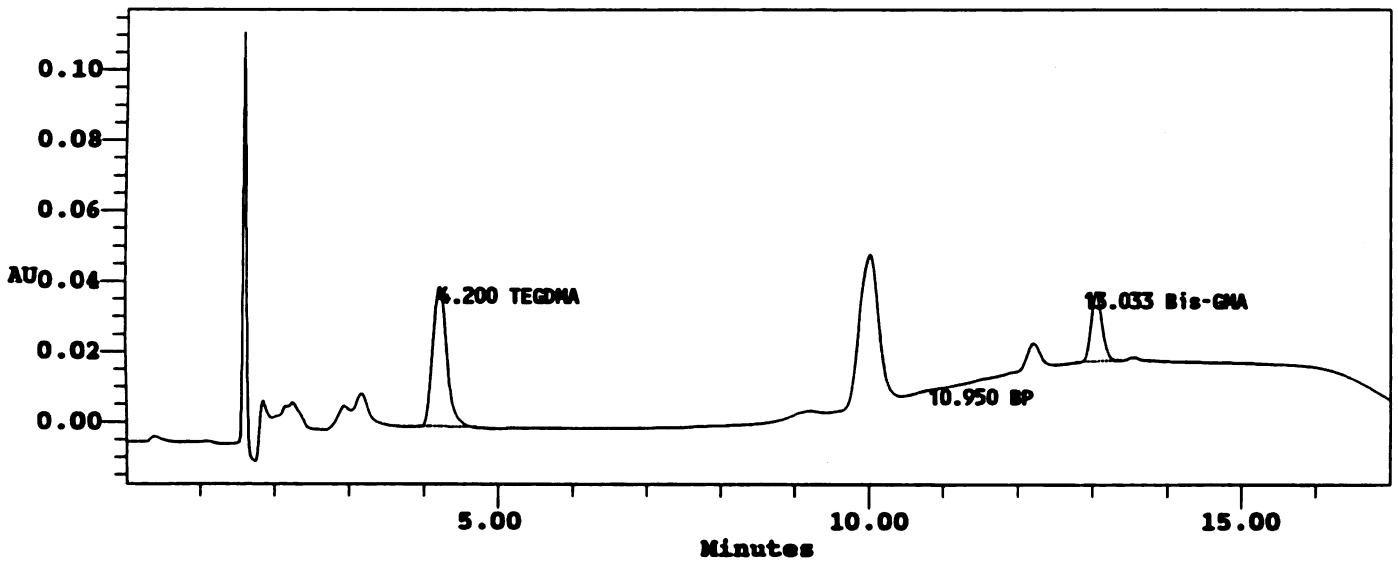


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.217	377330	27612	0.124	BB
2	BP	10.950				Missing
3	Bis-GMA	13.050	131153	12532	0.058	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T6 TOOTH		
Vial:	56	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 11:08 AM	Date Processed:	10/20/93 10:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

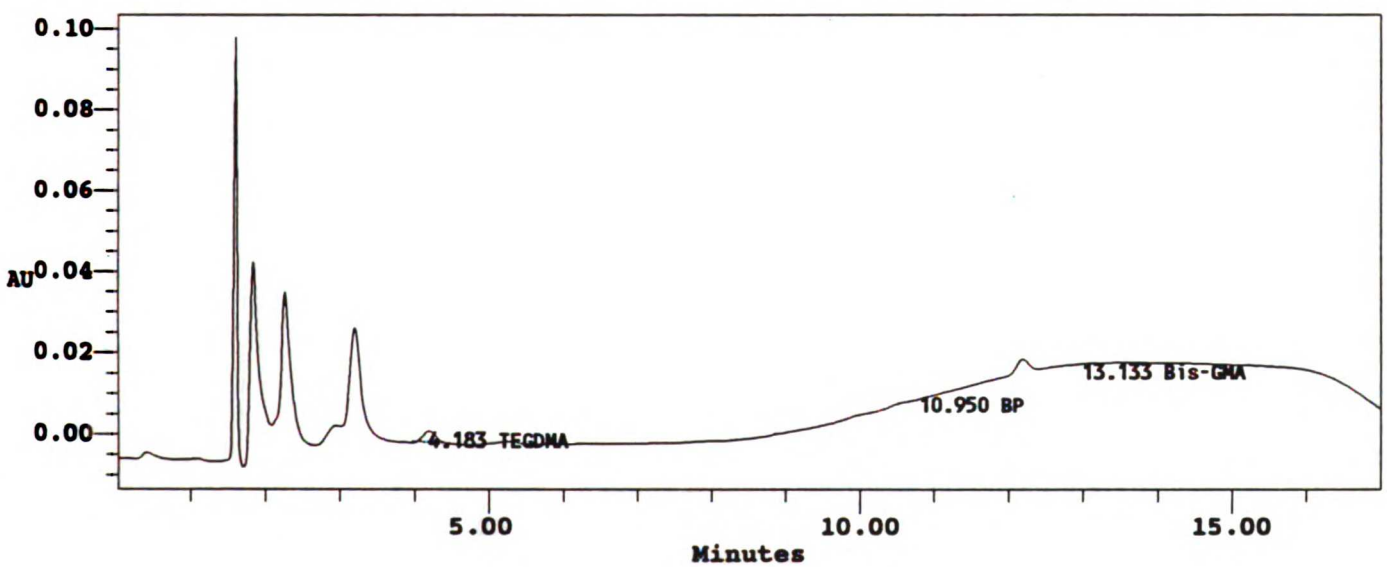
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	531581	39842	0.175	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	206487	19949	0.092	BV

For Sample: R3S2T7 TOOTH Vial: 62 Inj: 1 Chan: 486 Date Processed 10/20/93 10:43 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T7 TOOTH		
Vial:	62	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 01:01 PM	Date Processed:	10/20/93 10:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

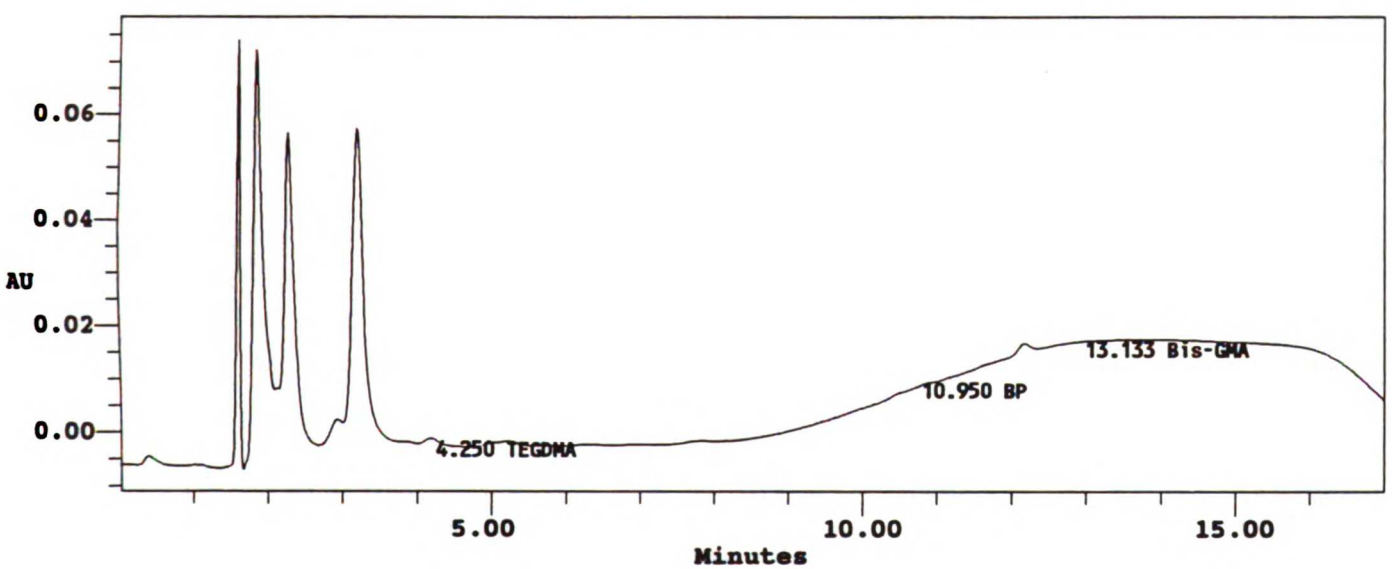


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	36204	2877	0.012	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S2T8 TOOTH		
Vial:	68	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 02:53 PM	Date Processed:	10/20/93 10:44 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

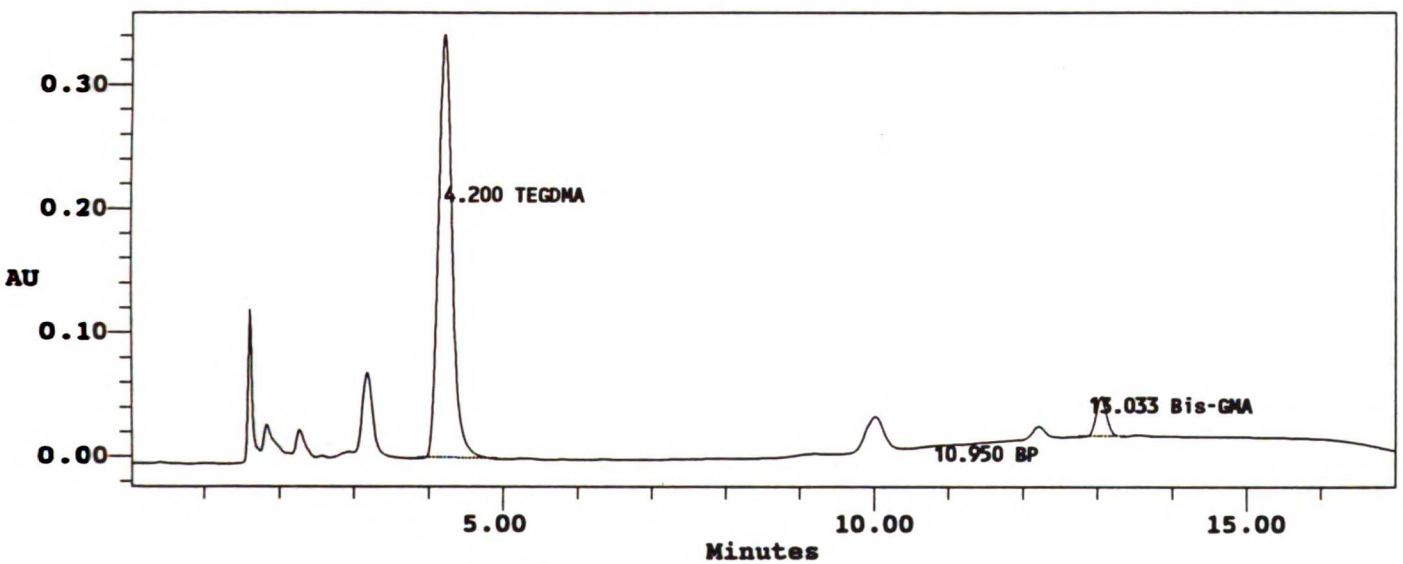


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S3T1 TOOTH		
Vial:	27	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 02:04 AM	Date Processed:	10/20/93 10:29 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

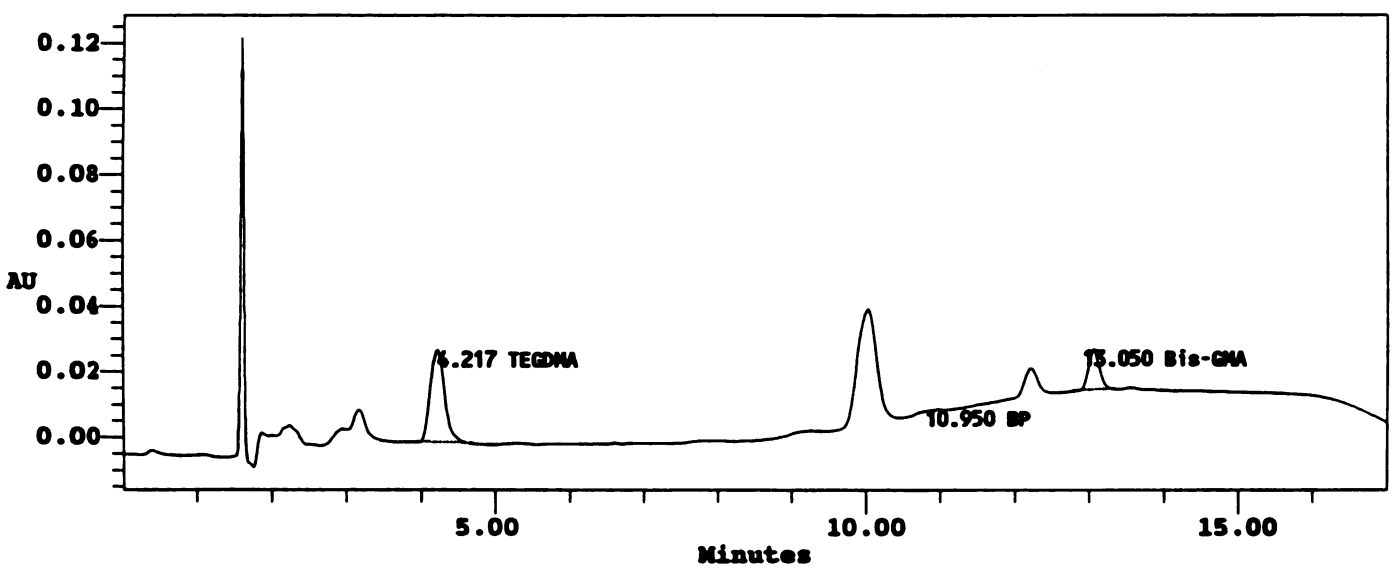


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	4430728	341928	1.460	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	316492	32111	0.140	BV

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S3T5 TOOTH		
Vial:	51	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 09:34 AM	Date Processed:	10/20/93 10:39 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

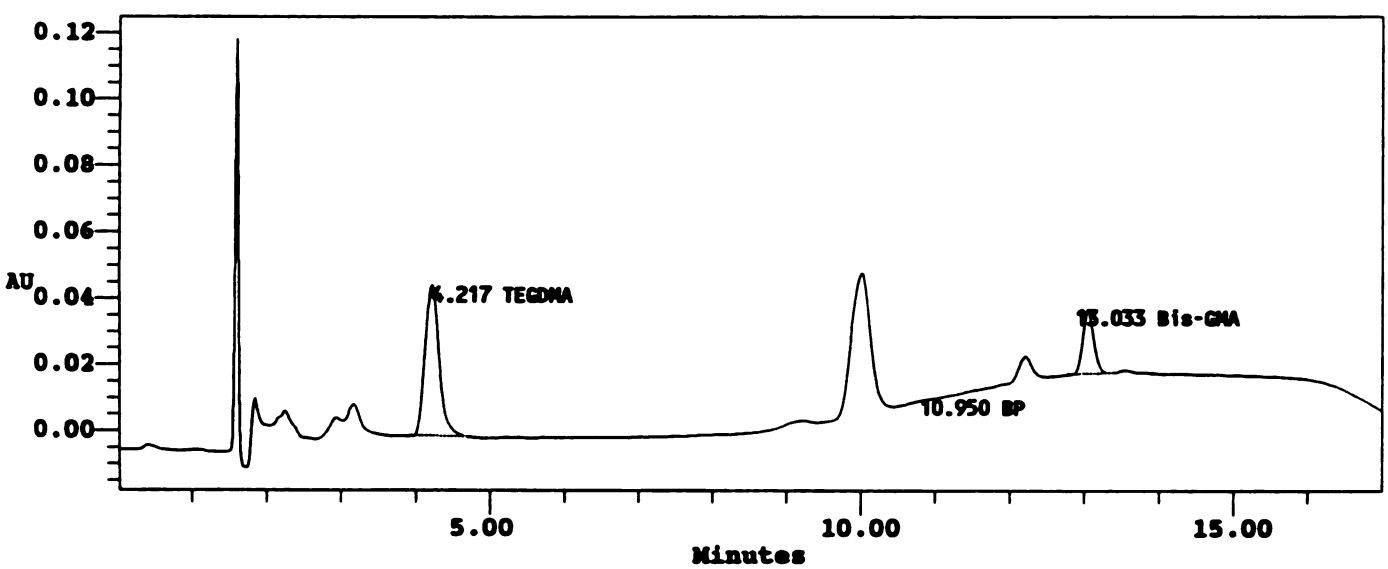


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.217	386667	28092	0.127	BB
2	BP	10.950				Missing
3	Bis-GMA	13.050	129309	12429	0.057	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S3T6 TOOTH		
Vial:	57	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 11:27 AM	Date Processed:	10/20/93 10:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

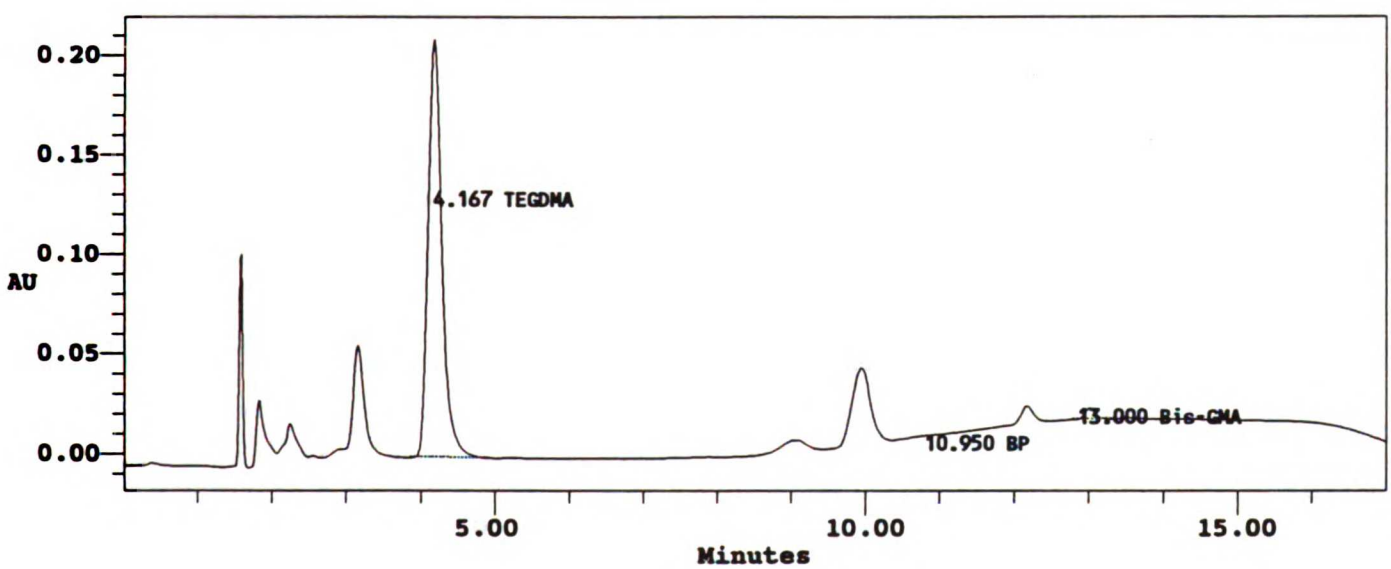


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.217	610079	45497	0.201	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	202790	19764	0.090	BV

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S3T7 TOOTH		
Vial:	63	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 01:20 PM	Date Processed:	10/20/93 10:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2730734	209989	0.900	BB
2	BP	10.950				Missing
3	Bis-GMA	13.000	55910	5633	0.025	BV

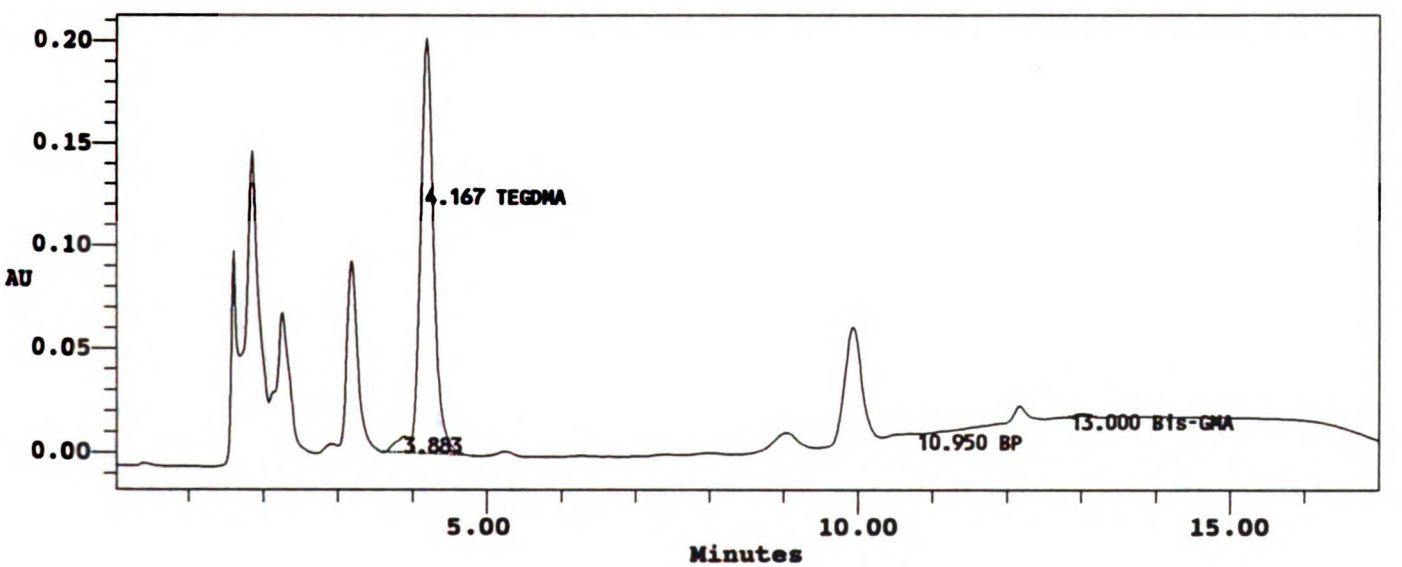
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R3S3T9 TOOTH Vial: 75 Inj: 1 Chan: 486 Date Processed 10/20/93 10:47 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S3T9 TOOTH		
Vial:	75	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 05:05 PM	Date Processed:	10/20/93 10:47 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

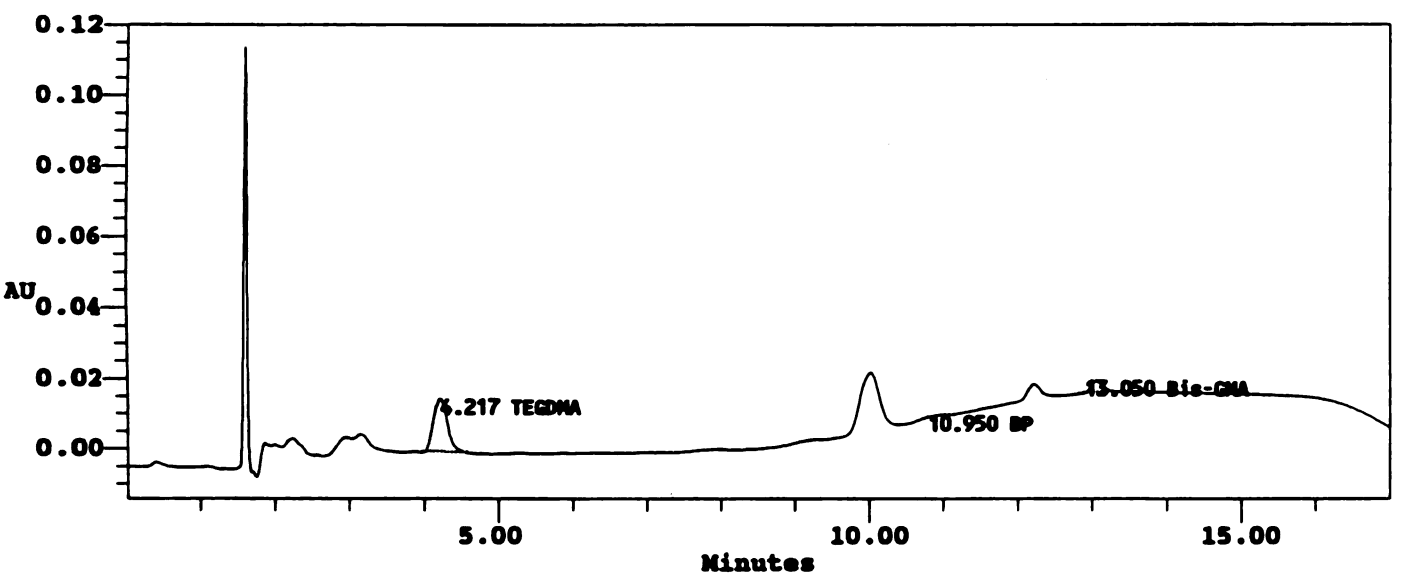


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.883	104874	8090		BV
2	TEGDMA	4.167	2486010	202359	0.819	VB
3	BP	10.950				Missing
4	Bis-GMA	13.000	17647	1932	0.008	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S4T5 TOOTH		
Vial:	52	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 09:53 AM	Date Processed:	10/20/93 10:39 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

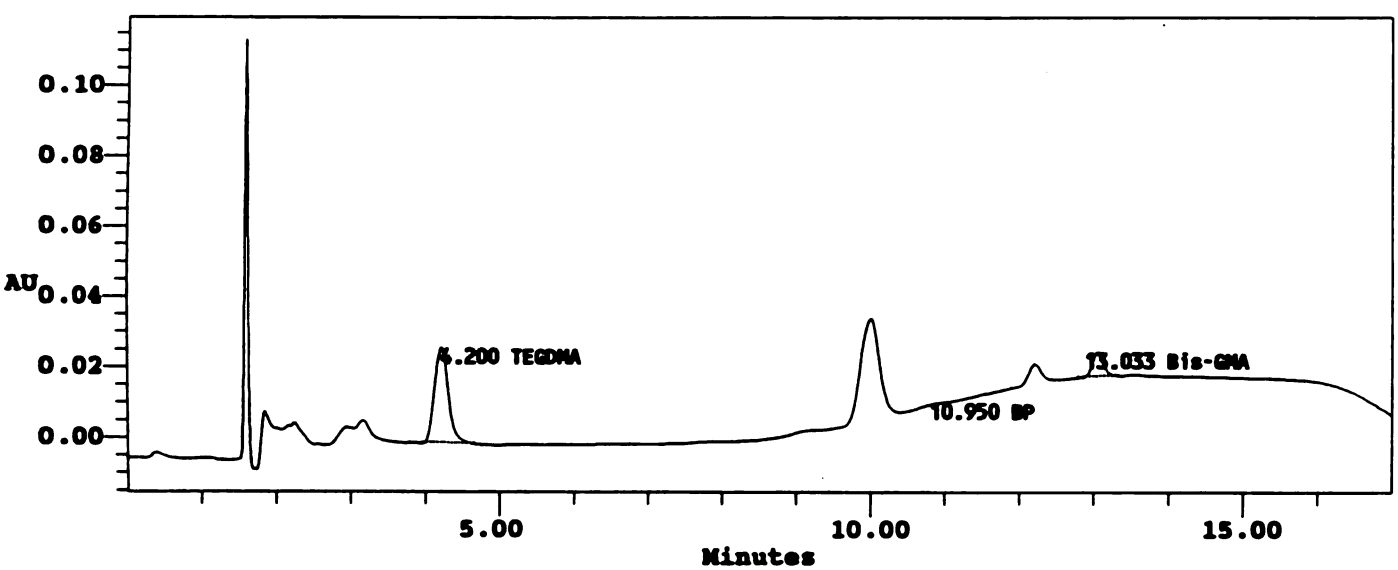


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.217	206379	15423	0.068	BB
2	BP	10.950				Missing
3	Bis-GMA	13.050	36938	3539	0.016	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S4T6 TOOTH		
Vial:	58	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 11:46 AM	Date Processed:	10/20/93 10:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

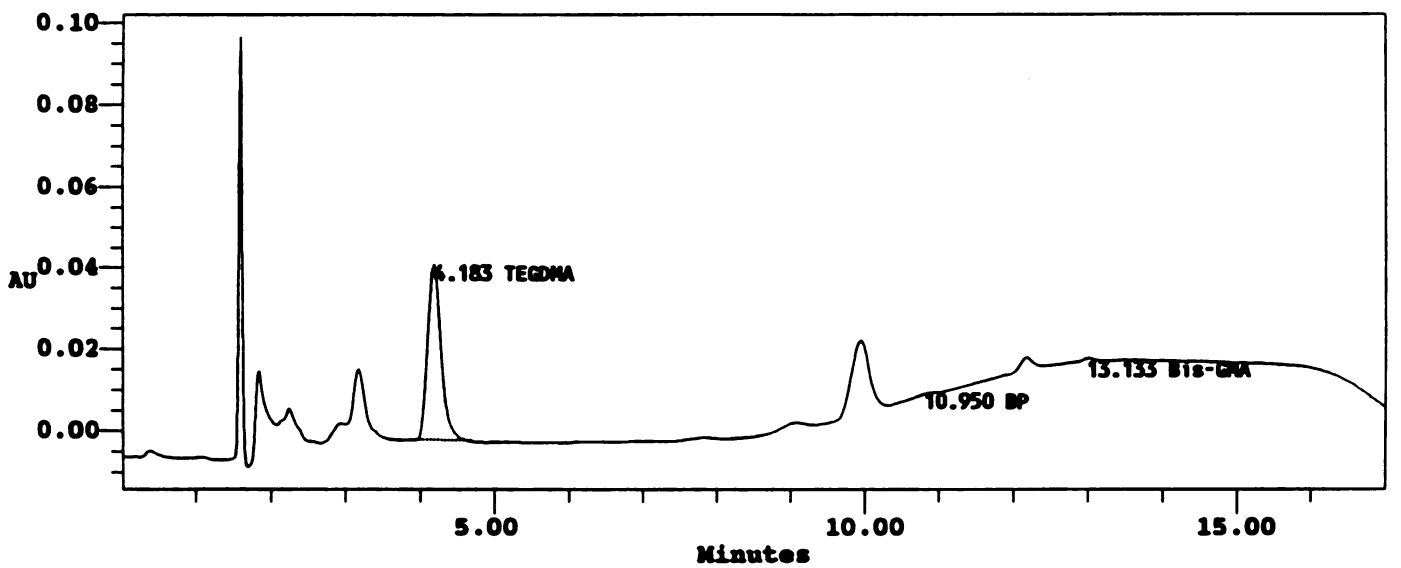


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	355941	27093	0.117	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	71744	6979	0.032	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S4T7 TOOTH		
Vial:	64	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 01:38 PM	Date Processed:	10/20/93 10:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

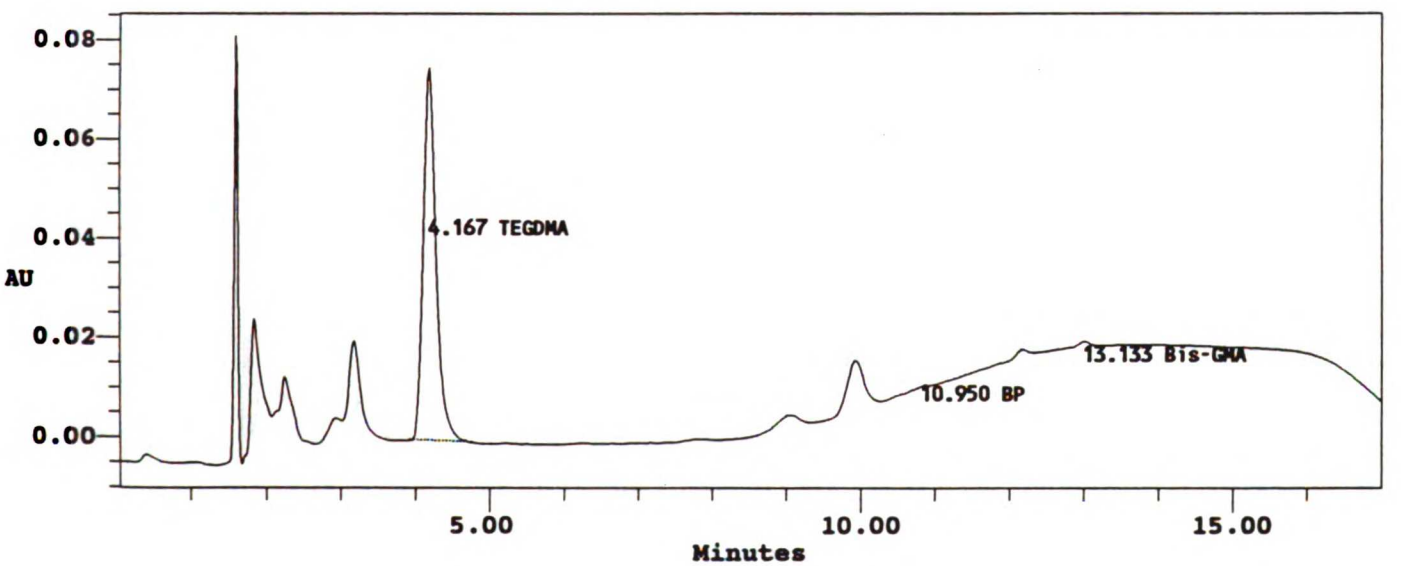


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	547567	42992	0.180	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S4T8 TOOTH		
Vial:	70	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 03:31 PM	Date Processed:	10/20/93 10:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

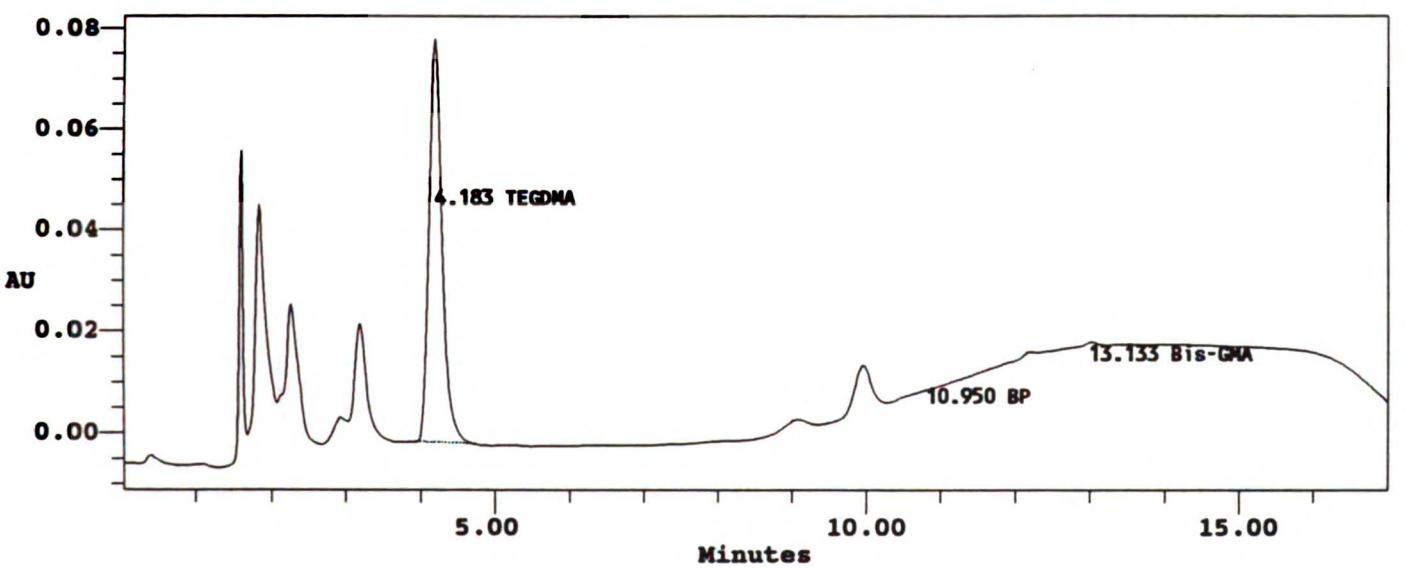


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	908202	75173	0.299	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S4T9 TOOTH		
Vial:	76	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 05:24 PM	Date Processed:	10/20/93 10:48 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

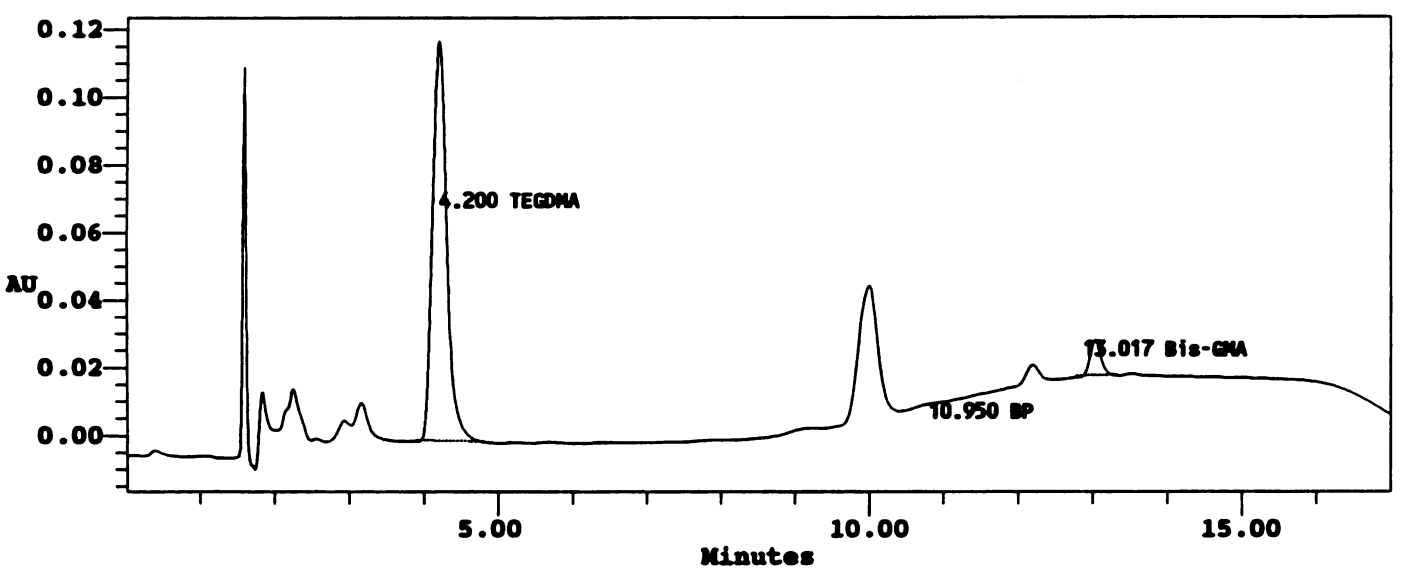


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	972504	79843	0.320	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S5T6 TOOTH		
Vial:	59	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 12:05 PM	Date Processed:	10/20/93 10:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

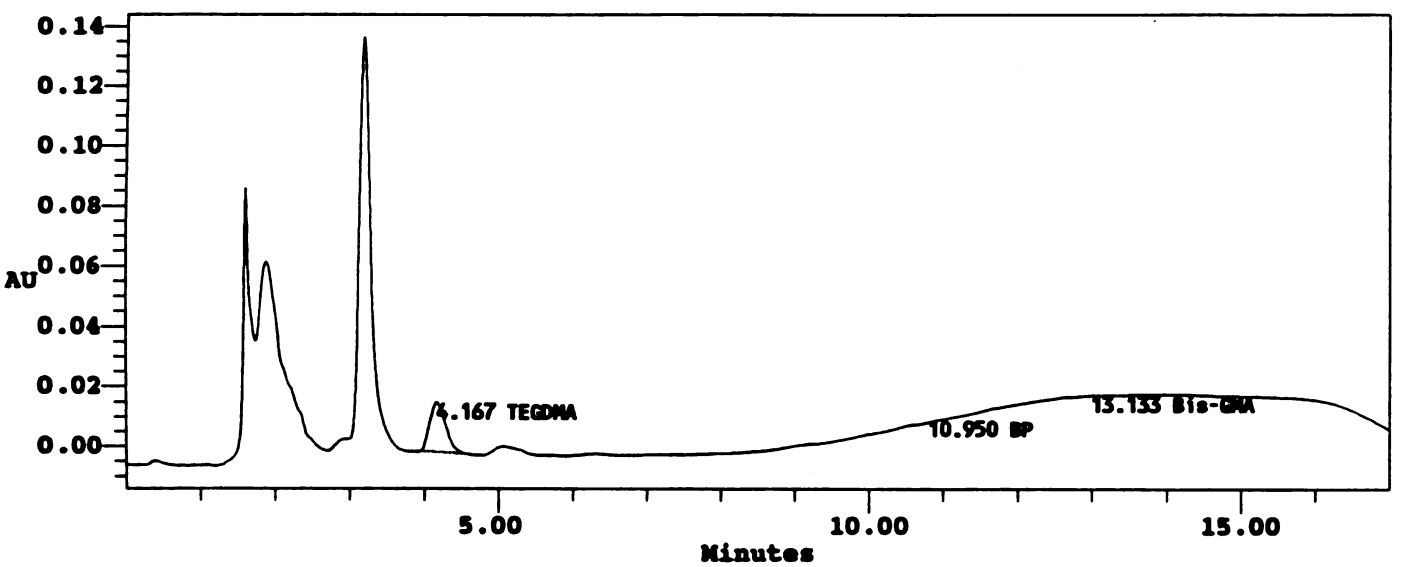


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	1584968	118471	0.522	BB
2	BP	10.950				Missing
3	Bis-GMA	13.017	109951	10811	0.049	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S5T10 TOOTH		
Vial:	83	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 07:35 PM	Date Processed:	10/20/93 10:50 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

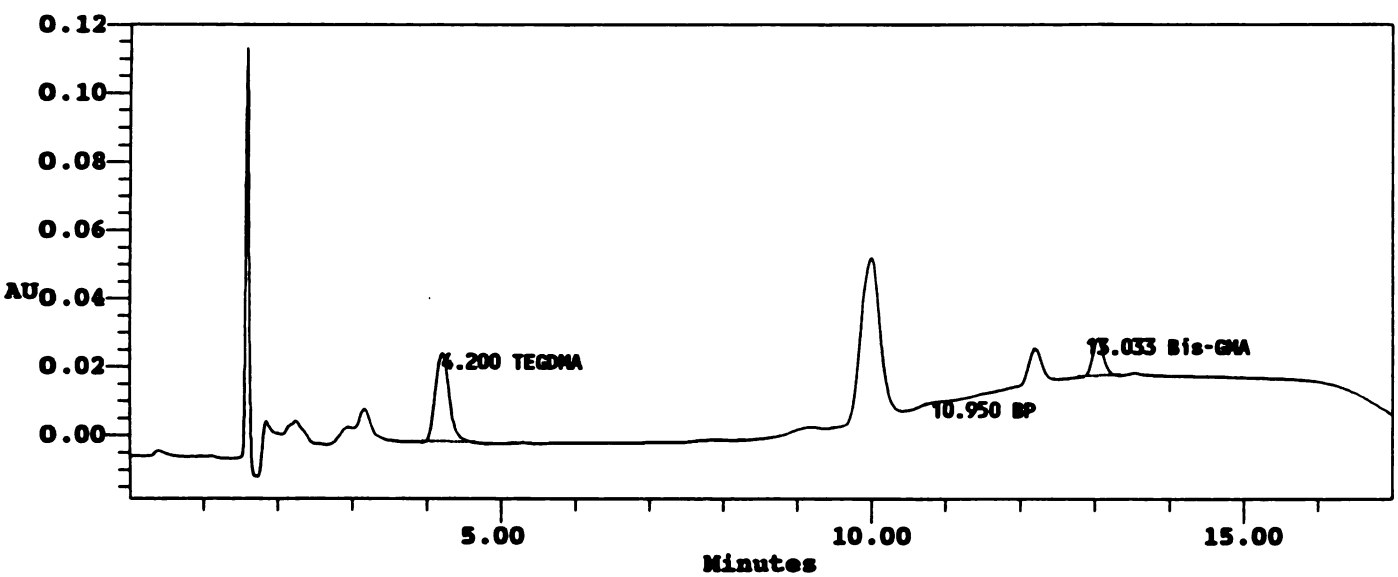


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	259199	16917	0.085	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T6 TOOTH		
Vial:	60	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 12:23 PM	Date Processed:	10/20/93 10:42 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

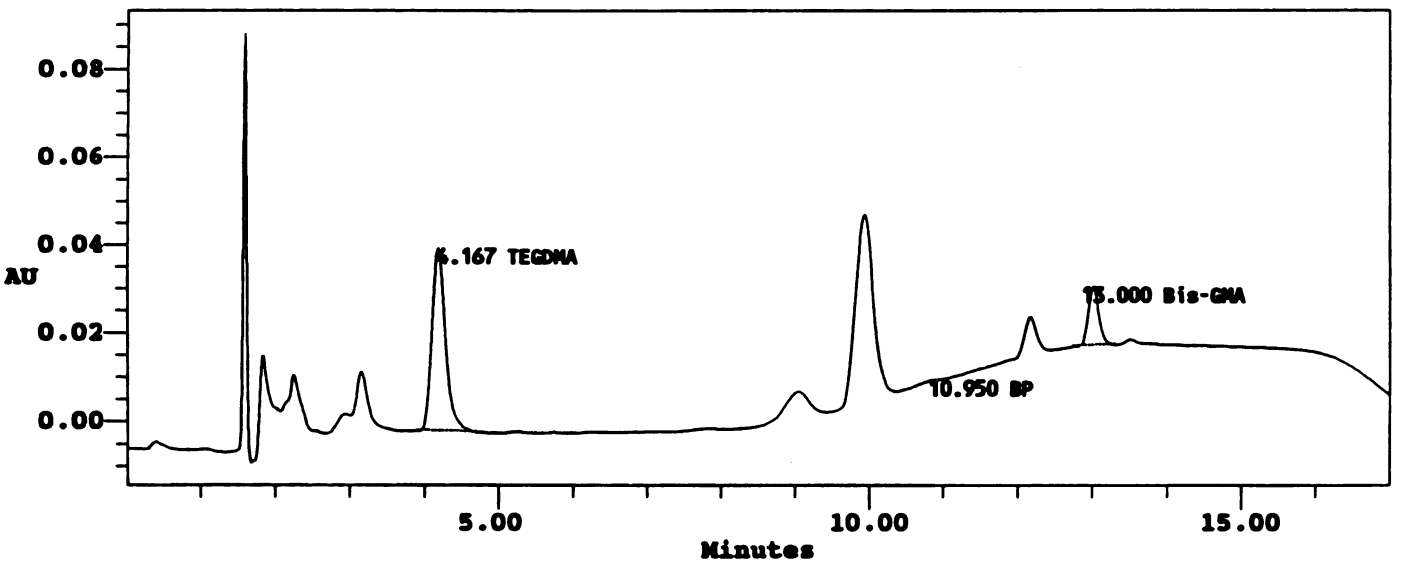


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.200	342516	26066	0.113	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	115413	11188	0.051	BV

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T7 TOOTH		
Vial:	66	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 02:16 PM	Date Processed:	10/20/93 10:44 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

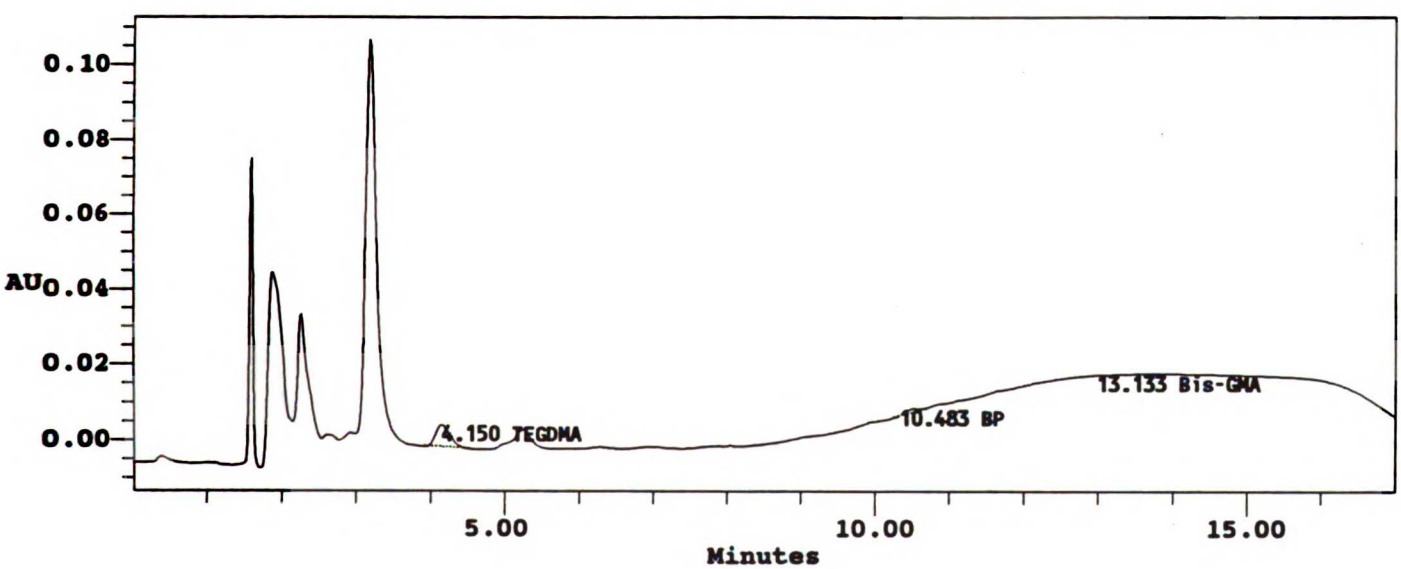
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	528166	41396	0.174	BB
2	BP	10.950				Missing
3	Bis-GMA	13.000	130642	13351	0.058	BV

For Sample: R3S6T8 TOOTH Vial: 72 Inj: 1 Chan: 486 Date Processed 10/20/93 10:46 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T8 TOOTH		
Vial:	72	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 04:09 PM	Date Processed:	10/20/93 10:46 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



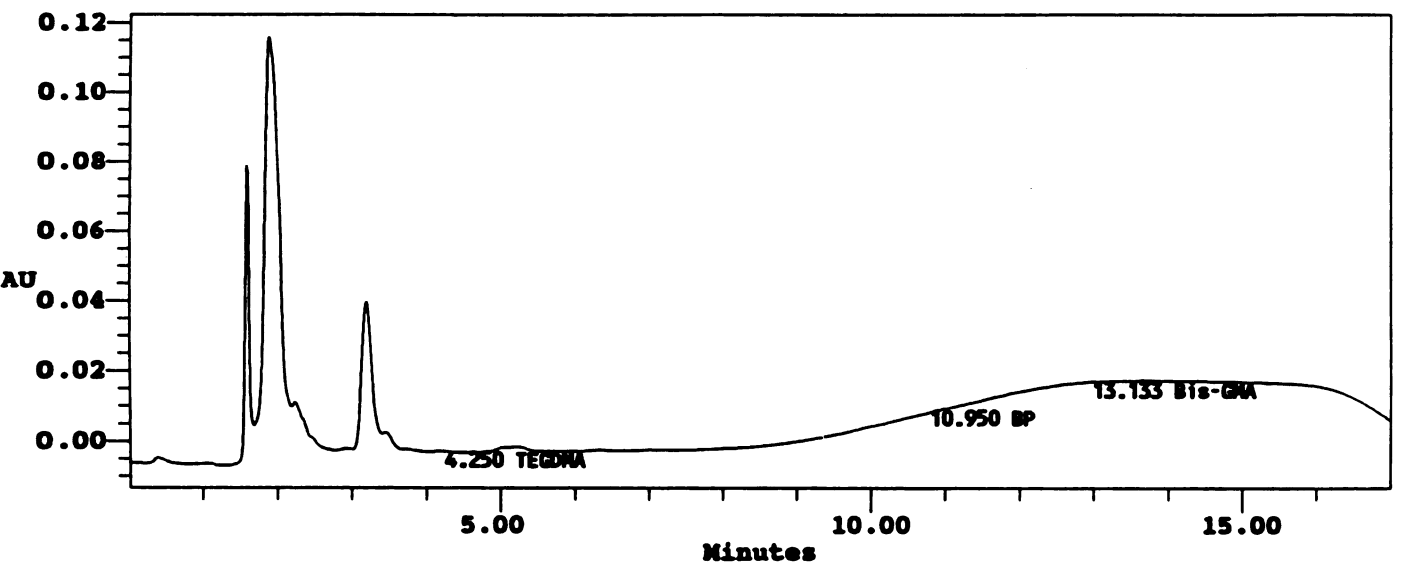
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	80350	5916	0.026	BB
2	BP	10.483	17854	1243	0.006	BV
3	Bis-GMA	13.133				Missing

Millennium Results Report: Default Proc Chan: 486 Page 1
For Sample: R3S6T9 TOOTH Vial: 78 Inj: 1 Chan: 486 Date Processed 10/20/93 10:48 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T9 TOOTH		
Vial:	78	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 06:01 PM	Date Processed:	10/20/93 10:48 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

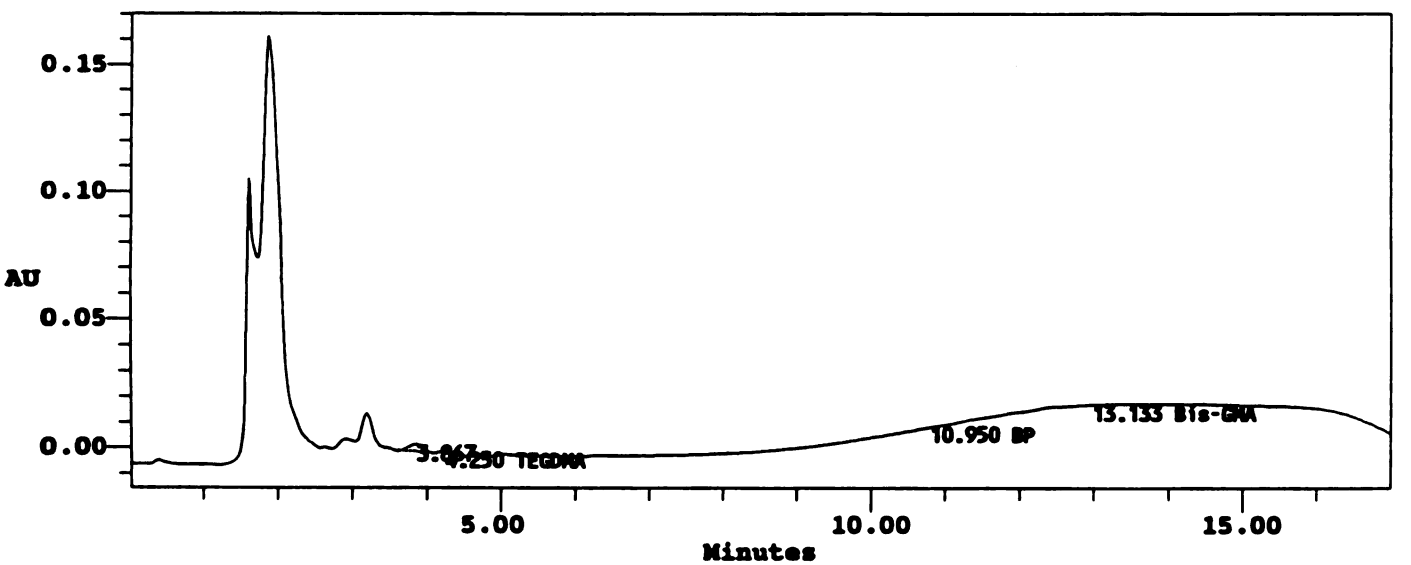


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R3S6T10 TOOTH		
Vial:	84	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/11/93 07:54 PM	Date Processed:	10/20/93 10:51 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.867	44470	3033		BV
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

In Vitro Cytotoxic and Quantitative Evaluation of Composite Resin Components Associated with Orthodontic Bonding Materials

HPLC DATA
TWO PASTE RESIN

APPENDIX - II

University of California San Francisco
Department of Oral Biology

Michael V. Palasz, D.M.D.

TWO PASTE-TEGDMA, n=6, µg in 100 µ										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	1.702	1.274	1.145	0.781	0.15	0.024	0.011	0.011	0.006	0
2	1.255	0.975	1.138	0.696	0.138	0.026	0.009	0	0	0
3	1.225	0.899	0.794	0.561	0.124	0.038	0.031	0	0	0
4	1.34	0.868	0.887	0.638	0.13	0.033	0.019	0	0	0
5	0.901	0.521	0.516	0.454	0.147	0.03	0.012	0	0	0
6	1.324	0.578	0.593	0.537	0.254	0.139	0.089	0.007	0	0

SUMMARY-TWO PASTE-TEGDMA ,n=6, µg in 100 µl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	1.2912	0.8525	0.8455	0.6112	0.1572	0.0483	0.0285	0.003	0.001	0
sd	0.257	0.2758	0.2653	0.1179	0.0484	0.0447	0.0307	0.0048	0.0024	0

TWO PASTE-TEGDMA, n=6, µg in 100 µ										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.361	0.08	0.069	0.067	0.027	0.011	0.006	0	0	0
2	0.182	0.028	0.03	0.038	0.023	0.024	0.006	0.005	0	0
3	0.55	0.129	0.443	0.095	0.075	0.012	0	0.006	0	0
4	0.735	0.325	0.214	0.403	0.172	0.062	0.031	0.009	0	0
5	0.366	0.144	0.072	0.091	0.038	0.017	0.009	0.005	0	0
6	0.446	0.133	0.073	0.094	0.037	0.016	0.006	0	0	0

SUMMARY-TWO PASTE-TEGDMA ,n=6, µg in 100 µl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.44	0.1398	0.1502	0.1313	0.062	0.0237	0.0097	0.0042	0	0
sd	0.1884	0.1006	0.1568	0.1349	0.0569	0.0193	0.0109	0.0035	0	0

TWO PASTE-TEGDMA, n=6, µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	17.02	12.74	11.45	7.81	1.5	0.24	0.11	0.11	0.06	0
2	12.55	9.75	11.38	6.96	1.38	0.26	0.09	0	0	0
3	12.25	8.99	7.94	5.61	1.24	0.38	0.31	0	0	0
4	13.4	8.68	8.87	6.38	1.3	0.33	0.19	0	0	0
5	9.01	5.21	5.16	4.54	1.47	0.3	0.12	0	0	0
6	13.24	5.78	5.93	5.37	2.54	1.39	0.89	0.07	0	0

SUMMARY-TWO PASTE-TEGDMA,n=6,µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	12.91	8.525	8.455	6.112	1.572	0.483	0.285	0.03	0.01	0
sd	2.57	2.758	2.653	1.179	0.484	0.447	0.307	0.048	0.024	0

TWO PASTE-TEGDMA, n=6, µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	3.61	0.8	0.69	0.67	0.27	0.11	0.06	0	0	0
2	1.82	0.28	0.3	0.38	0.23	0.24	0.06	0.05	0	0
3	5.5	1.29	4.43	0.95	0.75	0.12	0	0.06	0	0
4	7.35	3.25	2.14	4.03	1.72	0.62	0.31	0.09	0	0
5	3.66	1.44	0.72	0.91	0.38	0.17	0.09	0.05	0	0
6	4.46	1.33	0.73	0.94	0.37	0.16	0.06	0	0	0

SUMMARY-TWO PASTE-TEGDMA,n=6,µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	4.4	1.398	1.502	1.313	0.62	0.237	0.097	0.042	0	0
sd	1.884	1.006	1.568	1.349	0.569	0.193	0.109	0.035	0	0

TWO PASTE-TEGDMA, n=6, µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	17.02	29.76	41.21	49.02	50.52	50.76	50.87	50.98	51.04	51.04
2	12.55	22.3	33.68	40.64	42.02	42.28	42.37	42.37	42.37	42.37
3	12.25	21.24	29.18	34.79	36.03	36.41	36.72	36.72	36.72	36.72
4	13.4	22.08	30.95	37.33	38.63	38.96	39.15	39.15	39.15	39.15
5	9.01	14.22	19.38	23.92	25.39	25.69	25.81	25.81	25.81	25.81
6	13.24	19.02	24.95	30.32	32.86	34.25	35.14	35.21	35.21	35.21

TWO PASTE-TEGDMA, n=6 µmol										
tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.059	0.044	0.04	0.027	0.005	0.0008	4E-04	4E-04	2E-04	0
2	0.044	0.034	0.04	0.024	0.005	0.0009	3E-04	0	0	0
3	0.043	0.031	0.028	0.02	0.004	0.0013	0.001	0	0	0
4	0.047	0.03	0.031	0.022	0.005	0.0012	7E-04	0	0	0
5	0.031	0.018	0.018	0.016	0.005	0.001	4E-04	0	0	0
6	0.046	0.02	0.021	0.019	0.009	0.0049	0.003	2E-04	0	0

SUMMARY-TWO PASTE-TEGDMA,n=6,µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	12.91	21.44	29.89	36.003	37.575	38.06	38.343	38.373	38.3833	38.383
sd	2.57	5.067	7.47	8.631	8.5034	8.369	8.2917	8.3196	8.33784	8.3378

SUMMARY-TWO PASTE-TEGDMA, n=6, µmol										
tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.045	0.03	0.03	0.021	0.005	0.0017	1E-03	1E-04	3E-05	0
sd	0.009	0.01	0.009	0.004	0.002	0.0016	0.001	2E-04	9E-05	0

TWO PASTE-TEGDMA, n=6, µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	3.61	4.41	5.1	5.77	6.04	6.15	6.21	6.21	6.21	6.21
2	1.82	2.1	2.4	2.78	3.01	3.25	3.31	3.36	3.36	3.36
3	5.5	6.79	11.22	12.17	12.92	13.04	13.04	13.1	13.1	13.1
4	7.35	10.6	12.74	16.77	18.49	19.11	19.42	19.51	19.51	19.51
5	3.66	5.1	5.82	6.73	7.11	7.28	7.37	7.42	7.42	7.42
6	4.46	5.79	6.52	7.46	7.83	7.99	8.05	8.05	8.05	8.05

TWO PASTE-TEGDMA, n=6 µmol										
mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.013	0.003	0.002	0.002	9E-04	0.0004	2E-04	0	0	0
2	0.006	1E-03	0.001	0.001	8E-04	0.0008	2E-04	2E-04	0	0
3	0.019	0.005	0.015	0.003	0.003	0.0004	0	2E-04	0	0
4	0.026	0.011	0.007	0.014	0.006	0.0022	0.001	3E-04	0	0
5	0.013	0.005	0.003	0.003	0.001	0.0006	3E-04	2E-04	0	0
6	0.016	0.005	0.003	0.003	0.001	0.0006	2E-04	0	0	0

TWO PASTE-TEGDMA, n=6, µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	4.4	5.798	7.3	8.6133	9.2333	9.47	9.5667	9.6083	9.60833	9.6083
sd	1.884	2.833	3.914	5.0234	5.5621	5.699	5.7739	5.7973	5.79728	5.7973

TWO PASTE-TEGDMA, n=6 µmol										
mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.015	0.005	0.005	0.005	0.002	0.0008	3E-04	1E-04	0	0
sd	0.007	0.004	0.005	0.005	0.002	0.0007	4E-04	1E-04	0	0

TWO PASTE-TEGDMA, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.059	0.104	0.1439	0.1712	0.1765	0.1773	0.178	0.178	0.178	0.1783
2	0.044	0.078	0.1176	0.1419	0.1468	0.1477	0.148	0.148	0.148	0.148
3	0.043	0.074	0.1019	0.1215	0.1258	0.1272	0.128	0.128	0.128	0.1283
4	0.047	0.077	0.1081	0.1304	0.1349	0.1361	0.137	0.137	0.137	0.1367
5	0.031	0.05	0.0677	0.0835	0.0887	0.0897	0.09	0.09	0.09	0.0902
6	0.046	0.066	0.0871	0.1059	0.1148	0.1196	0.123	0.123	0.123	0.123

SUMMARY-TWO PASTE-TEGDMA, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.045	0.075	0.1044	0.1258	0.1312	0.1329	0.134	0.134	0.134	0.1341
sd	0.009	0.018	0.0261	0.0301	0.0297	0.0292	0.029	0.029	0.029	0.0291

TWO PASTE-TEGDMA, n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	3.94	1.264	0.398	0.077	0.005	0.0002	4E-05	1E-05	2E-06	0
2	2.905	0.967	0.395	0.069	0.005	0.0003	3E-05	0	0	0
3	2.836	0.892	0.276	0.056	0.004	0.0004	0.0001	0	0	0
4	3.102	0.861	0.308	0.063	0.005	0.0003	7E-05	0	0	0
5	2.086	0.517	0.179	0.045	0.005	0.0003	4E-05	0	0	0
6	3.065	0.573	0.206	0.053	0.009	0.0014	0.0003	7E-06	0	0

SUMMARY-TWO PASTE-TEGDMA ,n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	2.989	0.846	0.294	0.061	0.005	0.0005	1E-04	3E-06	3E-07	0
sd	0.595	0.274	0.092	0.012	0.002	0.0004	0.0001	5E-06	9E-07	0

TWO PASTE-TEGDMA, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.013	0.015	0.0178	0.0202	0.0211	0.0215	0.022	0.022	0.022	0.0217
2	0.006	0.007	0.0084	0.0097	0.0105	0.0114	0.012	0.012	0.012	0.0117
3	0.019	0.024	0.0392	0.0425	0.0451	0.0455	0.046	0.046	0.046	0.0458
4	0.026	0.037	0.0445	0.0586	0.0646	0.0667	0.068	0.068	0.068	0.0681
5	0.013	0.018	0.0203	0.0235	0.0248	0.0254	0.026	0.026	0.026	0.0259
6	0.016	0.02	0.0228	0.0261	0.0273	0.0279	0.028	0.028	0.028	0.0281

SUMMARY-TWO PASTE-TEGDMA, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.015	0.02	0.0255	0.0301	0.0323	0.0331	0.033	0.034	0.034	0.0336
sd	0.007	0.01	0.0137	0.0175	0.0194	0.0199	0.02	0.02	0.02	0.0202

TWO PASTE-TEGDMA, n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.836	0.079	0.024	0.007	9E-04	0.0001	2E-05	0	0	0
2	0.421	0.028	0.01	0.004	8E-04	0.0002	2E-05	5E-06	0	0
3	1.273	0.128	0.154	0.009	0.003	0.0001	0	6E-06	0	0
4	1.701	0.322	0.074	0.04	0.006	0.0006	0.0001	9E-06	0	0
5	0.847	0.143	0.025	0.009	0.001	0.0002	3E-05	5E-06	0	0
6	1.032	0.132	0.025	0.009	0.001	0.0002	2E-05	0	0	0

SUMMARY-TWO PASTE-TEGDMA ,n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	1.019	0.139	0.052	0.013	0.002	0.0002	3E-05	4E-06	0	0
sd	0.436	0.1	0.054	0.013	0.002	0.0002	4E-05	4E-06	0	0

TWO PASTE-TEGDMA, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.595	0.102	-0.401	-1.111	-2.283	-3.623	-4.418	-4.96207	-5.6812	#NUM!
2	0.463	-0.01	-0.403	-1.161	-2.32	-3.588	-4.505	#NUM!	#NUM!	#NUM!
3	0.453	-0.05	-0.56	-1.254	-2.366	-3.424	-3.968	#NUM!	#NUM!	#NUM!
4	0.492	-0.06	-0.511	-1.199	-2.345	-3.485	-4.181	#NUM!	#NUM!	#NUM!
5	0.319	-0.29	-0.747	-1.346	-2.292	-3.526	-4.38	#NUM!	#NUM!	#NUM!
6	0.486	-0.24	-0.686	-1.273	-2.055	-2.86	-3.51	-5.15836	#NUM!	#NUM!
SUMMARY-TWO PASTE-TEGDMA, n=6, log(ug/min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.468	-0.09	-0.551	-1.224	-2.277	-3.418	-4.16	#NUM!	#NUM!	#NUM!
sd	0.089	0.146	0.143	0.085	0.113	0.282	0.3725	#NUM!	#NUM!	#NUM!
TWO PASTE-TEGDMA, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	-0.078	-1.1	-1.621	-2.177	-3.028	-3.962	-4.681	#NUM!	#NUM!	#NUM!
2	-0.375	-1.56	-1.982	-2.424	-3.098	-3.623	-4.681	-5.30449	#NUM!	#NUM!
3	0.105	-0.89	-0.813	-2.026	-2.584	-3.924	#NUM!	-5.22531	#NUM!	#NUM!
4	0.231	-0.49	-1.129	-1.398	-2.224	-3.211	-3.968	-5.04922	#NUM!	#NUM!
5	-0.072	-0.85	-1.602	-2.044	-2.88	-3.773	-4.505	-5.30449	#NUM!	#NUM!
6	0.014	-0.88	-1.596	-2.03	-2.891	-3.799	-4.681	#NUM!	#NUM!	#NUM!
SUMMARY-TWO PASTE-TEGDMA, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	-0.029	-0.96	-1.457	-2.017	-2.784	-3.716	#NUM!	#NUM!	#NUM!	#NUM!
sd	0.206	0.352	0.416	0.339	0.326	0.275	#NUM!	#NUM!	#NUM!	#NUM!

TWO PASTE-BIS-GMA, n=6, µg in 100 µ										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.291	0.219	0.133	0.068	0.116	0.164	0.204	0.243	0.218	0
2	0.287	0.168	0.125	0.113	0.118	0.179	0.165	0	0	0
3	0.082	0.052	0.034	0.056	0.12	0.178	0.215	0	0	0
4	0.232	0.099	0.059	0.059	0.071	0.149	0.185	0	0	
5	0.094	0.029	0.016	0.024	0.038	0.121	0.154	0	0	0
6	0.269	0.081	0.055	0.066	0.109	0.143	0.2	0	0	0

SUMMARY-TWO PASTE-BIS-GMA ,n=6, µg in 100 µl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.2092	0.108	0.0703	0.0643	0.0953	0.1557	0.1872	0.0405	0.0363	0
sd	0.0962	0.0723	0.0481	0.0287	0.0335	0.0224	0.0237	0.0992	0.089	0

TWO PASTE-BIS-GMA, n=6, µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	2.91	2.19	1.33	0.68	1.16	1.64	2.04	2.43	2.18	0
2	2.87	1.68	1.25	1.13	1.18	1.79	1.65	0	0	0
3	0.82	0.52	0.34	0.56	1.2	1.78	2.15	0	0	0
4	2.32	0.99	0.59	0.59	0.71	1.49	1.85	0	0	0
5	0.94	0.29	0.16	0.24	0.38	1.21	1.54	0	0	0
6	2.69	0.81	0.55	0.66	1.09	1.43	2	0	0	0

SUMMARY-TWO PASTE-BIS-GMA,n=6,µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	2.092	1.08	0.703	0.643	0.953	1.557	1.872	0.405	0.363	0
sd	0.962	0.723	0.481	0.287	0.335	0.224	0.237	0.992	0.89	0

TWO PASTE-BIS-GMA, n=6, µg in 100 µ										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0.008	0.017	0.028	0	0	0	0
2	0	0	0	0	0.012	0.02	0.008	0	0	0
3	0.013	0	0.012	0	0.031	0.037	0	0	0	0
4	0.011	0	0.007	0.023	0.033	0.033	0.016	0	0	0
5	0	0	0	0	0.016	0.028	0	0	0	0
6	0	0	0	0	0.037	0.05	0.018	0	0	0

SUMMARY-TWO PASTE-BIS-GMA ,n=6, µg in 100 µl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.004	0	0.0032	0.0052	0.0243	0.0327	0.007	0	0	0
sd	0.0062	0	0.0052	0.0093	0.0105	0.0102	0.0084	0	0	0

TWO PASTE-BIS-GMA, n=6, µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0.08	0.17	0.28	0	0	0	0
2	0	0	0	0	0.12	0.2	0.08	0	0	0
3	0.13	0	0.12	0	0.31	0.37	0	0	0	0
4	0.11	0	0.07	0.23	0.33	0.33	0.16	0	0	0
5	0	0	0	0	0.16	0.28	0	0	0	0
6	0	0	0	0	0.37	0.5	0.18	0	0	0

SUMMARY-TWO PASTE-BIS-GMA,n=6,µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.04	0	0.032	0.052	0.243	0.327	0.07	0	0	0
sd	0.062	0	0.052	0.093	0.105	0.102	0.084	0	0	0

TWO PASTE-BIS-GMA, n=6, μg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	2.91	5.1	6.43	7.11	8.27	9.91	11.95	14.38	16.56	16.56
2	2.87	4.55	5.8	6.93	8.11	9.9	11.55	11.55	11.55	11.55
3	0.82	1.34	1.68	2.24	3.44	5.22	7.37	7.37	7.37	7.37
4	2.32	3.31	3.9	4.49	5.2	6.69	8.54	8.54	8.54	8.54
5	0.94	1.23	1.39	1.63	2.01	3.22	4.76	4.76	4.76	4.76
6	2.69	3.5	4.05	4.71	5.8	7.23	9.23	9.23	9.23	9.23

SUMMARY-TWO PASTE-BIS-GMA,n=6,μg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	2.092	3.172	3.875	4.5183	5.4717	7.028	8.9	9.305	9.66833	9.6683
sd	0.962	1.604	2.062	2.2849	2.4933	2.626	2.6849	3.3403	4.04661	4.0466

TWO PASTE-BIS-GMA, n=6, μg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0.08	0.25	0.53	0.53	0.53	0.53	0.53
2	0	0	0	0	0.12	0.32	0.4	0.4	0.4	0.4
3	0.13	0.13	0.25	0.25	0.56	0.93	0.93	0.93	0.93	0.93
4	0.11	0.11	0.18	0.41	0.74	1.07	1.23	1.23	1.23	1.23
5	0	0	0	0	0.16	0.44	0.44	0.44	0.44	0.44
6	0	0	0	0	0.37	0.87	1.05	1.05	1.05	1.05

SUMMARY-TWO PASTE-BIS-GMA,n=6,μg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.04	0.04	0.072	0.1233	0.3667	0.693	0.7633	0.7633	0.76333	0.7633
sd	0.062	0.062	0.113	0.1707	0.2425	0.303	0.3518	0.3518	0.35178	0.3518

TWO PASTE-BIS-GMA, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.006	0.004	0.003	0.001	0.002	0.0032	0.004	0.005	0.004	0
2	0.006	0.003	0.002	0.002	0.002	0.0035	0.003	0	0	0
3	0.002	0.001	7E-04	0.001	0.002	0.0035	0.004	0	0	0
4	0.005	0.002	0.001	0.001	0.001	0.0029	0.004	0	0	0
5	0.002	6E-04	3E-04	5E-04	7E-04	0.0024	0.003	0	0	0
6	0.005	0.002	0.001	0.001	0.002	0.0028	0.004	0	0	0

SUMMARY-TWO PASTE-BIS-GMA, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.004	0.002	0.001	0.001	0.002	0.003	0.004	8E-04	7E-04	0
sd	0.002	0.001	9E-04	6E-04	7E-04	0.0004	5E-04	0.002	0.002	0

TWO PASTE-BIS-GMA, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	2E-04	3E-04	0.0005	0	0	0	0
2	0	0	0	0	2E-04	0.0004	2E-04	0	0	0
3	3E-04	0	2E-04	0	6E-04	0.0007	0	0	0	0
4	2E-04	0	1E-04	4E-04	6E-04	0.0006	3E-04	0	0	0
5	0	0	0	0	3E-04	0.0005	0	0	0	0
6	0	0	0	0	7E-04	0.001	4E-04	0	0	0

SUMMARY-TWO PASTE-BIS-GMA, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	8E-05	0	6E-05	1E-04	5E-04	0.0006	1E-04	0	0	0
sd	1E-04	0	1E-04	2E-04	2E-04	0.0002	2E-04	0	0	0

TWO PASTE-BIS-GMA, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.006	0.01	0.0125	0.0139	0.0161	0.0193	0.023	0.028	0.032	0.0323
2	0.006	0.009	0.0113	0.0135	0.0158	0.0193	0.023	0.023	0.023	0.0225
3	0.002	0.003	0.0033	0.0044	0.0067	0.0102	0.014	0.014	0.014	0.0144
4	0.005	0.006	0.0076	0.0088	0.0101	0.013	0.017	0.017	0.017	0.0167
5	0.002	0.002	0.0027	0.0032	0.0039	0.0063	0.009	0.009	0.009	0.0093
6	0.005	0.007	0.0079	0.0092	0.0113	0.0141	0.018	0.018	0.018	0.018

SUMMARY-TWO PASTE-BIS-GMA, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.004	0.006	0.0076	0.0088	0.0107	0.0137	0.017	0.018	0.019	0.0189
sd	0.002	0.003	0.004	0.0045	0.0049	0.0051	0.005	0.007	0.008	0.0079

TWO PASTE-BIS-GMA, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0.0002	0.0005	0.001	0.001	0.001	0.001	0.001
2	0	0	0	0	0.0002	0.0006	8E-04	8E-04	8E-04	0.0008
3	3E-04	3E-04	0.0005	0.0005	0.0011	0.0018	0.002	0.002	0.002	0.0018
4	2E-04	2E-04	0.0004	0.0008	0.0014	0.0021	0.002	0.002	0.002	0.0024
5	0	0	0	0	0.0003	0.0009	9E-04	9E-04	9E-04	0.0009
6	0	0	0	0	0.0007	0.0017	0.002	0.002	0.002	0.002

SUMMARY-TWO PASTE-BIS-GMA, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	8E-05	8E-05	0.0001	0.0002	0.0007	0.0014	0.001	0.001	0.001	0.0015
sd	1E-04	1E-04	0.0002	0.0003	0.0005	0.0006	7E-04	7E-04	7E-04	0.0007

TWO PASTE-BIS-GMA, n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.674	0.217	0.046	0.007	0.004	0.0016	0.0007	0.0002	8E-05	0
2	0.664	0.167	0.043	0.011	0.004	0.0018	0.0006	0	0	0
3	0.19	0.052	0.012	0.006	0.004	0.0018	0.0007	0	0	0
4	0.537	0.098	0.02	0.006	0.002	0.0015	0.0006	0	0	0
5	0.218	0.029	0.006	0.002	0.001	0.0012	0.0005	0	0	0
6	0.623	0.08	0.019	0.007	0.004	0.0014	0.0007	0	0	0

SUMMARY-TWO PASTE-BIS-GMA ,n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.484	0.107	0.024	0.006	0.003	0.0015	0.0006	4E-05	1E-05	0
sd	0.223	0.072	0.017	0.003	0.001	0.0002	8E-05	1E-04	3E-05	0

TWO PASTE-BIS-GMA, n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	8E-04	6E-04	0.0003	0	0	0	0
2	0	0	0	0	4E-04	0.0002	3E-05	0	0	0
3	0.03	0	0.004	0	0.001	0.0004	0	0	0	0
4	0.025	0	0.002	0.002	0.001	0.0003	6E-05	0	0	0
5	0	0	0	0	6E-04	0.0003	0	0	0	0
6	0	0	0	0	0.001	0.0005	6E-05	0	0	0

SUMMARY-TWO PASTE-BIS-GMA ,n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.009	0	0.001	5E-04	8E-04	0.0003	2E-05	0	0	0
sd	0.014	0	0.002	9E-04	4E-04	0.0001	3E-05	0	0	0

TWO PASTE-BIS-GMA, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	-0.172	-0.66	-1.336	-2.171	-2.395	-2.789	-3.15	-3.61785	-4.1209	#NUM!
2	-0.178	-0.78	-1.362	-1.95	-2.388	-2.751	-3.242	#NUM!	#NUM!	#NUM!
3	-0.722	-1.29	-1.928	-2.255	-2.38	-2.753	-3.127	#NUM!	#NUM!	#NUM!
4	-0.27	-1.01	-1.689	-2.233	-2.608	-2.83	-3.192	#NUM!	#NUM!	#NUM!
5	-0.662	-1.54	-2.255	-2.623	-2.88	-2.921	-3.272	#NUM!	#NUM!	#NUM!
6	-0.206	-1.09	-1.719	-2.184	-2.422	-2.848	-3.158	#NUM!	#NUM!	#NUM!
SUMMARY-TWO PASTE-BIS-GMA, n=6, log(ug./min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	-0.368	-1.06	-1.715	-2.236	-2.512	-2.815	-3.19	#NUM!	#NUM!	#NUM!
sd	0.254	0.324	0.348	0.219	0.2	0.065	0.0566	#NUM!	#NUM!	#NUM!
TWO PASTE-BIS-GMA, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	#####	#NUM!	-3.1	-3.229	-3.556	#NUM!	#NUM!	#NUM!	#NUM!
2	#NUM!	#####	#NUM!	#NUM!	-3.38	-3.702	-4.556	#NUM!	#NUM!	#NUM!
3	-1.522	#####	-2.38	#NUM!	-2.968	-3.435	#NUM!	#NUM!	#NUM!	#NUM!
4	-1.594	#####	-2.614	-2.642	-2.941	-3.485	-4.255	#NUM!	#NUM!	#NUM!
5	#NUM!	#####	#NUM!	#NUM!	-3.255	-3.556	#NUM!	#NUM!	#NUM!	#NUM!
6	#NUM!	#####	#NUM!	#NUM!	-2.891	-3.304	-4.204	#NUM!	#NUM!	#NUM!
SUMMARY-TWO PASTE-BIS-GMA, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	#NUM!	-3.111	-3.507	#NUM!	#NUM!	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	#NUM!	0.202	0.134	#NUM!	#NUM!	#NUM!	#NUM!

