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### Author

Shinonoto, R.

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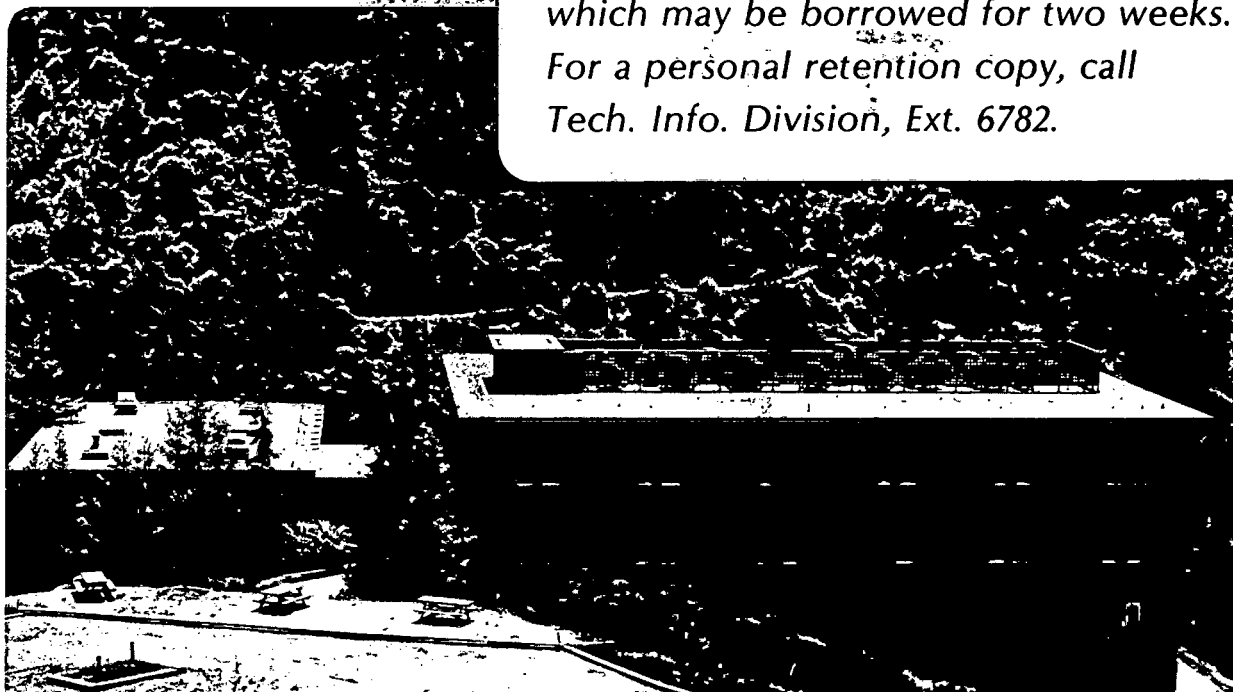
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Ron Shinomoto, Eduard Gamp, Norman M. Edelstein,  
David H. Templeton, and Allan Zalkin

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SYNTHESES AND CRYSTAL STRUCTURES OF THE TETRAKIS(METHYLTRIHYDROBORATO)  
COMPOUNDS OF ZIRCONIUM(IV), THORIUM(IV), URANIUM(IV) AND NEPTUNIUM(IV)by Ron Shinomoto, Eduard Gamp, Norman M. Edelstein, David H. Templeton and  
Allan Zalkin

OCTOBER 1982

## ABSTRACT

$Zr(BH_3CH_3)_4$ ,  $Th(BH_3CH_3)_4$ ,  $U(BH_3CH_3)_4$ , and  $Np(BH_3CH_3)_4$  have been synthesized and their molecular structures determined by single crystal X-ray diffraction. Infrared spectroscopy and nuclear magnetic resonance data are presented for the Zr, Th and U compounds. The space groups, unit cell parameters and R factors are:  $Zr(BH_3CH_3)_4$ , tetragonal,  $P4_2/n$ ,  $a = 10.311(6) \text{ \AA}$ ,  $c = 5.851(3) \text{ \AA}$ ,  $Z = 2$ ,  $d_x = 1.103 \text{ g/cm}^3$ ,  $R = 0.013$  ( $F^2 > 3\sigma(F^2)$ ).  $Th(BH_3CH_3)_4$ , triclinic,  $P\bar{1}$ ,  $a = 18.408(6) \text{ \AA}$ ,  $b = 16.910(6) \text{ \AA}$ ,  $c = 8.834(3) \text{ \AA}$ ,  $\alpha = 88.06(4)^\circ$ ,  $\beta = 90.83(4)^\circ$ ,  $\gamma = 88.08(4)^\circ$ ,  $Z = 8$ ,  $d_x = 1.681 \text{ g/cm}^3$ ,  $R = 0.068$  ( $F^2 > 3\sigma(F^2)$ ).  $U(BH_3CH_3)_4$ , monoclinic,  $P2_1/n$ ,  $a = 18.228(6) \text{ \AA}$ ,  $b = 16.749(6) \text{ \AA}$ ,  $c = 8.765(2) \text{ \AA}$ ,  $\beta = 90.69(4)^\circ$ ,  $Z = 8$ ,  $d_x = 1.755 \text{ g/cm}^3$ ,  $R = 0.041$  ( $F^2 > 3\sigma(F^2)$ ).  $Np(BH_3CH_3)_4$ , tetragonal,  $P4_2/n$ ,  $a = 10.552(b) \text{ \AA}$ ,  $c = 5.950(3) \text{ \AA}$ ,  $Z = 2$ ,  $d_x = 1.767 \text{ g/cm}^3$ ,  $R = 0.016$  ( $F^2 > 3\sigma(F^2)$ ). All compounds are monomolecular in the crystalline state. The metal atoms are tetrahedrally coordinated to the four  $BH_3CH_3$  groups through tridentate hydrogen bridges. The M-B distances are  $2.335 \pm 0.003 \text{ \AA}$  for Zr,  $2.56 \pm 0.05 \text{ \AA}$  for Th,  $2.49 \pm 0.02$  for U, and  $2.487 \pm 0.006 \text{ \AA}$  for Np.

## INTRODUCTION

Actinide(IV) borohydrides exhibit two structural types.<sup>1,2</sup> The first type,  $M(\text{BH}_4)_4$  where  $M = \text{Th, Pa, U}$ , are crystallographically isomorphous and are polymeric solids at room temperature with markedly different volatilities, i.e.  $\text{U}(\text{BH}_4)_4$  readily sublimes under vacuum at  $25^\circ\text{C}$  vs.  $\sim 150^\circ\text{C}$  for  $\text{Th}(\text{BH}_4)_4$ .<sup>3</sup> The second type of compounds are the Np and Pu borohydrides which are volatile, chemically unstable liquids at room temperature, and monomeric solids at  $\sim 10^\circ\text{C}$ .<sup>4</sup> In the second type the local symmetry about the metal ion is tetrahedral and is like that found in the Zr and Hf borohydrides, however, the Np and Pu compounds crystallize in a different space group than the Zr and Hf compounds.

Schlesinger, et al have reported the synthesis and isolation of two methyl derivatives of uranium borohydride, the mono and tetra(methylborohydride) derivatives,  $\text{U}(\text{BH}_4)_3\text{BH}_3(\text{CH}_3)$  and  $\text{U}(\text{BH}_3\text{CH}_3)_4$ .<sup>5</sup> The mono(methylborohydride) derivative is more volatile than  $\text{U}(\text{BH}_4)_4$  while the tetra(methylborohydride) derivative is slightly less volatile.

As monomeric compounds are useful for spectroscopic and magnetic measurements, we have prepared and investigated the properties of some methylated borohydrides and report in this paper the synthesis and crystal structures of  $M(\text{BH}_3\text{CH}_3)_4$ ,  $M = \text{Zr, Th, U, and Np}$ .

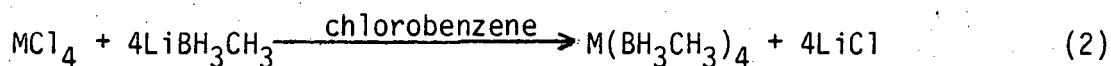
## EXPERIMENTAL

$U(BH_3CH_3)_4$  was originally synthesized<sup>5</sup> by the reaction of  $U(BH_4)_4$  with excess trimethylboron:



This reaction also produces  $U(BH_3CH_3)_x(BH_4)_{4-x}$  as products but excess trimethyl boron drives the reaction to  $U(BH_3CH_3)_4$ . Our attempts with the above synthesis resulted in a low yield and substantial unreacted starting materials.

The following synthesis gave satisfactory yields.



The reaction described by Equation 2 was also carried out in ether and THF. These solvents were satisfactory for  $Zr(BH_3CH_3)_4$  but for  $U(BH_3CH_3)_4$  and  $Th(BH_3CH_3)_4$ , adducts with the solvent were formed. Pure  $U(BH_3CH_3)_4$  prepared in ether could be sublimed from its adduct, but  $Th(BH_3CH_3)_4$  could not be sublimed adduct-free. Use of chlorobenzene as a solvent eliminates this problem.  $Np(BH_3CH_3)_4$  was prepared only in chlorobenzene.

All preparations were carried out under an atmosphere of argon or under high vacuum. Chlorobenzene was dried over  $CaH_2$  and distilled under argon before use. Melting points were determined in sealed argon-filled capillaries.  $ZrCl_4$  was sublimed under vacuum at  $300^\circ C$  for several days.  $UCl_4$  and  $ThCl_4$  were dried with  $SOCl_2$  before use.

Infrared spectra were recorded on a Perkin-Elmer IR-283 spectrophotometer and calibrated with polystyrene film. Nujol mulls were prepared in an argon-filled dry box with dry, degassed Nujol. Nuclear magnetic spectra were recorded on a Jeol FX 90Q 90 MHz FT spectrometer and referenced to  $\text{Me}_4\text{Si}$ . Samples were prepared in  $d^8$ -toluene in an argon filled dry box and sealed under vacuum. Reported values are at  $25^\circ\text{C}$ .

#### Lithium Methyltrihydroborate

$\text{LiBH}_3\text{CH}_3$  was prepared according to the procedure of Wartik and Schlesinger.<sup>6</sup>  $\text{B}(\text{CH}_3)_3$  was prepared by modifying the procedure for the synthesis of  $\text{B}(\text{CH}_2\text{CH}_3)_3$ .<sup>7</sup> 15.1 g (0.145 mole) of  $\text{B}(\text{OCH}_3)_3$  were condensed onto 10.5 g (0.145 mole) of  $\text{Al}(\text{CH}_3)_3$  under vacuum. The reaction mixture was allowed to warm very slowly. The  $\text{B}(\text{CH}_3)_3$  evolved was collected in a  $-196^\circ\text{C}$  trap. The crude  $\text{B}(\text{CH}_3)_3$  was purified by passing the contents of the  $-196^\circ\text{C}$  trap through a  $-132^\circ\text{C}$  trap into another  $-196^\circ\text{C}$  trap. 2.8 g (35% yield) of pure  $\text{B}(\text{CH}_3)_3$  were obtained.

#### Tetrakis(methyltrihydroborato)zirconium(IV)

To 0.29 g (8.1 mmoles) of  $\text{LiBH}_3\text{CH}_3$ , 0.47 g (2.0 mmoles) of  $\text{ZrCl}_4$  and 15 ml. of chlorobenzene were added. The mixture was stirred at  $-40^\circ\text{C}$  for 48 hours under argon and the solvent removed in vacuo to near dryness.  $\text{Zr}(\text{BH}_3\text{CH}_3)_4$  was sublimed with pumping at  $50^\circ\text{C}$  into a  $0^\circ\text{C}$  trap for 12 hours. 0.28 g (68% yield) of colorless crystals of  $\text{Zr}(\text{BH}_3\text{CH}_3)_4$  that melt at  $90$ – $92^\circ\text{C}$  were recovered. Calculated for  $\text{C}_4\text{H}_{24}\text{B}_4\text{Zr}$ : C, 23.24; H, 11.70. Found: C, 23.36; H, 11.59.

Tetrakis(methyltrihydroborato)uranium(IV)

To 0.30 g (8.4 mmoles) of  $\text{LiBH}_3\text{CH}_3$ , 0.80 g (2.1 mmoles) of  $\text{UCl}_4$  and 20 ml. of chlorobenzene were added. The mixture was stirred for two days under argon and then the solvent removed in vacuo to near dryness.  $\text{U}(\text{BH}_3\text{CH}_3)_4$  was sublimed with pumping at  $50^\circ\text{C}$  into a  $0^\circ\text{C}$  trap over a 12 hour period. 0.41 g (55% yield) of violet crystals of  $\text{U}(\text{BH}_3\text{CH}_3)_4$  that melt at  $72\text{--}74^\circ\text{C}$  were obtained. Calculated for  $\text{C}_4\text{H}_{24}\text{B}_4\text{U}$ : C, 13.59; H, 6.84. Found: C, 13.93; H, 7.08.

Tetrakis(methyltrihydroborato)thorium(IV)

To 0.50 g (14.0 mmoles)  $\text{LiBH}_3\text{CH}_3$ , 1.31 g (3.5 mmoles) of  $\text{ThCl}_4$  and 20 ml. of chlorobenzene were added. The mixture was stirred at  $\sim 40^\circ\text{C}$  for 48 hours under argon and the solvent removed in vacuo to near dryness.  $\text{Th}(\text{BH}_3\text{CH}_3)_4$  was sublimed with pumping at  $50^\circ\text{C}$  into a  $0^\circ\text{C}$  trap for 12 hours. 0.84 g (69% yield) of colorless crystals of  $\text{Th}(\text{BH}_3\text{CH}_3)_4$  that melt at  $62\text{--}63^\circ\text{C}$  were recovered. Calculated for  $\text{C}_4\text{H}_{24}\text{B}_4\text{Th}$ : C, 13.83; H, 6.96. Found: C, 13.90; H, 6.85.

Tetrakis(methyltrihydroborato)neptunium(IV)

To 50 mg (1.4 mmole) of  $\text{LiBH}_3\text{CH}_3$ , 135 mg (0.351 mmole) of  $\text{NpCl}_4$  and 20 ml of chlorobenzene were added. The mixture was stirred for 15 hours under argon and the solvent removed in vacuo to dryness.  $\text{Np}(\text{BH}_3\text{CH}_3)_4$  was sublimed with pumping at room temperature into a  $-196^\circ\text{C}$  trap for 12 hours. 10 mg (8% yield) of dark green crystals of  $\text{Np}(\text{BH}_3\text{CH}_3)_4$  were obtained. Because of the low yield and the radioactivity of the product, no elemental analysis was performed.



### X-Ray Diffraction

All the crystals were sealed inside quartz capillaries to protect them from the atmosphere. The crystals were examined with a Picker automated diffractometer equipped with a graphite monochromator and a Mo X-ray tube. In each structure determination, the setting angles of several centered reflections were used for the least-squares adjustment of the cell dimensions; cell dimensions and other crystal data are given in Table I.

For the Zr and U compounds a  $\theta$ - $2\theta$  scan technique with a fixed scan speed of  $2^\circ/\text{min}$  was used to collect the intensities. Backgrounds were measured for 10s(Zr) and 4s(U) at the beginning and end of each scan. For the Th compound a  $\theta$ - $2\theta$  scan technique was used with a variable scan rate that ranged from  $2^\circ/\text{min}$  to  $8^\circ/\text{min}$  on  $2\theta$ ; a scan consists of 76 steps across  $(1.5 + 0.693 \tan\theta)^\circ$  of  $2\theta$  for the peak, and an additional 12 steps on each side of the peak scan for the background. The reflection was first scanned at  $8^\circ/\text{min}(2\theta)$  and was accepted as measured if the estimate standard deviation was less than 2% of the net count, or the net count was less than its estimated standard deviation; otherwise a second scan was performed at either a speed that would yield 2% accuracy or a speed of  $2^\circ/\text{min}$ , and the results of the second scan was added to the first. For the Np compound, the data was collected by  $\omega$  scans rather than  $\theta$ - $2\theta$  scans because the reflections in the Np compound were very broad in  $\omega$ , i.e.  $\omega$  peak widths at half-height ranged from  $0.3^\circ$  to  $1^\circ$ . Each peak scan consisted of 76 steps across  $(2.25 + 0.346 \tan\theta)^\circ$  in  $\omega$ , centered at zero  $\omega$  and an additional 12 steps on each side of the peak scan for the background. The remaining details of data collection are similar to the Th compound data collection.

Standard reflections were measured after 250 scans and these variations were used to adjust the data. Lorentz and polarization corrections were applied, and absorption corrections were made, for all but the Zr compound, using an analytical integration method.<sup>8</sup>

The structures were refined by a full-matrix least-squares procedure in which the function  $\sum w(|F_o| - |F_c|)^2 / \sum w|F_o|^2$  was minimized. Atomic scattering factors for all atoms except hydrogen were taken from the International Tables;<sup>9</sup> the hydrogen scattering factors were those of Stewart, Davidson and Simpson.<sup>10</sup> Anomalous scattering corrections of Cromer and Liberman<sup>11</sup> were applied.

#### Determination of Structures

For the Zr and U structures three dimensional Patterson maps were used to find the metal atoms, and subsequent least squares refinements and electron density maps were used to find the remaining atoms. The least square refinements of the Np and Th structures were started with the atomic positions found in the Zr and U structures respectively. Hydrogen atoms were found and refined in the Zr structure; they were included in the Np structure, but in a restrained fashion. The metal atoms were all refined anisotropically; the B and C atoms were refined anisotropically in all the structures with the exception of the Th compound where the attempt to refine these atoms anisotropically gave non-positive definite thermal parameters. R factors and other statistical results of the least-squares refinements are given in Table I.

Positional parameters are given in Table II, and distances and angles are given in Tables III and IV. Tables of thermal parameters, observed structure factors and calculated powder patterns are given as supplementary material.

## RESULTS AND DISCUSSION

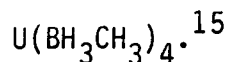
$\text{Zr}(\text{BH}_3\text{CH}_3)_4$ ,  $\text{Np}(\text{BH}_3\text{CH}_3)_4$ ,  $\text{Th}(\text{BH}_3\text{CH}_3)_4$  and  $\text{U}(\text{BH}_3\text{CH}_3)_4$  are monomolecular in the crystalline state. The metal atom is tetrahedrally coordinated to the four methylborohydride groups of the molecule. Twelve hydrogen atoms from the  $\text{BH}_3$  entities are in close contact to the metal atom, see Fig. 1.

The  $\text{Zr}(\text{BH}_3\text{CH}_3)_4$  and  $\text{Np}(\text{BH}_3\text{CH}_3)_4$  structures consists of a body-centered packing of molecules (Fig. 2). The coordination in these two compounds is similar to that found in their borohydrides.<sup>2</sup> The Zr-B distances in  $\text{Zr}(\text{BH}_3\text{CH}_3)_4$  and  $\text{Zr}(\text{BH}_4)_4$  are 2.335(3) and 2.34(3) Å respectively;<sup>12</sup> the Np-B distances in  $\text{Np}(\text{BH}_3\text{CH}_3)_4$  and  $\text{Np}(\text{BH}_4)_4$  are 2.487(6) and 2.46(3) Å respectively.<sup>2</sup>

The Th and U complexes are very near to being crystallographically isomorphous. The uranium compound is in a monoclinic space group, but in the Th compound the b axis is inclined to the a c plane by about 2°, which results in a triclinic space group. Whereas in the uranium compound the unit cell contains two crystallographically different but chemically identical molecules, the thorium compound contains four. Within these structures the M-B bond lengths deviate less than  $2\sigma$  (for U) and  $3\sigma$  (for Th) from their respective average, and the B-M-B angles in both structures are all within  $3\sigma$  of being tetrahedral.

The average triple-hydrogen-bridged U-B distance in  $\text{U}(\text{BH}_3\text{CH}_3)_4$  is  $2.48 \pm 0.03$  Å. These may be compared to triply bridged distances found in  $\text{U}(\text{BH}_4)_4$ ,<sup>6</sup> 2.52(1) Å;  $\text{U}(\text{BH}_4)_4 \cdot \text{O}(\text{C}_2\text{H}_5)_2$ ,<sup>13</sup> 2.53(2) Å; and  $\text{U}(\text{BH}_4)_4 \cdot 2\text{OC}_4\text{H}_8$ ,<sup>14</sup>

2.56(4) Å. These last three compounds are all 14-coordinate and thus we would expect the U(IV) ionic radius and consequently the U-B distance to be slightly greater for these compounds than for 12-coordinate



The B-C distances in the Zr and Np complexes are  $\sim 0.08$  Å shorter than in the U and Th complexes. We believe this difference is the result of not including the hydrogen atoms in the least-squares refinement of the U and Th complexes. When the hydrogen atoms are not included the two light atoms tend to shift apart to compensate for electron density near the unresolved hydrogen atoms. In the early stages of the refinement of the Zr structure the B-C distance was 1.61 Å before the hydrogen atoms were included. The above argument would also suggest the U-B and Th-B distances would be slightly longer than shown in Table III.

The compounds were characterized by infrared and proton nmr spectroscopy. The data are presented in Tables V and VI, respectively. From the assignments of Marks et al<sup>16</sup> and Banks and Edelstein,<sup>17</sup> the infrared spectrum shows the presence of B-H<sub>b</sub> stretches at  $\sim 2100$  cm<sup>-1</sup> and bridge deformation at  $\sim 1250$  cm<sup>-1</sup>, and the complete absence of B-H<sub>t</sub> stretches at  $\sim 2500$  cm<sup>-1</sup>. The other bands listed are due to the presence of the methyl group. The pmr spectrum of Zr(BH<sub>3</sub>CH<sub>3</sub>)<sub>4</sub> shows a quartet due to the three bridging borohydride protons with nearly the same chemical shift as that of Zr(BH<sub>4</sub>)<sub>4</sub>. For all compounds the spectra of the bridging protons are broadened due to quadrupole relaxation by <sup>11</sup>B. This effect obscures the boron-hydrogen spin-spin coupling.<sup>18</sup> The bridging protons of U(BH<sub>3</sub>CH<sub>3</sub>)<sub>4</sub> are shifted far upfield due to the

paramagnetic U(IV). Surprisingly, the methyl proton signal for  $\text{Th}(\text{BH}_3\text{CH}_3)_4$  is split into a doublet.