TWO PASTE-B.PEROXIDE, n=6, µg in 100 µl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0.004	0.006	0.005	0.005	0.009	0
2	0	0	0	0	0.004	0.004	0.004	0.035	0	0
3	0	0	0	0	0.003	0.004	0.004	0.037	0	0
4	0	0	0	0	0.004	0.006	0.003	0.033	0	0
5	0	0	0	0	0	0.003	0.003	0.023	0	0
6	0	0	0	0	0	0.003	0.004	0.023	0.01	0

SUMMARY-TWO PASTE-B.PEROXIDE ,n=6, µg in 100 µl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0.0025	0.0043	0.0038	0.026	0.0032	0
sd	0	0	0	0	0.002	0.0014	0.0008	0.0119	0.0049	0

TWO PASTE-B.PEROXIDE, n=6, µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0.006	0.004	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0.005	0.007	0.007	0	0
4	0	0	0	0	0	0.004	0.008	0.013	0.012	0
5	0	0	0	0	0	0	0.005	0.004	0.003	0
6	0	0	0	0	0	0.003	0.005	0.006	0	0

SUMMARY-TWO PASTE-B.PEROXIDE ,n=6, µg in 100 µl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0.002	0.0052	0.0057	0.0025	0
sd	0	0	0	0	0	0.0023	0.0028	0.0043	0.0048	0

TWO PASTE-B.PEROXIDE, n=6, µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0.04	0.06	0.05	0.05	0.09	0
2	0	0	0	0	0.04	0.04	0.04	0.35	0	0
3	0	0	0	0	0.03	0.04	0.04	0.37	0	0
4	0	0	0	0	0.04	0.06	0.03	0.33	0	0
5	0	0	0	0	0	0.03	0.03	0.23	0	0
6	0	0	0	0	0	0.03	0.04	0.23	0.1	0

SUMMARY-TWO PASTE-B.PEROXIDE,n=6,µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0.025	0.043	0.038	0.26	0.032	0
sd	0	0	0	0	0.02	0.014	0.008	0.119	0.049	0

TWO PASTE-B.PEROXIDE, n=6, µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0.06	0.04	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0.05	0.07	0.07	0	0
4	0	0	0	0	0	0.04	0.08	0.13	0.12	0
5	0	0	0	0	0	0	0.05	0.04	0.03	0
6	0	0	0	0	0	0.03	0.05	0.06	0	0

SUMMARY-TWO PASTE-B.PEROXIDE,n=6,µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0.02	0.052	0.057	0.025	0
sd	0	0	0	0	0	0.023	0.028	0.043	0.048	0

TWO PASTE-B.PEROXIDE, n=6, µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0.04	0.1	0.15	0.2	0.29	0.29
2	0	0	0	0	0.04	0.08	0.12	0.47	0.47	0.47
3	0	0	0	0	0.03	0.07	0.11	0.48	0.48	0.48
4	0	0	0	0	0.04	0.1	0.13	0.46	0.46	0.46
5	0	0	0	0	0	0.03	0.06	0.29	0.29	0.29
6	0	0	0	0	0	0.03	0.07	0.3	0.4	0.4

SUMMARY-TWO PASTE-B.PEROXIDE,n=6,µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0.025	0.068	0.1067	0.3667	0.39833	0.3983
sd	0	0	0	0	0.0197	0.032	0.035	0.1186	0.08841	0.0884

TWO PASTE-B.PEROXIDE, n=6, µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0.06	0.1	0.1	0.1
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0.05	0.12	0.19	0.19	0.19
4	0	0	0	0	0	0.04	0.12	0.25	0.37	0.37
5	0	0	0	0	0	0	0.05	0.09	0.12	0.12
6	0	0	0	0	0	0.03	0.08	0.14	0.14	0.14

SUMMARY-TWO PASTE-B.PEROXIDE,n=6,µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0.02	0.0717	0.1283	0.15333	0.1533
sd	0	0	0	0	0	0.023	0.0458	0.0866	0.12323	0.1232

TWO PASTE-B.PEROXIDE, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	2E-04	0.0002	2E-04	2E-04	4E-04	0
2	0	0	0	0	2E-04	0.0002	2E-04	0.001	0	0
3	0	0	0	0	1E-04	0.0002	2E-04	0.002	0	0
4	0	0	0	0	2E-04	0.0002	1E-04	0.001	0	0
5	0	0	0	0	0	0.0001	1E-04	9E-04	0	0
6	0	0	0	0	0	0.0001	2E-04	9E-04	4E-04	0

SUMMARY-TWO PASTE-B.PEROXIDE, n=6, umo										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	1E-04	0.0002	2E-04	0.001	1E-04	0
sd	0	0	0	0	8E-05	6E-05	3E-05	5E-04	2E-04	0

TWO PASTE-B.PEROXIDE, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	2E-04	2E-04	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0.0002	3E-04	3E-04	0	0
4	0	0	0	0	0	0.0002	3E-04	5E-04	5E-04	0
5	0	0	0	0	0	0	2E-04	2E-04	1E-04	0
6	0	0	0	0	0	0.0001	2E-04	2E-04	0	0

SUMMARY-TWO PASTE-B.PEROXIDE, n=6, umo										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	8E-05	2E-04	2E-04	1E-04	0
sd	0	0	0	0	0	9E-05	1E-04	2E-04	2E-04	0

TWO PASTE-B.PEROXIDE, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0.0002	0.0004	6E-04	8E-04	0.001	0.0012
2	0	0	0	0	0.0002	0.0003	5E-04	0.002	0.002	0.0019
3	0	0	0	0	0.0001	0.0003	5E-04	0.002	0.002	0.002
4	0	0	0	0	0.0002	0.0004	5E-04	0.002	0.002	0.0019
5	0	0	0	0	0	0.0001	2E-04	0.001	0.001	0.0012
6	0	0	0	0	0	0.0001	3E-04	0.001	0.002	0.0017

SUMMARY-TWO PASTE-B.PEROXIDE, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0.0001	0.0003	4E-04	0.002	0.002	0.0016
sd	0	0	0	0	8E-05	0.0001	1E-04	5E-04	4E-04	0.0004

TWO PASTE-B.PEROXIDE, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	2E-04	4E-04	4E-04	0.0004
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0.0002	5E-04	8E-04	8E-04	0.0008
4	0	0	0	0	0	0.0002	5E-04	0.001	0.002	0.0015
5	0	0	0	0	0	0	2E-04	4E-04	5E-04	0.0005
6	0	0	0	0	0	0.0001	3E-04	6E-04	6E-04	0.0006

SUMMARY-TWO PASTE-B.PEROXIDE, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	8E-05	3E-04	5E-04	6E-04	0.0006
sd	0	0	0	0	0	9E-05	2E-04	4E-04	5E-04	0.0005

TWO PASTE-B.PEROXIDE, n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	1E-04	6E-05	2E-05	5E-06	3E-06	0
2	0	0	0	0	1E-04	4E-05	1E-05	3E-05	0	0
3	0	0	0	0	1E-04	4E-05	1E-05	4E-05	0	0
4	0	0	0	0	1E-04	6E-05	1E-05	3E-05	0	0
5	0	0	0	0	0	3E-05	1E-05	2E-05	0	0
6	0	0	0	0	0	3E-05	1E-05	2E-05	3E-06	0

SUMMARY-TWO PASTE-B.PEROXIDE ,n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	9E-05	4E-05	1E-05	3E-05	1E-06	0
sd	0	0	0	0	7E-05	1E-05	3E-06	1E-05	2E-06	0

TWO PASTE-B.PEROXIDE, n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	2E-05	4E-06	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	5E-05	2E-05	7E-06	0	0
4	0	0	0	0	0	4E-05	3E-05	1E-05	4E-06	0
5	0	0	0	0	0	0	2E-05	4E-06	1E-06	0
6	0	0	0	0	0	3E-05	2E-05	6E-06	0	0

SUMMARY-TWO PASTE-B.PEROXIDE ,n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	2E-05	2E-05	6E-06	9E-07	0
sd	0	0	0	0	0	2E-05	1E-05	4E-06	2E-06	0

TWO PASTE-B.PEROXIDE, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	#####	#NUM!	#NUM!	-3.857	-4.225	-4.76	-5.30449	-5.5051	#NUM!
2	#NUM!	#####	#NUM!	#NUM!	-3.857	-4.401	-4.857	-4.45939	#NUM!	#NUM!
3	#NUM!	#####	#NUM!	#NUM!	-3.982	-4.401	-4.857	-4.43526	#NUM!	#NUM!
4	#NUM!	#####	#NUM!	#NUM!	-3.857	-4.225	-4.982	-4.48495	#NUM!	#NUM!
5	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.526	-4.982	-4.64173	#NUM!	#NUM!
6	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.526	-4.857	-4.64173	-5.4594	#NUM!
SUMMARY-TWO PASTE-B.PEROXIDE, n=6, log(ug./min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.384	-4.883	-4.66126	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	#NUM!	#NUM!	0.135	0.0857	0.32785	#NUM!	#NUM!
TWO PASTE-B.PEROXIDE, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	-4.681	-5.4014	#NUM!	#NUM!
2	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
3	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.304	-4.614	-5.15836	#NUM!	#NUM!
4	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.401	-4.556	-4.88952	-5.3802	#NUM!
5	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	-4.76	-5.4014	-5.9823	#NUM!
6	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.526	-4.76	-5.22531	#NUM!	#NUM!
SUMMARY-TWO PASTE-B.PEROXIDE, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

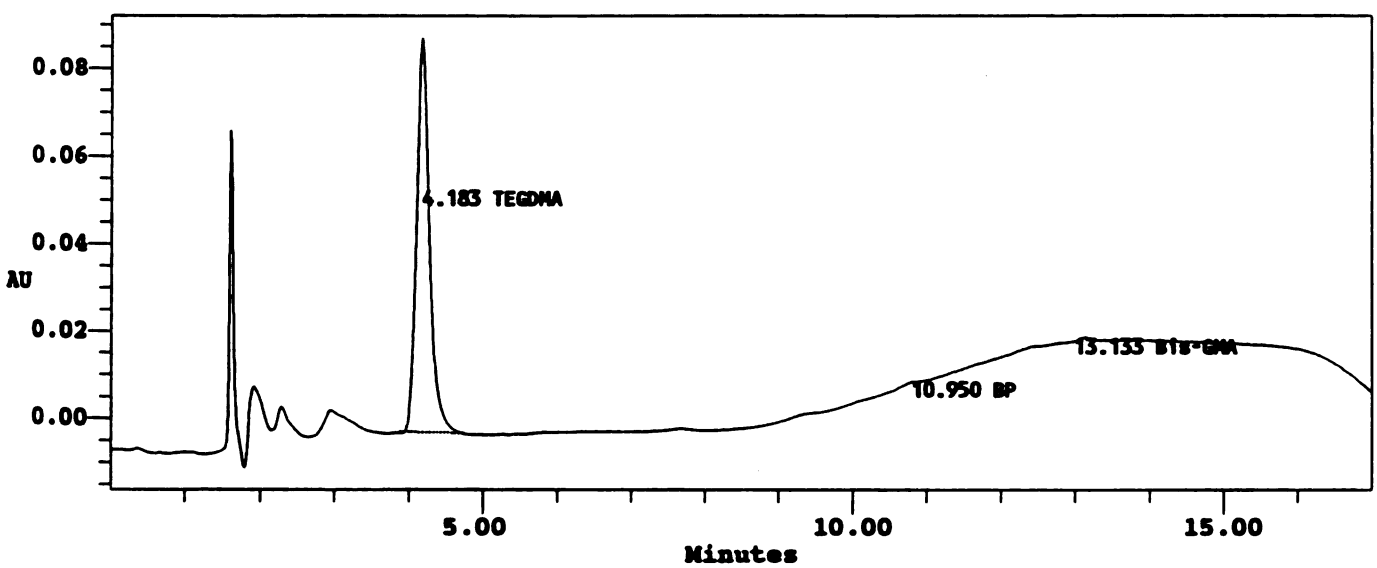
Mold Model

HPLC DATA

TWO PASTE RESIN

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T1 MOLD		
Vial:	25	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 05:50 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

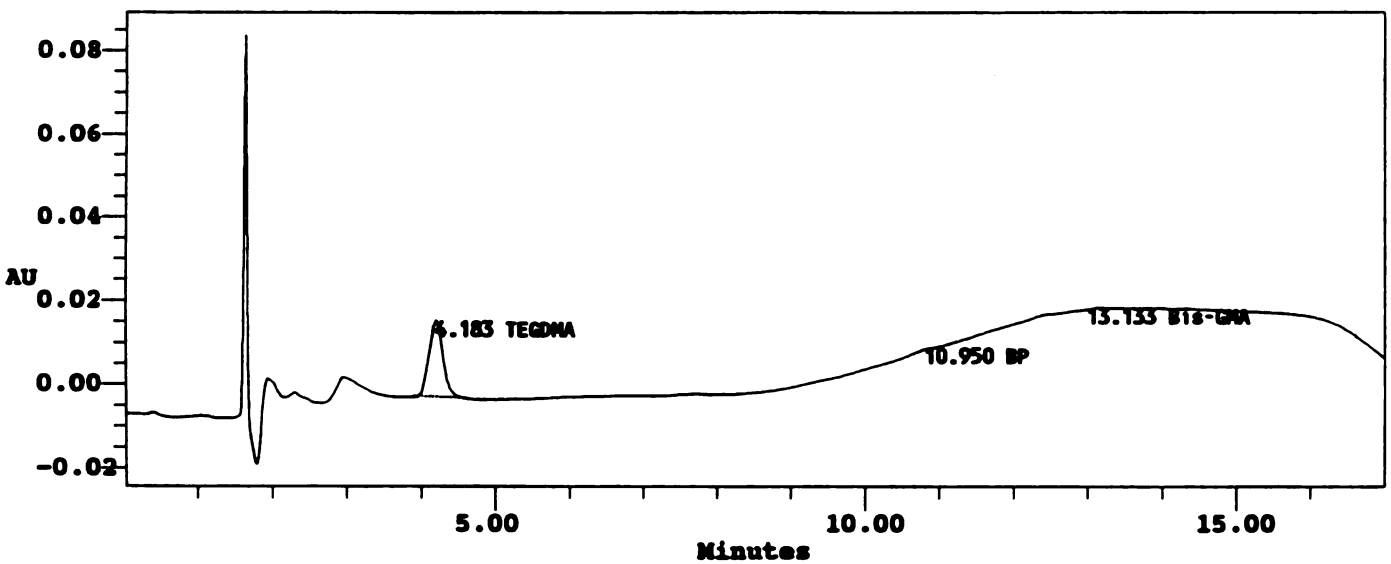
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	1096094	90204	0.361	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R2S1T2 MOLD Vial: 31 Inj: 1 Chan: 486 Date Processed 10/19/93 04:14 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T2 MOLD		
Vial:	31	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 07:42 AM	Date Processed:	10/19/93 04:14 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	243967	18318	0.080	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

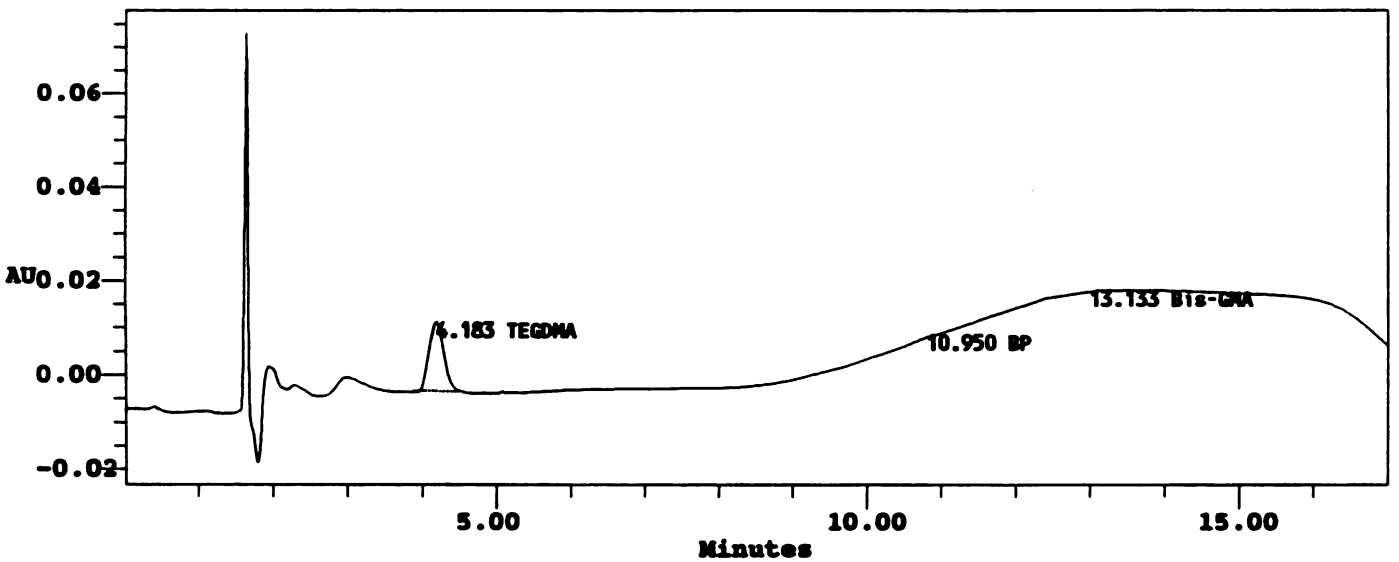
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R2S1T3 MOLD Vial: 37 Inj: 1 Chan: 486 Date Processed 10/19/93 04:14 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T3 MOLD		
Vial:	37	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 09:35 AM	Date Processed:	10/19/93 04:14 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

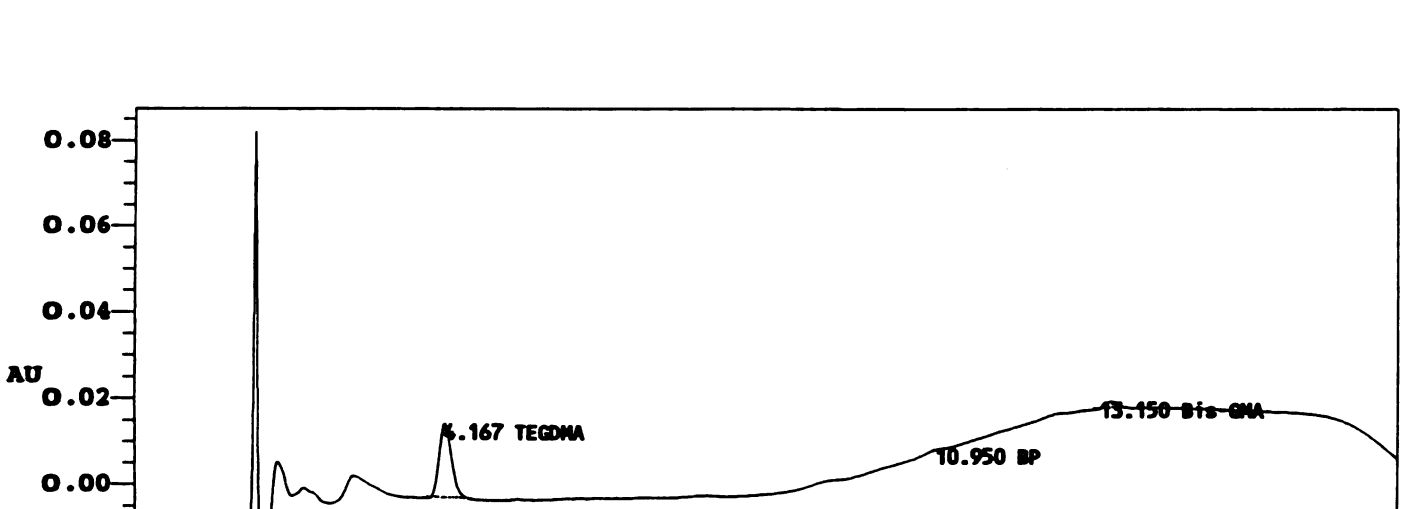


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	210170	14876	0.069	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T4 MOLD		
Vial:	43	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 11:28 AM	Date Processed:	10/19/93 04:14 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

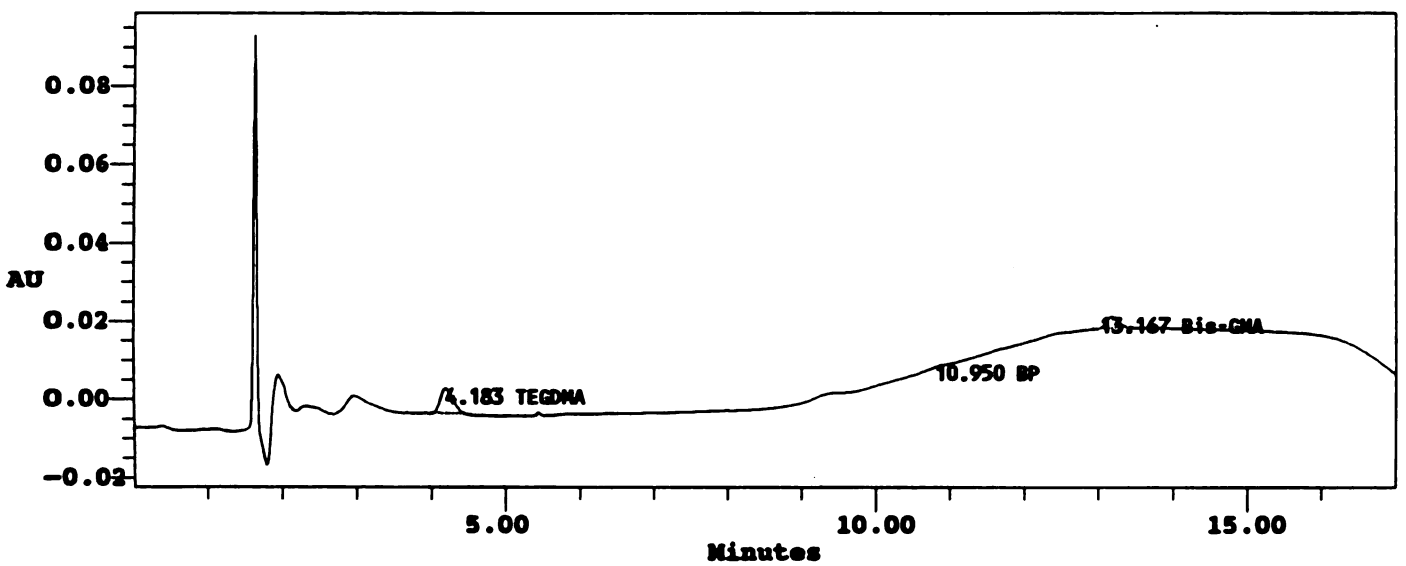
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	203468	17325	0.067	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	17622	1648	0.008	BB

For Sample: R2S1T5 MOLD Vial: 49 Inj: 1 Chan: 486 Date Processed 10/19/93 04:15 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T5 MOLD		
Vial:	49	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 01:20 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

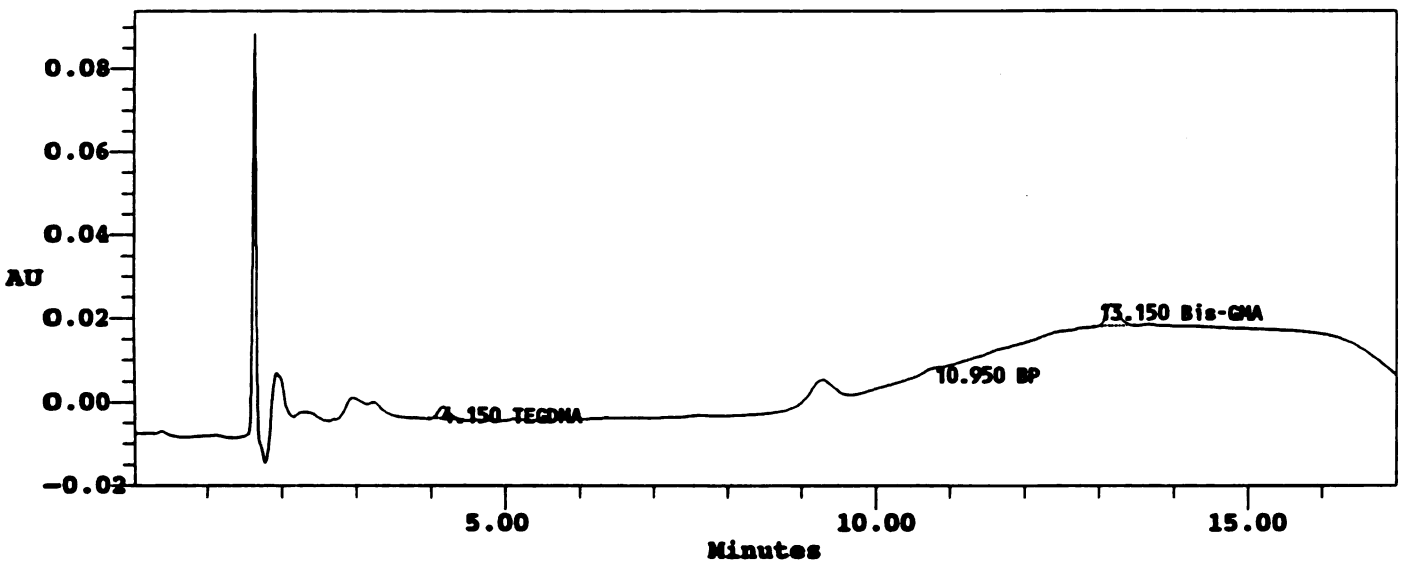
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	81674	6614	0.027	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	39407	3130	0.017	BB

For Sample: R2S1T6 MOLD Vial: 55 Inj: 1 Chan: 486 Date Processed 10/19/93 04:15 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T6 MOLD		
Vial:	55	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 03:13 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

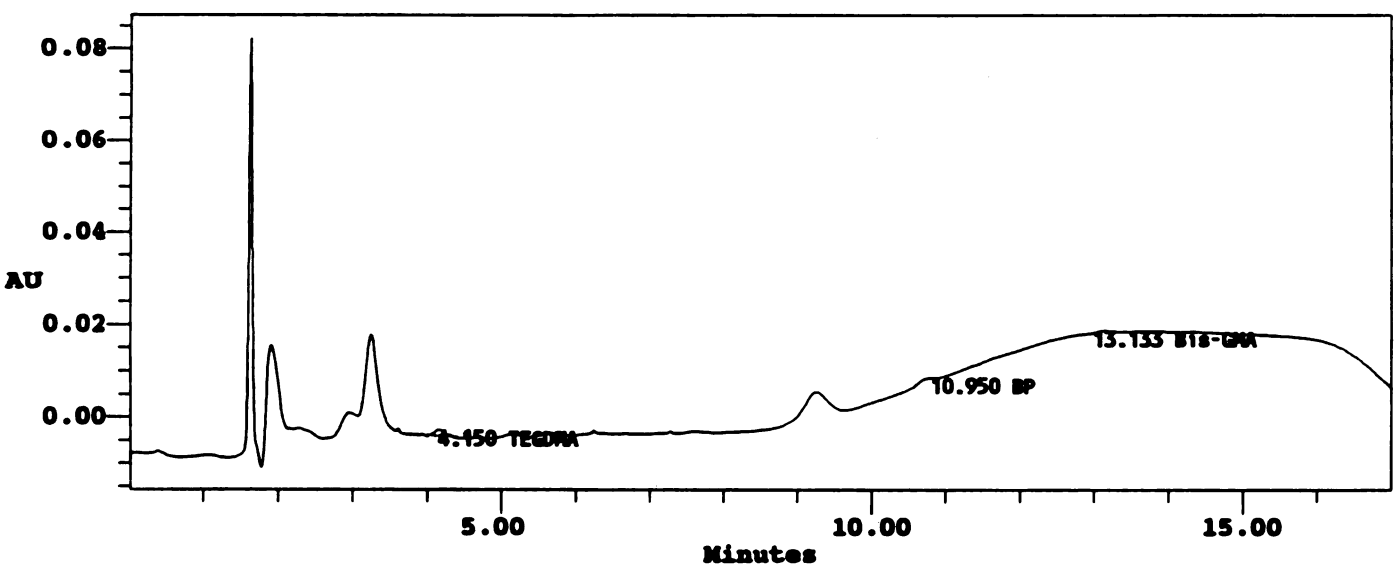


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	33766	3025	0.011	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	63847	5421	0.028	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T7 MOLD		
Vial:	61	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 05:06 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

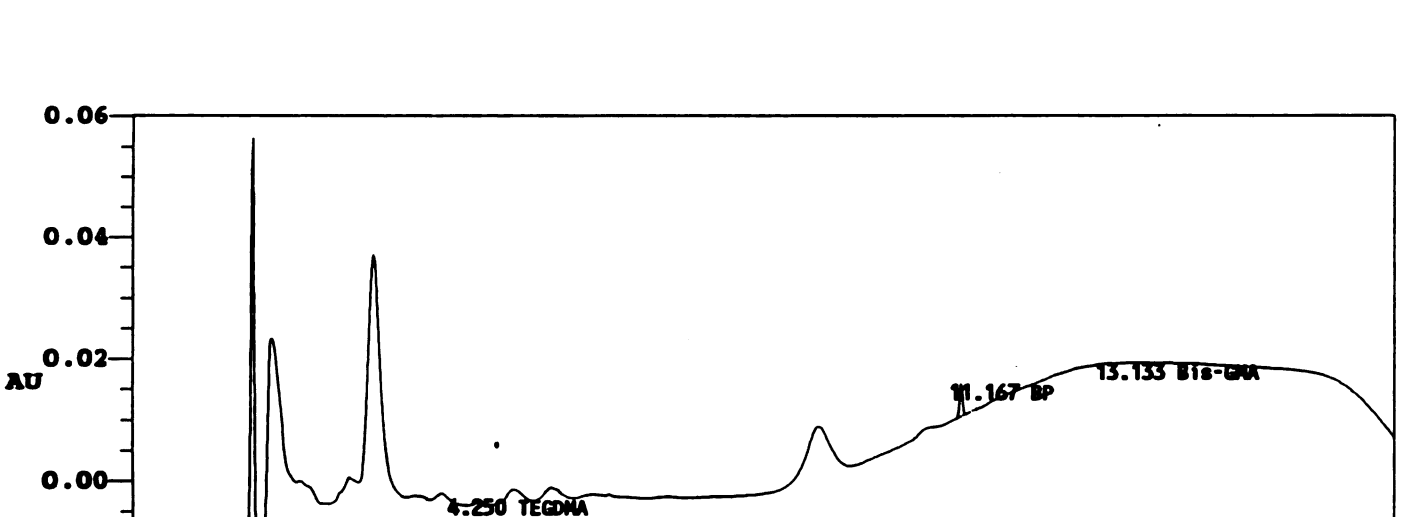


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	16850	1476	0.006	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T8 MOLD		
Vial:	67	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 06:58 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

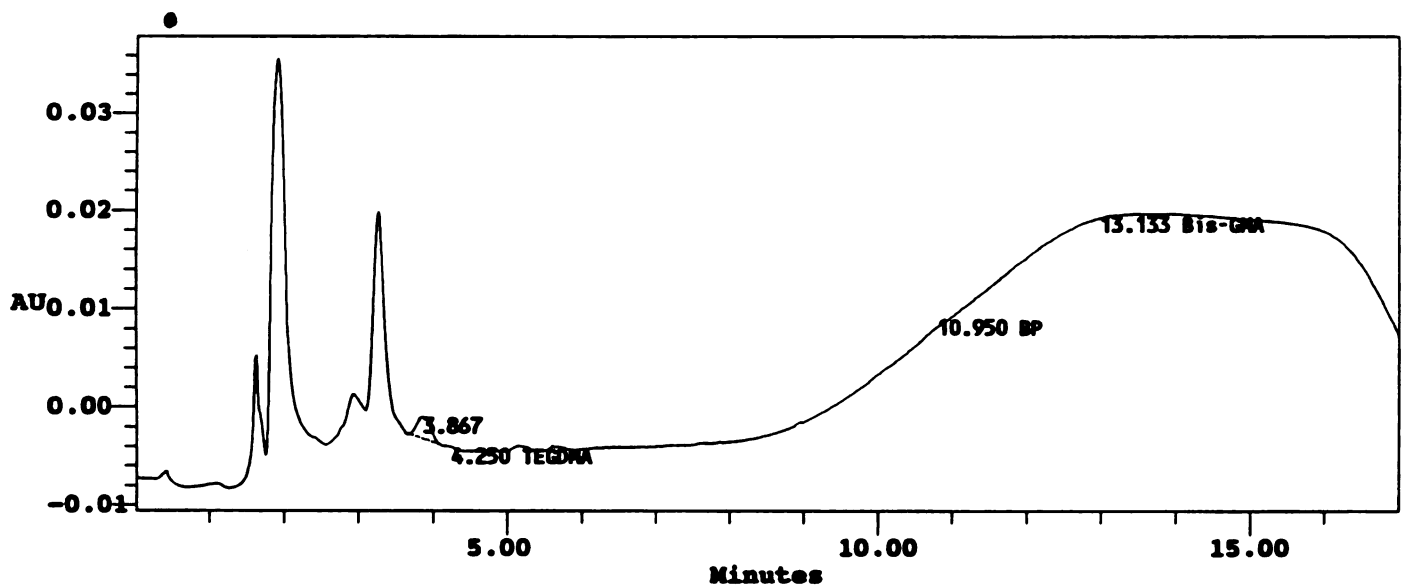


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	11.167	15629	5507	0.005	VV
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T9 MOLD		
Vial:	73	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 08:51 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

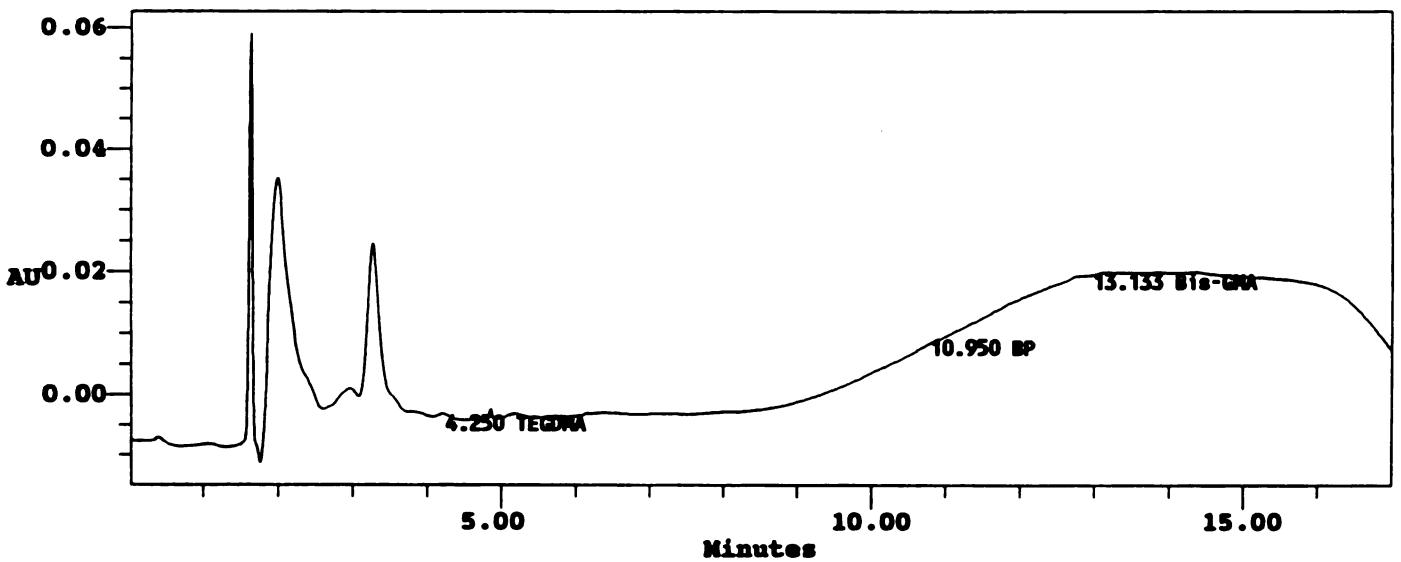


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.867	29724	2278		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T10 MOLD		
Vial:	79	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 10:43 PM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

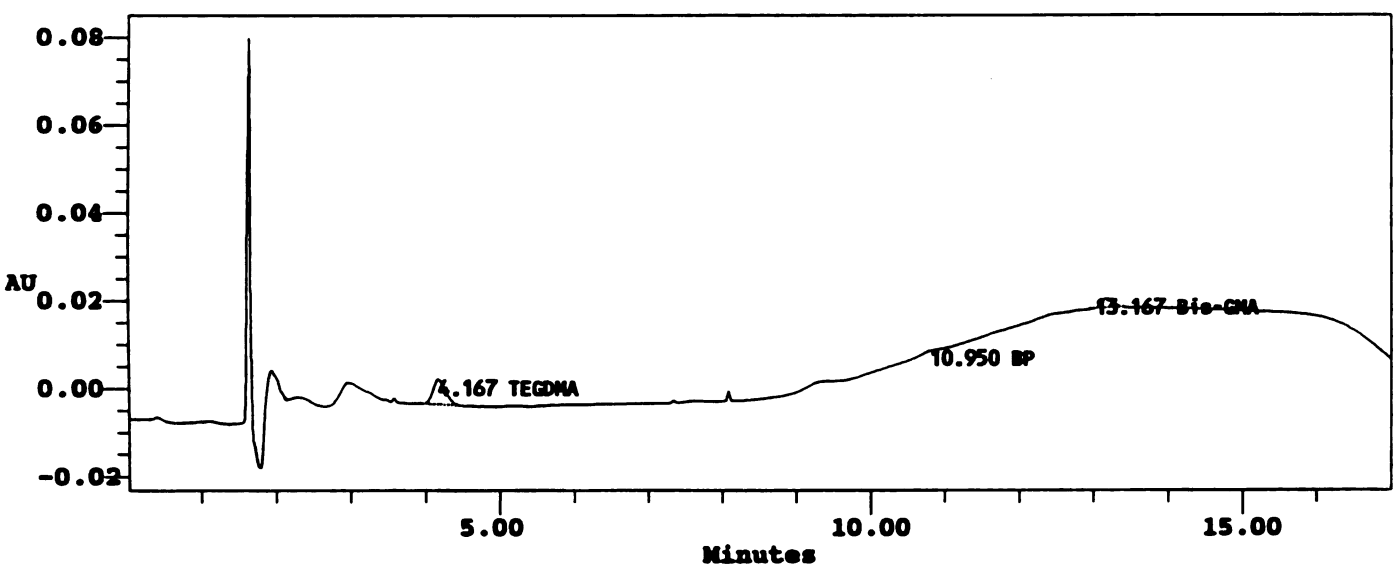


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T5 MOLD		
Vial:	50	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 01:39 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



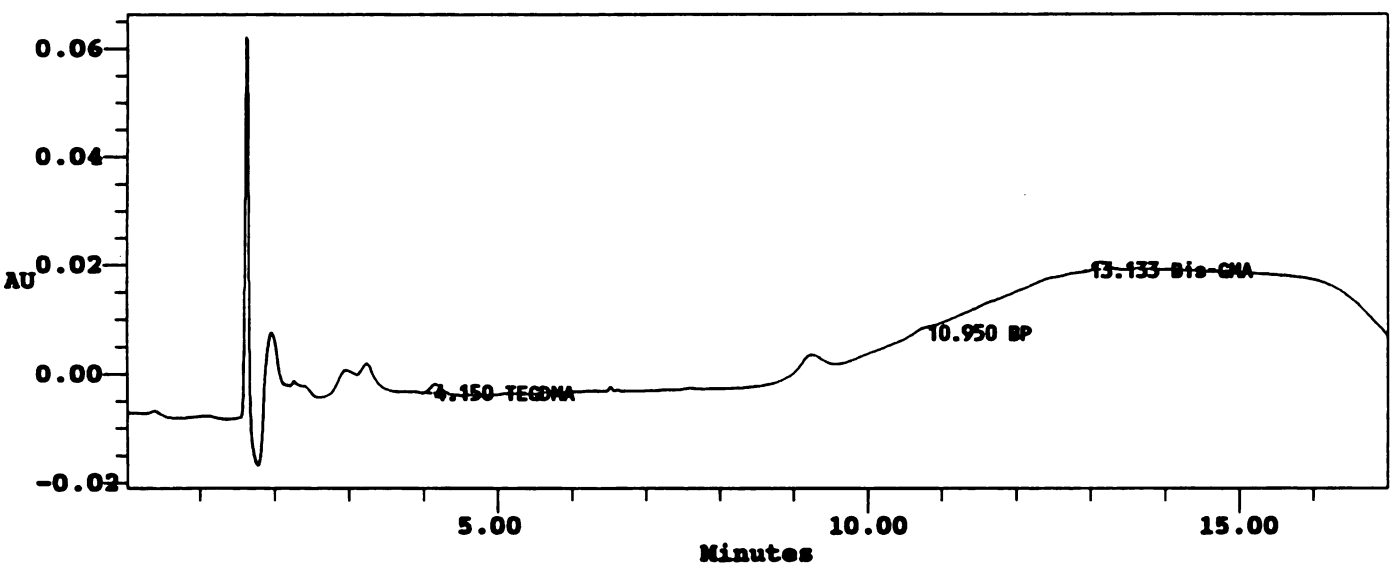
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	68971	5779	0.023	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	27739	2315	0.012	BB

Millennium Results Report: Default Proc Chan: 486 Page 1
For Sample: R2S2T7 MOLD Vial: 62 Inj: 1 Chan: 486 Date Processed 10/19/93 04:16 PM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T7 MOLD		
Vial:	62	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 05:24 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	19242	1786	0.006	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133	18515	1668	0.008	BB

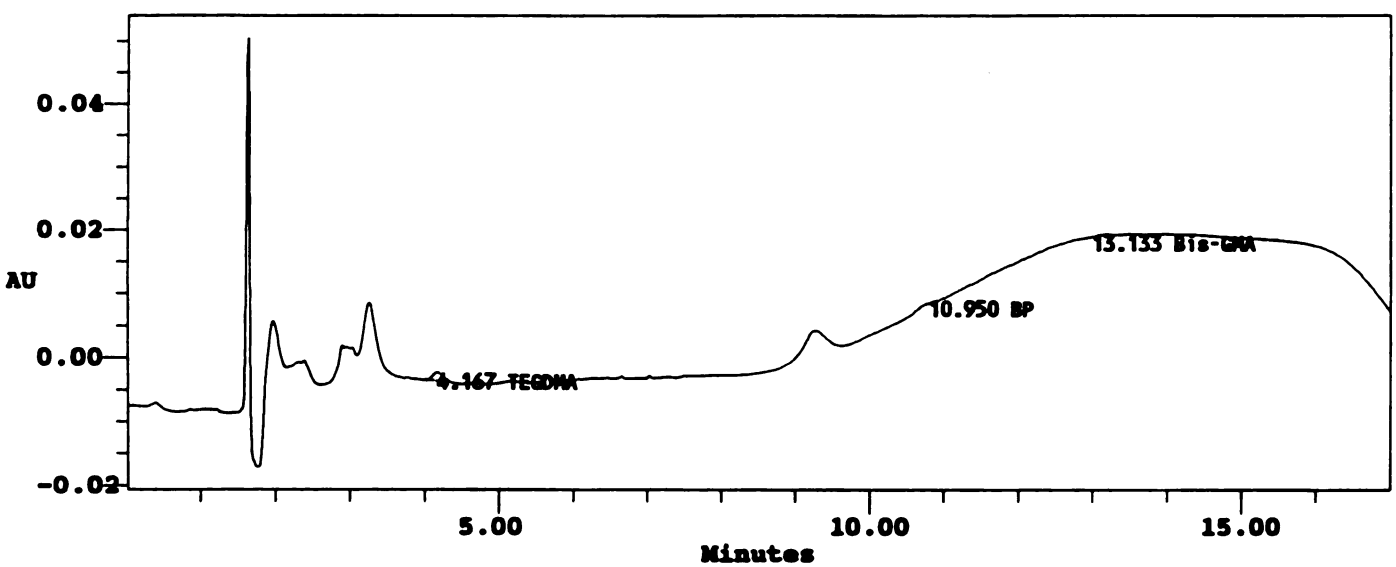
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R2S2T8 MOLD Vial: 68 Inj: 1 Chan: 486 Date Processed 10/19/93 04:16 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T8 MOLD		
Vial:	68	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 07:17 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

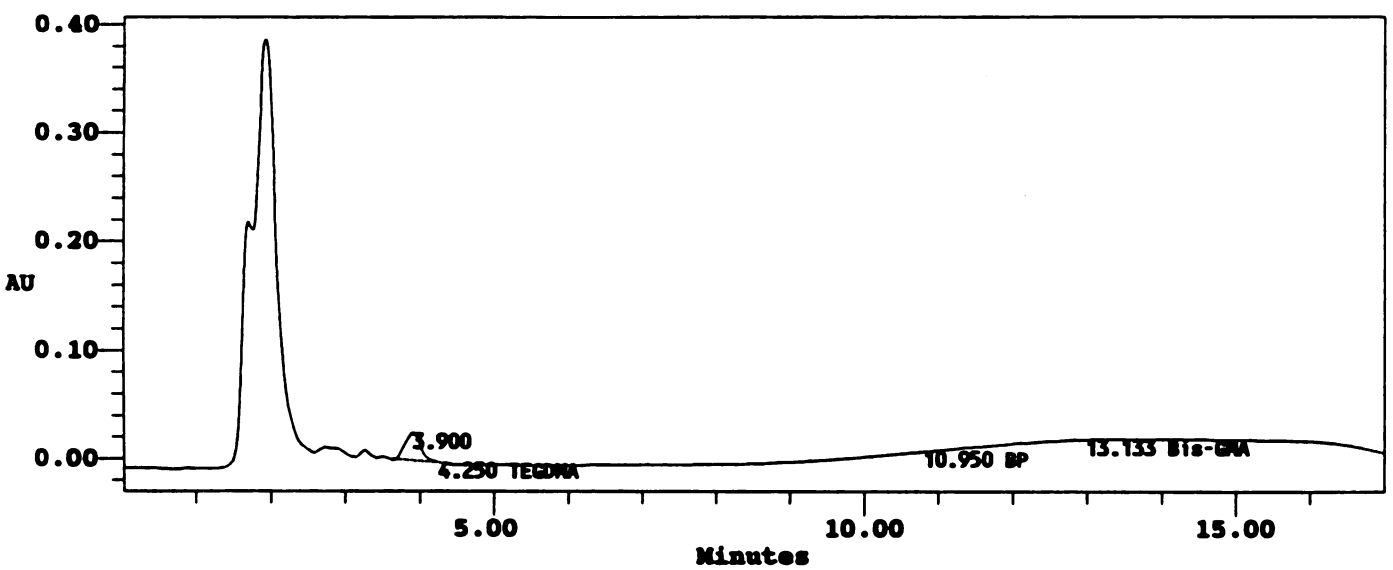


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	15838	1425	0.005	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T10 MOLD		
Vial:	80	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 11:02 PM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

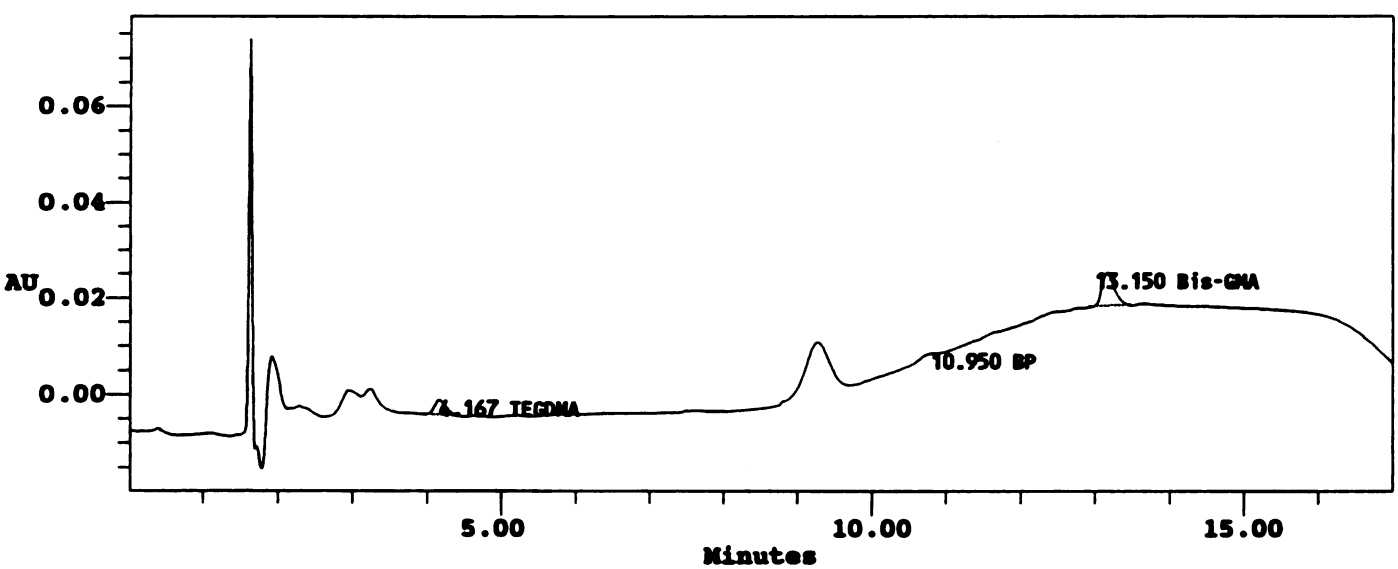


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.900	415630	26807		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T6 MOLD		
Vial:	57	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 03:51 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

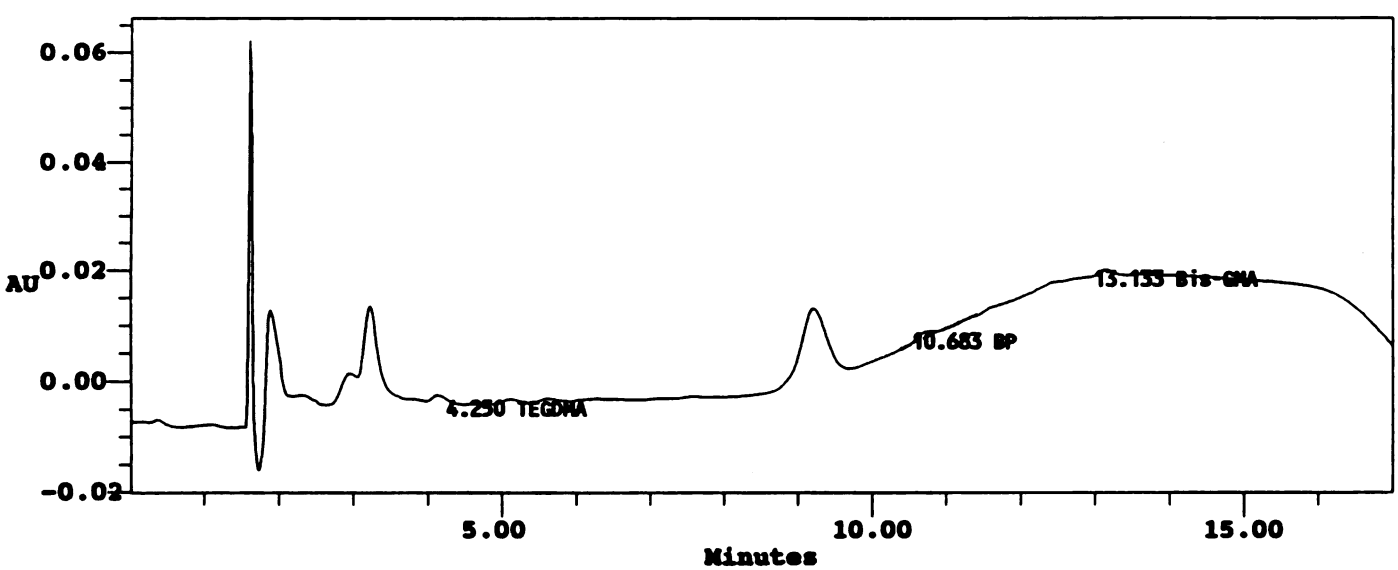
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	35229	3126	0.012	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	83456	7036	0.037	BB

For Sample: R2S3T7 MOLD Vial: 63 Inj: 1 Chan: 486 Date Processed 10/19/93 04:16 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T7 MOLD		
Vial:	63	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 05:43 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

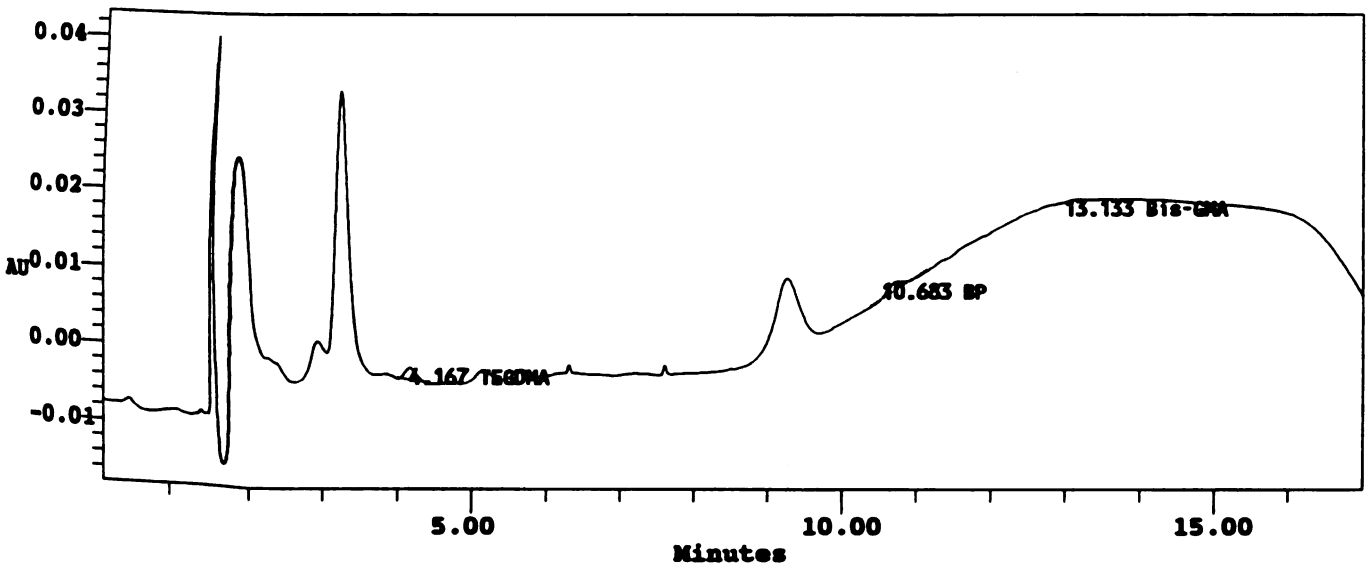


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.683	21342	1248	0.007	BB
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T8 MOLD		
Vial:	69	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 07:36 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

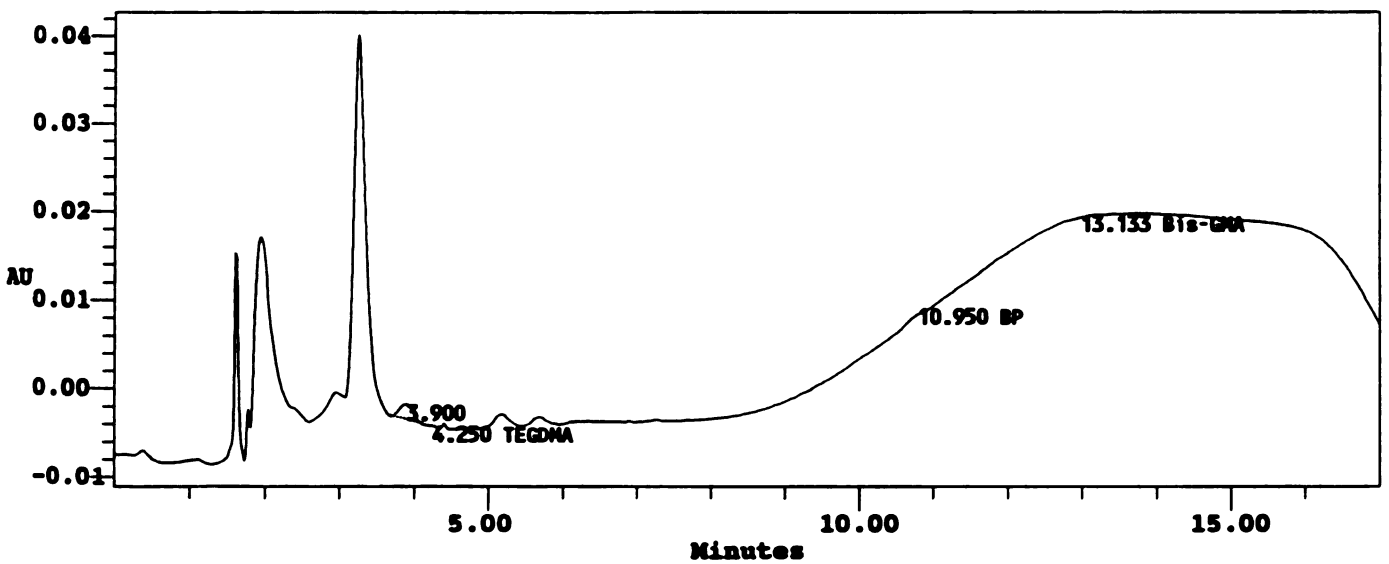


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	17780	1598	0.006	BB
2	BP	10.683	18989	1241	0.007	BV
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T9 MOLD		
Vial:	75	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 09:28 PM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.900	22654	1807		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

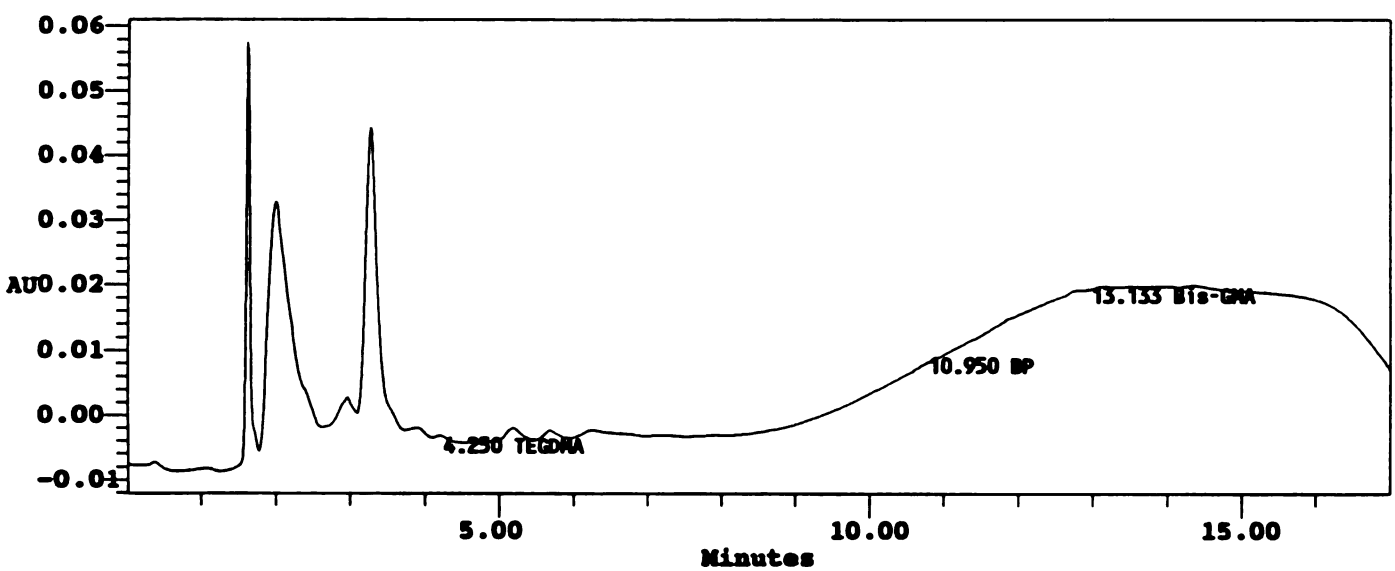
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R2S3T10 MOLD Vial: 81 Inj: 1 Chan: 486 Date Processed 10/19/93 04:17 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T10 MOLD		
Vial:	81	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 11:21 PM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

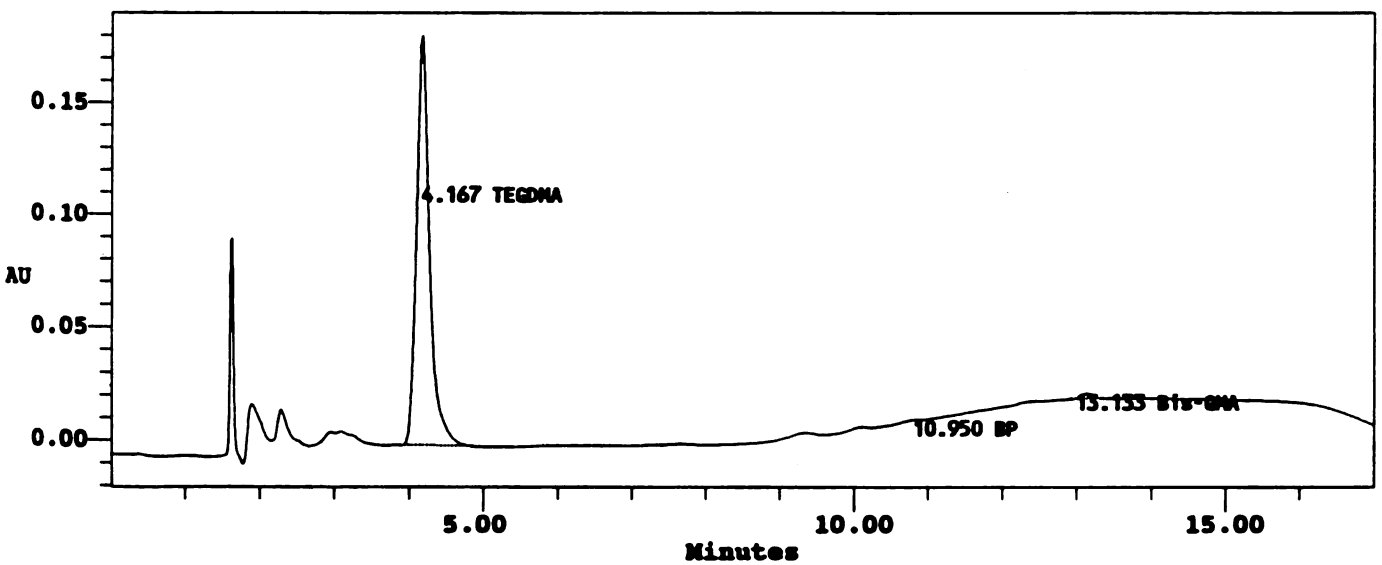


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T1 MOLD		
Vial:	28	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 06:46 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

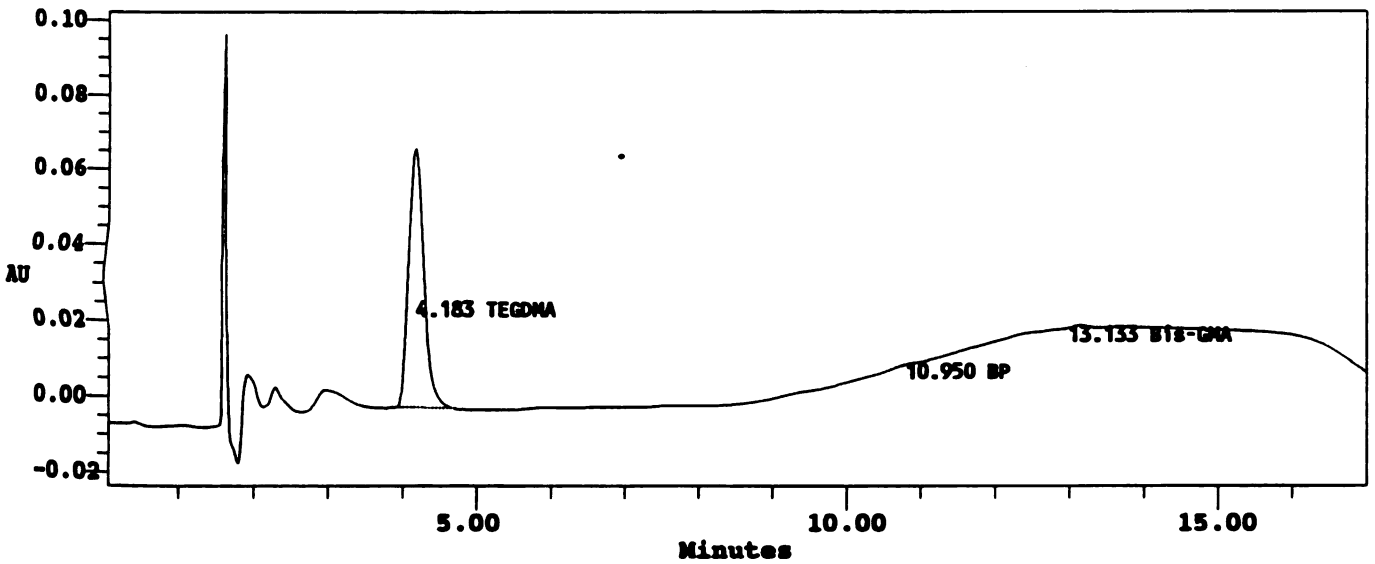


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2230059	182380	0.735	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133	25723	2508	0.011	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T2 MOLD		
Vial:	34	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 08:39 AM	Date Processed:	10/19/93 04:14 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

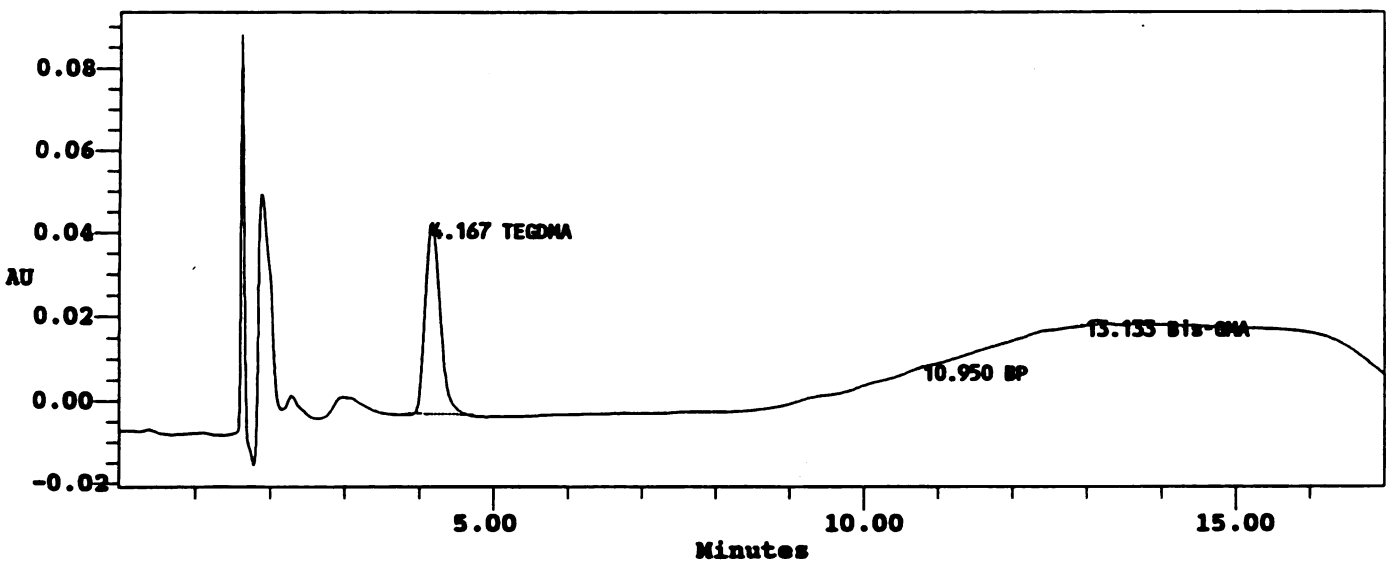
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	985662	68641	0.325	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R2S4T3 MOLD Vial: 40 Inj: 1 Chan: 486 Date Processed 10/19/93 04:14 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T3 MOLD		
Vial:	40	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 10:31 AM	Date Processed:	10/19/93 04:14 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

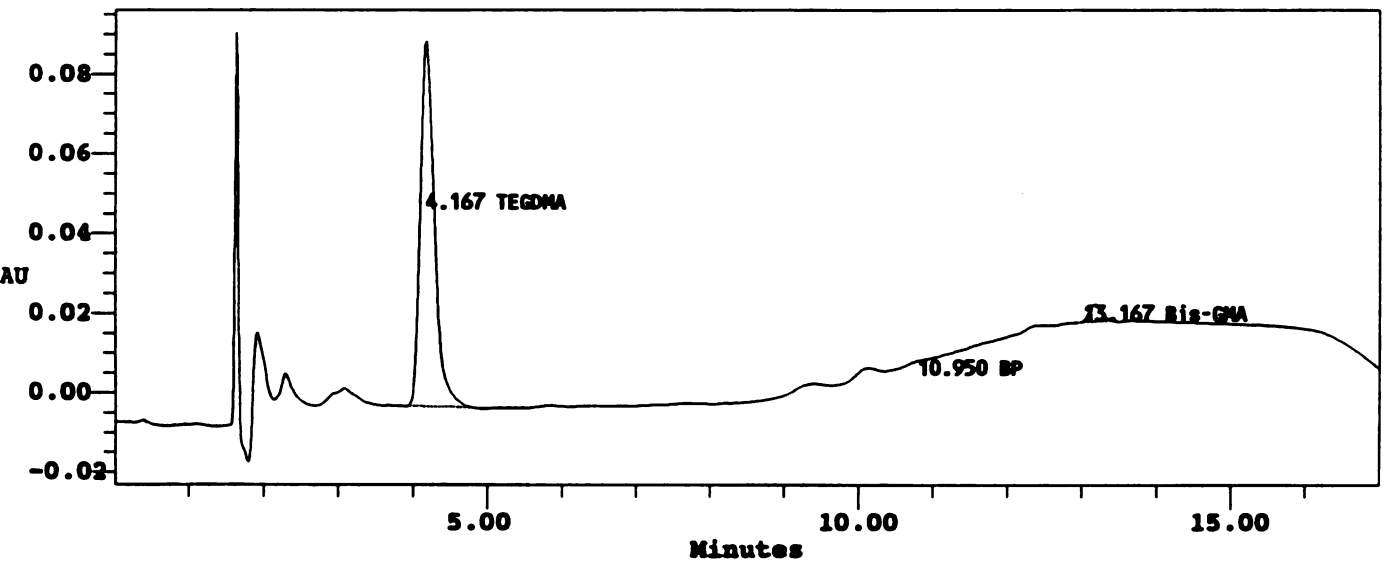


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	649708	45907	0.214	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133	15114	1311	0.007	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T4 MOLD		
Vial:	46	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 12:24 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

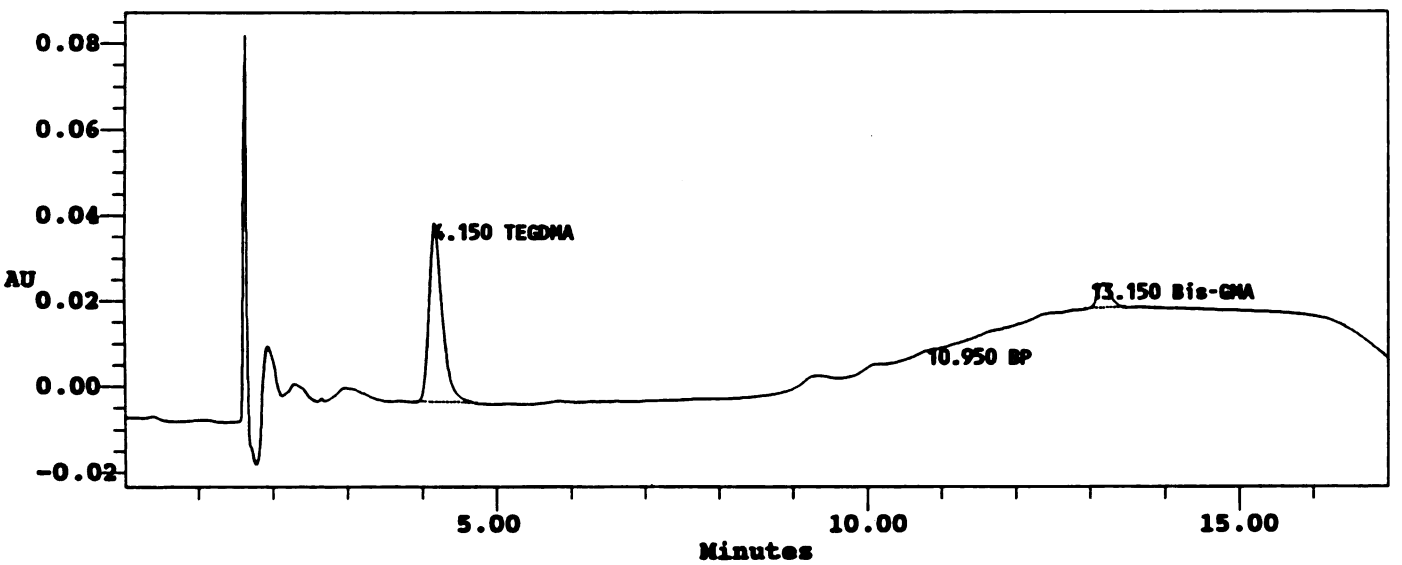


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	1221894	91766	0.403	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	52724	4474	0.023	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T5 MOLD		
Vial:	52	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 02:17 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

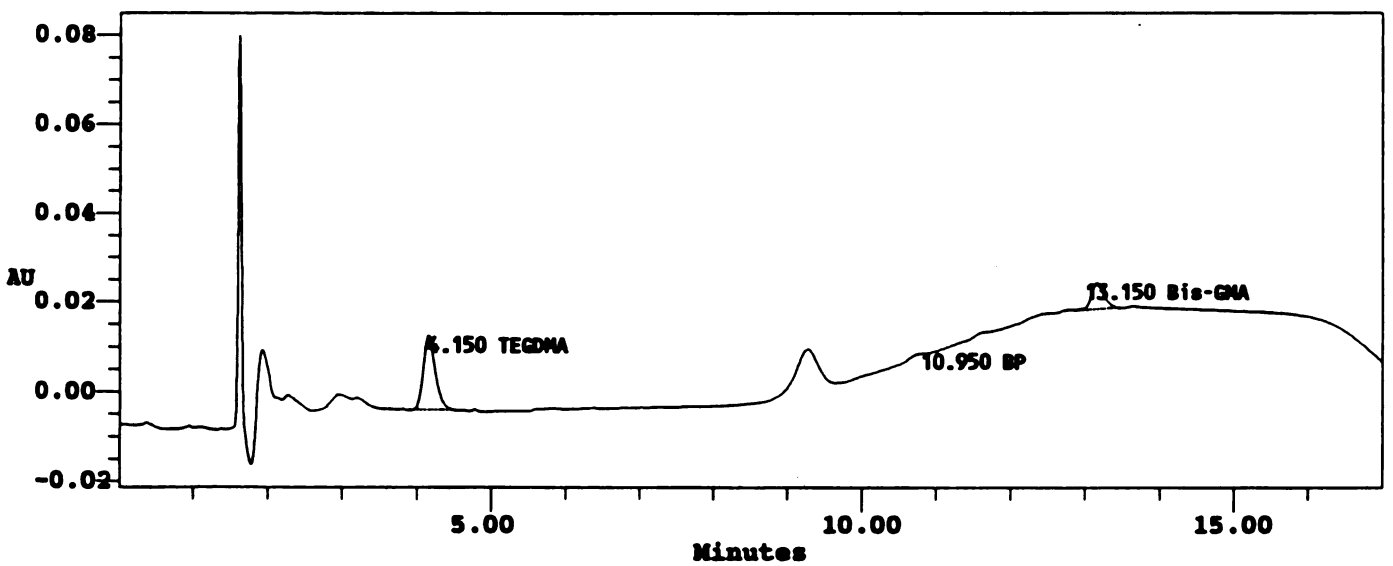
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	521098	41914	0.172	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	73774	6017	0.033	BB

For Sample: R2S4T6 MOLD Vial: 58 Inj: 1 Chan: 486 Date Processed 10/19/93 04:15 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T6 MOLD		
Vial:	58	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 04:09 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

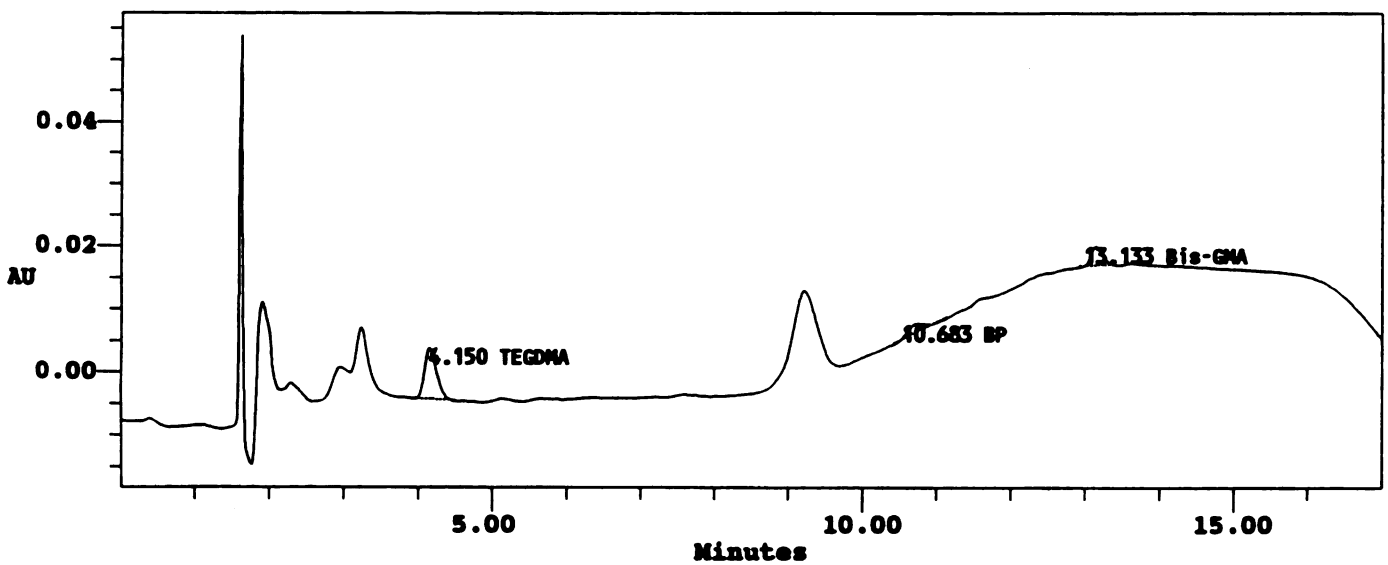
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	188700	16582	0.062	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	74765	6027	0.033	VB

For Sample: R2S4T7 MOLD Vial: 64 Inj: 1 Chan: 486 Date Processed 10/19/93 04:16 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T7 MOLD		
Vial:	64	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 06:02 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

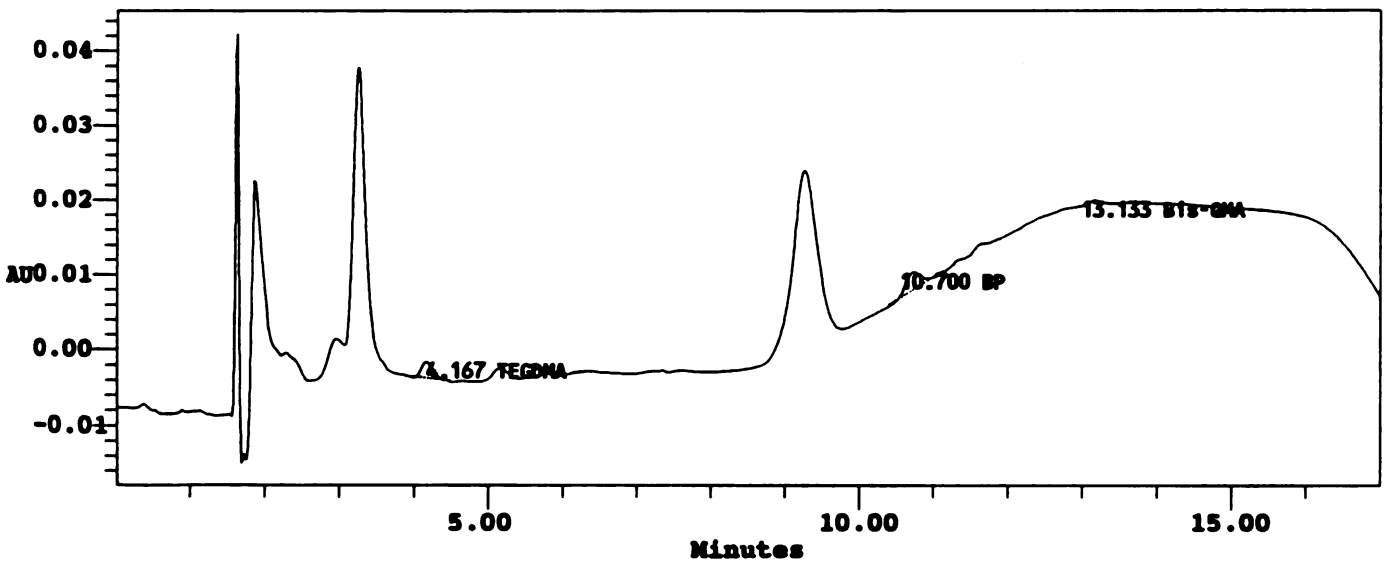


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	94172	8217	0.031	BB
2	BP	10.683	23396	1514	0.008	BB
3	Bis-GMA	13.133	35667	3131	0.016	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T8 MOLD		
Vial:	70	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 07:54 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

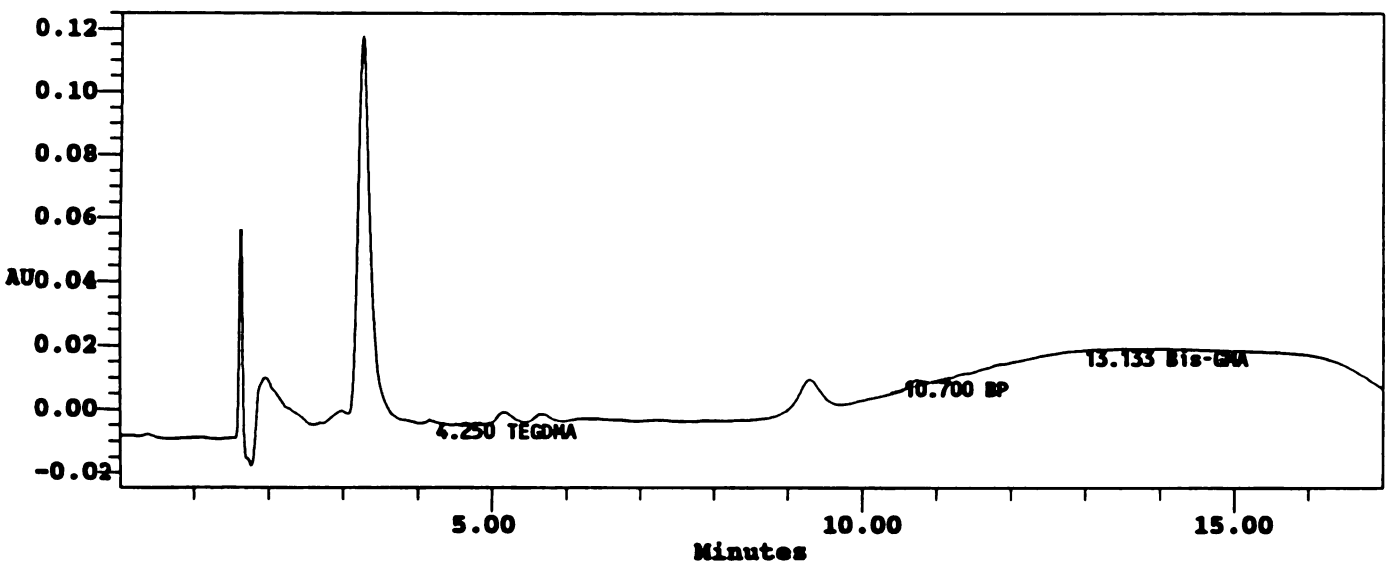


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	26405	2289	0.009	BB
2	BP	10.700	37422	2569	0.013	BB
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T9 MOLD		
Vial:	76	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 09:47 PM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

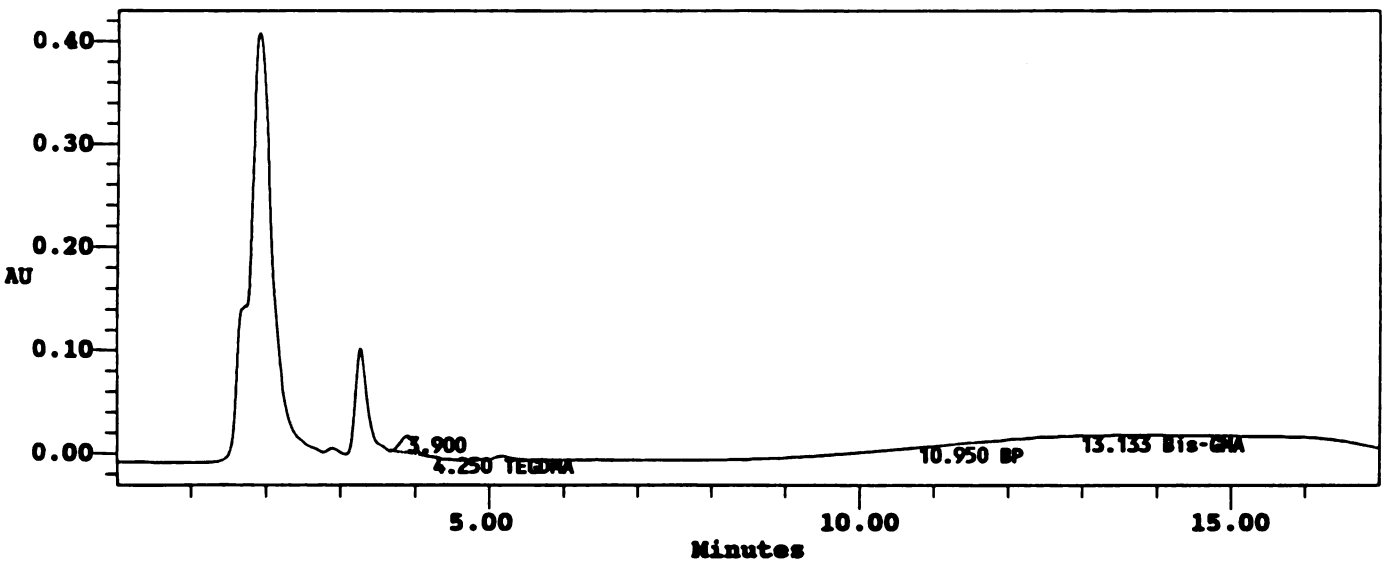
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.700	33821	2327	0.012	BV
3	Bis-GMA	13.133				Missing

For Sample: R2S4T10 MOLD Vial: 82 Inj: 1 Chan: 486 Date Processed 10/19/93 04:17 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T10 MOLD		
Vial:	82	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 11:40 PM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

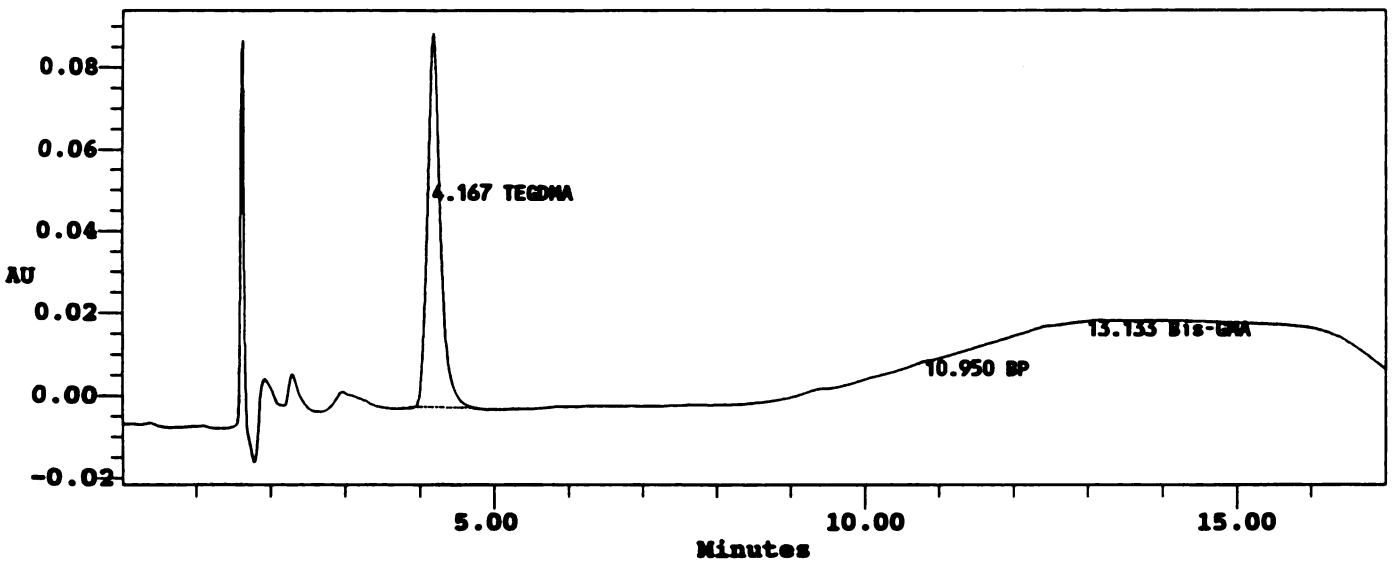


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.900	232256	17174		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T1 MOLD		
Vial:	29	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 07:05 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

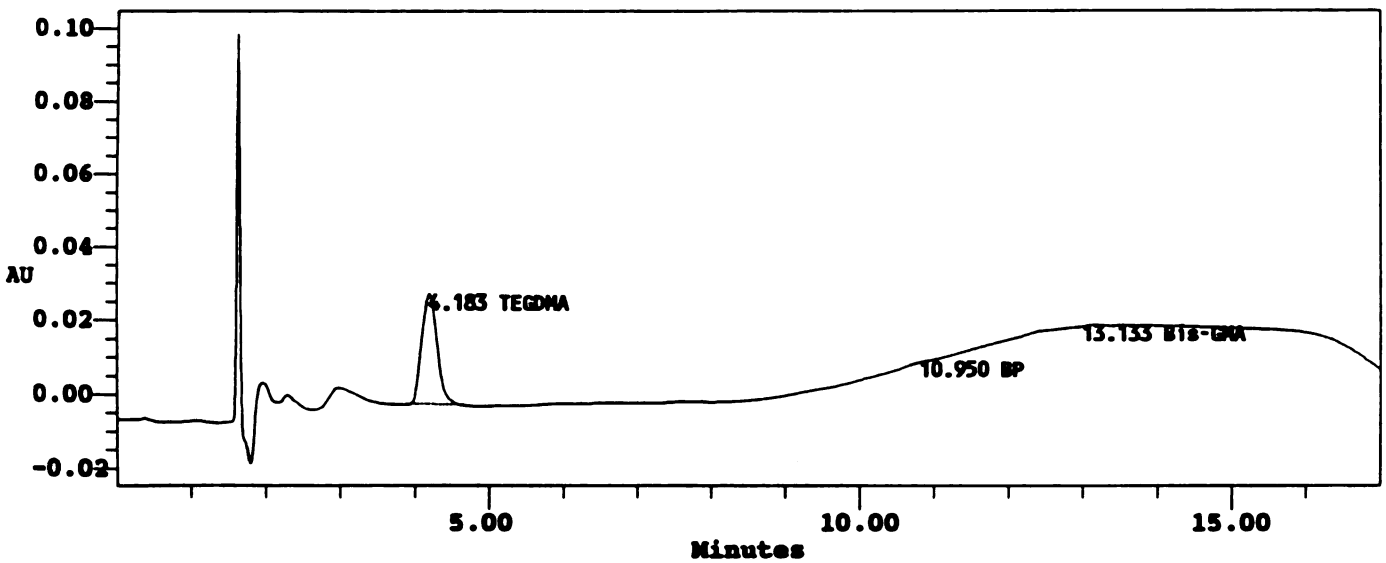


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	1109409	91491	0.366	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T2 MOLD		
Vial:	35	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 08:58 AM	Date Processed:	10/19/93 04:14 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

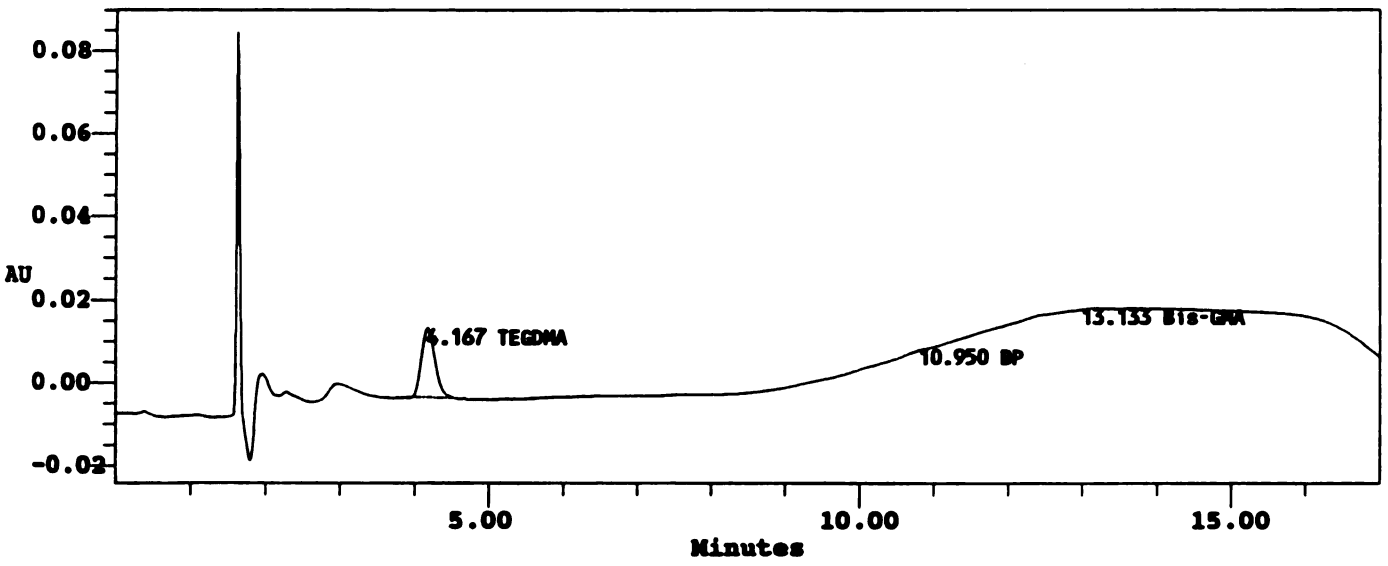
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	437042	29902	0.144	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R2S5T3 MOLD Vial: 41 Inj: 1 Chan: 486 Date Processed 10/19/93 04:14 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T3 MOLD		
Vial:	41	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 10:50 AM	Date Processed:	10/19/93 04:14 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

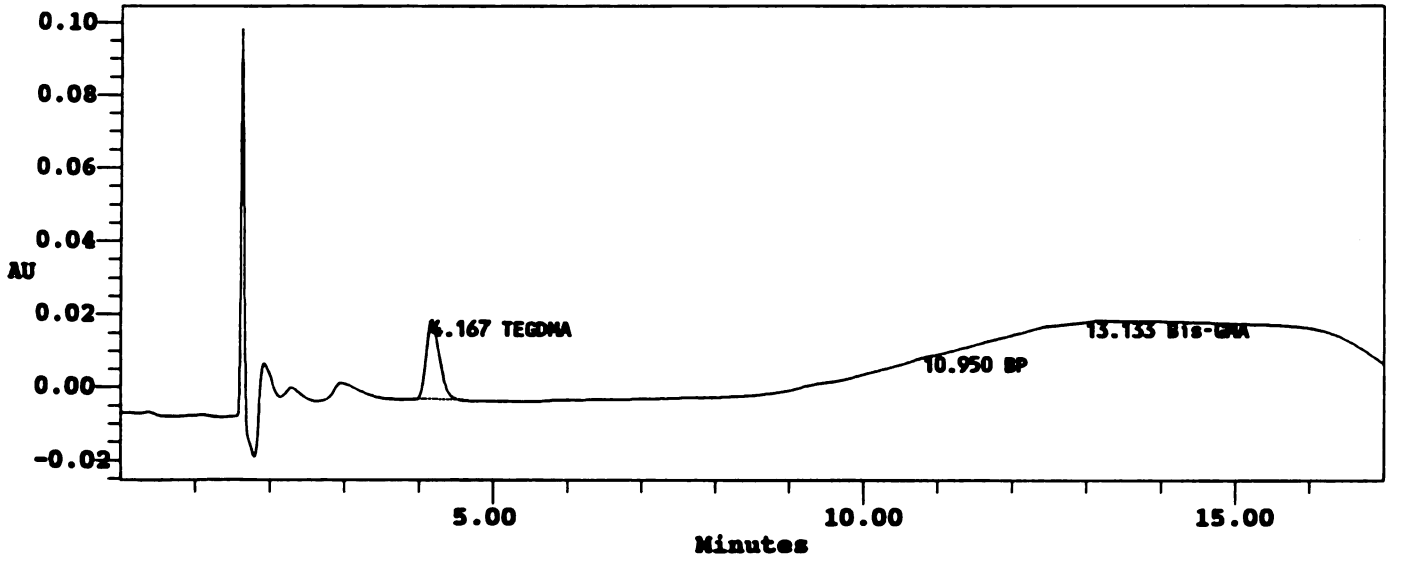
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	218093	16879	0.072	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R2S5T4 MOLD Vial: 47 Inj: 1 Chan: 486 Date Processed 10/19/93 04:15 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T4 MOLD		
Vial:	47	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 12:43 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

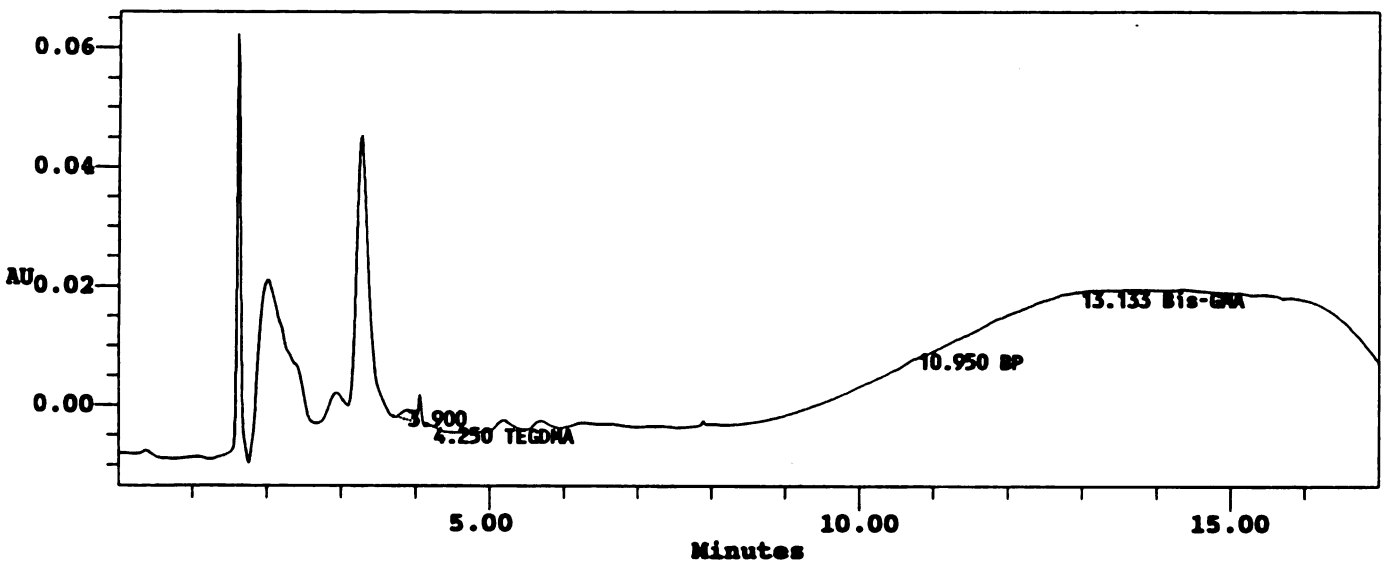


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	275360	22043	0.091	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T10 MOLD		
Vial:	83	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 11:58 PM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

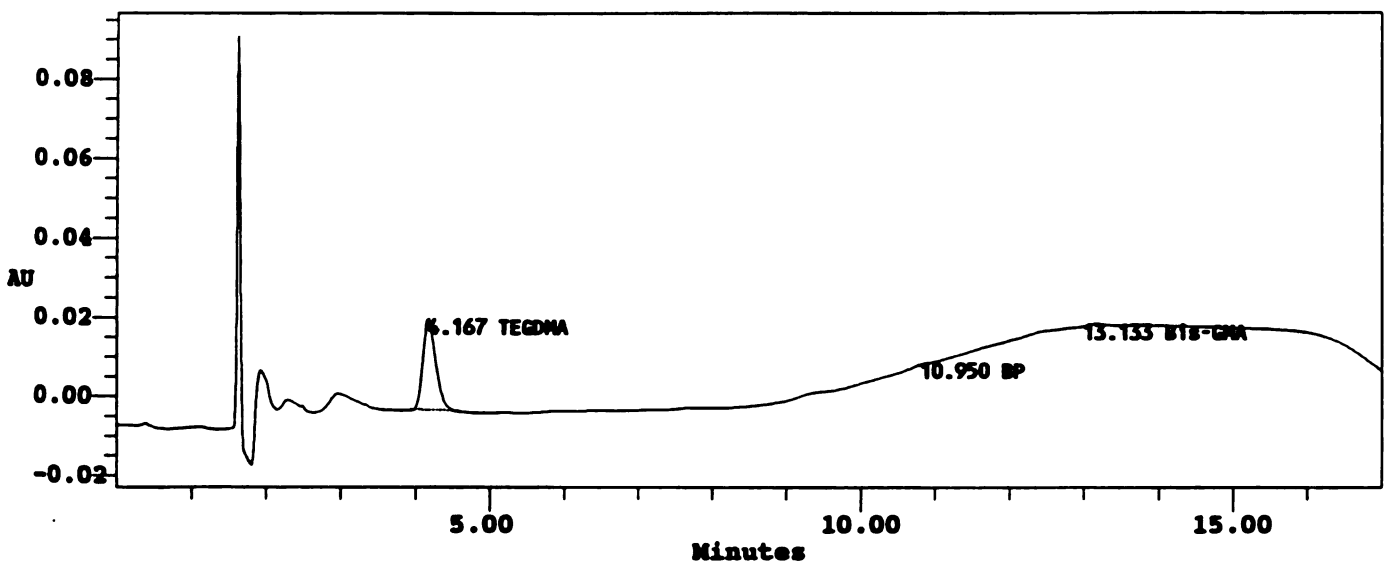


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.900	19660	1818		BV
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T4 MOLD		
Vial:	48	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 01:02 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

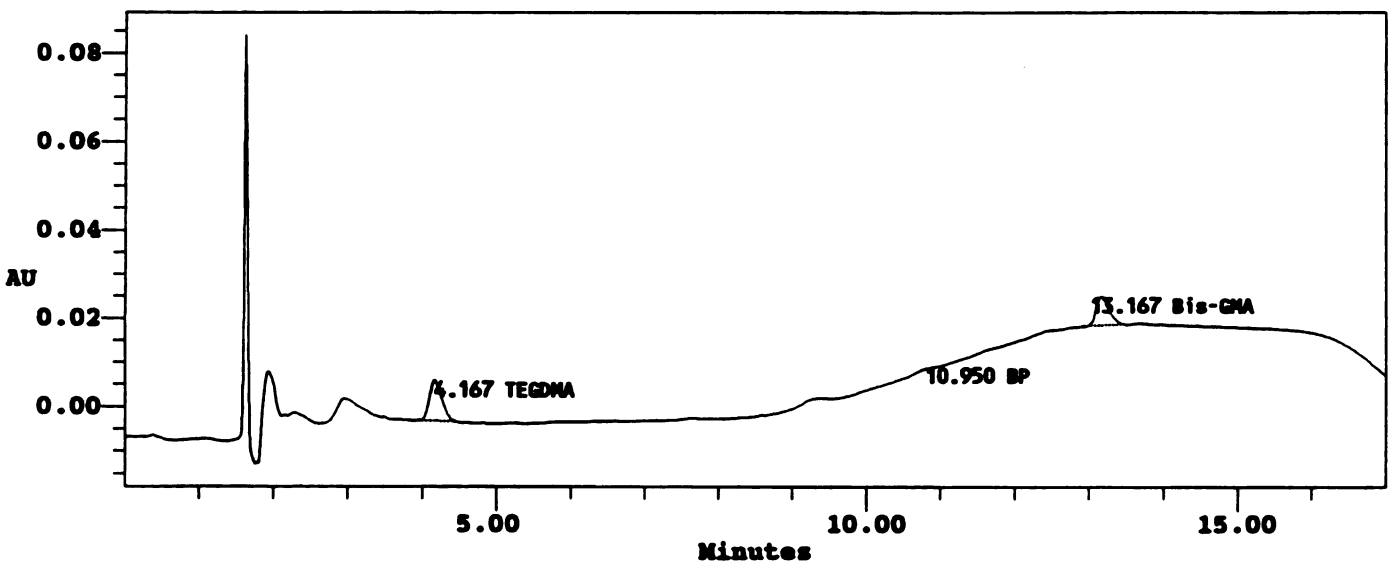


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	284261	23415	0.094	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T5 MOLD		
Vial:	54	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 02:54 PM	Date Processed:	10/19/93 04:15 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

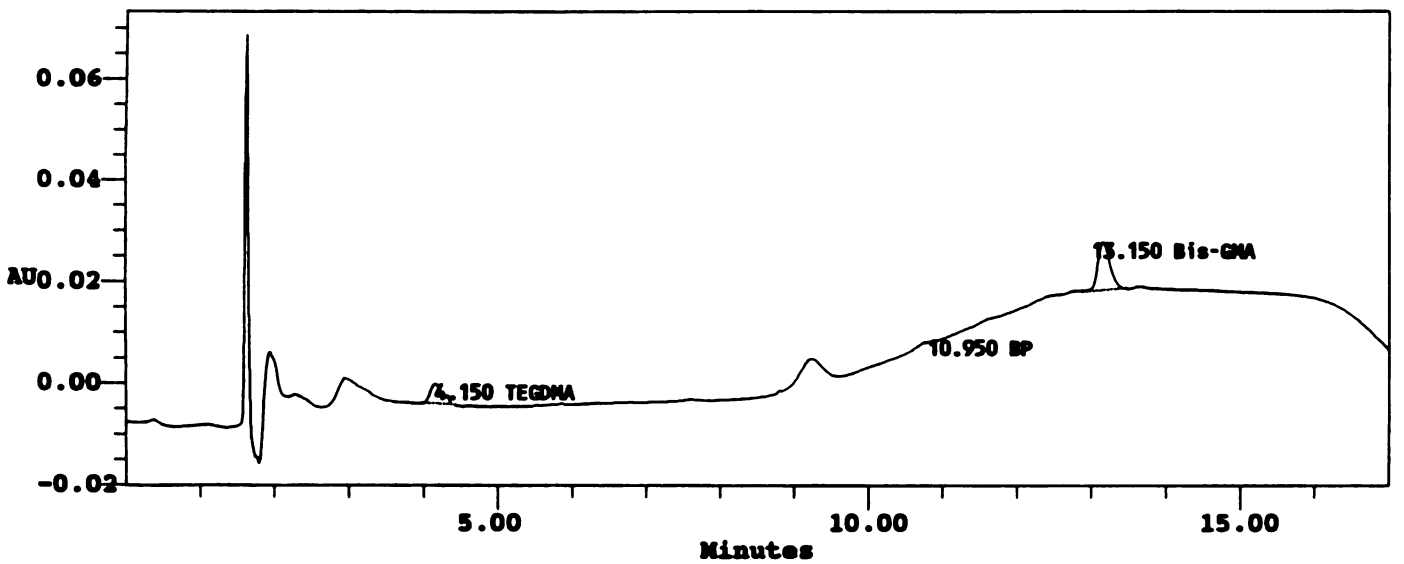
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	110828	9295	0.037	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	82481	6686	0.037	BB

For Sample: R2S6T6 MOLD Vial: 60 Inj: 1 Chan: 486 Date Processed 10/19/93 04:16 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T6 MOLD		
Vial:	60	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 04:47 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

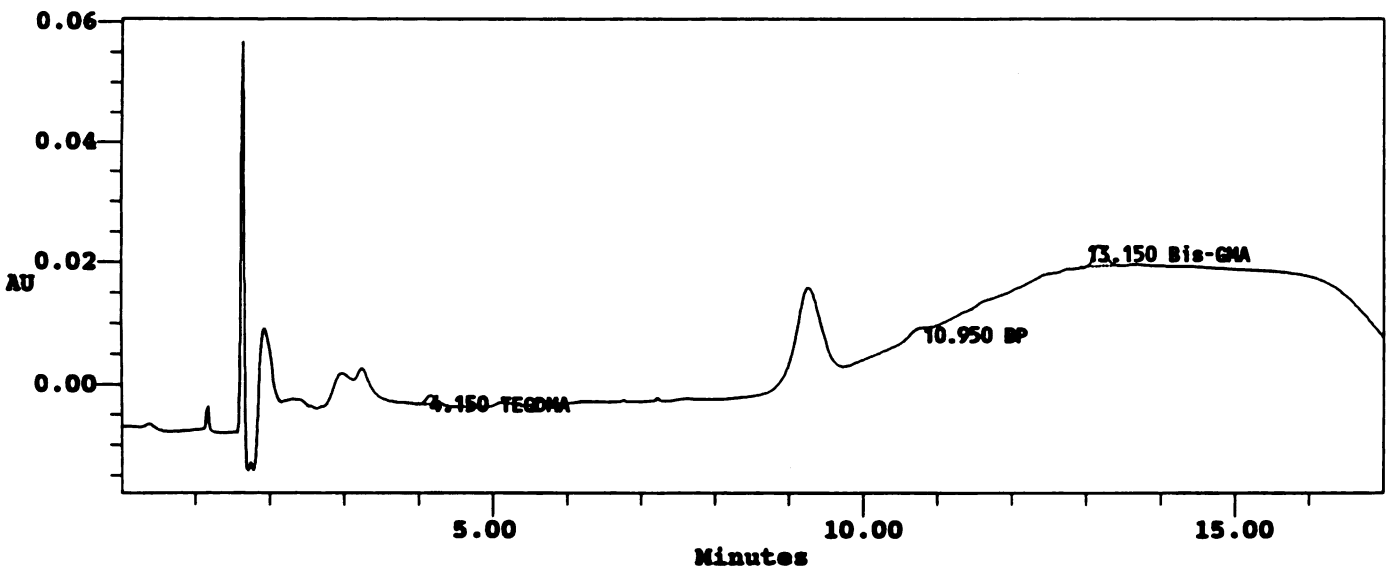
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	49482	4073	0.016	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	113620	9565	0.050	VB

For Sample: R2S6T7 MOLD Vial: 66 Inj: 1 Chan: 486 Date Processed 10/19/93 04:16 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T7 MOLD		
Vial:	66	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 06:39 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

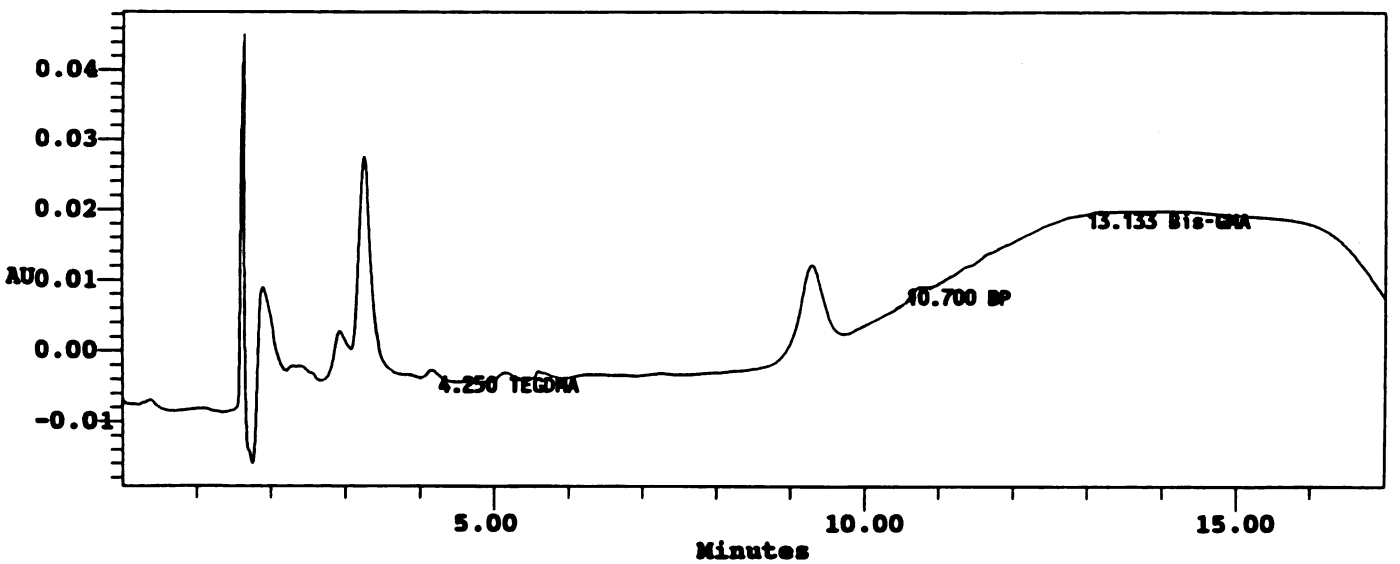


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	17118	1572	0.006	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	41186	3565	0.018	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T8 MOLD		
Vial:	72	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 08:32 PM	Date Processed:	10/19/93 04:16 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

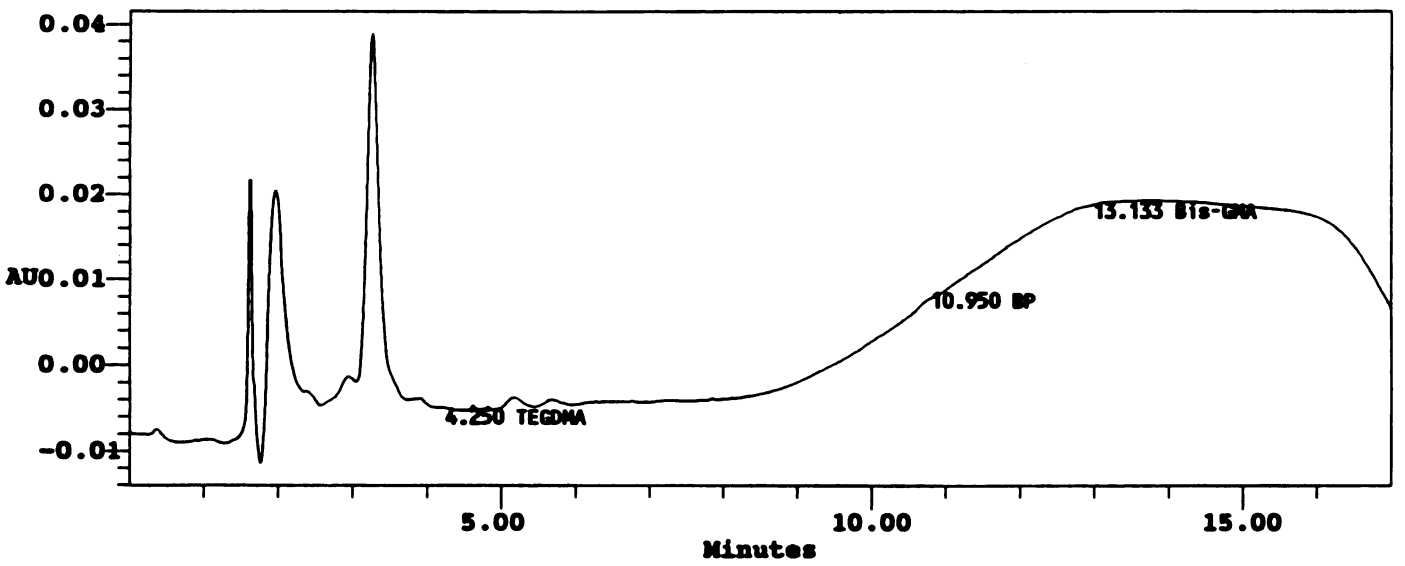


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.700	17962	1231	0.006	BV
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T9 MOLD		
Vial:	78	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 10:25 PM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

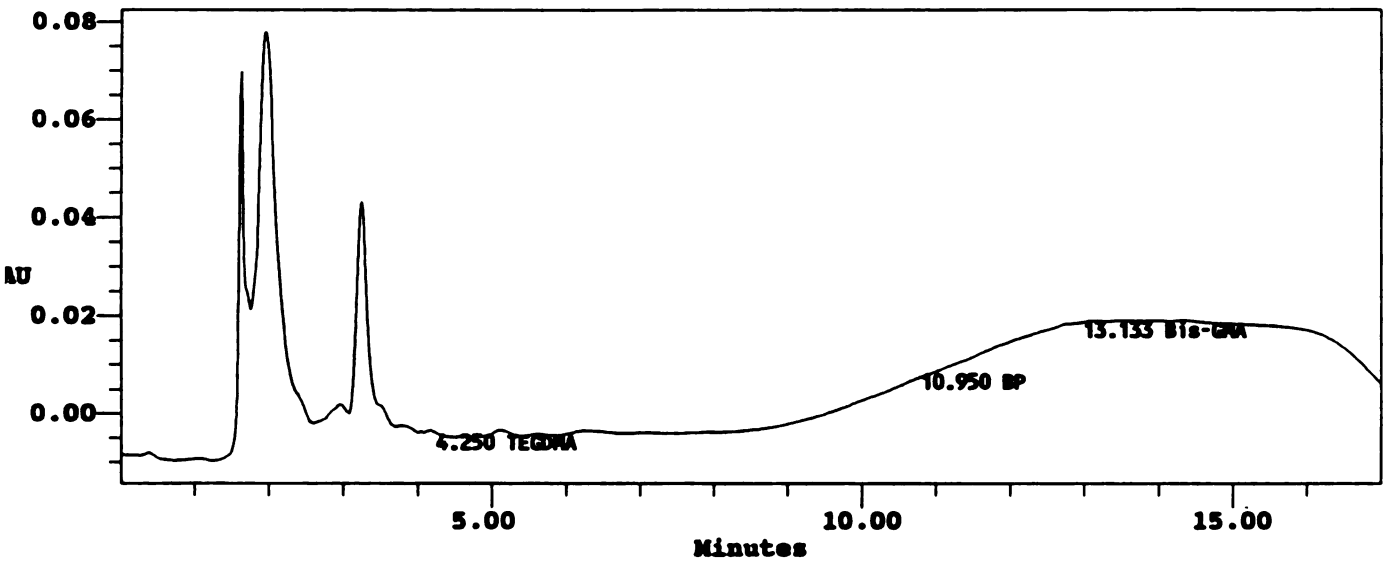


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T10 MOLD		
Vial:	84	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 12:17 AM	Date Processed:	10/19/93 04:17 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

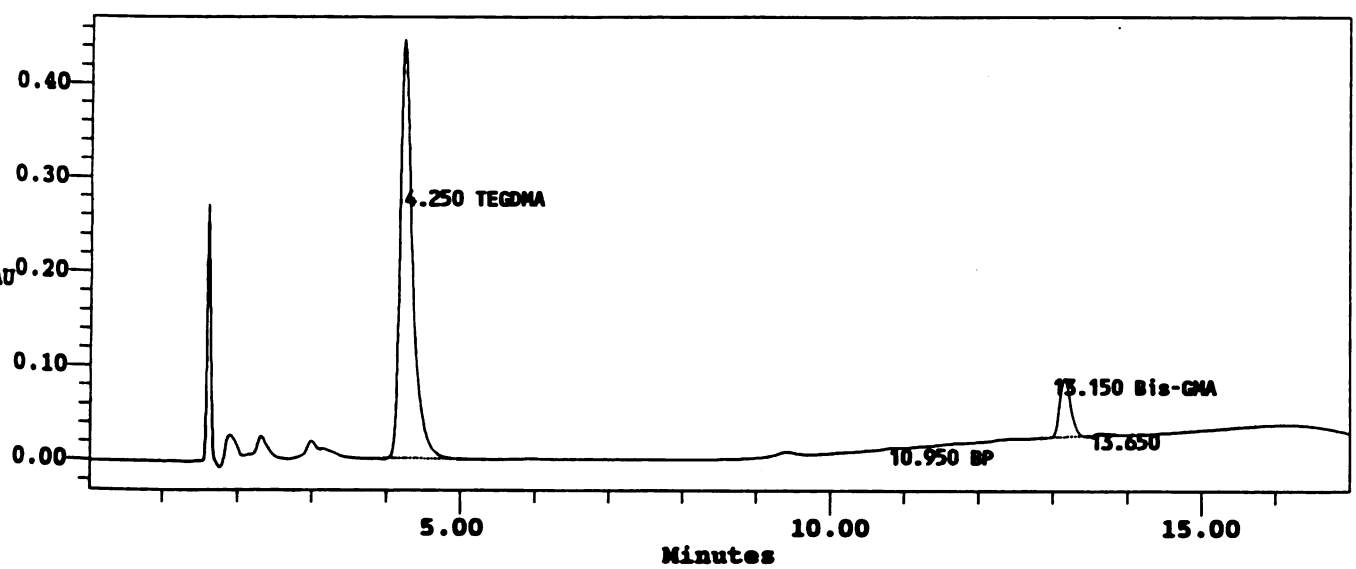
Tooth Model

HPLC DATA

TWO PASTE RESIN

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T1 TOOTH		
Vial:	1	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 06:25 AM	Date Processed:	10/20/93 08:33 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

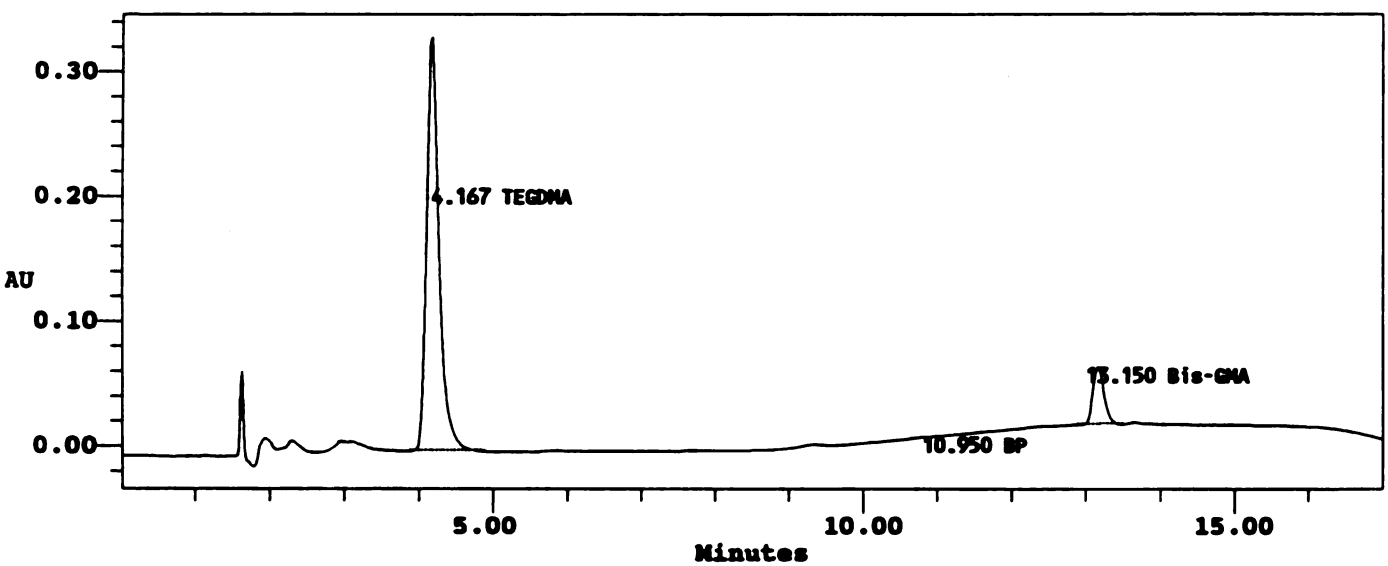
	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
	TEGDMA	4.250	5165232	445935	1.702	BB
	BP	10.950				Missing
	Bis-GMA	13.150	655437	63100	0.291	VB
		13.650	28748	3096		BB

For Sample: R2S1T2 TOOTH Vial: 7 Inj: 1 Chan: 486 Date Processed 10/20/93 08:35 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T2 TOOTH		
Vial:	7	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 08:18 AM	Date Processed:	10/20/93 08:35 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

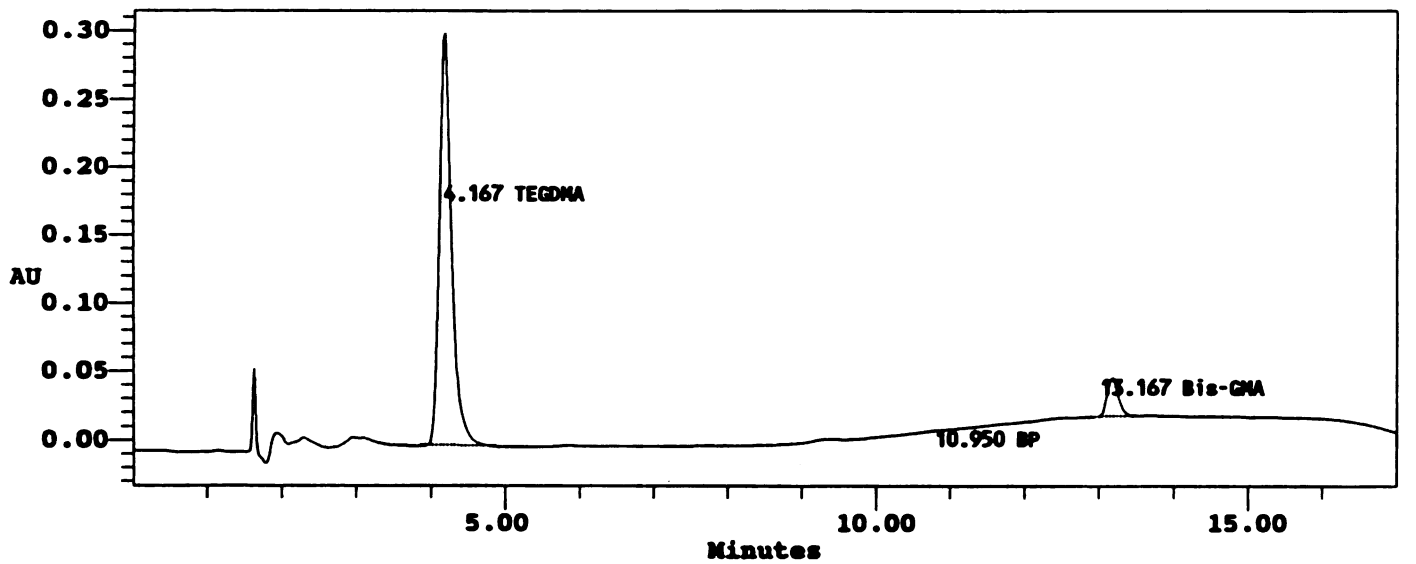
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	3868014	331992	1.274	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	493178	46650	0.219	BB

For Sample: R2S1T3 TOOTH Vial: 13 Inj: 1 Chan: 486 Date Processed 10/20/93 08:38 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T3 TOOTH		
Vial:	13	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 10:10 AM	Date Processed:	10/20/93 08:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

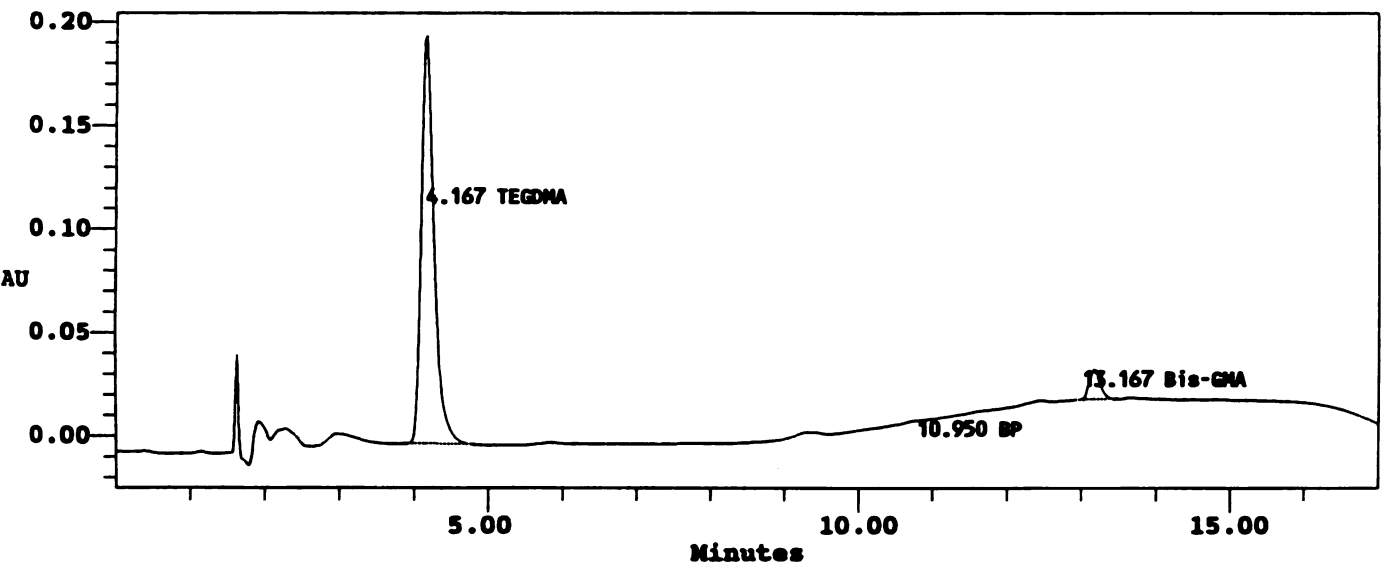


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	3475728	302618	1.145	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	299952	28098	0.133	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T4 TOOTH		
Vial:	19	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 12:03 PM	Date Processed:	10/20/93 08:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

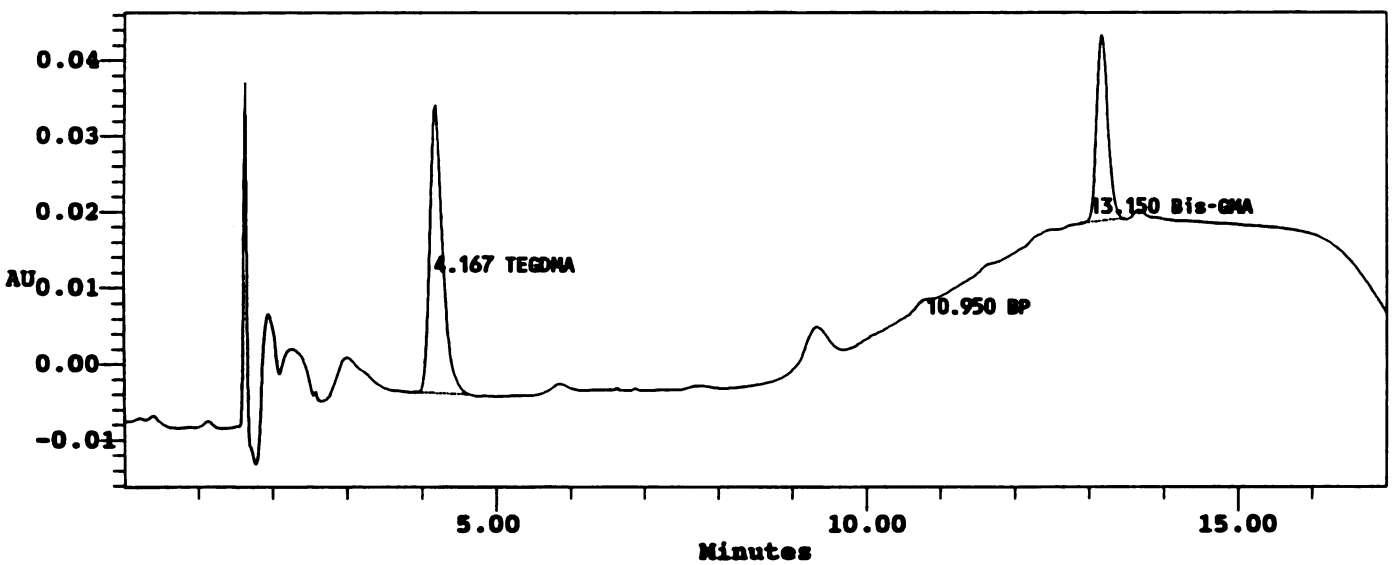


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2371622	197420	0.781	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	152957	14384	0.068	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T5 TOOTH		
Vial:	25	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 01:55 PM	Date Processed:	10/20/93 08:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

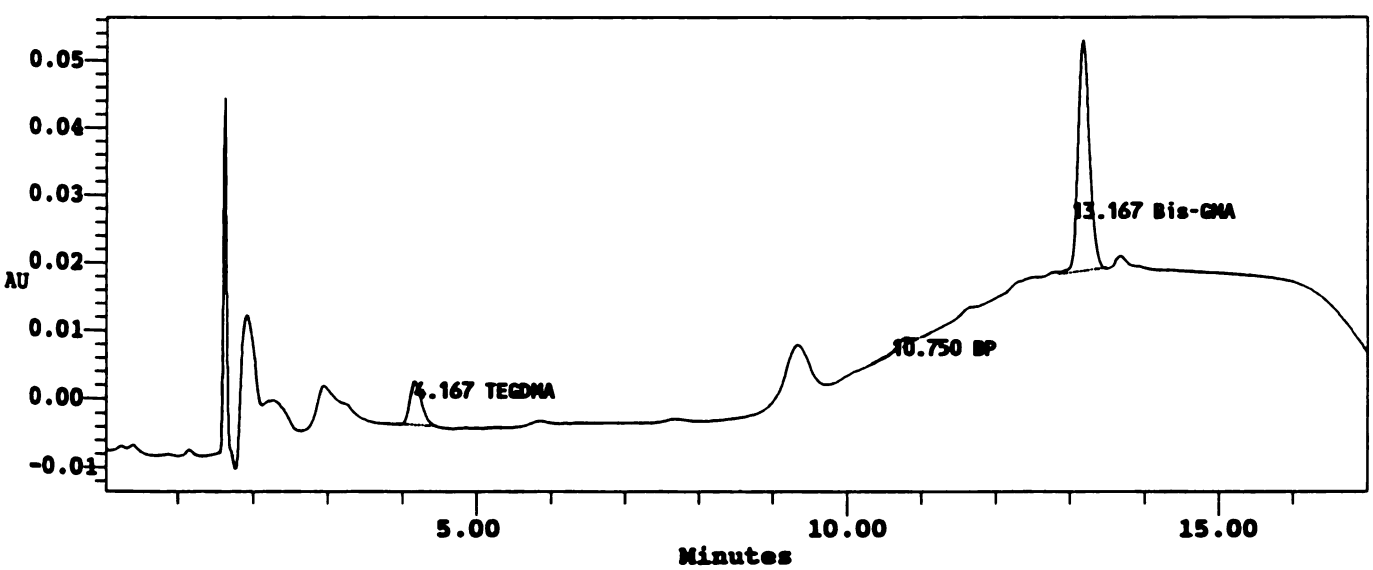


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	456727	38023	0.150	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	262622	24688	0.116	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T6 TOOTH		
Vial:	31	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 03:48 PM	Date Processed:	10/20/93 08:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

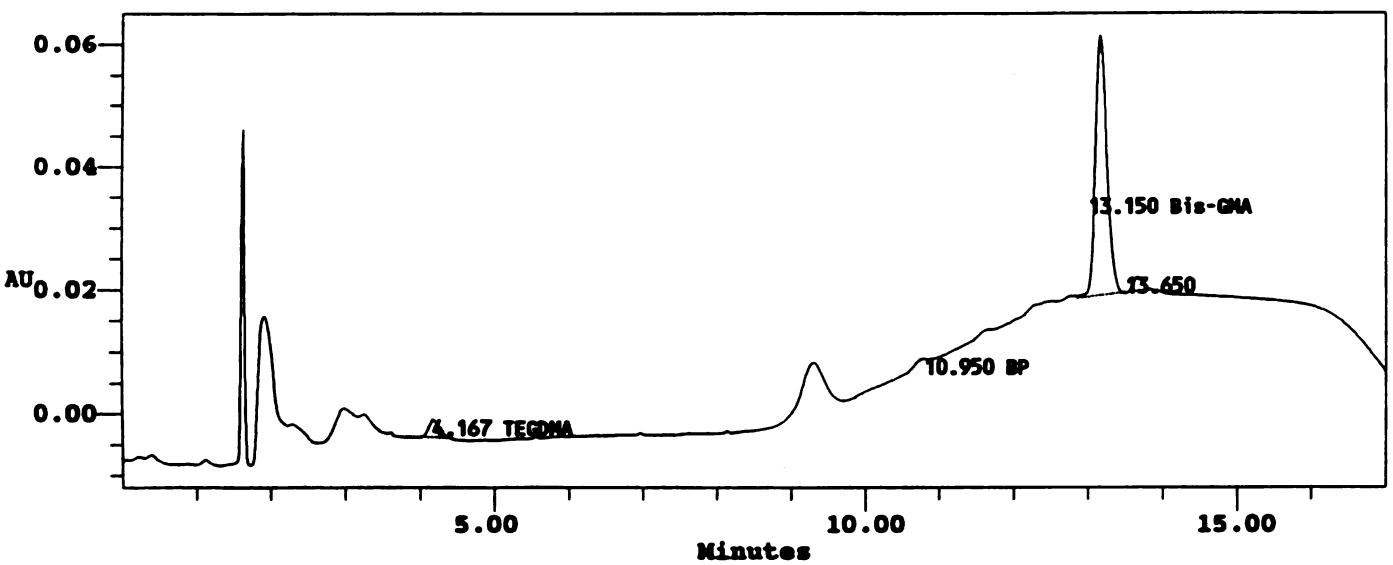


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	72360	6429	0.024	BB
2	BP	10.750	17901	1318	0.006	BB
3	Bis-GMA	13.167	368924	34347	0.164	VB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T7 TOOTH		
Vial:	37	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 05:41 PM	Date Processed:	10/20/93 08:47 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

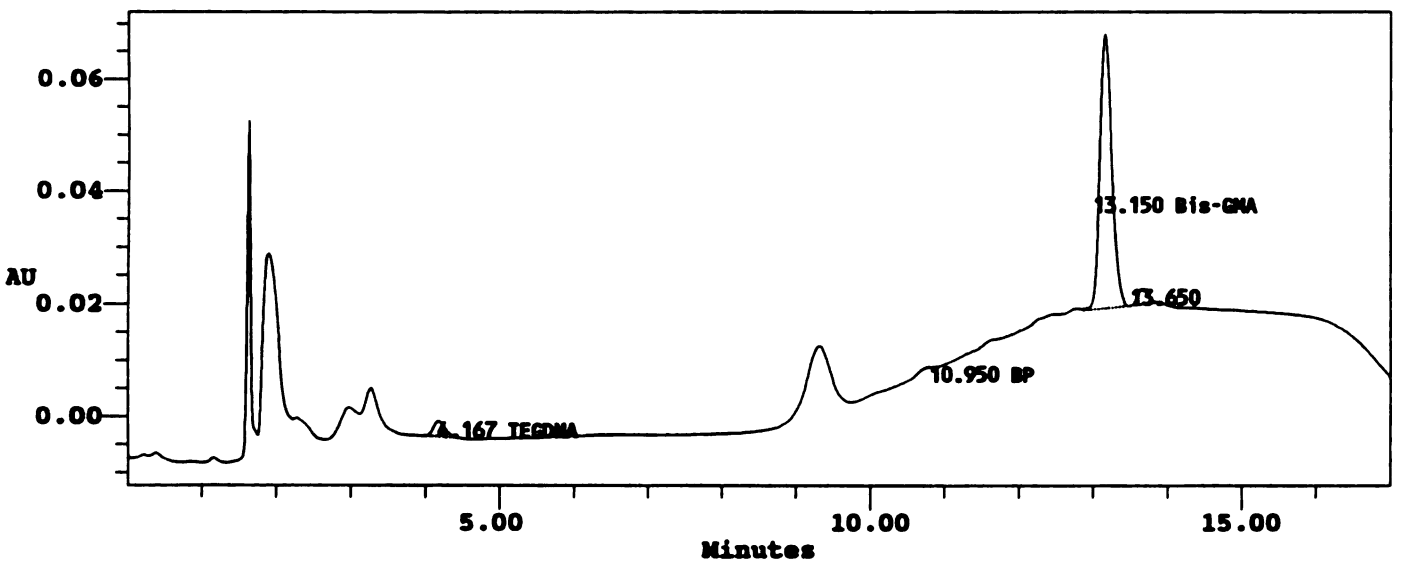


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	33222	3032	0.011	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	459136	42464	0.204	VB
4		13.650	22488	2346		BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T8 TOOTH		
Vial:	43	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 07:33 PM	Date Processed:	10/20/93 08:50 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

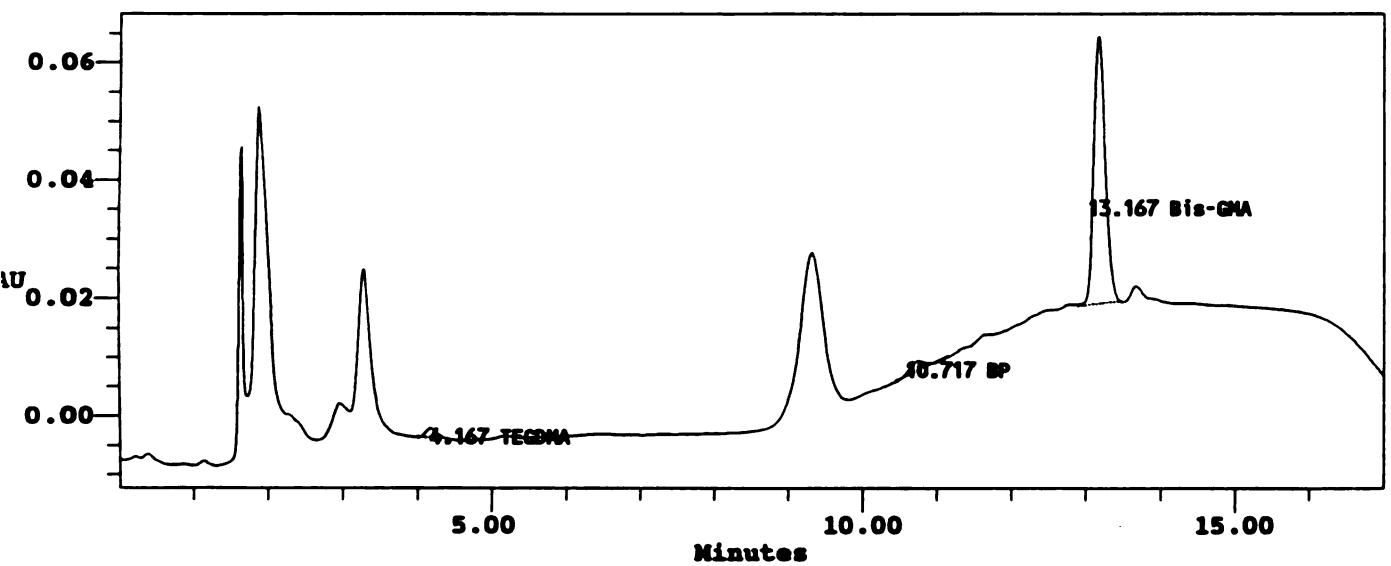


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	33130	2804	0.011	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	548941	49038	0.243	VV
4		13.650	29927	2891		VB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T9 TOOTH		
Vial:	49	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 09:26 PM	Date Processed:	10/20/93 08:53 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

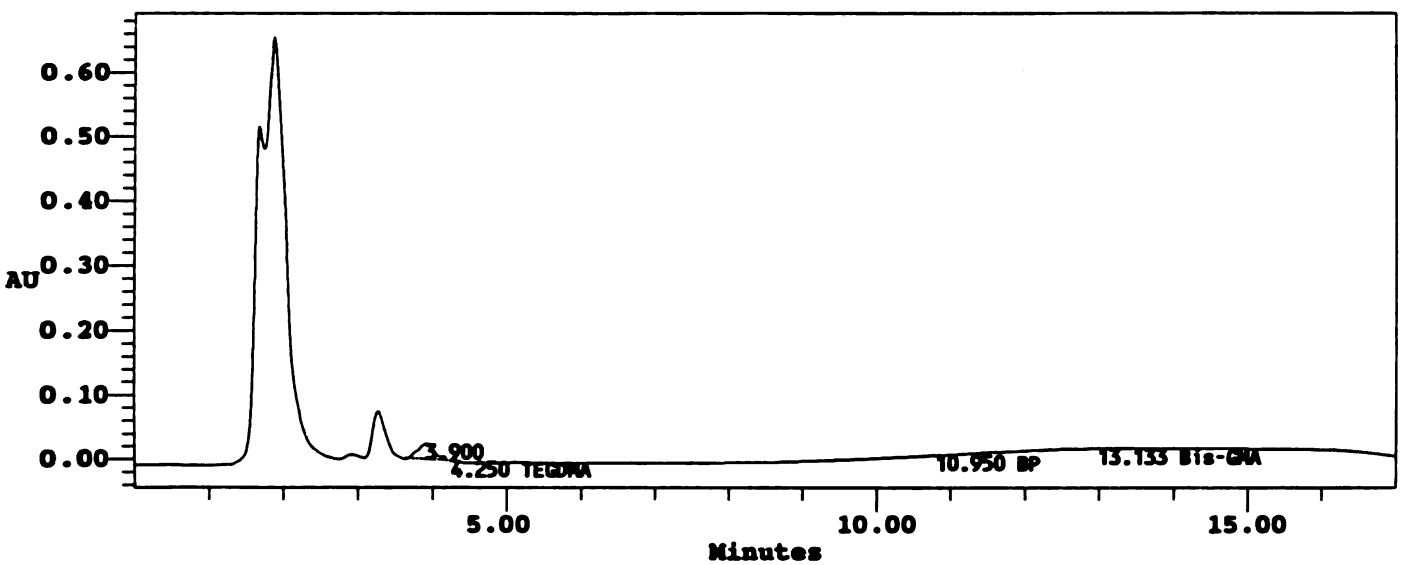


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	18724	1691	0.006	BB
2	BP	10.717	25464	1822	0.009	BB
3	Bis-GMA	13.167	492092	45548	0.218	VB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S1T10 TOOTH		
Vial:	55	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 11:19 PM	Date Processed:	10/20/93 08:55 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

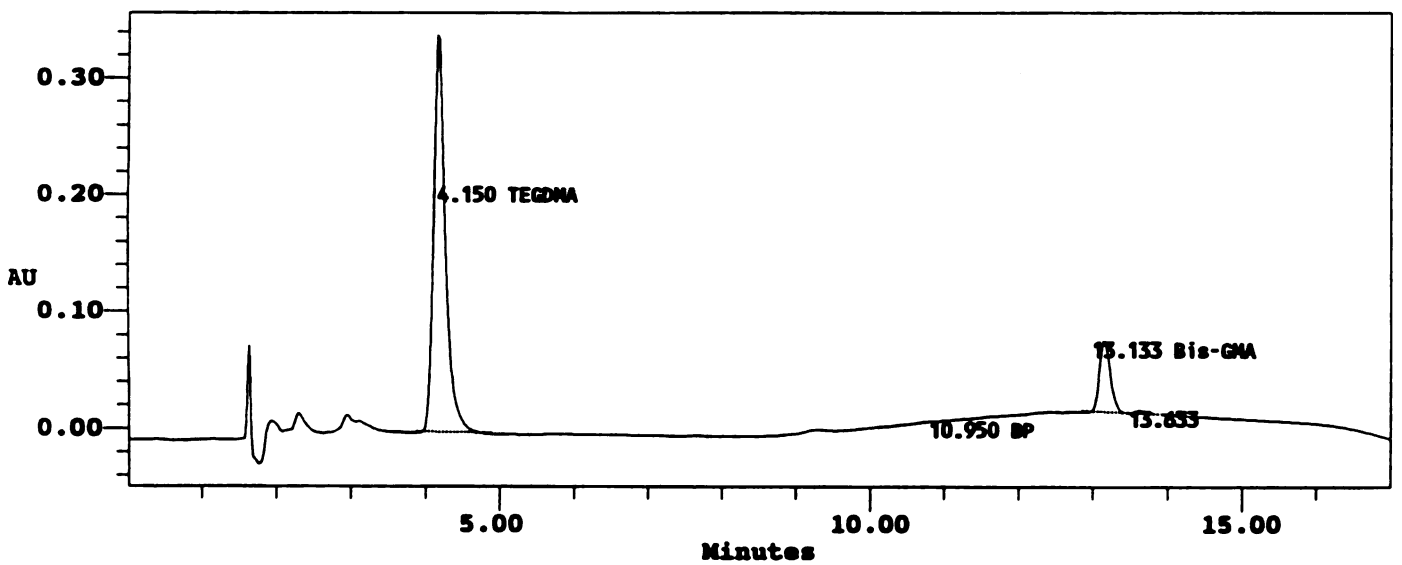


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.900	427765	25584		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T1 TOOTH		
Vial:	2	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 06:44 AM	Date Processed:	10/20/93 08:33 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

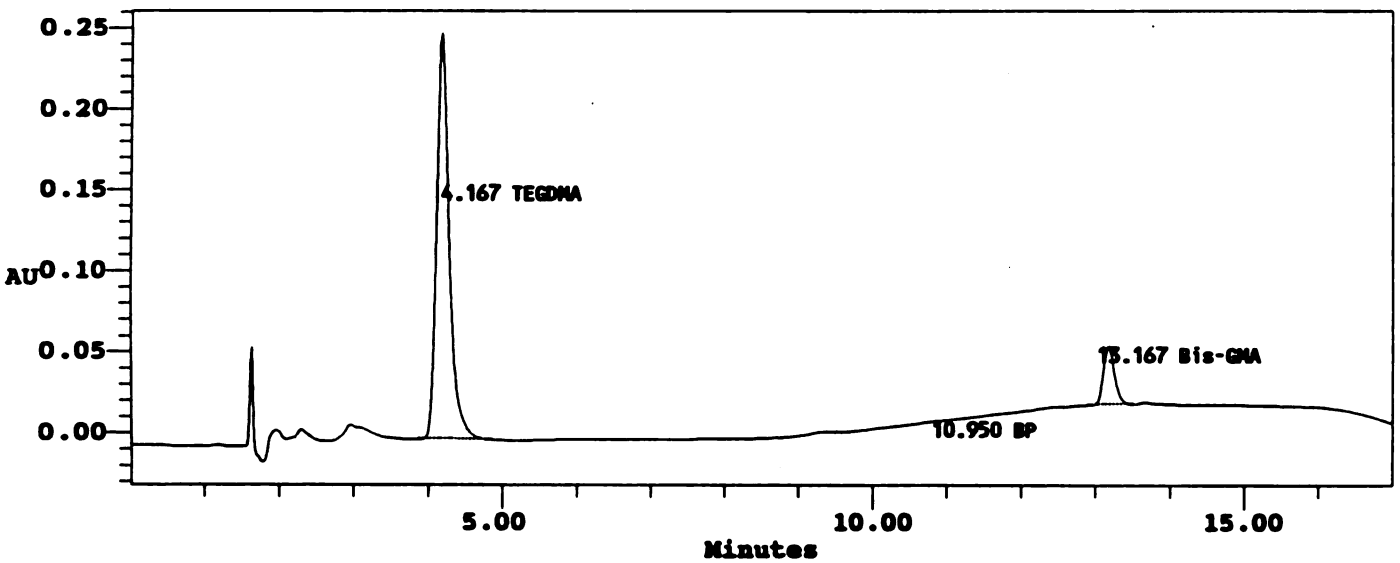
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	3809533	340901	1.255	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133	646618	61467	0.287	BV
4		13.633	47969	3236		VB

For Sample: R2S2T2 TOOTH Vial: 8 Inj: 1 Chan: 486 Date Processed 10/20/93 08:36 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T2 TOOTH		
Vial:	8	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 08:36 AM	Date Processed:	10/20/93 08:36 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

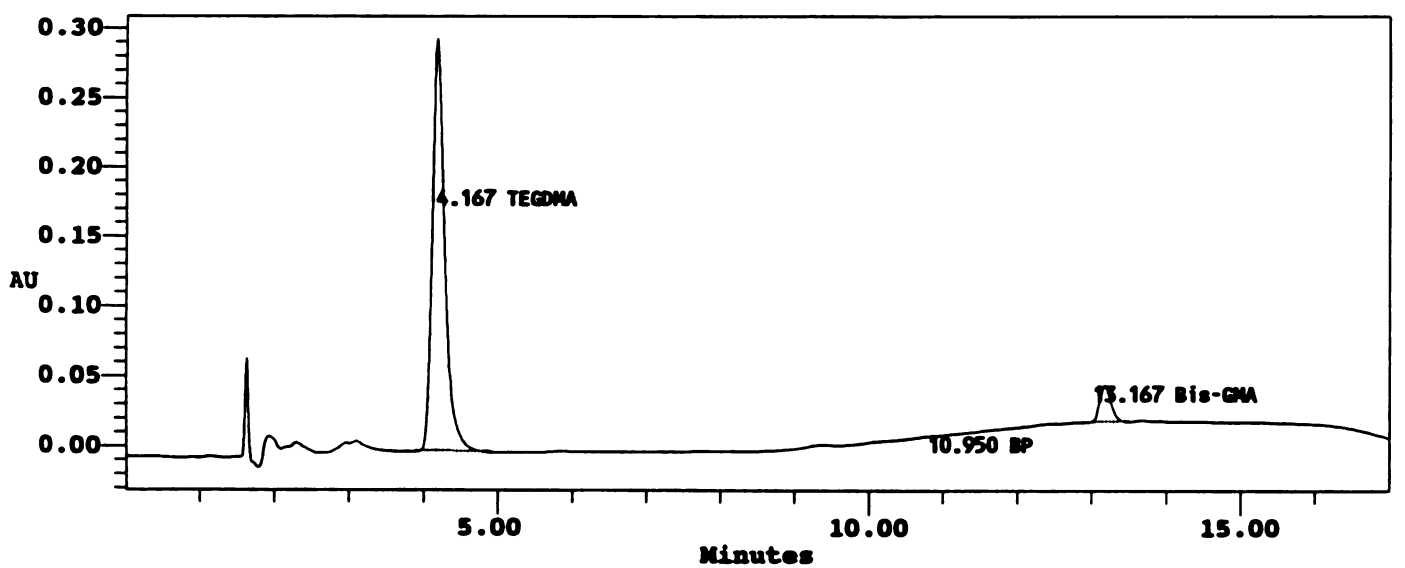


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2959856	250768	0.975	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	379094	36288	0.168	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T3 TOOTH		
Vial:	14	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 10:29 AM	Date Processed:	10/20/93 08:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

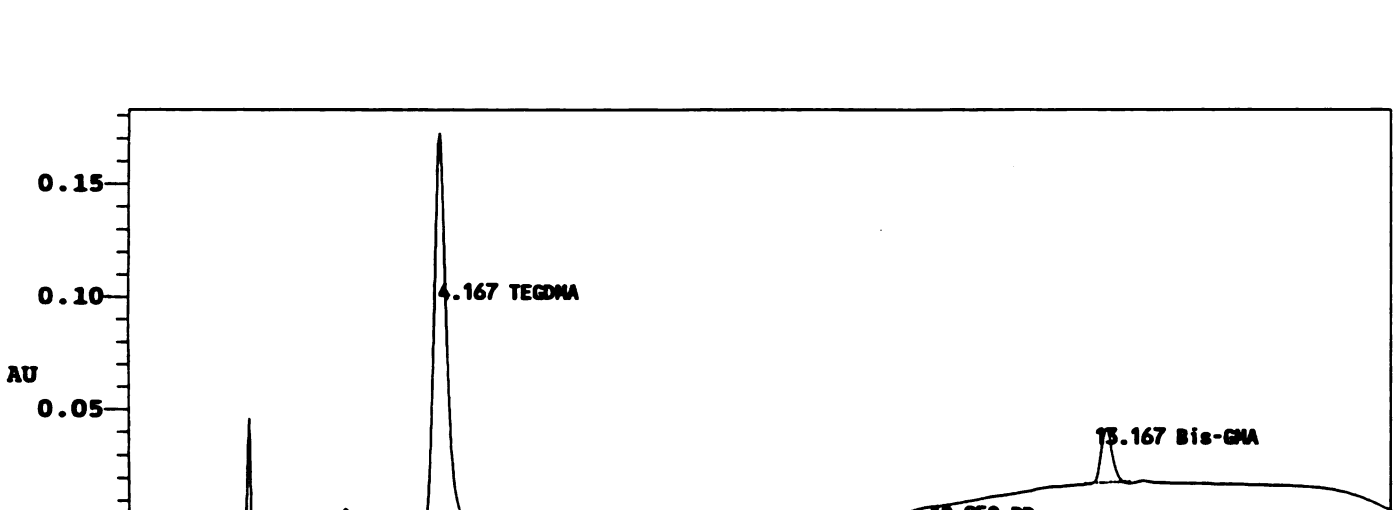
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	3454202	296438	1.138	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	281558	26410	0.125	BB

For Sample: R2S2T4 TOOTH Vial: 20 Inj: 1 Chan: 486 Date Processed 10/20/93 08:40 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T4 TOOTH		
Vial:	20	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 12:22 PM	Date Processed:	10/20/93 08:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