The early members of the  $\text{An}(\text{BH}_4)_4$  series, Th, Pa, and U, exhibit a polymeric structure, whereas the later members, Np and Pu borohydrides exhibit a monomeric structure that is closely related to that for Hf and Zr borohydrides. Replacement of the  $\text{BH}_4^-$  group by the  $\text{BH}_3\text{CH}_3^-$  group results in the formation of monomeric compounds for the above actinides. Nevertheless, the crystal structure of  $\text{Np}(\text{BH}_3\text{CH}_3)_4$  is like that of  $\text{Zr}(\text{BH}_3\text{CH}_3)_4$  rather than of  $\text{U}(\text{BH}_3\text{CH}_3)_4$  despite the fact that the  $\text{U}^{4+}$  ion is only slightly larger than  $\text{Np}^{4+}$  (+0.02 Å for 8 coordination) and the  $\text{Zr}^{4+}$  ion is considerably smaller (-0.12 Å for 8 coordination).<sup>19</sup> Qualitatively, this difference is reflected in the volatility of the compounds, with  $\text{Np}(\text{BH}_3\text{CH}_3)_4$  and  $\text{Zr}(\text{BH}_3\text{CH}_3)_4$  being of comparable volatility and both being more volatile than either  $\text{U}(\text{BH}_3\text{CH}_3)_4$  or  $\text{Th}(\text{BH}_3\text{CH}_3)_4$ .  $\text{Th}(\text{BH}_3\text{CH}_3)_4$  sublimes easily under vacuum at  $\sim 40^\circ\text{C}$  which makes it the most volatile compound of thorium known to date.

Spectral and magnetic studies on some of these compounds will be reported separately.

## ACKNOWLEDGMENT

We wish to thank Professor R. A. Andersen for suggesting the method of preparation of  $B(CH_3)_3$  and Dr. D. A. Karraker for supplying us with  $NpCl_4$ . This work was supported by the Director, Office of Energy Research, Office of Basic Energy Sciences, Chemical Sciences Division of the U.S. Department of Energy under Contract Number DE-AC03-76SF00098.

## SUPPLEMENTARY MATERIAL

A list of thermal parameters, calculated powder patterns, and a listing of observed structure factors (53 pages). Ordering information is given on any current masthead page.

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Table I. Summary of Crystal Data Intensity Collection and Least-Squares Refinement Statistics.

	Zr(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>	Np(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>	U(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>	Th(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>
fw	206.7	352.5	353.5	347.5
a, Å	10.311(6)	10.552(6)	18.228(6)	18.408(6)
b, Å	10.311(6)	10.552(6)	16.749(6)	16.910(6)
c, Å	5.851(3)	5.950(3)	8.765(2)	8.834(3)
α, deg				88.06(4)
β			90.69(4)	90.83(4)
γ				88.08(4)
Space Group	Tetragonal P4 <sub>2</sub> /n	Tetragonal P4 <sub>2</sub> /n	Monoclinic P2 <sub>1</sub> /n	Triclinic P $\bar{1}$
Z	2	2	8	8
d(calcd), g/cm <sup>3</sup>	1.103	1.767	1.755	1.681
color	colorless	dark green	violet	colorless
cryst. size, mm	.07 x .10 x .33	.26 x .35 x .36	.08 x .15 x .17	.12 x .20 x .50
μ, cm <sup>-1</sup>	8	50	114	112
T, °C	23	23	22	22
X-ray, MoKα <sub>1</sub> , λ(Å)	0.70930	0.70930	0.70930	0.70930

Table I. (Continued)

2 $\theta$ range, deg	4-50	4-50	4-45	4-45
No. of scans (including standards)	2623	2414	7354	12200
Decay cor range	1.00-1.03	1.00-1.04	1.00-1.14	1.00-1.28
Absorption cor range	1.06-1.08*	2.74-5.44	2.3-4.6	2.34-5.31
No. of unique data	553	594	3295	7214
No. data $F^2 > 3\sigma$ used in least squares	341	345	1487	2937
Ignorance factor, p, in weighting expression $w = [(\sigma(F^2))^2 + (pF^2)^2]^{-1}$	0.02	0.015	0.05	0.05
No. of variables in least squares	45	41	163	165
$R_w = \frac{[\sum w(\Delta F)^2]}{\sum w F_0^2}$	0.016	0.013	0.044	0.097
$R = \frac{\sum  \Delta F }{\sum  F_0 }$ ( $F^2 > 3\sigma$ )	0.013	0.016	0.041	0.068
R for all data	0.044	0.050	0.125	0.167

Table I. (Continued)

Goodness of fit	1.03	1.00	1.06	2.61
Convergence, last $\Delta/\sigma$ of the parameters	<0.02	<0.06	<0.02	<0.02

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\*No absorption correction made.

Table II. Positional Parameters.

Zr(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>			
Atom	x	y	z
Zr	.250	.250	.250
B	.2844(3)	.4318(3)	.4801(6)
C	.3077(5)	.5544(4)	.6347(10)
H(1)	.2828(25)	.4484(25)	.286(5)
H(2)	.1892(27)	.3799(27)	.489(5)
H(3)	.3535(25)	.3449(25)	.503(5)
H(4)	.251(5)	.611(5)	.611(7)
H(5)	.389(4)	.605(4)	.605(7)
H(6)	.317(6)	.537(5)	.776(9)

U(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>			
Atom	x	y	z
U(1)	.37224(5)	.17396(5)	.03540(10)
U(2)	.29978(5)	.50614(6)	-.02715(10)
B(1)	.2398(14)	.2053(14)	.074(4)
B(2)	.4495(18)	.2726(19)	.169(4)
B(3)	.4024(19)	.1805(18)	-.241(3)
B(4)	.3945(16)	.0356(19)	.131(4)
B(5)	.4049(16)	.4451(18)	-.1668(27)
B(6)	.3070(17)	.4687(19)	.241(3)
B(7)	.1790(16)	.4588(16)	-.132(4)
B(8)	.3037(20)	.6507(17)	-.045(4)
C(1)	.1524(14)	.2278(16)	.092(3)
C(2)	.5002(16)	.3388(16)	.264(3)
C(3)	.4229(16)	.1803(17)	-.4169(28)
C(4)	.4092(15)	-.0503(14)	.205(4)
C(5)	.4755(14)	.4084(16)	-.253(3)
C(6)	.3154(19)	.4505(20)	.428(3)
C(7)	.1013(15)	.4267(15)	-.203(3)
C(8)	.3026(18)	.7513(15)	-.072(4)

Table II. Positional Parameters (Continued)

Np(BH<sub>3</sub>CH<sub>3</sub>)<sub>4</sub>

ATOM	X	Y	Z
NP	.250	.250	.250
B	.2873(6)	.4390(5)	.4906(9)
C	.3077(8)	.5590(6)	.6403(11)
H(1)	.388(5)	.448(5)	.319(4)
H(2)	.2025(23)	.386(4)	.506(7)
H(3)	.350(4)	.357(3)	.506(8)
H(4)	.264(5)	.634(4)	.595(9)
H(5)	.3909(29)	.592(6)	.610(11)
H(6)	.300(7)	.551(7)	.798(3)

Th(BH<sub>3</sub>CH<sub>3</sub>)<sub>4</sub>

ATOM	X	Y	Z
TH(1)	.37160(11)	.17353(10)	.02097(21)
TH(2)	.12319(11)	.67806(10)	.45297(21)
TH(3)	.29973(11)	.50803(11)	-.03111(21)
TH(4)	.19932(10)	.00358(10)	.51394(19)
B(1)	.237(3)	.208(3)	.069(7)
B(2)	.453(4)	.271(4)	.147(8)
B(3)	.399(3)	.1835(28)	-.263(6)
B(4)	.394(3)	.032(3)	.103(7)
B(5)	.259(3)	.7069(28)	.429(6)
B(6)	.054(3)	.787(3)	.313(7)
B(7)	.092(4)	.679(4)	.728(9)
B(8)	.104(3)	.5403(29)	.363(6)
B(9)	.410(3)	.449(3)	-.166(7)
B(10)	.313(4)	.461(4)	.246(8)
B(11)	.177(4)	.452(4)	-.158(8)
B(12)	.305(4)	.660(4)	-.058(7)
B(13)	.092(3)	.937(3)	.655(7)
B(14)	.194(3)	.977(3)	.239(7)
B(15)	.323(3)	.953(3)	.621(7)
B(16)	.188(3)	1.154(3)	.543(7)
C(1)	.147(4)	.241(4)	.097(7)
C(2)	.503(3)	.3309(29)	.231(6)
C(3)	.4083(27)	.1919(25)	-.460(6)
C(4)	.4103(28)	-.0600(27)	.189(6)
C(5)	.344(3)	.7299(29)	.409(6)
C(6)	-.0015(24)	.8500(23)	.205(5)
C(7)	.0653(28)	.6740(27)	.893(6)
C(8)	.0941(23)	.4510(22)	.300(5)
C(9)	.482(3)	.4101(28)	-.249(6)
C(10)	.315(3)	.435(3)	.428(7)
C(11)	.1006(27)	.4297(25)	-.217(5)
C(12)	.295(3)	.752(3)	-.064(7)
C(13)	.0262(27)	.9038(26)	.756(6)
C(14)	.179(3)	.958(3)	.059(7)
C(15)	.4036(28)	.9193(27)	.672(6)
C(16)	.1837(28)	1.2490(27)	.561(6)

Table III. Selected Interatomic Distances (Å).

	Zr(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>		Np(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>
M -4B	2.335(3)		2.487(6)
-4H(1)	2.08(3)		2.22 <sup>a</sup>
-4H(2)	2.04(3)		2.15
-4H(3)	2.07(3)		2.16
B -C	1.573(5)		1.563(8)
-H(1)	1.15(3)		1.05
-H(2)	1.12(3)		1.06
-H(3)	1.15(3)		1.09
C -H(4)	0.84(5)		0.96
-H(5)	1.00(4)		0.96
-H(6)	0.85(5)		0.94

U(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>			
U(1)-B(1)	2.50(4)	U(2)-B(5)	2.50(3)
-B(2)	2.46(4)	-B(6)	2.44(4)
-B(3)	2.49(4)	-B(7)	2.50(3)
-B(4)	2.50(4)	-B(8)	2.43(3)
B(1)-C(1)	1.65(4)	B(5)-C(5)	1.62(4)
B(2)-C(2)	1.66(4)	B(6)-C(6)	1.67(4)
B(3)-C(3)	1.59(4)	B(7)-C(7)	1.63(4)
B(4)-C(4)	1.60(4)	B(8)-C(8)	1.70(4)

Th(BH <sub>3</sub> CH <sub>3</sub> ) <sub>4</sub>			
Th(1)-B(1)	2.57(6)	Th(3)-B(9)	2.56(6)
-B(2)	2.54(7)	-B(10)	2.55(7)
-B(3)	2.57(6)	-B(11)	2.71(7)
-B(4)	2.49(6)	-B(12)	2.58(6)
Th(2)-B(5)	2.57(6)	Th(4)-B(13)	2.61(6)
-B(6)	2.50(6)	-B(14)	2.49(6)
-B(7)	2.51(8)	-B(15)	2.57(6)
-B(8)	2.52(5)	-B(16)	2.56(5)
B(1) -C(1)	1.76(8)	B(9) -C(9)	1.65(7)
B(2) -C(2)	1.59(7)	B(10)-C(10)	1.65(8)
B(3) -C(3)	1.76(7)	B(11)-C(11)	1.57(8)
B(4) -C(4)	1.73(7)	B(12)-C(12)	1.57(7)
B(5) -C(5)	1.63(7)	B(13)-C(13)	1.63(7)
B(6) -C(6)	1.70(7)	B(14)-C(14)	1.66(8)
B(7) -C(7)	1.55(8)	B(15)-C(15)	1.62(9)
B(8) -C(8)	1.64(6)	B(16)-C(16)	1.63(7)

Table III. Selected Interatomic Distances (Continued).

	Averages <sup>b</sup>			
	Zr	Th	U	Np
M-B	2.335(3)	2.56 ± 0.05	2.48 ± 0.03	2.487(6)
B-C	1.573(5)	1.65 ± 0.06	1.64 ± 0.04	1.563(8)

- a) Hydrogens in  $\text{Np}(\text{BH}_3\text{CH}_3)_4$  were refined with restrained distances.
- b) There is only one type of M-B and B-C bond length in the Zr and Np compounds, and the estimated standard deviation in parentheses is that from the least-squares refinement. The estimated deviations for the U and Th distances are given as  $\pm$ , and is calculated as  $[(\sum d^2 - (\sum d)^2/n)/(n-1)]^{1/2}$ , where  $d$  is the distance and  $n$  the number of distances.



Table IV. Selected Angles (deg)

	M = Zr	M = Np
B-M-B <sub>a</sub>	109.6(2)	109.7(3)
B-M-B <sub>b</sub>	109.4(1)	109.4(2)
M-B-C	179.9(3)	178.7(5)
H(1)-B-H(2)	96(2)	108 <sub>c</sub>
H(1)-B-H(3)	104(2)	92
H(2)-B-H(3)	99(2)	95
H(4)-C-H(5)	101(4)	95
H(4)-C-H(6)	113(5)	108
H(5)-C-H(6)	101(5)	108

U(CH<sub>3</sub>BH<sub>3</sub>)<sub>4</sub>

B(1)-U(1)-B(2)	110(1)	B(6)-U(2)-B(8)	109(1)
B(1)-U(1)-B(3)	110(1)	B(7)-U(2)-B(8)	109(1)
B(1)-U(1)-B(4)	108(1)	U(1)-B(1)-C(1)	178(2)
B(2)-U(1)-B(3)	108(1)	U(1)-B(2)-C(2)	178(2)
B(2)-U(1)-B(4)	112(2)	U(1)-B(3)-C(3)	177(2)
B(3)-U(1)-B(4)	109(1)	U(1)-B(4)-C(4)	176(3)
B(5)-U(2)-B(6)	110(1)	U(2)-B(5)-C(5)	177(2)
B(5)-U(2)-B(7)	111(1)	U(2)-B(6)-C(6)	175(3)
B(5)-U(2)-B(8)	111(1)	U(2)-B(7)-C(7)	179(2)
B(6)-U(2)-B(7)	108(1)	U(2)-B(8)-C(8)	175(3)

Th(CH<sub>3</sub>BH<sub>3</sub>)<sub>4</sub>

B(1)-Th(1)-B(2)	110(2)	B(13)-Th(4)-B(16)	109(2)
B(1)-Th(1)-B(3)	111(2)	B(14)-Th(4)-B(15)	109(2)
B(1)-Th(1)-B(4)	107(2)	B(14)-Th(4)-B(16)	108(2)
B(2)-Th(1)-B(3)	106(2)	B(15)-Th(4)-B(16)	109(2)
B(2)-Th(1)-B(4)	115(2)	Th(1)-B(1)-C(1)	175(4)
B(3)-Th(1)-B(4)	107(2)	Th(1)-B(2)-C(2)	178(4)
B(5)-Th(2)-B(6)	107(2)	Th(1)-B(3)-C(3)	174(4)
B(5)-Th(2)-B(7)	108(2)	Th(1)-B(4)-C(4)	171(4)
B(5)-Th(2)-B(8)	108(2)	Th(2)-B(5)-C(5)	177(4)
B(6)-Th(2)-B(7)	110(2)	Th(2)-B(6)-C(6)	171(4)
B(6)-Th(2)-B(8)	116(2)	Th(2)-B(7)-C(7)	174(5)
B(7)-Th(2)-B(8)	107(2)	Th(2)-B(8)-C(8)	177(4)
B(9)-Th(3)-B(10)	106(2)	Th(3)-B(9)-C(9)	179(4)
B(9)-Th(3)-B(11)	109(2)	Th(3)-B(10)-C(10)	175(5)
B(9)-Th(3)-B(12)	108(2)	Th(3)-B(11)-C(11)	171(4)

Table IV. Selected Angles (deg) (Continued).

B(10)-Th(3)-B(11)	111(2)	Th(3)-B(12)-C(12)	171(5)
B(10)-Th(3)-B(12)	111(2)	Th(4)-B(13)-C(13)	174(4)
B(11)-Th(3)-B(12)	112(2)	Th(4)-B(14)-C(14)	172(4)
B(13)-Th(4)-B(14)	111(2)	Th(4)-B(15)-C(15)	175(4)
B(13)-Th(4)-B(15)	112(2)	Th(4)-B(16)-C(16)	178(4)

aAt position  $1/2-x, 1/2-y, z$ .

bAt position  $y, 1/2-x, 1/2-z$ .

CHydrogens refined in least-squares with restrained distances.

Table V. Infrared Spectroscopic Data for  $M(\text{BH}_3\text{CH}_3)_4$  Compounds.

Compound	
$\text{Zr}(\text{BH}_3\text{CH}_3)_4$	2900 <sup>a</sup> , 2140w, 2080m, 1310m, 1230m, 1090w, 1020w, 1000w, 890w
$\text{U}(\text{BH}_3\text{CH}_3)_4$	2930 <sup>a</sup> , 2130w, 2050m, 1310m, 1270m, 1080w, 1020w, 1000w, 910w
$\text{Th}(\text{BH}_3\text{CH}_3)_4$	2920 <sup>a</sup> , 2165w, 2070m, 1310m, 1260m, 1090w, 1015w, 990w, 870w

<sup>a</sup>Partially obscured by Nujol peak.

Table VI. Nuclear Magnetic Resonance Data for  $M(\text{BH}_3\text{CH}_3)_4$  Compounds<sup>a,b</sup>

Compound	
Zr( $\text{BH}_3\text{CH}_3$ ) <sub>4</sub>	+0.25 (12H, s), +1.43 (12H, quart)
U( $\text{BH}_3\text{CH}_3$ ) <sub>4</sub>	+15.5 (12H, s), -68.4 (12H, quart)
Th( $\text{BH}_3\text{CH}_3$ ) <sub>4</sub>	+0.11 (12H, doublet), +3.43 (12H, quart)

a) All samples prepared in  $d^8$ -toluene.

b) Shift in ppm from TMS. Positive sign indicates a downfield shift. All values are at 25°C.

## FIGURE CAPTIONS

Fig. 1. ORTEP drawing of a  $\text{Zr}(\text{BH}_3\text{CH}_3)_4$ .

Fig. 2. ORTEP drawing showing packing of  $\text{Zr}(\text{BH}_3\text{CH}_3)_4$  units. The central molecule is displaced by  $1/2 a$ ,  $1/2 b$ ,  $1/2 c$  from the corner ones.

Fig. 3. ORTEP drawing of the  $\text{U}(\text{BH}_3\text{CH}_3)_4$  structure.

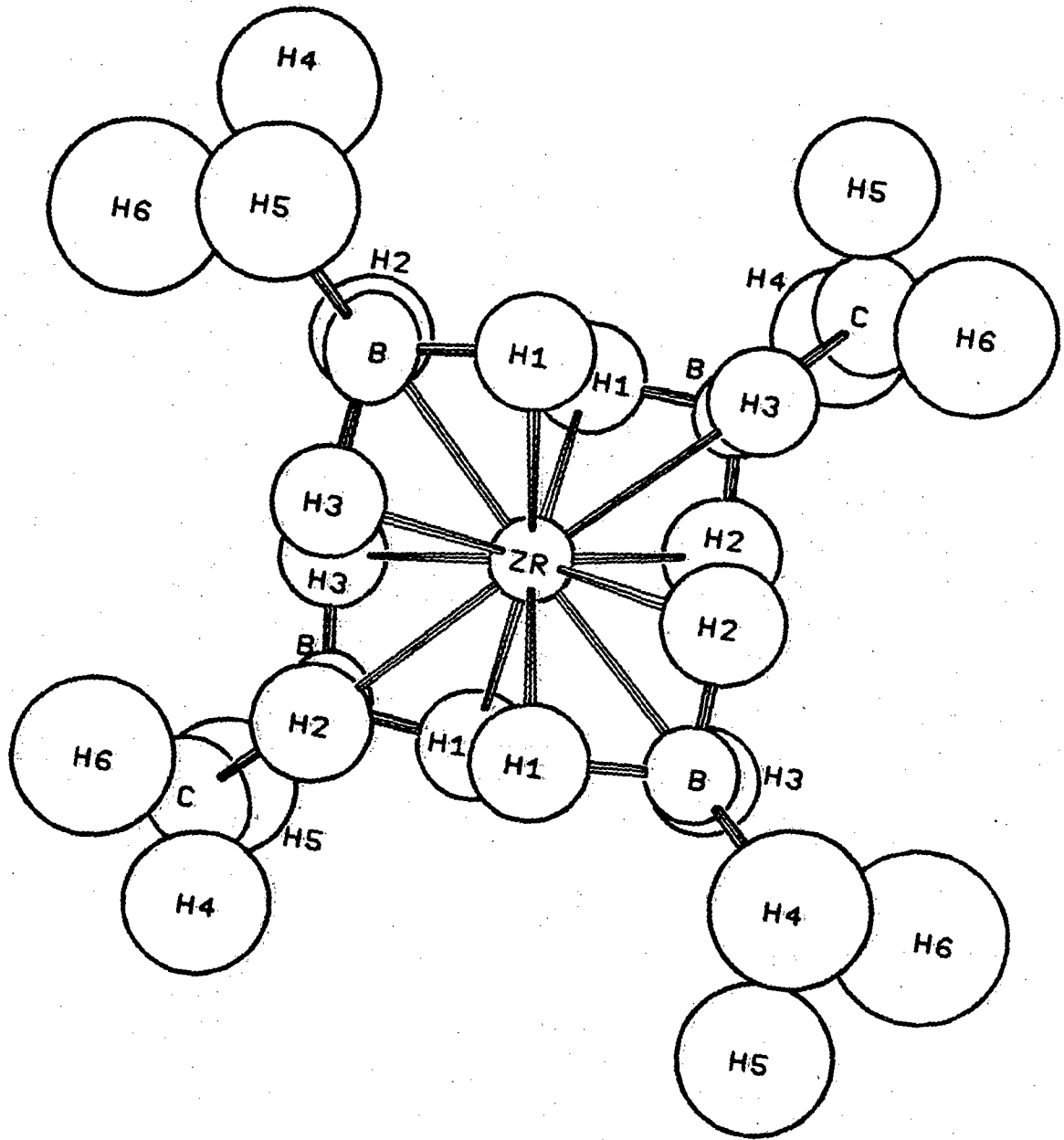
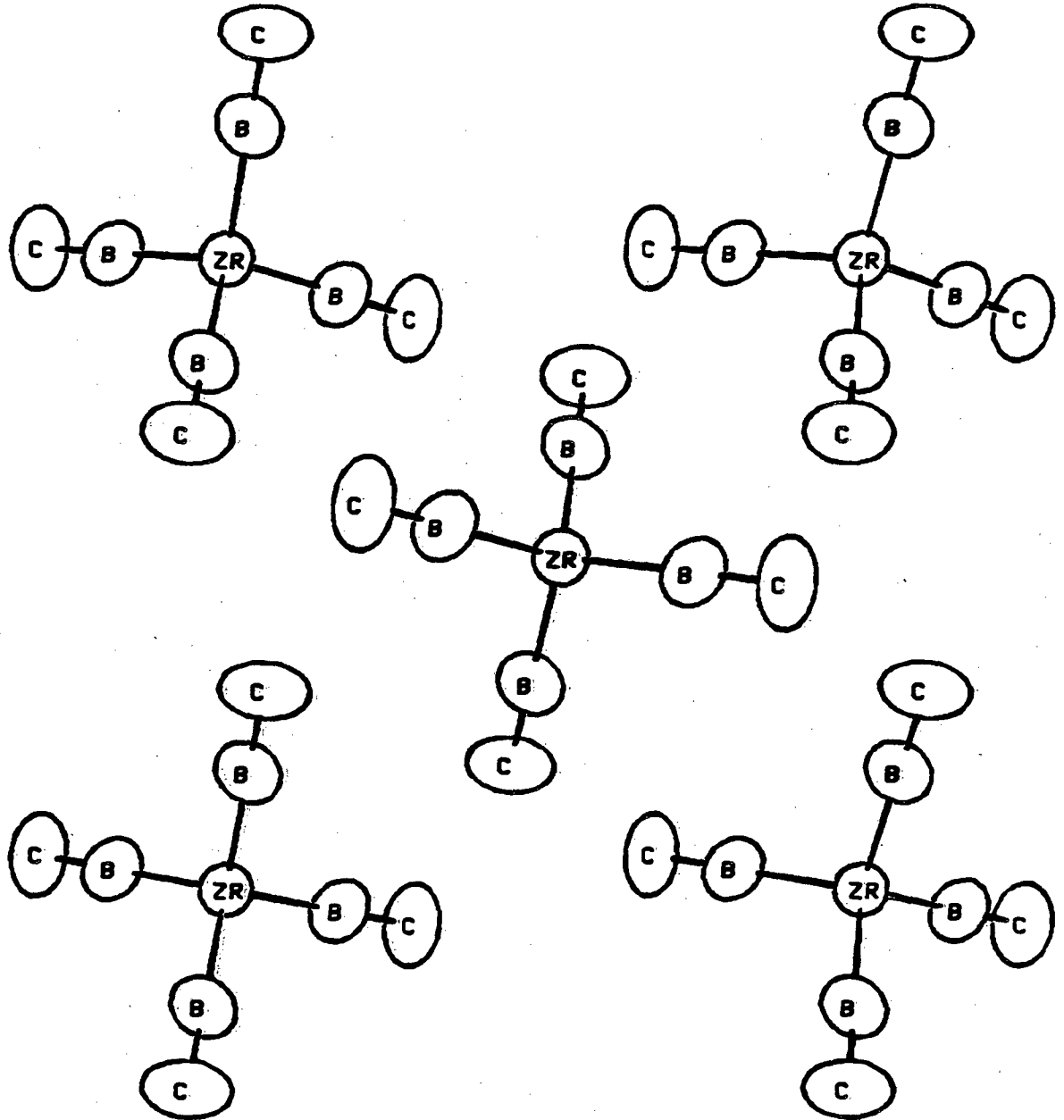