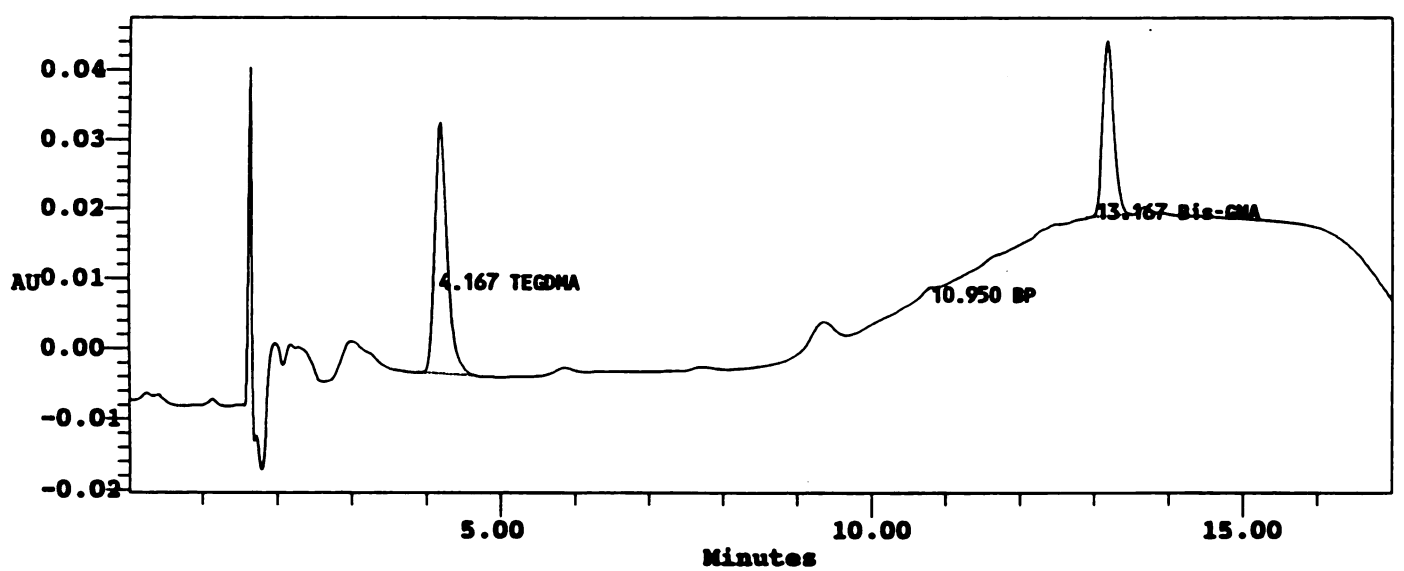


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2112571	176656	0.696	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	255110	24147	0.113	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T5 TOOTH		
Vial:	26	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 02:14 PM	Date Processed:	10/20/93 08:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

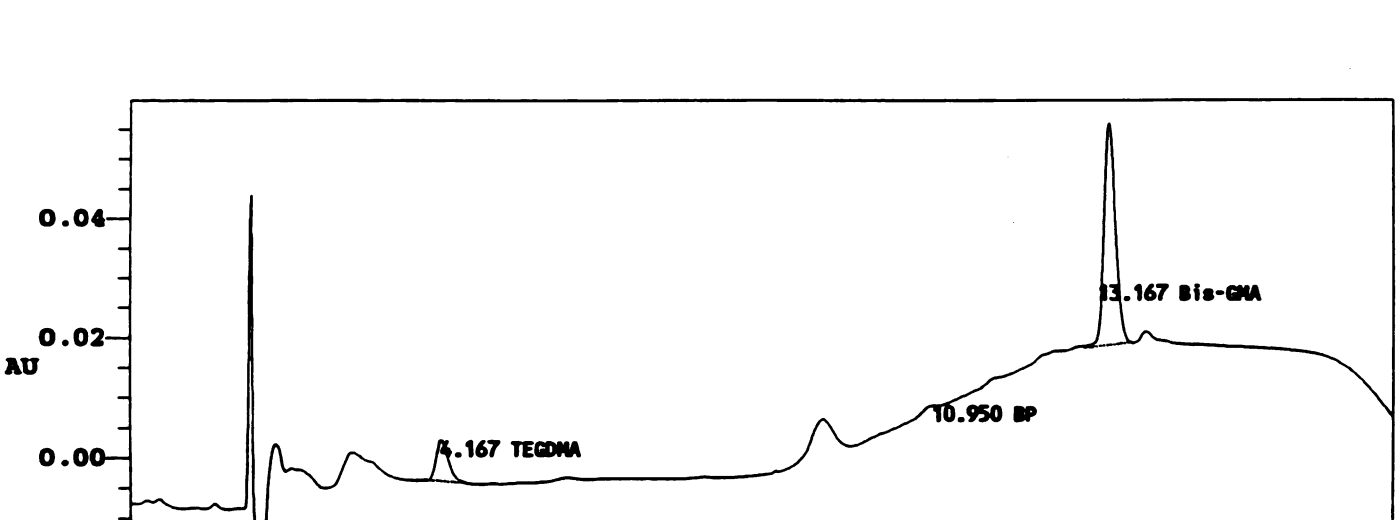


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	417997	36018	0.138	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	265111	25308	0.118	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T6 TOOTH		
Vial:	32	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 04:07 PM	Date Processed:	10/20/93 08:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

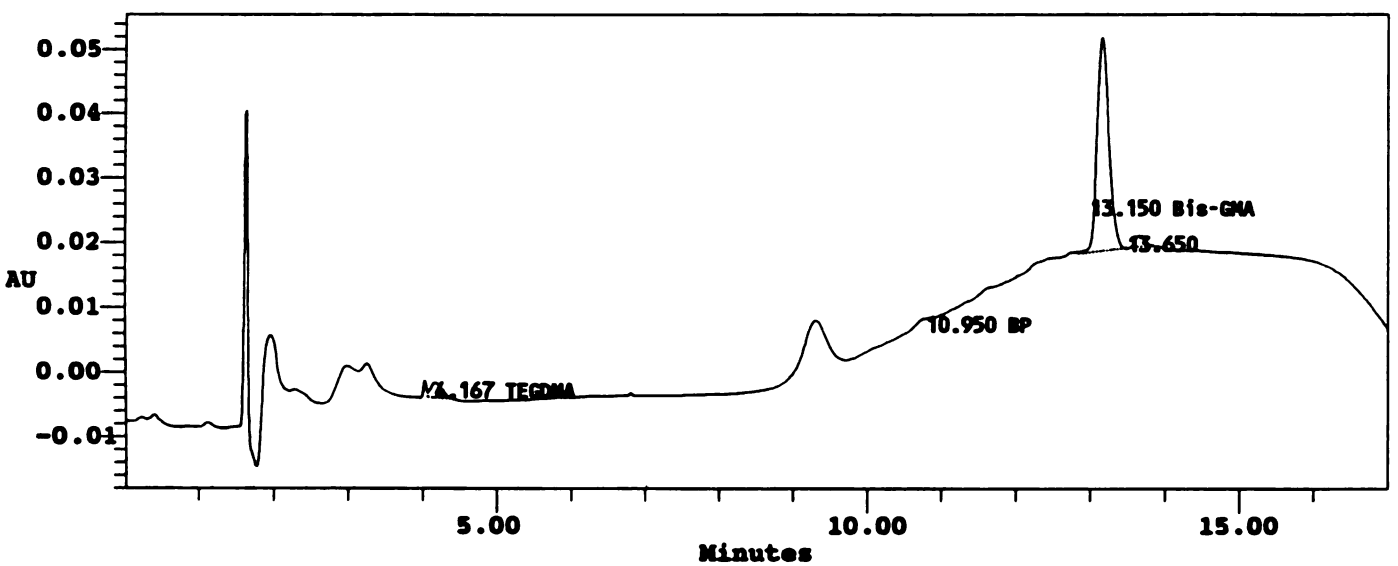
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	79667	6903	0.026	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	404021	37576	0.179	VB

For Sample: R2S2T7 TOOTH Vial: 38 Inj: 1 Chan: 486 Date Processed 10/20/93 08:48 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T7 TOOTH		
Vial:	38	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 05:59 PM	Date Processed:	10/20/93 08:48 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



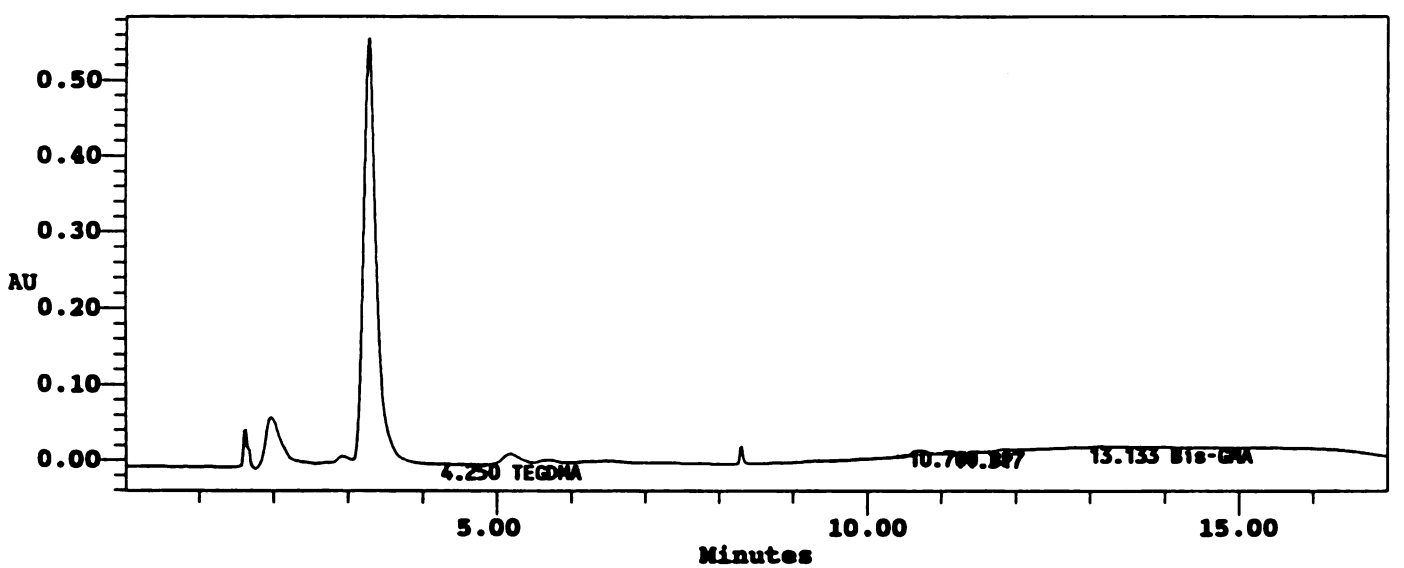
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	28573	2567	0.009	VB
2	BP	10.950				Missing
3	Bis-GMA	13.150	371309	33452	0.165	VV
4		13.650	19334	1923		VB

For Sample: R2S2T8 TOOTH Vial: 44 Inj: 1 Chan: 486 Date Processed 10/20/93 08:51 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T8 TOOTH		
Vial:	44	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 07:52 PM	Date Processed:	10/20/93 08:51 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

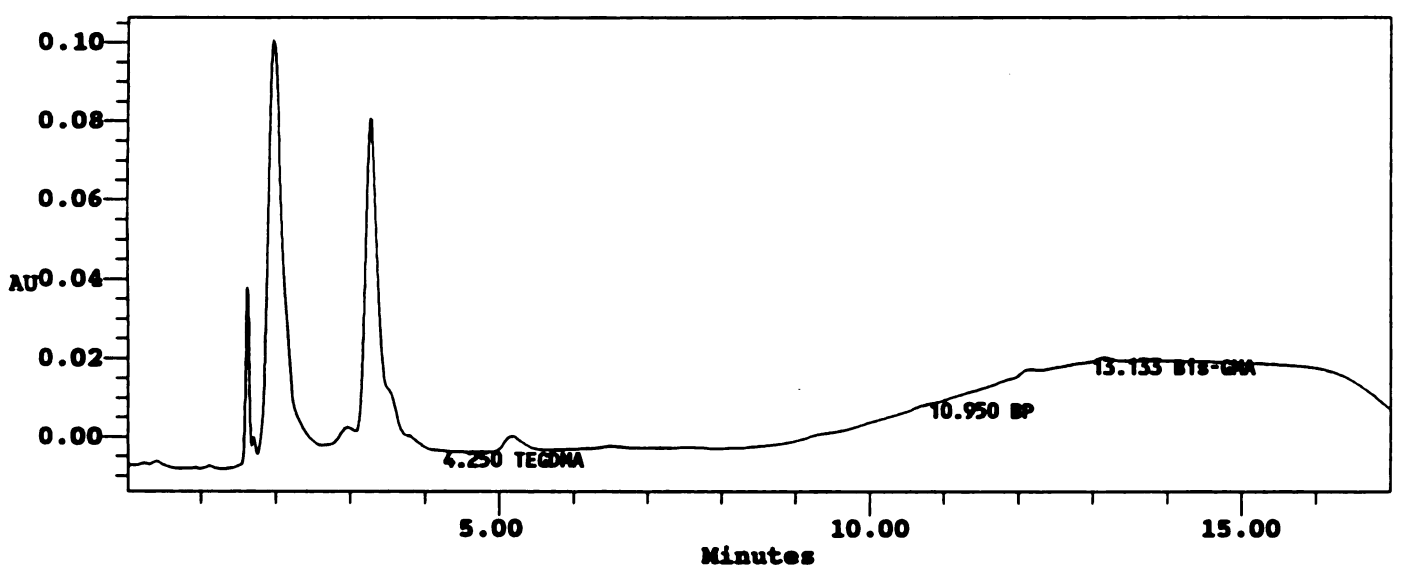


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.700	100694	6978	0.035	BV
3		11.317	23133	1521		VB
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S2T9 TOOTH		
Vial:	50	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 09:45 PM	Date Processed:	10/20/93 08:53 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

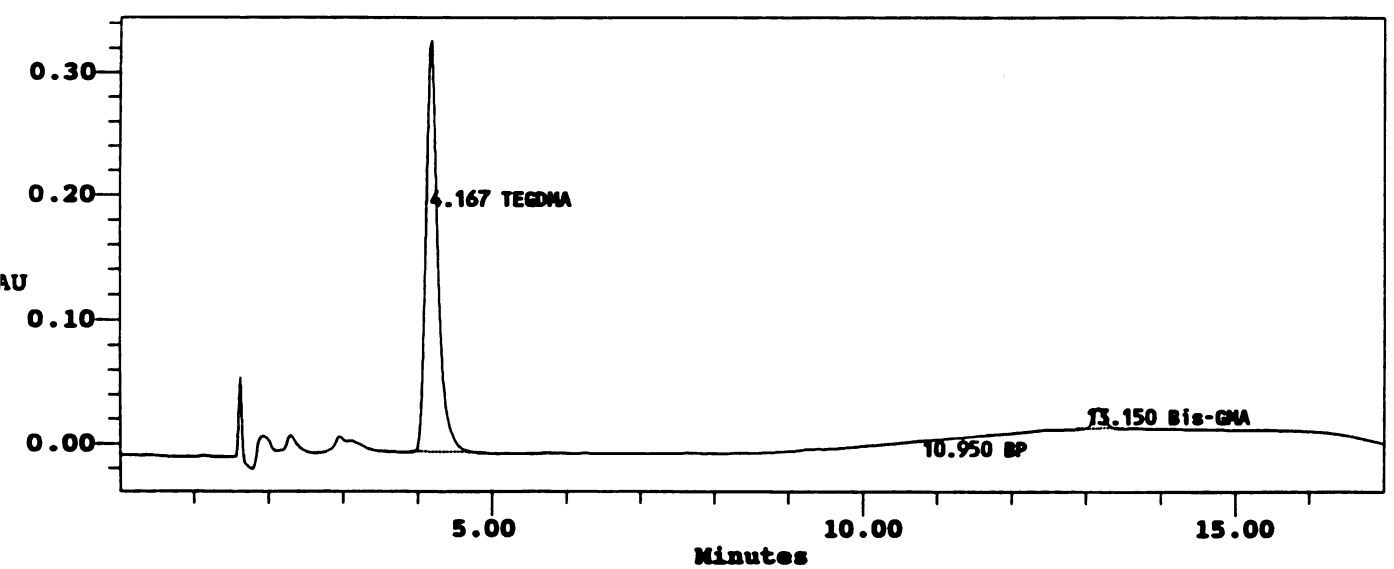


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T1 TOOTH		
Vial:	3	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 07:02 AM	Date Processed:	10/20/93 08:34 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

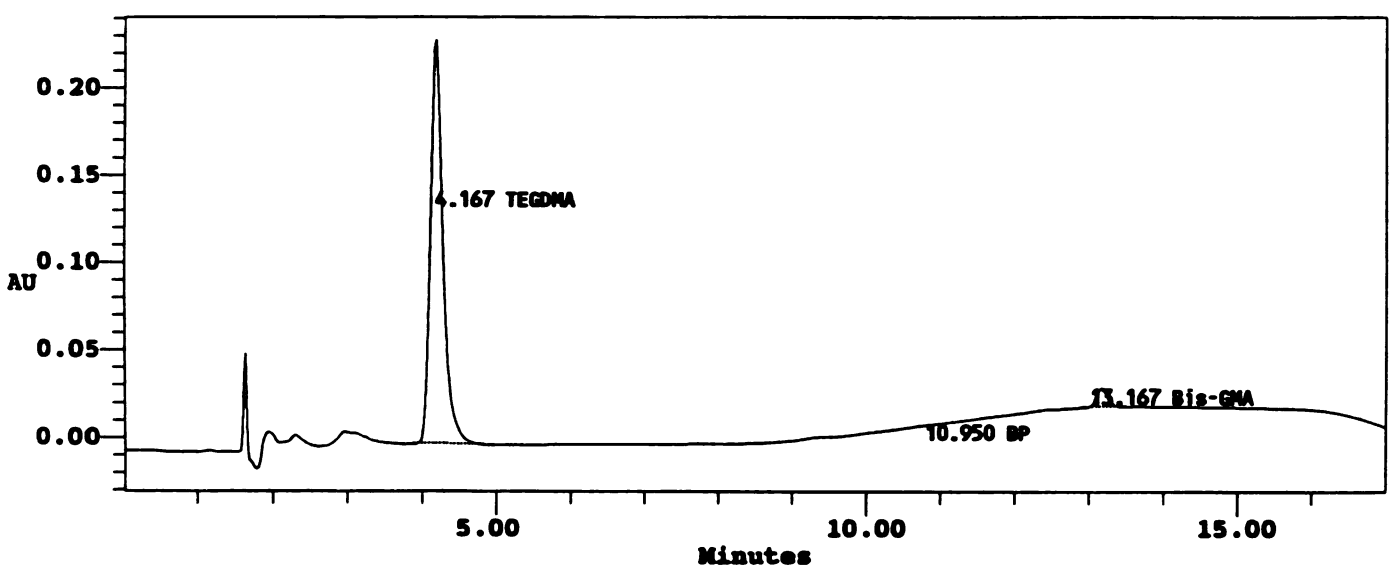


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	3718331	333716	1.225	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	184803	17187	0.082	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T2 TOOTH		
Vial:	9	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 08:55 AM	Date Processed:	10/20/93 08:36 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

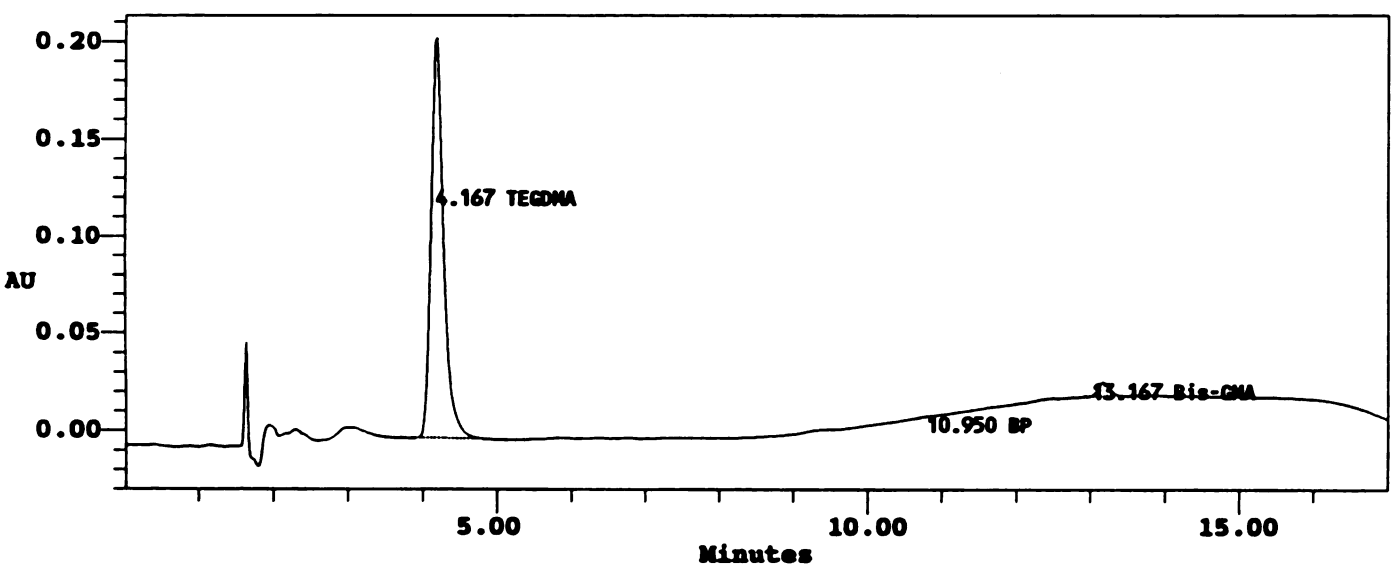


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2727428	231641	0.899	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	116373	10742	0.052	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T3 TOOTH		
Vial:	15	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 10:48 AM	Date Processed:	10/20/93 08:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

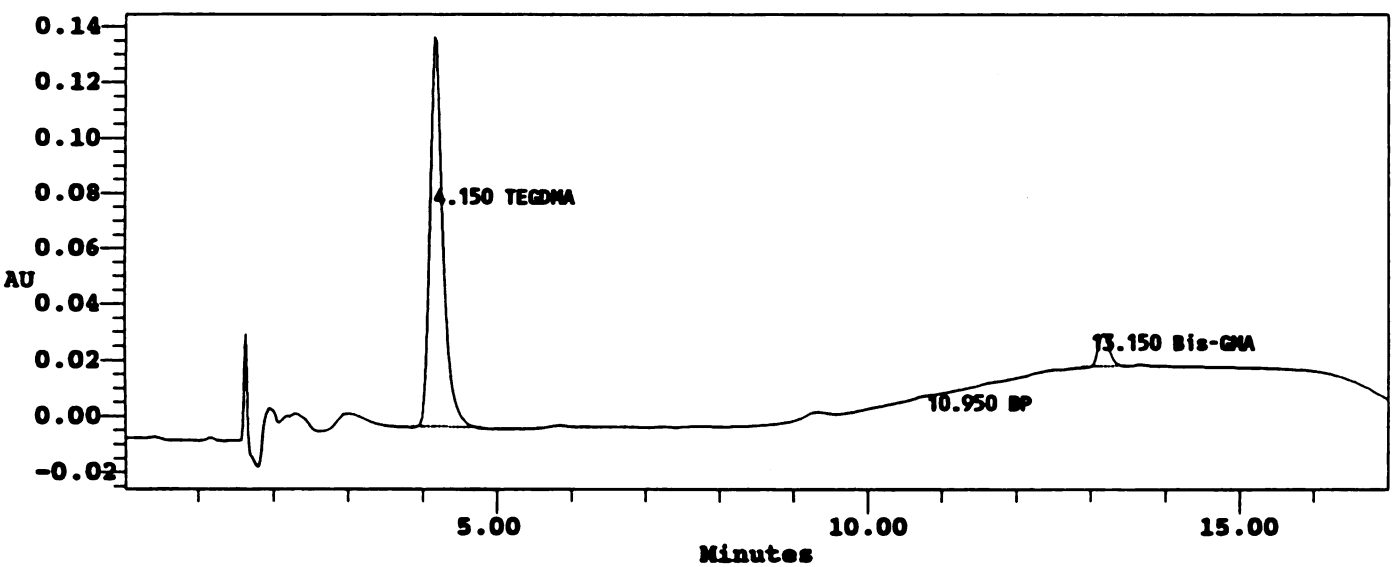


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2410823	205850	0.794	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	76912	7059	0.034	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T4 TOOTH		
Vial:	21	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 12:40 PM	Date Processed:	10/20/93 08:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

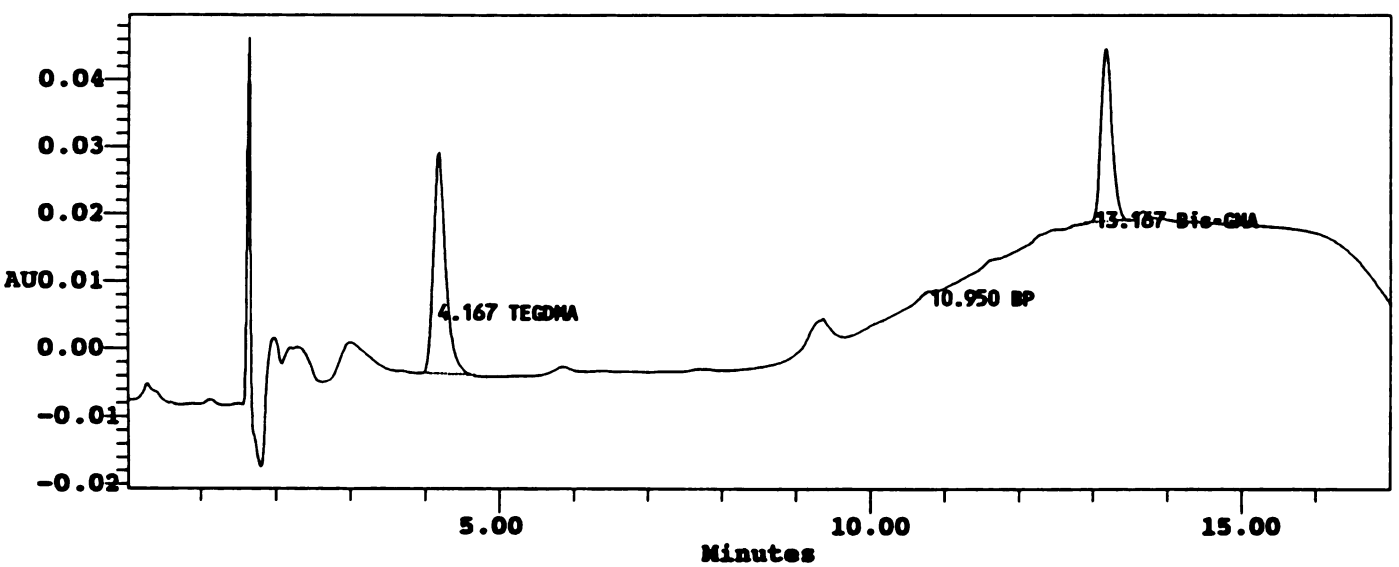


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1703048	140260	0.561	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	126261	11717	0.056	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T5 TOOTH		
Vial:	27	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 02:33 PM	Date Processed:	10/20/93 08:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

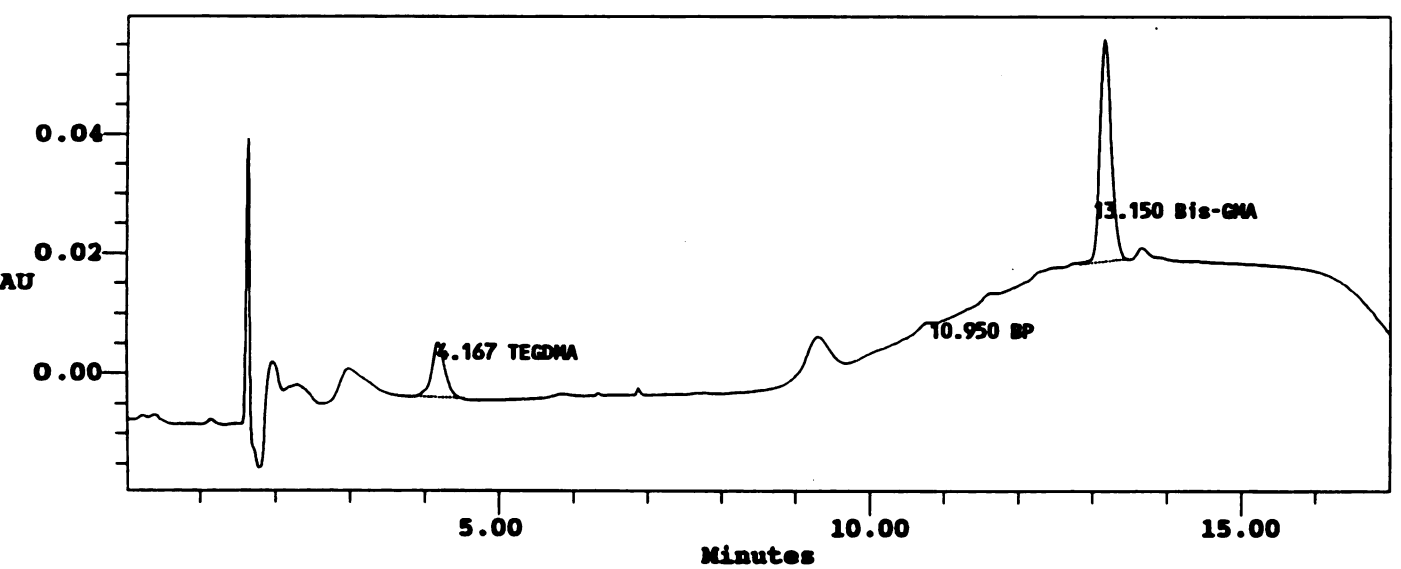


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	377260	32882	0.124	BB
2	BP	10.950			.	Missing
3	Bis-GMA	13.167	269999	25829	0.120	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T6 TOOTH		
Vial:	33	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 04:26 PM	Date Processed:	10/20/93 08:46 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

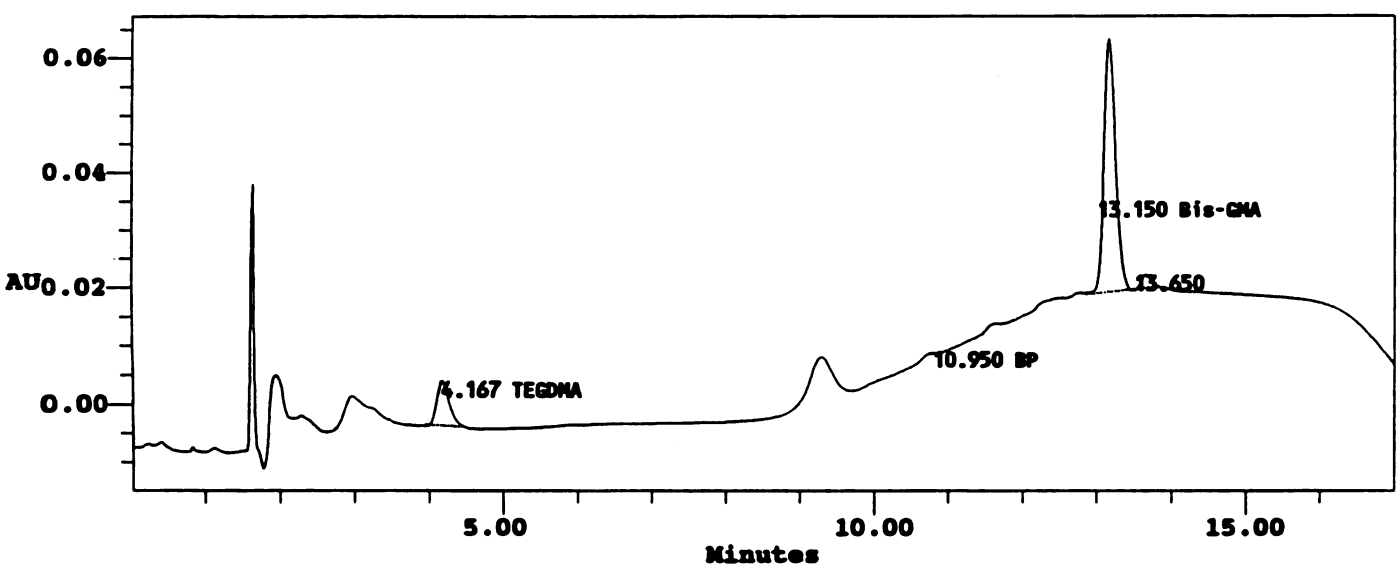


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	114886	9151	0.038	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	402054	37443	0.178	VB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T7 TOOTH		
Vial:	39	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 06:18 PM	Date Processed:	10/20/93 08:48 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

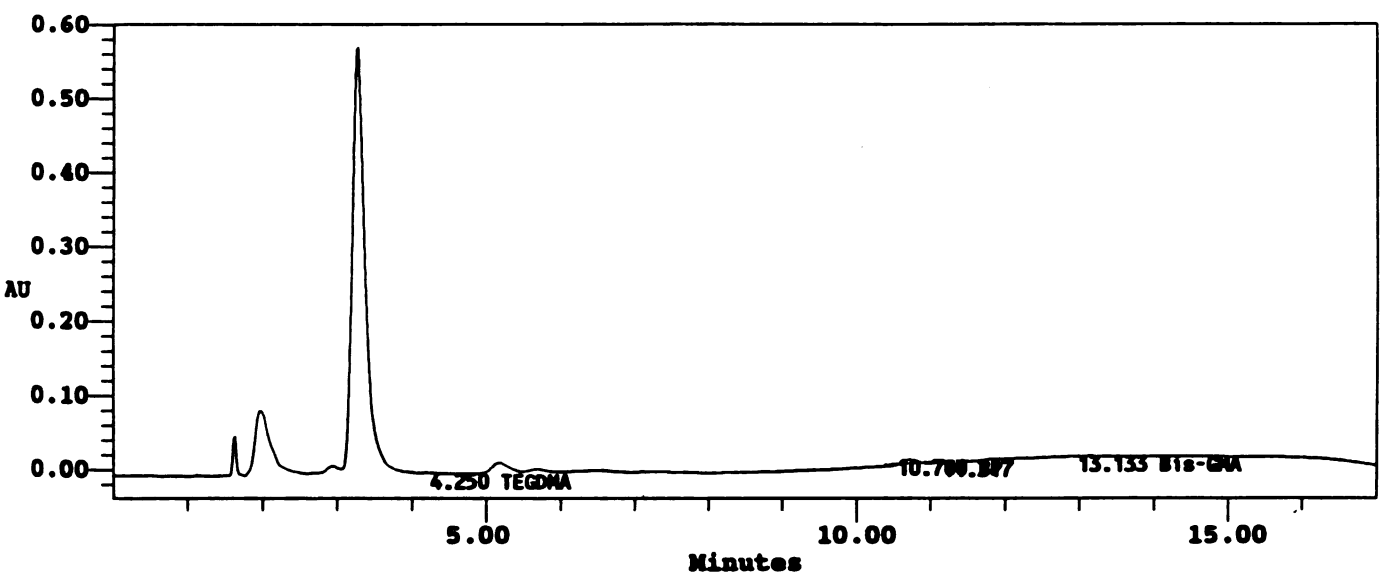


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	92925	7789	0.031	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	486024	44309	0.215	VB
4		13.650	24421	2500		BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T8 TOOTH		
Vial:	45	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 08:11 PM	Date Processed:	10/20/93 08:51 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

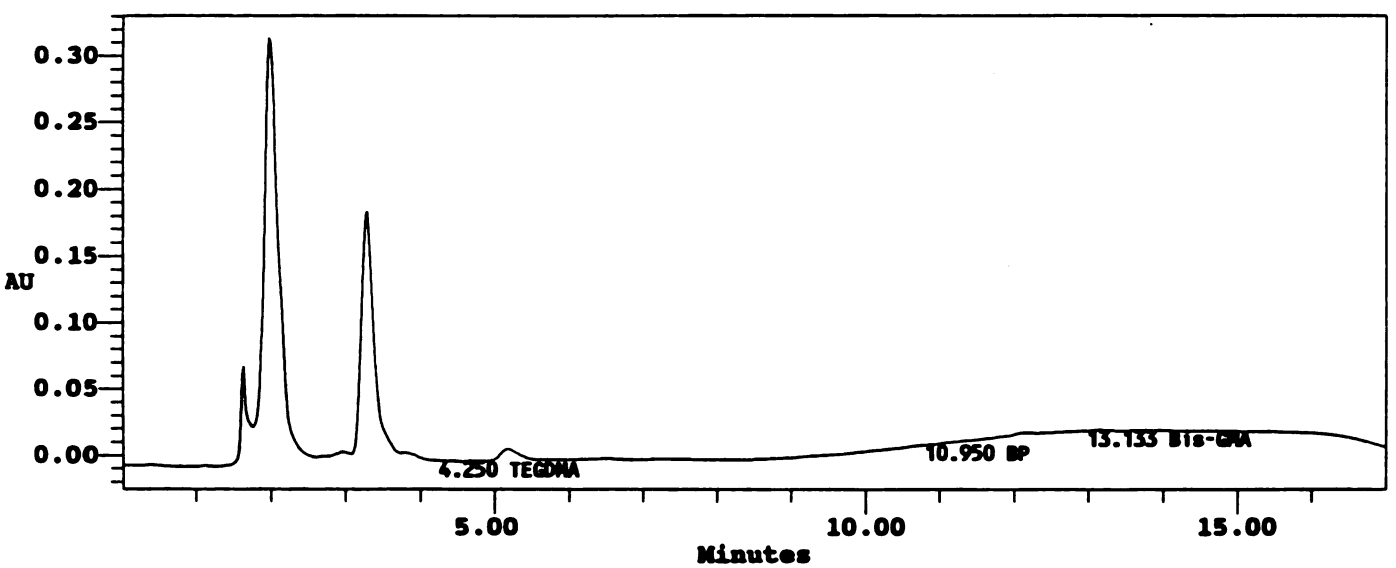
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.700	106335	6999	0.037	BV
3		11.317	19503	1603		VB
4	Bis-GMA	13.133				Missing

For Sample: R2S3T9 TOOTH Vial: 51 Inj: 1 Chan: 486 Date Processed 10/20/93 08:53 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T9 TOOTH		
Vial:	51	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 10:04 PM	Date Processed:	10/20/93 08:53 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

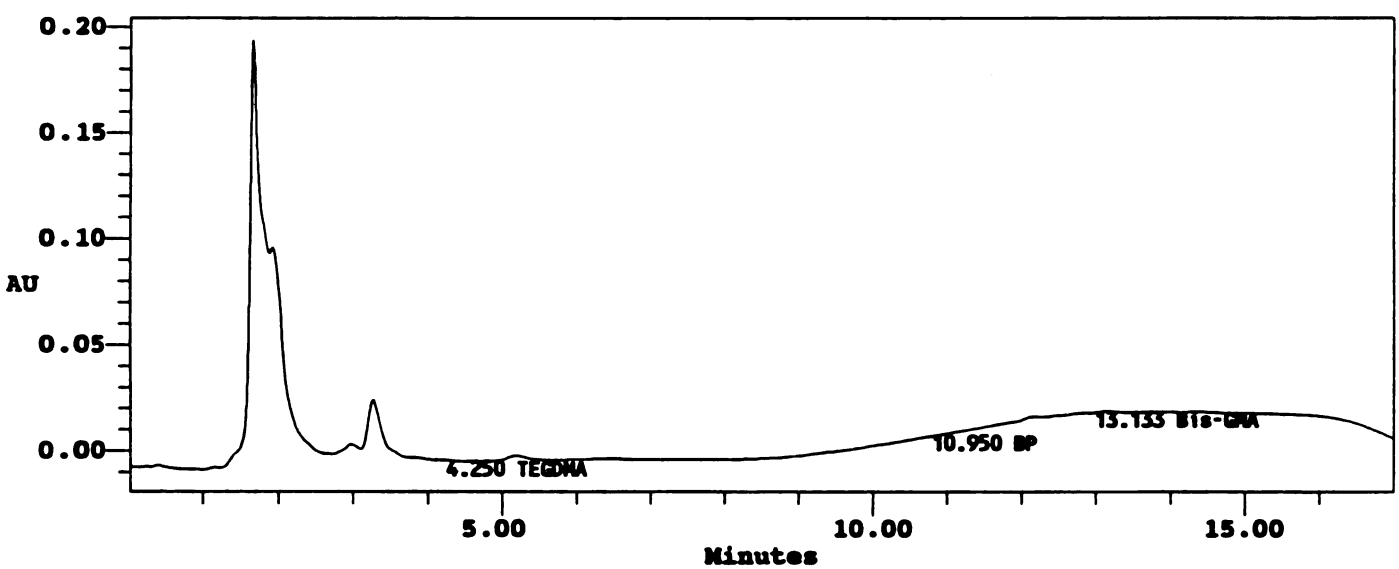


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S3T10 TOOTH		
Vial:	57	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 11:56 PM	Date Processed:	10/20/93 08:55 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

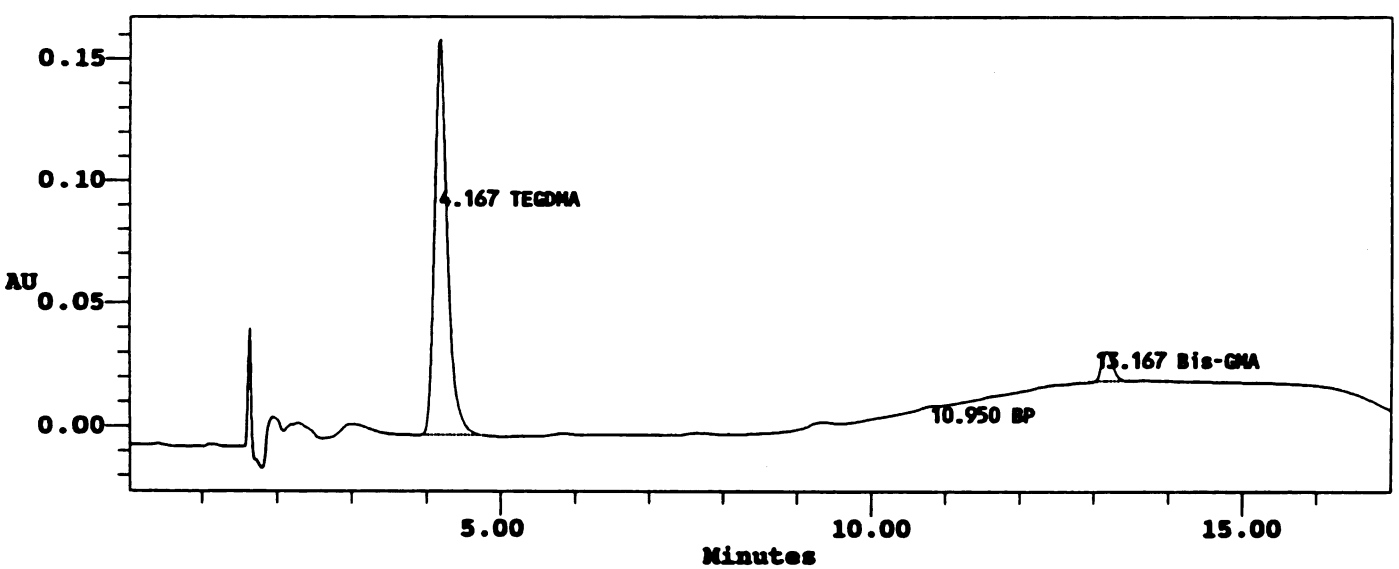


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T4 TOOTH		
Vial:	22	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 12:59 PM	Date Processed:	10/20/93 08:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

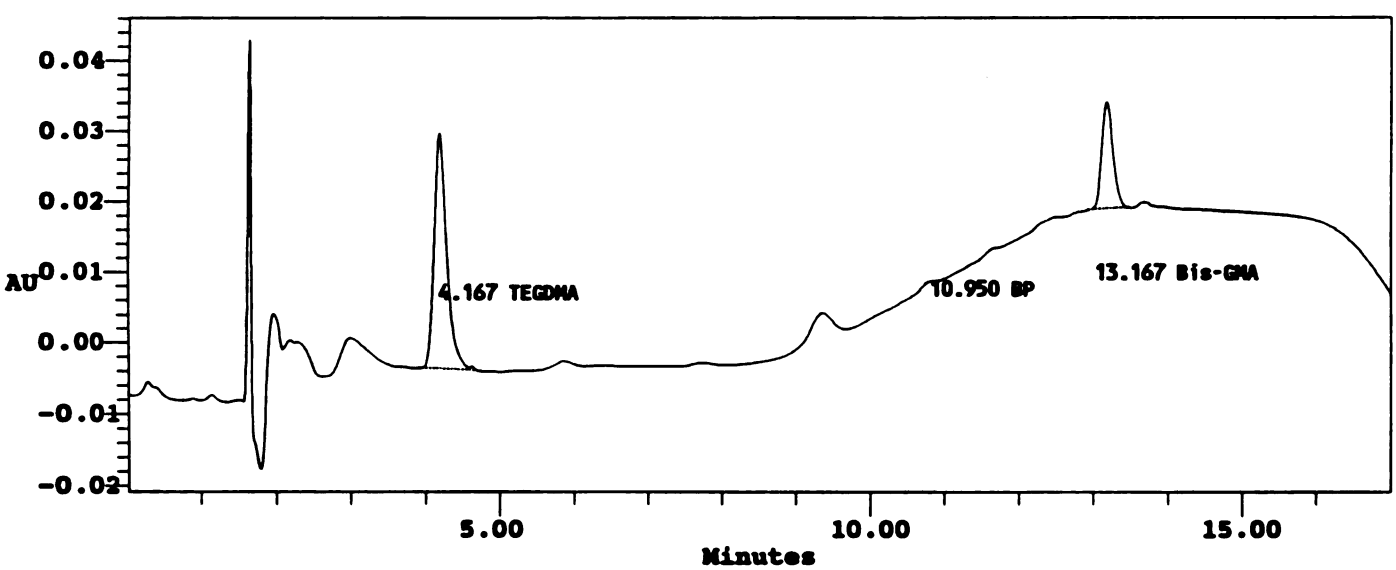
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	1936702	161871	0.638	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	131975	12324	0.059	BB

For Sample: R2S4T5 TOOTH Vial: 28 Inj: 1 Chan: 486 Date Processed 10/20/93 08:44 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T5 TOOTH		
Vial:	28	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 02:52 PM	Date Processed:	10/20/93 08:44 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

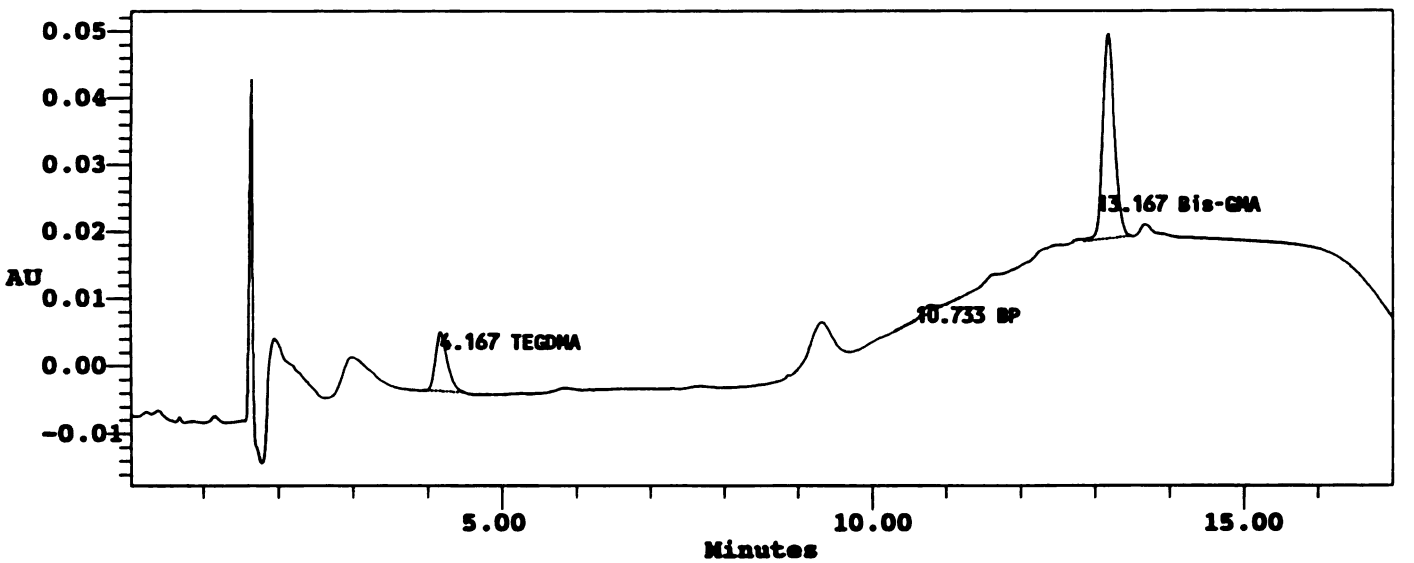


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	396014	33456	0.130	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	161262	15307	0.071	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T6 TOOTH		
Vial:	34	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 04:44 PM	Date Processed:	10/20/93 08:46 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

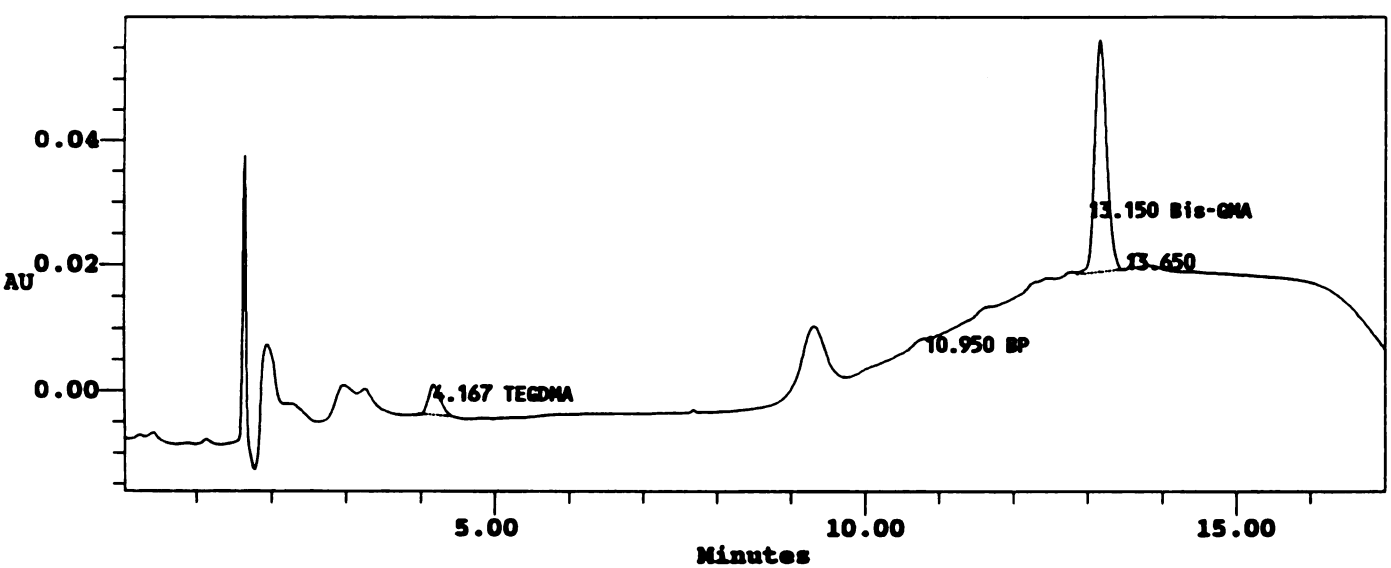


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	100072	8709	0.033	BB
2	BP	10.733	17288	1278	0.006	BB
3	Bis-GMA	13.167	337035	30871	0.149	VB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T7 TOOTH		
Vial:	40	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 06:37 PM	Date Processed:	10/20/93 08:49 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

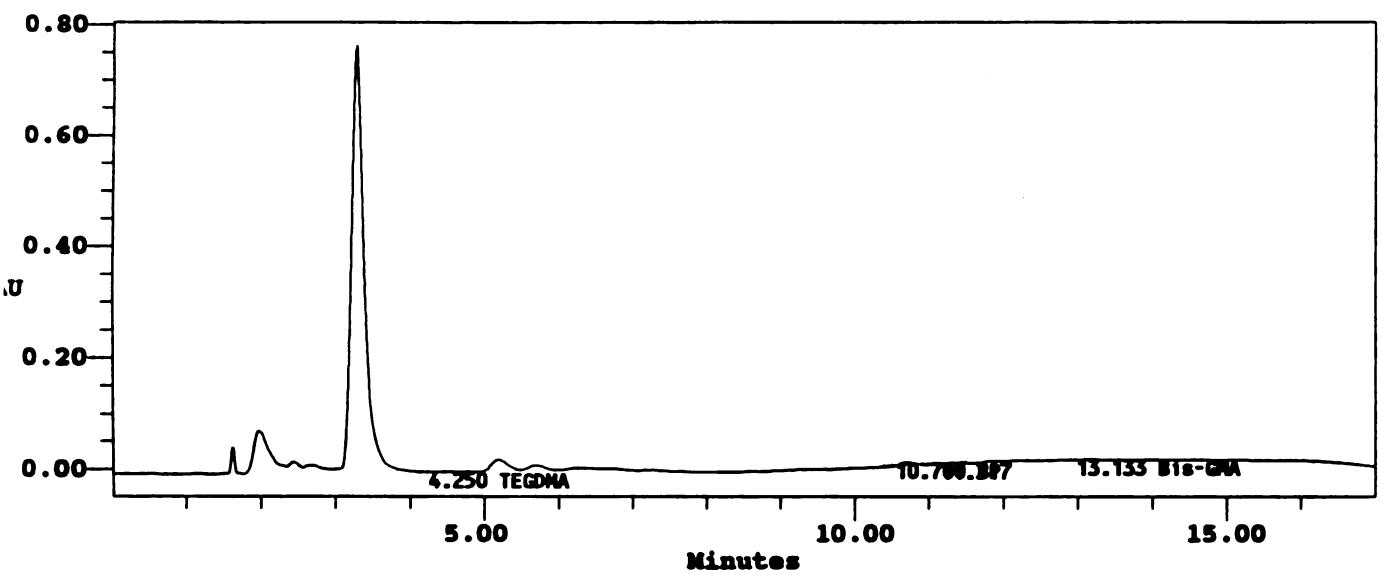


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	58269	4946	0.019	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	418195	37611	0.185	VV
4		13.650	23573	2386		VB

Millennium Sample Information

roject Name:	MIKE_ISO		
ample Name:	R2S4T8 TOOTH		
ial:	46	Sample Type:	Unknown
njection:	1	Volume:	100.00
hannel:	486	Run Time:	17.0 min
ate Acquired:	09/06/93 08:30 PM	Date Processed:	10/20/93 08:51 AM
cale Factor:	1.00	Dilution:	1.00000
cq Meth Set:	TMG_one_meth_set		
rocessing Method:	ortho_2_integrate		

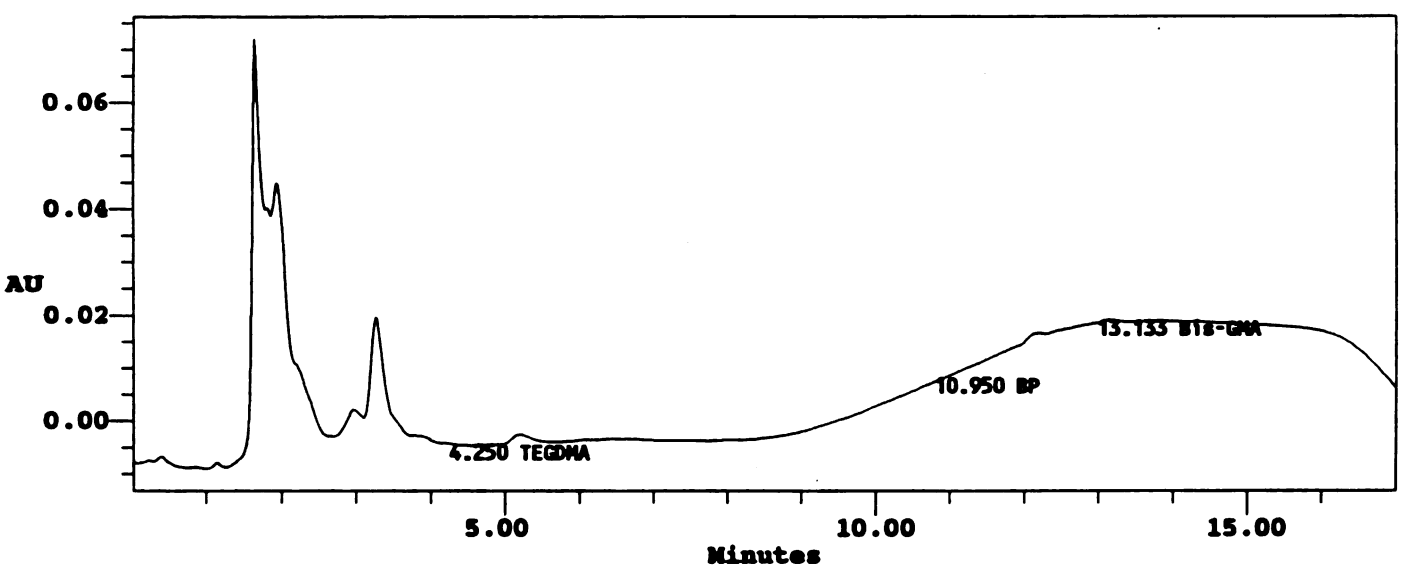


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.700	94683	6772	0.033	BV
3		11.317	25997	1570		VB
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S4T10 TOOTH		
Vial:	58	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 12:15 AM	Date Processed:	10/20/93 08:56 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

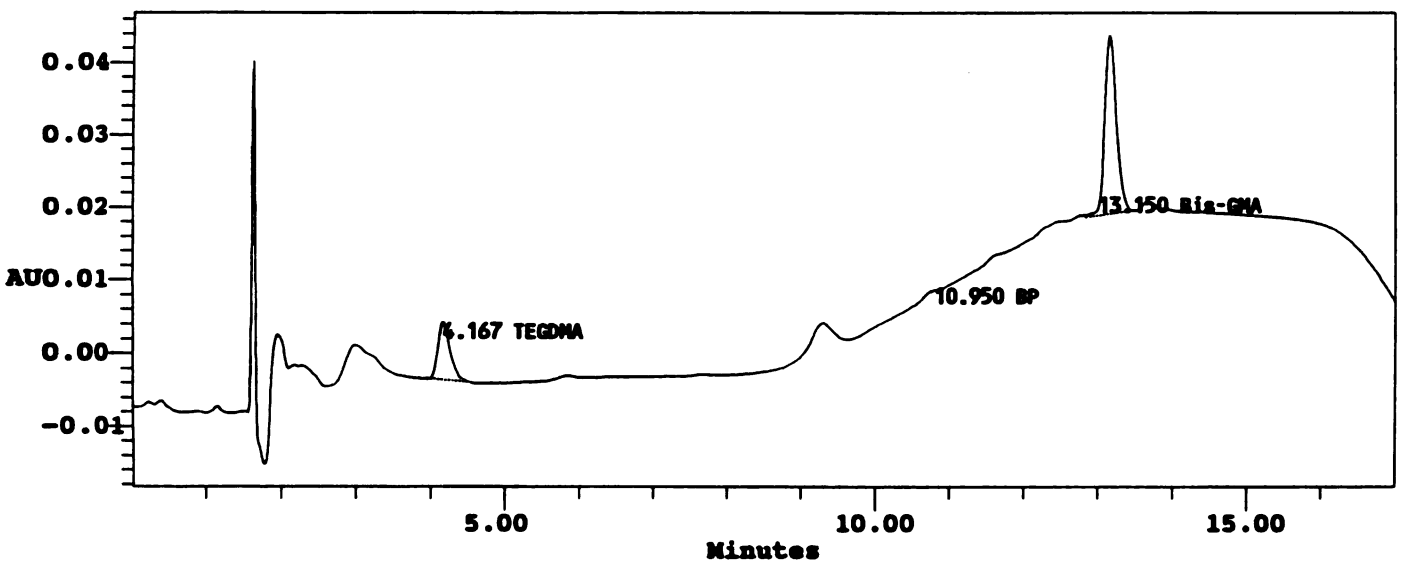
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R2S5T6 TOOTH Vial: 35 Inj: 1 Chan: 486 Date Processed 10/20/93 08:47 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T6 TOOTH		
Vial:	35	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 05:03 PM	Date Processed:	10/20/93 08:47 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

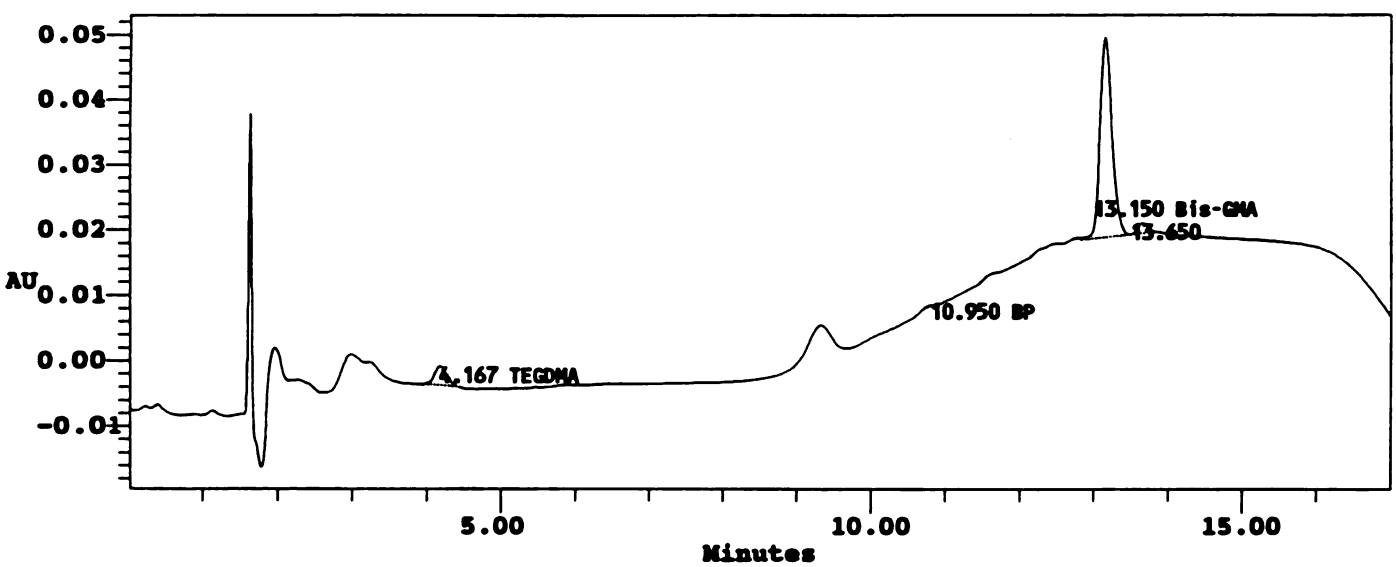


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	91138	7882	0.030	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	273250	24928	0.121	VB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T7 TOOTH		
Vial:	41	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 06:56 PM	Date Processed:	10/20/93 08:49 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

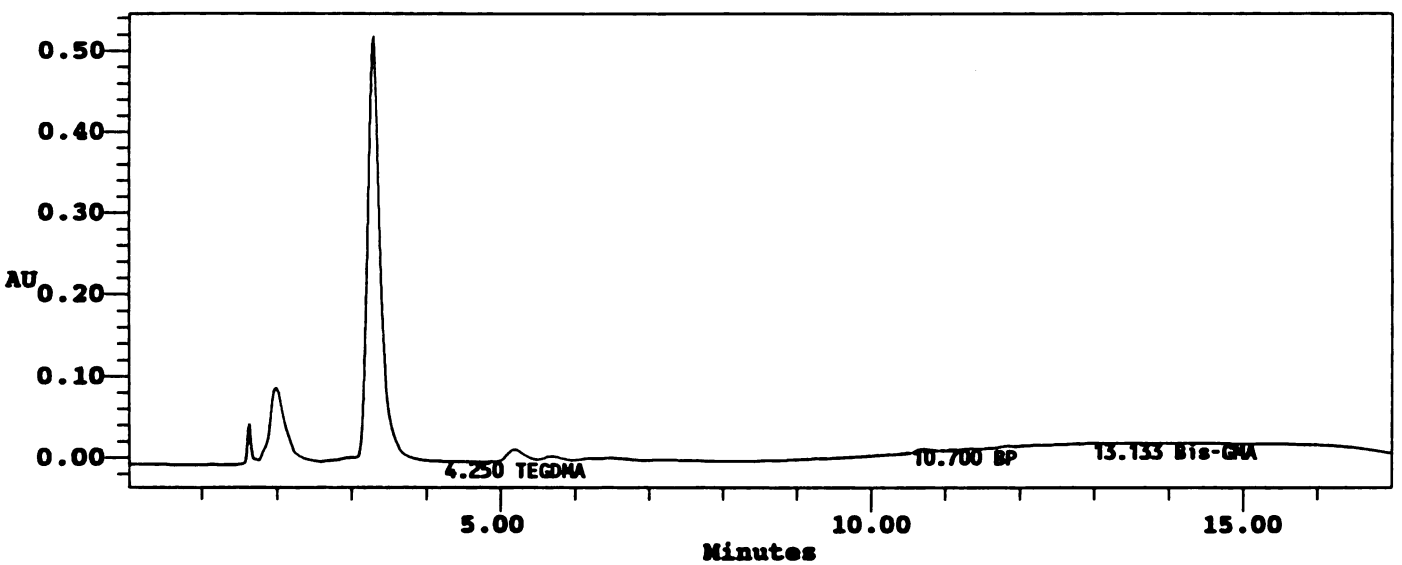
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	36114	2993	0.012	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	348033	30776	0.154	VV
4		13.650	17354	1676		VB

For Sample: R2S5T8 TOOTH Vial: 47 Inj: 1 Chan: 486 Date Processed 10/20/93 08:52 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T8 TOOTH		
Vial:	47	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 08:48 PM	Date Processed:	10/20/93 08:52 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

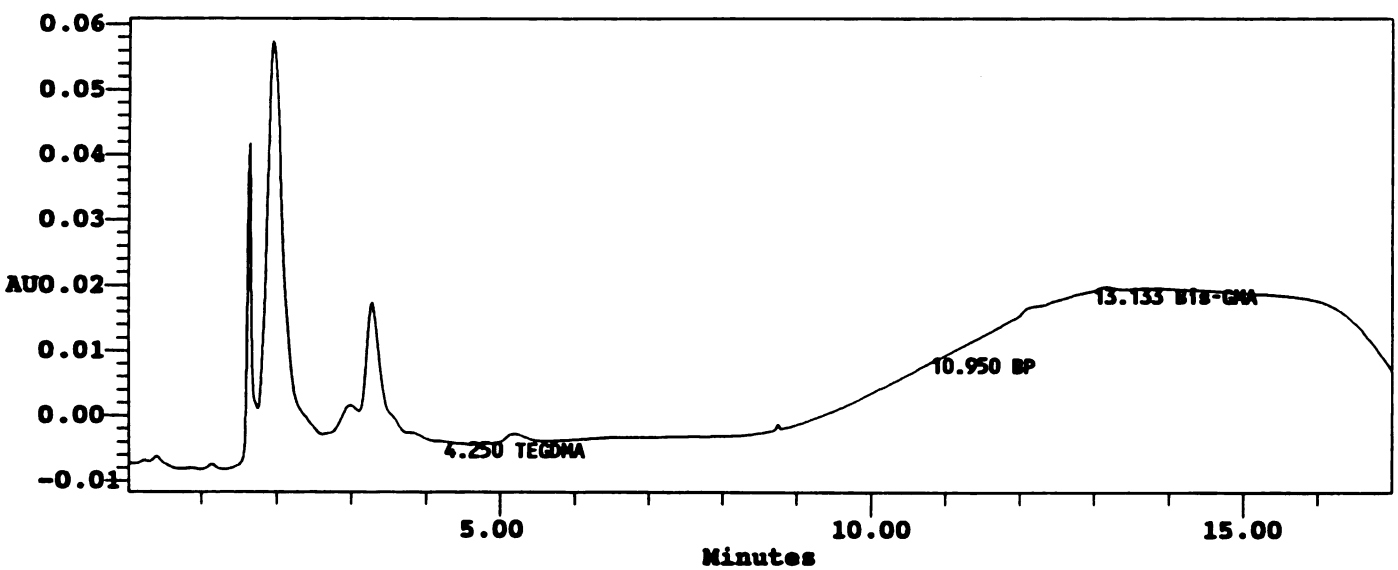


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.700	67889	4824	0.023	BV
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T9 TOOTH		
Vial:	53	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 10:41 PM	Date Processed:	10/20/93 08:54 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

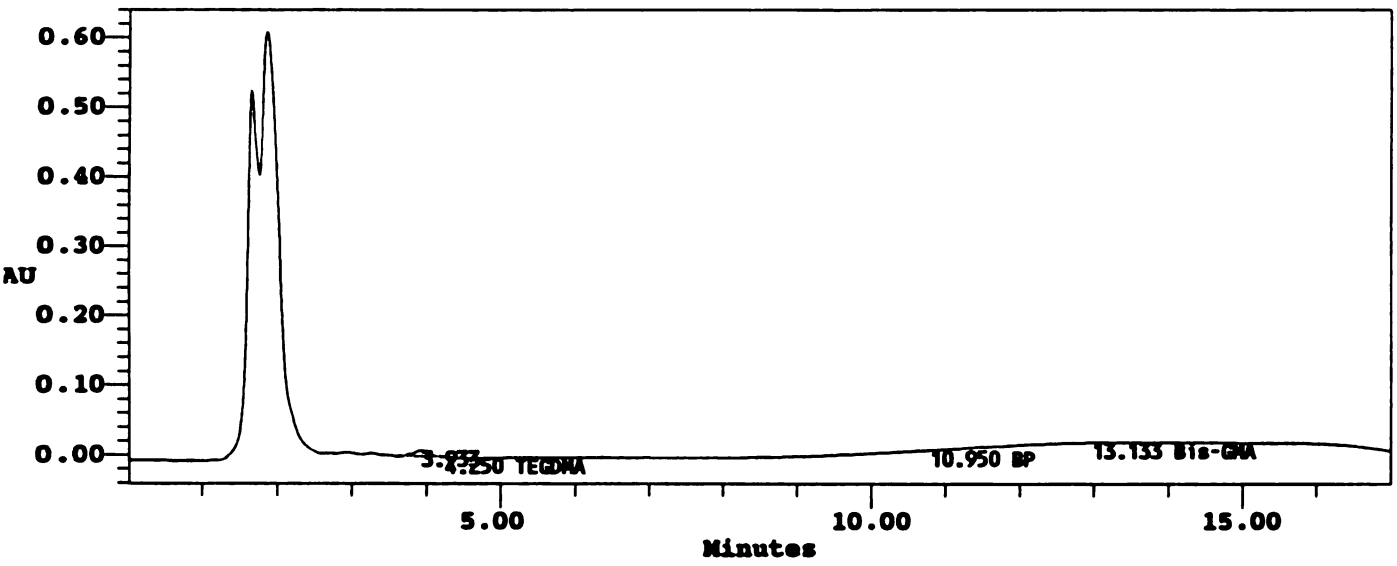


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S5T10 TOOTH		
Vial:	59	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 12:34 AM	Date Processed:	10/20/93 08:56 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



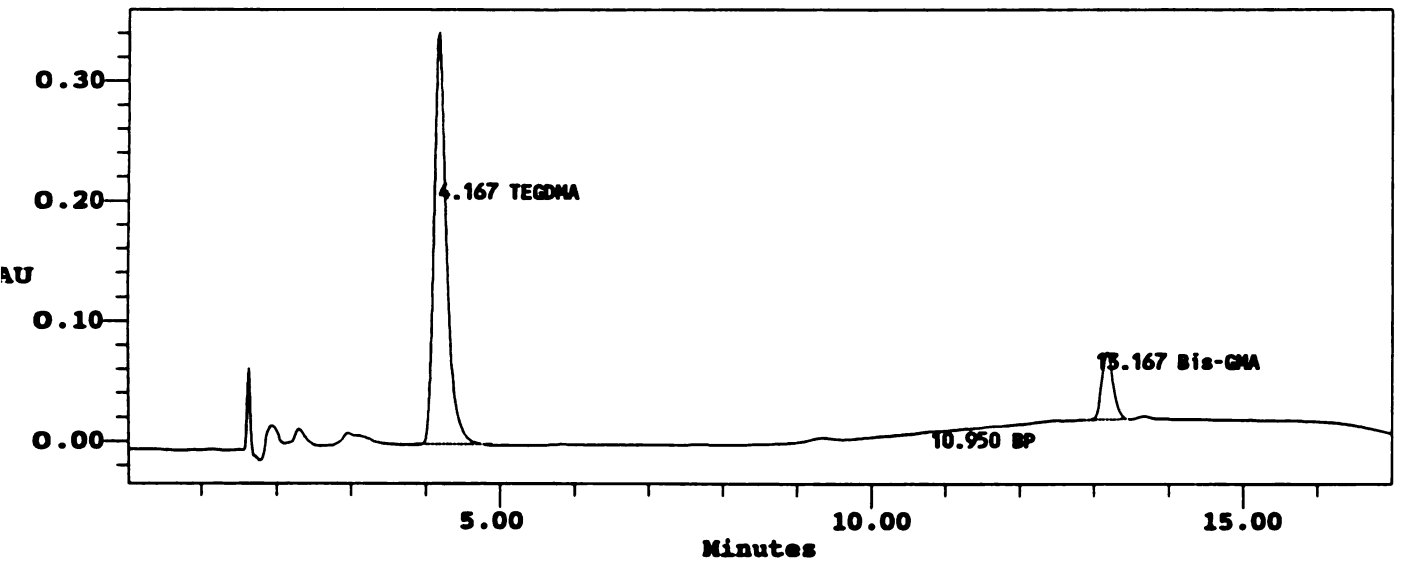
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.933	150413	9702		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Results Report: Default Proc Chan: 486 Page 1
For Sample: R2S6T1 TOOTH Vial: 6 Inj: 1 Chan: 486 Date Processed 10/20/93 08:35 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T1 TOOTH		
Vial:	6	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 07:59 AM	Date Processed:	10/20/93 08:35 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

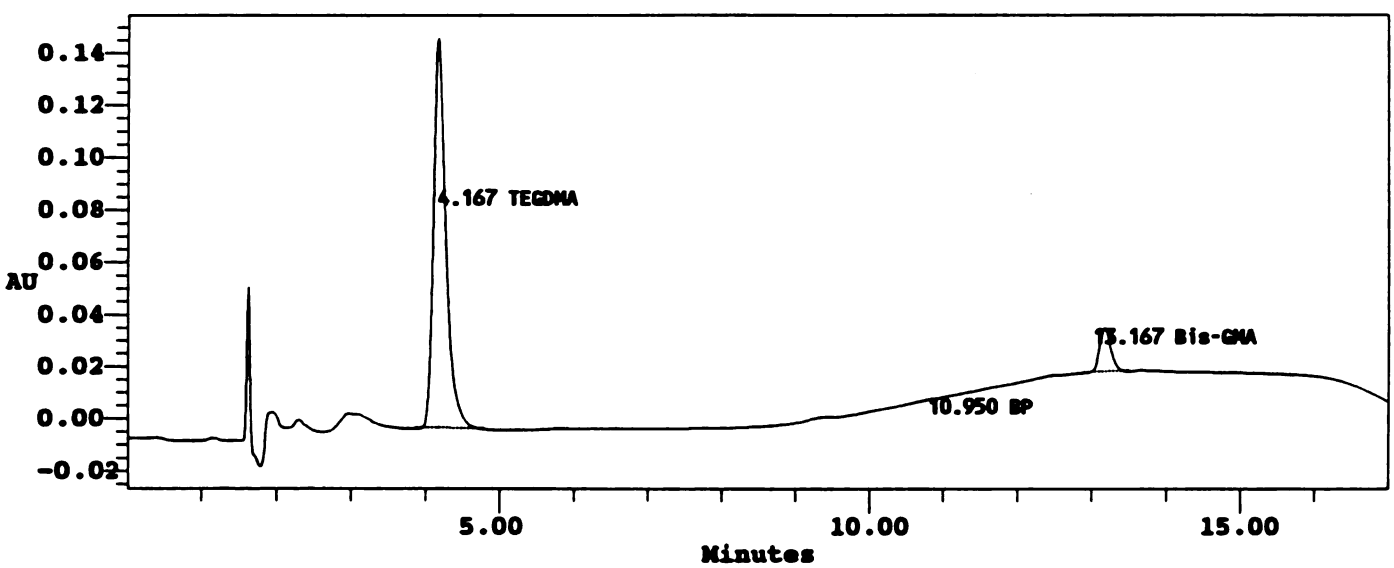


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	4017944	344134	1.324	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	605937	56097	0.269	VB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T2 TOOTH		
Vial:	12	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 09:51 AM	Date Processed:	10/20/93 08:37 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

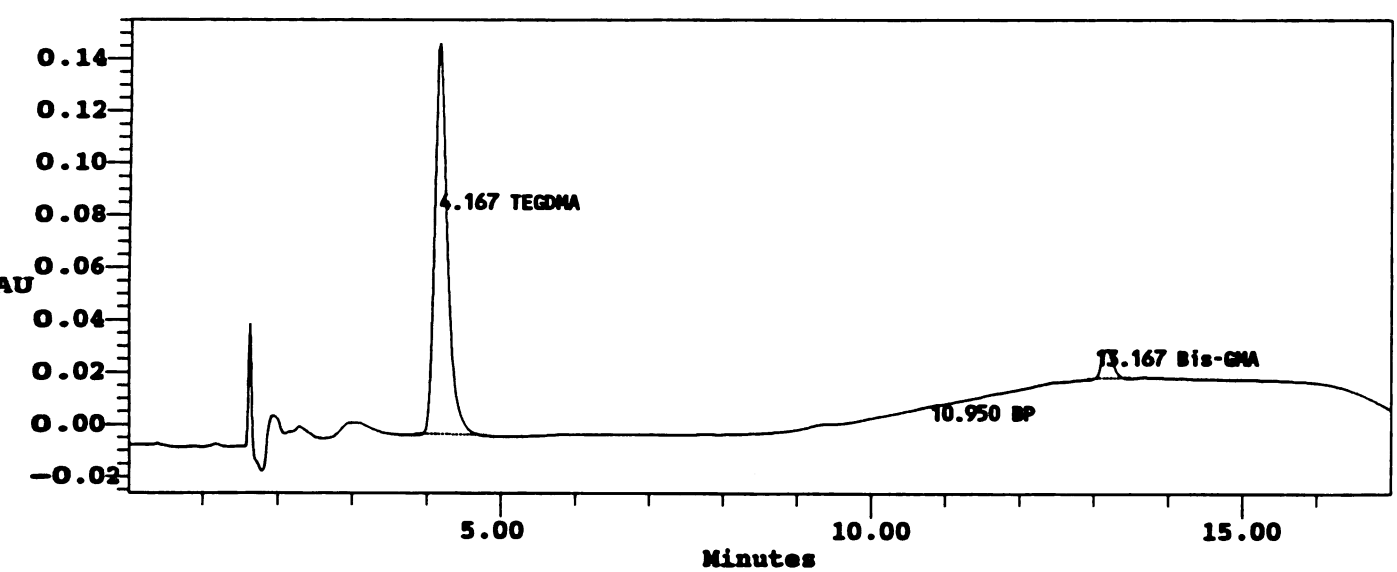


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	1753657	149766	0.578	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	183763	17132	0.081	BB

M i l l e n n i u m S a m p l e I n f o r m a t i o n

Project Name:	MIKE_ISO		
Sample Name:	R2S6T3 TOOTH		
Vial:	18	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 11:44 AM	Date Processed:	10/20/93 08:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