Fig. 1

XBL 812-8217



XBL 812-8218

Fig. 2

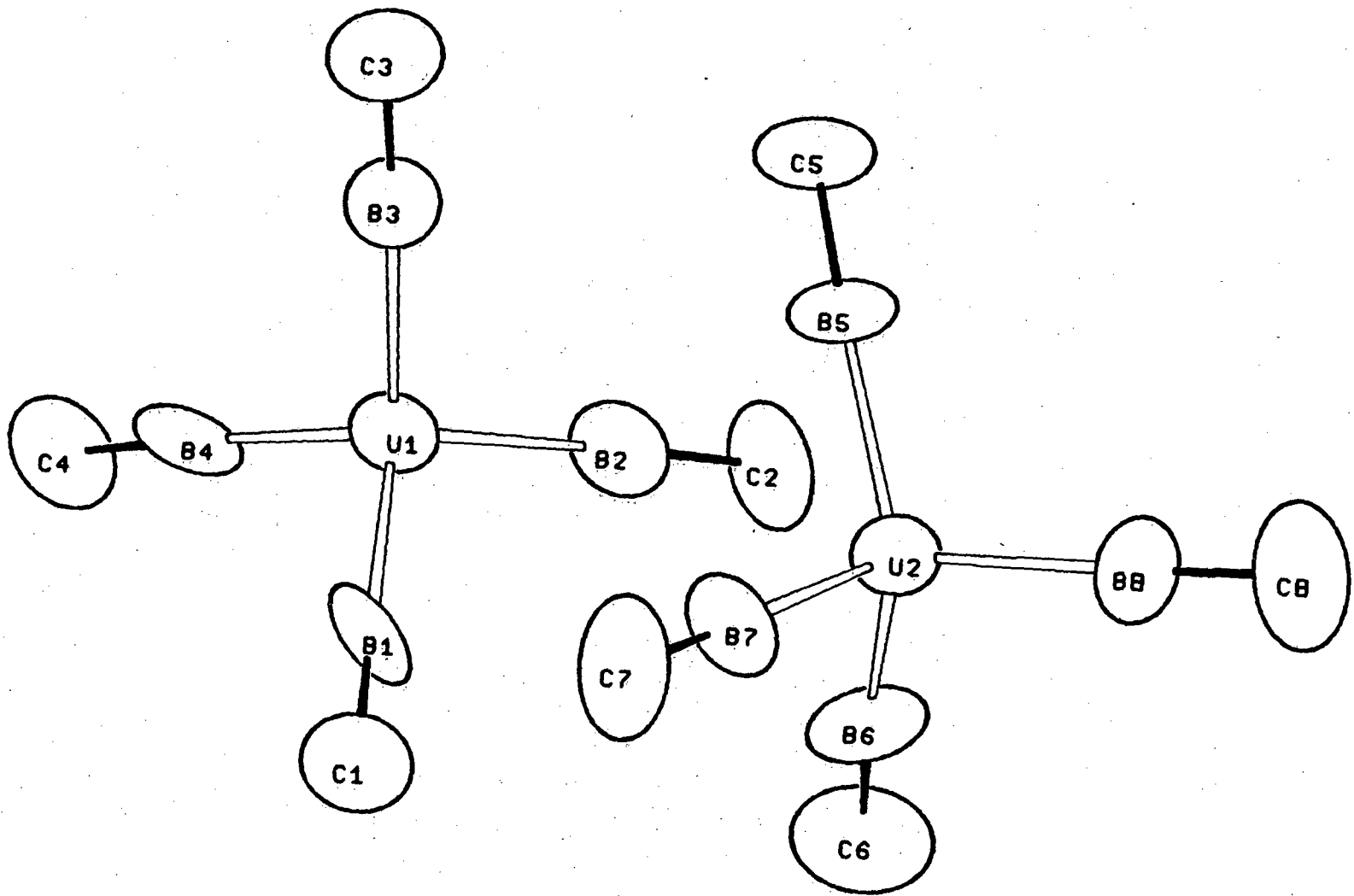


Fig. 3

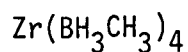
XBL 816-10258



Supplementary Material for the Paper

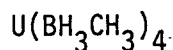
SYNTHESES AND CRYSTAL STRUCTURES OF THE TETRAKIS(METHYLTRIHYDROBORATO)  
COMPOUNDS OF ZIRCONIUM(IV), THORIUM(IV), URANIUM(IV) AND NEPTUNIUM(IV)

by Ron Shinomoto, Eduard Gamp, Norman M. Edelstein, David H. Templeton and  
Allan Zalkin

Thermal Parameters<sup>a</sup>

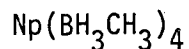
ATOM	B11	B22	B33	B12	B13	B23
ZR	3.33(1)	3.3297	3.03(2)	0	0	0
B	5.4(1)	3.7(1)	4.1(1)	-0.4(1)	.2(1)	.1(1)
C	9.0(2)	4.1(1)	5.9(2)	-1.1(2)	.2(2)	-1.1(1)

ATOM	B
H(1)	5.7(6)
H(2)	6.2(7)
H(3)	5.2(6)
H(4)	10.0(14)
H(5)	9.5(10)
H(6)	12.1(22)

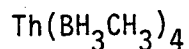


ATOM	B11	B22	B33	B12	B13	B23
U(1)	5.44(5)	5.69(5)	4.77(5)	-0.15(5)	.77(4)	.61(4)
U(2)	5.26(5)	5.66(5)	4.78(5)	.15(4)	.50(4)	.02(4)
B(1)	3.2(14)	4.9(14)	8.7(19)	-1.4(11)	-0.0(13)	3.0(13)
B(2)	6.0(19)	9.2(21)	8.6(22)	-2.6(17)	1.1(17)	-1.5(17)
B(3)	10.6(23)	6.8(17)	5.4(17)	-1.1(18)	2.0(19)	-0.8(14)
B(4)	4.4(16)	8.7(19)	8.7(21)	-0.4(14)	3.8(15)	1.0(16)
B(5)	6.4(18)	9.9(20)	1.7(12)	-0.9(15)	.9(12)	-1.6(12)
B(6)	7.6(20)	8.5(20)	5.6(17)	3.5(16)	1.8(15)	.1(14)
B(7)	4.5(15)	5.8(15)	8.6(20)	-0.4(13)	-0.1(14)	1.8(14)
B(8)	11.4(24)	5.2(16)	8.5(21)	-0.9(17)	1.8(18)	-0.8(15)
C(1)	5.2(16)	8.9(17)	11.3(22)	.7(13)	1.6(15)	-0.2(15)
C(2)	9.8(18)	8.0(16)	9.8(18)	-4.8(16)	-1.4(15)	-0.7(15)
C(3)	18.8(19)	18.9(19)	4.9(14)	-1.5(17)	1.6(13)	-1.2(14)
C(4)	8.9(19)	5.2(14)	13.0(23)	2.0(13)	2.8(17)	4.4(14)
C(5)	6.3(15)	18.2(17)	8.1(17)	1.3(14)	3.6(13)	-0.6(14)
C(6)	12.4(24)	14.1(24)	6.2(17)	.7(20)	1.1(17)	2.2(16)
C(7)	7.9(18)	7.4(16)	11.0(21)	-1.7(14)	-5.6(16)	-0.9(14)
C(8)	11.2(23)	5.9(15)	15.3(29)	-0.4(15)	-2.8(21)	1.4(16)

<sup>a</sup>The anisotropic temperature factor has the form  $\exp(-0.25(B_{11}h^2a^2 + 2B_{12}hka^*b^* + \dots))$ . The isotropic temperature factor has the form  $\exp(-B(\sin\theta)/\lambda)^2$ .



ATOM	B11	B22	B33	B12	B13	B23
NP	3.892(10)	3.892	3.726(12)	0	0	0
B	5.52(25)	4.41(22)	4.90(21)	-0.82(22)	0.21(19)	0.19(18)
C	9.7(4)	4.84(25)	6.37(23)	-1.0(3)	0.1(3)	-0.81(23)
H(1)	4.8(7)					
H(2)	4.8053					
H(3)	4.8053					
H(4)	8.4(11)					
H(5)	8.3905					
H(6)	8.3905					



ATOM	B11	B22	B33	B12	B13	B23
TH(1)	5.94(12)	6.43(11)	5.05(11)	-0.50(9)	0.59(9)	0.72(8)
TH(2)	5.93(12)	6.07(10)	4.81(10)	-0.39(9)	0.73(9)	-1.09(8)
TH(3)	5.63(12)	6.60(11)	5.51(11)	-0.14(8)	0.59(9)	-0.28(8)
TH(4)	5.61(11)	6.34(10)	3.96(10)	-0.57(8)	0.20(8)	-0.17(8)
B(1)	6.6(15)					
B(2)	8.5(18)					
B(3)	5.5(13)					
B(4)	7.1(15)					
B(5)	5.5(13)					
B(6)	6.4(14)					
B(7)	10.4(21)					
B(8)	5.9(13)					
B(9)	7.1(15)					
B(10)	9.4(20)					
B(11)	8.8(18)					
B(12)	7.7(16)					
B(13)	6.5(14)					
B(14)	6.7(15)					
B(15)	6.3(14)					
B(16)	6.7(15)					
C(1)	11.9(19)					
C(2)	8.7(15)					
C(3)	7.2(13)					
C(4)	8.0(14)					
C(5)	8.9(15)					
C(6)	5.5(10)					
C(7)	7.9(13)					
C(8)	5.1(10)					
C(9)	8.3(14)					
C(10)	9.4(16)					
C(11)	6.8(12)					
C(12)	10.6(17)					
C(13)	7.0(12)					
C(14)	10.2(17)					
C(15)	7.7(13)					
C(16)	7.7(13)					

CALCULATED POWDER PATTERN FOR ZR(CH<sub>3</sub>BH<sub>3</sub>)<sub>4</sub>  
 X-RAY WAVE LENGTH = 1.54180 ANGSTROMS.

A = 10.311 B = 10.311 C = 5.851  
 ALPHA = 90.00 BETA = 90.00 GAMMA = 90.00

H	K	L	D	I	2 THETA	SINSQ
1	1	0	7.291	1000.	12.14	.61118
2	0	0	5.156	524.	17.20	.02236
1	0	1	5.089	694.	17.43	.02295
1	1	1	4.563	49.	19.45	.02854
2	0	1	3.868	214.	22.99	.03972
2	2	0	3.645	15.	24.42	.04472
2	1	1	3.622	746.	24.58	.04531
1	2	1	3.622	347.	24.58	.04531
3	1	0	3.261	47.	27.35	.05590
1	3	0	3.261	289.	27.35	.05590
2	2	1	3.094	0.	28.85	.06208
3	0	1	2.964	87.	30.16	.06767
0	0	2	2.926	18.	30.56	.06944
3	1	1	2.848	3.	31.41	.07326
1	3	1	2.848	17.	31.41	.07326
1	0	2	2.814	21.	31.79	.07503
1	1	2	2.715	87.	32.99	.08062
4	0	0	2.578	71.	34.80	.08944
3	2	1	2.569	74.	34.92	.09003
2	3	1	2.569	102.	34.92	.09003
2	0	2	2.544	98.	35.27	.09180
2	1	2	2.470	0.	36.37	.09739
1	2	2	2.470	1.	36.37	.09739
3	3	0	2.430	38.	36.99	.10062
4	0	1	2.359	4.	38.15	.10680
4	2	0	2.306	42.	39.07	.11180
2	4	0	2.306	22.	39.07	.11180
4	1	1	2.300	91.	39.17	.11239
1	4	1	2.300	79.	39.17	.11239
2	2	2	2.282	100.	39.49	.11416
3	3	1	2.244	2.	40.18	.11798
3	0	2	2.228	4.	40.49	.11975
3	1	2	2.178	92.	41.47	.12534
1	3	2	2.178	89.	41.47	.12534
4	2	1	2.145	1.	42.12	.12915
2	4	1	2.145	0.	42.12	.12915
3	2	2	2.045	0.	44.29	.14210
2	3	2	2.045	9.	44.29	.14210
5	1	0	2.022	10.	44.82	.14533
1	5	0	2.022	40.	44.82	.14533

CALCULATED POWDER PATTERN FOR NP(CH<sub>3</sub>BH<sub>3</sub>)<sub>4</sub>  
 X-RAY WAVE LENGTH = 1.54180 ANGSTROMS.

A = 10.552 B = 10.552 C = 5.950  
 ALPHA = 90.00 BETA = 90.00 GAMMA = 90.00

H	K	L	D	I	2 THETA	SINSQ
1	1	0	7.461	1000.	11.86	.01067
2	0	0	5.276	511.	16.80	.02135
1	0	1	5.183	809.	17.11	.02212
1	1	1	4.652	12.	19.08	.02746
2	0	1	3.948	45.	22.52	.03814
2	2	0	3.731	96.	23.85	.04270
2	1	1	3.697	552.	24.07	.04347
1	2	1	3.697	380.	24.07	.04347
3	1	0	3.337	94.	26.72	.05337
1	3	0	3.337	215.	26.72	.05337
2	2	1	3.161	0.	28.23	.05949
3	0	1	3.028	153.	29.50	.06482
0	0	2	2.975	35.	30.04	.06715
3	1	1	2.910	1.	30.72	.07016
1	3	1	2.910	4.	30.72	.07016
1	0	2	2.863	4.	31.24	.07248
1	1	2	2.763	131.	32.40	.07782
4	0	0	2.638	73.	33.98	.08540
3	2	1	2.626	111.	34.14	.08617
2	3	1	2.626	134.	34.14	.08617
2	0	2	2.591	122.	34.61	.08850
2	1	2	2.517	0.	35.68	.09383
1	2	2	2.517	0.	35.68	.09383
3	3	0	2.487	52.	36.11	.09607
4	0	1	2.412	1.	37.29	.10218
4	2	0	2.359	48.	38.14	.10675
2	4	0	2.359	37.	38.14	.10675
4	1	1	2.351	99.	38.28	.10752
1	4	1	2.351	94.	38.28	.10752
2	2	2	2.326	101.	38.71	.10985
3	3	1	2.295	0.	39.26	.11286
3	0	2	2.271	1.	39.68	.11518
3	1	2	2.221	89.	40.63	.12052
1	3	2	2.221	87.	40.63	.12052
4	2	1	2.193	0.	41.15	.12353
2	4	1	2.193	0.	41.15	.12353
3	2	2	2.086	0.	43.37	.13653
2	3	2	2.086	1.	43.37	.13653
5	1	0	2.069	20.	43.74	.13877
1	5	0	2.069	37.	43.74	.13877

CALCULATED POWDER PATTERN FOR U(CH<sub>3</sub>BH<sub>3</sub>)<sub>4</sub>  
 X-RAY WAVE LENGTH = 1.54180 ANGSTROMS.

A = 18.228 B = 16.749 C = 8.765  
 ALPHA = 90.00 BETA = 90.69 GAMMA = 90.00

H	K	L	D	I	2 THETA	SINSQ
2	0	0	9.113	456.	9.70	.00716
0	2	0	8.374	102.	10.56	.00847
2	1	0	8.005	734.	11.05	.00927
1	0	-1	7.936	456.	11.15	.00944
1	0	1	7.862	448.	11.25	.00962
1	1	1	7.117	142.	12.44	.01173
2	2	0	6.166	329.	14.36	.01563
0	2	1	6.055	10.	14.63	.01621
2	1	-1	5.942	177.	14.91	.01683
2	1	1	5.880	428.	15.07	.01719
1	2	-1	5.760	12.	15.38	.01791
3	1	0	5.711	83.	15.51	.01822
1	3	0	5.338	329.	16.61	.02085
2	2	-1	5.063	248.	17.52	.02319
3	0	-1	5.022	452.	17.66	.02357
3	0	1	4.965	286.	17.86	.02411
3	2	0	4.918	59.	18.04	.02457
3	1	-1	4.810	74.	18.45	.02569
2	3	0	4.761	8.	18.64	.02622
3	1	1	4.760	158.	18.64	.02622
0	3	1	4.709	1000.	18.85	.02680
1	3	-1	4.566	21.	19.44	.02850
4	1	0	4.557	78.	19.48	.02862
1	3	1	4.552	7.	19.50	.02868
4	1	0	4.397	14.	20.20	.03074
0	0	2	4.382	332.	20.26	.03095
3	2	-1	4.307	26.	20.62	.03204
3	2	1	4.271	23.	20.80	.03258
2	3	-1	4.194	167.	21.18	.03378
2	3	1	4.172	144.	21.29	.03414
1	1	2	4.119	90.	21.58	.03503
3	3	0	4.111	487.	21.62	.03517
1	4	0	4.081	148.	21.78	.03568
4	2	0	4.003	106.	22.21	.03710
2	0	-2	3.968	162.	22.41	.03774
4	1	-1	3.948	101.	22.52	.03812
2	0	2	3.931	54.	22.62	.03846
4	1	1	3.912	102.	22.73	.03884
0	2	2	3.883	12.	22.90	.03942
2	1	-2	3.861	69.	23.03	.03986
1	2	-2	3.806	147.	23.37	.04103
2	4	0	3.805	139.	23.38	.04105
0	4	1	3.778	0.	23.55	.04163
3	3	-1	3.734	3.	23.83	.04263
3	3	1	3.710	4.	23.98	.04317
1	4	-1	3.703	7.	24.03	.04333
1	4	1	3.696	0.	24.08	.04351
4	2	-1	3.655	29.	24.35	.04447
4	2	1	3.626	0.	24.55	.04519
2	2	-2	3.586	14.	24.83	.04622

36  
 CALCULATED POWDER PATTERN FOR TH(CH<sub>3</sub>BH<sub>3</sub>)<sub>4</sub>  
 X-RAY WAVE LENGTH = 1.54180 ANGSTROMS.

A = 18.408 B = 16.910 C = 8.824  
 ALPHA = 88.06 BETA = 90.83 GAMMA = 88.08

H	K	L	D	I	2 THETA	SIN <sup>2</sup> Q
2	0	0	9.198	797.	9.62	.00732
0	0	1	8.828	0.	10.02	.00762
0	2	0	8.445	168.	10.47	.00853
2	1	0	8.196	709.	10.79	.00885
-1	0	1	8.008	881.	11.05	.00927
-2	1	0	7.965	710.	11.11	.00937
0	1	1	7.936	227.	11.15	.00943
1	0	1	7.911	937.	11.18	.00950
1	2	0	7.776	346.	11.38	.00983
0	1	-1	7.716	314.	11.47	.00998
-1	2	0	7.578	303.	11.68	.01025
1	1	1	7.292	163.	12.14	.01118
-1	1	1	7.282	415.	12.15	.01121
1	1	-1	7.190	341.	12.31	.01149
-1	1	-1	7.042	110.	12.57	.01198
-2	0	1	6.419	5.	13.79	.01442
2	2	0	6.329	312.	13.99	.01484
2	0	1	6.320	7.	14.01	.01488
0	2	1	6.210	7.	14.26	.01541
3	0	0	6.132	1.	14.44	.01581
-2	2	0	6.118	333.	14.48	.01588
2	1	1	6.014	412.	14.73	.01643
-2	1	1	6.003	195.	14.76	.01649
0	2	-1	6.000	8.	14.76	.01651
2	1	-1	5.998	188.	14.77	.01652
1	2	1	5.909	13.	14.99	.01702
-1	2	1	5.859	6.	15.12	.01731
-2	1	-1	5.828	386.	15.20	.01750
3	1	0	5.828	82.	15.20	.01750
1	2	-1	5.764	9.	15.37	.01789
-3	1	0	5.702	94.	15.54	.01828
-1	2	-1	5.647	53.	15.69	.01864
0	3	0	5.630	0.	15.74	.01875
1	3	0	5.436	239.	16.31	.02011
-1	3	0	5.333	309.	16.62	.02089
2	2	1	5.181	276.	17.12	.02214
-2	2	1	5.114	242.	17.34	.02273
2	2	-1	5.107	236.	17.36	.02278
-3	0	1	5.073	845.	17.48	.02309
3	2	0	5.044	69.	17.58	.02336
3	0	1	5.000	544.	17.74	.02378
-2	2	-1	4.947	202.	17.93	.02428
-3	2	0	4.884	51.	18.17	.02492
2	3	0	4.876	9.	18.19	.02499
3	1	-1	4.870	86.	18.22	.02505
3	1	1	4.857	123.	18.27	.02519
-3	1	1	4.848	74.	18.30	.02529
0	3	1	4.823	1000.	18.40	.02555
-3	1	-1	4.734	196.	18.75	.02652
-2	3	0	4.731	11.	18.76	.02655

OBSERVED STRUCTURE FACTORS, STANDARD DEVIATIONS, AND DIFFERENCES (ALL X12.0  
ZR(CH3BH3)4 F(0,0,0) = 242

FOB AND FCA ARE THE OBSERVED AND CALCULATED STRUCTURE FACTORS.  
SG = ESTIMATED STANDARD DEVIATION OF FOB. DEL = /FOB/ - /FCA/.  
\* INDICATES ZERO WEIGHTED DATA.