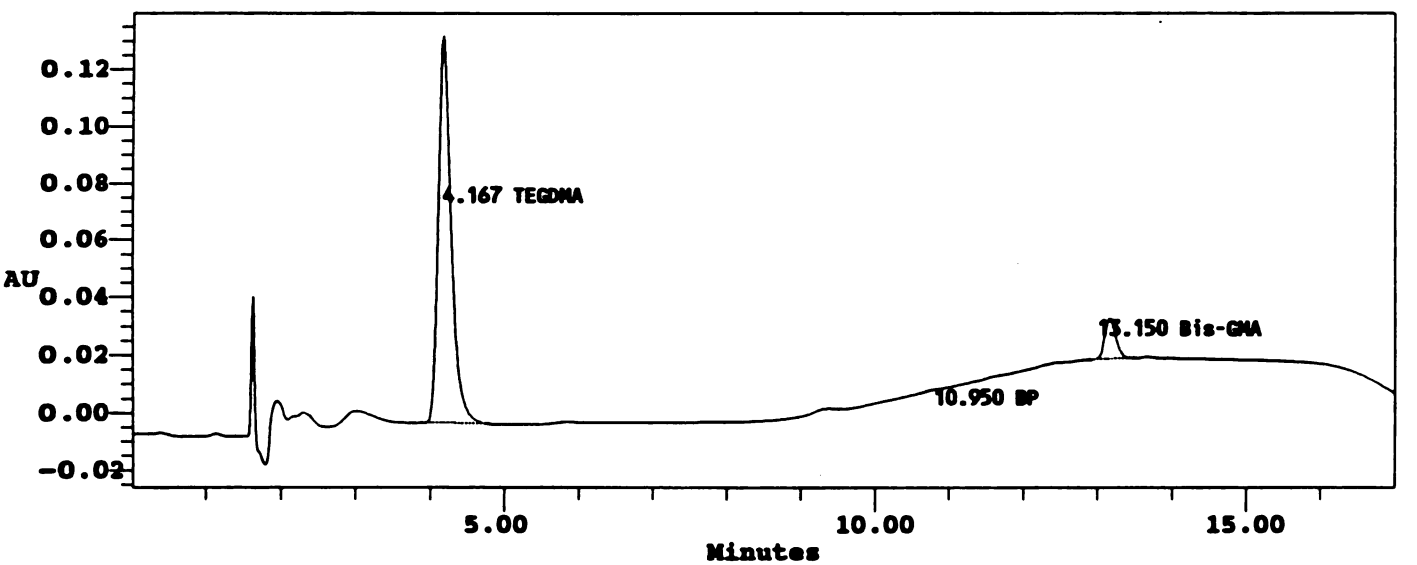


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	1800746	150526	0.593	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	123267	11469	0.055	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T4 TOOTH		
Vial:	24	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 01:37 PM	Date Processed:	10/20/93 08:42 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

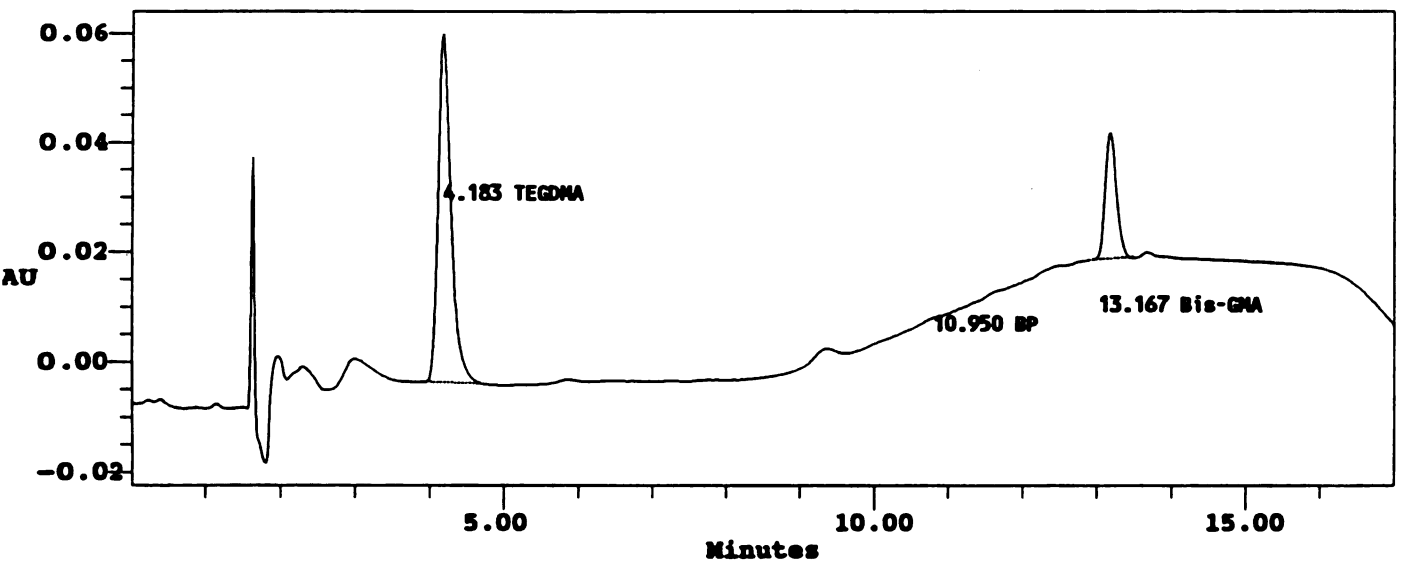


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	1628552	135451	0.537	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	149025	13973	0.066	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T5 TOOTH		
Vial:	30	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 03:29 PM	Date Processed:	10/20/93 08:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



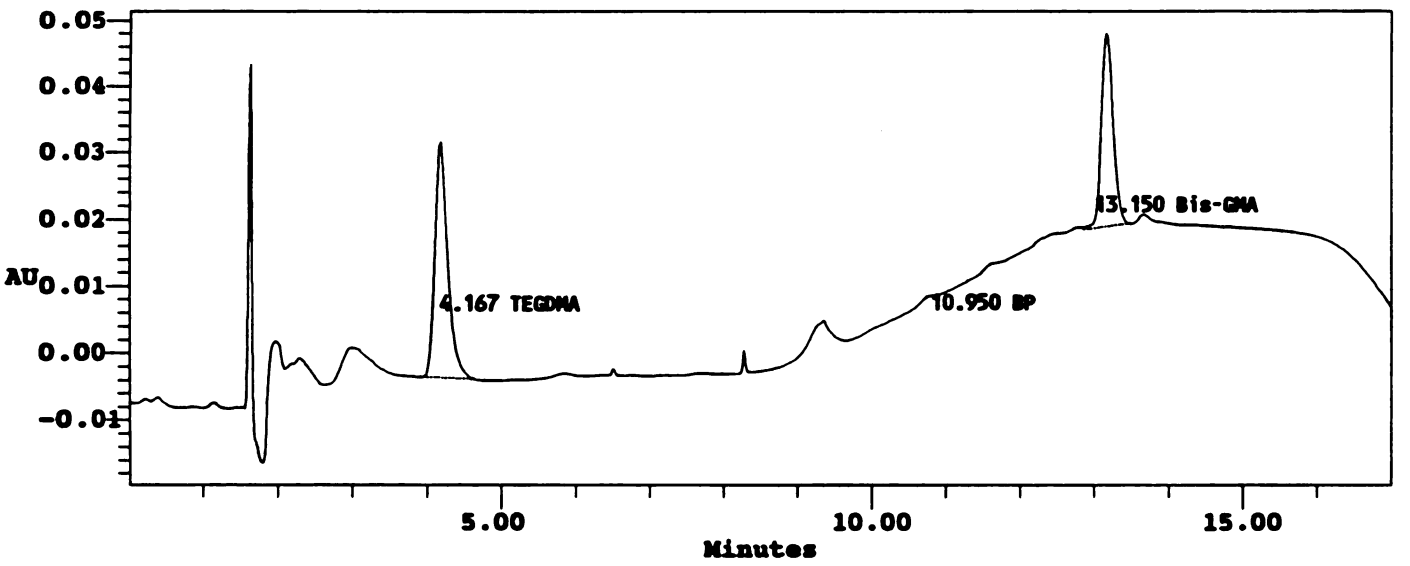
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	771096	63842	0.254	BB
2	BP	10.950				Missing
3	Bis-GMA	13.167	245622	23250	0.109	BB

Millennium Results Report: Default Proc Chan: 486 Page 1
For Sample: R2S6T6 TOOTH Vial: 36 Inj: 1 Chan: 486 Date Processed 10/20/93 08:47 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T6 TOOTH		
Vial:	36	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 05:22 PM	Date Processed:	10/20/93 08:47 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

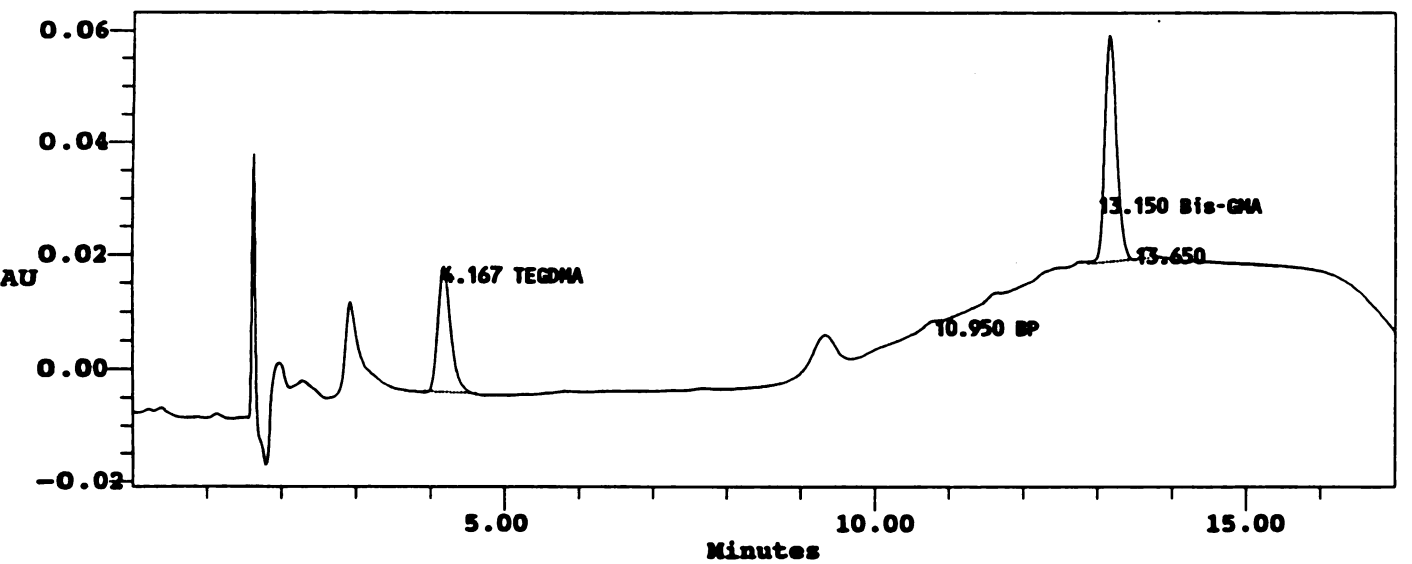


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	423003	35272	0.139	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	321979	29208	0.143	VB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T7 TOOTH		
Vial:	42	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 07:15 PM	Date Processed:	10/20/93 08:50 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

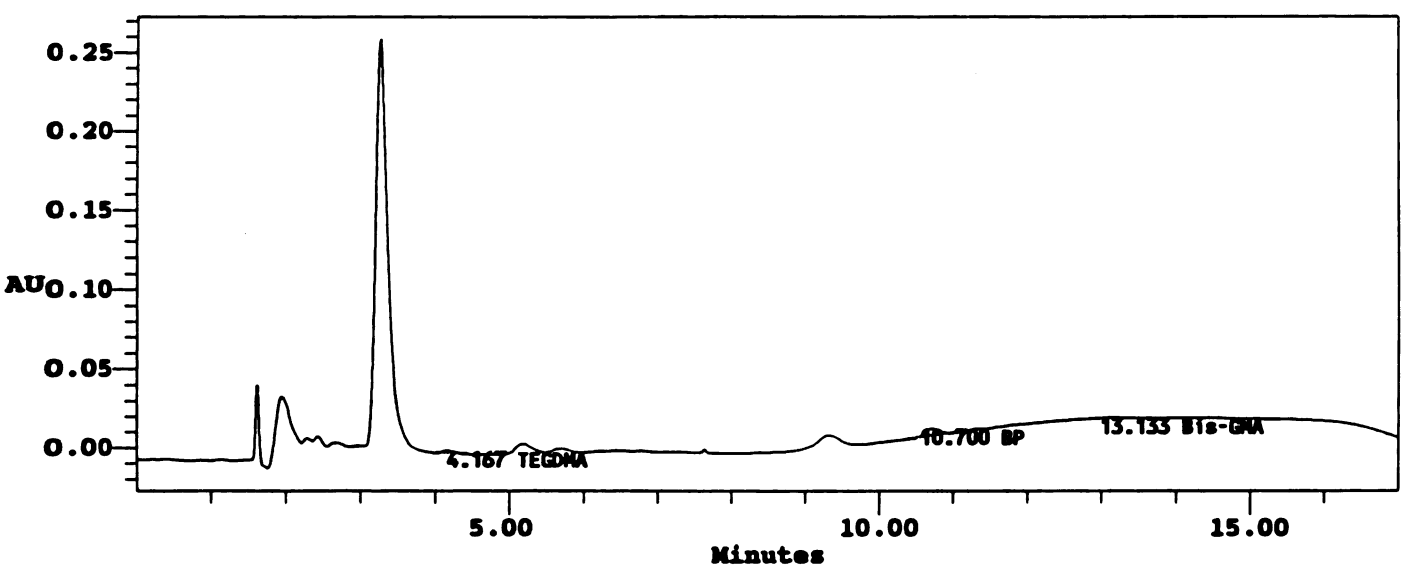
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	269461	22147	0.089	BB
2	BP	10.950				Missing
3	Bis-GMA	13.150	450817	40616	0.200	VV
4		13.650	20418	2044		VB

For Sample: R2S6T8 TOOTH Vial: 48 Inj: 1 Chan: 486 Date Processed 10/20/93 08:52 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T8 TOOTH		
Vial:	48	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 09:07 PM	Date Processed:	10/20/93 08:52 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

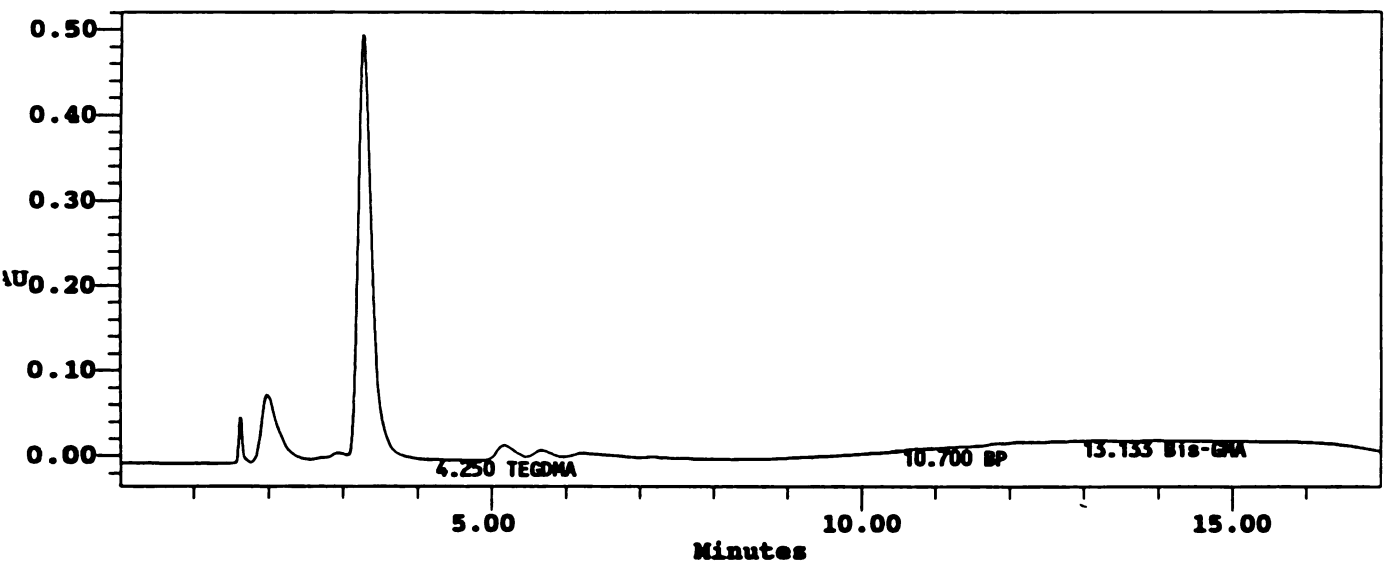


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	20645	1901	0.007	BB
2	BP	10.700	66419	4846	0.023	BV
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T9 TOOTH		
Vial:	54	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/06/93 11:00 PM	Date Processed:	10/20/93 08:54 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

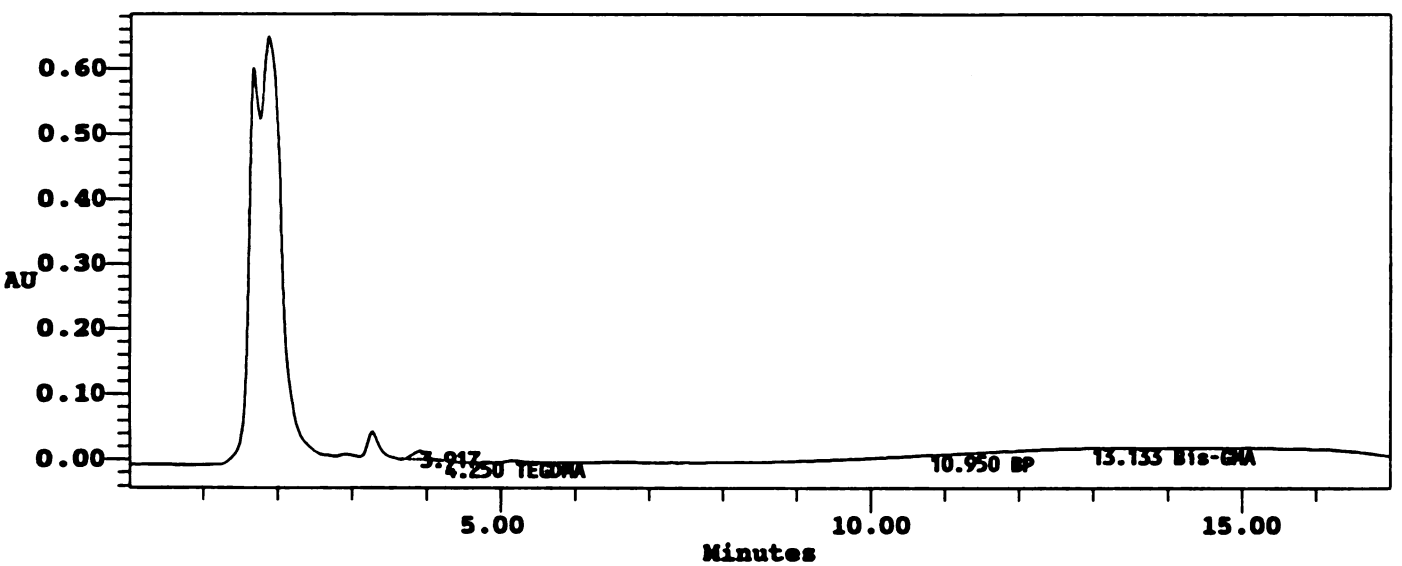


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.700	28493	1911	0.010	BV
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R2S6T10 TOOTH		
Vial:	60	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/07/93 12:52 AM	Date Processed:	10/20/93 08:56 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.917	209968	13919		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

In Vitro Cytotoxic and Quantitative Evaluation of Composite Resin Components Associated with Orthodontic Bonding Materials

HPLC DATA

SINGLE STEP RESIN

APPENDIX - I

University of California San Francisco
Department of Oral Biology

Michael V. Palasz, D.M.D.

SINGLE STEP-TEGDMA, n=6, μg in 100 μl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.634	0.809	1.071	1.056	0.566	0.031	0	0	0.381	0
2	0.729	0.777	0.864	0.698	0.381	0.006	0	0	0	0
3	0.666	1.187	1.012	0.705	0.316	0.255	0.028	0	0	0
4	0.51	0.36	0.558	0.673	0.62	0.543	0	0	0	0.211
5	0.584	0.706	0.578	0.73	0.79	0.079	0	0	0	0
6	0.423	0.579	0.432	0.383	0.258	0.077	0	0	0	0

SUMMARY-SINGLE STEP-TEGDMA ,n=6, μg in 100 μl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.591	0.7363	0.7525	0.7075	0.4885	0.1652	0.0047	0	0.0635	0.0352
sd	0.1108	0.2747	0.2654	0.2138	0.2043	0.2046	0.0114	0	0.1555	0.0861

SINGLE STEP-TEGDMA, n=6, μg in 100 μl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.046	0.089	0.219	0.207	0.405	0.849	1.178	0.105	0.071
2	0.113	0.013	0.012	0.016	0.014	0.016	0.009	0.009	0	0
3	0.067	0.008	0.048	0.026	0.023	0.035	0.058	0.057	0.019	0.006
4	0.198	0.099	0.171	0.517	0.515	0.812	1.206	1.271	0.574	0.172
5	0.062	0.009	0.009	0.013	0.014	0.01	0	0	0.009	0
6	0.084	0.009	0.01	0.014	0.015	0.011	0.014	0.025	0.006	0

SUMMARY-SINGLE STEP-TEGDMA ,n=6, μg in 100 μl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.0873	0.0307	0.0565	0.1342	0.1313	0.2148	0.356	0.4233	0.1188	0.0415
sd	0.0657	0.0365	0.0642	0.2042	0.2028	0.3311	0.5326	0.6216	0.2264	0.0698

SINGLE STEP-TEGDMA, n=6, μg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	6.34	8.09	10.71	10.56	5.66	0.31	0	0	3.81	0
2	7.29	7.77	8.64	6.98	3.81	0.06	0	0	0	0
3	6.66	11.87	10.12	7.05	3.16	2.55	0.28	0	0	0
4	5.1	3.6	5.58	6.73	6.2	5.43	0	0	0	2.11
5	5.84	7.06	5.78	7.3	7.9	0.79	0	0	0	0
6	4.23	5.79	4.32	3.83	2.58	0.77	0	0	0	0

SUMMARY-SINGLE STEP-TEGDMA,n=6,μg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	5.91	7.363	7.525	7.075	4.885	1.652	0.047	0	0.635	0.3517
sd	1.108	2.747	2.654	2.138	2.043	2.046	0.114	0	1.555	0.8614

SINGLE STEP-TEGDMA, n=6, μg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.46	0.89	2.19	2.07	4.05	8.49	11.78	1.05	0.71
2	1.13	0.13	0.12	0.16	0.14	0.16	0.09	0.09	0	0
3	0.67	0.08	0.48	0.26	0.23	0.35	0.58	0.57	0.19	0.06
4	1.98	0.99	1.71	5.17	5.15	8.12	12.06	12.71	5.74	1.72
5	0.62	0.09	0.09	0.13	0.14	0.1	0	0	0.09	0
6	0.84	0.09	0.1	0.14	0.15	0.11	0.14	0.25	0.06	0

SUMMARY-SINGLE STEP-TEGDMA,n=6,μg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.873	0.307	0.565	1.342	1.313	2.148	3.56	4.233	1.188	0.415
sd	0.657	0.365	0.642	2.042	2.028	3.311	5.326	6.216	2.264	0.6975

SINGLE STEP-TEGDMA, n=6, μg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	6.34	14.43	25.14	35.7	41.36	41.67	41.67	41.67	45.48	45.48
2	7.29	15.06	23.7	30.68	34.49	34.55	34.55	34.55	34.55	34.55
3	6.66	18.53	28.65	35.7	38.86	41.41	41.69	41.69	41.69	41.69
4	5.1	8.7	14.28	21.01	27.21	32.64	32.64	32.64	32.64	34.75
5	5.84	12.9	18.68	25.98	33.88	34.67	34.67	34.67	34.67	34.67
6	4.23	10.02	14.34	18.17	20.75	21.52	21.52	21.52	21.52	21.52

SINGLE STEP-TEGDMA, n=6 μmol										
tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.022	0.028	0.037	0.037	0.02	0.0011	0	0	0.013	0
2	0.025	0.027	0.03	0.024	0.013	0.0002	0	0	0	0
3	0.023	0.041	0.035	0.025	0.011	0.0089	1E-03	0	0	0
4	0.018	0.013	0.019	0.024	0.022	0.019	0	0	0	0.0074
5	0.02	0.025	0.02	0.025	0.028	0.0028	0	0	0	0
6	0.015	0.02	0.015	0.013	0.009	0.0027	0	0	0	0

SUMMARY-SINGLE STEP-TEGDMA,n=6,μg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	5.91	13.27	20.8	27.873	32.758	34.41	34.457	34.457	35.0917	35.443
sd	1.108	3.572	5.96	7.4194	7.6218	7.363	7.4171	7.4171	8.27197	8.1914

SUMMARY-SINGLE STEP-TEGDMA, n=6, μmol										
tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.021	0.026	0.026	0.025	0.017	0.0058	2E-04	0	0.002	0.0012
sd	0.004	0.01	0.009	0.007	0.007	0.0071	4E-04	0	0.005	0.003

SINGLE STEP-TEGDMA, n=6, μg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.46	1.35	3.54	5.61	9.66	18.15	29.93	30.98	31.69
2	1.13	1.26	1.38	1.54	1.68	1.84	1.93	2.02	2.02	2.02
3	0.67	0.75	1.23	1.49	1.72	2.07	2.65	3.22	3.41	3.47
4	1.98	2.97	4.68	9.85	15	23.12	35.18	47.89	53.63	55.35
5	0.62	0.71	0.8	0.93	1.07	1.17	1.17	1.17	1.26	1.26
6	0.84	0.93	1.03	1.17	1.32	1.43	1.57	1.82	1.88	1.88

SINGLE STEP-TEGDMA, n=6 μmol										
mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.002	0.003	0.008	0.007	0.0141	0.03	0.041	0.004	0.0025
2	0.004	5E-04	4E-04	6E-04	5E-04	0.0006	3E-04	3E-04	0	0
3	0.002	3E-04	0.002	9E-04	8E-04	0.0012	0.002	0.002	7E-04	0.0002
4	0.007	0.003	0.006	0.018	0.018	0.0284	0.042	0.044	0.02	0.006
5	0.002	3E-04	3E-04	5E-04	5E-04	0.0003	0	0	3E-04	0
6	0.003	3E-04	3E-04	5E-04	5E-04	0.0004	5E-04	9E-04	2E-04	0

SINGLE STEP-TEGDMA, n=6, μg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.873	1.18	1.745	3.0867	4.4	6.548	10.108	14.342	15.53	15.945
sd	0.657	0.916	1.454	3.4414	5.4586	8.737	13.918	19.871	21.9531	22.644

SINGLE STEP-TEGDMA, n=6 μmol										
mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.003	0.001	0.002	0.005	0.005	0.0075	0.012	0.015	0.004	0.0014
sd	0.002	0.001	0.002	0.007	0.007	0.0116	0.019	0.022	0.008	0.0024

SINGLE STEP-TEGDMA, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.022	0.05	0.0878	0.1247	0.1445	0.1455	0.146	0.146	0.159	0.1589
2	0.025	0.053	0.0828	0.1072	0.1205	0.1207	0.121	0.121	0.121	0.1207
3	0.023	0.065	0.1001	0.1247	0.1357	0.1446	0.146	0.146	0.146	0.1456
4	0.018	0.03	0.0499	0.0734	0.095	0.114	0.114	0.114	0.114	0.1214
5	0.02	0.045	0.0652	0.0907	0.1183	0.1211	0.121	0.121	0.121	0.1211
6	0.015	0.035	0.0501	0.0635	0.0725	0.0752	0.075	0.075	0.075	0.0752

SUMMARY-SINGLE STEP-TEGDMA, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.021	0.046	0.0726	0.0974	0.1144	0.1202	0.12	0.12	0.123	0.1238
sd	0.004	0.012	0.0208	0.0259	0.0266	0.0257	0.026	0.026	0.029	0.0286

SINGLE STEP-TEGDMA, n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	1.468	0.803	0.372	0.105	0.02	0.0003	0	0	0.0001	0
2	1.688	0.771	0.3	0.069	0.013	6E-05	0	0	0	0
3	1.542	1.178	0.351	0.07	0.011	0.0025	1E-04	0	0	0
4	1.181	0.357	0.194	0.067	0.022	0.0054	0	0	0	2E-05
5	1.352	0.7	0.201	0.072	0.027	0.0008	0	0	0	0
6	0.979	0.574	0.15	0.038	0.009	0.0008	0	0	0	0

SUMMARY-SINGLE STEP-TEGDMA ,n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	1.368	0.73	0.261	0.07	0.017	0.0016	2E-05	0	2E-05	3E-06
sd	0.256	0.273	0.092	0.021	0.007	0.002	4E-05	0	5E-05	9E-06

SINGLE STEP-TEGDMA, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.002	0.0047	0.0124	0.0196	0.0337	0.063	0.105	0.108	0.1107
2	0.004	0.004	0.0048	0.0054	0.0059	0.0064	0.007	0.007	0.007	0.0071
3	0.002	0.003	0.0043	0.0052	0.006	0.0072	0.009	0.011	0.012	0.0121
4	0.007	0.01	0.0163	0.0344	0.0524	0.0808	0.123	0.167	0.187	0.1933
5	0.002	0.002	0.0028	0.0032	0.0037	0.0041	0.004	0.004	0.004	0.0044
6	0.003	0.003	0.0036	0.0041	0.0046	0.005	0.005	0.006	0.007	0.0066

SUMMARY-SINGLE STEP-TEGDMA, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.003	0.004	0.0061	0.0108	0.0154	0.0229	0.035	0.05	0.054	0.0557
sd	0.002	0.003	0.0051	0.012	0.0191	0.0305	0.049	0.069	0.077	0.0791

SINGLE STEP-TEGDMA, n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.046	0.031	0.022	0.007	0.004	0.0029	0.0012	4E-05	7E-06
2	0.262	0.013	0.004	0.002	5E-04	0.0002	3E-05	9E-06	0	0
3	0.155	0.008	0.017	0.003	8E-04	0.0003	0.0002	6E-05	7E-06	6E-07
4	0.458	0.098	0.059	0.051	0.018	0.0081	0.0042	0.0013	0.0002	2E-05
5	0.144	0.009	0.003	0.001	5E-04	1E-04	0	0	3E-06	0
6	0.194	0.009	0.003	0.001	5E-04	0.0001	5E-05	2E-05	2E-06	0

SUMMARY-SINGLE STEP-TEGDMA ,n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.202	0.03	0.02	0.013	0.005	0.0021	0.0012	0.0004	4E-05	4E-06
sd	0.152	0.036	0.022	0.02	0.007	0.0033	0.0018	0.0006	8E-05	7E-06

SINGLE STEP-TEGDMA, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0.167	-0.1	-0.43	-0.98	-1.707	-3.512	#NUM!	#NUM!	-3.8785	#NUM!
2	0.227	-0.11	-0.523	-1.16	-1.878	-4.225	#NUM!	#NUM!	#NUM!	#NUM!
3	0.188	0.071	-0.454	-1.155	-1.96	-2.597	-4.012	#NUM!	#NUM!	#NUM!
4	0.072	-0.45	-0.713	-1.175	-1.667	-2.269	#NUM!	#NUM!	#NUM!	-4.6792
5	0.131	-0.15	-0.697	-1.14	-1.562	-3.106	#NUM!	#NUM!	#NUM!	#NUM!
6	-0.009	-0.24	-0.824	-1.42	-2.048	-3.117	#NUM!	#NUM!	#NUM!	#NUM!
SUMMARY-SINGLE STEP-TEGDMA, n=6, log(ug/min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.129	-0.16	-0.607	-1.172	-1.804	-3.138	#NUM!	#NUM!	#NUM!	#NUM!
sd	0.086	0.172	0.16	0.141	0.188	0.689	#NUM!	#NUM!	#NUM!	#NUM!
SINGLE STEP-TEGDMA, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	-1.34	-1.51	-1.663	-2.143	-2.396	-2.53	-2.93232	-4.4382	-5.1522
2	-0.582	-1.89	-2.38	-2.799	-3.313	-3.799	-4.505	-5.04922	#NUM!	#NUM!
3	-0.809	-2.1	-1.778	-2.588	-3.098	-3.459	-3.696	-4.24759	-5.1806	-6.2253
4	-0.339	-1.01	-1.226	-1.29	-1.748	-2.094	-2.378	-2.89931	-3.7005	-4.7679
5	-0.843	-2.05	-2.505	-2.89	-3.313	-4.003	#NUM!	#NUM!	-5.5051	#NUM!
6	-0.711	-2.05	-2.459	-2.857	-3.283	-3.962	-4.313	-4.60552	-5.6812	#NUM!
SUMMARY-SINGLE STEP-TEGDMA, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	-1.74	-1.977	-2.348	-2.816	-3.286	#NUM!	#NUM!	#NUM!	#NUM!
sd	#NUM!	0.456	0.547	0.693	0.691	0.834	#NUM!	#NUM!	#NUM!	#NUM!

SINGLE STEP-BIS-GMA, n=6, µg in 100 µl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0.013	0.018	0.031	0	0	0	0	0
2	0	0	0	0.016	0.038	0	0	0	0	0
3	0.011	0.086	0.013	0.024	0.049	0.139	0	0	0	0
4	0	0	0	0.007	0.019	0.07	0	0	0	0
5	0	0	0.007	0.016	0.031	0	0	0	0	0
6	0	0	0.009	0.01	0.016	0	0	0	0	0

SUMMARY-SINGLE STEP-BIS-GMA ,n=6, µg in 100 µ										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.0018	0.0143	0.007	0.0152	0.0307	0.0348	0	0	0	0
sd	0.0045	0.0351	0.0059	0.006	0.0122	0.0582	0	0	0	0

SINGLE STEP-BIS-GMA, n=6, µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0.13	0.18	0.31	0	0	0	0	0
2	0	0	0	0.16	0.38	0	0	0	0	0
3	0.11	0.86	0.13	0.24	0.49	1.39	0	0	0	0
4	0	0	0	0.07	0.19	0.7	0	0	0	0
5	0	0	0.07	0.16	0.31	0	0	0	0	0
6	0	0	0.09	0.1	0.16	0	0	0	0	0

SUMMARY-SINGLE STEP-BIS-GMA,n=6,µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.018	0.143	0.07	0.152	0.307	0.348	0	0	0	0
sd	0.045	0.351	0.059	0.06	0.122	0.582	0	0	0	0

SINGLE STEP-BIS-GMA, n=6, µg in 100 µl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.008	0	0.008	0.013	0.016	0.013	0.012	0	0
2	0	0.007	0	0.008	0.02	0.01	0	0	0	0
3	0	0	0	0.007	0.022	0	0	0	0	0
4	0	0.01	0	0	0.015	0.008	0.009	0.012	0	0.011
5	0	0	0	0.012	0.015	0	0	0	0	0
6	0	0	0	0.008	0.015	0.012	0	0	0	0

SUMMARY-SINGLE STEP-BIS-GMA ,n=6, µg in 100 µ										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0.0042	0	0.0072	0.0167	0.0077	0.0037	0.004	0	0.0018
sd	0	0.0047	0	0.0039	0.0035	0.0065	0.0058	0.0062	0	0.0045

SINGLE STEP-BIS-GMA, n=6, µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.08	0	0.08	0.13	0.16	0.13	0.12	0	0
2	0	0.07	0	0.08	0.2	0.1	0	0	0	0
3	0	0	0	0.07	0.22	0	0	0	0	0
4	0	0.1	0	0	0.15	0.08	0.09	0.12	0	0.11
5	0	0	0	0.12	0.15	0	0	0	0	0
6	0	0	0	0.08	0.15	0.12	0	0	0	0

SUMMARY-SINGLE STEP-BIS-GMA,n=6,µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0.042	0	0.072	0.167	0.077	0.037	0.04	0	0.0183
sd	0	0.047	0	0.039	0.035	0.065	0.058	0.062	0	0.0449

SINGLE STEP-BIS-GMA, n=6, μg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0.13	0.31	0.62	0.62	0.62	0.62	0.62	0.62
2	0	0	0	0.16	0.54	0.54	0.54	0.54	0.54	0.54
3	0.11	0.97	1.1	1.34	1.83	3.22	3.22	3.22	3.22	3.22
4	0	0	0	0.07	0.26	0.96	0.96	0.96	0.96	0.96
5	0	0	0.07	0.23	0.54	0.54	0.54	0.54	0.54	0.54
6	0	0	0.09	0.19	0.35	0.35	0.35	0.35	0.35	0.35

SUMMARY-SINGLE STEP-BIS-GMA,n=6,μg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.018	0.162	0.232	0.3833	0.69	1.038	1.0383	1.0383	1.03833	1.0383
sd	0.045	0.396	0.428	0.4753	0.5745	1.087	1.0873	1.0873	1.08732	1.0873

SINGLE STEP-BIS-GMA, n=6, μg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.08	0.08	0.16	0.29	0.45	0.58	0.7	0.7	0.7
2	0	0.07	0.07	0.15	0.35	0.45	0.45	0.45	0.45	0.45
3	0	0	0	0.07	0.29	0.29	0.29	0.29	0.29	0.29
4	0	0.1	0.1	0.1	0.25	0.33	0.42	0.54	0.54	0.65
5	0	0	0	0.12	0.27	0.27	0.27	0.27	0.27	0.27
6	0	0	0	0.08	0.23	0.35	0.35	0.35	0.35	0.35

SUMMARY-SINGLE STEP-BIS-GMA,n=6,μg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0.042	0.042	0.1133	0.28	0.357	0.3933	0.4333	0.43333	0.4517
sd	0	0.047	0.047	0.0367	0.0415	0.078	0.1154	0.1655	0.16549	0.1847

SINGLE STEP-BIS-GMA, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	3E-04	4E-04	6E-04	0	0	0	0	0
2	0	0	0	3E-04	7E-04	0	0	0	0	0
3	2E-04	0.002	3E-04	5E-04	1E-03	0.0027	0	0	0	0
4	0	0	0	1E-04	4E-04	0.0014	0	0	0	0
5	0	0	1E-04	3E-04	6E-04	0	0	0	0	0
6	0	0	2E-04	2E-04	3E-04	0	0	0	0	0

SUMMARY-SINGLE STEP-BIS-GMA, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	4E-05	3E-04	1E-04	3E-04	6E-04	0.0007	0	0	0	0
sd	9E-05	7E-04	1E-04	1E-04	2E-04	0.0011	0	0	0	0

SINGLE STEP-BIS-GMA, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	2E-04	0	2E-04	3E-04	0.0003	3E-04	2E-04	0	0
2	0	1E-04	0	2E-04	4E-04	0.0002	0	0	0	0
3	0	0	0	1E-04	4E-04	0	0	0	0	0
4	0	2E-04	0	0	3E-04	0.0002	2E-04	2E-04	0	0.0002
5	0	0	0	2E-04	3E-04	0	0	0	0	0
6	0	0	0	2E-04	3E-04	0.0002	0	0	0	0

SUMMARY-SINGLE STEP-BIS-GMA, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	8E-05	0	1E-04	3E-04	0.0001	7E-05	8E-05	0	4E-05
sd	0	9E-05	0	8E-05	7E-05	0.0001	1E-04	1E-04	0	9E-05

SINGLE STEP-BIS-GMA, n=6, μmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0.0003	0.0006	0.0012	0.0012	0.001	0.001	0.001	0.0012
2	0	0	0	0.0003	0.0011	0.0011	0.001	0.001	0.001	0.0011
3	2E-04	0.002	0.0021	0.0026	0.0036	0.0063	0.006	0.006	0.006	0.0063
4	0	0	0	0.0001	0.0005	0.0019	0.002	0.002	0.002	0.0019
5	0	0	0.0001	0.0004	0.0011	0.0011	0.001	0.001	0.001	0.0011
6	0	0	0.0002	0.0004	0.0007	0.0007	7E-04	7E-04	7E-04	0.0007

SUMMARY-SINGLE STEP-BIS-GMA, n=6, μmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	4E-05	3E-04	0.0005	0.0007	0.0013	0.002	0.002	0.002	0.002	0.002
sd	9E-05	8E-04	0.0008	0.0009	0.0011	0.0021	0.002	0.002	0.002	0.0021

SINGLE STEP-BIS-GMA, n=6, μmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	2E-04	0.0002	0.0003	0.0006	0.0009	0.001	0.001	0.001	0.0014
2	0	1E-04	0.0001	0.0003	0.0007	0.0009	9E-04	9E-04	9E-04	0.0009
3	0	0	0	0.0001	0.0006	0.0006	6E-04	6E-04	6E-04	0.0006
4	0	2E-04	0.0002	0.0002	0.0005	0.0006	8E-04	0.001	0.001	0.0013
5	0	0	0	0.0002	0.0005	0.0005	5E-04	5E-04	5E-04	0.0005
6	0	0	0	0.0002	0.0004	0.0007	7E-04	7E-04	7E-04	0.0007

SUMMARY-SINGLE STEP-BIS-GMA, n=6, μmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	8E-05	8E-05	0.0002	0.0005	0.0007	8E-04	8E-04	8E-04	0.0009
sd	0	9E-05	9E-05	7E-05	8E-05	0.0002	2E-04	3E-04	3E-04	0.0004

SINGLE STEP-BIS-GMA, n=6, μg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0.005	0.002	0.001	0	0	0	0	0
2	0	0	0	0.002	0.001	0	0	0	0	0
3	0.025	0.085	0.005	0.002	0.002	0.0014	0	0	0	0
4	0	0	0	7E-04	7E-04	0.0007	0	0	0	0
5	0	0	0.002	0.002	0.001	0	0	0	0	0
6	0	0	0.003	1E-03	6E-04	0	0	0	0	0

SUMMARY-SINGLE STEP-BIS-GMA ,n=6, μg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0.004	0.014	0.002	0.002	0.001	0.0003	0	0	0	0
sd	0.01	0.035	0.002	6E-04	4E-04	0.0006	0	0	0	0

SINGLE STEP-BIS-GMA, n=6, μg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0.008	0	8E-04	5E-04	0.0002	5E-05	1E-05	0	0
2	0	0.007	0	8E-04	7E-04	1E-04	0	0	0	0
3	0	0	0	7E-04	8E-04	0	0	0	0	0
4	0	0.01	0	0	5E-04	8E-05	3E-05	1E-05	0	1E-06
5	0	0	0	0.001	5E-04	0	0	0	0	0
6	0	0	0	8E-04	5E-04	0.0001	0	0	0	0

SUMMARY-SINGLE STEP-BIS-GMA ,n=6, μg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0.004	0	7E-04	6E-04	8E-05	1E-05	4E-06	0	2E-07
sd	0	0.005	0	4E-04	1E-04	6E-05	2E-05	6E-06	0	4E-07

SINGLE STEP-BIS-GMA, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	#####	-2.345	-2.748	-2.968	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
2	#NUM!	#####	#NUM!	-2.799	-2.88	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
3	-1.594	-1.07	-2.345	-2.623	-2.769	-2.86	#NUM!	#NUM!	#NUM!	#NUM!
4	#NUM!	#####	#NUM!	-3.158	-3.181	-3.158	#NUM!	#NUM!	#NUM!	#NUM!
5	#NUM!	#####	-2.614	-2.799	-2.968	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
6	#NUM!	#####	-2.505	-3.003	-3.255	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
SUMMARY-SINGLE STEP-BIS-GMA, n=6, log(ug./min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	-2.855	-3.003	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	0.193	0.183	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
SINGLE STEP-BIS-GMA, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	-2.1	#NUM!	-3.1	-3.345	-3.799	-4.345	-4.92428	#NUM!	#NUM!
2	#NUM!	-2.16	#NUM!	-3.1	-3.158	-4.003	#NUM!	#NUM!	#NUM!	#NUM!
3	#NUM!	#####	#NUM!	-3.158	-3.117	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
4	#NUM!	-2	#NUM!	#NUM!	-3.283	-4.1	-4.505	-4.92428	#NUM!	-5.9621
5	#NUM!	#####	#NUM!	-2.924	-3.283	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
6	#NUM!	#####	#NUM!	-3.1	-3.283	-3.924	#NUM!	#NUM!	#NUM!	#NUM!
SUMMARY-SINGLE STEP-BIS-GMA, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	#NUM!	-3.245	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	#NUM!	0.088	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

SINGLE STEP-B.PEROXIDE, n=6, µg in 100 µl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0.006	0.014	0.019	0	0
2	0	0	0	0	0	0	0.012	0.017	0	0
3	0	0	0	0	0	0.006	0.013	0.042	0.013	0
4	0	0	0	0	0	0	0.005	0.024	0.018	0
5	0	0	0	0	0	0.004	0.01	0.022	0.006	0
6	0	0	0	0	0	0	0.012	0.018	0.008	0

SINGLE STEP-B.PEROXIDE, n=6, µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0.06	0.14	0.19	0	0
2	0	0	0	0	0	0	0.12	0.17	0	0
3	0	0	0	0	0	0.06	0.13	0.42	0.13	0
4	0	0	0	0	0	0	0.05	0.24	0.18	0
5	0	0	0	0	0	0.04	0.1	0.22	0.06	0
6	0	0	0	0	0	0	0.12	0.18	0.08	0

SUMMARY-SINGLE STEP-B.PEROXIDE ,n=6, µg in 100 µl										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0.0027	0.011	0.0237	0.0075	0
sd	0	0	0	0	0	0.003	0.0032	0.0094	0.0071	0

SUMMARY-SINGLE STEP-B.PEROXIDE-,n=6,µg										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0.027	0.11	0.237	0.075	0
sd	0	0	0	0	0	0.03	0.032	0.094	0.071	0

SINGLE STEP-B.PEROXIDE, n=6, µg in 100 µl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SINGLE STEP-B.PEROXIDE, n=6, µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-SINGLE STEP-B.PEROXIDE ,n=6, µg in 100 µl										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

SUMMARY-SINGLE STEP-B.PEROXIDE,n=6,µg										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

SINGLE STEP-B.PEROXIDE, n=6, µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0.06	0.2	0.39	0.39	0.39
2	0	0	0	0	0	0	0.12	0.29	0.29	0.29
3	0	0	0	0	0	0.06	0.19	0.61	0.74	0.74
4	0	0	0	0	0	0	0.05	0.29	0.47	0.47
5	0	0	0	0	0	0.04	0.14	0.36	0.42	0.42
6	0	0	0	0	0	0	0.12	0.3	0.38	0.38
SUMMARY-SINGLE STEP-B.PEROXIDE-,n=6,µg (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0.027	0.1367	0.3733	0.44833	0.4483
sd	0	0	0	0	0	0.03	0.0547	0.1231	0.15459	0.1546
SINGLE STEP-B.PEROXIDE, n=6, µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
SUMMARY-SINGLE STEP-B.PEROXIDE,n=6,µg (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

SINGLE STEP-B.PEROXIDE, n=6, umo										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0.0002	6E-04	8E-04	0	0
2	0	0	0	0	0	0	5E-04	7E-04	0	0
3	0	0	0	0	0	0.0002	5E-04	0.002	5E-04	0
4	0	0	0	0	0	0	2E-04	1E-03	7E-04	0
5	0	0	0	0	0	0.0002	4E-04	9E-04	2E-04	0
6	0	0	0	0	0	0	5E-04	7E-04	3E-04	0
SUMMARY-SINGLE STEP-B.PEROXIDE, n=6, umol										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0.0001	5E-04	1E-03	3E-04	0
sd	0	0	0	0	0	0.0001	1E-04	4E-04	3E-04	0
SINGLE STEP-B.PEROXIDE, n=6, umo										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
SUMMARY-SINGLE STEP-B.PEROXIDE, n=6, umol										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

SINGLE STEP-B.PEROXIDE, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0.0002	8E-04	0.002	0.002	0.0016
2	0	0	0	0	0	0	5E-04	0.001	0.001	0.0012
3	0	0	0	0	0	0.0002	8E-04	0.003	0.003	0.0031
4	0	0	0	0	0	0	2E-04	0.001	0.002	0.0019
5	0	0	0	0	0	0.0002	6E-04	0.001	0.002	0.0017
6	0	0	0	0	0	0	5E-04	0.001	0.002	0.0016

SINGLE STEP-B.PEROXIDE, n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	6E-05	5E-05	2E-05	0	0
2	0	0	0	0	0	0	4E-05	2E-05	0	0
3	0	0	0	0	0	6E-05	5E-05	4E-05	5E-06	0
4	0	0	0	0	0	0	2E-05	2E-05	6E-06	0
5	0	0	0	0	0	4E-05	3E-05	2E-05	2E-06	0
6	0	0	0	0	0	0	4E-05	2E-05	3E-06	0

SUMMARY-SINGLE STEP-B.PEROXIDE, n=6, µmol (cum)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0.0001	6E-04	0.002	0.002	0.0019
sd	0	0	0	0	0	0.0001	2E-04	5E-04	6E-04	0.0006

SUMMARY-SINGLE STEP-B.PEROXIDE ,n=6, µg/MIN										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	3E-05	4E-05	2E-05	3E-06	0
sd	0	0	0	0	0	3E-05	1E-05	9E-06	2E-06	0

SINGLE STEP-B.PEROXIDE, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SINGLE STEP-B.PEROXIDE, n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

SUMMARY-SINGLE STEP-B.PEROXIDE, n=6, µmol (cum)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

SUMMARY-SINGLE STEP-B.PEROXIDE ,n=6, µg/MIN										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	0	0	0	0	0	0	0	0	0	0
sd	0	0	0	0	0	0	0	0	0	0

SINGLE STEP-B.PEROXIDE, n=6, log10(ug./min.)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.225	-4.313	-4.72471	#NUM!	#NUM!
2	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	-4.38	-4.77301	#NUM!	#NUM!
3	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.225	-4.345	-4.38021	-5.3454	#NUM!
4	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	-4.76	-4.62325	-5.2041	#NUM!
5	#NUM!	#####	#NUM!	#NUM!	#NUM!	-4.401	-4.459	-4.66104	-5.6812	#NUM!
6	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	-4.38	-4.74819	-5.5563	#NUM!
SUMMARY-SINGLE STEP-B.PEROXIDE, n=6, log(ug./min)										
Tooth	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	-4.44	-4.65173	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	0.1644	0.14419	#NUM!	#NUM!
SINGLE STEP-B.PEROXIDE, n=6, log10(ug./min.)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
1	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
2	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
3	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
4	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
5	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
6	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
SUMMARY-SINGLE STEP-B.PEROXIDE, n=6, log(ug./min)										
Mold	4.32	14.4	A(43.2)	B(144)	C(432)	D(1d)	E(3d)	F(10d)	G(30d)	H(100d)
mean	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
sd	#NUM!	#####	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

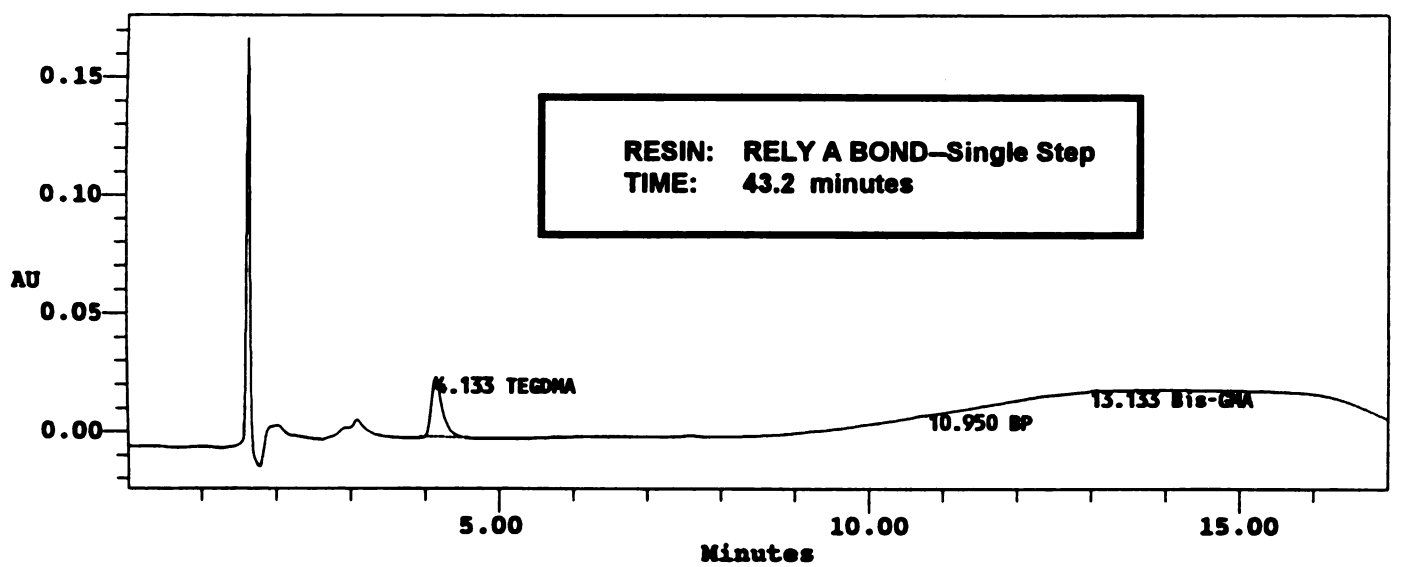
Mold Model

HPLC DATA

SINGLE STEP RESIN

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T3 MOLD		
Vial:	13	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 07:42 PM	Date Processed:	10/19/93 10:36 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

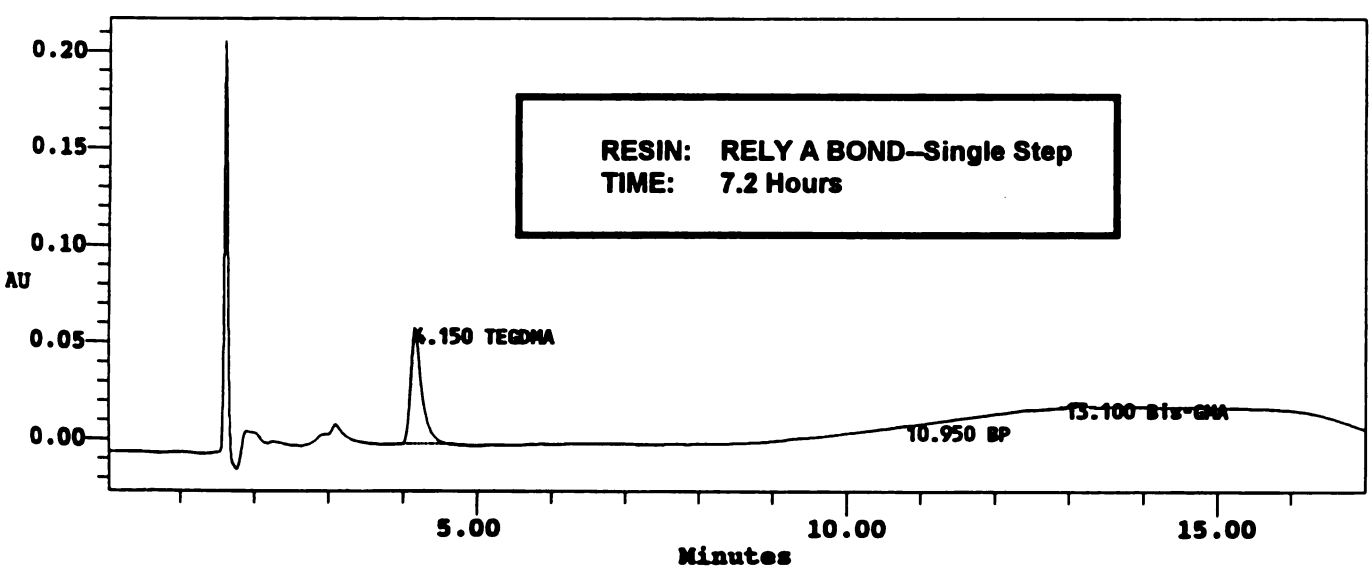


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	269548	25700	0.089	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T5 MOLD		
Vial:	25	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 11:27 PM	Date Processed:	10/19/93 10:39 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

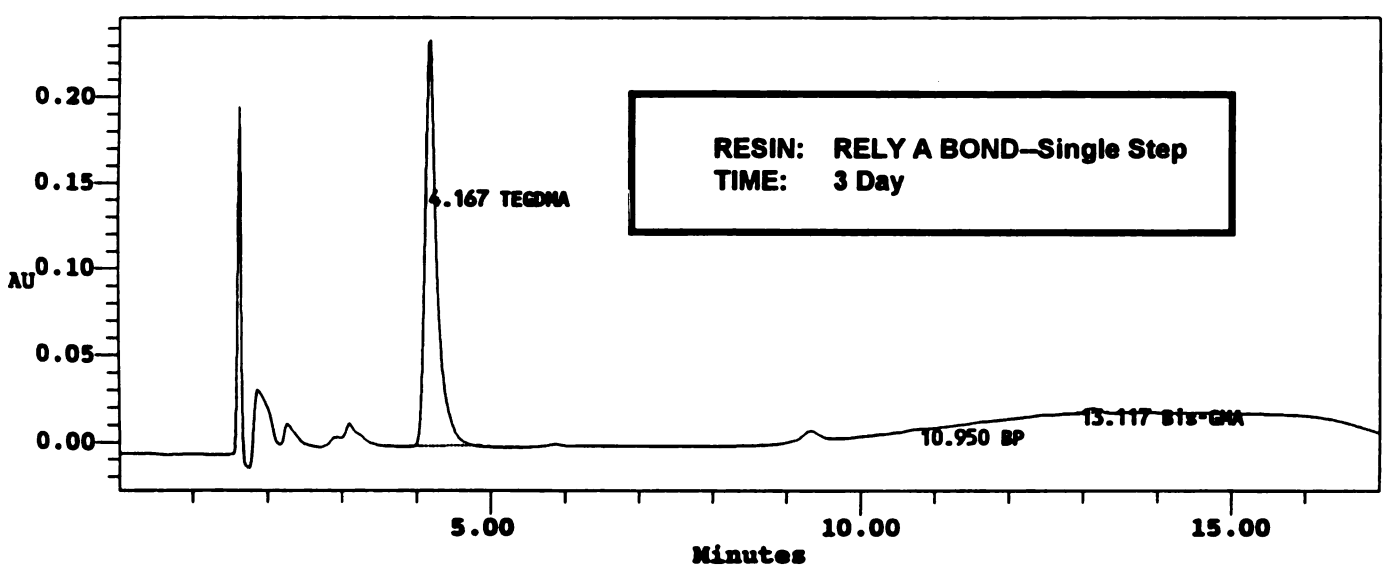


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	629502	60109	0.207	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	29235	2851	0.013	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T7 MOLD		
Vial:	37	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 03:13 AM	Date Processed:	10/19/93 10:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

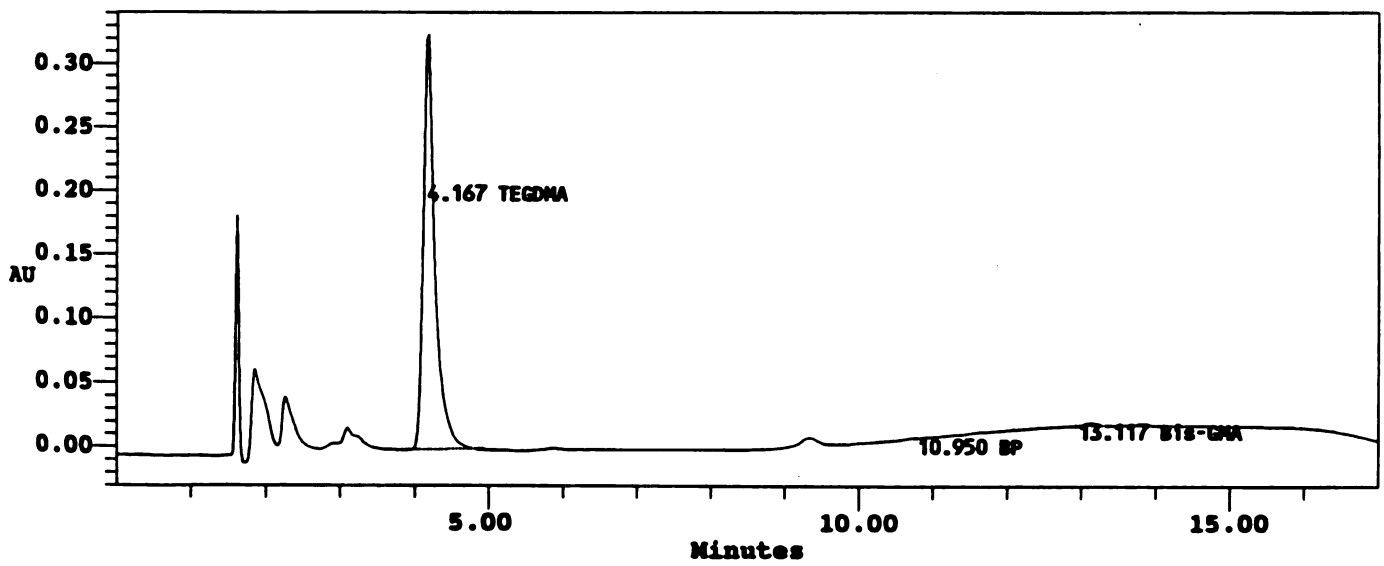


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2577503	235793	0.849	BB
2	BP	10.950				Missing
3	Bis-GMA	13.117	29420	2912	0.013	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T8 MOLD		
Vial:	43	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 05:05 AM	Date Processed:	10/19/93 10:42 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

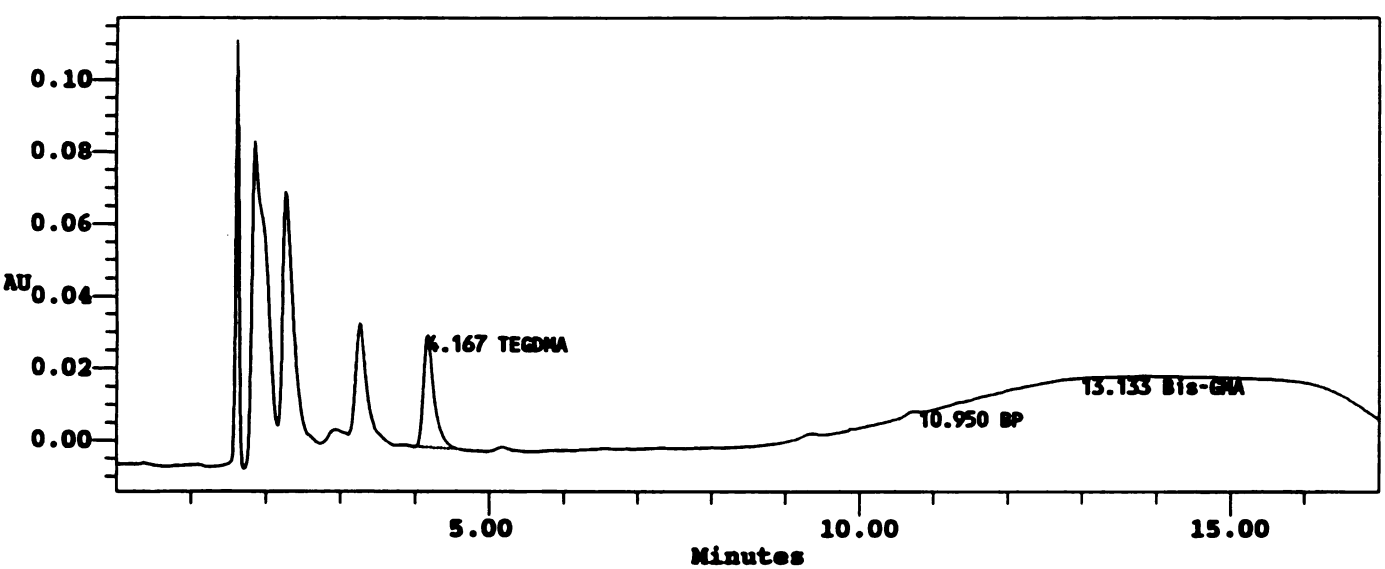


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	3575073	325440	1.178	BB
2	BP	10.950				Missing
3	Bis-GMA	13.117	27899	2689	0.012	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T9 MOLD		
Vial:	49	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 06:58 AM	Date Processed:	10/19/93 10:44 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

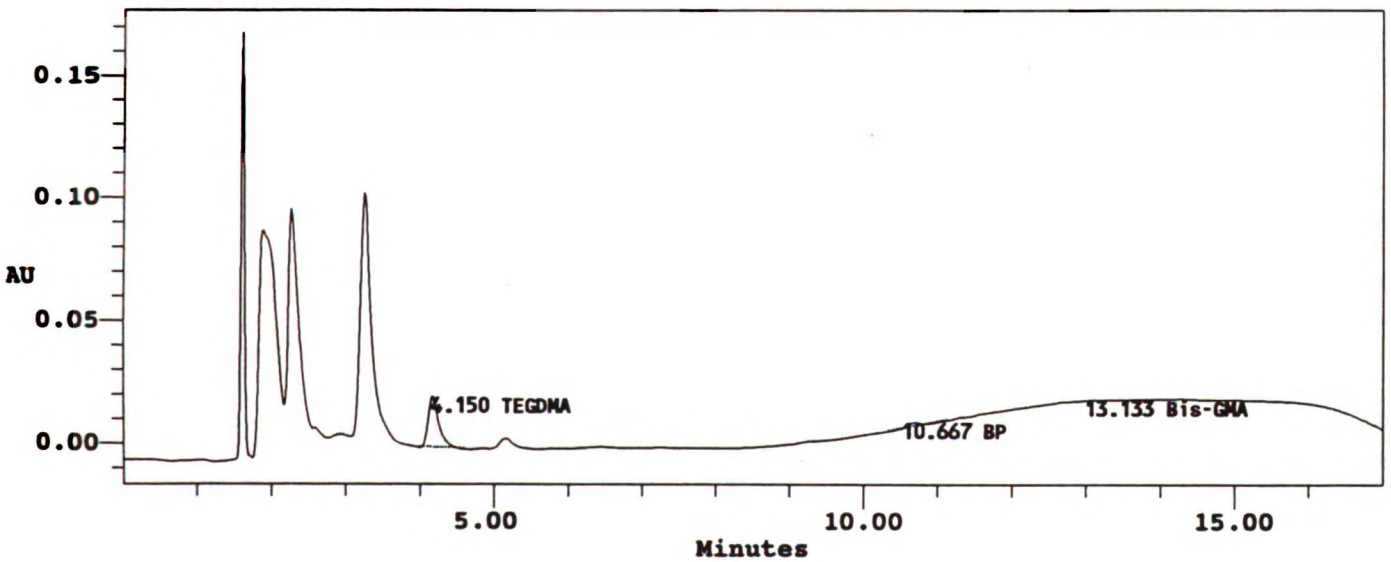


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	319228	31253	0.105	BB
2	BP	10.950			.004	Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T10 MOLD		
Vial:	55	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 08:50 AM	Date Processed:	10/19/93 10:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

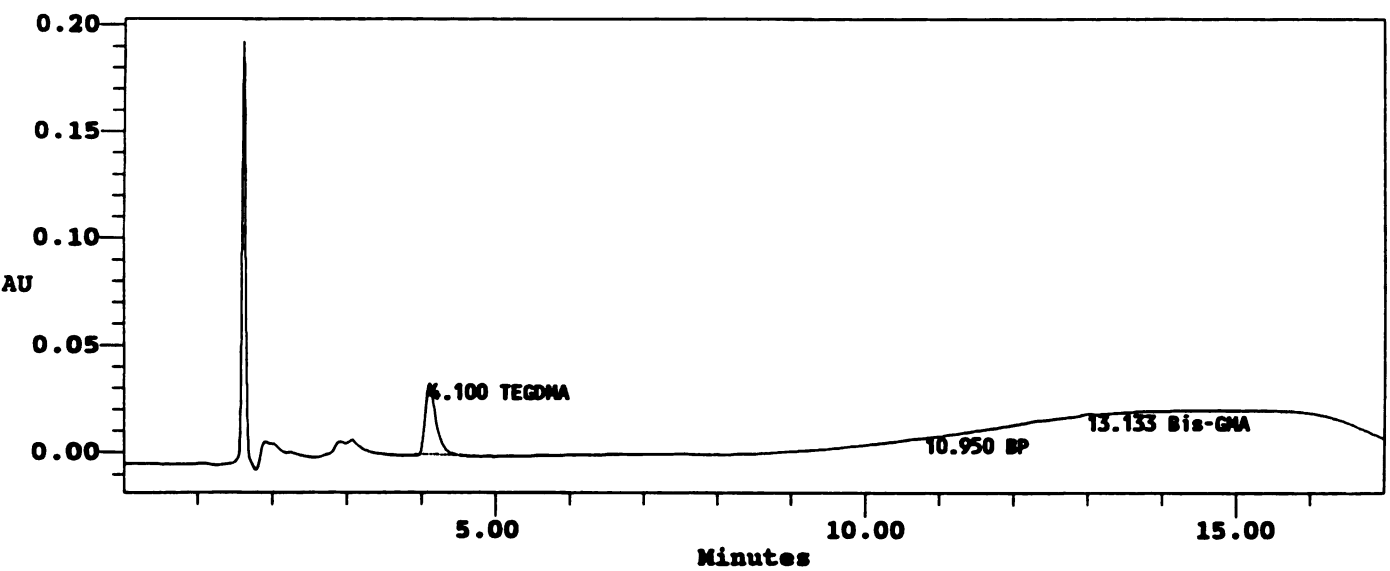
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	215220	20943	0.071	BB
2	BP	10.667	21595	1681	0.007%	BV
3	Bis-GMA	13.133				Missing

For Sample: R1S2T1 MOLD Vial: 2 Inj: 1 Chan: 486 Date Processed 10/19/93 10:34 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T1 MOLD		
Vial:	2	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 04:16 PM	Date Processed:	10/19/93 10:34 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

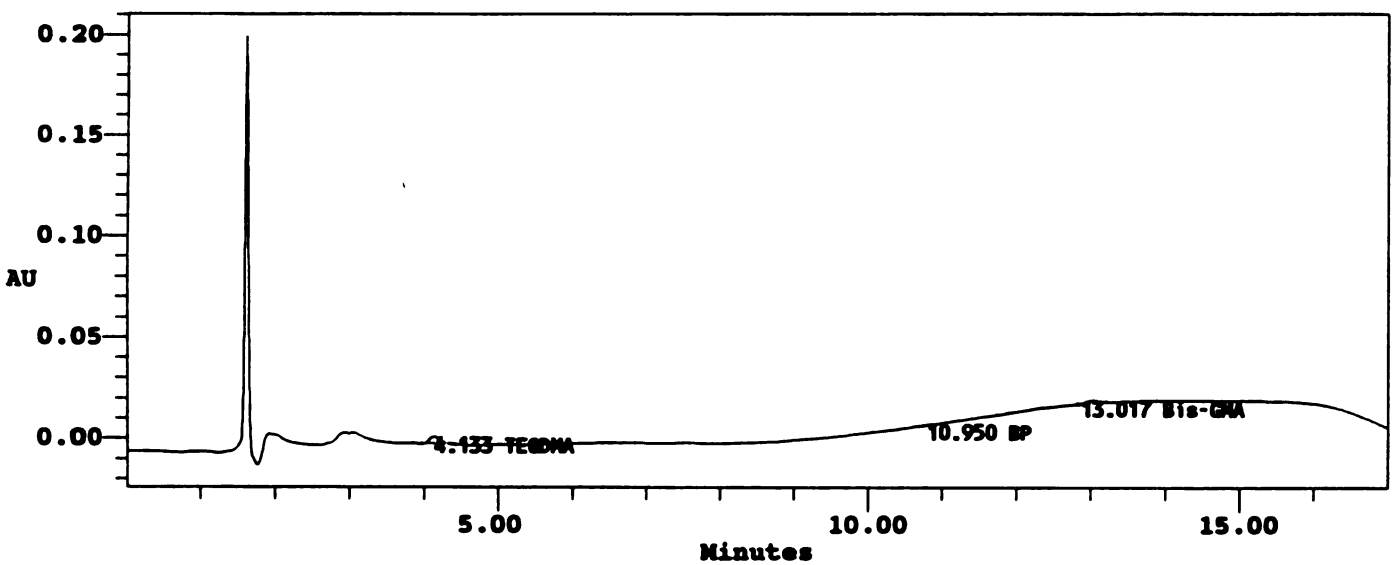
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.100	342878	33515	0.113	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S2T2 MOLD Vial: 8 Inj: 1 Chan: 486 Date Processed 10/19/93 10:35 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T2 MOLD		
Vial:	8	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 06:08 PM	Date Processed:	10/19/93 10:35 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

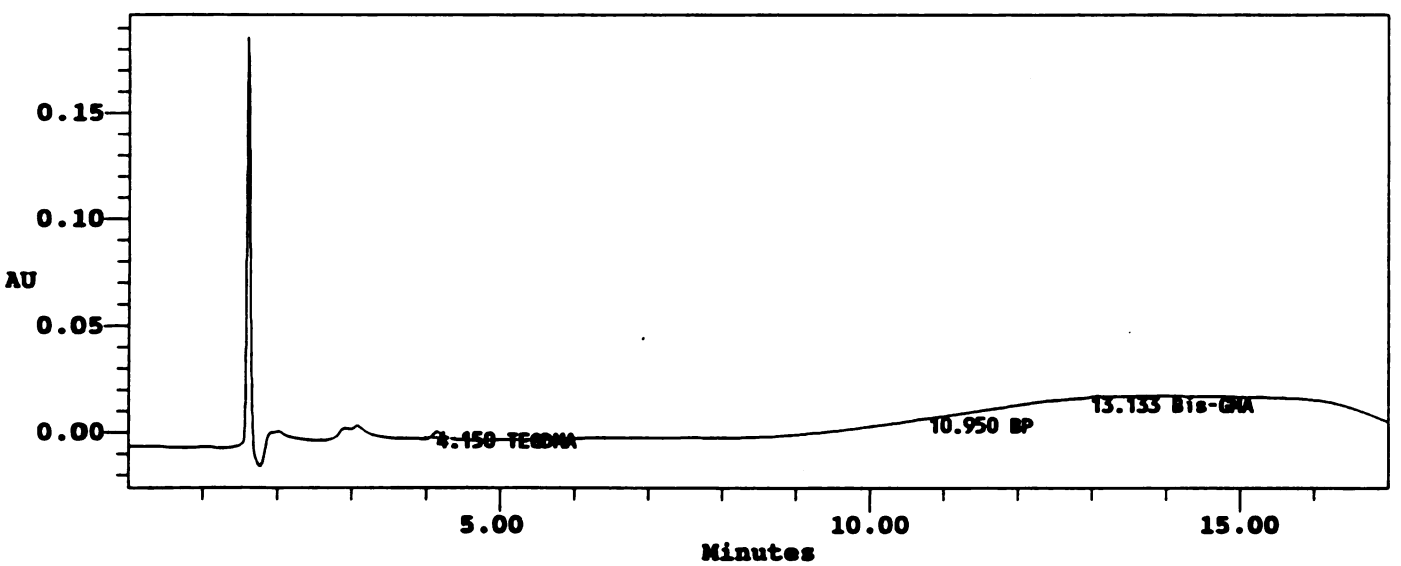


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	38482	3776	0.013	BB
2	BP	10.950				Missing
3	Bis-GMA	13.017	15748	1582	0.007	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T3 MOLD		
Vial:	14	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 08:01 PM	Date Processed:	10/19/93 10:36 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

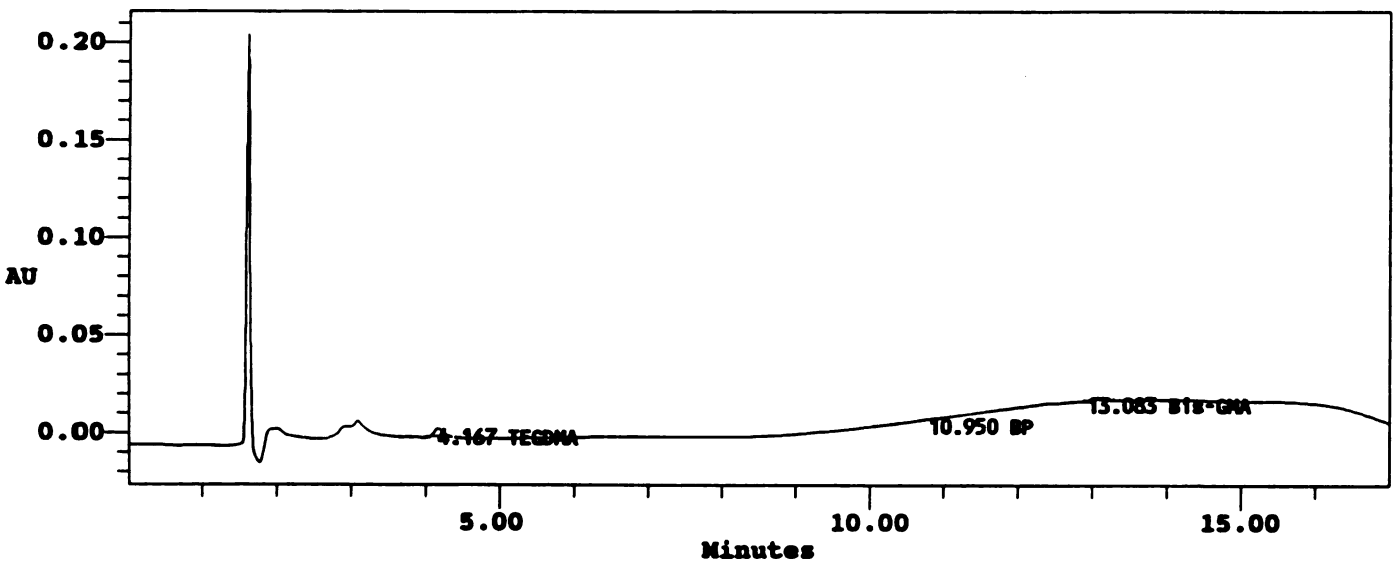


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	35487	3497	0.012	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T4 MOLD		
Vial:	20	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 09:54 PM	Date Processed:	10/19/93 10:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

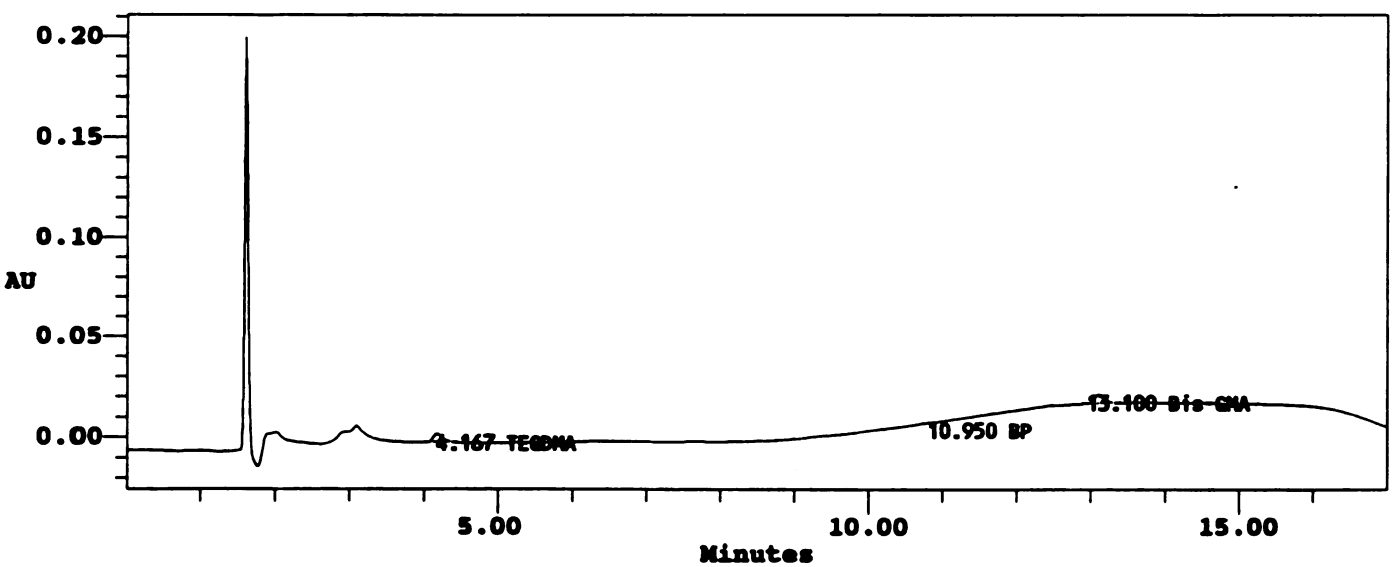


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	48075	4763	0.016	BB
2	BP	10.950				Missing
3	Bis-GMA	13.083	18614	1872	0.008	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T5 MOLD		
Vial:	26	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 11:46 PM	Date Processed:	10/19/93 10:39 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