L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
	H,K=	0,	0	3	324	4	0	1	8	43	-18*	4	27	33	14*	3	58	7	-1
2	404	5	8	4	23	35	19*	2	619	9	0	H,K=	2,	10	4	287	4	4	
4	399	5	2	5	225	4	-0	3	90	4	-5	0	264	4	-1	5	43	18	12*
6	130	8	-9	6	36	24	35*	4	342	4	4	1	20	31	12*	6	135	5	0
	H,K=	1,	0	H,K=	1,	7		5	41	42	6*	2	140	4	0	H,K=	3,	6	
1	733	0	49*	0	422	5	0	6	201	4	-0	3	10	31	6*	1	344	4	-3
2	225	3	2	1	63	6	8	H,K=	2,	3		H,K=	2,	11	2	66	6	-1	
3	512	5	13	2	312	4	-4	1	535	9	-13	1	168	4	1	3	288	4	-4
4	23	28	3*	3	41	49	8*	2	208	3	2	2	21	31	-5*	4	25	37	2*
5	316	5	-3	4	201	3	1	3	441	5	-1	H,K=	2,	12	5	170	4	-1	
6	35	18	4*	5	32	35	17*	4	22	29	20*	0	130	4	-4	H,K=	3,	7	
	H,K=	1,	1	H,K=	1,	8		5	220	4	-3	H,K=	3,	0	0	229	3	-1	
0	861	0	57*	1	318	4	-1	6	30	30	15*	1	424	4	-6	1	19	29	4*
1	214	0	10*	2	23	51	-8*	H,K=	2,	4		2	136	2	3	2	314	4	-6
2	490	5	15	3	216	3	3	0	406	6	-3	3	525	6	8	3	26	34	8*
3	25	17	2*	4	28	30	3*	1	23	11	12*	4	34	12	-1*	4	188	4	2
4	465	5	-0	5	124	4	4	2	475	5	7	5	270	4	-4	5	28	36	24*
5	28	57	25*	H,K=	1,	9		3	28	20	24*	6	21	28	-1*	H,K=	3,	8	
6	172	4	0	0	259	4	-10	4	347	4	-1	H,K=	3,	1	1	297	4	0	
	H,K=	1,	2	1	25	37	-0*	5	19	34	14*	0	408	5	6	2	11	38	3*
1	719	0	27*	2	211	3	1	6	155	6	5	1	85	8	1	3	201	3	3
2	49	13	-2*	3	30	19	5*	H,K=	2,	5		2	637	10	11	4	32	25	17*
3	483	5	10	4	141	4	0	1	570	9	12	3	134	3	-8	5	98	5	1
4	34	29	-8*	H,K=	1,	10		2	33	22	-2*	4	289	4	1	H,K=	3,	9	
5	249	5	-4	1	178	4	-2	3	301	4	-4	5	40	27	-5*	0	249	3	-3
6	25	37	-12*	2	19	29	-1*	4	24	48	22*	6	191	4	-3	1	29	16	4*
	H,K=	1,	3	3	150	4	0	5	195	4	-3	H,K=	3,	2	2	200	3	3	
01	012	14	11	4	29	30	21*	6	0	35	-6*	1	466	7	1	3	37	41	15*
1	198	3	1	H,K=	1,	11		H,K=	2,	6		2	0	22	-22*	4	123	4	-3
2	618	6	2	0	170	6	5	0	547	6	-4	3	484	6	-5	H,K=	3,	10	
3	139	3	5	1	21	35	16*	1	62	5	1	4	23	31	19*	1	174	3	-3
4	259	3	0	2	118	5	5	2	334	4	6	5	205	4	-2	2	16	33	13*
5	34	37	-24*	3	37	16	16*	3	37	13	13*	6	15	34	15*	3	128	5	1
6	164	4	0	H,K=	1,	12		4	235	4	1	H,K=	3,	3		H,K=	3,	11	
	H,K=	1,	4	1	130	4	2	5	25	32	15*	0	506	9	6	0	153	4	6
1	551	8	3	H,K=	2,	0		H,K=	2,	7		1	80	3	0	1	25	31	22*
2	85	3	5	0	860	0	29*	1	323	4	-4	2	601	10	3	2	103	4	-1
3	402	5	11	1	516	0	9*	2	9	28	2*	3	43	11	6*	H,K=	4,	0	
4	45	11	27*	2	542	7	0	3	245	5	-3	4	209	3	-6	0	641	6	1
5	254	4	-3	3	9	24	7*	4	27	28	18*	5	13	28	12*	1	119	2	2
6	34	22	9*	4	384	4	2	5	156	5	-1	6	176	4	-0	2	535	7	6
	H,K=	1,	5	5	25	47	-4*	H,K=	2,	8		H,K=	3,	4		3	57	5	7
0	629	7	-6	6	178	4	-1	0	246	3	1	1	590	6	-2	4	317	4	2
1	82	4	1	H,K=	2,	1		1	97	6	0	2	65	4	-0	5	13	26	-3*
2	347	4	-12	11	024	0	9*	2	253	4	-8	3	334	4	-2	6	145	4	-6
3	51	15	-21*	2	21	30	3*	3	14	27	2*	4	36	48	14*	H,K=	4,	1	
4	337	4	-1	3	392	4	2	4	176	5	-3	5	178	4	-1	1	572	8	-15
5	41	16	26*	4	35	19	20*	5	0	30	-18*	6	10	38	-1*	2	108	3	-3
6	127	6	4	5	205	5	0	H,K=	2,	9		H,K=	3,	5		3	395	5	0
	H,K=	1,	6	6	37	18	27*	1	209	4	-2	0	402	7	6	4	22	33	8*
1	361	4	-4	H,K=	2,	2		2	30	19	11*	1	125	3	2	5	205	4	-3
2	15	26	-6*	0	227	0	26*	3	189	3	-2	2	358	4	5	6	42	33	25*



STRUCTURE FACTORS CONTINUED FOR  
 ZR(CH3BH3)4

PAGE 2

L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
	H,K=	4,	2	2	137	4	-2	1	57	22	-1*	1	324	4	-4	5	0	33	-7*
0	560	8	-4	3	28	29	5*	2	276	3	-4	2	65	15	15*	H,K=	7,	4	
1	48	5	-8		H,K=	4,	11	3	19	31	9*	3	213	4	-3	1	298	4	-6
2	589	10	-6	1	149	4	1	4	145	7	2	4	26	36	21*	2	44	46	-4*
3	24	25	22*	2	29	34	11*		H,K=	5,	8	5	155	4	1	3	211	3	0
4	199	3	2		H,K=	5,	0	1	216	3	5		H,K=	6,	6	4	22	34	21*
5	22	33	10*	1	632	6	1	2	32	15	20*	0	291	4	-1	5	152	5	2
6	170	5	1	2	74	4	1	3	186	3	-0	1	38	41	22*		H,K=	7,	5
	H,K=	4,	3	3	313	4	-0	4	29	30	20*	2	229	4	-1	0	368	4	-1
1	362	4	3	4	30	39	28*		H,K=	5,	9	3	49	9	0*	1	32	43	32*
2	20	23	-6*	5	203	3	-3	0	221	3	1	4	178	4	2	2	192	4	-2
3	412	4	-4	6	18	33	13*	1	34	27	-4*	5	38	14	20*	3	18	27	6*
4	24	50	20*		H,K=	5,	1	2	176	3	1		H,K=	6,	7	4	167	4	-0
5	212	4	-3	0	323	4	-0	3	25	29	18*	1	258	4	-5		H,K=	7,	6
6	0	35	-0*	1	73	3	2		H,K=	5,	10	2	31	16	29*	1	224	3	-3
	H,K=	4,	4	2	423	5	4	1	155	3	2	3	167	4	3	2	36	11	27*
0	474	8	5	3	76	5	10	2	32	35	9*	4	29	32	14*	3	182	4	5
1	21	25	18*	4	330	4	-1		H,K=	5,	11		H,K=	6,	8	4	29	29	23*
2	394	5	-5	5	27	31	-8*	0	111	4	0	0	194	3	2		H,K=	7,	7
3	112	4	-6	6	148	4	-1	1	36	18	25*	1	27	36	11*	0	170	3	0
4	256	5	-3		H,K=	5,	2		H,K=	6,	0	2	182	3	-1	1	63	6	-4
5	32	33	-15*	1	483	5	1	0	518	6	-10	3	28	30	7*	2	182	3	-0
6	135	5	-1	2	124	3	-3	1	92	3	0	4	116	5	-3	3	39	15	14*
	H,K=	4,	5	3	338	4	2	2	332	4	6		H,K=	6,	9	4	132	4	0
1	375	4	4	4	18	49	3*	3	33	17	32*	1	153	4	1		H,K=	7,	8
2	61	6	5	5	188	4	-1	4	267	3	0	2	37	14	21*	1	163	3	-4
3	311	4	0	6	23	30	21*	5	27	22	25*	3	132	4	6	2	16	40	-4*
4	21	32	2*		H,K=	5,	3	6	118	4	-3		H,K=	6,	10	3	132	6	-3
5	182	3	-1	0	455	5	8		H,K=	6,	1	0	141	5	-0		H,K=	7,	9
	H,K=	4,	6	1	7	26	-6*	1	442	5	-0	1	12	35	1*	0	181	3	1
0	394	4	-2	2	371	4	-6	2	23	26	9*	2	109	4	4	1	14	33	3*
1	55	11	-13*	3	39	19	-9*	3	302	4	-3		H,K=	7,	0	2	109	5	2
2	345	4	4	4	267	4	-2	4	35	22	14*	1	341	4	-2		H,K=	8,	0
3	23	49	9*	5	42	18	22*	5	179	5	0	2	53	7	2	0	183	3	-4
4	156	3	0	6	125	4	-3	6	29	35	3*	3	262	4	-5	1	49	9	-1
5	23	30	9*		H,K=	5,	4		H,K=	6,	2	4	31	16	20*	2	295	4	-4
	H,K=	4,	7	1	466	5	-7	0	471	5	-7	5	169	3	6	3	18	25	6*
1	292	4	-3	2	32	16	-14*	1	66	5	-8		H,K=	7,	1	4	185	3	1
2	5	44	-25*	3	256	3	-1	2	341	4	-0	0	357	4	-2	5	33	15	26*
3	230	3	2	4	0	35	-1*	3	97	4	0	1	84	6	3		H,K=	8,	1
4	22	32	22*	5	174	4	3	4	225	3	-2	2	354	4	3	1	296	4	-4
5	119	5	7		H,K=	5,	5	5	42	13	4*	3	11	44	6*	2	46	31	19*
	H,K=	4,	8	0	458	6	-5		H,K=	6,	3	4	182	3	8	3	224	3	1
0	171	5	1	1	48	8	-1	1	417	5	-0	5	28	31	20*	4	30	21	29*
1	7	41	-7*	2	276	4	-2	2	43	9	3*		H,K=	7,	2	5	112	5	2
2	265	3	5	3	30	50	4*	3	264	3	1	1	263	3	-3		H,K=	8,	2
3	21	28	12*	4	224	3	1	4	33	15	26*	2	34	19	33*	0	246	3	5
4	129	4	0	5	33	35	24*	5	171	4	2	3	286	4	-0	1	38	28	-6*
	H,K=	4,	9		H,K=	5,	6		H,K=	6,	4	4	38	15	22*	2	298	4	-3
1	178	3	-1	1	261	4	-1	0	393	4	4	5	172	3	4	3	40	13	31*
2	29	20	5*	2	26	39	9*	1	17	27	11*		H,K=	7,	3	4	142	4	-2
3	175	3	2	3	246	3	-3	2	213	3	-1	0	407	5	-2	5	46	13	42*
4	22	36	13*	4	0	37	-5*	3	18	48	17*	1	30	19	-8*		H,K=	8,	3
	H,K=	4,	10	5	152	4	2	4	287	4	2	2	258	3	3	1	272	4	-3
0	178	3	4		H,K=	5,	7	5	21	43	19*	3	34	25	13*	2	19	39	1*
1	40	12	5*	0	198	4	0		H,K=	6,	5	4	196	4	-0	3	196	4	2



OBSERVED STRUCTURE FACTORS, STANDARD DEVIATIONS, AND DIFFERENCES (ALL X12.0)  
 NP(CH38H3)4 F(0,0,0) = 1751

FOB AND FCA ARE THE OBSERVED AND CALCULATED STRUCTURE FACTORS.  
 SG = ESTIMATED STANDARD DEVIATION OF FCB. DEL = /FOB/ - /FCA/.  
 \* INDICATES ZERO WEIGHTED DATA.

L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
H,K=	0,	0		1	458	4	5	5	270	2	4	5	22	33	12*	3	413	4	8
2	625	5	1	2	18	25	4*	6	25	29	23*	H,K=	2,	9		4	27	33	24*
4	436	4	-10	3	358	3	-8	H,K=	2,	2		1	258	3	1	5	224	2	5
6	173	3	-4	4	16	28	16*	0	615	33	46	2	24	31	15*	6	0	37	-1*
H,K=	1,	0		5	217	2	0	1	7	28	-1*	3	204	2	-3	H,K=	3,	5	
1	826	19	-3	6	23	32	22*	2	719	18	26	4	24	32	22*	0	528	25	6
2	112	1	-1	H,K=	1,	7		3	47	6	-3	H,K=	2,	10		1	69	4	3
3	585	9	-4	0	448	4	-2	4	386	3	-1	0	257	3	2	2	442	4	5
4	24	18	18*	1	23	28	-11*	5	22	28	6*	1	12	34	9*	3	35	11	9*
5	315	3	-3	2	361	6	-13	6	208	2	1	2	177	2	0	4	297	3	0
6	20	27	8*	3	27	23	13*	H,K=	2,	3		3	33	30	31*	5	9	31	-6*
7	133	2	4	4	229	2	-3	1	709	29	12	4	137	3	-0	6	144	3	1
H,K=	1,	1		5	17	30	8*	2	95	2	3	H,K=	2,	11		H,K=	3,	6	
0	981	70	84	H,K=	1,	8		3	495	4	-1	1	179	3	3	1	434	4	4
1	113	1	1	1	356	3	4	4	30	31	20*	2	0	34	-10*	2	32	18	0*
2	677	12	25	2	25	30	8*	5	263	3	0	3	127	3	3	3	325	3	-3
3	12	25	-1*	3	251	2	-1	6	14	34	5*	H,K=	2,	12		4	24	31	13*
4	464	4	-8	4	24	29	15*	H,K=	2,	4		0	143	3	4	5	186	2	1
5	12	25	8*	5	144	2	3	0	604	19	15	1	28	40	20*	H,K=	3,	7	
6	196	2	-1	H,K=	1,	9		1	23	24	19*	H,K=	3,	0		0	333	3	-0
7	36	23	31*	0	310	3	1	2	542	4	3	1	644	14	9	1	9	31	-6*
H,K=	1,	2		1	4	30	3*	3	24	28	18*	2	59	2	2	2	352	3	0
1	828	10	19	2	238	2	-5	4	364	3	-3	3	533	12	-13	3	21	31	15*
2	19	21	0*	3	17	29	8*	5	33	18	28*	4	4	27	2*	4	208	2	-3
3	550	4	-4	4	162	2	-1	6	168	2	3	5	288	6	-5	5	15	33	12*
4	22	29	12*	H,K=	1,	10		H,K=	2,	5		6	21	30	19*	H,K=	3,	8	
5	287	3	-2	1	218	2	2	1	599	5	3	H,K=	3,	1		1	326	3	-0
6	33	14	22*	2	26	29	21*	2	9	25	5*	0	657	28	21	2	31	24	30*
H,K=	1,	3		3	168	2	0	3	387	3	-1	1	49	3	6	3	233	2	1
0	967	8	7	4	17	31	14*	4	27	16	27*	2	692	18	4	4	23	31	19*
1	111	1	2	H,K=	1,	11		5	216	2	1	3	72	2	-0	5	125	3	-1
2	674	14	-5	0	174	3	-4	6	28	33	27*	4	356	7	-3	H,K=	3,	9	
3	69	2	3	1	24	33	24*	H,K=	2,	6		5	25	29	5*	0	286	3	3
4	343	3	-6	2	146	2	-2	0	552	5	3	6	201	2	1	1	0	33	-18*
5	32	16	2*	3	30	32	21*	1	27	28	6*	H,K=	3,	2		2	225	2	3
6	176	2	-4	H,K=	1,	12		2	411	4	-2	1	667	48	34	3	30	32	24*
H,K=	1,	4		1	137	3	2	3	29	20	14*	2	22	25	20*	4	148	2	-2
1	674	5	11	2	27	33	25*	4	264	2	-0	3	519	14	3	H,K=	3,	10	
2	53	2	4	H,K=	2,	0		5	23	30	18*	4	8	32	8*	1	209	3	3
3	462	4	5	0	899	17	-15	6	129	3	3	5	266	7	2	2	27	33	27*
4	17	28	11*	1	259	6	-0	H,K=	2,	7		6	23	32	22*	3	146	3	-4
5	265	2	4	2	667	18	-9	1	395	4	-5	H,K=	3,	3		H,K=	3,	11	
6	24	31	15*	3	17	20	12*	2	13	31	12*	0	686	45	32	0	164	3	1
H,K=	1,	5		4	415	8	-8	3	289	3	-1	1	41	5	1	1	0	41	-6*
0	668	5	-11	5	20	28	-0*	4	5	32	3*	2	638	19	6	2	137	3	1
1	36	6	8	6	199	2	1	5	166	2	-1	3	20	27	6*	H,K=	3,	12	
2	443	8	-20	7	22	29	7*	H,K=	2,	8		4	309	3	1	1	120	4	0
3	30	14	-4*	H,K=	2,	1		0	324	3	-2	5	32	25	27*	H,K=	4,	0	
4	335	8	-8	11	014	37	40	1	22	35	-15*	6	175	3	-3	0	728	15	5
5	20	30	15*	2	16	21	9*	2	291	3	-3	H,K=	3,	4		1	58	2	1
6	140	2	-2	3	522	11	11	3	0	30	-4*	1	657	23	18	2	580	11	-9
H,K=	1,	6		4	32	18	28*	4	195	2	-0	2	41	8	6*	3	24	16	2*

STRUCTURE FACTORS CONTINUED FOR  
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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
4	357	7	-6	2	275	3	4	2	353	9	5	5	16	34	0*	2	388	9	-4
5	17	27	11*	3	15	33	10*	3	20	28	17*	6	134	3	4	3	24	30	20*
6	167	2	-1	4	159	2	2	4	245	2	3		H,K=	6,	3	4	218	2	0
	H,K=	4,	1		H,K=	4,	9	5	29	30	27*	1	470	30	6	5	26	31	22*
1	688	24	9	1	225	3	1		H,K=	5,	6	2	36	11	25*		H,K=	7,	2
2	39	6	-4	2	31	33	22*	1	341	13	2	3	322	9	3	1	361	20	-2
3	450	11	-6	3	185	2	4	2	14	33	9*	4	14	32	13*	2	12	31	8*
4	0	30	-9*	4	33	24	28*	3	267	2	-3	5	184	2	3	3	301	7	-6
5	248	2	1		H,K=	4,	10	4	21	29	19*		H,K=	6,	4	4	25	30	20*
6	20	30	12*	0	199	3	5	5	160	2	3	0	464	31	26	5	178	2	3
	H,K=	4,	2	1	31	34	16*		H,K=	5,	7	1	15	36	15*		H,K=	7,	3
0	695	40	27	2	165	2	2	0	287	15	6	2	312	9	4	0	422	25	-9
1	14	28	-8*	3	13	34	-0*	1	43	15	13*	3	0	33	-3*	1	0	37	-6*
2	618	19	2		H,K=	4,	11	2	293	3	0	4	266	7	-3	2	326	12	5
3	17	28	9*	1	158	3	4	3	22	30	21*	5	5	34	4*	3	13	32	-7*
4	301	8	8	2	16	31	12*	4	172	2	1		H,K=	6,	5	4	217	2	-2
5	6	29	-1*		H,K=	5,	0	5	31	31	28*	1	351	21	-3	5	18	33	13*
6	176	2	3	1	651	12	7		H,K=	5,	8	2	24	31	-1*		H,K=	7,	4
	H,K=	4,	3	2	24	10	-11*	1	255	3	5	3	264	6	-0	1	351	20	8
1	546	38	23	3	396	7	-5	2	13	30	9*	4	10	31	5*	2	16	33	-5*
2	27	27	7*	4	27	28	22*	3	198	2	1	5	157	2	2	3	256	8	3
3	436	12	3	5	222	2	-1	4	0	34	-3*		H,K=	6,	6	4	19	33	18*
4	19	33	16*	6	16	30	13*		H,K=	5,	9	0	327	20	6	5	152	3	2
5	242	2	2		H,K=	5,	1	0	241	12	4	1	43	18	21*		H,K=	7,	5
6	19	32	19*	0	509	22	8	1	15	39	-6*	2	279	7	0	0	358	21	0
	H,K=	4,	4	1	52	3	5	2	192	2	3	3	20	28	-8*	1	28	38	24*
0	572	30	15	2	480	13	-10	3	24	32	16*	4	185	2	-2	2	265	7	1
1	3	32	-10*	3	34	13	-1*	4	124	3	2	5	27	32	16*	3	24	30	18*
2	458	11	-3	4	335	7	-5		H,K=	5,	10		H,K=	6,	7	4	178	2	-0
3	52	8	-6	5	19	28	0*	1	170	3	-1	1	284	3	-0	5	26	33	23*
4	297	3	-0	6	160	2	1	2	6	34	-4*	2	20	32	18*		H,K=	7,	6
5	26	32	4*		H,K=	5,	2	3	126	3	0	3	194	2	-3	1	264	14	-2
6	146	3	2	1	570	30	7		H,K=	5,	11	4	32	23	28*	2	28	30	28*
	H,K=	4,	5	2	59	3	-1	0	137	4	7		H,K=	6,	8	3	201	2	-1
1	459	19	16	3	394	11	-2	1	36	41	35*	0	244	10	6	4	17	31	16*
2	25	28	9*	4	4	31	2*		H,K=	6,	0	1	35	20	33*		H,K=	7,	7
3	347	3	-1	5	219	2	3	0	546	10	-15	2	195	2	-3	0	226	10	1
4	19	27	18*	6	3	34	-0*	1	44	4	-2	3	26	33	16*	1	37	37	7*
5	197	2	-1		H,K=	5,	3	2	421	9	-2	4	134	3	-1	2	209	2	0
6	32	34	30*	0	576	39	20	3	20	27	13*		H,K=	6,	9	3	28	33	16*
	H,K=	4,	6	1	16	32	11*	4	281	2	-3	1	181	3	-1	4	133	3	-6
0	444	15	17	2	443	15	6	5	30	17	27*	2	27	33	21*		H,K=	7,	8
1	2	37	-17*	3	33	16	10*	6	134	2	-1	3	140	3	0	1	189	3	-3
2	391	8	6	4	306	9	4		H,K=	6,	1		H,K=	6,	18	2	28	33	21*
3	21	32	18*	5	17	32	10*	1	492	15	-8	0	156	3	2	3	147	2	-1
4	210	2	3	6	140	3	2	2	10	26	-2*	1	21	41	17*		H,K=	7,	9
5	9	35	4*		H,K=	5,	4	3	354	8	-5	2	128	3	1	0	184	3	0
	H,K=	4,	7	1	516	34	12	4	20	26	15*		H,K=	7,	0	1	0	40	-7*
1	356	13	10	2	15	26	-4*	5	199	2	-1	1	411	7	-0	2	131	3	1
2	25	29	9*	3	328	3	-0	6	20	32	13*	2	23	25	4*		H,K=	7,	10
3	259	2	4	4	23	30	21*		H,K=	6,	2	3	299	6	-9	1	137	3	2
4	26	33	23*	5	187	2	2	0	523	29	-11	4	17	27	12*		H,K=	8,	0
5	142	3	3	6	30	32	30*	1	27	33	-3*	5	175	2	-0	0	292	3	-3
	H,K=	4,	8		H,K=	5,	5	2	414	14	-2		H,K=	7,	1	1	17	28	-2*
0	278	9	9	0	487	24	13	3	41	11	0*	0	415	4	-2	2	317	3	-4
1	36	38	34*	1	25	30	8*	4	261	9	0	1	24	29	-9*	3	19	28	16*





STRUCTURE FACTORS CONTINUED FGF  
 U(CH3BM3)4

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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
0	114	12	8	-7	68	60	-6*	-3	191	11	21	-3	478	12	-8	1	254	8	4
1	178	16	-0	-6	249	11	-4	-2	128	16	-16	-2	263	17	9	2	292	9	-2
2	71	34	-15*	-5	176	17	1	-1	193	13	19	-1	761	20	24	3	155	17	-3
3	109	18	28	-4	237	12	-9	0	118	18	-23	0	711	18	17	4	128	13	40
4	225	22	11	-3	212	18	-12	1	171	12	3	5	191	10	17	5	25	57	21*
5	177	14	-9	-2	72	80	6*	2	66	76	-58*	6	505	17	-17	6	92	23	66*
6	230	14	-6	-1	255	9	-2	3	0	78	-82*	7	0	71	-6*	7	0	82	-37*
7	159	20	-4	0	120	14	-5	4	105	38	45*	8	254	16	-18	8	49	76	11*
8	153	30	-12*	1	214	14	8	5	57	67	31*	9	76	82	30*				
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-5	378	13	-1	4	384	12	3	-2	83	99	23*	-8	60107	47*	-6	0	77	-54*	
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-3	315	11	-15	6	224	11	-3	0	39	74	27*	-6	91108	38*	-4	147	10	-11	
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5	383	12	-16	-6	89	48	7*	4	87	30	18*	-2	8	57	-51*	0	581	15	12
6	44	73	36*	-5	124	28	1*		H <sub>o</sub> K=	1,	17	-1	738	22	1	1	588	15	-17
7	251	11	1	-4	180	11	11	-3	94	44	25*	0	134	15	-3	2	447	12	14
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-7	8	78	-41*	0	254	13	-4	1	158	20	57	4	121	12	4	6	73	37	-18*
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4	167	12	-10	-4	155	18	34	2	685	17	48	-5	94	24	-9*	-1	481	13	10
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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
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4	107	21	47*	1	208	13	18	-1	452	13	26	1	250	13	-7	2	203	9	-6
5	58	78	12*	2	171	19	3	0	379	11	2	2	519	14	-32	3	588	15	1
6	91	62	53*	3	172	12	-17	1	625	17	-3	3	212	10	7	4	125	12	10
7	0	87	-31*	4	124	17	-9	2	495	15	28	4	522	15	-6	5	367	11	-16
8	0	83	-47*	5	154	18	35	3	580	15	-21	5	46	86	-22*	6	54	64	39*
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-7	83	46	16*	H <sub>o</sub> K= 2, 14				5	424	12	-9	7	82	36	69*	8	83	38	34*
-6	50	63	37*	-1	162	19	-7	H <sub>o</sub> K= 3, 2				8	151	18	34	H <sub>o</sub> K= 3, 8			
-5	51	79	42*	0	106	56	-43*	-9	145	34	74*	9	93	37	57*	-8	93	45	58*
-4	116	15	26	1	117	24	-17*	-8	139	139	9*	H <sub>o</sub> K= 3, 5				-7	93	65	32*
-3	153	11	-2	2	243	12	-18	-7	137	37	24*	-8	99	38	14*	-6	64	88	14*
-2	192	9	-3	3	27	71	-42*	-6	160	26	-15	-7	92	104	-32*	-5	0	73	-79*
-1	278	9	-6	4	247	11	-11	-3	263	9	-6	-6	63	83	-44*	-4	0	86	-33*
0	307	9	6	5	41	69	14*	-2	263	30	28	-5	37	65	-11*	-3	67	38	-28*
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2	316	9	1	-5	128	27	36*	0	374	15	2	-3	67	19	30*	-1	167	10	9
3	239	10	2	-4	124	27	3*	1	272	9	2	-2	171	7	-7	0	159	11	-21
4	247	18	-4	-3	142	21	21	2	539	16	11	-1	216	7	-4	1	96	17	12
5	168	20	15	-2	171	19	-7	3	164	13	-6	0	250	8	3	2	149	18	14
6	181	16	11	-1	144	14	15	4	398	12	4	1	159	8	-28	3	69	43	-49*
7	0	87	-26*	0	173	14	-5	5	132	17	26	2	147	7	-11	4	110	44	-4*
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-6	96	25	-16*	5	8	81	-19*	8	124	40	34*	5	281	16	20	7	8100	-53*	
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-4	201	11	1	-4	189	33	53*	H <sub>o</sub> K= 3, 3				7	85	53	-14*	H <sub>o</sub> K= 3, 9			
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2	219	10	6	-2	123	22	29	-4	1152	31	-19	-5	650	18	-30	-2	763	20	-17
3	422	13	-12	-1	15	65	-21*	-3	0	53	-6*	-4	21	79	-18*	-1	13	80	-3*
4	75	53	-11*	0	108	30	33*	-2	1185	30	-86	-3	968	26	-22	0	670	17	-13
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7	195	15	-13	3	108	44	-48*	1	163	31	33*	0	36	66	14*	3	0	95	-9*
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-2	246	12	-7	-5	982	24	6	5	62	74	55*	4	50	60	18*	H <sub>o</sub> K= 3, 10			
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-3	88	111	-27*	-6	183	37	-8*	-3	408	11	0	-2	392	11	-4	7	137	27	94*
-2	129	26	18*	-5	138	16	-21	-2	147	12	-6	-1	315	9	6	H <sub>o</sub> K= 3, 11			
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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
-6	0	98	-46*	2	102	24	-26*	-9	66	87	7*	-5	127	21	-18	3	66	66	31*
-3	0	68	-3*	3	38	77	8*	-8	59	109	14*	-4	406	14	-18	4	112	26	48*
-2	67	46	51*	4	70	88	51*	-7	191	18	-7	-3	195	11	-1	5	113	33	32*
-1	0	65	-65*	5	56	78	50*	-6	125	40	15*	-2	465	13	-8	6	69	42	18*
0	0	82	-15*	H <sub>o</sub> K=	3,	16		-5	378	12	5	-1	229	8	-3	7	147	17	10
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3	0	69	-61*	-2	76	75	5*	-2	167	13	15	2	216	8	20	-6	68	43	-6*
4	9	71	-67*	H <sub>o</sub> K=	3,	17		-1	427	16	-22	3	29	54	-11*	-5	163	12	27
5	0	99	-23*	-2	0	76	-28*	2	61	20	39*	4	85	19	1*	-4	10	74	-48*
6	128	26	63*	-1	0	89	-9*	3	87	14	19	5	81	26	49*	-3	109	19	10
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-2	229	11	-11	2	281	22	2	4	502	14	-18	8	75	95	-51*	2	71	51	17*
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2	127	17	3	6	247	13	-14	8	179	15	13	-1	292	9	-8	6	20	82	-31*
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-2	8	78	-1*	-5	342	15	12	-5	111	23	11*	4	430	12	-12	-4	178	13	-6
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0	53	68	50*	-3	407	11	3	-3	152	11	-2	6	252	11	3	-2	220	16	-14
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-2	253	14	-3	7	206	23	3	H <sub>o</sub> K=	4,	6		-1	345	11	9	-6	109	34	19*
-1	23	72	19*	8	178	16	13	-8	124	20	11	0	172	8	-7	-5	94	39	37*
0	221	17	-7	9	125	47	16*	-7	70	81	-28*	1	174	8	-4	-4	69	74	3*
1	55	69	31*	H <sub>o</sub> K=	4,	3		-6	236	13	18	2	27	63	-55*	-3	18	73	-4*

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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
-2	0	84	-15*	5	82	38	23*	-6	0	75	-10*	-7	71	76	-11*	H,K=	5,	13	
-1	43	71	38*	6	275	16	28	-5	306	14	7	-6	219	11	-9	-6	64	85	-16*
0	117	25	10*	H,K=	5,	2		-4	291	11	3	-5	172	12	-8	-5	92	53	23*
1	53	75	-60*	-8	128	28	15*	-3	462	13	12	-4	246	12	-9	-4	122	19	-16
2	179	17	-0	-7	55	78	38*	-2	645	18	8	-3	189	10	-8	-3	142	15	-12
3	101	80	-32*	-6	253	23	1	-1	429	12	-4	-2	258	11	-1	-2	180	12	-13
4	159	21	-11	-5	188	15	-9	0	908	23	-30	-1	214	11	8	-1	187	12	-3
H,K=	4,	14		0	497	14	19	H,K=	5,	6		0	73	34	-26*	0	213	11	7
-5	94	43	-10*	1	882	23	-47	-7	227	15	-13	1	79	44	52*	1	166	15	1
-4	0101	-31*		2	145	12	-7	-6	104	32	4*	2	0	75	-55*	2	148	20	-18
-3	169	16	32	3	866	24	2	-5	308	12	-30	3	27	68	-2*	3	73	35	-10*
-2	157	13	11	4	72	55	31*	-4	158	12	4	4	136	21	56	4	30	72	-69*
-1	110	23	-18*	6	110	25	6*	-3	403	11	6	5	146	23	37	5	0	68	-24*
0	255	10	2	7	175	22	5	-2	213	8	8	6	17	82	-30*	6	58	71	-1*
1	45	71	-24*	8	97	39	-29*	-1	306	9	1	7	103	49	7*	H,K=	5,	14	
2	278	13	12	9	38	82	-2*	0	121	9	11	H,K=	5,	18		-5	34	83	16*
3	48	76	10*	H,K=	5,	3		1	111	9	-6	-7	64	89	4*	-4	128	18	17
4	188	19	-1	-9	0126	-18*		2	0	47	-26*	-6	96	34	4*	-3	100	24	-21*
5	0	83	-16*	-8	223	23	1	3	38	56	12*	-3	260	13	29	-2	116	19	7
H,K=	4,	15		-7	53	76	2*	4	54	84	-15*	-2	277	10	6	-1	247	12	2
-1	133	22	11	-6	378	12	-1	5	99	22	1*	-1	359	11	-7	2	89	35	78*
0	122	24	28*	-5	63	67	5*	6	79	38	15*	0	267	11	8	3	266	11	4
1	68	78	7*	-4	445	13	-8	7	50103	-18*	1	323	13	-11	4	45	66	7*	
2	90	40	61*	-3	173	11	14	8	86	38	12*	2	188	10	-5	5	193	15	18
3	0	95	-8*	-2	439	12	9	H,K=	5,	7		3	241	10	-4	H,K=	5,	15	
4	0	88	-26*	-1	99	15	-18	-7	111	41	21*	4	64	86	25*	-4	110	22	21*
H,K=	4,	16		0	178	18	-26	-6	121	29	-5*	5	155	22	4	-3	162	21	31
-3	0	80	-9*	1	0	51	-58*	-5	190	11	-1	6	0122	-18*	-2	107	21	2*	
-2	0	78	-13*	2	59	63	6*	-4	274	11	-14	7	78	84	13*	-1	77	77	-22*
-1	78116	40*		3	55	29	41*	-3	415	12	12	H,K=	5,	11		0	0	76	-51*
0	0	77	-2*	4	95	37	18*	-2	526	14	4	-7	138	27	37*	1	64	80	-4*
1	97113	6*		5	41	68	-18*	-1	366	12	17	-6	97	37	78*	2	63	63	50*
2	0	80	-55*	6	121	20	20	0	576	15	3	-5	184	18	15	3	27	84	-3*
3	116	35	-11*	7	81	37	22*	1	396	11	-11	-4	186	31	-21*	4	74	43	53*
H,K=	4,	17		8	101	27	32*	2	521	14	3	-3	173	26	-11	H,K=	5,	16	
-2	51	81	-23*	H,K=	5,	4		3	67	28	-10*	-2	322	19	-4	-3	89100	-11*	
-1	131	24	9	-8	55	80	14*	4	345	11	-0	-1	173	14	14	-2	117	20	18
0	63	65	-4*	-7	0	98	-35*	5	70	41	63*	0	463	14	-11	-1	74	80	-34*
1	160	16	2	-6	223	15	-7	6	181	14	8	1	85	22	-16*	0	96	48	-10*
2	0	81	-46*	-5	224	19	-9	7	62	77	-6*	2	441	12	-7	1	55105	-29*	
H,K=	5,	0		-4	423	12	-6	8	88	53	34*	3	53	71	42*	2	133	25	61*
-9	147	34	-13*	-3	552	15	16	H,K=	5,	8		4	337	11	2	3	0	83	-53*
-5	518	15	14	-2	554	17	-18	-8	94	49	-4*	5	0	64	-66*	H,K=	5,	17	
-3	654	17	30	-1	694	21	-28	-7	0	80	-52*	6	168	17	-12	-2	97119	2*	
-1	425	18	14	0	455	12	-18	-6	149	23	-42	7	78	69	9*	-1	68	79	35*
1	90104	-29*		1	803	27	-16	-5	79	49	-9*	H,K=	5,	12		0	152	24	-3
3	0	74	-9*	2	263	8	18	-4	283	12	-7	-6	68	81	-36*	1	69	80	50*
5	130	29	-11*	3	642	17	12	-3	321	11	10	-2	178	15	-1	2	154	26	-18
7	79	77	-19*	4	53	59	36*	-2	352	10	-2	-1	206	13	32	H,K=	6,	0	
9	65	98	26*	5	334	14	-13	-1	615	17	-19	0	94	33	1*	-8	384	13	-10
H,K=	5,	1		6	0	87	-91*	0	195	10	-0	1	67	71	-2*	-6	647	18	1
-6	0	90	-46*	7	122	22	-15	1	744	21	-12	2	88	50	82*	-4	930	25	7
-5	328	19	18	8	35	92	-45*	2	72	28	13*	3	118	26	92*	-2	793	20	-1
-4	433	13	7	H,K=	5,	5		3	578	16	-4	4	63138	-1*	0	269	10	-6	
-3	525	14	-16	-8	189	35	29*	8	0119	-92*		5	55	79	10*	2	225	9	-3
-2	667	17	7	-7	181	17	8	H,K=	5,	9		6	127	30	35*	4	506	14	-7

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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL			
6	495	14	-1	H,K= 6,	6,	4	4	287	10	13	-2	0	79	-24*	2	0	84	-14*				
8	281	14	-6	-8	132	38	22*	5	93	26	4*	-1	0	71	-65*	3	138	38	-14*			
H,K= 6,	1	-7	34	78	7*	6	143	27	17*	0	42	69	2*	H,K= 6,	17							
-9	89	50	1*	-6	161	21	-13	7	60	76	-40*	1	77	25	52*	-1	0	83	-4*			
-8	48	79	-15*	-5	117	26	-33*	8	0	81	-6*	2	63	41	7*	0	0	81	-34*			
-7	158	76	19*	-4	260	11	5	H,K= 6,	8	3	99	38	8*	1	123	29	109*					
-6	0	84	-37*	-3	365	11	-3	-8	86	35	62*	4	48	91	48*	H,K= 7,	0					
-5	200	13	-18	-2	297	14	17	-7	17	66	8*	5	0	92	-46*	-7	214	21	9			
-4	276	10	-4	-1	645	17	2	-6	8	63	-23*	6	83	43	76*	-5	282	15	-14			
-3	202	9	2	0	174	10	1	-5	71	35	28*	H,K= 6,	12	-3	396	12	8					
-2	587	15	6	1	696	18	-3	-4	55	57	15*	-6	231	21	-3	-1	85	21	0*			
-1	184	9	-5	2	101	19	29*	-3	97	17	-1	-5	85	44	65*	1	203	9	5			
0	642	17	-11	3	474	13	-0	-2	25	51	-24*	-4	296	20	9	3	412	12	-0			
1	150	12	-1	4	17	59	-82*	-1	142	10	-9	2	61	65	-24*	5	427	15	1			
2	595	16	6	5	200	11	3	0	138	12	-18	3	34	62	23*	7	296	14	5			
3	88	24	35*	6	121	39	26*	1	127	13	22	4	145	25	-9	H,K= 7,	1					
4	299	14	15	7	0104	-46*	2	97	19	16*	5	0	81	-27*	-8	0	89	-29*				
5	75	37	-2*	8	94	32	17*	3	111	19	12	6	191	21	22	-7	147	36	-21*			
6	86	39	-5*	H,K= 6,	5	7	89	40	79*	H,K= 6,	13	-6	116	48	8*							
7	73	90	3*	-6	57	76	29*	H,K= 6,	9	-3	186	21	24	-5	125	23	-24					
8	0	75	-7*	-5	72	32	-7*	-7	291	12	8	-2	266	14	6	-4	285	13	-2			
H,K= 6,	2	-4	154	13	-0	-6	42	63	21*	-1	113	28	13*	-3	66	29	12*					
-8	77	62	-7*	-3	111	12	3	-5	415	12	-1	0	331	12	6	-2	711	18	23			
-7	65	97	62*	-2	273	10	11	-4	0	74	-23*	1	83	26	79*	-1	323	9	25			
-6	94	34	8*	-1	84	12	-6	-3	441	12	-7	2	283	10	1	0	731	19	-16			
-5	109	33	5*	0	359	10	1	-2	52	58	43*	3	55	62	11*	1	475	13	-9			
-4	163	15	-5	1	154	9	-7	-1	283	9	-5	4	180	21	+9	2	698	18	11			
-3	320	9	7	2	209	11	-6	0	0	63	-8*	5	95	47	13*	3	423	11	2			
-2	257	18	16	3	79	35	15*	1	33	63	30*	H,K= 6,	14	4	471	13	2					
-1	473	12	-1	4	194	17	7	2	52	72	46*	-5	0	82	-13*	5	290	14	-6			
0	158	9	1	5	0	63	-28*	3	216	10	5	-4	41	90	35*	6	213	14	11			
1	434	11	-33	6	61	79	52*	4	49	60	17*	-3	69	77	52*	7	82	36	-40*			
2	116	11	5	7	44	68	25*	5	279	11	6	-2	37	66	37*	8	31	85	-27*			
3	333	10	14	8	55	71	36*	6	0	67	-50*	-1	37	62	31*	H,K= 7,	2					
4	73	29	39*	H,K= 6,	6	7	233	13	10	0	0	98	-22*	-4	62	79	-29*					
5	147	16	8	-3	0	62	-13*	H,K= 6,	10	1	0	76	-29*	-3	545	15	-4					
6	132	20	73	-2	544	14	22	-7	83	84	75*	2	0	78	-43*	-2	53	32	-9*			
8	20100	-25*	-1	43	60	28*	-6	176	43	15*	-6	176	43	15*	3	0	78	-28*	-1	736	19	2
H,K= 6,	3	0	195	8	-11	-5	185	31	8*	4	122122	66*	0	343	11	7						
-8	85185	81*	1	54	28	16*	-4	186	32	-9	5	97112	84*	1	768	20	-7					
-7	582	15	4	2	205	9	5	-3	294	11	-4	H,K= 6,	15	2	397	11	6					
-6	189	31	77*	3	55	61	42*	-2	173	14	20	-4	24	80	22*	3	538	14	-13			
-5	698	21	-4	4	365	11	4	-1	429	17	-8	-3	155	23	2	4	331	10	11			
-4	71	78	64*	5	56	75	29*	8	92	29	14*	-2	0	92	-3*	5	267	14	-1			
-3	789	21	27	6	347	11	8	1	454	13	4	-1	83	69	-16*	6	184	26	-5			
-2	0	70	-21*	7	32	74	-12*	2	0	70	-30*	0	34	75	10*	7	27	87	-65*			
-1	456	12	-20	8	239	16	-4	3	329	19	-12	1	0	77	-3*	8	82104	-8*				
0	85	31	15*	H,K= 6,	7	4	24	91	-45*	2	62	77	60*	H,K= 7,	3							
1	128	13	46	-8	0	85	-54*	5	179	20	4	3	0	83	-64*	-6	276	14	1			
2	0	61	-24*	-5	204	15	-7	6	85122	6*	4	17	89	-3*	-5	112	65	9*				
3	489	13	3	-4	275	11	3	7	84	38	48*	H,K= 6,	16	-4	326	12	-16					
4	39	69	-24*	-1	218	9	-1	H,K= 6,	11	-3	138	27	14*	-3	51	69	28*					
5	471	14	-3	0	620	17	-15	-6	45	65	27*	-2	0	82	-87*	-2	248	8	-5			
6	121	33	61*	1	74	24	-14*	-5	0113	-1*	-1	172	23	-1	-1	28	46	-3*				
7	355	15	-12	2	464	13	4	-4	0	97	-37*	0	139	22	114	0	52	57	-15*			
8	29	89	8*	3	93	21	12*	-3	79	48	77*	1	200	20	-4	1	21	46	15*			