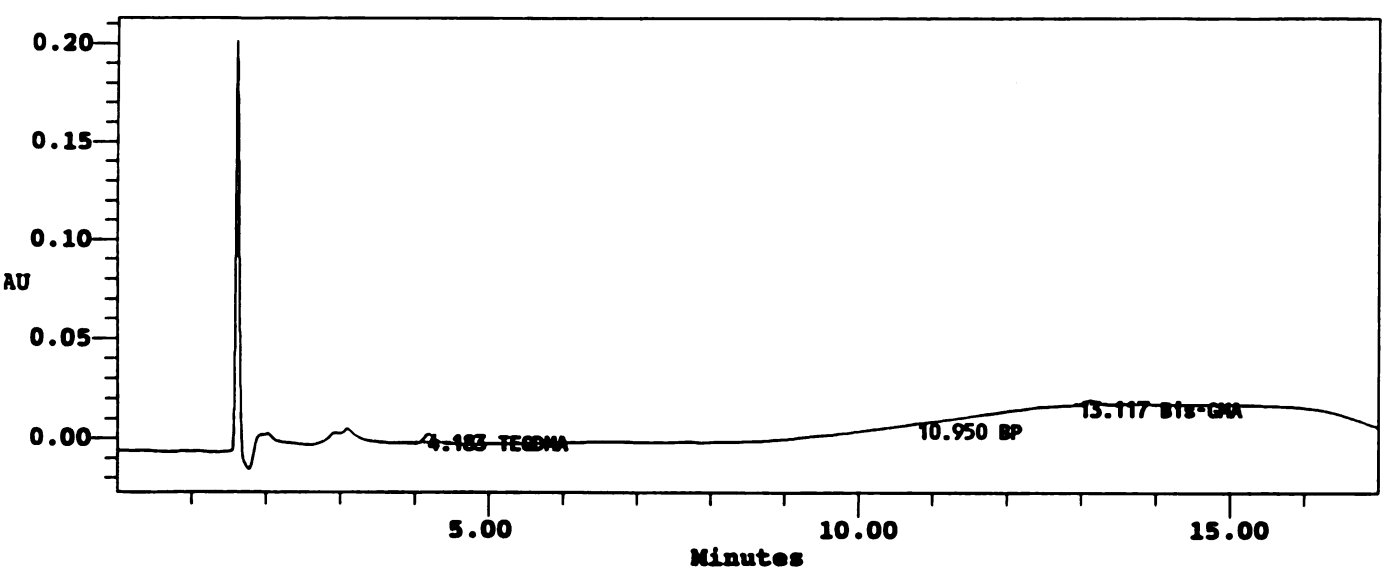
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	42586	4361	0.014	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	46051	4519	0.020	BB

For Sample: R1S2T6 MOLD Vial: 32 Inj: 1 Chan: 486 Date Processed 10/19/93 10:40 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T6 MOLD		
Vial:	32	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 01:39 AM	Date Processed:	10/19/93 10:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

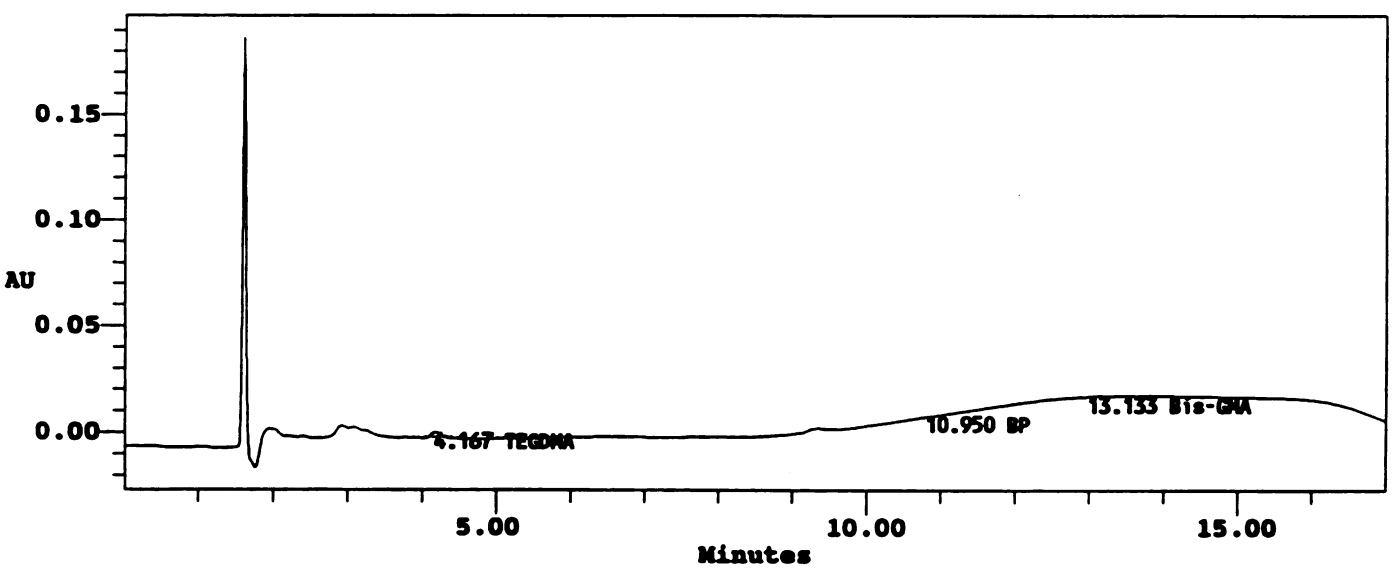


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	48924	4711	0.016	BB
2	BP	10.950				Missing
3	Bis-GMA	13.117	23556	2320	0.010	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T7 MOLD		
Vial:	38	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 03:31 AM	Date Processed:	10/19/93 10:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

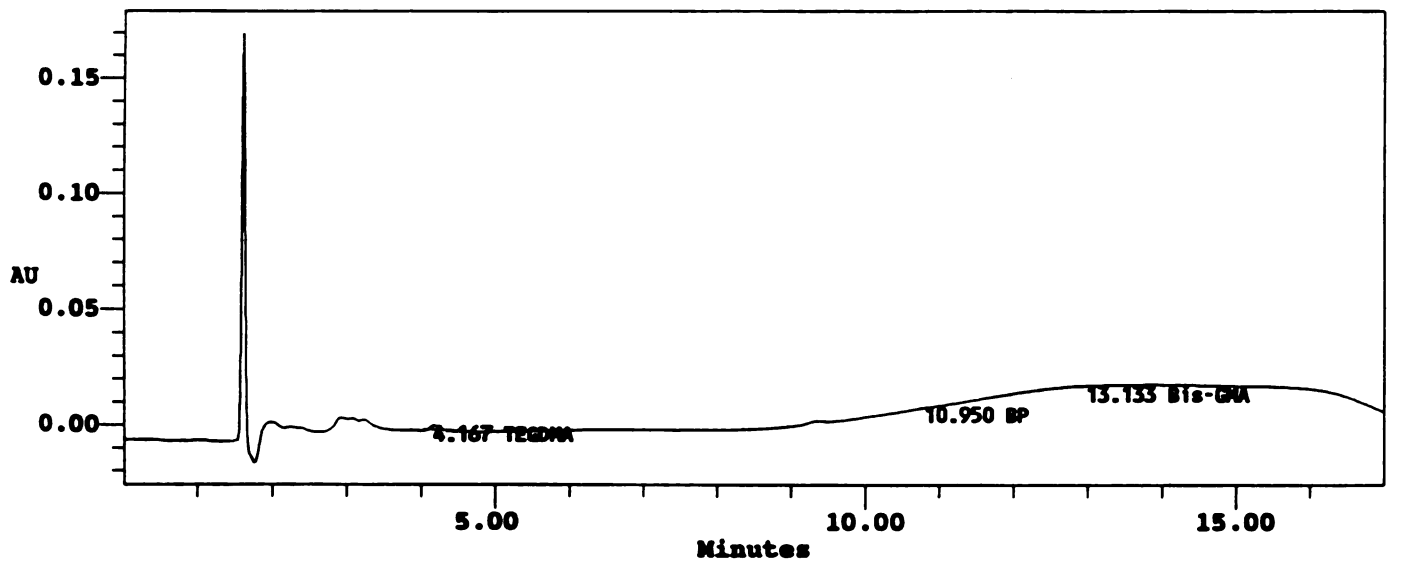


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	27462	2830	0.009	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T8 MOLD		
Vial:	44	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 05:24 AM	Date Processed:	10/19/93 10:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

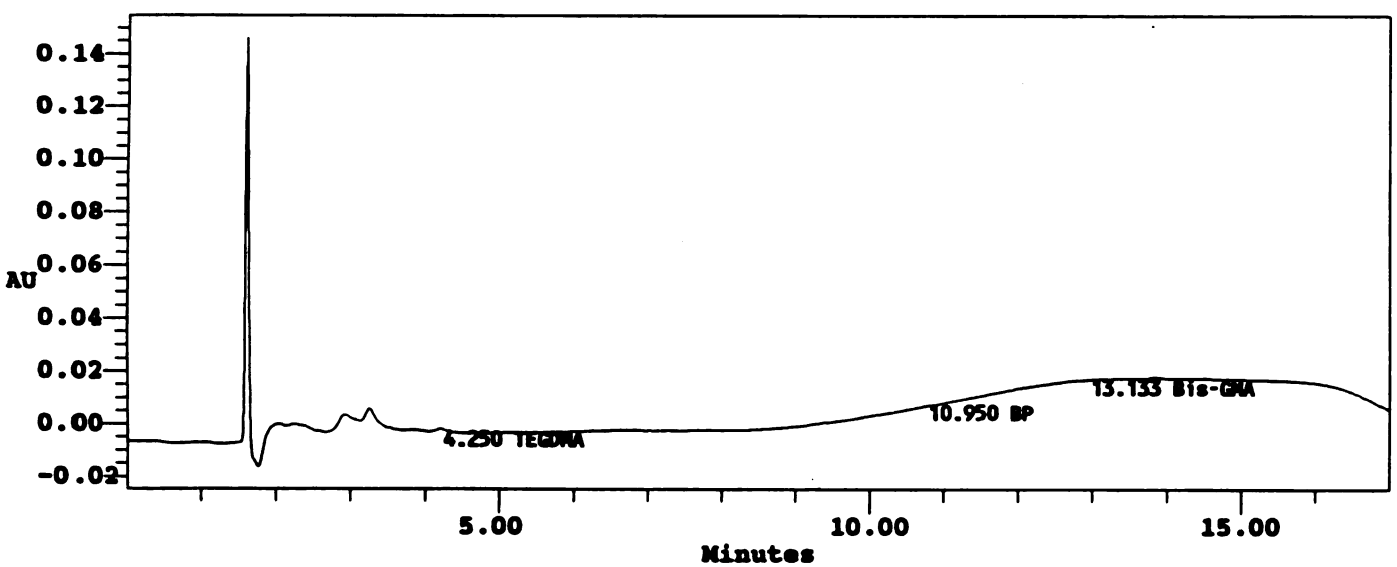


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	25898	2528	0.009	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T9 MOLD		
Vial:	50	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 07:17 AM	Date Processed:	10/19/93 10:44 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

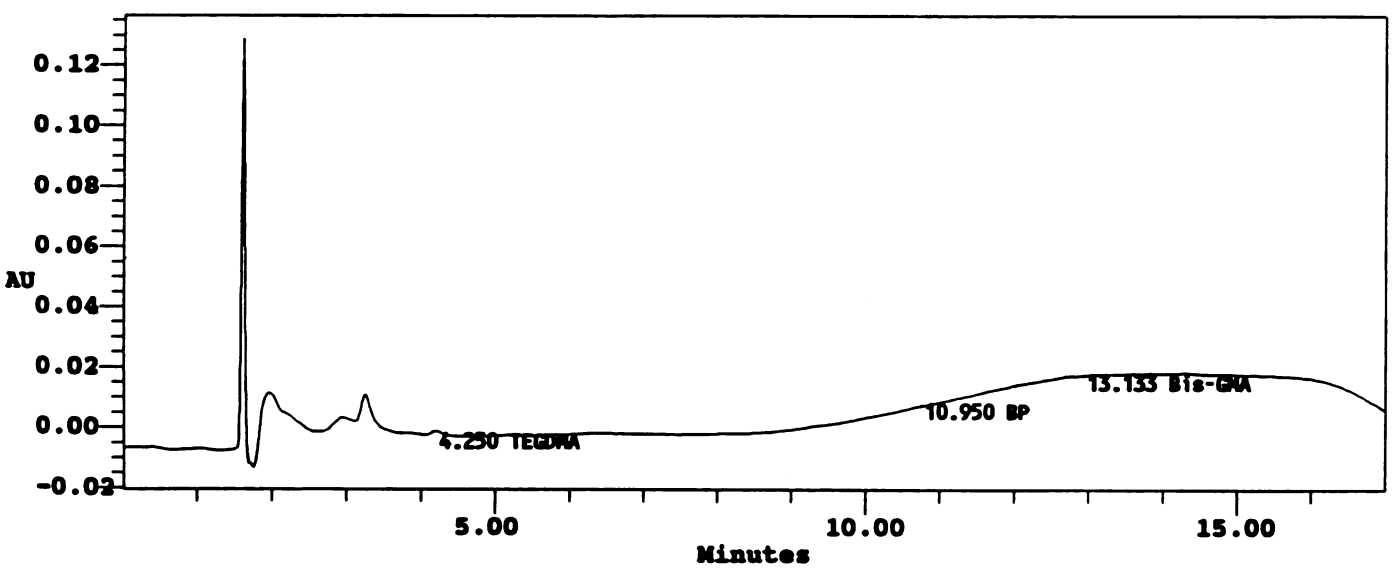


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T10 MOLD		
Vial:	56	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 09:09 AM	Date Processed:	10/19/93 10:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

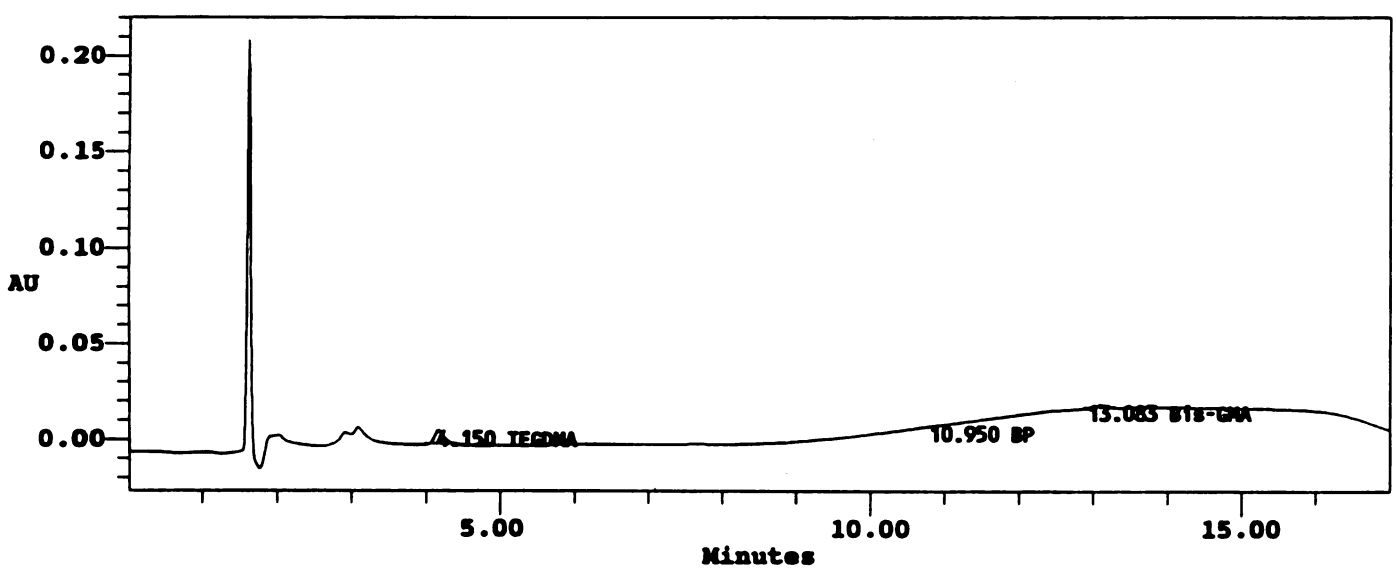


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T4 MOLD		
Vial:	21	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 10:12 PM	Date Processed:	10/19/93 10:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

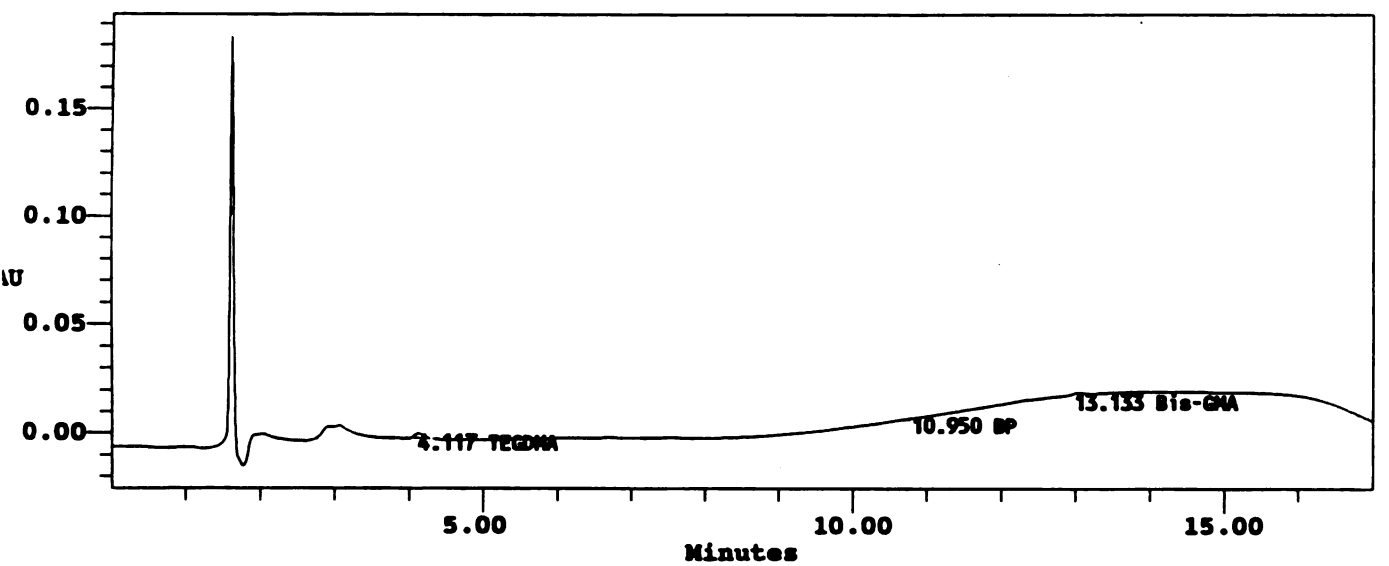


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	77826	7578	0.026	BB
2	BP	10.950				Missing
3	Bis-GMA	13.083	16539	1672	0.007	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T2 MOLD		
Vial:	9	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 06:27 PM	Date Processed:	10/19/93 10:35 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

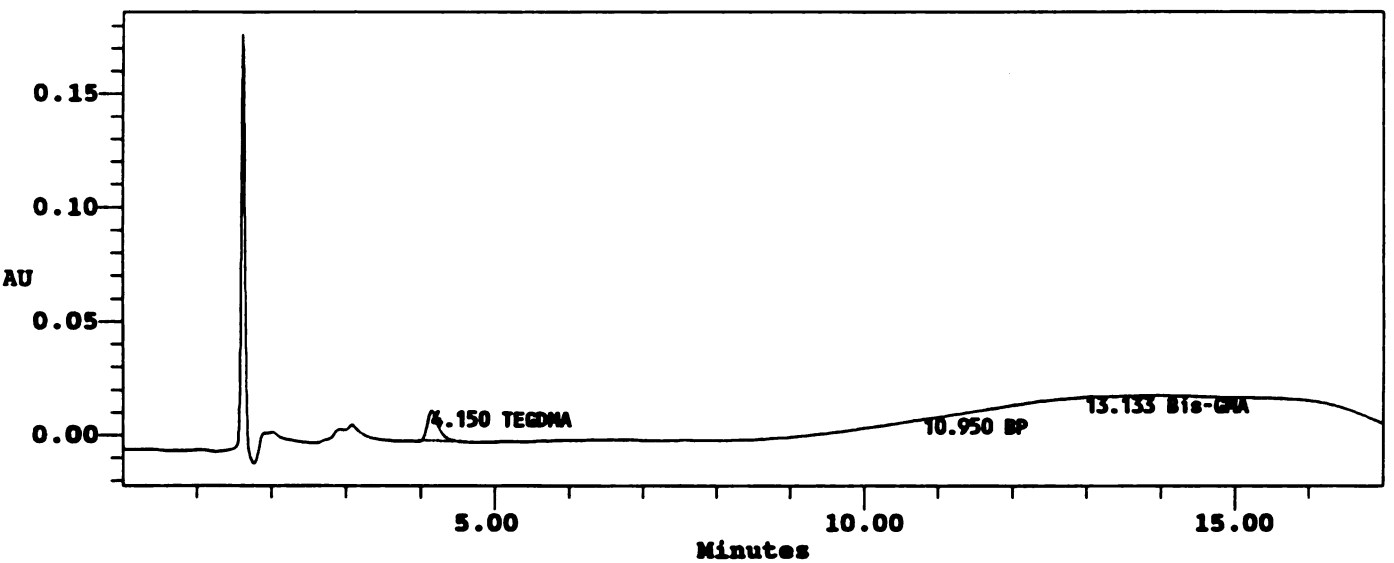


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.117	25063	2553	0.008	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T3 MOLD		
Vial:	15	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 08:20 PM	Date Processed:	10/19/93 10:37 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

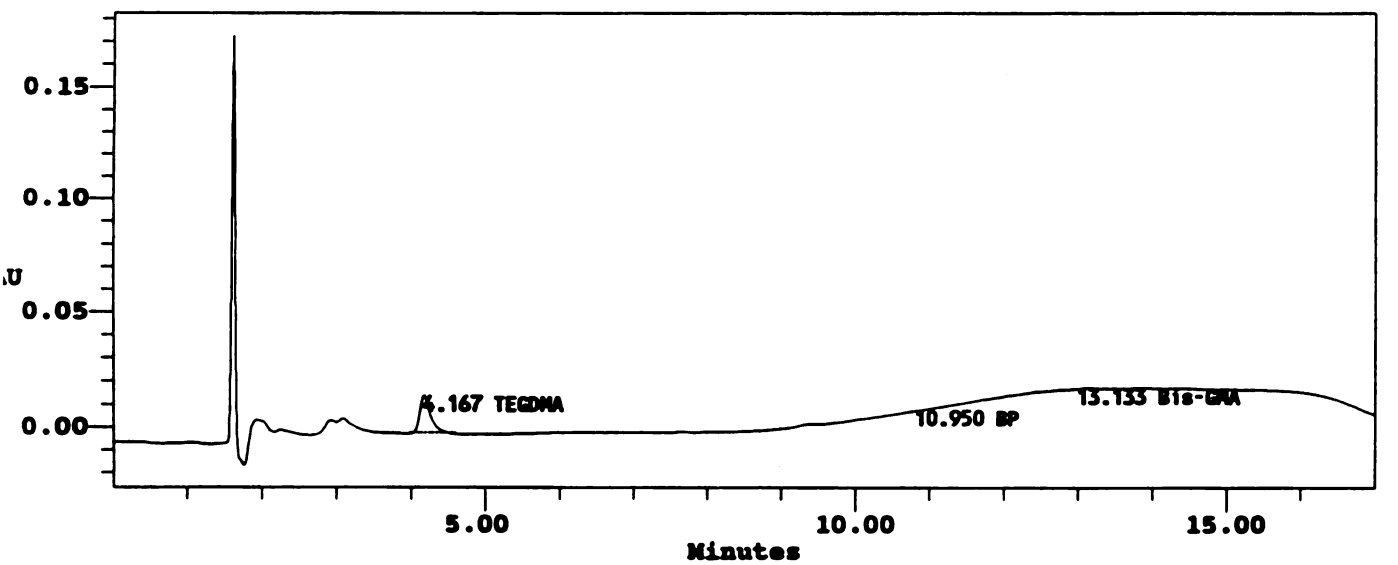


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	145676	13629	0.048	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

roject Name:	MIKE_ISO		
ample Name:	R1S3T7 MOLD		
ial:	39	Sample Type:	Unknown
njection:	1	Volume:	100.00
hannel:	486	Run Time:	17.0 min
ate Acquired:	09/04/93 03:50 AM	Date Processed:	10/19/93 10:42 AM
cale Factor:	1.00	Dilution:	1.00000
cq Meth Set:	TMG_one_meth_set		
rocessing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	174818	16746	0.058	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

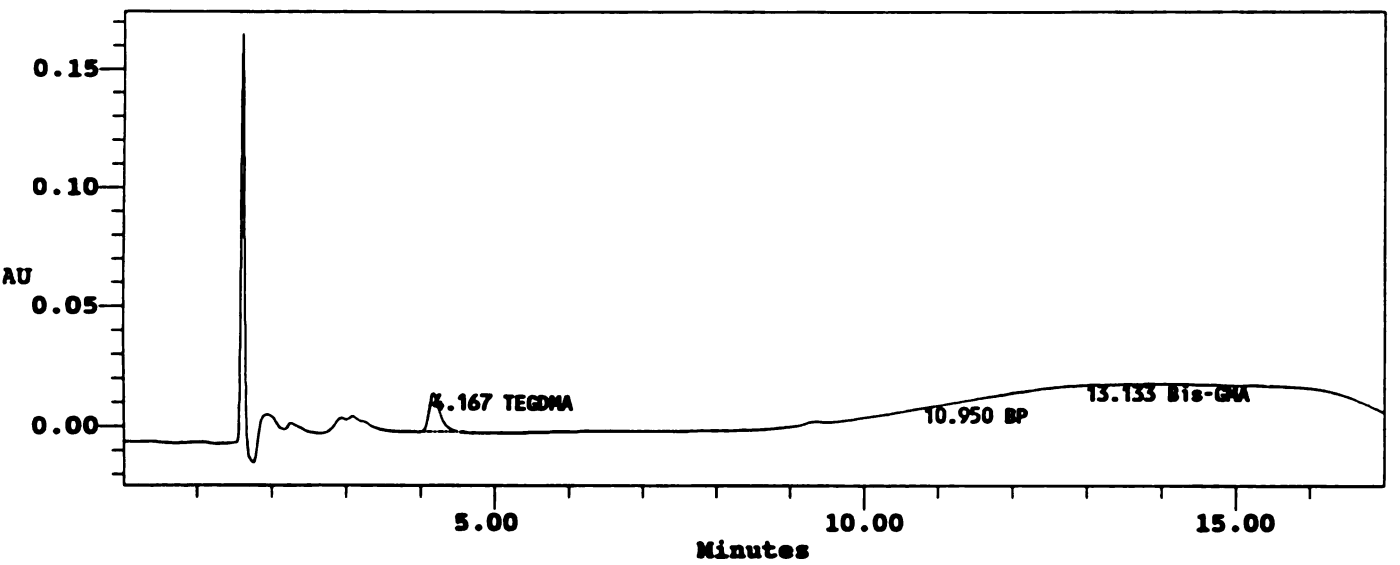
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R1S3T8 MOLD Vial: 45 Inj: 1 Chan: 486 Date Processed 10/19/93 10:43 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T8 MOLD		
Vial:	45	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 05:43 AM	Date Processed:	10/19/93 10:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

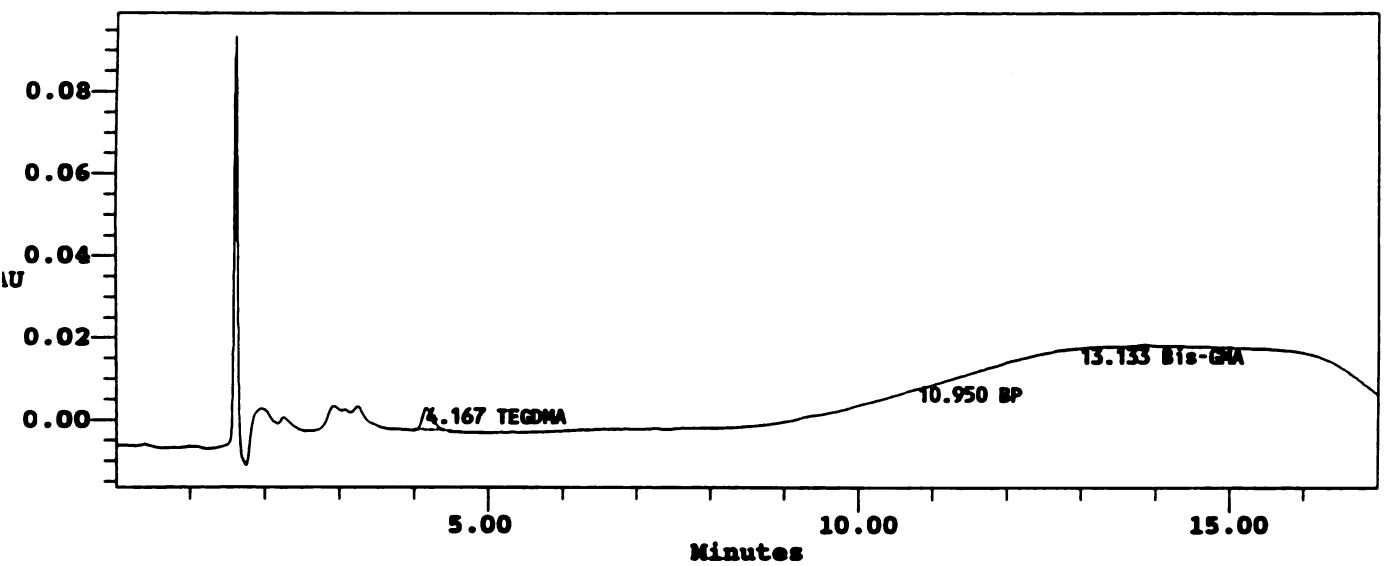
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	171809	16265	0.057	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S3T9 MOLD Vial: 51 Inj: 1 Chan: 486 Date Processed 10/19/93 10:44 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

roject Name:	MIKE_ISO		
ample Name:	R1S3T9 MOLD		
ial:	51	Sample Type:	Unknown
njection:	1	Volume:	100.00
hannel:	486	Run Time:	17.0 min
ate Acquired:	09/04/93 07:35 AM	Date Processed:	10/19/93 10:44 AM
cale Factor:	1.00	Dilution:	1.00000
cq Meth Set:	TMG_one_meth_set		
rocessing Method:	ortho_2_integrate		



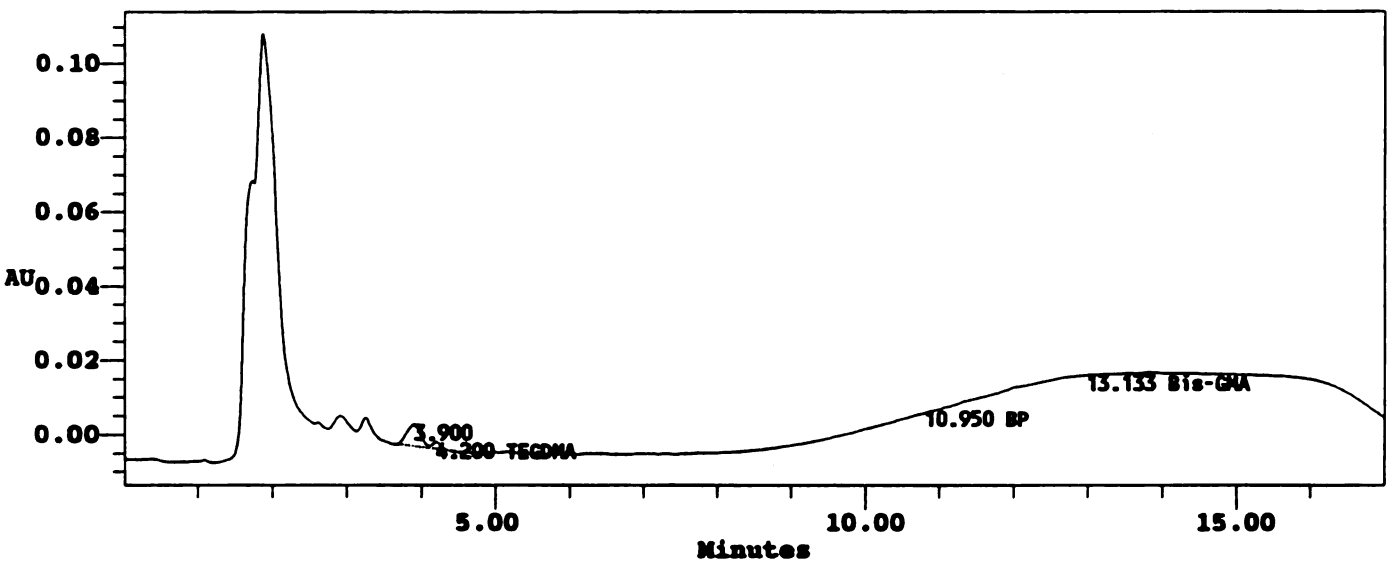
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	57236	5570	0.019	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S3T10 MOLD Vial: 57 Inj: 1 Chan: 486 Date Processed 10/19/93 10:45 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T10 MOLD		
Vial:	57	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 09:28 AM	Date Processed:	10/19/93 10:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

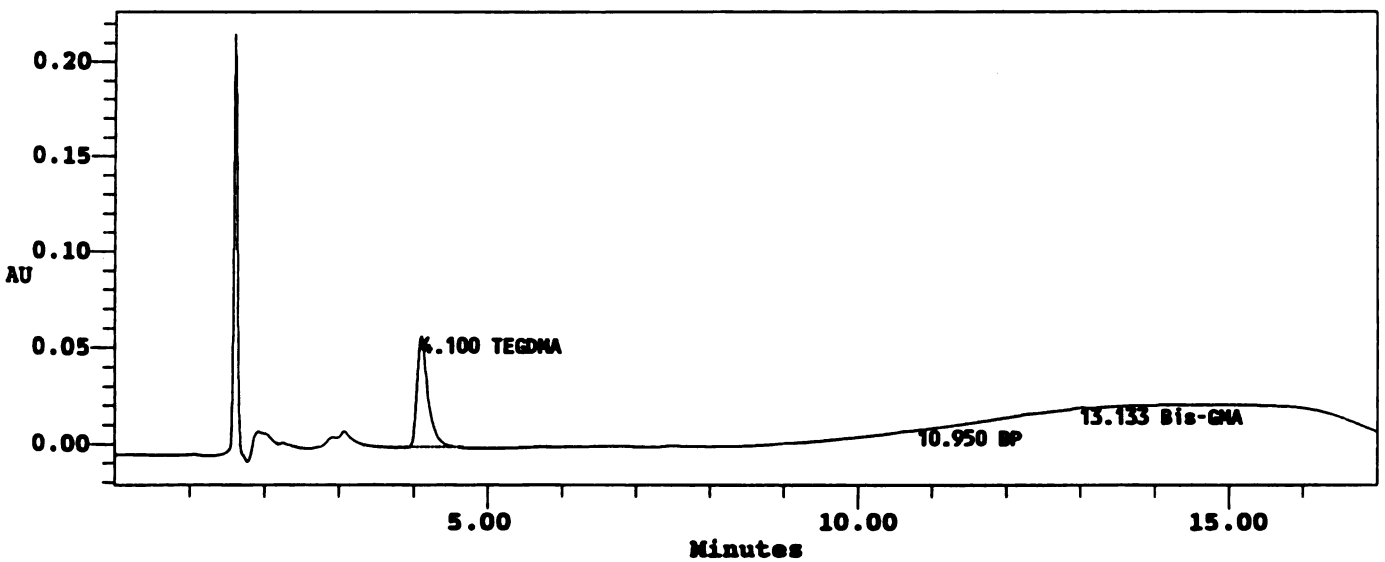


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.900	81755	6115		BV
2	TEGDMA	4.200	17911	2007	0.006	VB
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T1 MOLD		
Vial:	4	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 04:53 PM	Date Processed:	10/19/93 10:34 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



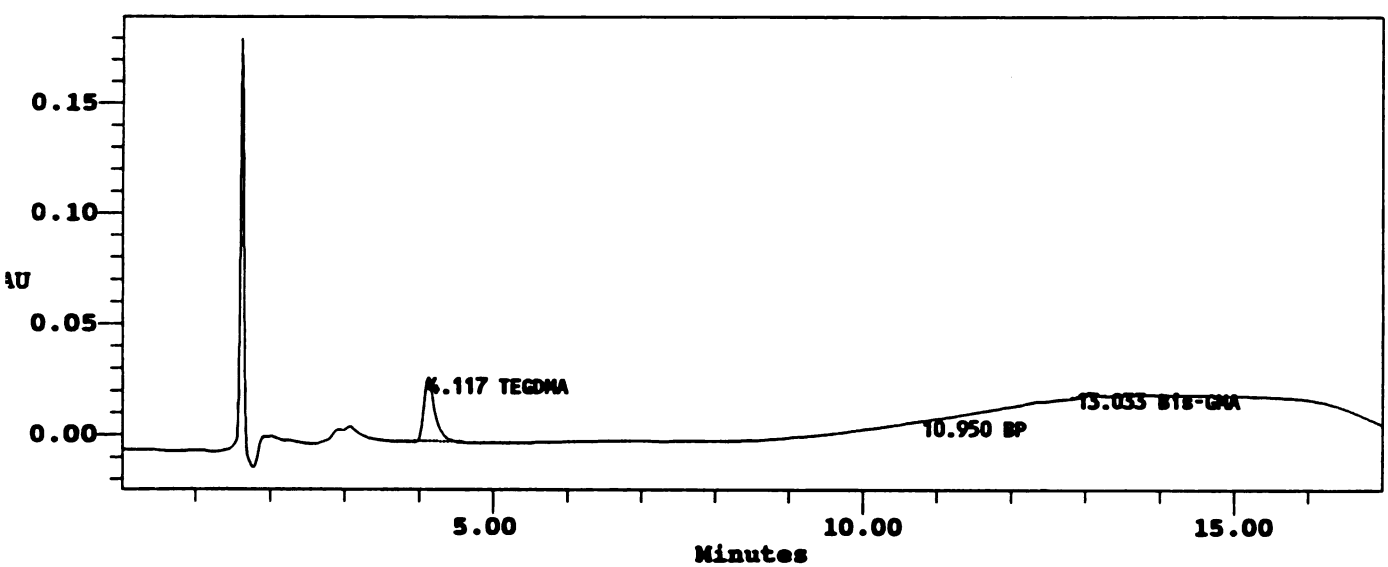
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.100	600484	57751	0.198	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S4T2 MOLD Vial: 10 Inj: 1 Chan: 486 Date Processed 10/19/93 10:36 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

roject Name:	MIKE_ISO		
ample Name:	R1S4T2 MOLD		
ial:	10	Sample Type:	Unknown
njection:	1	Volume:	100.00
hannel:	486	Run Time:	17.0 min
ate Acquired:	09/03/93 06:46 PM	Date Processed:	10/19/93 10:36 AM
cale Factor:	1.00	Dilution:	1.00000
cq Meth Set:	TMG_one_meth_set		
rocessing Method:	ortho_2_integrate		



Peak Results

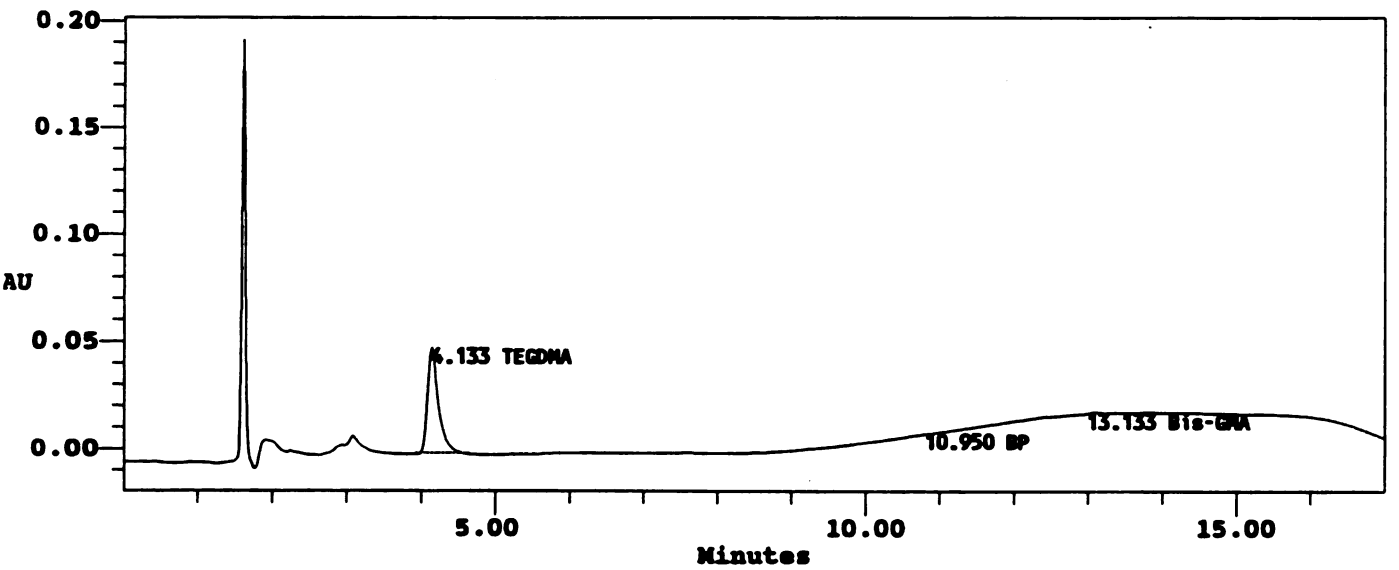
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.117	300934	29142	0.099	BB
2	BP	10.950				Missing
3	Bis-GMA	13.033	23648	2354	0.010	BB

For Sample: R1S4T3 MOLD Vial: 16 Inj: 1 Chan: 486 Date Processed 10/19/93 10:37 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T3 MOLD		
Vial:	16	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 08:39 PM	Date Processed:	10/19/93 10:37 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

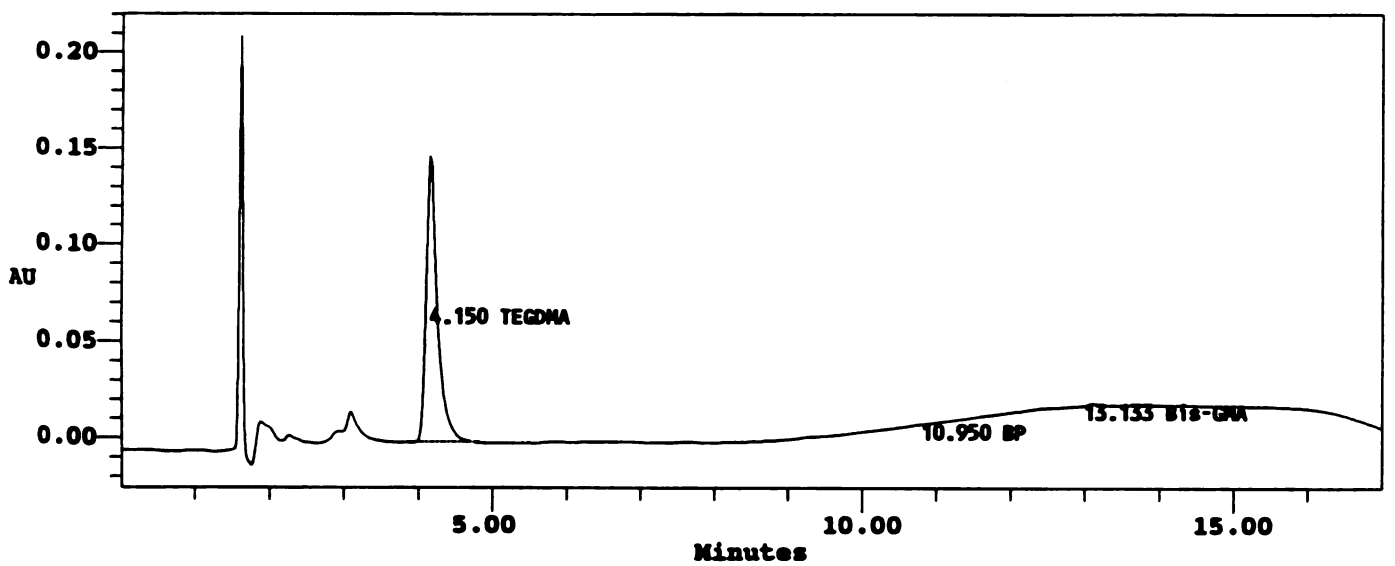


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	518274	49677	0.171	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T4 MOLD		
Vial:	22	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 10:31 PM	Date Processed:	10/19/93 10:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

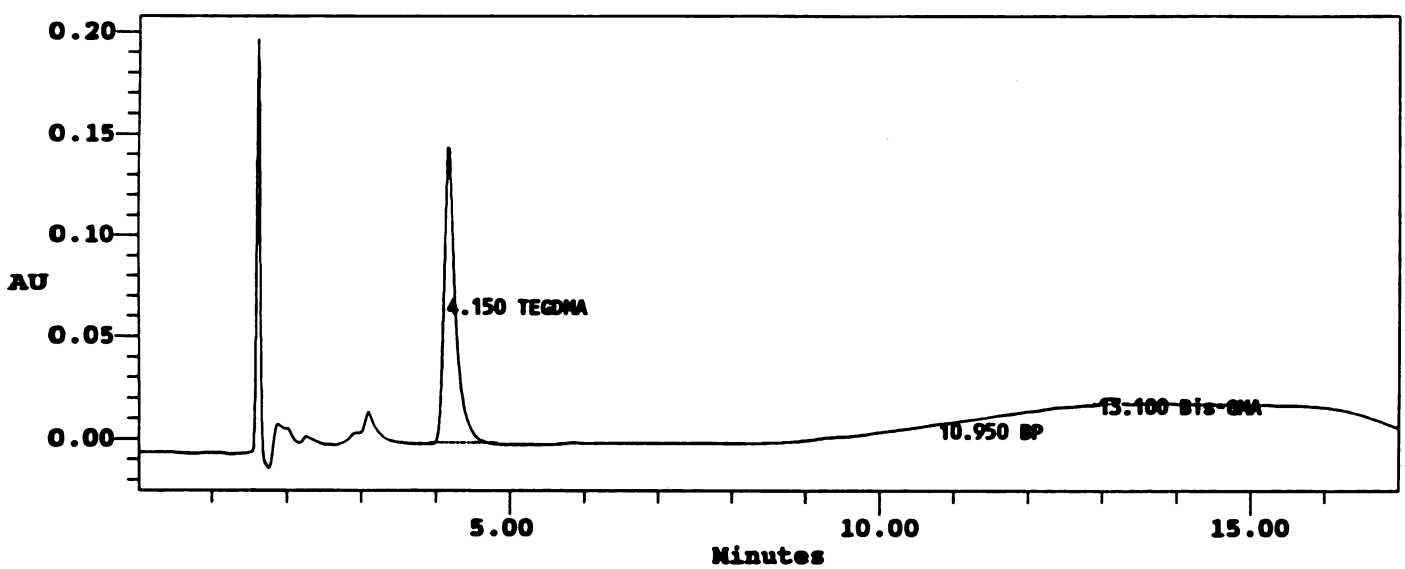


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1570138	148245	0.517	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T5 MOLD		
Vial:	28	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 12:24 AM	Date Processed:	10/19/93 10:39 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

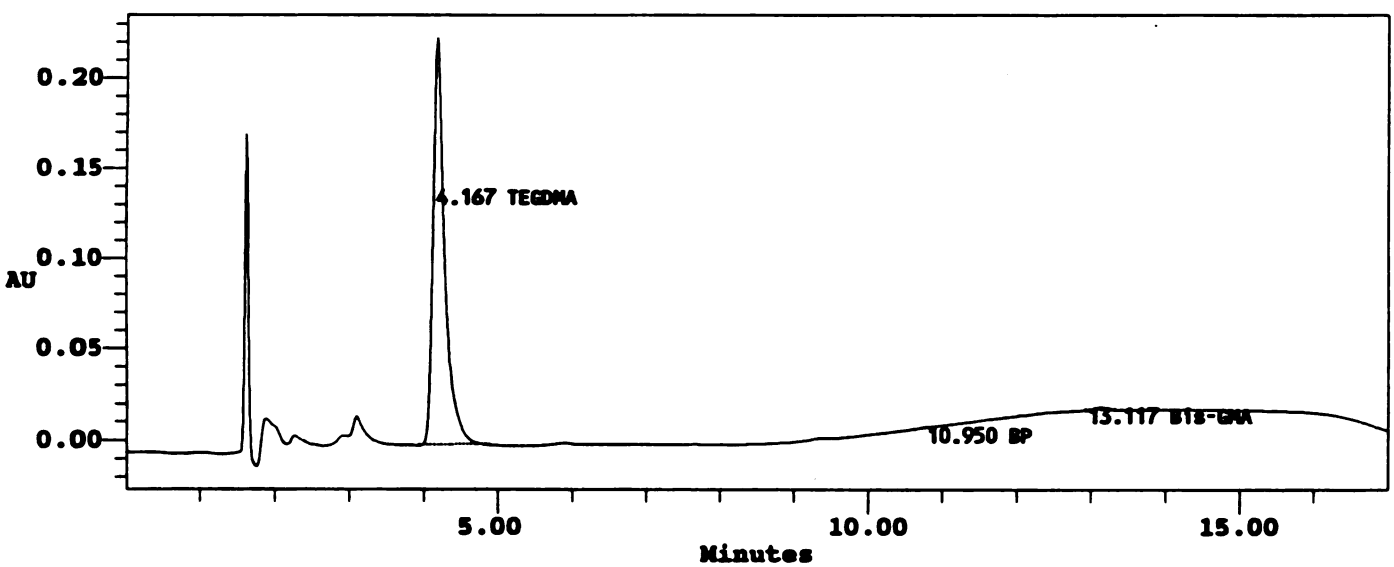


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1562270	145632	0.515	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	33865	3333	0.015	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T6 MOLD		
Vial:	34	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 02:16 AM	Date Processed:	10/19/93 10:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

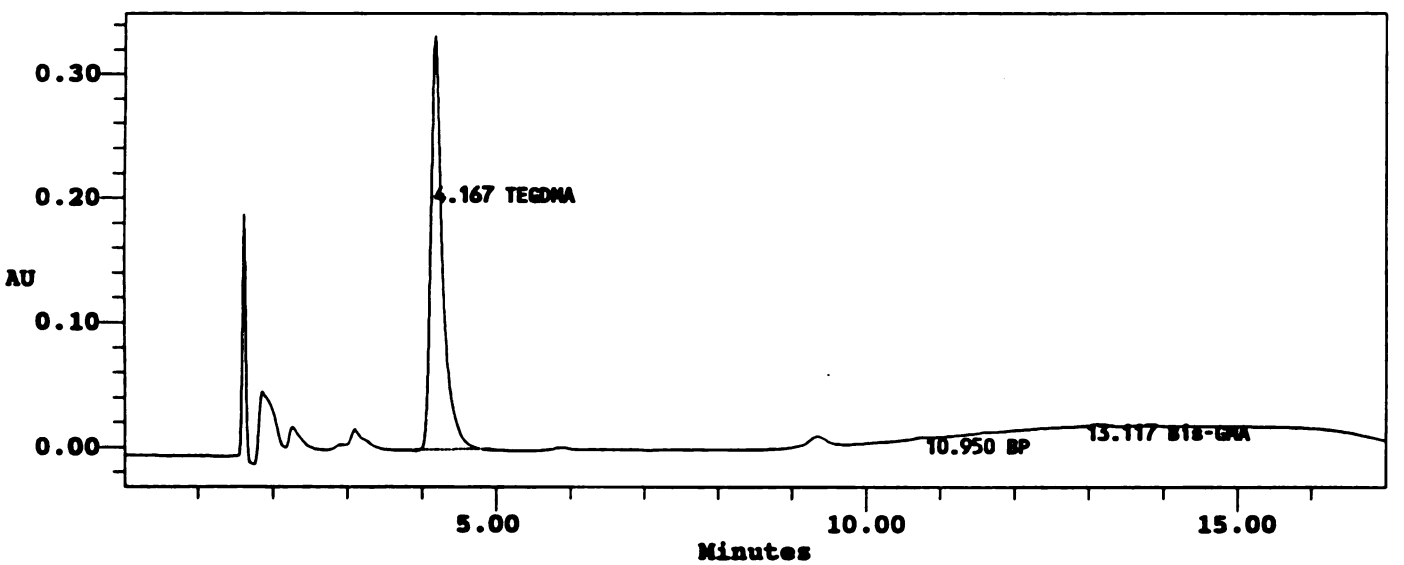


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	2463420	225178	0.812	BB
2	BP	10.950				Missing
3	Bis-GMA	13.117	18138	1775	0.008	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T7 MOLD		
Vial:	40	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 04:09 AM	Date Processed:	10/19/93 10:42 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

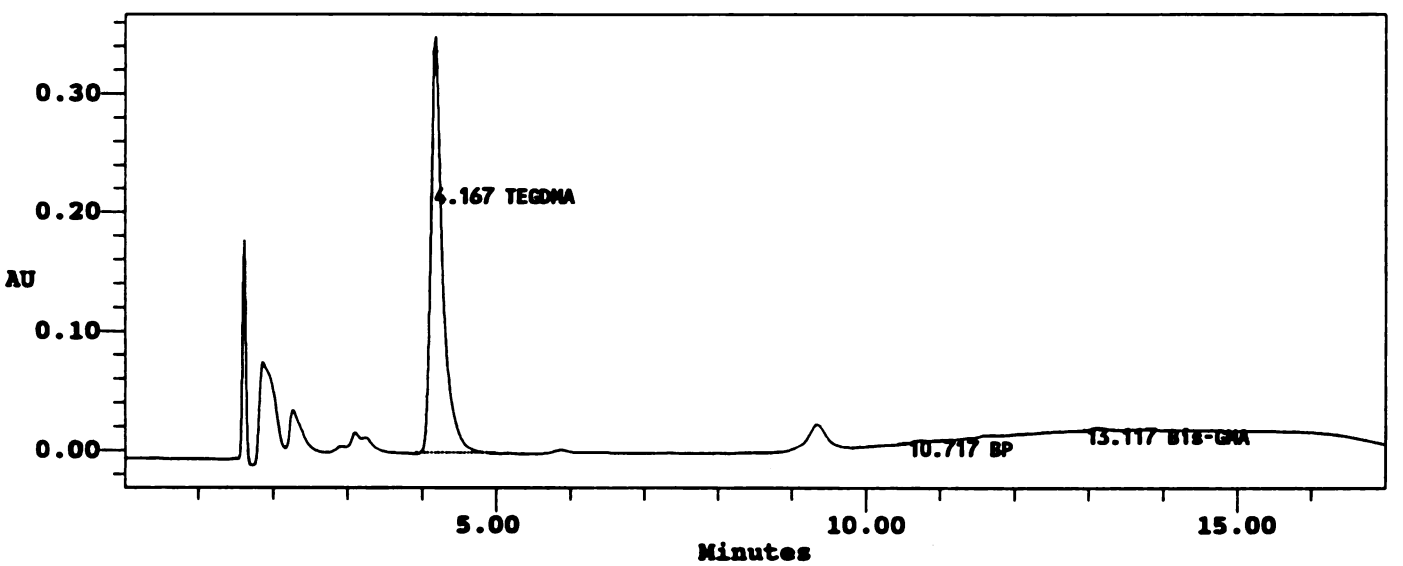
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	3660273	333637	1.206	BB
2	BP	10.950				Missing
3	Bis-GMA	13.117	21074	2075	0.009	BB

For Sample: R1S4T8 MOLD Vial: 46 Inj: 1 Chan: 486 Date Processed 10/19/93 10:43 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T8 MOLD		
Vial:	46	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 06:02 AM	Date Processed:	10/19/93 10:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

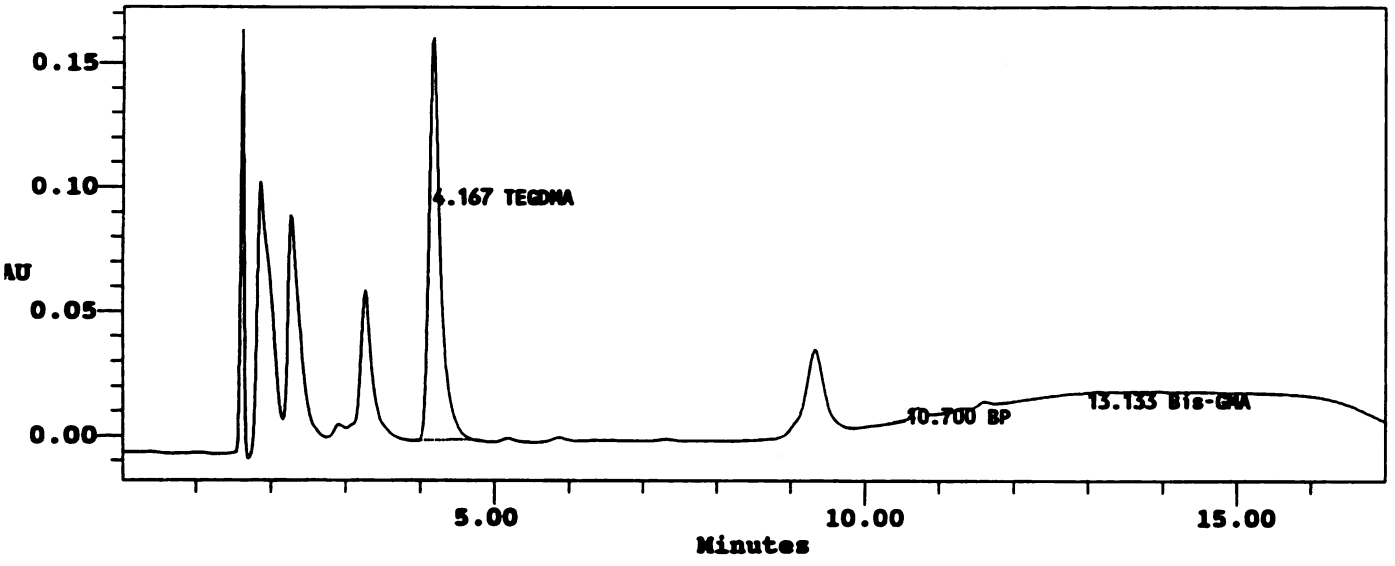


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	3857338	350811	1.271	BB
2	BP	10.717	28875	2325	0.010	BB
3	Bis-GMA	13.117	26159	2655	0.012	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T9 MOLD		
Vial:	52	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 07:54 AM	Date Processed:	10/19/93 10:44 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

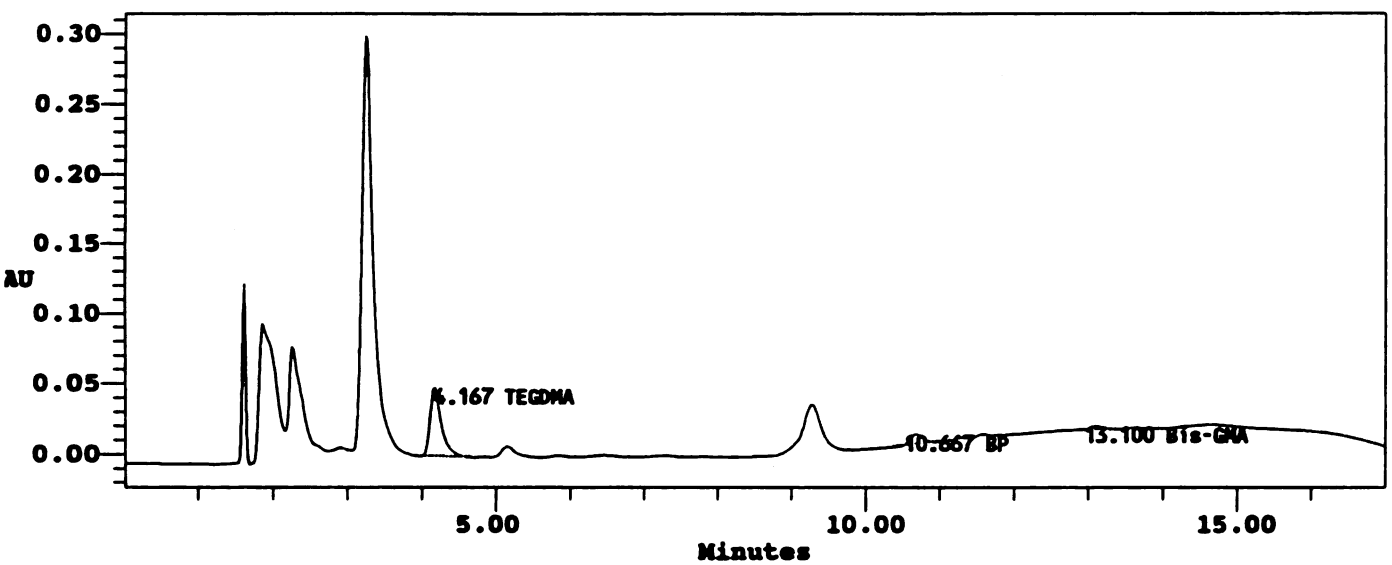


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	1740991	162457	0.574	BB
2	BP	10.700	54321	4437	0.019	BB
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T10 MOLD		
Vial:	58	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 09:47 AM	Date Processed:	10/19/93 10:46 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

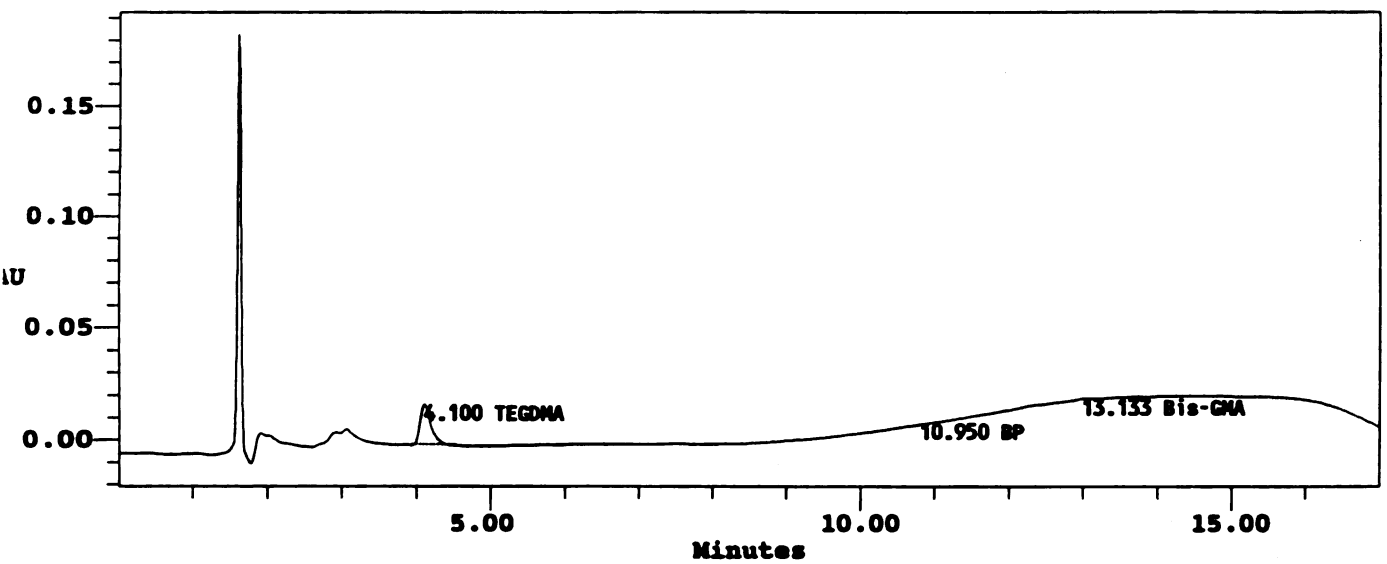
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	523519	48642	0.172	BB
2	BP	10.667	88244	7275	0.030	BB
3	Bis-GMA	13.100	25603	2567	0.011	BB

For Sample: R1S5T1 MOLD Vial: 5 Inj: 1 Chan: 486 Date Processed 10/19/93 10:35 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T1 MOLD		
Vial:	5	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 05:12 PM	Date Processed:	10/19/93 10:35 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



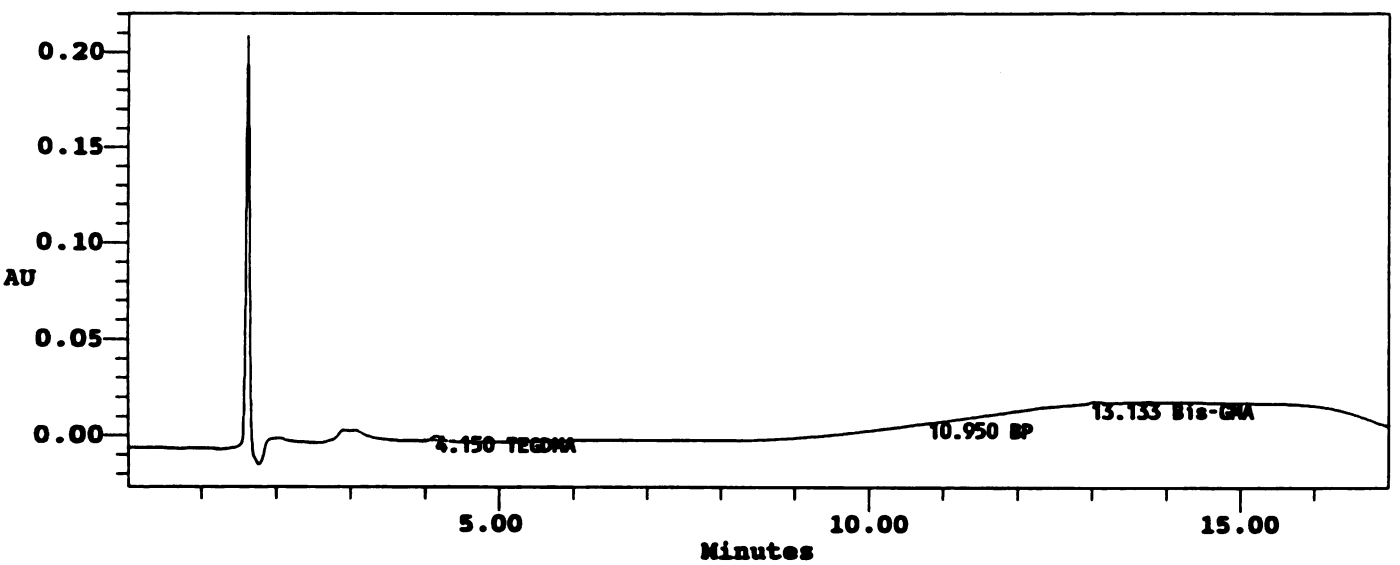
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.100	188824	18340	0.062	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Results Report: Default Proc Chan: 486 Page 1
For Sample: R1S5T2 MOLD Vial: 11 Inj: 1 Chan: 486 Date Processed 10/19/93 10:36 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T2 MOLD		
Vial:	11	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 07:05 PM	Date Processed:	10/19/93 10:36 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

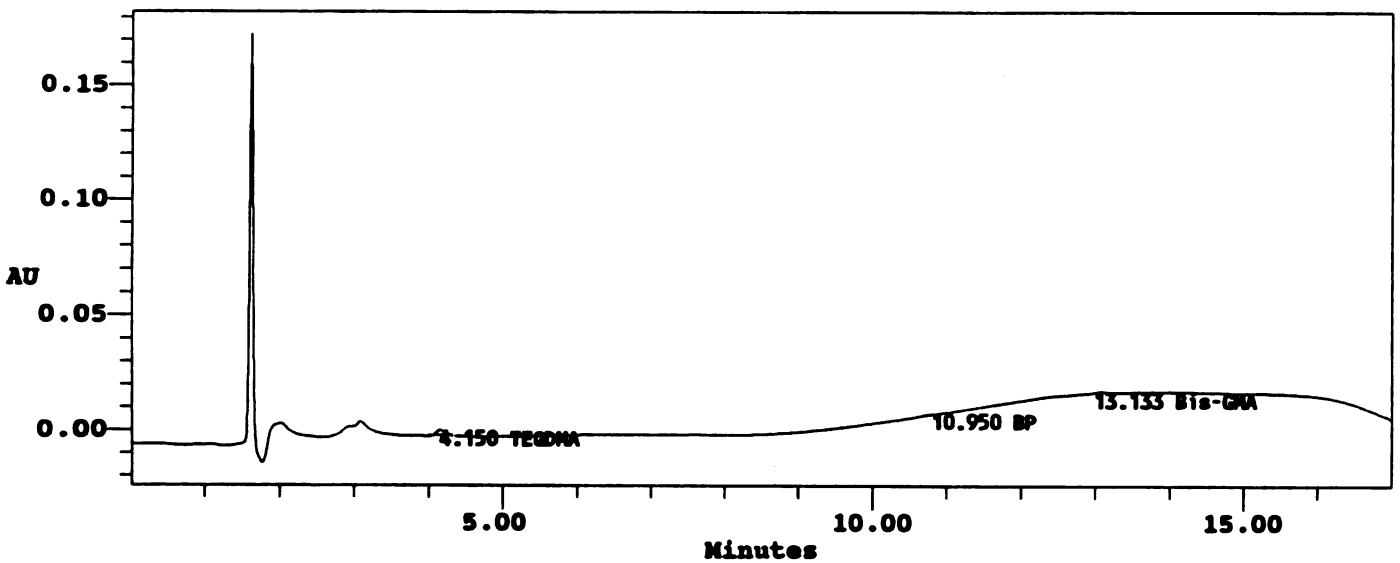


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	27707	2762	0.009	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T3 MOLD		
Vial:	17	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 08:57 PM	Date Processed:	10/19/93 10:37 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

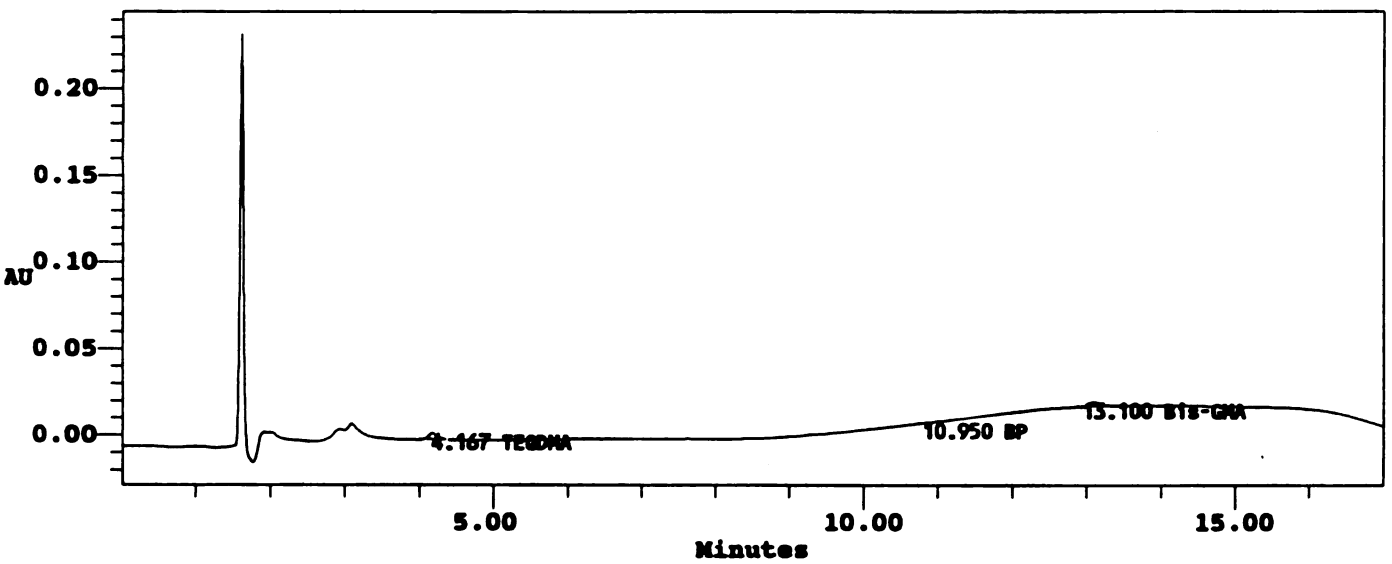
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	28750	2873	0.009	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S5T4 MOLD Vial: 23 Inj: 1 Chan: 486 Date Processed 10/19/93 10:38 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T4 MOLD		
Vial:	23	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 10:50 PM	Date Processed:	10/19/93 10:38 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

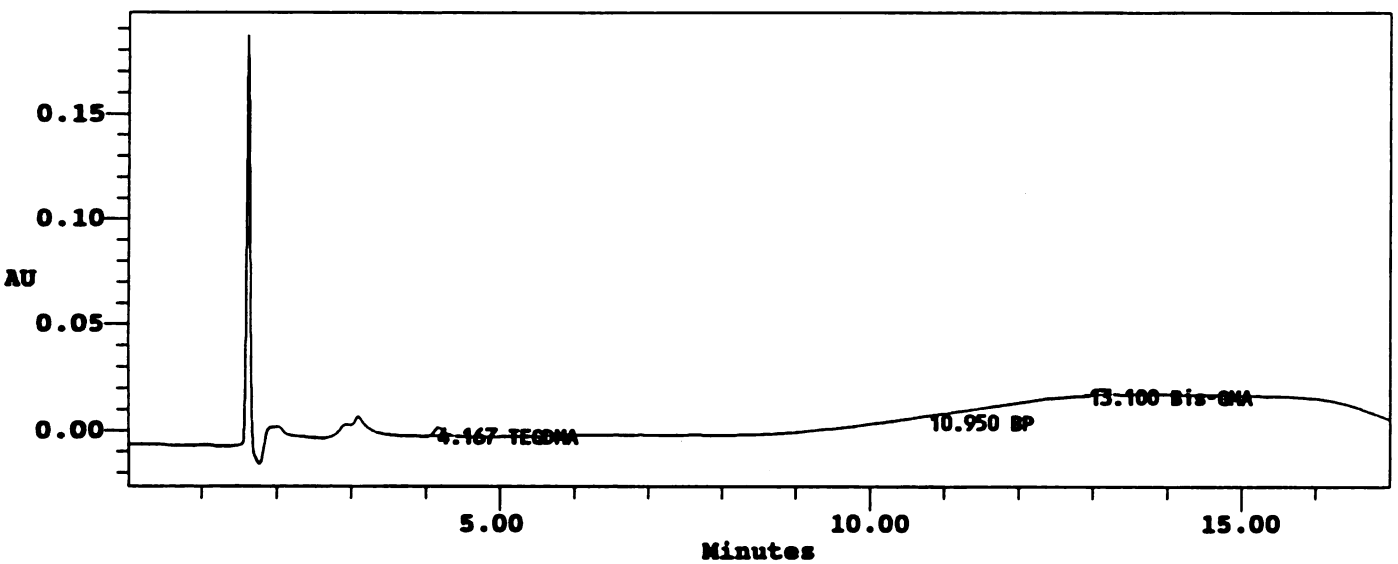
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	39426	3949	0.013	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	26309	2598	0.012	BB

For Sample: R1S5T5 MOLD Vial: 29 Inj: 1 Chan: 486 Date Processed 10/19/93 10:40 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T5 MOLD		
Vial:	29	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 12:42 AM	Date Processed:	10/19/93 10:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

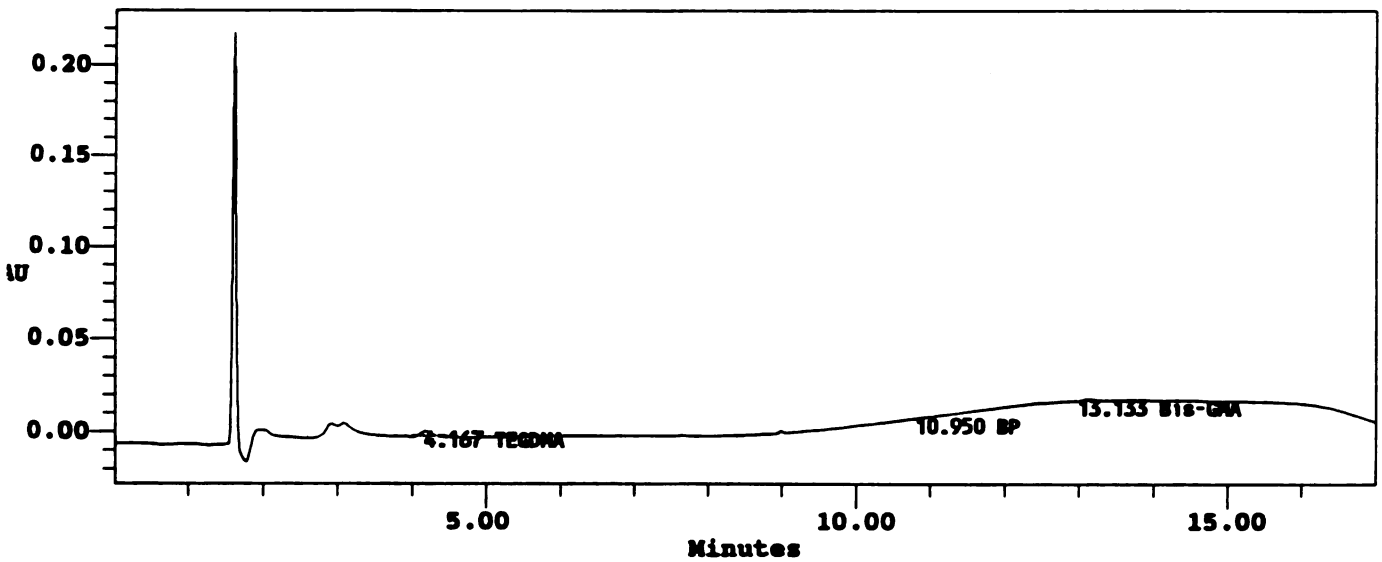
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	42344	4265	0.014	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	33534	3285	0.015	BB

For Sample: R1S5T6 MOLD Vial: 35 Inj: 1 Chan: 486 Date Processed 10/19/93 10:41 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T6 MOLD		
Vial:	35	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 02:35 AM	Date Processed:	10/19/93 10:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