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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
2	278	8	10	4	87	30	28*	-7	46	69	44*	-2	0	90	-29*	6	0	85	-21*
3	67	34	3*	5	291	15	-20	-6	44	66	-10*	-1	71	75	37*	7	182	21	27
4	406	12	-22	6	90	92	37*	-5	53	62	22*	0	0	78	-22*	8	0	91	-67*
5	94	27	50*	7	211	23	-25	-4	73	89	27*	1	46	86	14*	H,K= 8, 3			
6	334	14	17	8	78	89	38*	-3	138	15	1	2	23	80	-30*	-8	79	86	53*
7	0	89	-23*	H,K= 7, 7			-2	156	17	-18	3	0	94	-67*	-7	211	16	-7	
8	204	26	-7	-8	0	72	-38*	-1	205	10	-3	4	0	111	-78*	-6	115	24	26*
H,K= 7, 4			-7	80	37	-17*	0	253	9	8	H,K= 7, 16			-5	231	12	3		
-8	140	28	-8*	-6	0	64	-24*	1	267	12	11	-2	77	59	-8*	-4	52	67	24*
-7	0	79	-11*	-5	0	77	-61*	2	288	13	-15	-1	110	24	63*	-3	127	29	8*
-6	63	89	-58*	-4	187	15	11	3	254	14	2	0	97	34	-19*	-2	54	36	24*
-5	155	20	-9	-3	96	27	12*	4	238	16	16	1	0	70	-70*	-1	60	24	47*
-4	0	69	-15*	-2	303	18	-2	5	178	21	-5	2	117	23	5*	0	75	35	16*
-3	334	11	-0	-1	248	10	-4	6	143	29	34*	H,K= 8, 0			1	243	10	3	
-2	160	10	-3	0	426	11	-11	7	94	79	-6*	-8	181	30	-20	2	0	67	-12*
-1	627	17	13	1	439	12	-1	H,K= 7, 11			-6	255	24	8	3	194	14	-6	
0	406	11	-1	2	461	13	-9	-6	88	51	-4*	-4	166	21	-17	6	47	97	-5*
1	639	18	-8	3	360	11	-1	4	189	18	27	-2	76	23	0*	7	12146	-49*	
2	429	13	4	4	305	13	4	5	85	63	-8*	8	100	17	38	8	54101	24*	
3	492	13	-10	5	237	16	4	6	57	86	-2*	2	137	41	-10*	H,K= 8, 4			
4	367	13	8	6	192	34	7	H,K= 7, 12			4	218	13	14	-8	77	87	-37*	
5	260	16	-19	7	133	31	42*	-6	136	19	16	6	120	22	13	-7	213	17	21
6	206	22	4	8	0	108	-72*	-5	124	27	0*	8	75	76	12*	-6	265	15	-2
7	123	36	1*	H,K= 7, 8			-4	102	37	-14*	H,K= 8, 1			-5	249	15	-10		
8	95	35	32*	-7	76	43	44*	-3	71	97	-15*	-8	130	28	-13*	-4	483	16	6
H,K= 7, 5			-6	145	26	3	-2	68	51	-6*	-7	194	17	-13	-3	395	11	1	
-8	90	54	66*	-5	180	13	-5	-1	70	47	58*	-6	256	16	-8	-2	597	16	16
-7	98	42	-45*	-4	142	16	8	0	0	81	-36*	-5	382	20	14	-1	185	8	-1
-6	143	24	16	-3	448	14	4	1	8	74	-68*	-4	359	13	-3	0	647	18	-3
-5	204	15	38	-2	79	32	42*	2	84	36	21*	-3	714	22	28	1	78	28	48*
-4	376	12	-18	-1	578	18	-15	3	139	16	5	-2	259	11	2	2	384	17	7
-3	44	64	-24*	0	100	14	5	4	103	23	7*	-1	827	22	1	3	175	15	3
-2	653	19	17	1	554	15	-13	5	123	35	-17*	0	58	26	-28*	4	168	20	-27
-1	74	27	29*	2	152	13	-11	6	46	98	-14*	1	700	18	17	5	148	28	-18*
0	743	20	17	3	363	11	-11	H,K= 7, 13			2	112	13	-2	6	94	28	87*	
1	302	18	17	4	188	14	14	-5	0	91	-8*	3	330	10	3	7	139	19	-1
2	623	19	33	5	151	21	-12	-4	59	65	38*	4	217	10	2	8	75	55	27*
3	280	11	-6	6	125	61	-4*	-3	70	85	-11*	5	142	27	17*	H,K= 8, 5			
4	338	11	-0	7	70	117	32*	-2	71	37	-17*	6	184	14	9	-8	127	34	-5*
5	236	11	-0	H,K= 7, 9			-1	148	15	-11	7	0	75	-39*	-7	163	21	38	
6	139	32	-12*	-7	126	20	10	0	142	32	9*	8	116	25	0*	-6	177	44	-49*
7	113	32	-0*	-6	163	18	-E	1	180	20	-19	H,K= 8, 2			-5	330	13	-11	
8	72	72	47*	-5	141	30	-4*	2	129	18	-32	-8	66	85	-29*	-4	195	15	4
H,K= 7, 6			-4	161	19	-4	4	168	14	2	-7	216	15	18	-3	595	17	7	
-8	0	115	-66*	-3	144	18	-6	4	168	19	22	-6	231	22	-21	-2	126	12	-24
-7	178	20	-9	-2	147	18	9	5	63	82	-44*	-5	306	13	-3	-1	811	21	0
-6	111	33	-26*	-1	84	31	39*	H,K= 7, 14			-4	563	18	-16	0	62	24	47*	
-5	201	19	-17	0	76	83	38*	-1	258	14	-1	-3	300	10	-12	1	660	17	-13
-4	120	54	-9*	1	57	65	1*	0	57	67	47*	-2	789	21	20	2	119	12	6
-3	273	11	8	2	149	13	8	1	229	12	5	-1	196	9	18	3	364	11	-10
-2	73	31	29*	3	94	25	-14*	2	24	64	11*	0	840	22	14	4	213	14	-12
-1	129	14	21	4	213	11	-5	3	144	26	-8	1	85	19	1*	5	111	21	-5*
0	49	59	-11*	5	113	21	13	4	0	86	-51*	2	573	16	6	6	194	26	20
1	99	23	-12*	6	188	23	-9	H,K= 7, 15			3	242	10	-1	7	69	71	27*	
2	95	26	-8*	7	68	90	18*	-4	111	33	53*	4	239	18	-6	8	136	23	30
3	329	24	17	H,K= 7, 18			-3	80	90	7*	5	240	15	-2	H,K= 8, 6				



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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	
7	80	63	42*	H,K= 9, 13	8	110	45 103*	-4	108	32	22*	4	0	79	-47*					
H,K= 9, 9	-4	105	37	44*	H,K= 10, 2	-3	519	15	-4	5	104129	-11*								
-7	0	88	-7*	-3	245	15	7	-8	109	51	-3*	-2	249	12	3	6	50	83	15*	
-6	208	18	11	-2	0	65	-12*	-7	0	86	-28*	-1	518	20	-5	H,K= 10, 9				
-5	75	76	70*	-1	242	14	-10	-6	284	15	3	0	259	11	-6	-6	48	70	-15*	
-4	67	98	-53*	0	0	64	-58*	-5	64	71	39*	1	384	11	10	-5	66	55	12*	
-3	8	76	-13*	1	170	23	-7	-4	415	17	-8	2	237	15	-14	-4	83114	68*		
-2	72	76	-22*	2	57	76	-42*	-3	205	11	-3	3	187	16	5	-3	87126	65*		
-1	0	74	-8*	3	77	56	-2*	-2	564	17	11	4	225	18	25	-2	64	81	43*	
0	251	10	4	4	88	35	-20*	-1	343	18	13	5	35	83	26*	-1	148	21	-21	
1	70	31	56*	H,K= 9, 14	0	619	17	12	0	619	17	12	6	122	40	47*	0	50	76	-33*
2	372	11	14	-4	97119	92*	1	388	13	9	7	94	64	54*	1	257	14	-15		
3	39	64	1*	-3	93	27	98*	2	301	12	-11	H,K= 10, 6	2	118	19	-13				
4	354	12	-4	-2	37	66	23*	3	262	12	-3	-7	61	72	17*	3	287	14	-2	
5	82	32	33*	-1	122	17	75	4	114	48	-8*	-6	106	26	-1*	4	82	34	-15*	
6	248	12	13	0	48	70	1*	5	158	16	-2	-5	68	80	3*	5	174	22	-20	
H,K= 9, 10	1	76	36	38*	6	33	67	21*	6	33	67	21*	-4	0	78	-13*	6	94	49	42*
-6	217	23	41	2	54	66	25*	7	0	93	-24*	-3	30106	22*	H,K= 10, 10					
-5	54	80	-45*	3	0	85	-26*	8	0	91	-44*	-2	121	25	-18*	-6	65	70	-13*	
-4	274	14	-4	4	0	88	-23*	H,K= 10, 3	-1	100	25	39*	-5	116	22	22*				
-3	74112	23*	H,K= 9, 15	-8	48	85	15*	0	334	10	12	-4	152	25	-1					
-2	338	16	-2	-3	87	58	72*	-7	114	28	-7*	1	74	31	-23*	-3	208	16	17	
-1	88	37	76*	-2	0	84	-33*	-6	62	69	45*	2	382	11	8	-2	221	15	8	
0	295	13	-9	-1	103	36	101*	-5	77	79	2*	3	82	26	-20*	-1	245	14	-9	
1	139	21	58	0	113	33	28*	-4	54	66	19*	4	345	14	-0	0	201	11	15	
2	192	12	-17	1	87	56	88*	-3	63	47	14*	5	0	81	-83*	1	229	11	-4	
3	144	16	-8	2	124	34	-14*	-2	28	69	-10*	6	204	20	-4	2	211	18	17	
4	17	85	-24*	H,K= 9, 16	-1	255	10	5	7	40	97	24*	3	135	20	3				
5	119	35	-10*	0	162	35	18*	0	11	54	-13*	H,K= 10, 7	4	123	20	15				
6	0	86	-20*	H,K= 10, 8	1	426	13	3	-7	0	88	-89*	5	54	94	20*				
H,K= 9, 11	-8	136	39	23*	2	63	68	-12*	-6	39	74	-15*	6	64103	13*					
-6	8	91	-14*	-6	138	36	8*	3	449	13	5	-5	175	14	-18	H,K= 10, 11				
-5	22107	-18*	-4	0	82	-15*	4	47	64	-16*	-4	162	23	3	-5	230	26	0		
-4	16	76	-1*	-2	132	20	1	5	356	12	-5	-3	304	13	3	-4	0	81	-32*	
-3	33	97	7*	0	491	13	-4	6	0	83	-18*	-2	307	13	5	-3	282	14	11	
-2	78	45	61*	2	452	14	3	7	175	30	-14	-1	340	12	6	-2	40	92	-22*	
-1	65	44	40*	4	466	14	-2	H,K= 10, 4	0	319	12	-5	-1	282	11	-1				
0	56	61	13*	6	283	14	-2	-7	15	75	5*	1	306	14	-1	0	92	25	-21*	
1	0	64	-18*	8	159	27	28	-6	198	14	-1	2	249	15	-13	1	183	15	11	
2	90125	54*	H,K= 10, 1	-5	82	37	-12*	3	195	33	-20	3	195	33	-20	2	136	32	15*	
3	74	79	55*	-8	0106	-48*	-4	332	13	-14	4	131	27	12*	3	50	65	-22*		
4	0108	-2*	-7	170	26	19	-3	253	13	1	5	0	94	-94*	4	89	30	9*		
5	87	78	49*	-6	99	88	35*	-2	454	15	-4	6	59	82	25*	5	0	86	-16*	
6	0	91	-15*	-5	387	15	3	-1	359	12	-3	7	72	86	48*	H,K= 10, 12				
H,K= 9, 12	-4	198	14	-8	0	440	12	2	0	440	12	2	H,K= 10, 8	-5	50	98	5*			
-5	132	31	17*	-3	925	16	7	1	417	11	-14	-7	0115	-41*	-4	0	81	-1*		
-4	62	77	40*	-2	386	12	24	2	327	11	1	-6	238	16	18	-3	71	73	51*	
-3	0	77	-7*	-1	626	17	28	3	252	11	1	-5	96104	82*	-2	50	75	-17*		
-2	0111	-21*	0	436	14	21	4	171	13	6	-4	356	13	6	-1	71	82	5*		
-1	8	78	-91*	1	436	12	9	5	87	98	-3*	-3	145	22	28	0	150	15	-4	
0	0	76	-7*	2	375	20	4	6	70	94	28*	-2	431	17	-7	1	62	65	-48*	
1	221	15	3	3	248	13	11	7	0107	-6*	-1	146	29	-4*	2	178	41	-14*		
2	72	76	53*	4	194	16	9	H,K= 10, 5	0	314	12	-2	3	22	91	-65*				
3	247	16	-3	5	91	58	3*	-7	157	20	-18	1	231	14	18	4	180	30	27	
4	0	84	-35*	6	48129	-23*	-6	0181	-5*	2	236	21	-8	5	24	89	-34*			
5	282	22	10	7	0109	-5*	-5	336	13	1	3	151	23	7	H,K= 10, 13					

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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	
-4	79	84	-23*	0	183	14	-9					5	70	98	-29*	4	442	13	-7	
-3	89	52	4*	1	211	10	-5	H,K= 11,	6	38	74	-22*	6	98	47	59*	6	220	18	3
-2	183	19	9	2	261	13	-29					H,K= 11,	10			H,K= 12,			1	
-1	104	38	-21*	3	0	73	-4*	-5	37	79	32*	-5	171	21	26	-7	0	95	-36*	
0	169	34	10*	4	225	18	5	-4	15	97	13*	-4	82	33	1*	-6	212	22	-2	
1	167	20	27	5	70	84	-52*	-3	0	98	-81*	-3	153	23	12	-5	73119	62*		
2	136	27	28*	6	194	28	46	-2	75	56	16*	-2	53	76	16*	-4	259	17	36	
3	0111	-110*		7	146	30	-2*	-1	163	18	-13	-1	153	22	33	-3	47	82	2*	
4	147	26	103		H,K= 11,	3		0	90	37	-20*	0	0	85	-48*	-2	231	15	17	
	H,K= 10,	14		-7	0	77	-20*	1	140	20	-12	1	0129	-20*		-1	71	74	-28*	
-3	0	84	-12*	-6	37102	12*		2	119	24	6*	2	90112	-10*		0	60	71	-3*	
-2	155	26	-31	-5	81122	78*		3	146	15	13	3	64	77	42*	1	162	13	-4	
-1	0102	-41*		-4	0	98	-28*	4	90	74	-5*	4	79	81	-7*	2	77	32	10*	
0	95	49	-35*	-3	0	78	-30*	5	87	29	21*	5	0	84	-60*	3	190	12	-7	
1	0	96	-62*	-2	127	23	2	6	97	32	33*		H,K= 11,	11		4	141	19	24	
2	115	23	46*	-1	130	22	115	7	96	31	59*	-5	44	69	41*	5	151	30	13*	
3	55	83	-7*	0	200	15	-5		H,K= 11,	7		-4	222	18	-13	6	76115	-41*		
	H,K= 10,	15		1	85	47	17*	-6	220	23	27	-3	0	80	-50*	7	87	81	-3*	
-2	111	34	82*	2	197	16	-2	-5	93100	-43*		-2	263	14	9		H,K= 12,	2		
-1	80	86	15*	3	87	26	6*	-4	278	14	13	-1	84	54	-24*	-7	123	41	4*	
0	124128	51*		4	112	33	-19*	-3	118	28	45*	0	177	39	-24*	-6	19	81	-17*	
1	94	54	-12*	5	78110	28*		-2	219	15	-10	1	181	18	32	-5	204	37	6	
2	119	35	46*	6	67	81	6*	-1	37	72	-19*	2	65	85	6*	-4	0	86	-7*	
	H,K= 11,	0		7	0	89	-25*	0	191	15	17	3	170	20	29	-3	168	43	-2*	
-7	68	83	-7*		H,K= 11,	4		1	118	29	-15*	4	0	84	-47*	-2	0	82	-66*	
-5	53	79	18*	-7	184	17	-20	2	0	99	-3*	5	114	24	22*	-1	180	34	18*	
-3	115	35	-1*	-6	149	34	3*	3	75106	-71*			H,K= 11,	12		0	125	23	32	
-1	161	12	-5	-5	308	11	8	4	119	30	44*	-4	0	69	-7*	1	97	50	49*	
1	245	12	-7	-4	92	29	15*	5	129	18	16	-3	88	41	41*	2	141	21	4	
3	146	15	-16	-3	369	12	-6	6	79	81	-13*	-2	0	67	-58*	3	189	20	26*	
5	98	67	-9*	-2	17	68	1*		H,K= 11,	8		-1	72	78	12*	4	172	27	8	
7	0	73	-40*	-1	281	12	-9	-6	38	71	-19*	8	148	25	28	5	81102	-44*		
	H,K= 11,	1		0	143	19	-9	-5	281	11	7	1	0101	-86*		6	142	86	45*	
-7	155	23	15	1	134	21	-1	-4	48	69	45*	2	128	72	-1*	7	99125	27*		
-6	389	13	13	2	177	16	14	-3	380	13	-3	3	0	85	-54*		H,K= 12,	3		
-5	93	40	-22*	3	72	38	24*	-2	88	27	-1*	4	59	92	-49*	-7	0	91	-71*	
-4	421	13	-8	4	220	12	2	-1	319	10	-6		H,K= 11,	13		-6	0	86	-6*	
-3	63	64	40*	5	158	14	43	0	190	12	-20	-3	86	37	27*	-5	138	59	36*	
-2	456	24	5	6	134	18	20	1	178	12	-4	-2	96	54	36*	-4	87	54	73*	
-1	90	22	-8*	7	43109	-75*		2	197	14	-27	-1	37	72	35*	-3	356	14	-1	
0	270	18	1		H,K= 11,	5		3	62	69	53*	0	82	53	49*	-2	0	76	-39*	
1	203	18	-7	-7	53	92	-28*	4	135	18	-35	1	0	68	-33*	-1	579	18	6	
2	62	42	-7*	-6	254	18	-25	5	92	29	-9*	2	7	68	-6*	0	0	85	-9*	
3	250	11	9	-5	102	48	24*	6	120	22	25	3	74	52	22*	1	615	17	-4	
4	95	38	21*	-4	480	14	-16		H,K= 11,	9			H,K= 11,	14		2	50	65	37*	
5	193	19	12	-3	56	94	42*	-6	91	81	67*	-2	28	83	-45*	3	490	16	-19	
6	174	21	22	-2	428	15	13	-5	94	44	63*	-1	169	23	6	4	78	80	57*	
7	0115	-96*		-1	174	16	6	-4	0	79	-27*	0	122	22	31	5	283	15	-7	
	H,K= 11,	2		0	296	10	6	-3	0	79	-27*	1	92	30	5*	6	0	83	-12*	
-7	210	17	-34	1	261	10	2	-2	88	48	-13*	2	89	35	-4*	7	126	36	2*	
-6	139	20	29	2	104	19	9	-1	85	28	-6*		H,K= 12,	8			H,K= 12,	4		
-5	402	13	-2	3	271	11	2	8	138	16	3	-6	72	80	57*	-7	175	18	5	
-4	78	48	10*	4	110	49	48*	1	169	13	8	-4	234	27	5	-6	72	81	46*	
-3	423	15	-4	5	159107	-3*		2	110	32	-1*	-2	525	14	-4	-5	238	12	-2	
-2	78	39	-34*	6	162	24	28	3	169	19	21	0	631	17	-11	-4	31	73	-1*	
-1	378	12	2	7	118	51	31*	4	73	94	2*	2	618	16	-9	-3	244	12	-11	

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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
-2	79	45	-33*	-4	56	65	47*	-3	50	84	14*	-2	304	14	8	-2	215	13	-11
-1	179	12	-2	-3	85	88	47*	-2	181	21	43	-1	0	80	-66*	-1	193	14	-2
0	146	14	-19	-2	0	75	-17*	-1	111	38	24*	0	412	12	-11	0	152	41	-21*
1	50	61	45*	-1	78	48	68*	0	0	84	-65*	1	55	64	-3*	1	146	21	47
2	164	15	-13	0	23	76	-16*	1	123	21	9	2	377	15	2	2	81	51	14*
3	81	34	-14*	1	109	67	68*	2	0	69	-2*	3	0	67	-7*	3	0	78	-21*
4	183	14	22	2	90	41	41*	3	119	23	22*	4	260	11	16	4	49	91	36*
5	126	32	-1*	3	38	120	-26*	H,K=	12,	14	5	5	45	73	25*	5	102	43	51*
6	152	25	36	4	77	77	17*	-1	64	71	34*	6	101	50	4*	6	52	85	14*
7	101	59	-3*	5	0	85	-52*	0	50	72	32*	H,K=	13,	4	H,K=	13,	8		
H,K=	12,	5	6	78	74	4*	1	0	86	-34*	-6	132	28	2*	-5	212	16	-4	
-7	0	75	-10*	H,K=	12,	9	H,K=	13,	0	-5	226	19	1	-4	87	32	-0*		
-6	135	38	40*	-5	88	56	42*	-7	0	88	-8*	-4	209	16	-4	-3	213	12	17
-5	57	68	45*	-4	0	80	-3*	-5	141	31	57*	-3	237	16	-9	-2	130	18	-15
-4	88	36	-32*	-3	187	26	-7	-3	278	16	-6	-2	274	14	-8	-1	138	25	-16
-3	0	67	-33*	-2	131	23	108	-1	426	14	18	-1	256	17	9	0	166	18	9
-2	0	78	-70*	-1	335	16	-4	1	477	14	-22	0	154	22	-9	1	33	77	17*
-1	0	74	-36*	0	9	87	-14*	3	384	11	-13	1	188	22	-32*	2	133	20	11
0	64	72	44*	1	396	14	1	5	171	22	12	2	105	23	-9*	3	65	58	16*
1	8	75	-85*	2	79	83	35*	7	49	75	-7*	3	56	67	38*	4	16	68	-45*
2	0	79	-35*	3	382	11	-2	H,K=	13,	1	4	72	49	63*	5	82	83	5*	
3	101	124	-12*	4	0	76	-32*	-7	78	98	1*	5	0	69	-47*	H,K=	13,	9	
4	81	12	-105*	5	181	15	-1	-6	247	20	23	6	71	60	11*	-5	50	114	28*
5	189	46	8*	H,K=	12,	18	-5	185	57	3*	H,K=	13,	5	-4	114	54	10*		
6	139	29	63*	-5	191	21	11	-4	349	15	18	-6	233	28	-4	-3	96	48	25*
H,K=	12,	6	-4	0	82	-38*	-3	288	16	-6	-5	131	49	17*	-2	197	17	5	
-6	63	71	60*	-3	188	19	-8	-2	232	12	-12	-4	264	15	-14	-1	89	62	-4*
-5	38	68	4*	-2	85	50	11*	-1	290	15	8	-3	151	25	-22	0	246	14	6
-4	168	21	-2	-1	197	16	34	0	203	16	19	-2	188	20	-36	1	76	105	-31*
-3	0	79	-15*	0	157	21	16	1	174	18	18	-1	197	23	18	2	178	20	-23
-2	387	13	-4	1	0	92	-35*	2	100	57	14*	0	154	20	41	3	52	79	-11*
-1	93	35	40*	2	173	34	41*	3	88	44	52*	1	283	16	-9	4	167	21	13
0	488	14	-14	3	0	93	-68*	4	68	101	19*	2	57	84	53*	5	88	56	67*
1	0	76	-41*	4	98	54	-19*	5	39	79	14*	3	83	72	6*	H,K=	13,	10	
2	493	15	-12	5	83	84	-15*	6	94	33	23*	4	46	74	-18*	-4	118	35	-11*
3	0	64	-29*	H,K=	12,	11	7	43	75	-5*	5	40	81	13*	-3	135	65	-5*	
4	319	12	-4	-4	0	72	-6*	H,K=	13,	2	6	132	21	48	-2	165	18	23	
5	59	76	35*	-3	67	80	59*	-7	186	26	-15	H,K=	13,	6	-1	91	35	-40*	
6	219	18	38	-2	0	81	-7*	-6	74	91	-29*	-6	0	76	-12*	0	116	21	-0
H,K=	12,	7	-1	0	78	-16*	-5	296	26	6	-5	71	57	-14*	1	98	25	1*	
-6	186	30	-7	0	0	78	-14*	-4	212	22	5	-4	86	51	33*	2	68	46	28*
-5	57	88	55*	1	18	78	5*	-3	292	50	-12	-3	199	38	-5*	3	80	54	39*
-4	243	15	-1	2	61	80	11*	-2	203	21	-42	-2	80	93	-17*	4	84	37	52*
-3	86	48	27*	3	62	81	38*	-1	196	20	-2	-1	319	13	-9	H,K=	13,	11	
-2	234	11	7	4	65	70	36*	0	258	14	6	0	70	78	-21*	-4	169	24	33
-1	125	17	-25	H,K=	12,	12	1	58	75	-6*	1	314	13	-6	-3	17	85	-60*	
0	77	37	-19*	-4	114	23	38*	2	134	24	8	2	100	51	41*	-2	184	19	45
1	182	12	20	-3	55	86	48*	3	0	80	-19*	3	248	24	-13	-1	68	128	-28*
2	0	96	-35*	-2	196	18	28	4	68	128	38*	4	120	28	93*	0	90	99	42*
3	174	40	10*	-1	0	83	-3*	5	86	58	9*	5	135	30	-10*	1	122	19	22
4	114	56	14*	0	299	28	13	6	81	74	69*	6	0	89	-16*	2	35	67	2*
5	147	23	23	1	58	81	24*	H,K=	13,	3	H,K=	13,	7	3	84	34	16*		
6	138	28	26*	2	278	15	31	-6	80	47	47*	-6	108	33	-22*	4	97	48	34*
H,K=	12,	8	3	0	85	-41*	-5	34	71	13*	-5	151	39	-11*	H,K=	13,	12		
-6	39	72	39*	4	174	16	11	-4	184	20	-4	-4	173	23	0	-3	150	27	45
-5	0	78	-58*	H,K=	12,	13	-3	0	85	-31*	-3	211	14	-11	-2	115	35	33*	