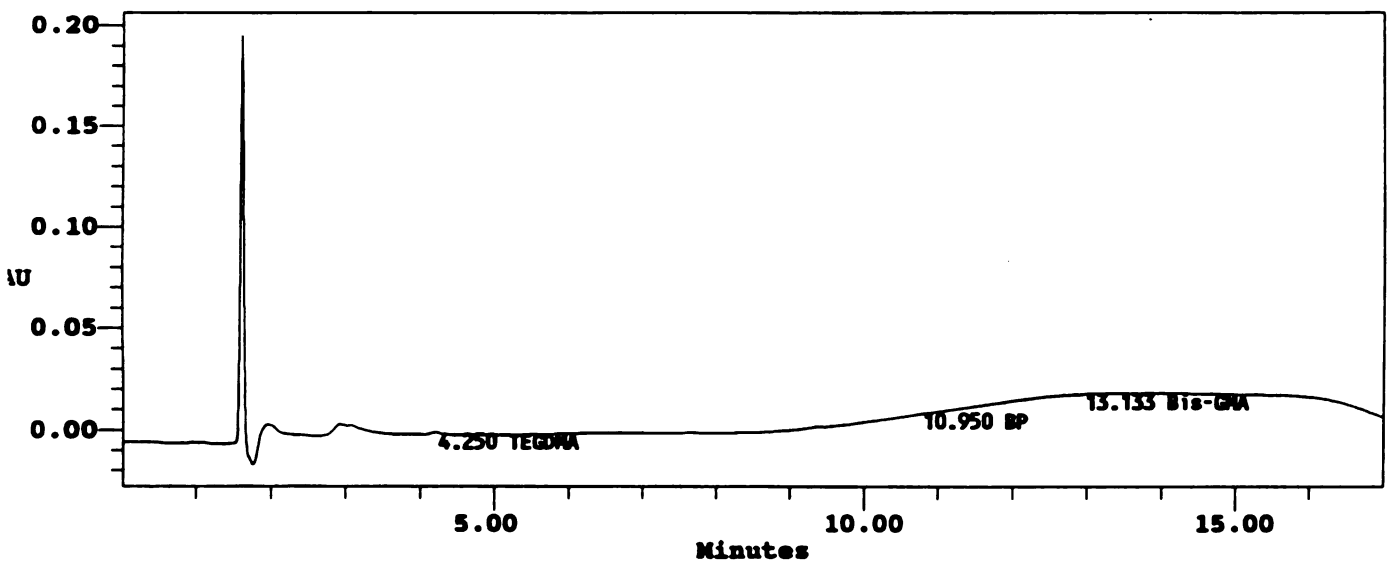
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	30654	3028	0.010	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S5T7 MOLD Vial: 41 Inj: 1 Chan: 486 Date Processed 10/19/93 10:42 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T7 MOLD		
Vial:	41	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 04:28 AM	Date Processed:	10/19/93 10:42 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

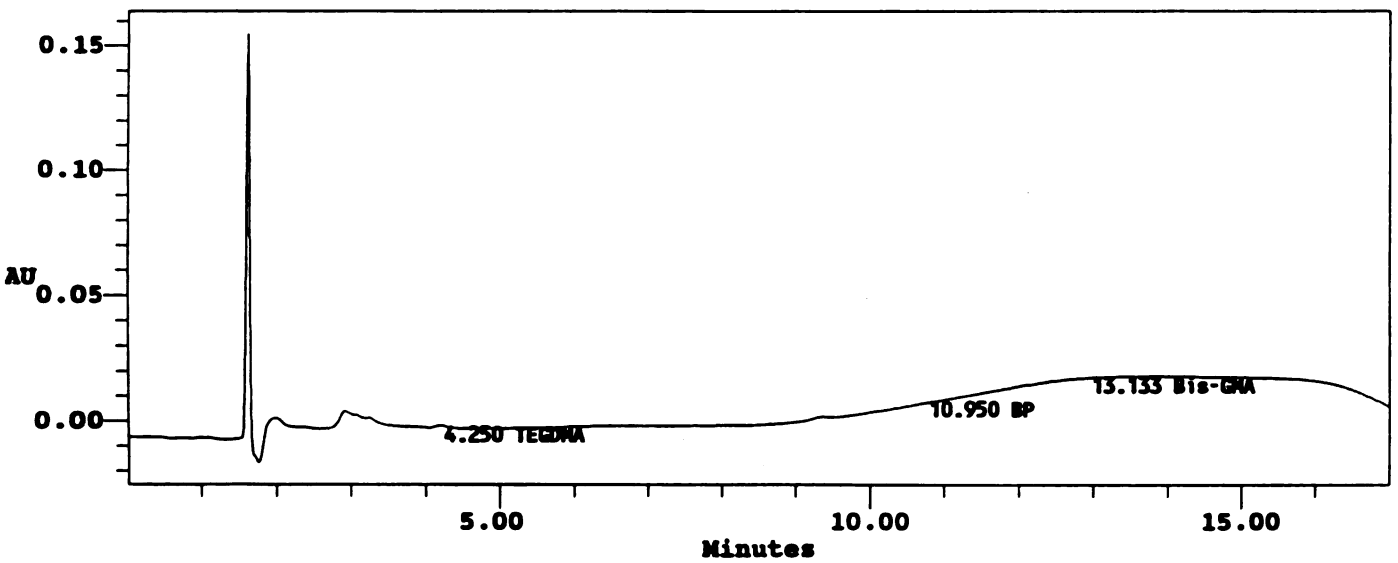


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T8 MOLD		
Vial:	47	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 06:20 AM	Date Processed:	10/19/93 10:43 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

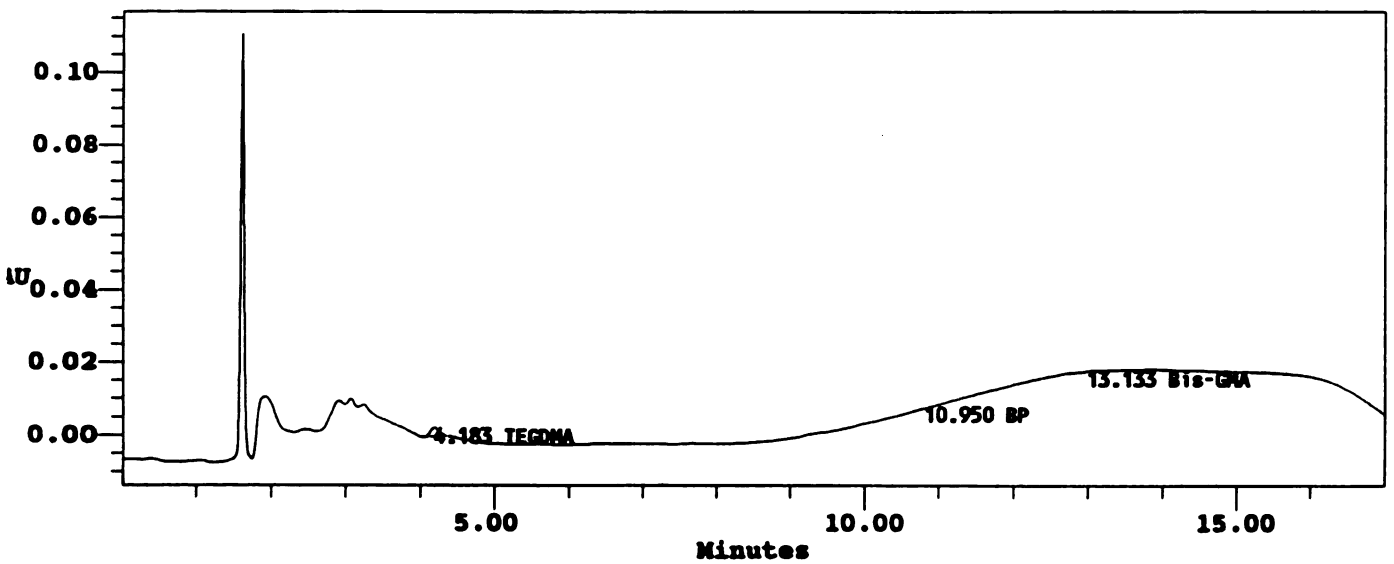
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250			.003	Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S5T9 MOLD Vial: 53 Inj: 1 Chan: 486 Date Processed 10/19/93 10:45 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T9 MOLD		
Vial:	53	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 08:13 AM	Date Processed:	10/19/93 10:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

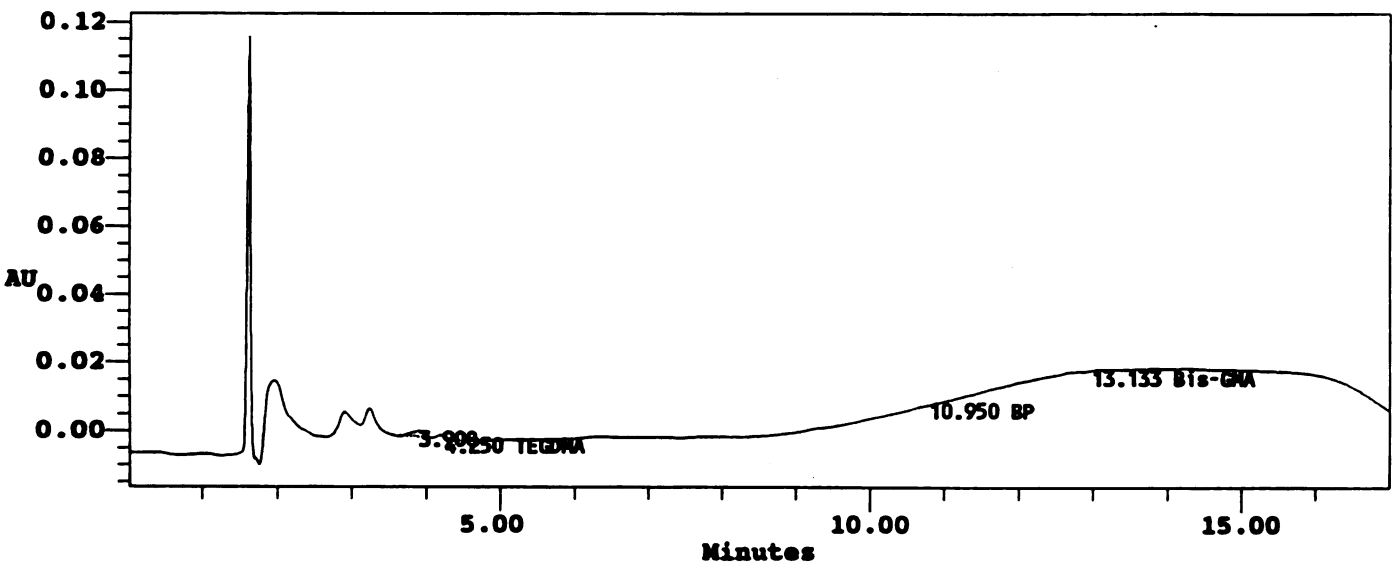


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	25842	2697	0.009	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T10 MOLD		
Vial:	59	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 10:06 AM	Date Processed:	10/19/93 10:46 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



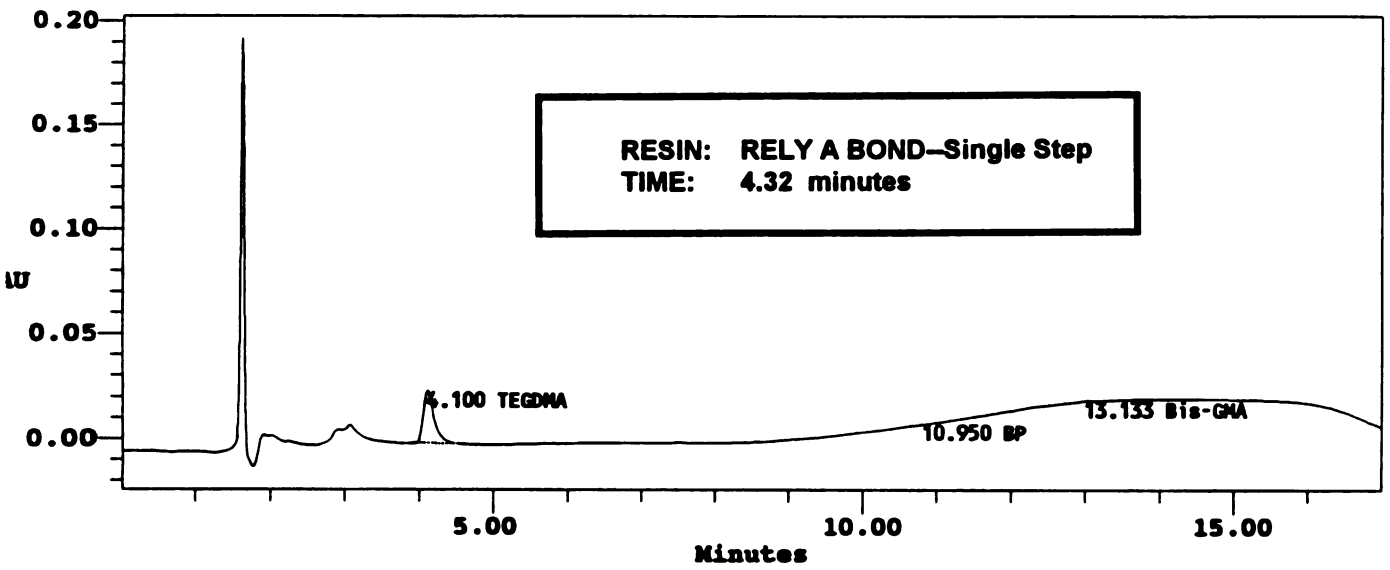
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.900	26917	2054		BV
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Results Report: Default Proc Chan: 486 Page 1
For Sample: R1S6T1 MOLD Vial: 6 Inj: 1 Chan: 486 Date Processed 10/19/93 10:35 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T1 MOLD		
Vial:	6	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 05:31 PM	Date Processed:	10/19/93 10:35 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

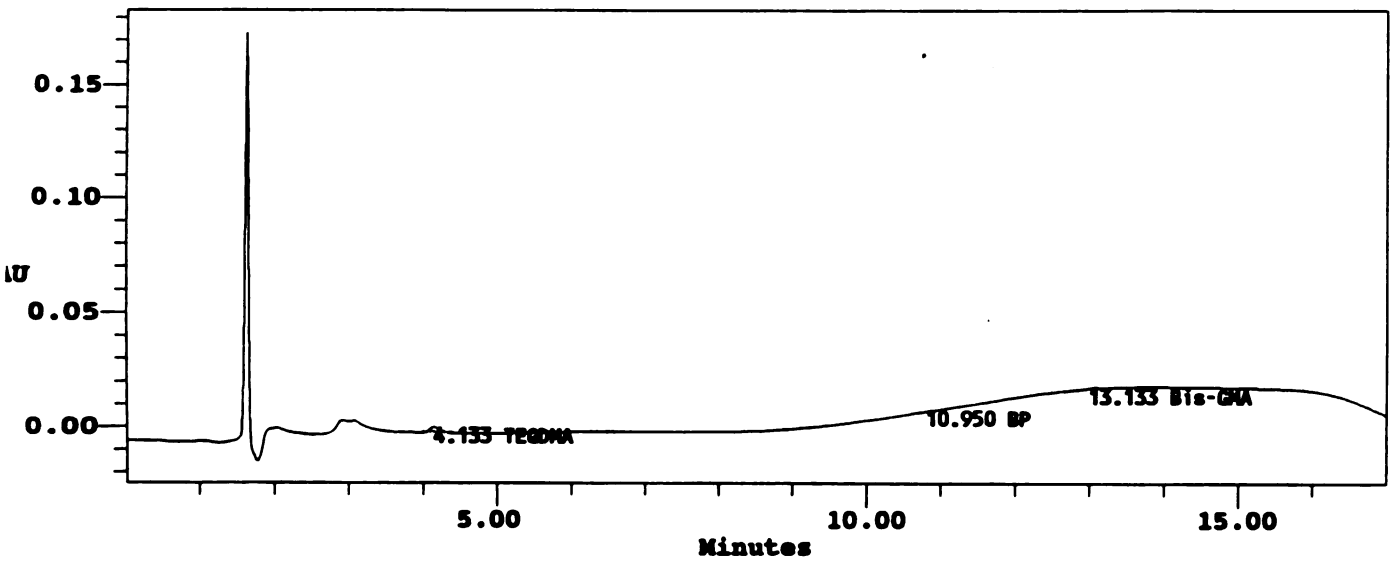


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.100	254591	24955	0.084	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T2 MOLD		
Vial:	12	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 07:23 PM	Date Processed:	10/19/93 10:36 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

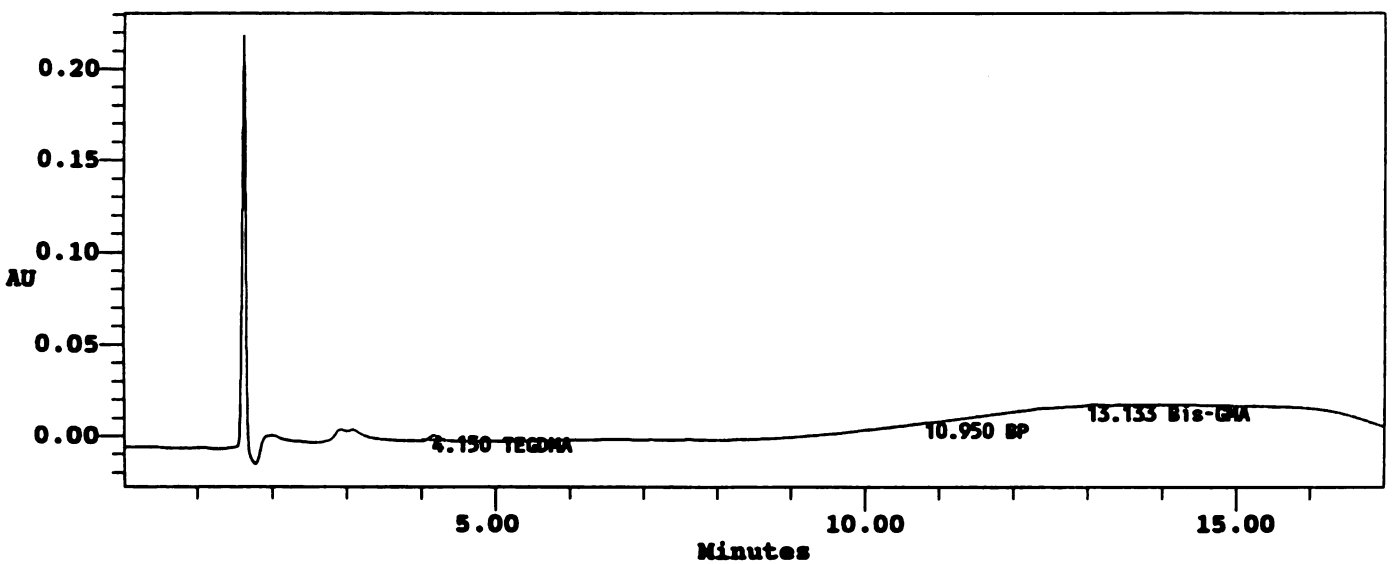


Peak Results

Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
TEGDMA	4.133	26020	2674	0.009	BB
BP	10.950				Missing
Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T3 MOLD		
Vial:	18	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 09:16 PM	Date Processed:	10/19/93 10:37 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

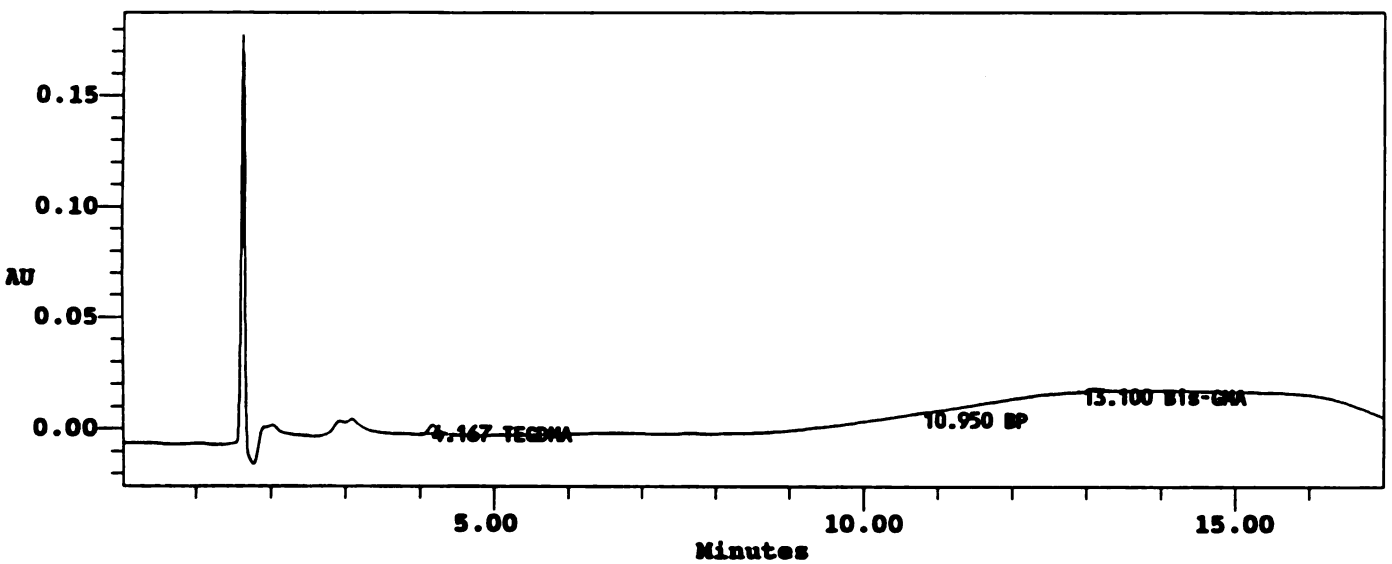


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	29579	2992	0.010	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T4 MOLD		
Vial:	24	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/03/93 11:09 PM	Date Processed:	10/19/93 10:39 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

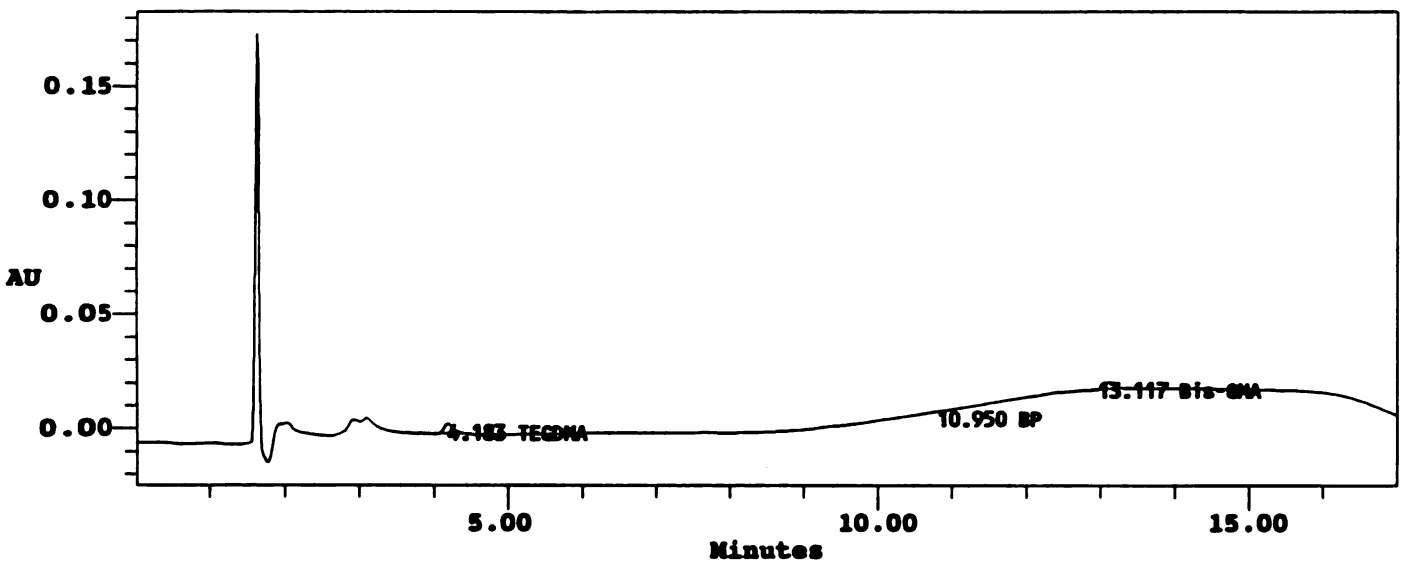


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	43128	4337	0.014	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	17831	1725	0.008	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T5 MOLD		
Vial:	30	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 01:01 AM	Date Processed:	10/19/93 10:40 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

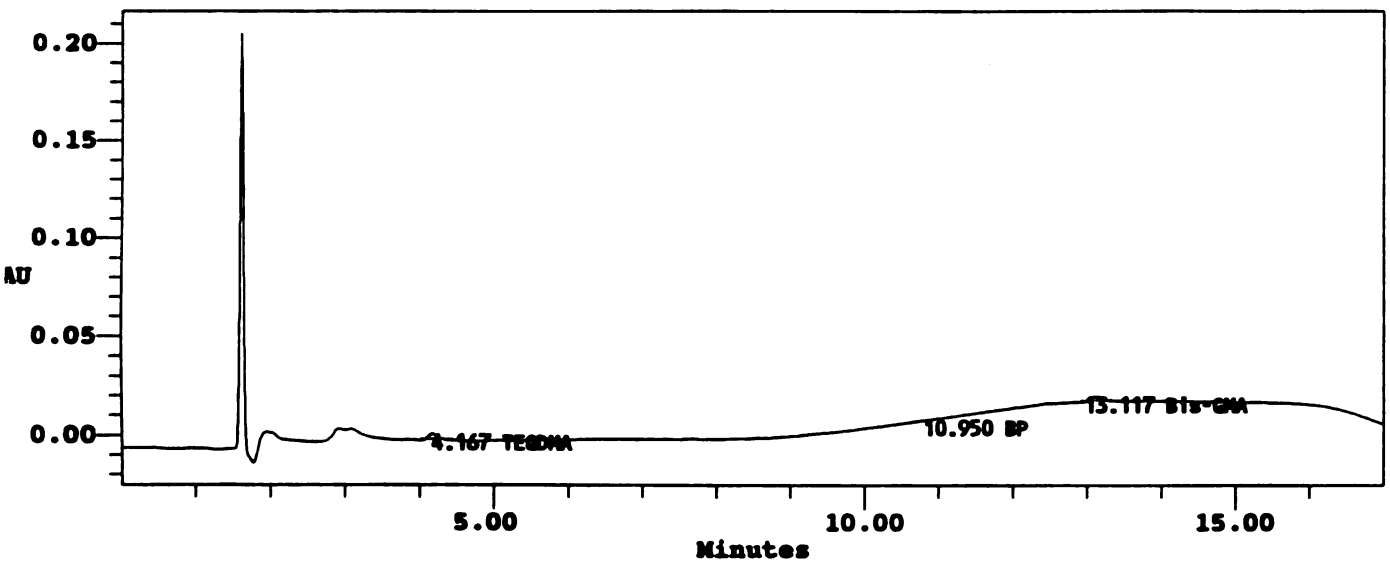


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	44211	4406	0.015	BB
2	BP	10.950				Missing
3	Bis-GMA	13.117	34626	3334	0.015	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T6 MOLD		
Vial:	36	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 02:54 AM	Date Processed:	10/19/93 10:41 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



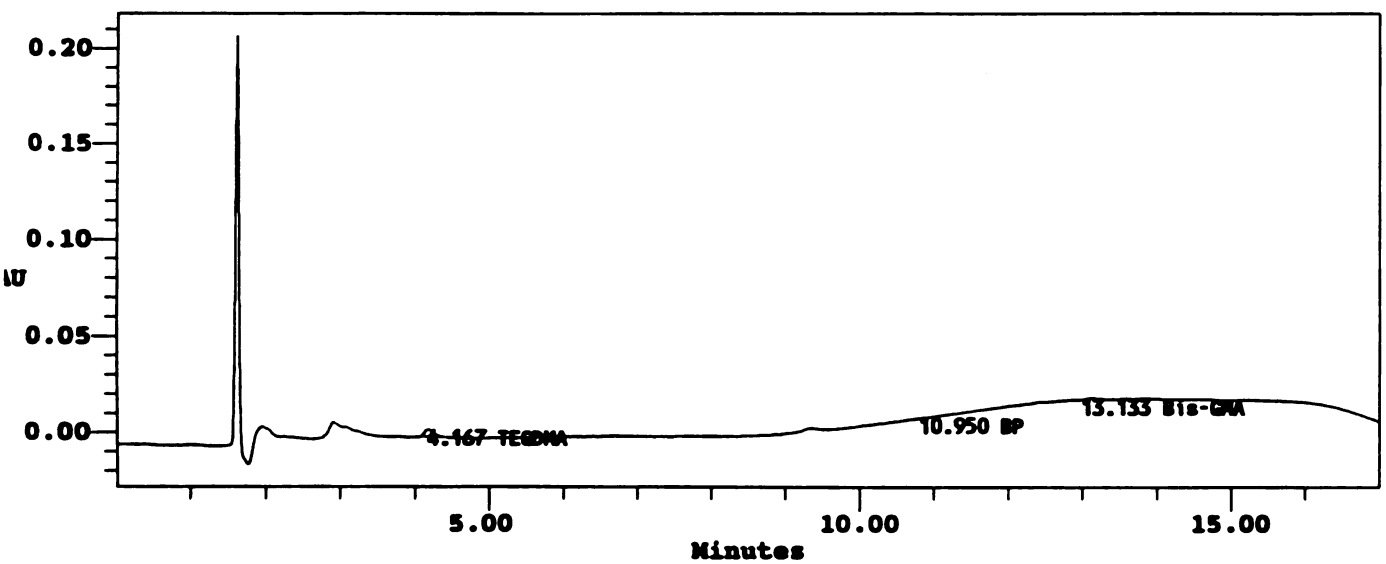
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	33632	3365	0.011	BB
2	BP	10.950				Missing
3	Bis-GMA	13.117	27473	2700	0.012	BB

For Sample: R1S6T7 MOLD Vial: 42 Inj: 1 Chan: 486 Date Processed 10/19/93 10:42 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T7 MOLD		
Vial:	42	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 04:46 AM	Date Processed:	10/19/93 10:42 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



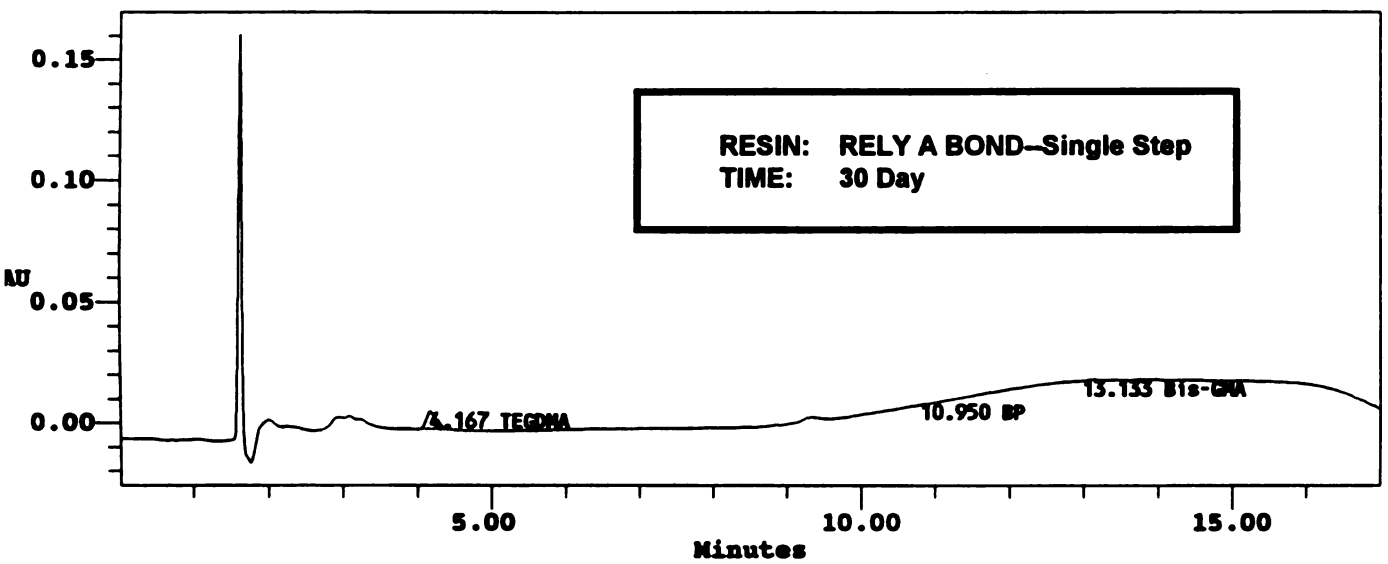
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	43778	4326	0.014	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S6T8 MOLD Vial: 48 Inj: 1 Chan: 486 Date Processed 10/19/93 10:44 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T8 MOLD		
Vial:	48	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 06:39 AM	Date Processed:	10/19/93 10:44 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

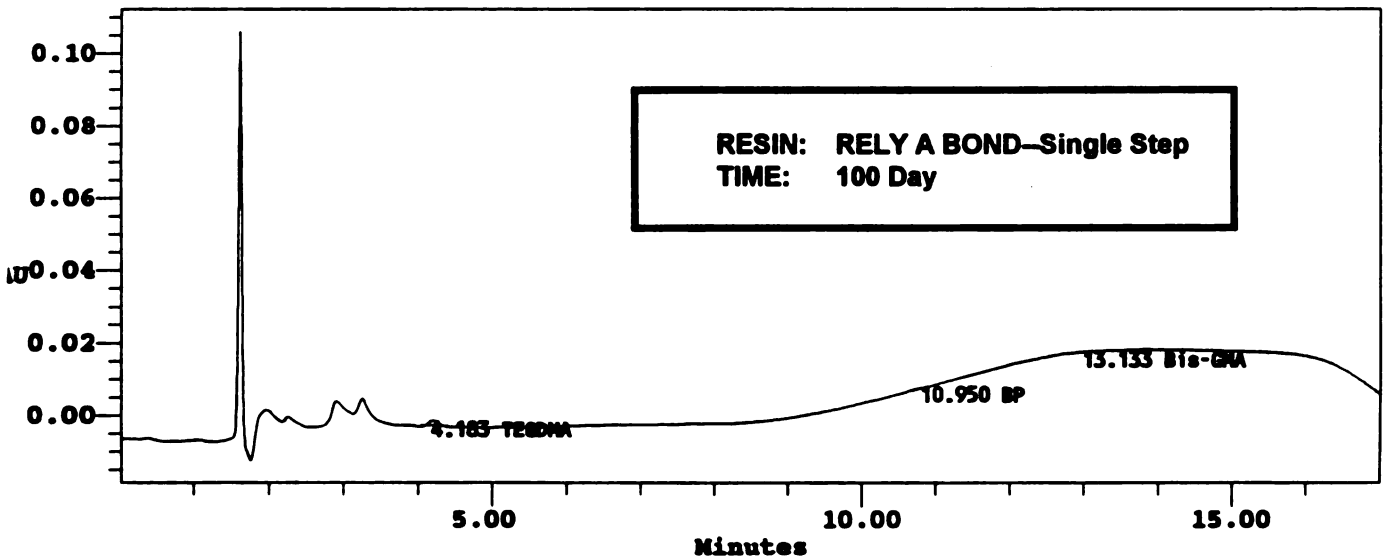
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	77226	7522	0.025	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S6T9 MOLD Vial: 54 Inj: 1 Chan: 486 Date Processed 10/19/93 10:45 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T9 MOLD		
Vial:	54	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 08:32 AM	Date Processed:	10/19/93 10:45 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

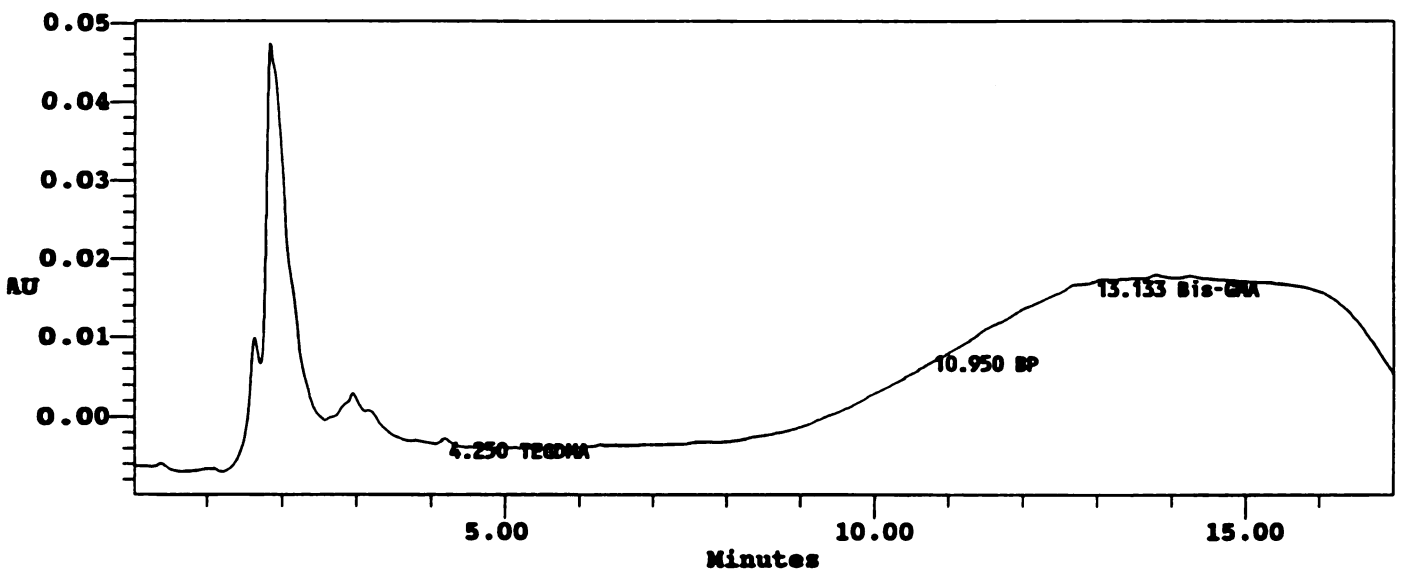
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.183	17252	1786	0.006	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S6T10 MOLD Vial: 60 Inj: 1 Chan: 486 Date Processed 10/19/93 10:46 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T10 MOLD		
Vial:	60	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 10:24 AM	Date Processed:	10/19/93 10:46 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

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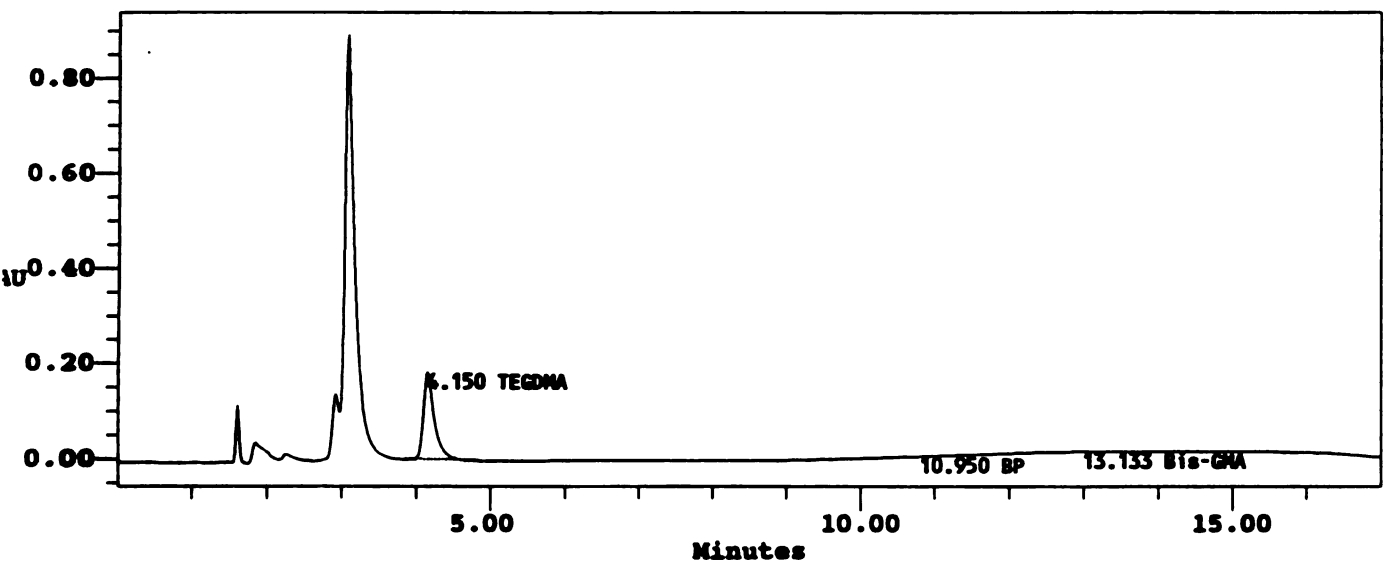
For Sample: R1S1T1 TOOTH Vial: 61 Inj: 1 Chan: 486 Date Processed 10/19/93 10:46 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T1 TOOTH		
Vial:	61	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 10:43 AM	Date Processed:	10/19/93 10:46 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

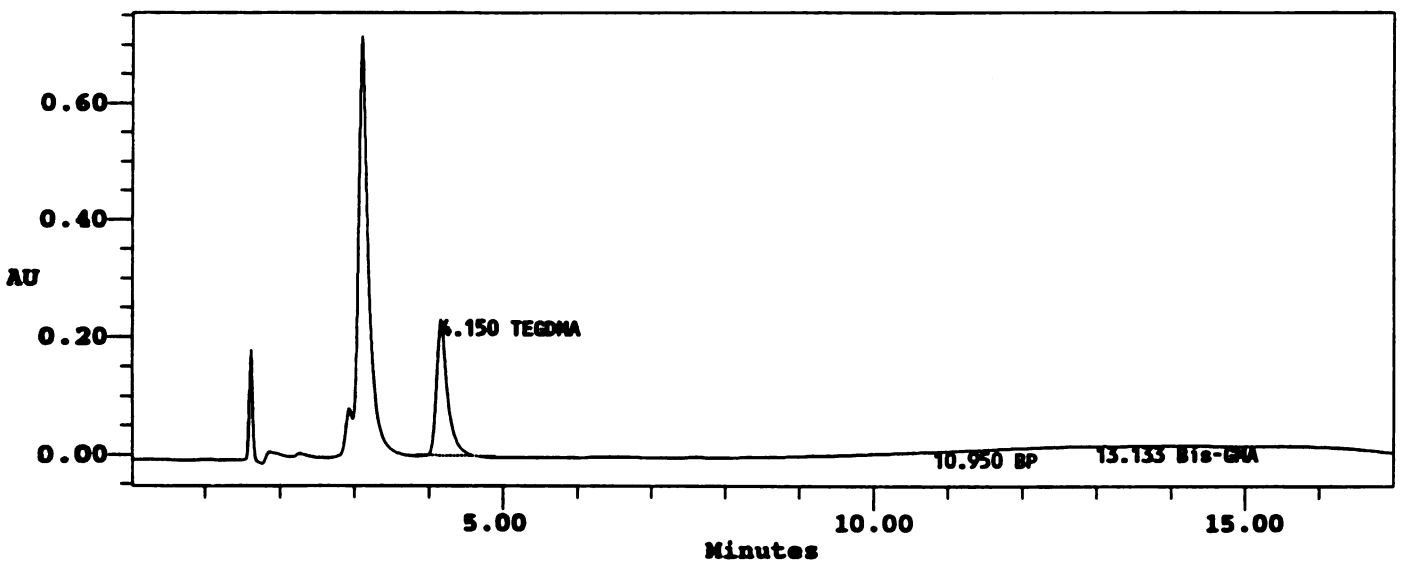
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1923698	183140	0.634	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S1T2 TOOTH Vial: 67 Inj: 1 Chan: 486 Date Processed 10/19/93 10:48 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T2 TOOTH		
Vial:	67	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 12:36 PM	Date Processed:	10/19/93 10:48 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

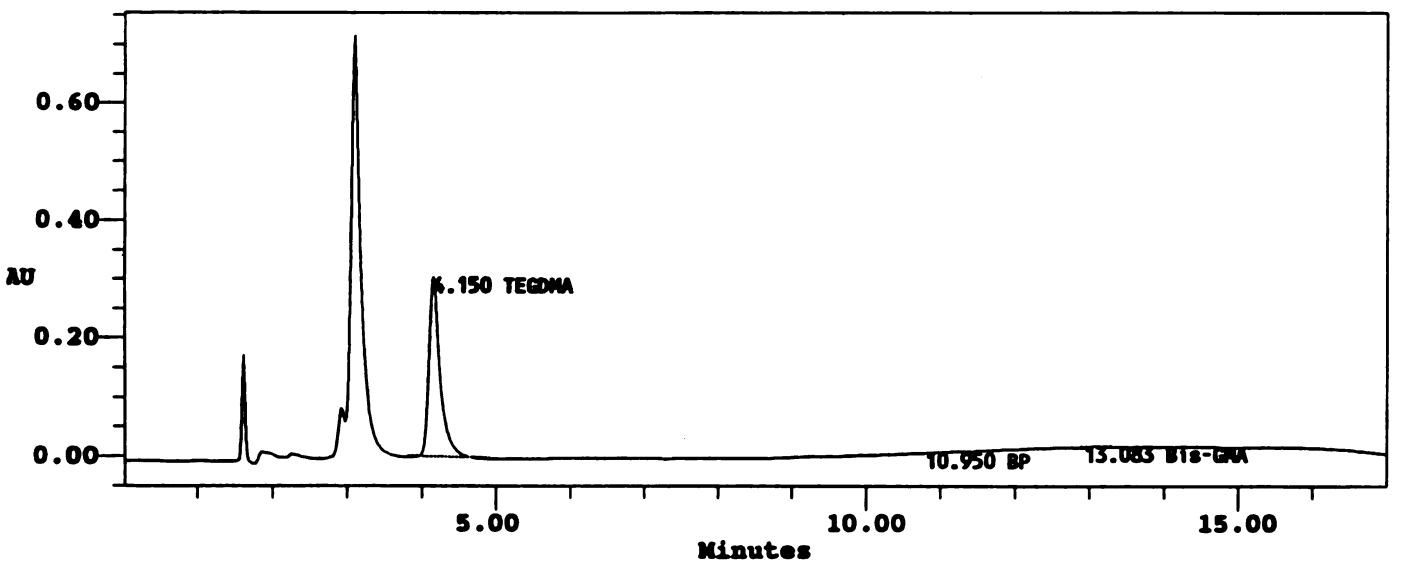


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	2455364	232118	0.809	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T3 TOOTH		
Vial:	73	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 02:28 PM	Date Processed:	10/19/93 10:49 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

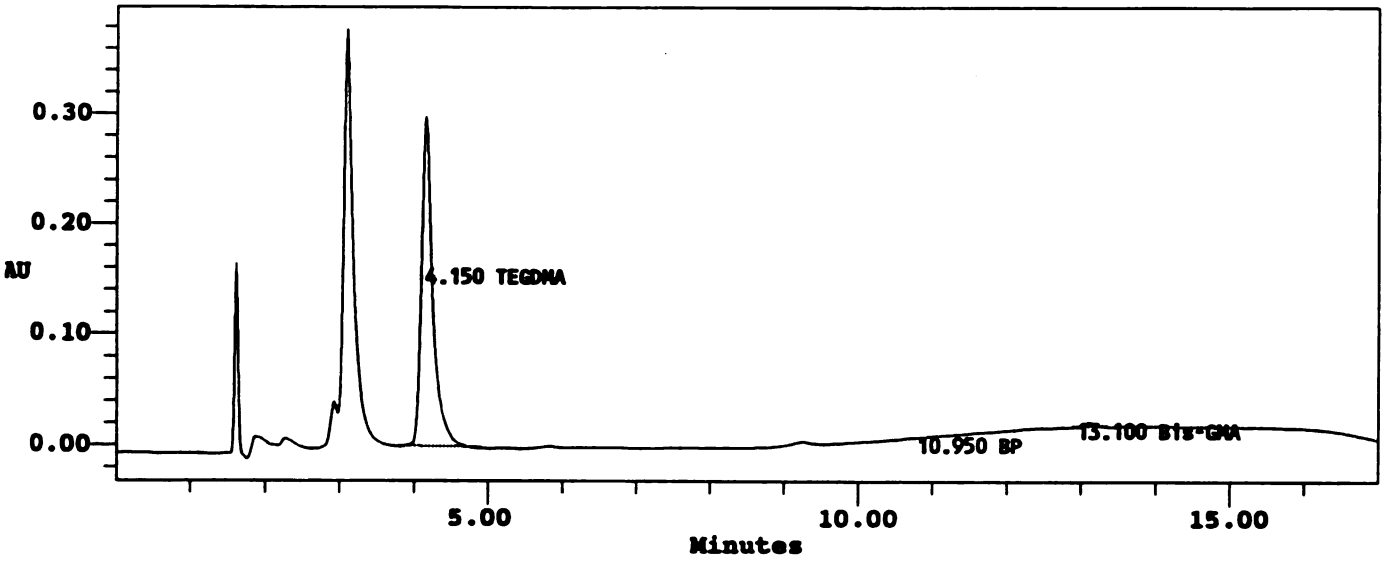


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	3252139	305916	1.071	BB
2	BP	10.950				Missing
3	Bis-GMA	13.083	29415	2945	0.013	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T4 TOOTH		
Vial:	79	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 04:21 PM	Date Processed:	10/19/93 10:50 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

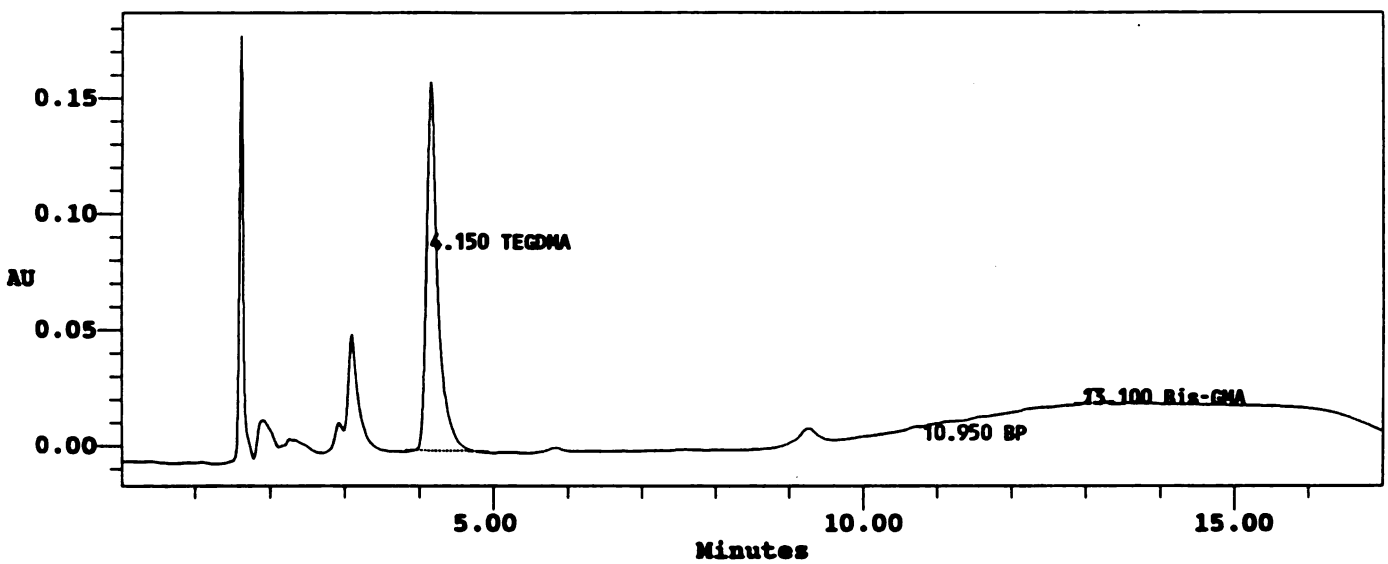
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	3204911	299127	1.056	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	41455	4079	0.018	BB

For Sample: R1S1T5 TOOTH Vial: 85 Inj: 1 Chan: 486 Date Processed 10/19/93 10:51 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T5 TOOTH		
Vial:	85	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 06:14 PM	Date Processed:	10/19/93 10:51 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1716753	159517	0.566	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	69685	6725	0.031	BB

For Sample: R1S1T6 TOOTH Vial: 91 Inj: 1 Chan: 486 Date Processed 10/19/93 10:53 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

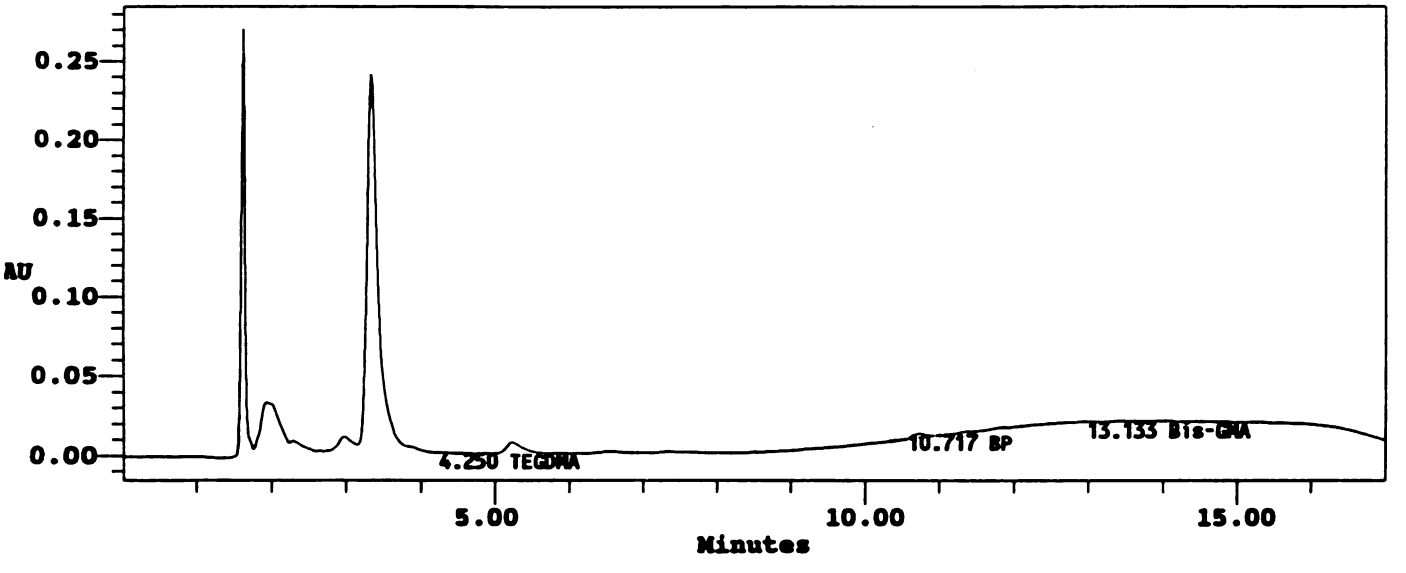
Project Name:	MIKE_ISO		
Sample Name:	R1S1T6 TOOTH		
Vial:	91	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 08:06 PM	Date Processed:	10/19/93 10:53 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	92909	9276	0.031	BB
2	BP	10.650	18024	1425	0.006	BB
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T7 TOOTH		
Vial:	1	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 10:19 PM	Date Processed:	10/19/93 04:10 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

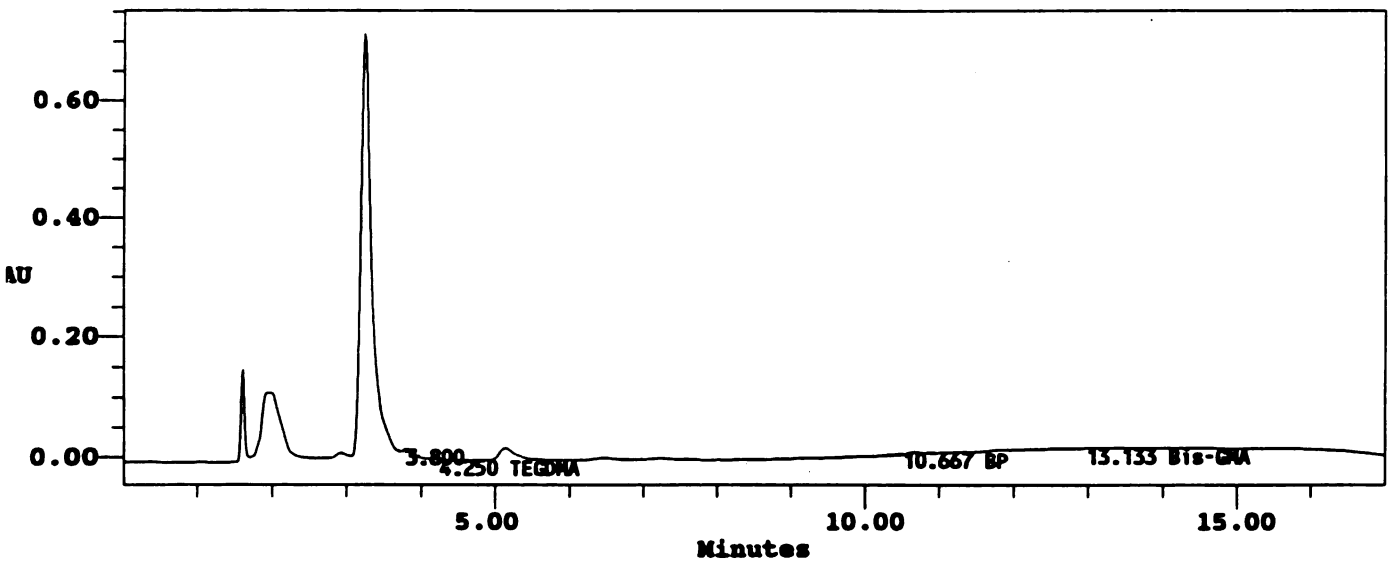
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.717	41369	3041	0.014	BV
3	Bis-GMA	13.133				Missing

For Sample: R1S1T8 TOOTH Vial: 7 Inj: 1 Chan: 486 Date Processed 10/19/93 04:11 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T8 TOOTH		
Vial:	7	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 12:12 AM	Date Processed:	10/19/93 04:11 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

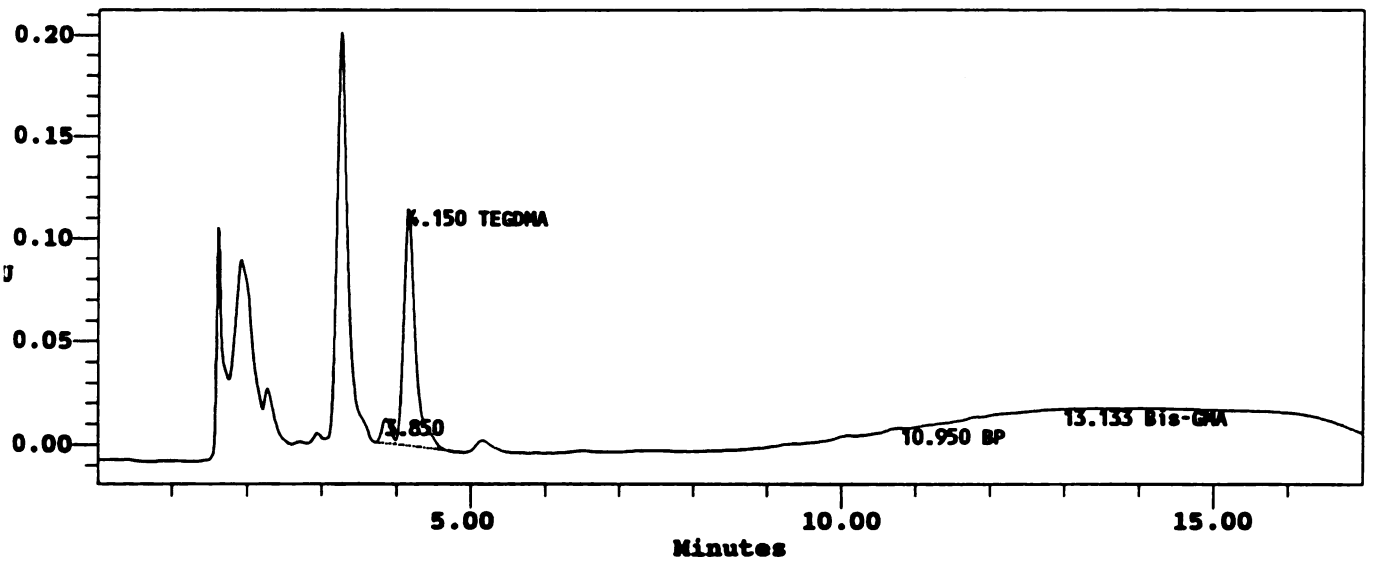
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.800	60787	7616		BB
2	TEGDMA	4.250				Missing
3	BP	10.667	53816	4015	0.019	BV
4	Bis-GMA	13.133				Missing

For Sample: R1S1T9 TOOTH Vial: 13 Inj: 1 Chan: 486 Date Processed 10/19/93 04:12 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

roject Name:	MIKE_ISO		
ample Name:	R1S1T9 TOOTH		
ial:	13	Sample Type:	Unknown
njection:	1	Volume:	100.00
annel:	486	Run Time:	17.0 min
ate Acquired:	09/05/93 02:05 AM	Date Processed:	10/19/93 04:12 PM
cale Factor:	1.00	Dilution:	1.00000
eq Meth Set:	TMG_one_meth_set		
rocessing Method:	ortho_2_integrate		

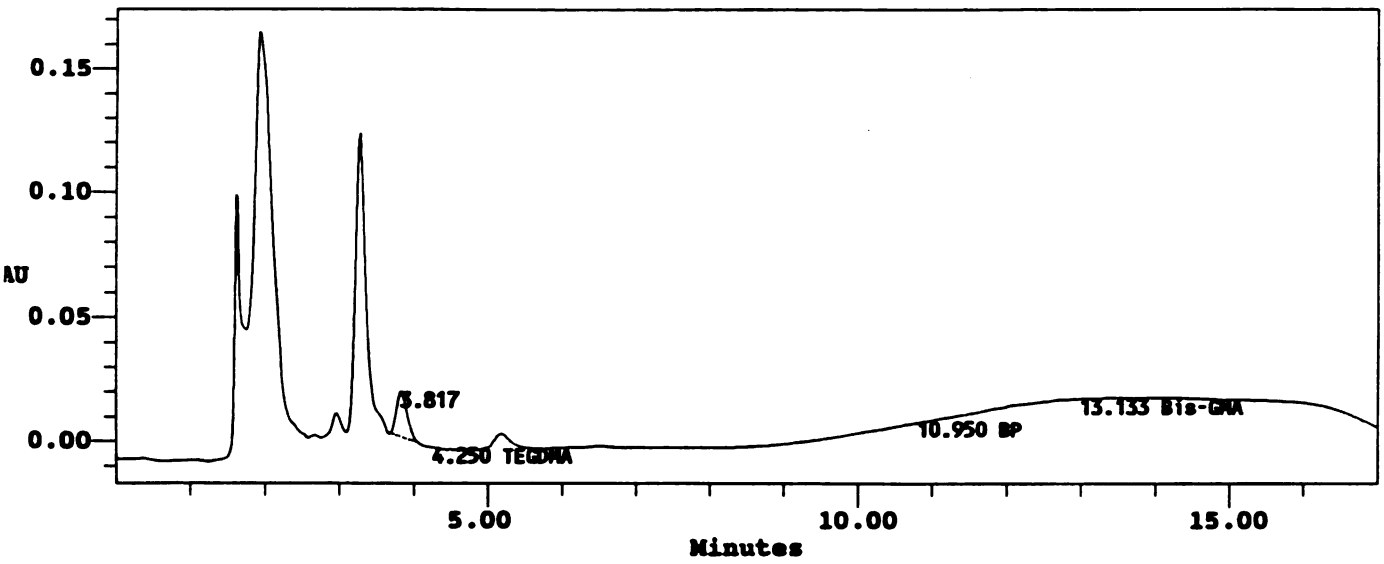


Peak Results

Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
	3.850	103413	12149		BV
TEGDMA	4.150	1255774	115249	0.414	VB
BP	10.950				Missing
Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S1T10 TOOTH		
Vial:	19	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 03:57 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

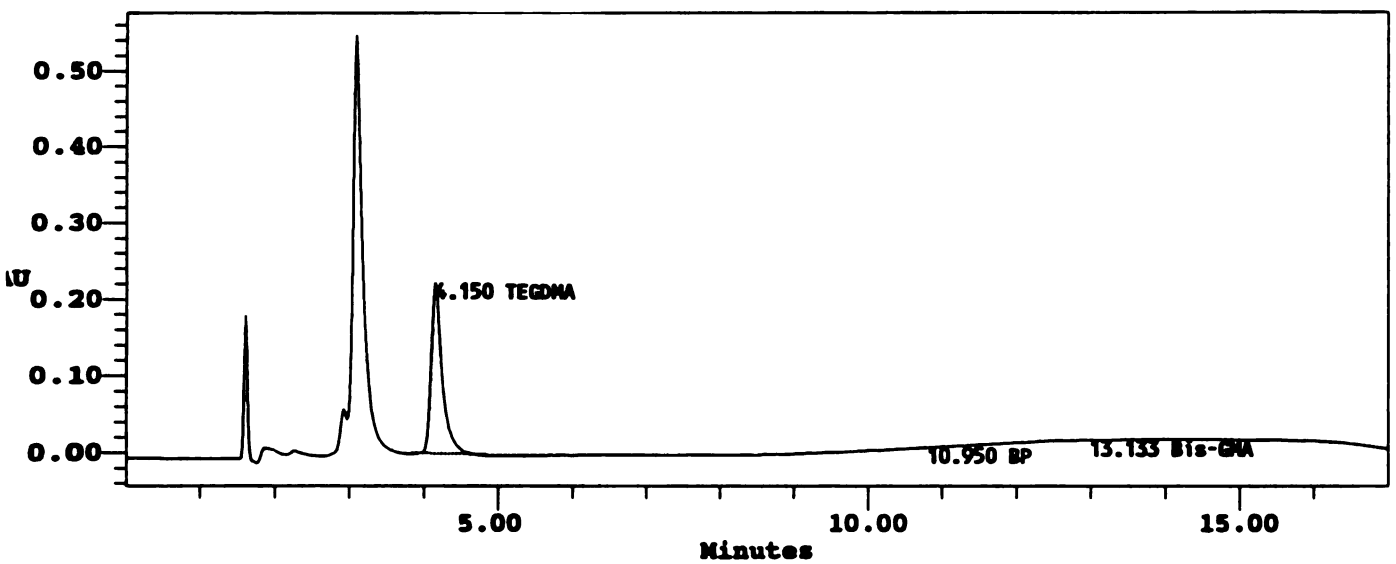


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.817	195481	18799		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T2 TOOTH		
Vial:	68	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 12:54 PM	Date Processed:	10/19/93 10:48 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	2356868	223796	0.777	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

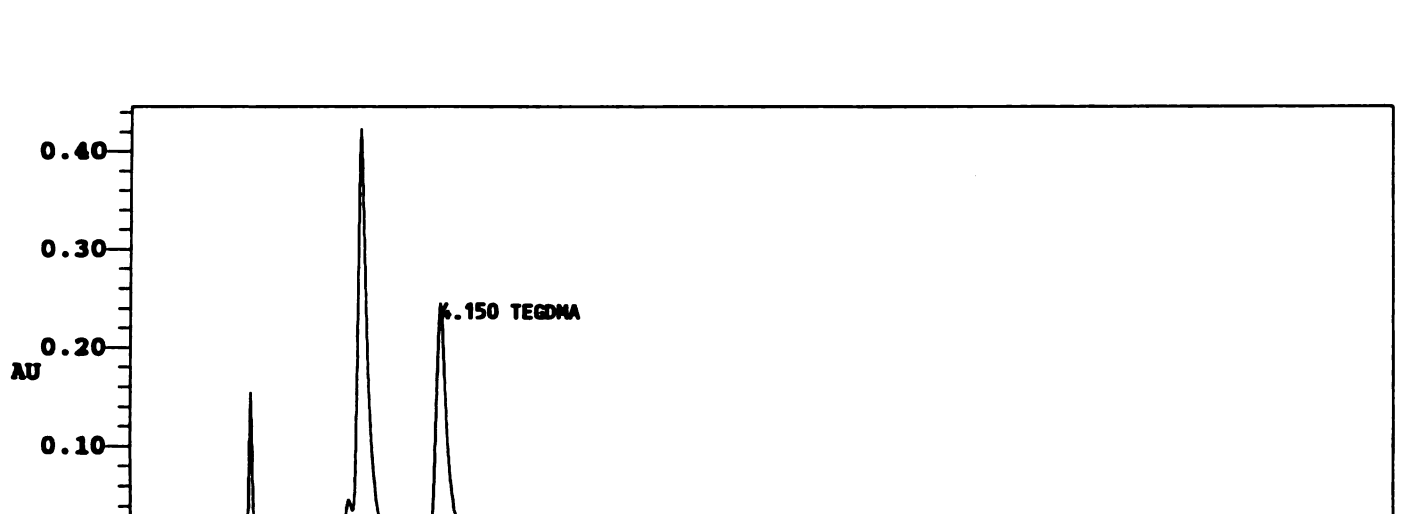
Millennium Results Report: Default | Proc Chan: 486 | Page 1

For Sample: R1S2T3 TOOTH Vial: 74 Inj: 1 Chan: 486 | Date Processed 10/19/93 10:49 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T3 TOOTH		
Vial:	74	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 02:47 PM	Date Processed:	10/19/93 10:49 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

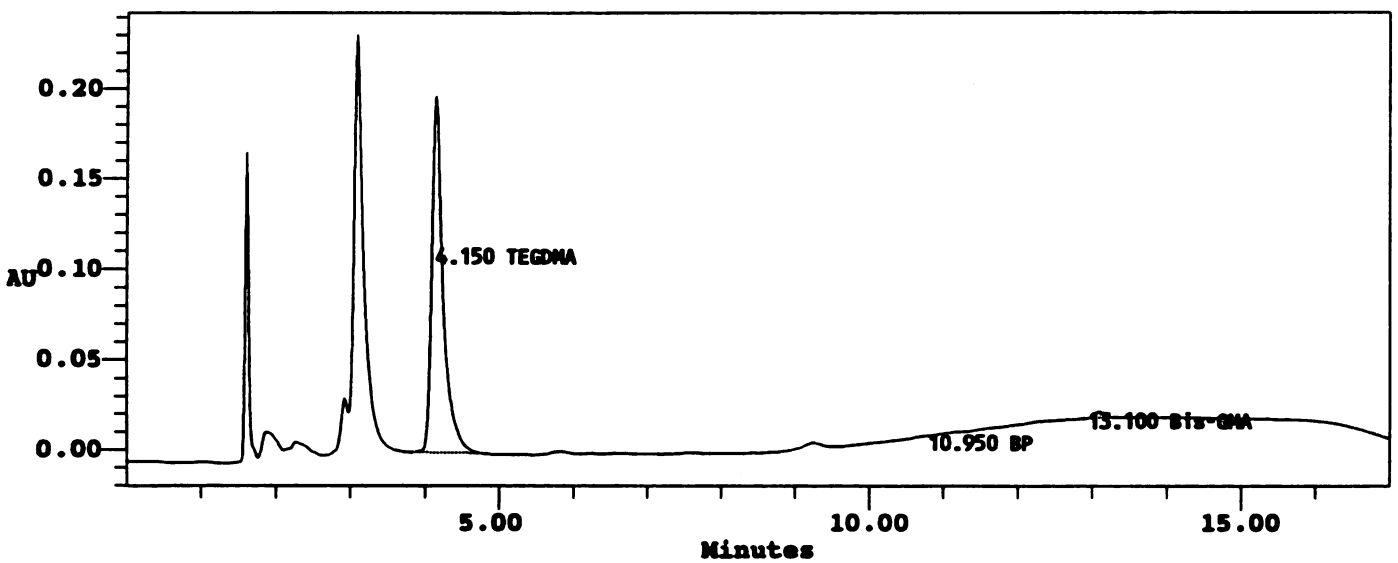


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	2623615	247008	0.864	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T4 TOOTH		
Vial:	80	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 04:40 PM	Date Processed:	10/19/93 10:50 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

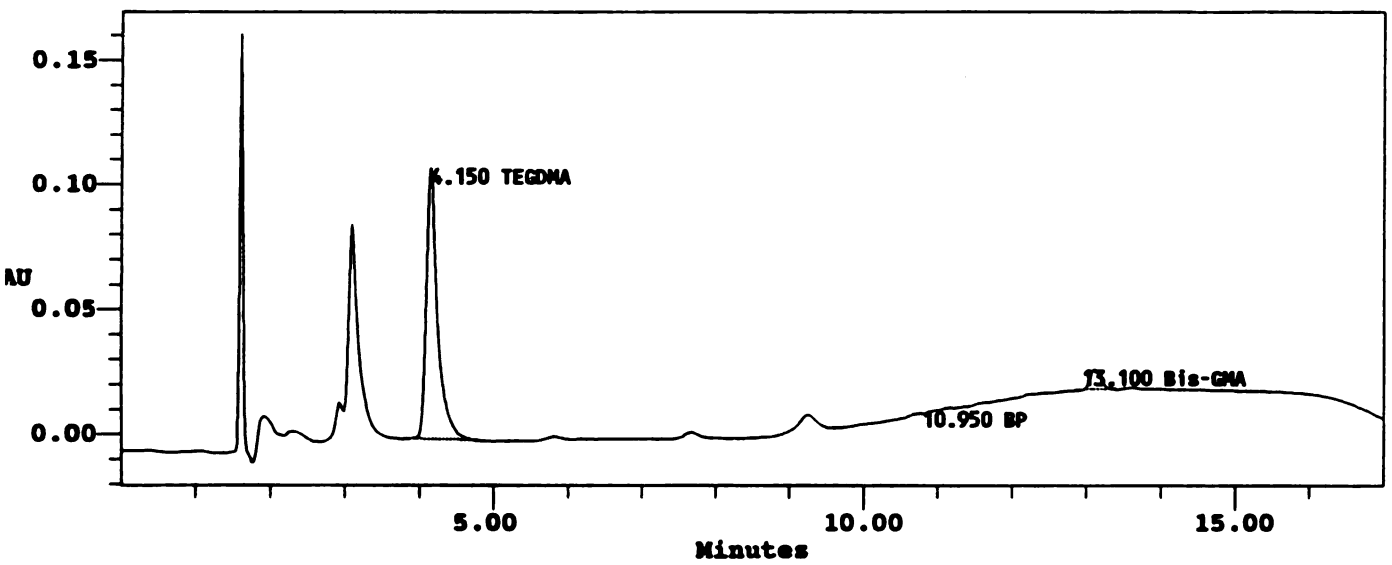


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	2119680	197581	0.698	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	37018	3627	0.016	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T5 TOOTH		
Vial:	86	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 06:32 PM	Date Processed:	10/19/93 10:52 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

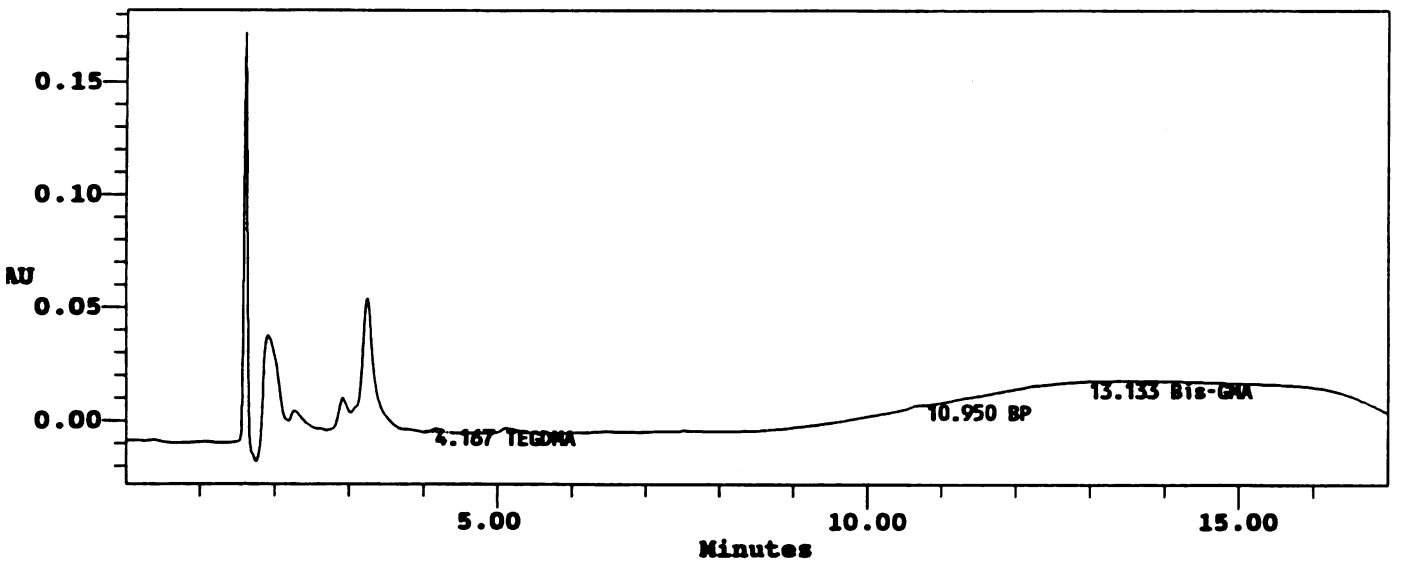


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1156710	108758	0.381	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	85889	8318	0.038	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T6 TOOTH		
Vial:	92	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 08:25 PM	Date Processed:	10/19/93 10:53 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

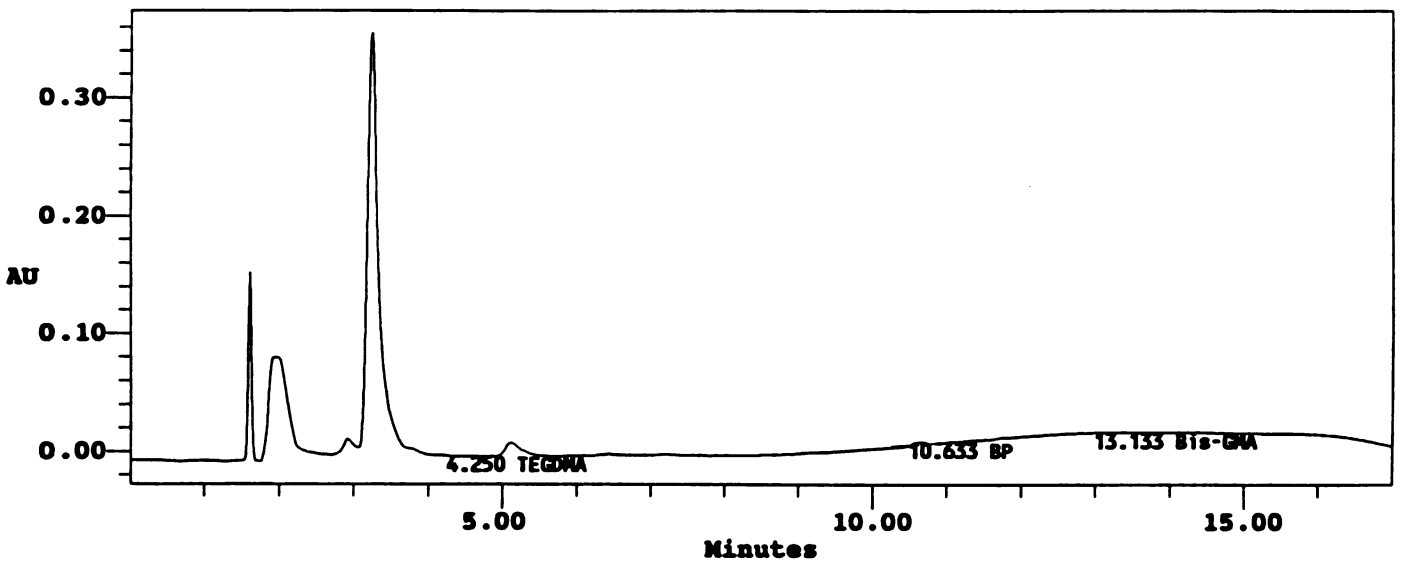
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.167	16776	1771	0.006	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S2T7 TOOTH Vial: 2 Inj: 1 Chan: 486 Date Processed 10/19/93 04:10 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T7 TOOTH		
Vial:	2	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 10:38 PM	Date Processed:	10/19/93 04:10 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

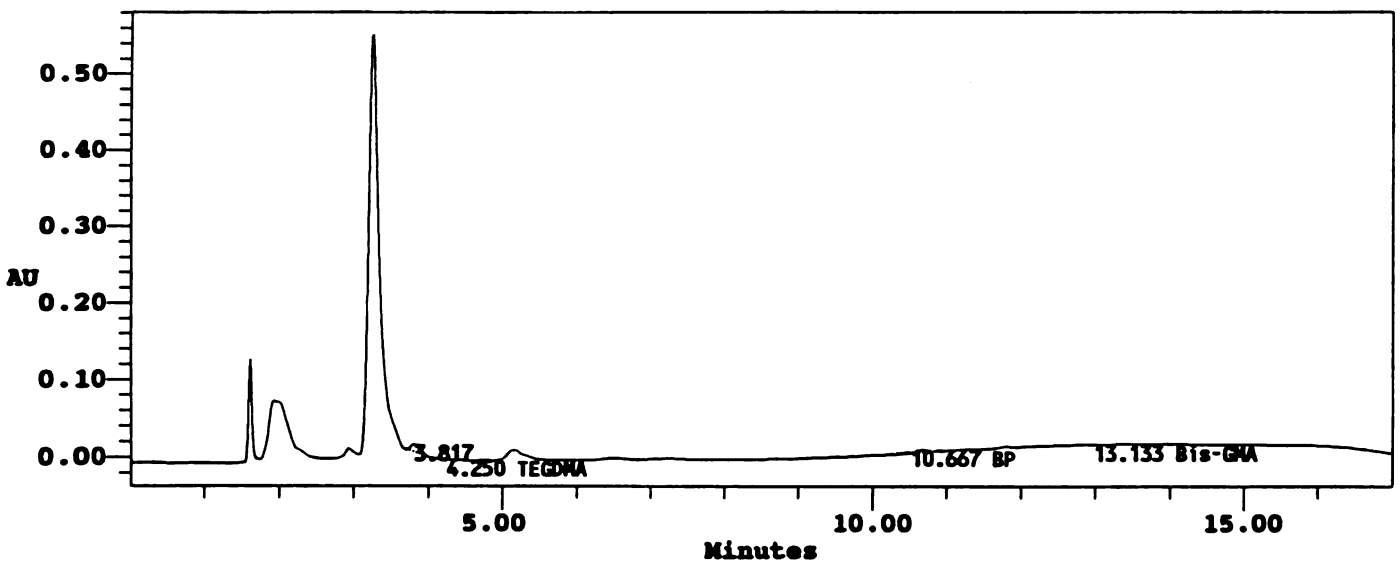


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.633	35218	2721	0.012	BV
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T8 TOOTH		
Vial:	8	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 12:31 AM	Date Processed:	10/19/93 04:11 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



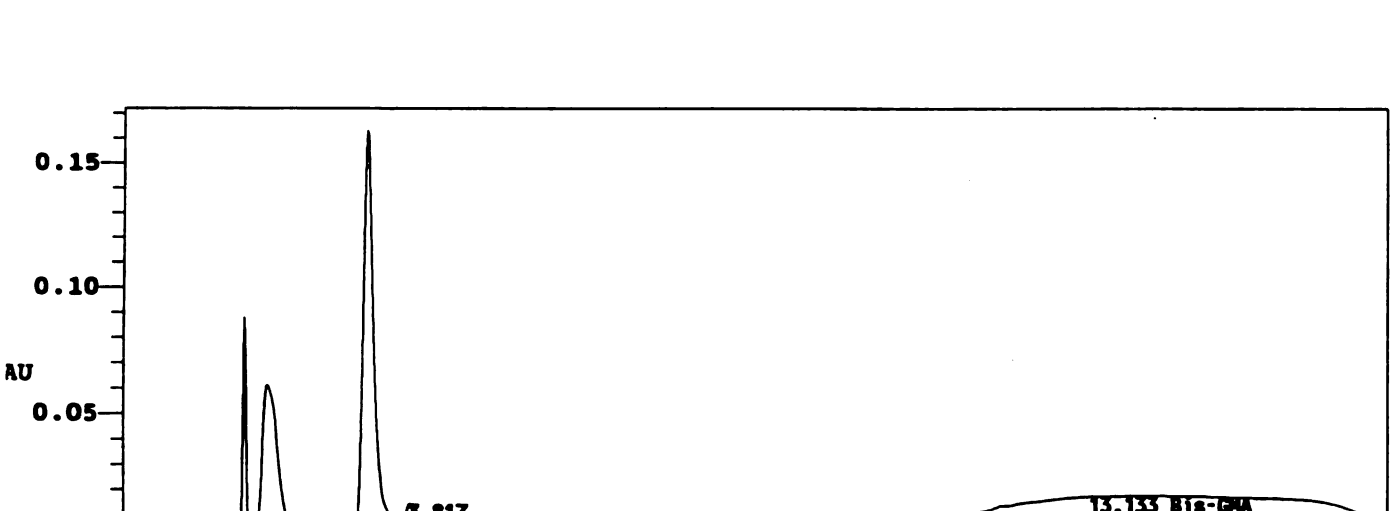
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.817	87903	10421		BB
2	TEGDMA	4.250				Missing
3	BP	10.667	49497	3780	0.017	BV
4	Bis-GMA	13.133				Missing

For Sample: R1S2T9 TOOTH Vial: 14 Inj: 1 Chan: 486 Date Processed 10/19/93 04:12 PM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T9 TOOTH		
Vial:	14	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 02:23 AM	Date Processed:	10/19/93 04:12 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

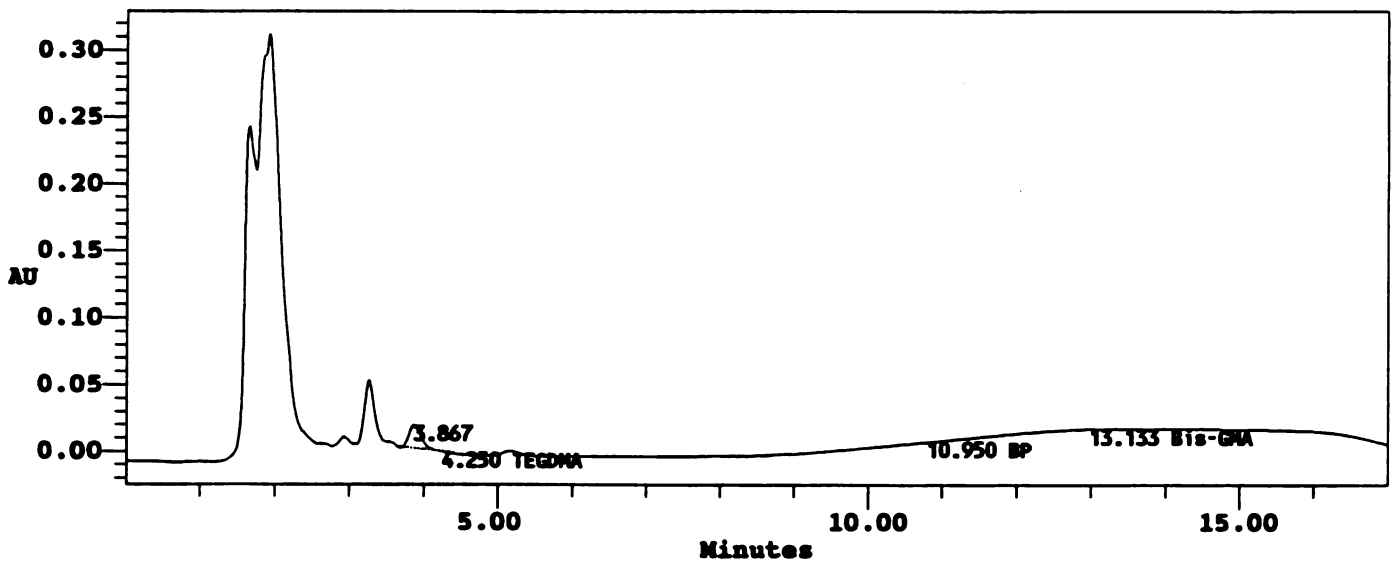


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.817	131400	13730		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S2T10 TOOTH		
Vial:	20	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 04:16 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

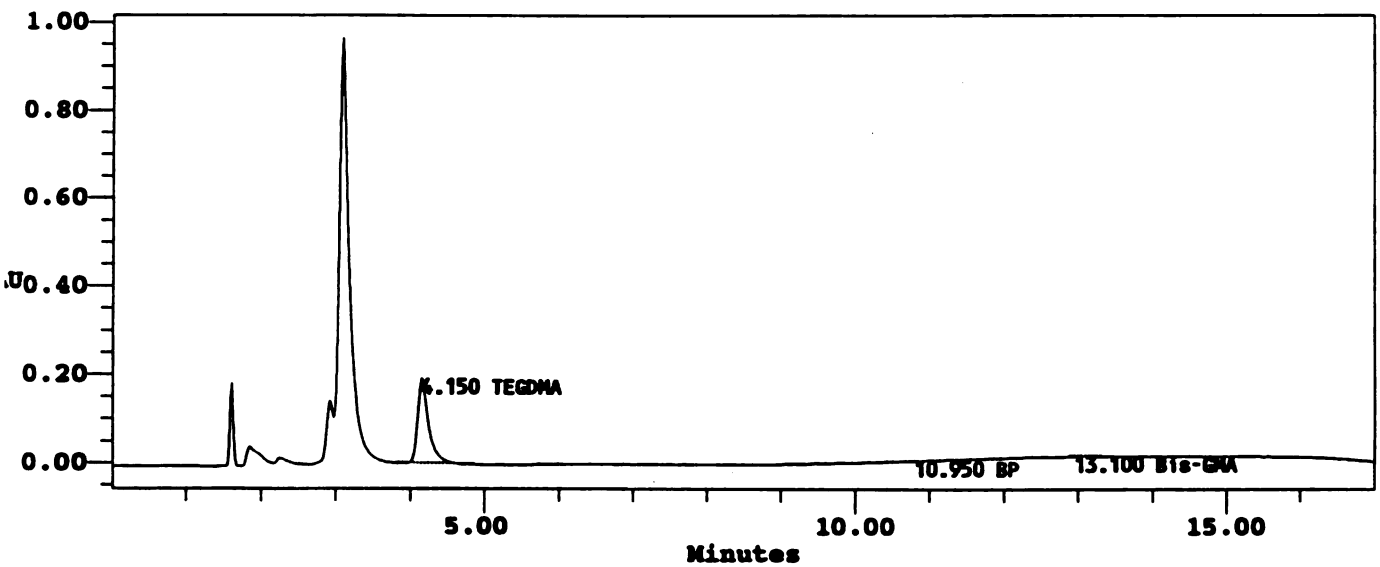
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.867	227145	18037		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

For Sample: R1S3T1 TOOTH Vial: 63 Inj: 1 Chan: 486 Date Processed 10/19/93 10:47 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

roject Name:	MIKE_ISO		
ample Name:	R1S3T1 TOOTH		
ial:	63	Sample Type:	Unknown
njection:	1	Volume:	100.00
hannel:	486	Run Time:	17.0 min
ate Acquired:	09/04/93 11:21 AM	Date Processed:	10/19/93 10:47 AM
cale Factor:	1.00	Dilution:	1.00000
cq Meth Set:	TMG_one_meth_set		
rocessing Method:	ortho_2_integrate		



Peak Results

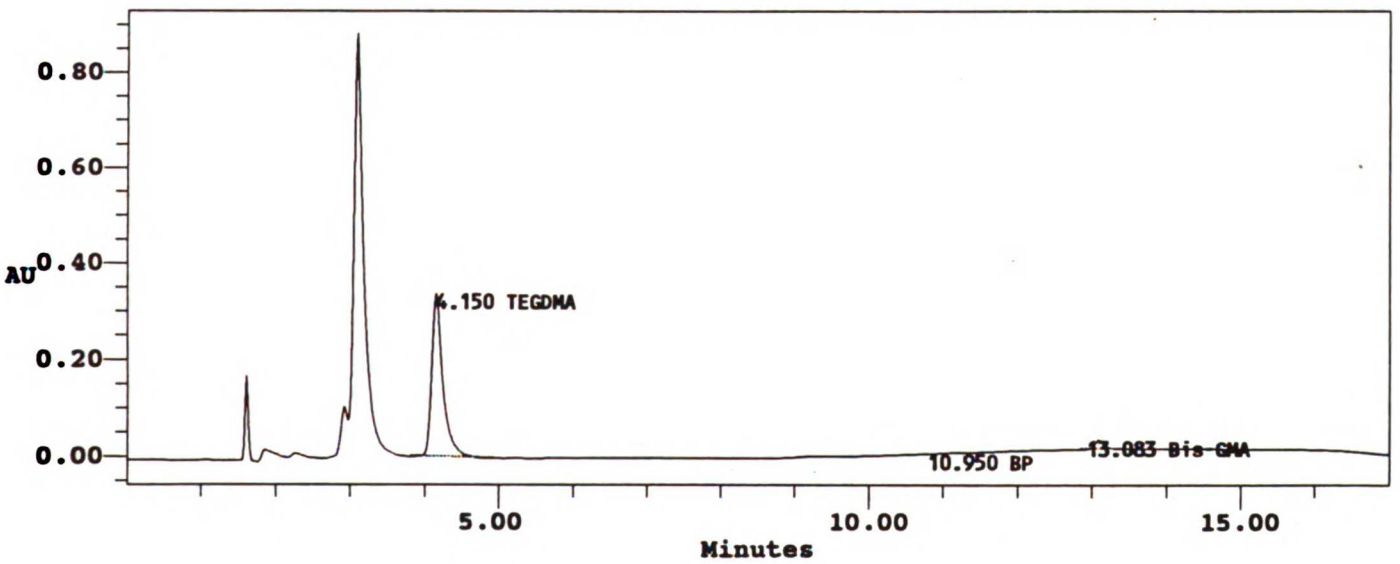
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	2021371	192642	0.666	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	23964	2373	0.011	BB

For Sample: R1S3T2 TOOTH Vial: 69 Inj: 1 Chan: 486 Date Processed 10/19/93 10:48 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T2 TOOTH		
Vial:	69	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 01:13 PM	Date Processed:	10/19/93 10:48 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

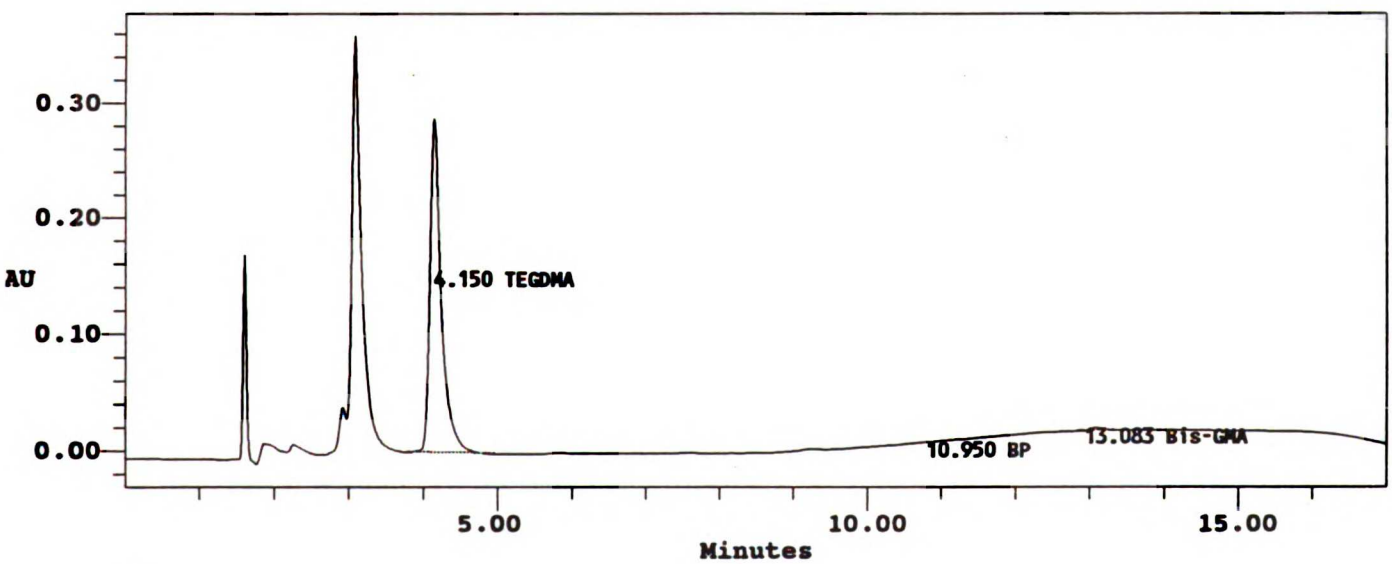
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	3602370	339563	1.187	BB
2	BP	10.950				Missing
3	Bis-GMA	13.083	194761	19356	0.086	BB

For Sample: R1S3T3 TOOTH Vial: 75 Inj: 1 Chan: 486 Date Processed 10/19/93 10:49 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T3 TOOTH		
Vial:	75	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 03:06 PM	Date Processed:	10/19/93 10:49 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

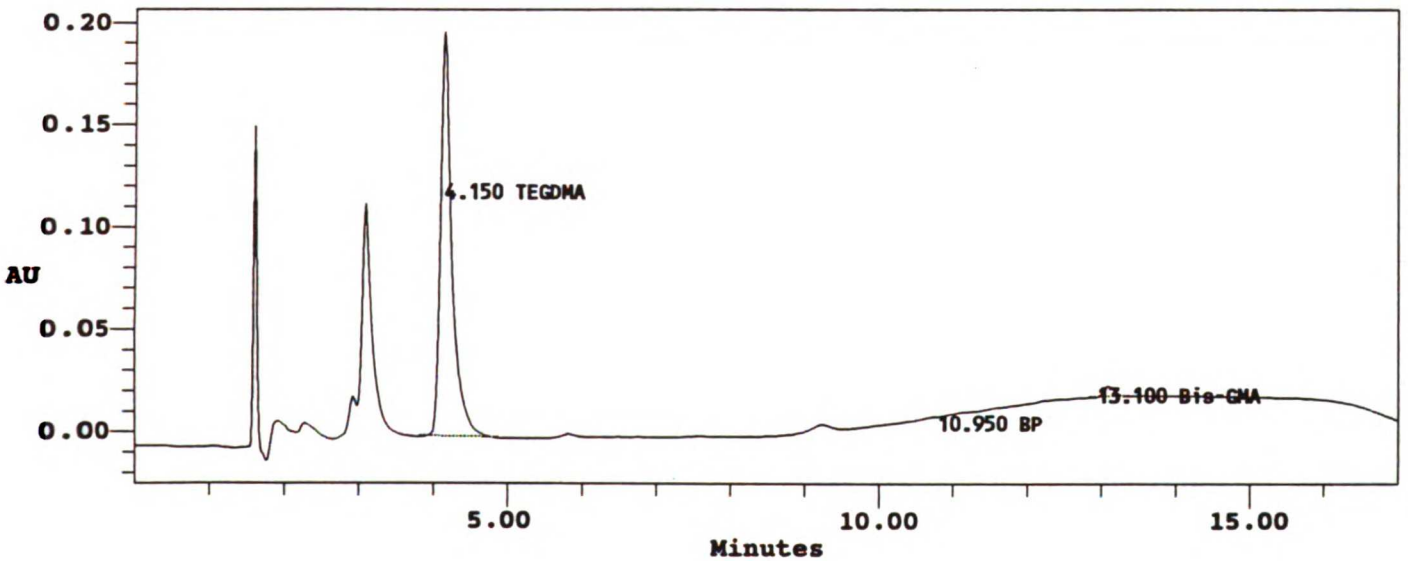


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	3072604	287649	1.012	BB
2	BP	10.950				Missing
3	Bis-GMA	13.083	29394	2875	0.013	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T4 TOOTH		
Vial:	81	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 04:58 PM	Date Processed:	10/19/93 10:51 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

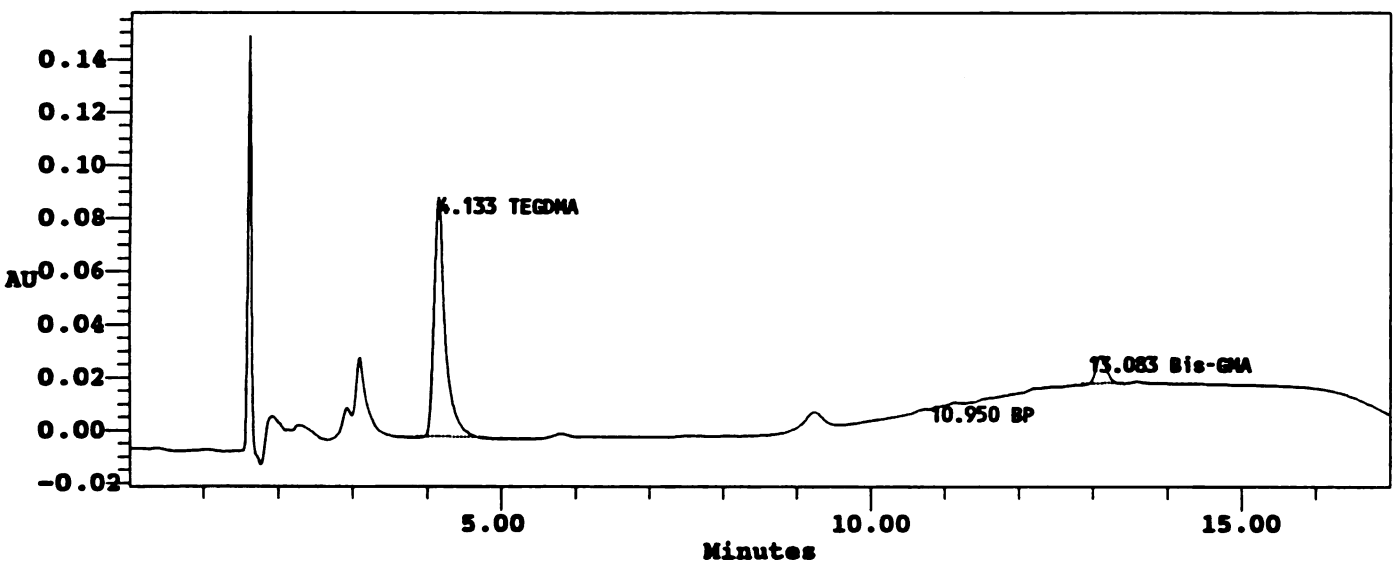


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	2140569	198276	0.705	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	53104	5148	0.024	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T5 TOOTH		
Vial:	87	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 06:51 PM	Date Processed:	10/19/93 10:52 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

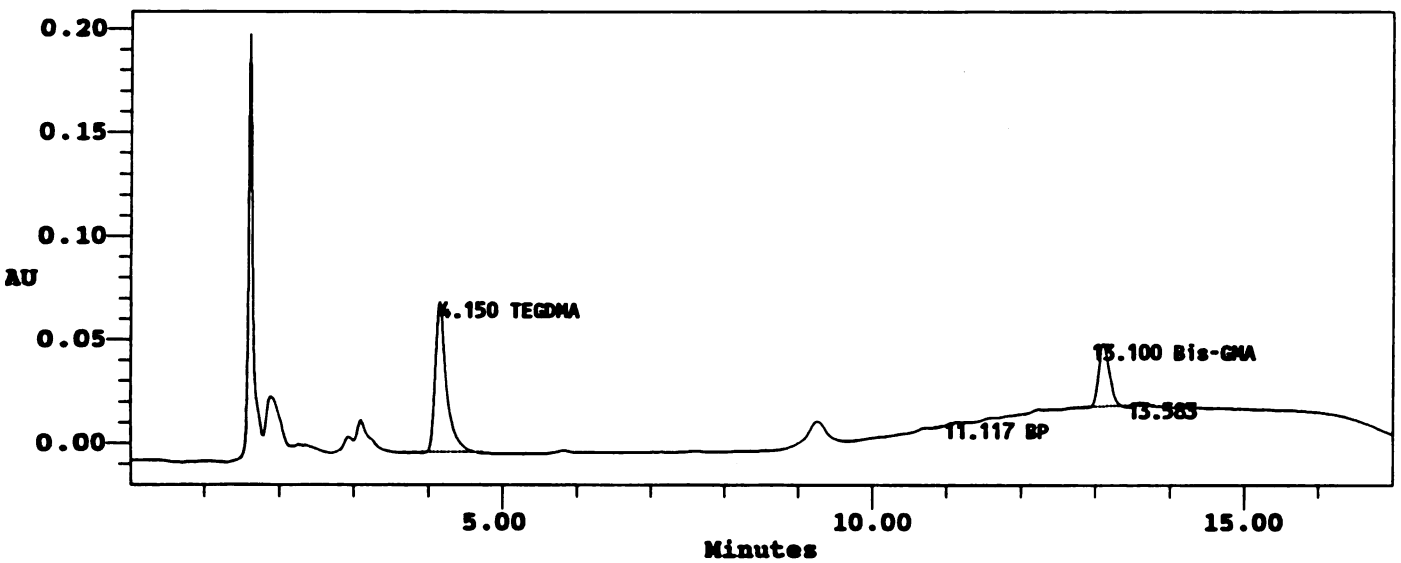


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	959492	90751	0.316	BB
2	BP	10.950				Missing
3	Bis-GMA	13.083	109670	10654	0.049	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T6 TOOTH		
Vial:	93	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 08:44 PM	Date Processed:	10/19/93 10:53 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



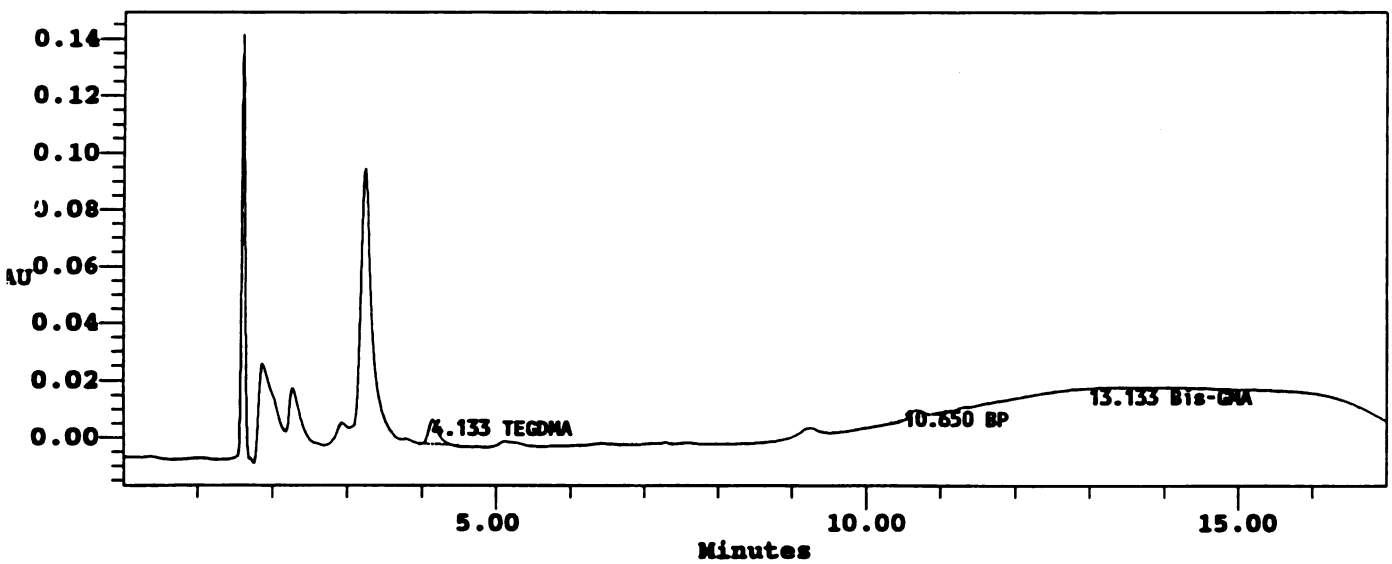
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	774887	73047	0.255	BB
2	BP	11.117	17487	1299	0.006	VB
3	Bis-GMA	13.100	313258	30676	0.139	BB
4		13.583	17562	1944		BB

Millennium Results Report: Default Proc Chan: 486 Page 1
For Sample: R1S3T7 TOOTH Vial: 3 Inj: 1 Chan: 486 Date Processed 10/19/93 04:10 PM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S3T7 TOOTH		
Vial:	3	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 10:57 PM	Date Processed:	10/19/93 04:10 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	85353	8920	0.028	BB
2	BP	10.650	38896	2976	0.013	BB
3	Bis-GMA	13.133				Missing

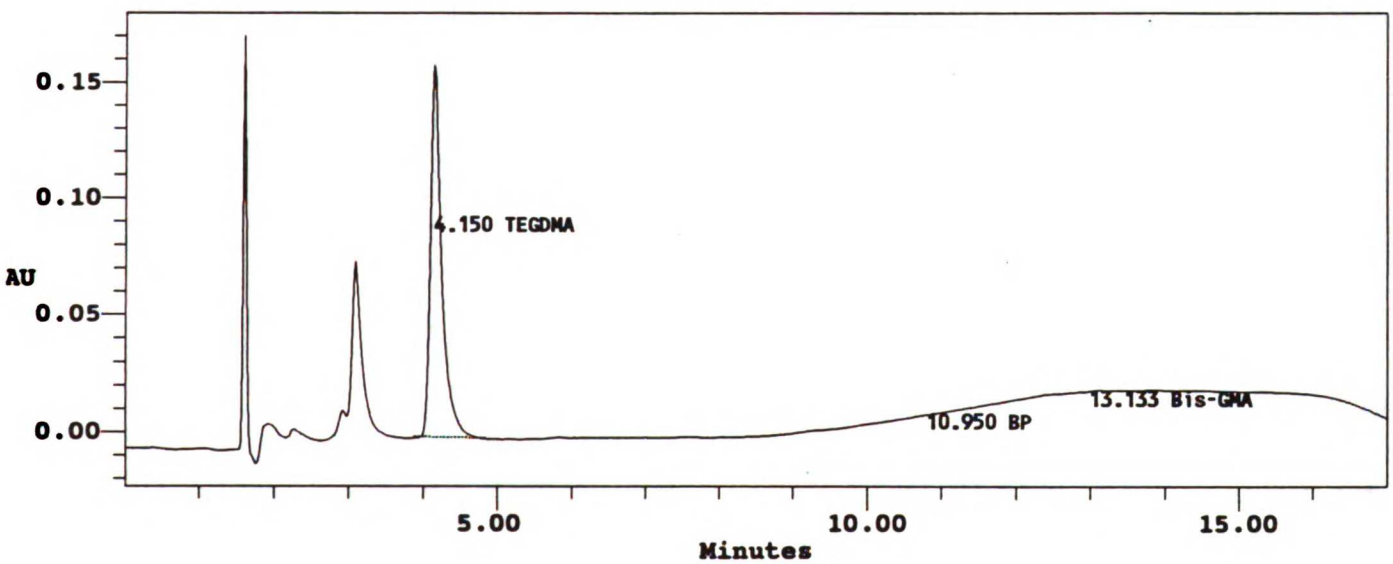
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R1S4T3 TOOTH Vial: 76 Inj: 1 Chan: 486 Date Processed 10/19/93 10:49 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T3 TOOTH		
Vial:	76	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 03:25 PM	Date Processed:	10/19/93 10:49 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

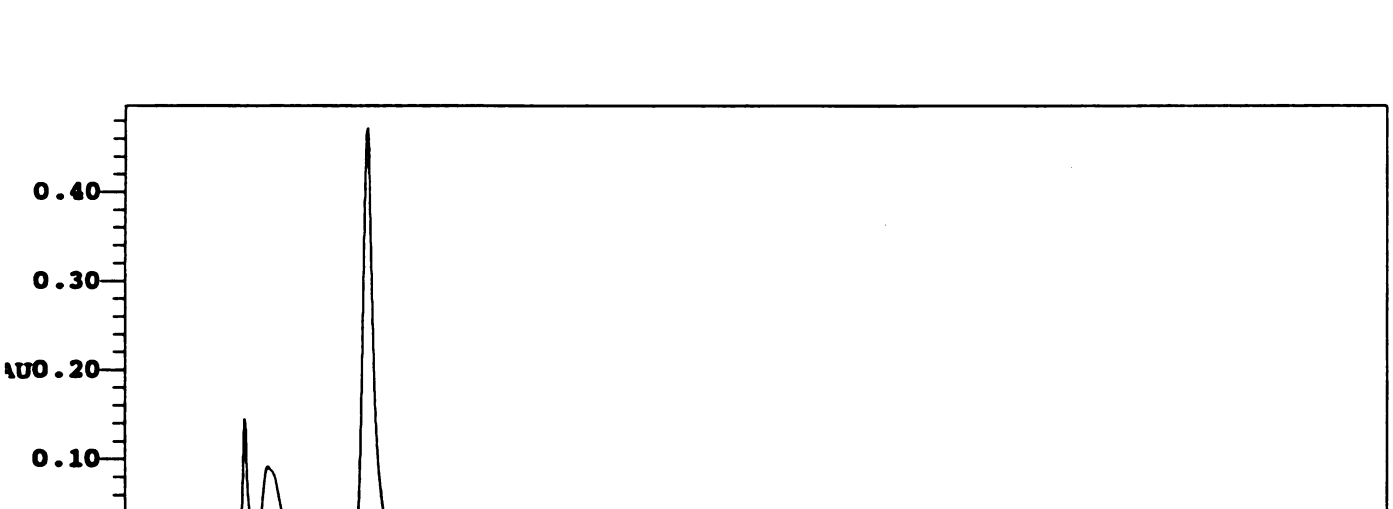


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1694691	159962	0.558	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T8 TOOTH		
Vial:	10	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 01:08 AM	Date Processed:	10/19/93 04:12 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.817	15075	2204		BB
2	TEGDMA	4.250				Missing
3	BP	10.683	70511	5246	0.024	BV
4	Bis-GMA	13.133				Missing

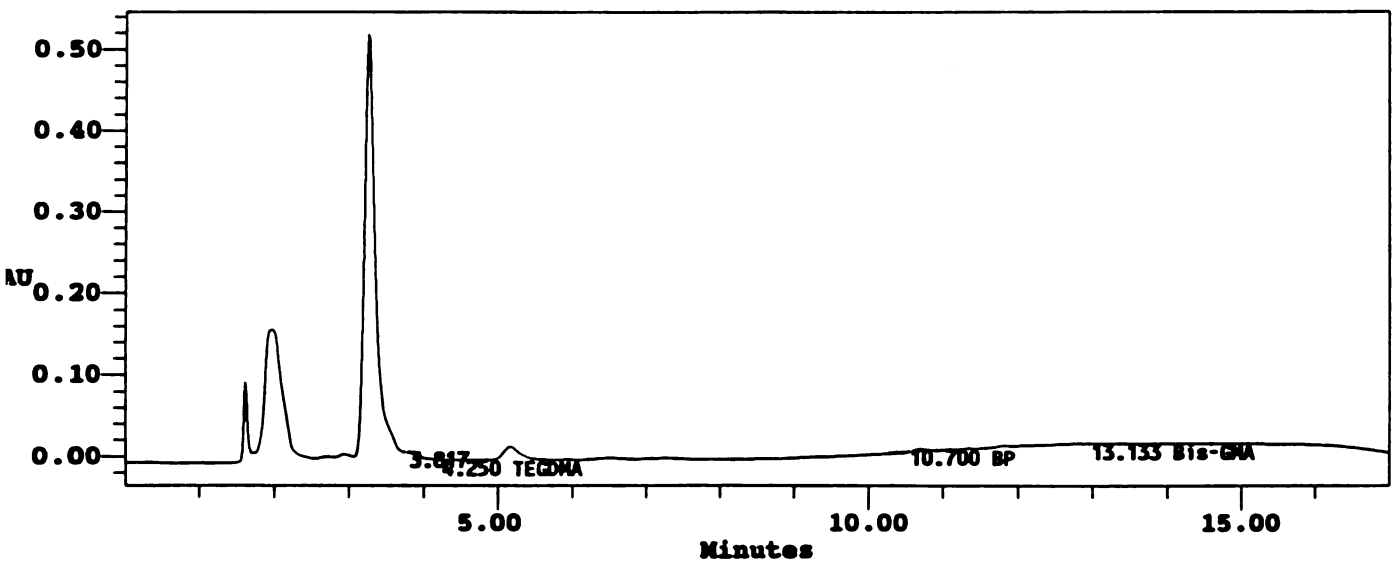
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R1S4T9 TOOTH Vial: 16 Inj: 1 Chan: 486 Date Processed 10/19/93 04:12 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T9 TOOTH		
Vial:	16	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 03:01 AM	Date Processed:	10/19/93 04:12 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.817	22358	3090		BB
2	TEGDMA	4.250				Missing
3	BP	10.700	52871	3722	0.018	BV
4	Bis-GMA	13.133				Missing

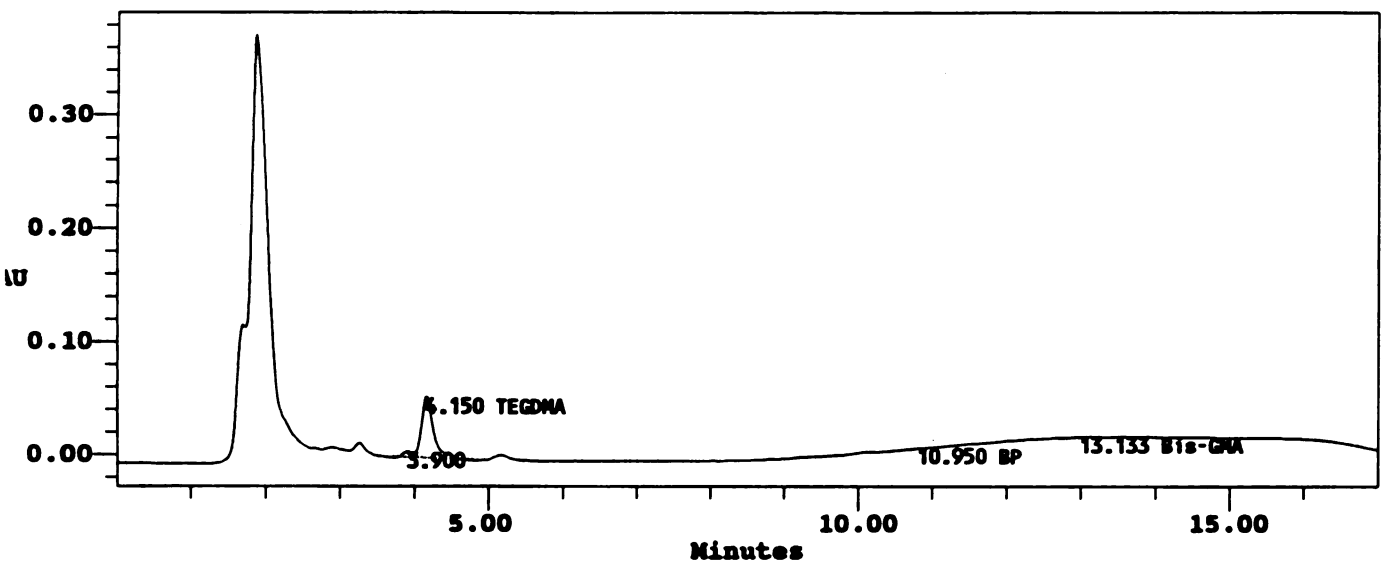
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R1S4T10 TOOTH Vial: 22 Inj: 1 Chan: 486 Date Processed 10/19/93 04:13 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S4T10 TOOTH		
Vial:	22	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 04:54 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.900	49155	5729		BV
2	TEGDMA	4.150	640064	54262	0.211	VB
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing

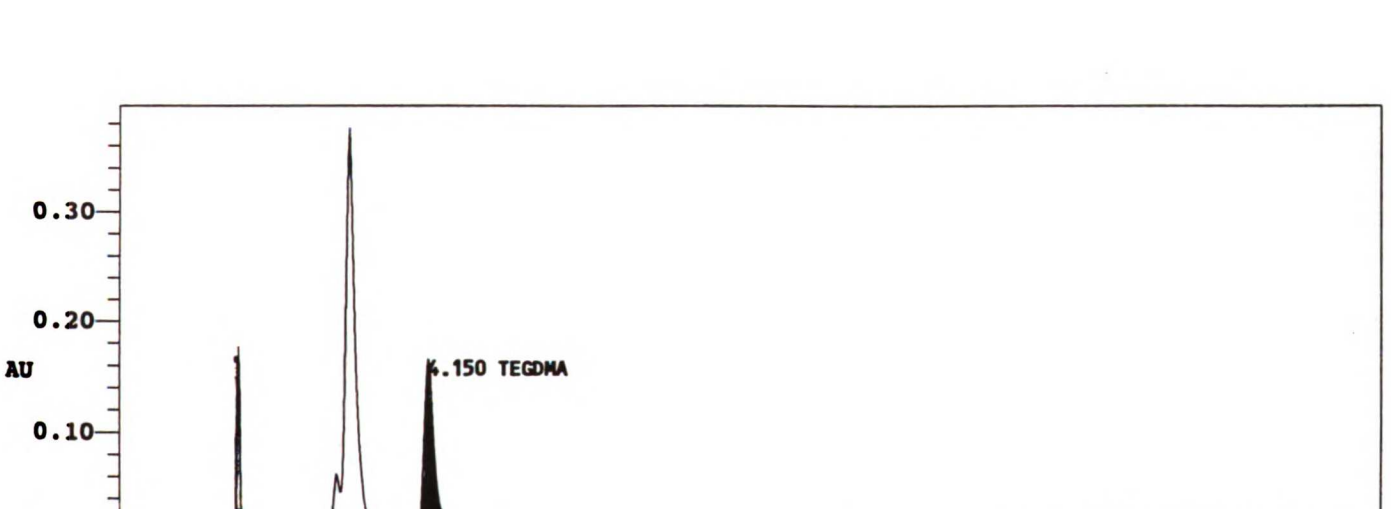
Millennium Results Report: Default Proc Chan: 486 Page 1

For Sample: R1S5T1 TOOTH Vial: 65 Inj: 1 Chan: 486 Date Processed 10/19/93 10:47 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T1 TOOTH		
Vial:	65	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 11:58 AM	Date Processed:	10/19/93 10:47 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

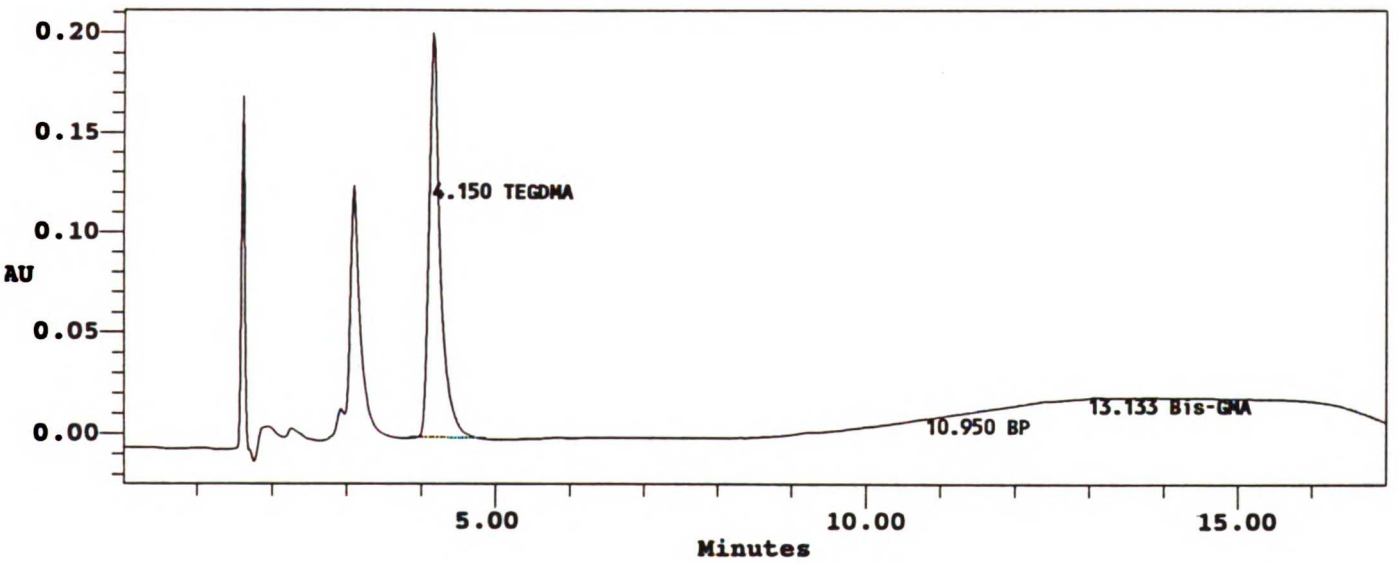
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1773217	167988	0.584	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S5T2 TOOTH Vial: 71 Inj: 1 Chan: 486 Date Processed 10/19/93 10:48 AM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T2 TOOTH		
Vial:	71	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 01:51 PM	Date Processed:	10/19/93 10:48 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

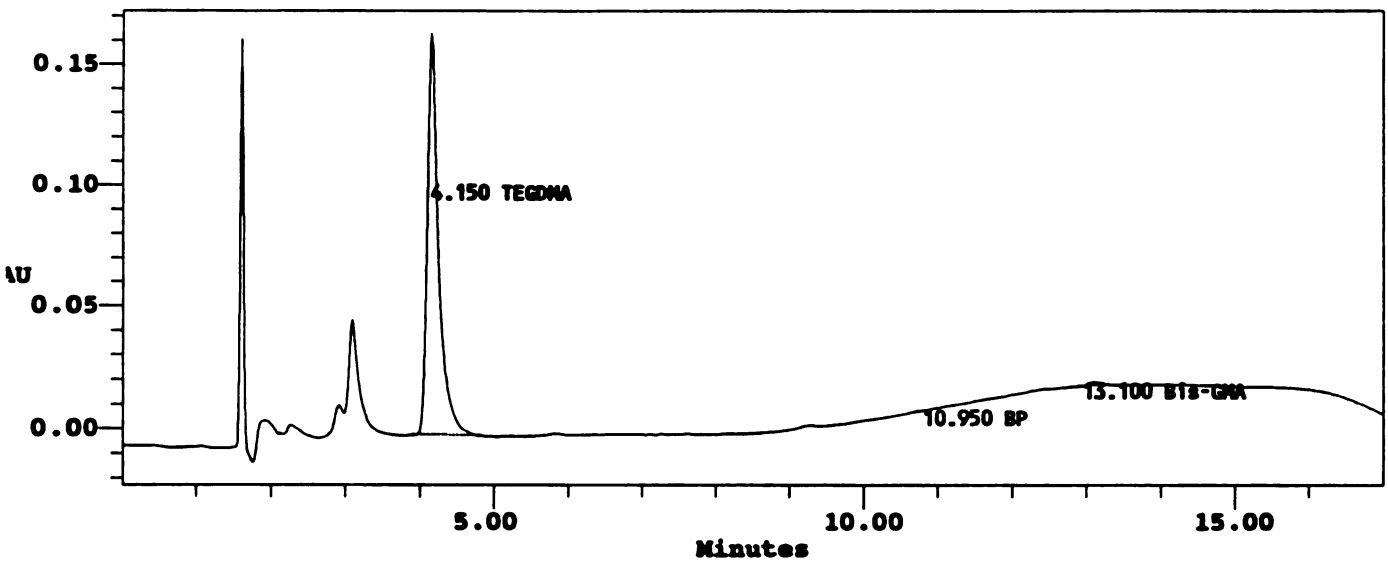


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	2142155	202294	0.706	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T3 TOOTH		
Vial:	77	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 03:43 PM	Date Processed:	10/19/93 10:50 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

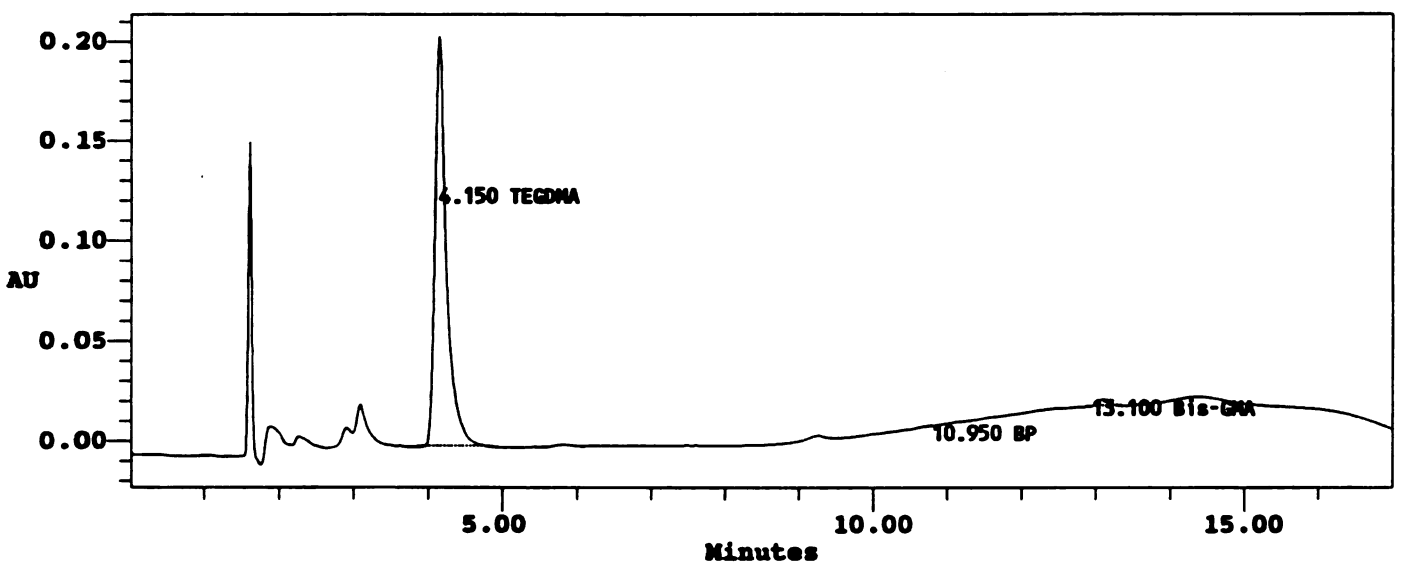


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	1754170	165547	0.578	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	15459	1547	0.007	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T4 TOOTH		
Vial:	83	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 05:36 PM	Date Processed:	10/19/93 10:51 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



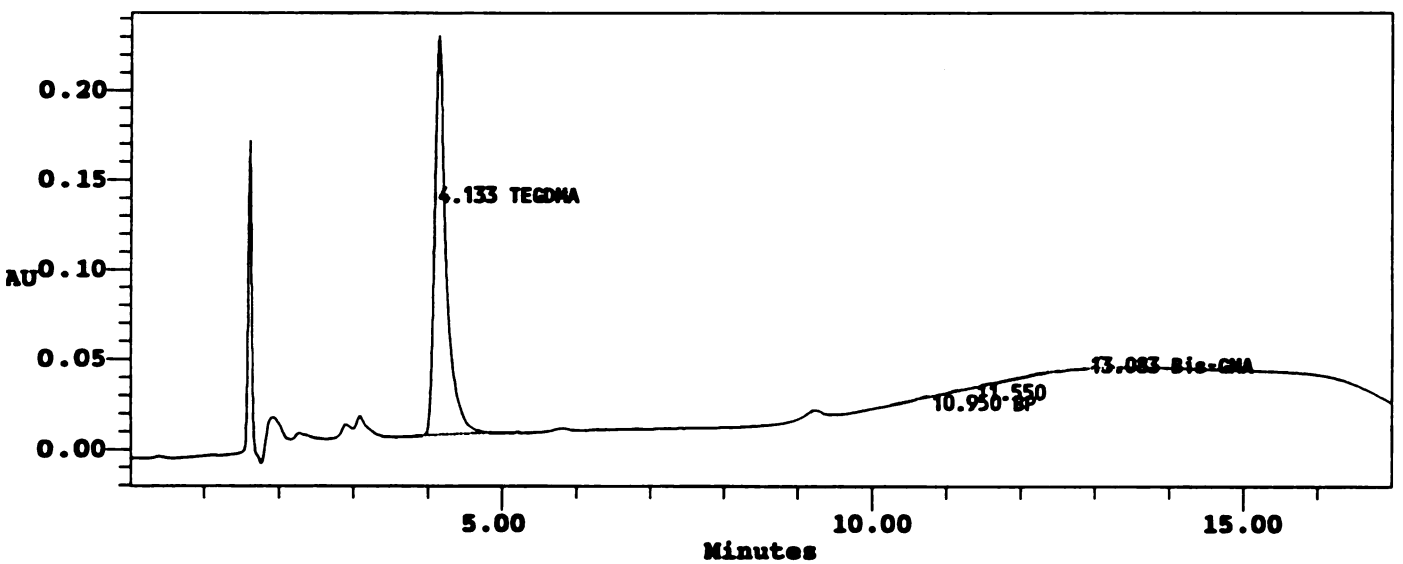
Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	2217024	205397	0.730	BB
2	BP	10.950				Missing
3	Bis-GMA	13.100	36312	3533	0.016	BB

Millennium Results Report: Default Proc Chan: 486 Page 1
For Sample: R1S5T5 TOOTH Vial: 89 Inj: 1 Chan: 486 Date Processed 10/19/93 10:52 AM
Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T5 TOOTH		
Vial:	89	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 07:29 PM	Date Processed:	10/19/93 10:52 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

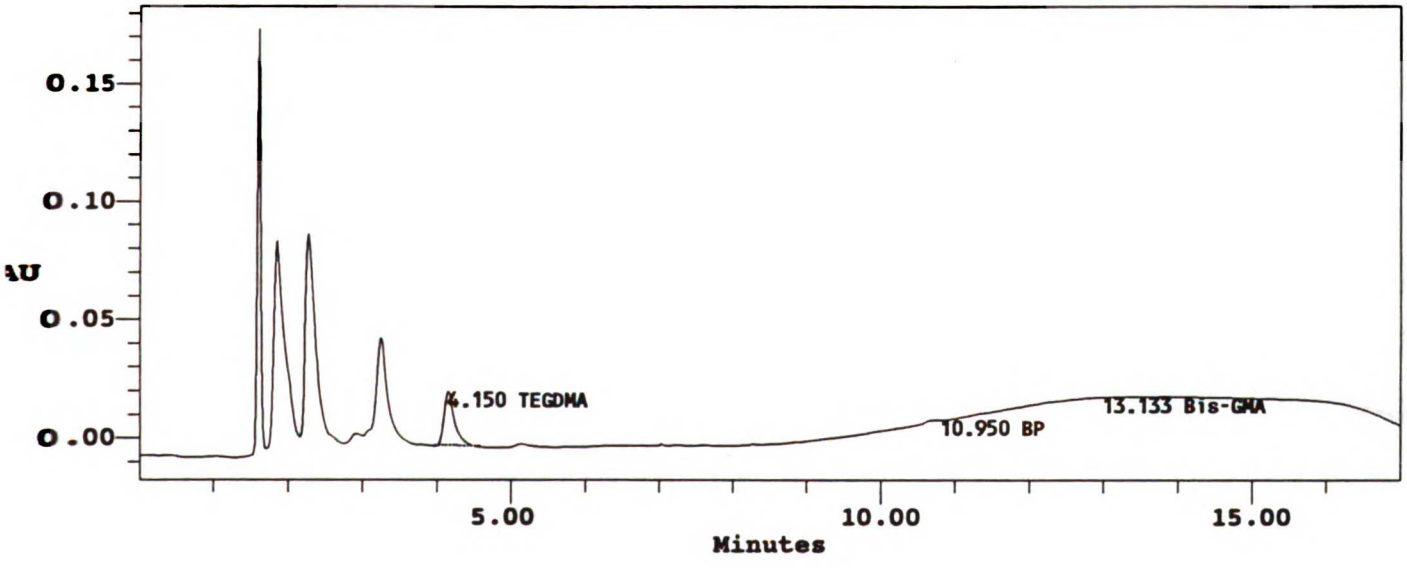


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	2398617	222933	0.790	BB
2	BP	10.950				Missing
3		11.550	94247	1209		BB
4	Bis-GMA	13.083	69614	6587	0.031	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T6 TOOTH		
Vial:	95	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 09:21 PM	Date Processed:	10/19/93 10:54 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

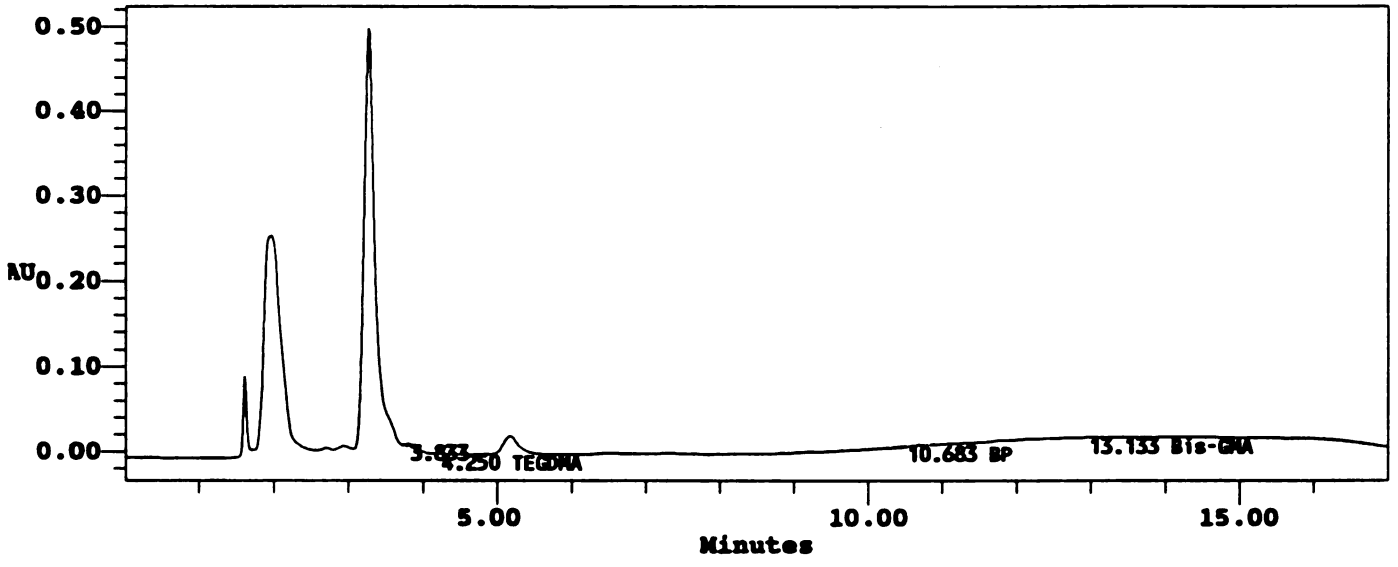
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.150	239978	23375	0.079	BB
2	BP	10.950			.069	Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S5T9 TOOTH Vial: 17 Inj: 1 Chan: 486 Date Processed 10/19/93 04:13 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S5T9 TOOTH		
Vial:	17	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 03:20 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

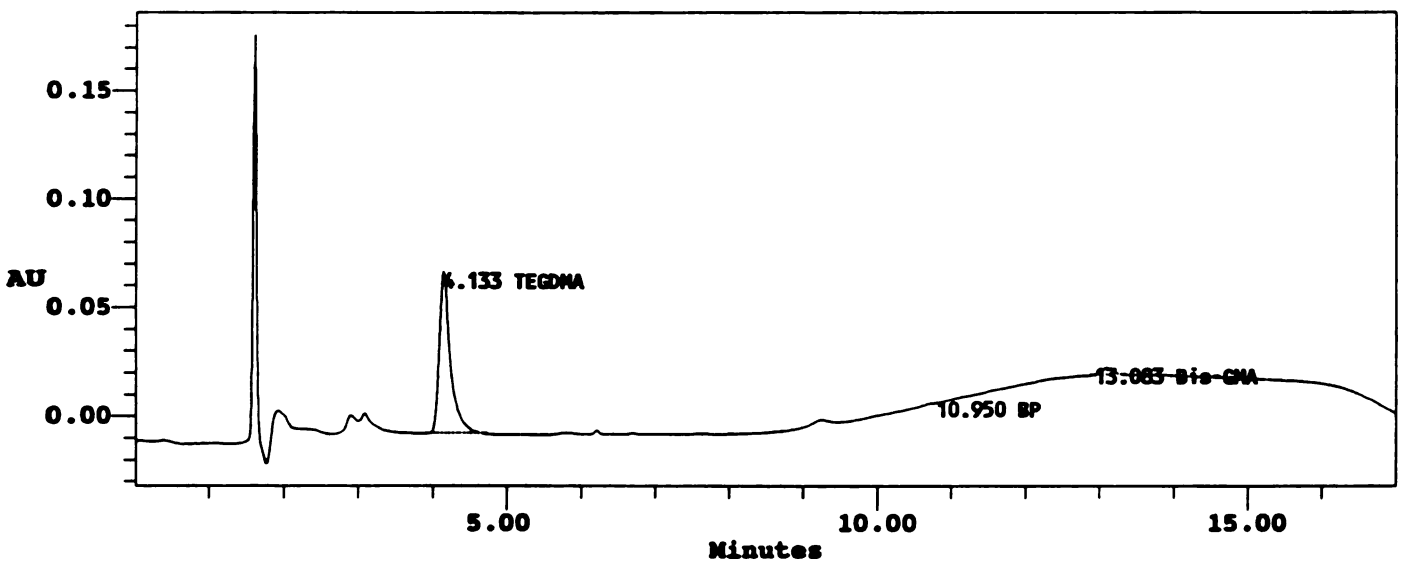


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.833	28826	3940		BB
2	TEGDMA	4.250				Missing
3	BP	10.683	17518	1275	0.006	BV
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T5 TOOTH		
Vial:	90	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 07:47 PM	Date Processed:	10/19/93 10:53 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

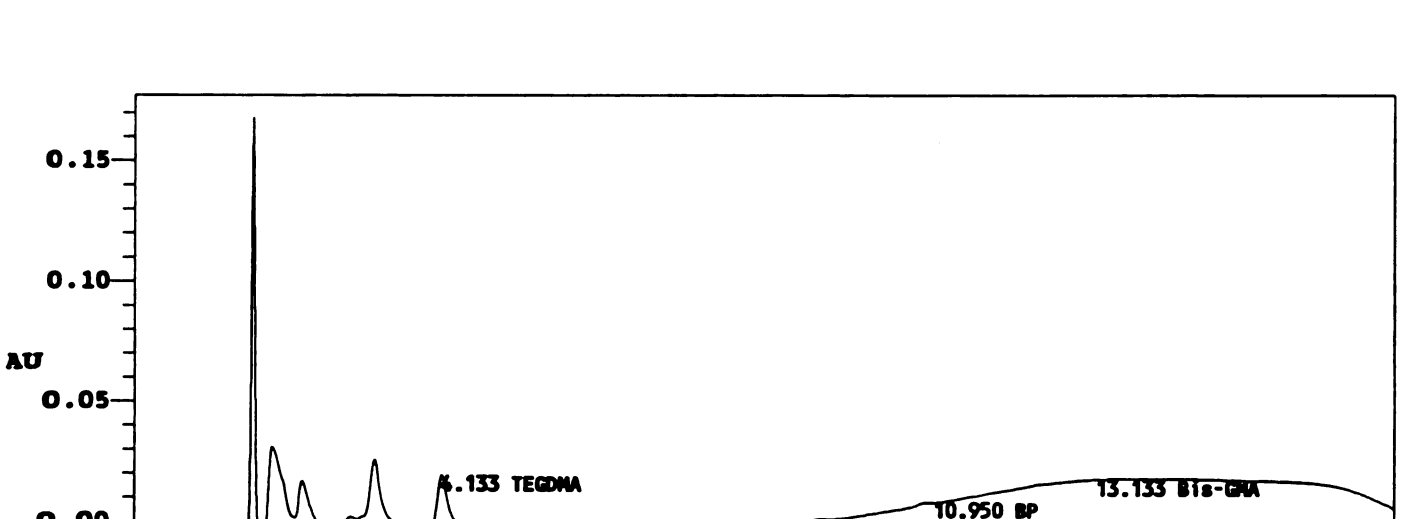


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	782318	74172	0.258	BB
2	BP	10.950				Missing
3	Bis-GMA	13.083	36087	3424	0.016	BB

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T6 TOOTH		
Vial:	96	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 09:40 PM	Date Processed:	10/19/93 10:54 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

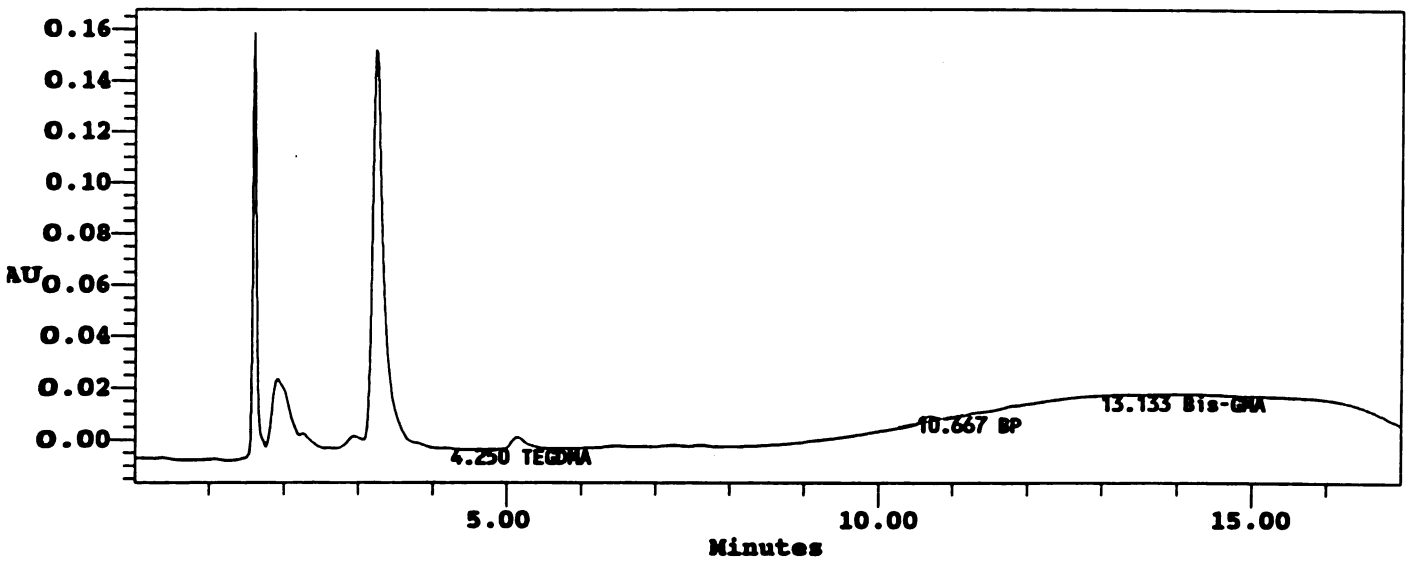
#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.133	232407	22337	0.077	BB
2	BP	10.950				Missing
3	Bis-GMA	13.133				Missing

For Sample: R1S6T7 TOOTH Vial: 6 Inj: 1 Chan: 486 Date Processed 10/19/93 04:11 PM

Channel Descr: A=water, B=MeOH

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T7 TOOTH		
Vial:	6	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/04/93 11:53 PM	Date Processed:	10/19/93 04:11 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

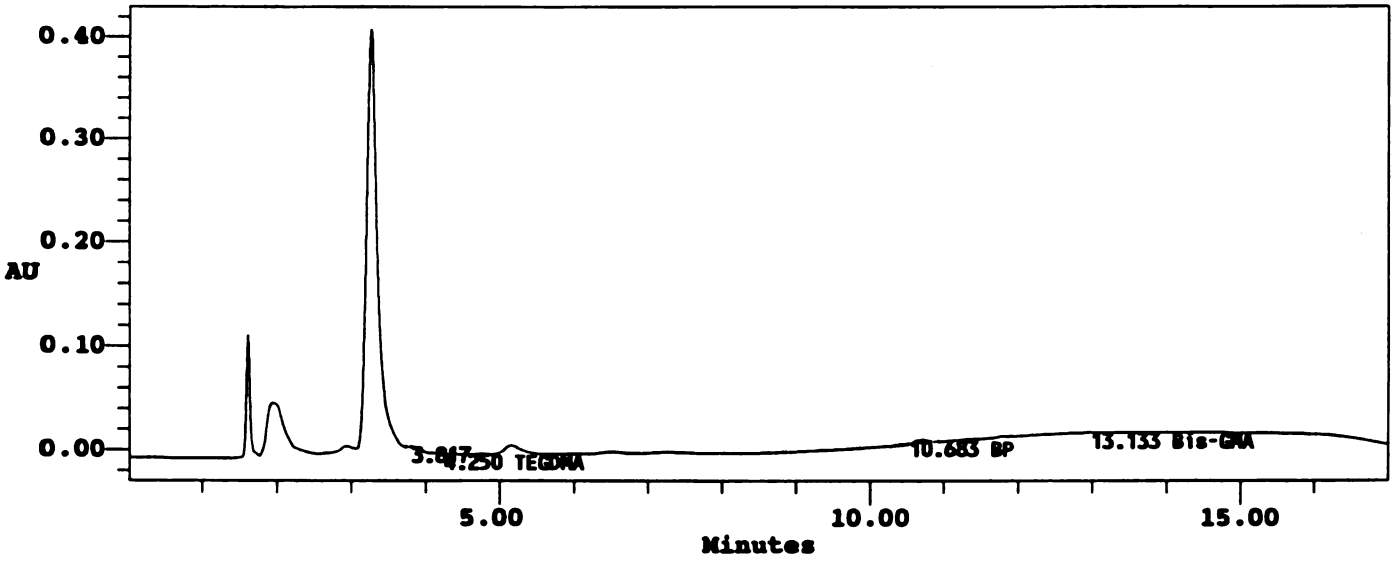


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1	TEGDMA	4.250				Missing
2	BP	10.667	34435	2356	0.012	BV
3	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T8 TOOTH		
Vial:	12	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 01:46 AM	Date Processed:	10/19/93 04:12 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

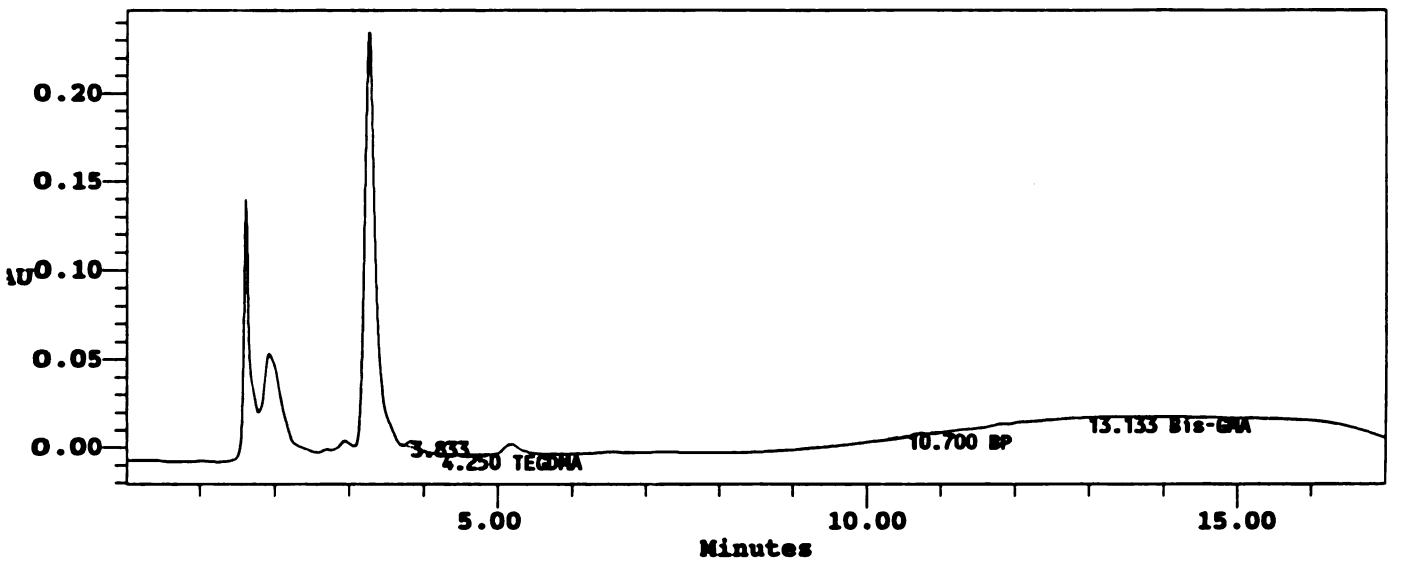


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.817	16667	2298		BB
2	TEGDMA	4.250				Missing
3	BP	10.683	51823	3704	0.018	BV
4	Bis-GMA	13.133				Missing

Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T9 TOOTH		
Vial:	18	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 03:38 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		

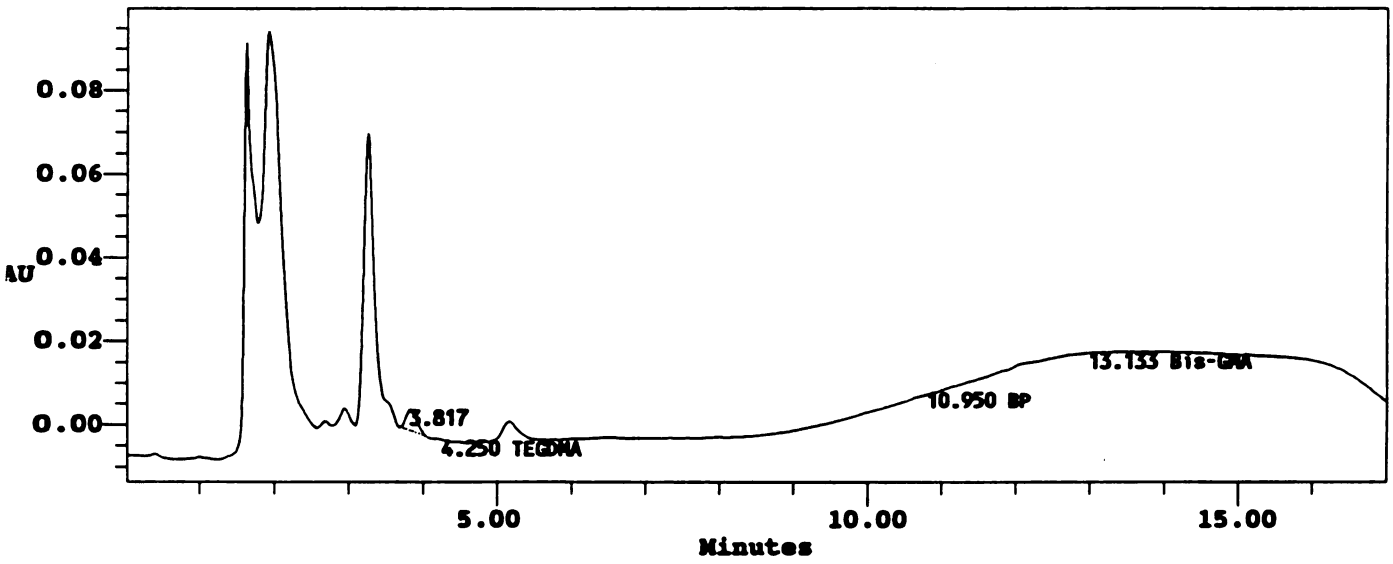


Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.833	36446	4117		BB
2	TEGDMA	4.250				Missing
3	BP	10.700	22977	1546	0.008	BV
4	Bis-GMA	13.133				Missing

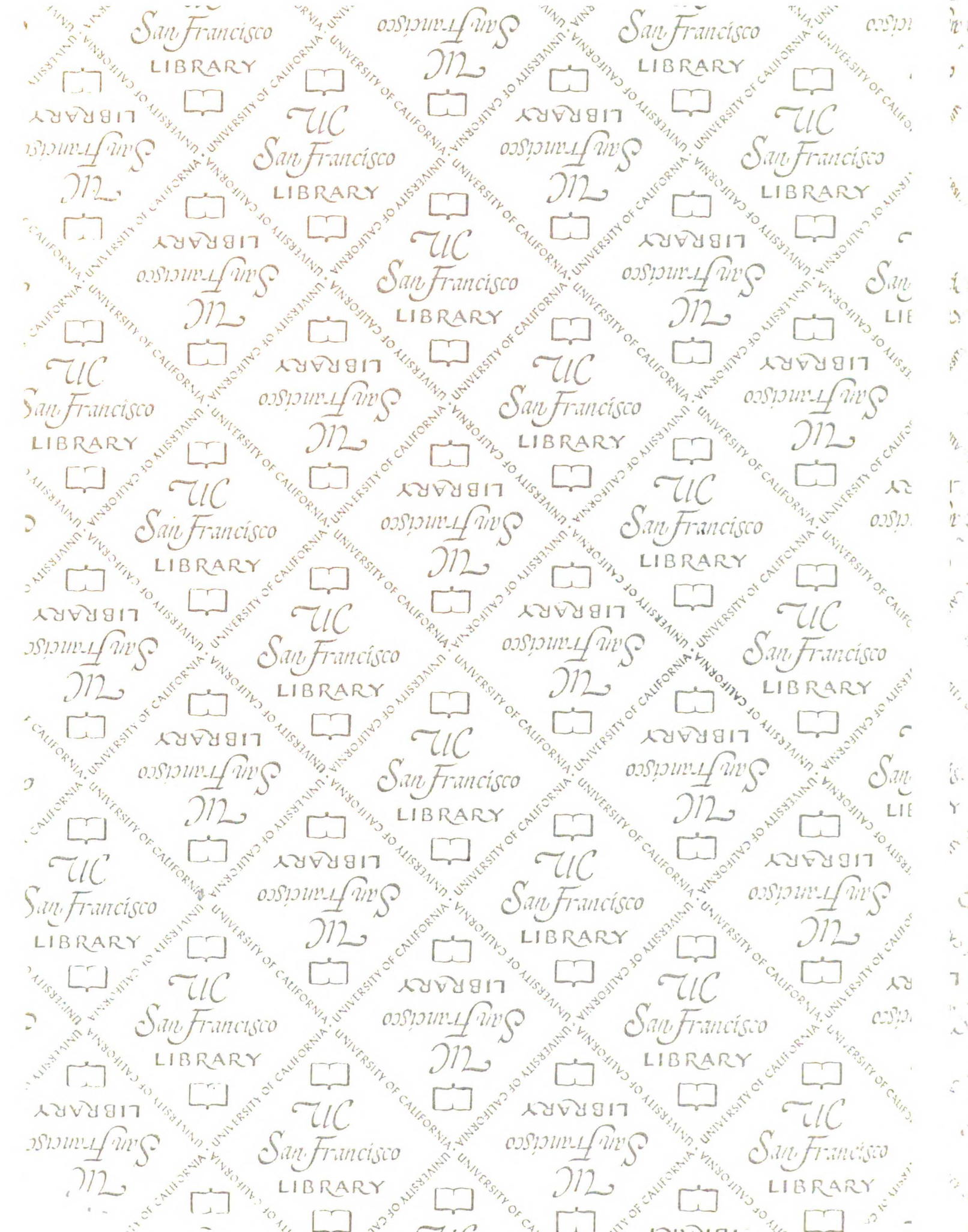
Millennium Sample Information

Project Name:	MIKE_ISO		
Sample Name:	R1S6T10 TOOTH		
Vial:	24	Sample Type:	Unknown
Injection:	1	Volume:	100.00
Channel:	486	Run Time:	17.0 min
Date Acquired:	09/05/93 05:31 AM	Date Processed:	10/19/93 04:13 PM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	TMG_one_meth_set		
Processing Method:	ortho_2_integrate		



Peak Results

#	Name	Ret Time (min)	Area (uV*sec)	Height (uV)	Amount	Int Type
1		3.817	54806	5175		BB
2	TEGDMA	4.250				Missing
3	BP	10.950				Missing
4	Bis-GMA	13.133				Missing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