STRUCTURE FACTORS CONTINUED FOR  
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L	F08	SG	DEL	L	F08	SG	DEL	L	F08	SG	DEL	L	F08	SG	DEL	L	F08	SG	DEL
-1	150	25	6	3	81	66	7*	H <sub>o</sub> K= 14,	8	-4	30	72	-28*	2	0	81	-95*		
0	110	35	27*	4	0	70	-33*	-5	30	112	-30*	-3	52	70	13*	3	79	81	-14*
1	158	17	1	5	32	86	2*	-4	197	38	24*	-2	92	42	-13*	4	110	38	11*
2	11	70	-68*	6	0	88	-6*	-3	119	59	-17*	-1	68	72	19*	5	46	87	-16*
3	144	18	32	H <sub>o</sub> K= 14,	4	-2	110	32	15*	0	161	16	-8	H <sub>o</sub> K= 15,	6				
H <sub>o</sub> K= 13,	13	-6	152	21	7	-1	193	17	17	1	149	32	-7*	-5	196	22	-19		
-2	86	40	-11*	-5	69	72	54*	0	0	73	-35*	2	132	38	-16*	-4	44	82	33*
-1	92	37	10*	-4	125	21	7	1	146	16	-7	3	168	20	16	-3	333	14	-4
0	75	75	-2*	-3	138	26	23*	2	134	30	5*	4	108	37	-14*	-2	0	88	-15*
1	66	69	25*	-2	99	47	64*	3	143	17	34	5	138	75	17*	-1	344	15	-28
H <sub>o</sub> K= 14,	0	-1	171	14	2	4	181	41	12*	6	105	42	44*	0	0	93	-17*		
-6	42	107	-21*	0	79	37	22*	5	95	51	28*	H <sub>o</sub> K= 15,	2	1	303	13	-3		
-4	114	39	-24*	1	218	16	4	H <sub>o</sub> K= 14,	9	-6	74	80	-6*	2	87	30	55*		
-2	207	18	3	2	156	16	5	-4	48	90	-6*	-5	75	80	33*	3	130	22	-54
0	120	28	-5*	3	134	20	-9	-3	85	45	7*	-4	10	87	-32*	4	0	70	-25*
2	108	66	-4*	4	201	13	21	-2	104	38	-10*	-3	88	49	13*	5	66	72	12*
4	65	78	2*	5	55	77	-2*	-1	0	80	-88*	-2	85	56	66*	H <sub>o</sub> K= 15,	7		
6	65	71	44*	6	164	18	25	8	132	26	9*	-1	112	23	21*	-4	129	29	48*
H <sub>o</sub> K= 14,	1	H <sub>o</sub> K= 14,	5	1	120	28	37*	0	99	27	-3*	-3	48	81	6*				
-6	93	95	89*	-6	77	83	35*	2	0	81	-110*	1	169	17	46	-2	96	44	-34*
-5	199	25	1	-5	285	14	-10	3	0	81	-50*	2	125	21	-11	-1	59	77	9*
-4	70	87	6*	-4	35	71	-65*	4	188	62	62*	3	184	26	-22*	0	160	14	3
-3	172	18	18	-3	144	18	-26	H <sub>o</sub> K= 14,	18	4	92	53	-21*	1	103	29	-28*		
-2	184	17	5	-2	193	14	-0	-4	0	73	-46*	5	98	35	4*	2	152	15	14
-1	27	88	11*	-1	62	88	24*	-3	0	69	-28*	H <sub>o</sub> K= 15,	3	3	141	20	13		
0	254	35	11	0	286	14	9	-2	61	69	52*	-5	25	87	18*	4	132	40	54*
1	130	26	14*	1	94	139	-25*	-1	63	67	-16*	-4	383	40	-14	H <sub>o</sub> K= 15,	8		
2	216	16	8	2	169	27	-13	0	43	66	-8*	-3	0	83	-14*	-4	0	104	-3*
3	240	15	13	3	209	13	6	1	12	78	-73*	-2	424	13	-18	-3	84	55	81*
4	131	26	18*	4	82	37	-28*	2	102	25	24*	-1	78	37	68*	-2	42	120	-7*
5	199	19	11	5	219	21	23	3	78	39	5*	0	434	13	-8	-1	0	82	-34*
6	107	39	64*	6	57	73	14*	4	103	27	32*	1	76	38	59*	0	87	46	27*
H <sub>o</sub> K= 14,	2	H <sub>o</sub> K= 14,	6	H <sub>o</sub> K= 14,	11	2	384	12	-13	1	0	76	-66*						
-6	201	34	6	-5	79	80	69*	-3	121	23	19*	3	45	78	20*	2	91	28	39*
-5	60	90	14*	-4	89	54	-13*	-2	38	71	-68*	4	131	31	-5*	3	71	50	-8*
-4	204	20	19	-3	8	117	-85*	-1	0	80	-38*	5	58	80	49*	4	79	69	35*
-3	188	21	37	-2	64	93	-51*	0	119	24	7*	H <sub>o</sub> K= 15,	4	H <sub>o</sub> K= 15,	9				
-2	150	25	34	-1	127	30	1*	1	51	75	-14*	-5	43	108	-6*	-3	29	80	20*
-1	242	17	-20	0	99	40	-35*	2	146	25	46	-4	3	110	-56*	-2	294	15	15
0	188	31	87*	1	136	24	32	3	131	29	23*	-3	107	38	-2*	-1	0	81	-22*
1	220	16	-1	2	74	116	-5*	H <sub>o</sub> K= 14,	12	-2	0	135	-1*	0	251	15	11		
2	222	16	19	3	0	100	-62*	-2	41	72	-15*	-1	174	21	17	1	0	81	-35*
3	158	36	-14*	4	77	94	27*	-1	88	36	-15*	0	142	23	50	2	182	20	-1
4	244	15	18	5	78	44	48*	8	101	42	33*	1	156	38	-7*	3	44	81	8*
5	58	82	-25*	H <sub>o</sub> K= 14,	7	1	81	41	-20*	2	92	116	-76*	H <sub>o</sub> K= 15,	10				
6	216	18	40	-5	88	71	-6*	2	54	71	2*	3	85	65	-51*	-3	102	28	17*
H <sub>o</sub> K= 14,	3	-4	61	69	16*	H <sub>o</sub> K= 15,	0	4	133	73	-15*	-2	104	37	91*				
-6	96	38	86*	-3	123	26	79*	-5	271	14	4	5	0	89	-71*	-1	78	97	-54*
-5	131	21	28	-2	90	106	8*	-3	432	19	1	H <sub>o</sub> K= 15,	5	0	60	74	-10*		
-4	45	84	27*	-1	25	99	18*	-1	506	28	1	-5	107	28	74*	1	108	36	-1*
-3	178	33	26*	0	153	26	5	1	407	12	3	-4	59	79	33*	2	122	21	16
-2	38	82	-26*	1	125	26	28*	3	229	15	-12	-3	33	76	17*	3	117	36	45*
-1	175	21	-3	2	111	32	-15*	5	0	85	-76*	-2	35	67	-5*	H <sub>o</sub> K= 15,	11		
0	40	89	-44*	3	142	25	25	H <sub>o</sub> K= 15,	1	-1	0	79	-58*	-2	39	71	36*		
1	95	44	-16*	4	0	84	-86*	-6	64	80	32*	0	117	29	30*	-1	58	94	28*
2	97	39	54*	5	130	33	11*	-5	122	42	19*	1	58	82	-37*	0	0	84	-18*

STRUCTURE FACTORS CONTINUED FOR  
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L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL	L	FOB	SG	DEL
1	81	83	52*	-3	98	29	47*	0	184	14	-11	0	75	84	-49*	0	89	69	-39*
	H,K= 16,	0		-2	71	86	-43*	1	99	33	7*	1	100	56	30*	1	71	88	62*
-4	206	16	1	-1	0	70	-23*	2	165	25	-36	2	132	64	-3*	2	35	84	-10*
-2	304	13	-0	0	75	45	7*	3	51	70	-5*		H,K= 17,	8			H,K= 18,	7	
0	238	16	-17	1	89	31	-4*	4	128	24	-42*	-2	78	93	-35*	-1	74	86	-23*
2	112	40	-52*	2	46	83	32*		H,K= 17,	2		-1	104	41	5*	0	156	24	49
4	63	73	1*	3	119	23	-6*	-4	113	30	-8*	0	66104	-15*		H,K= 19,	0		
	H,K= 16,	1		4	64	79	29*	-3	42	93	3*	1	113	41	-44*	-1	107	42	25*
-5	125	32	-3*		H,K= 16,	6		-2	130	34	-24*	2	70	83	17*	1	38	84	15*
-4	142	22	1	-4	184	23	10	-1	140	23	-20		H,K= 17,	9			H,K= 19,	1	
-3	51	71	-23*	-3	17	84	-58*	0	99	32	-34*	0	92	49	56*	-2	0100	-58*	
-2	182	28	-16*	-2	213	13	5	1	180	15	-38		H,K= 18,	0		-1	76	86	42*
-1	81	72	64*	-1	42	68	-13*	2	85	40	4*	-2	223	27	-21	0	33	87	-53*
0	54	80	9*	0	204	13	-14	3	158	18	-41	0	167	23	-3	1	113127	56*	
1	92	28	23*	1	72	46	38*	4	34	75	16*	2	96	45	36*	2	124	34	21*
2	37	68	3*	2	124	36	-1*		H,K= 17,	3			H,K= 18,	1			H,K= 19,	2	
3	78	49	-20*	3	104	45	87*	-4	84	52	-4*	-3	70	90	-28*	-2	0129	-5*	
4	89	46	21*	4	52	72	14*	-3	0	82	-37*	-2	52	91	-46*	-1	77	88	-16*
5	186	43	6*		H,K= 16,	7		-2	66	86	-36*	-1	31	87	-83*	0	0108	-32*	
	H,K= 16,	2		-4	143	20	39	-1	44	69	15*	0	165	61	44*	1	113	41	3*
-5	97	41	-29*	-3	113	25	37*	0	48	85	-27*	1	58	83	-29*	2	113	37	62*
-4	93	38	-19*	-2	0	93	-76*	1	61	67	25*	2	121	33	6*		H,K= 19,	3	
-3	110	99	-35*	-1	98	26	69*	2	51	78	27*	3	86	72	38*	-1	0	87	-18*
-2	0	69	-50*	0	0	77	-5*	3	43	73	34*		H,K= 18,	2		0	0	87	-63*
-1	108	28	19*	1	63	69	68*	4	44	76	35*	-3	64	90	-2*	1	53	83	48*
0	83	33	26*	2	100	68	45*		H,K= 17,	4		-2	31	88	-41*		H,K= 19,	4	
1	0	99	-32*	3	68	94	18*	-4	41	76	-51*	-1	117	36	21*	-1	0	94	-67*
2	122	28	12*	4	109	26	25*	-3	76	80	21*	0	0	88	-92*	0	0	87	-54*
3	28	91	-6*		H,K= 16,	8		-2	96	32	-33*	1	138	42	35*	1	98	53	17*
4	113	26	-3*	-3	97	32	1*	-1	144	18	12	2	111	36	42*				
5	64	73	8*	-2	73	47	69*	0	66	89	-60*	3	130	92	59*				
	H,K= 16,	3		-1	70	55	2*	1	136	27	-46*		H,K= 18,	3					
-5	181	27	26	0	121	20	57	2	79	85	6*	-3	249	18	15				
-4	10100	-16*		1	70	52	35*	3	132	22	-32	-2	31	85	24*				
-3	229	13	-6	2	80	83	-29*	4	87	54	78*	-1	225	17	13				
-2	32	78	-17*	3	0	84	-12*		H,K= 17,	5		0	184	37	95*				
-1	264	11	4		H,K= 16,	9		-4	30	75	17*	1	62	84	-48*				
0	37	67	16*	-2	83	41	8*	-3	155	17	42	2	80	82	78*				
1	191	22	-20	-1	163	16	-3	-2	71	77	-22*	3	0	93	-8*				
2	67	68	35*	0	83	54	13*	-1	143	18	13		H,K= 18,	4					
3	68	79	-33*	1	134	27	15*	0	145	18	-15	-3	0	89	-65*				
4	39	81	31*	2	71	80	45*	1	79	51	-26*	-2	105	42	5*				
5	0	90	-7*		H,K= 16,	10		2	175	16	-32	-1	110	39	8*				
	H,K= 16,	4		-1	91	43	78*	3	105	36	67*	0	21	85	-73*				
-5	119	41	-7*	0	92	30	68*		H,K= 17,	6		1	160	24	29				
-4	99	32	-7*	1	44	85	7*	-3	105	58	30*	2	106100	37*					
-3	93	33	-14*		H,K= 17,	0		-2	39	72	-22*	3	41139	-68*					
-2	89	31	29*	-3	131	27	42*	-1	0	78	-73*		H,K= 18,	5					
-1	60	83	-20*	-1	69	92	-17*	0	0	71	-55*	-2	0	87	-56*				
0	0	72	-6*	1	59	67	-1*	1	61	80	23*	-1	57	84	-12*				
1	0	74	-12*	3	0	82	-28*	2	34	81	-3*	0	46	85	-36*				
2	98	27	28*		H,K= 17,	1		3	93111	76*		1	100	42	32*				
3	86	36	7*	-4	44	78	48*		H,K= 17,	7		2	72121	8*					
4	53	72	-28*	-3	111	36	-28*	-3	101	45	6*		H,K= 18,	6					
	H,K= 16,	5		-2	112	32	-8*	-2	118	40	27*	-2	178	51	-16*				
-4	121	25	7*	-1	143	19	-8	-1	118	62	15*	-1	0	85	-21*				

OBSERVED STRUCTURE FACTORS, STANDARD DEVIATIONS, AND DIFFERENCES (ALL X 3.0)  
 THORIUM TETRA(METHYLTRIHYDROBORATE). F(0.0,0) = 3029

FOB AND FCA ARE THE OBSERVED AND CALCULATED STRUCTURE FACTORS.  
 SG = ESTIMATED STANDARD DEVIATION OF FOB. DEL = /FOB/ - /FCA/.  
 \* INDICATES ZERO WEIGHTED DATA.

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
	K,L=	0,	0	13	520	14	0	-14	63	87	27*	01088	138	186	16	0	0	-24*	
2	774	20	32	14	0	97	-116*	-13	341	11	6	1	142	10	38	K,L=	0,	6	
3	19	48	-11*	15	359	11	2	-12	41	96	17*	2	254	31	29	-15	34	0	16*
4	685	18	11	16	26	83	16*	-11	91	64	-26*	3	81	38	37*	-14	78	0	11*
5	76	26	27*	17	0	95	-41*	-10	57	81	48*	4	172	11	5	-13	0	0	-26*
6	238	7	-4	18	49	0	21*	-9	108	17	23	5	173	11	61	-12	95	110	37*
7	64	66	21*	19	0	0	-11*	-8	56	81	41*	6	451	12	22	-11	0	116	-19*
8	51	68	7*	K,L=	0,	2	-7	384	11	34	7	268	10	62	-10	106	35	28*	
9	22	73	1*-19	32	0	27*	-6	51	70	2*	8	90	58	-9*	-9	0	119	-25*	
10	550	14	-23	-18	184	0	-19*	-5	621	16	47	9	74	86	23*	-8	209	18	1
11	62	82	3*-17	0	94	-16*	-4	222	8	15	10	478	13	-29	-7	141	27	-5*	
12	627	17	13	-16	303	11	-8	-31	625	158	194	11	172	15	-25	-6	588	17	-15
13	80	82	18*-15	66	97	65*	-2	253	33	52	12	389	12	-18	-5	212	18	-19	
14	108	61	41*-14	137	31	4*	-1	631	85	102	13	112	59	39*	-4	324	14	6	
15	111	22	80*-13	49	95	42*	0	70	36	61*	14	45	93	8*	-3	411	18	27*	
16	242	11	-17	-12	561	15	3	1	647	63	61	15	53	95	6*	-2	384	14	30
17	77	95	31*-11	0	88	-23*	2	196	8	16	16	0	0	-55*	-1	224	15	52	
18	112	0	-27*-10	179	10	-9	3	456	24	16	17	16	0	11*	0	322	12	8	
19	28	0	13*-9	52	70	34*	4	0	73	-56*	K,L=	0,	5	1	0	98	-8*		
	K,L=	0,	1	-8	44	75	-1*	5	32	74	-48*-17	77	0	4*	2	67	111	35*	
-19	46	0	-29*-7	19	64	2*	6	79	32	43*-16	0	0	-40*	3	0	119	-34*		
-18	0	0	-31*-6	716	19	-14	7	447	12	20	-15	233	0	-46*	4	242	15	11	
-17	46	94	-8*-5	107	11	29	8	237	31	46	-14	93	36	35*	5	169	21	-26	
-16	90	53	84*-4	964	34	138	9	687	30	-20	-13	134	24	3	6	392	14	-21	
-15	465	13	-7	-3	48	78	29*	10	166	12	-9	-12	0	116	-19*	7	105	121	-76*
-14	78	83	25*-21	271	55	176	11	106	20	23*-11	0	116	-9*	8	53	79	37*		
-13	465	13	12	-1	249	8	39	12	108	21	34*-10	25	114	17*	9	23	119	-30*	
-12	49	77	44*	0	1583	124	132	13	324	11	-11	-9	257	14	0	10	266	15	-28
-11	150	11	13	1	147	7	37	14	46	103	-51*	-8	124	26	10*	11	144	22	-7
-10	53	68	16*	2	722	19	99	15	199	13	-30	-7	274	13	9	12	175	18	-26
-9	383	10	15	3	96	12	35	16	0	95	-4*	-6	0	107	-17*	13	0	0	-20*
-8	73	47	42*	4	67	41	-29*	17	0	0	-29*	-5	506	14	29	14	50	0	9*
-7	42	60	-9*	5	24	69	4*	18	51	0	33*	-4	254	12	38	15	10	0	-10*
-6	45	65	22*	6	202	8	-11	K,L=	0,	4	-3	926	24	45	K,L=	0,	7		
-5	395	10	16	7	106	12	9	-18	187	0	-32*	-2	248	12	33	-13	46	0	18*
-4	63	37	57*	8	56	73	-14*-17	0	0	-32*	-1	308	11	22	-12	60	0	50*	
-3	1409	67	7	9	0	71	-3*-16	181	0	-40*	0	105	21	43*-11	0	0	0	-46*	
-2	101	6	13	10	528	14	16	-15	43	82	28*	1	278	10	6	-10	89	113	22*
-1	1021	61	123	11	162	12	-2	-14	139	18	18	2	134	19	70	-9	235	16	-29
0	31	37	24*	12	583	15	-17	-13	38	88	7*	3	45	104	-8*	-8	40	124	-95*
1	1052	46	114	13	57	97	-32*-12	259	12	-10	4	188	15	72	-7	158	24	-9	
2	124	5	25	14	62	96	1*-11	79	99	46*	5	0	103	-44*	-6	56	123	39*	
3	1207	38	65	15	75	97	20*-10	46	97	9*	6	70	105	42*	-5	317	15	20	
4	92	11	19	16	141	16	-18	-9	21	95	11*	7	424	13	-14	-4	206	20	17
5	66	36	-33*	17	0	94	-36*	-8	175	12	22	8	235	15	-17	-3	474	15	16
6	52	57	-37*	18	70	0	14*	-7	126	16	29	9	439	14	-13	-2	96	133	-32*
7	244	8	1	19	68	0	43*	-6	847	22	14	10	59	117	-80*	-1	133	31	9*
8	37	71	-48*	K,L=	0,	3	-5	227	10	22	11	0	115	-64*	0	0	120	-38*	
9	695	18	23	-18	63	0	56*	-4	569	15	68	12	0	113	-57*	1	41	104	26*
10	128	12	-11	-17	81	0	29*	-3	37	84	36*	13	145	21	-29	2	186	21	143
11	177	10	12	-16	40	96	33*	-2	743	101	195	14	84	107	25*	3	176	23	26
12	15	76	-35*-15	396	12	-23	-1	342	48	98	15	0	0	-82*	4	86	130	-91*	

STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
5	0124		-6*	4	98	0	-1*-13	69	0	16*	10	345	13	54	-8	215	10	8	
6	36121		-4*	5	81	0	68*-12	142	22	-22	11	75118		-45*	-7	512	14	17	
7	286	14	-7	6	118	0	-33*-11	107	31	25*	12	109114		78*	-6	52	63	41*	
8	145	25	-51				K,L= 1, -8	-10	0118	-20*	13	206	16	-23	-5	184	8	-1	
9	249	15	-29	-10	89	0	15*	-9	238	16	8	14	60112		-81*	-4	507	29	6
10	58	0	-35*	-9	137	0	-15*	-8	100123	-17*	15	42	0	-56*	-3	763	63	1	
11	29	0	7*	-8	82	0	24*	-7	274	14	1	16	0	0-103*	-2	703	30	-42	
12	45	0	7*	-7	125	0	-45*	-6	160	20	-1	17	70	0	-11*	-1	101	7	-0
13	0	0	-58*	-6	0	0	-15*	-5	175	18	9				K,L= 1, -4	0	462	12	-14
	K,L= 0,	8	-5	39111	-20*	-4	336	12	36	-17	0	0	-96*	1	531	19	-44		
-11	0	0	-53*	-4	157	19	5	-3	174	15	143	-16	60	0	-65*	2	228	21	8
-10	73	0	5*	-3	0107	-62*	-2	249	11	62	-15	133	18	-14	3	42	53	11*	
-9	0	0	-18*	-2	0101	-61*	-1	241	10	42	-14	67	92	-19*	4	62	56	-17*	
-8	155	0	-28*	-1	144	17	39	0	503	14	-3	-13	53	95	-36*	5	583	27	58
-7	141	0	-10*	0	285	11	-30	1	341	11	23	-12	166	16	-1	6	294	9	22
-6	303	15	-50	1	157	18	-19	2	93	99	51*-11	23102		-15*	7	191	9	18	
-5	112125		-47*	2	93111	-28*	3	336	12	4	-10	159	15	25	8	702	18	53	
-4	87	68	-16*	3	192	17	-3	4	300	13	21	-9	257	11	17	9	548	15	18
-3	35126		5*	4	159	21	-11	5	160	22	-32	-8	186	13	31	10	503	14	22
-2	153	26	15	5	41119	-61*	6	116	31	18*	-7	497	13	48	11	44	92	34*	
-1	163	24	99	6	0	0	-57*	7	0125	-67*	-6	426	12	9	12	69	96	26*	
0	0120		-67*	7	60	0	18*	8	263	16	19	-5	522	26	6	13	278	11	-5
1	130	19	61	8	52	0	-58*	9	90122	-48*	-4	495	42	33	14	86	87	-34*	
2	70	79	49*	9	113	0	6*	10	82121	-45*	-3	170	8	39	15	71	86	67*	
3	0120		-9*	10	70	0	28*	11	231	16	12	-2	432	25	-10	16	30	84	-36*
4	172	22	-18				K,L= 1, -7	12	238	15	-28	-1	176	7	18	17	77	0	-37*
5	104119		-66*-13	87	0	-19*	13	172	0	-13*	0	635	16	-20	18	67	0	-33*	
6	168	0	-49*-12	0	0	-109*	14	43	0	39*	1	531	14	37				K,L= 1, -2	
7	108	0	-24*-11	72	0	2*	15	45	0	-17*	2	272	25	76	-19	0	0	-61*	
8	18	0	10*-10	54	0	-88*				K,L= 1, -5	3	599	69	73	-18	123	0	-4*	
9	88	0	40*-9	128	26	14*-16	0	0	-29*	4	375	44	68	-17	46	96	-90*		
10	107	0	-29*-8	0118	-8*-15	144	0	-23*	5	586	65	96	-16	74	86	-21*			
	K,L= 0,	9	-7	7120	-83*-14	9	0	-84*	6	408	11	22	-15	187	13	-4			
-6	0	0	-1*	-6	119	31	-46*-13	85110	-15*	7	220	11	18	-14	165	15	-8		
-5	93	0	-71*	-5	122	27	97*-12	194	17	-7	8	373	11	38	-13	171	14	-20	
-4	110	0	-3*	-4	238	14	-8	-11	108118	-28*	9	94	48	33*-12	95	52	-1*		
-3	154	0	-10*	-3	301	13	-20	-10	203	17	-21	10	272	11	-9	-11	122	16	94
-2	112	0	74*	-2	220	13	6	-9	0115	-31*	11	361	12	-9	-10	370	11	10	
-1	111	0	69*	-1	296	11	28	-8	112	30	15*	12	267	12	-6	-9	250	9	21
0	81	0	59*	0	234	12	43	-7	308	13	37	13	289	12	-6	-8	150	10	31
1	73	0	-6*	1	221	13	-16	-6	173	17	-7	14	0101		-72*	-7	605	16	4
2	49	0	-53*	2	0111	-10*	-5	152	16	132	15	82	34	-0*	-6	668	17	-43	
3	106	0	-11*	3	222	16	-30	-4	341	11	26	16	99	0	-10*	-5	705	18	-22
4	107	0	-11*	4	190	18	20	-3	562	15	-46	17	69	0	50*	-4	416	11	-15
5	0	0	-10*	5	136	27	53*	-2	436	12	-23	18	61	0	4*	-3	581	15	20
6	0	0	-38*	6	220	18	-20	-1	249	9	2								
	K,L= 1,	-9	7	98	47	17*	0	373	10	4	-18	0	0	-50*	-1	425	11	45	
-5	90	0	62*	8	182	21	-32	1	385	11	16	-17	72	0	36*	0	600	23	37
-4	78	0	-59*	9	197	18	8	2	54	89	-29*-16	83	94	71*	1	569	20	42	
-3	93	0	-31*	10	97116	-7*	3	175	12	-36	-15	93104		-98*	2	485	17	-9	
-2	59	0	-23*	11	132	0	13*	4	153	15	-5	-14	172	14	23	3	568	15	43
-1	138	0	-8*	12	0	0	-13*	5	297	11	24	-13	45101		5*	4	206	7	25
0	0	0	-36*	13	92	0	-39*	6	310	12	18	-12	276	11	1	5	666	17	17
1	79	0	-11*				K,L= 1, -6	7	69107	34*-11	213	12	7	6	664	17	1		
2	0	0	-7*-15	0	0	0	-58*	8	354	13	3	-10	333	11	-2	7	700	18	20
3	169	0	-43*-14	0	0	0	-32*	9	396	13	26	-9	145	13	15	8	254	8	21

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
9	141	11	5	-15	224	12	-0	4	667	17	-32	K,L=	1,	3	-1	517	20	-3	
10	357	10	8	-14	235	11	-9	5	454	12	40	-18	100	0	1*	0	338	15	-13
11	460	13	22	-13	228	11	29	6	215	7	9	-17	119	0	-23*	1	574	15	10
12	177	13	-10	-12	60	87	31*	7	423	11	-29	-16	0	97	-61*	2	295	8	-12
13	253	11	20	-11	216	10	-4	8	857	22	14	-15	0	99	-15*	3	215	8	11
14	173	14	-6	-10	454	12	5	9	275	9	0	-14	106	55	5*	4	200	9	-3
15	66	87	-32*	-9	41	73	15*	10	432	12	25	-13	275	11	-15	5	894	23	30
16	44	88	-28*	-8	0	71	-32*	11	239	9	17	-12	79	35	38*	6	174	11	60
17	118	19	-11	-7	649	17	-23	12	89	49	-4*	-11	71	94	14*	7	480	13	18
18	80	0	-21*	-6	679	18	-28	13	251	11	103	-10	526	14	12	8	264	10	-5
19	77	0	20*	-5	1163	33	-10	14	112	38	-17*	-9	357	11	5	9	66	94	46*
	K,L=	1,	-1	-4	296	8	39	15	107	50	-21*	-8	757	20	27	10	155	16	-4
-19	80	0	-14*	-3	382	10	-32	16	107	22	7*	-7	0	82	-48*	11	38	99	-17*
-18	97	0	6*	-2	744	19	-67	17	39	80	-20*	-6	176	9	38	12	104	47	35*
-17	77	81	17*	2	752	19	-35	18	120	0	-4*	-5	516	14	-2	13	761	102	-2*
-16	0	95	-3*	3	367	10	-13	19	27	0	-18*	-4	265	9	9	14	62	99	-9*
-15	190	13	-9	4	255	7	42	K,L=	1,	2	-3	63	37	53*	15	118	43	-33*	
-14	125	19	24	5	1354	34	9	-19	55	0	19*	-2	58	44	-20*	16	75	0	59*
-13	132	16	15	6	597	16	-19	-18	105	0	-1*	-1	492	13	-25	17	178	0	-38*
-12	266	10	13	7	752	20	-2	-17	126	33	-3*	0	266	7	-9	K,L=	1,	5	
-11	243	10	-4	8	38	70	13*	-16	100	41	-5*	1	133	6	4	-17	114	0	2*
-10	414	11	9	9	71	42	-1*	-15	109	48	-17*	2	920	24	-17	-16	87	0	1*
-9	376	10	-35	10	398	11	10	-14	211	13	-2	3	395	10	-4	-15	12	0	-25*
-8	560	15	37	11	315	10	-1	-13	237	11	19	4	803	21	-21	-14	172	18	-3
-7	543	14	-37	12	93	42	73*	-12	132	17	-26	5	56	69	24*	-13	140	24	-21
-6	192	7	8	13	159	14	-3	-11	423	12	12	6	195	8	9	-12	671	14	60*
-5	499	13	6	14	232	11	13	-10	304	10	-3	7	336	10	7	-11	691	14	43*
-4	425	11	-44	15	170	14	14	-9	113	23	4*	8	497	13	2	-10	445	14	26
-3	680	17	-46	16	111	44	93*	-8	180	9	10	9	286	10	229	-9	185	19	17
-2	779	20	-43	17	207	12	-3	-7	737	19	36	10	212	11	-2	-8	451	14	5
-1	341	9	-21	18	36	0	-55*	-6	535	14	0	11	242	11	4	-7	186	17	4
0	577	15	20	19	68	0	-22*	-5	733	28	-18	12	128	31	0*	-6	1041	109	1*
1	643	22	20	K,L=	1,	1	-4	235	7	9	13	691	100	13*	-5	326	12	-13	
2	613	19	56	-19	54	0	-11*	-3	291	8	-4	14	250	12	-9	-4	0	98	-12*
3	493	13	25	-18	76	0	-53*	-2	550	14	-21	15	106	40	34*	-3	94	25	29*
4	618	16	37	-17	132	32	-11*	-1	519	22	66	16	116	39	4*	-2	136	15	-2
5	494	13	1	-16	64	95	24*	0	390	16	35	17	8	0	-12*	-1	355	10	10
6	221	7	13	-15	85	86	-7*	1	673	17	62	18	71	0	-29*	0	176	10	0
7	388	10	25	-14	101	45	50*	2	633	22	41	K,L=	1,	4	1	59	76	58*	
8	889	23	16	-13	267	11	-8	3	529	14	27	-18	41	0	-10*	2	755	21	-2
9	529	14	36	-12	134	15	-15	4	180	7	6	-17	37	0	-4*	3	201	11	29
10	614	16	17	-11	194	10	13	5	1026	33	-12	-16	81	0	-44*	4	573	16	4
11	129	14	-1	-10	544	14	21	6	437	12	3	-15	69	98	15*	5	144	18	6
12	97	52	44*	-9	486	13	-1	7	757	20	40	-14	127	21	-10	6	811	107	-42*
13	238	11	6	-8	802	28	37	8	196	9	13	-13	285	12	8	7	218	15	1
14	12	85	-3*	-7	359	10	24	9	67	78	24*	-12	118	24	4*	8	248	14	-2
15	128	19	59	-6	206	7	-7	10	360	23	31	-11	429	13	1	9	111	116	35*
16	55	84	52*	-5	471	12	2	11	152	13	4	-10	178	14	1	10	53	77	41*
17	108	21	-7*	-4	689	18	43	12	200	52	102*	-9	105	38	18*	11	156	21	7
18	103	0	-14*	-3	454	12	20	13	0	95	-35*	-8	335	11	52	12	931	12	-28*
19	97	0	50*	-2	588	19	21	14	156	15	-12	-7	463	13	13	13	0	108	-39*
	K,L=	1,	0	-1	643	22	-36	15	113	53	-23*	-6	245	10	15	14	224	14	-17
-19	44	0	5*	0	480	12	20	16	69	87	52*	-5	471	13	13	15	56	0	26*
-18	115	0	-20*	1	423	11	-2	17	212	12	-40	-4	462	12	3	16	0	0	-95*
-17	148	15	-13	2	807	30	-16	18	0	0	-53*	-3	224	8	-7	K,L=	1,	6	
-16	58	98	53*	3	560	15	-0	19	72	0	-30*	-2	394	11	14	-15	54	0	41*

STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
-14	75	0	14*	12	75	0	-26*	-7	49	0	-35*	-4	331	12	-16	-16	103	0	1*
-13	194	0	-25*	13	91	0	73*	-6	0	0	-68*	-3	85	95	49*	-15	90	94	79*
-12	182	17	72		K,L=	1,	8	-5	130	0	7*	-2	633	17	-14	-14	237	12	-14
-11	307	14	-38	-11	112	0	-79*	-4	102105	-46*	-1	41	91	-1*	-13	92	60	20*	
-10	0121	-14*	-10	42	0	-33*	-3	78	97	28*	0	179	12	-10	-12	31106	-83*		
-9	42120	14*	-9	0	0	-4*	-2	318	11	-55	1	162	14	6	-11	173	16	-10	
-8	221	17	-3	-8	103	0	-31*	-1	69	96	57*	2	306	11	30	-10	36	99	-20*
-7	241	16	-4	-7	112	0	34*	0	149	16	11	3	30100	14*	-9	117	32	59*	
-6	98119	76*	-6	64117	48*	1	49	99	31*	4	161	17	22	-8	326	11	-5		
-5	48115	-37*	-5	61	80	16*	2	196	14	-26	5	241	13	-24	-7	239	10	39	
-4	304	13	6	-4	144	24	8	3	64106	33*	6	96107	69*	-6	232	9	-1		
-3	121	25	30*	-3	88115	28*	4	135	22	-11	7	199	17	-23	-5	101	14	-23	
-2	171	15	26	-2	79	63	7*	5	158	18	11	8	289	14	-16	-4	699	51	46
-1	495	14	-2	-1	306	13	-54	6	0	0	-3*	9	117118	60*	-3	131	9	17	
0	133	16	17	0	53100	50*	7	0	0	-133*	10	326	14	-23	-2	913	24	-17	
1	460	13	-6	1	252	12	-14	8	0	0	-111*	11	49117	-1*	-1	133	8	15	
2	84	93	64*	2	0103	-88*	9	0	0	-2*	12	74110	48*	0	191	7	8		
3	177	15	14	3	90	39	-26*	10	153	0	-36*	13	64	0	8*	1	459	20	28
4	151	20	-3	4	0116	-89*		K,L=	2,	-7	14	108	0	-104*	2	229	7	29	
5	418	13	-17	5	170	20	-22	-12	51	0	31*	15	0	0	-13*	3	66	68	49*
6	113115	85*	6	30	0	-12*	-11	127	0	-18*		K,L=	2,	-5	4	220	8	17	
7	96125	-82*	7	107	0	69*	-10	82	0	-6*	-16	0	0	-17*	5	518	45	52	
8	195	18	10	8	90	0	-18*	-9	0115	-38*	-15	130	0	10*	6	85	54	9*	
9	0116	-44*	9	52	0	7*	-8	96111	-38*	-14	83	0	34*	7	142	13	-8		
10	89	45	-9*	10	28	0	-22*	-7	88	40	38*	-13	120	26	11*	8	681	18	54
11	157	20	15		K,L=	1,	9	-6	58111	14*	-12	35114	10*	9	219	11	76		
12	100108	81*	-6	0	0	-21*	-5	269	13	-22	-11	128	28	15*	10	492	14	16	
13	38	0	-58*	-5	79	0	-8*	-4	110	27	37*	-10	28118	-122*	11	82102	80*		
14	43	0	34*	-4	104	0	-44*	-3	153	18	-20	-9	0114	-57*	12	56	96	19*	
15	0	0	-110*	-3	0	0	-9*	-2	46	99	-19*	-8	195	16	-2	13	192	14	9
	K,L=	1,	7	-2	149	0	-23*	-1	357	12	12	-7	226	13	12	14	171	16	5
-13	0	0	-46*	-1	84	0	69*	0	133	18	83	-6	172	15	125	15	44100	30*	
-12	0	0	-21*	0	95	0	-8*	1	432	13	-14	-5	588	16	-34	16	74	0	-1*
-11	102	0	18*	1	0	0	-31*	2	75104	-53*	-4	80	27	13*	17	121	0	-17*	
-10	224	16	-31	2	193	0	-63*	3	77108	27*	-3	201	10	1	18	63	0	-2*	
-9	0122	-37*	3	0	0	-44*	4	202	15	21	-2	80	21	51*		K,L=	2,	-3	
-8	227	17	-10	4	0	0	-100*	5	41111	20*	-1	543	15	13	-18	0	0	-1*	
-7	179	22	-22	5	74	0	-17*	6	0113	-17*	0	123	13	61	-17	201	0	-24*	
-6	118122	84*	6	0	0	-22*	7	136	25	-19*	1	466	13	17	-16	0	95	-10*	
-5	197	20	-13		K,L=	2,	-9	8	104117	-59*	2	283	9	8	-15	140	31	9*	
-4	160	23	19	-5	44	0	-56*	9	22113	11*	3	53	87	-38*	-14	139	18	26	
-3	121	31	66*	-4	83	0	34*	10	0	0	-72*	4	338	11	-7	-13	52	85	-24*
-2	246	15	-7	-3	0	0	-100*	11	243	0	-29*	5	201	12	-11	-12	71101	20*	
-1	123	25	3*	-2	77	0	-6*	12	56	0	36*	6	86	32	25*	-11	50	95	47*
0	142	18	-4	-1	147	0	-13*	13	170	0	-45*	7	401	13	0	-10	233	11	67
1	46	97	1*	0	74	0	15*		K,L=	2,	-6	8	246	14	1	-9	95	39	-17*
2	508	14	-24	1	201	0	-67*	-14	143	0	-54*	9	0116	-8*	-8	237	9	-15	
3	87112	83*	2	0	0	-66*	-13	0	0	-52*	10	72121	52*	-7	519	14	11		
4	282	13	13	3	66	0	1*-12	0	0	-89*	11	460	14	34	-6	98	13	30	
5	146	24	-11	4	26	0	-32*	-11	119	28	16*	12	58120	-37*	-51015	50	9		
6	76119	9*	5	84	0	4*-10	79113	46*	13	240	15	-32	-4	120	8	-12			
7	114118	12*	6	83	0	73*	-9	106	35	71*	14	36	75	-65*	-3	174	6	-21	
8	73116	54*		K,L=	2,	-8	-8	83116	-24*	15	0	0	-14*	-2	335	9	-21		
9	0113	-37*	-10	73	0	19*	-7	33114	-98*	16	41	0	-71*	-1	629	23	-6		
10	106	0	76*	-9	0	0	-1*	-6	59108	-31*		K,L=	2,	-4	0	204	6	-4	
11	0	0	-72*	-8	103	0	73*	-5	137	20	-4	-17	0	0	-1*	1	437	11	10

STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
2	517	13	-25	19	18	0	13*	-4	612	16	-76	12	111	32	25*	-11	406	12	13
3	142	7	-16		K,L= 2,		-1	-3	336	9	-25	13	173	13	28	-10	293	10	8
4	467	36	41	-19	78	0	-22*	-2	661	17	-65	14	250	11	-1	-9	79	25	24*
5	624	45	44	-18	92	0	38*	-1	531	14	-27	15	198	13	26	-8	263	9	2
6	315	9	86	-17	222	11	-21	0	410	11	38	16	49	95	31*	-7	569	15	19
7	709	47	73	-16	17	96	-12*	1	566	14	-13	17	164	14	-23	-6	455	12	8
8	310	9	26	-15	122	20	5	2	645	16	-34	18	96	0	-41*	-5	591	15	-28
9	110	17	25	-14	174	14	3	3	381	10	-22	19	63	0	-0*	-4	283	8	-0
10	184	12	5	-13	0	95	-25*	4	529	14	-46		K,L= 2,		2	-3	338	9	-8
11	477	13	23	-12	218	44	139*	5	474	12	-14	-19	56	0	34*	-2	414	17	-25
12	81	85	-7*	-11	249	10	8	6	197	7	5	-18	38	0	-38*	-1	423	20	2
13	284	16	9	-10	283	9	3	7	370	10	-9	-17	104	37	-12*	0	387	10	1
14	226	12	27	-9	90	31	-17*	8	808	21	5	-16	58	96	50*	1	346	9	-16
15	0102	-62*	-8	139	9	9	9	9	327	9	14	-15	0100	-47*	2	536	14	-17	
16	114	42	-5*	-7	769	20	-33	10	613	16	32	-14	81100	11*	3	266	7	-19	
17	84	0	19*	-6	287	8	-34	11	247	10	8	-13	199	12	8	4	354	9	-15
18	28	0	-55*	-5	921	24	-79	12	128	16	7	-12	0	80	-40*	5	752	20	-10
	K,L= 2,		-2	-4	0	63	-20*	13	249	11	8	-11	121	28	17*	6	487	13	20
-19	20	0	11*	-3	196	6	-20	14	147	16	101	-10	553	15	26	7	543	14	45
-18	66	0	-38*	-2	659	17	-44	15	192	13	55	-9	402	11	40	8	241	9	10
-17	52	0	15*	-1	290	8	-26	16	44	96	31*	-8	762	20	15	9	181	11	32
-16	116	20	-20	0	117	4	1	17	101	46	-39*	-7	180	8	4	10	287	10	12
-15	85	89	15*	1	125	4	-3	18	64	0	-66*	-6	275	8	18	11	69	95	65*
-14	228	12	7	2	780	24	45	19	45	0	-16*	-5	480	13	-38	12	155	16	14
-13	89	97	5*	3	225	6	-2		K,L= 2,		1	-4	522	14	39	13	103	55	1*
-12	58	94	-4*	4	403	11	11	-19	0	0	-98*	-3	339	14	10	14	140	18	-32
-11	266	10	-1	5	821	26	-45	-18	96	0	14*	-2	331	9	-2	15	181	14	-0
-10	257	10	14	6	438	12	-25	-17	179	13	-14	-1	748	19	17	16	48	96	-40*
-9	56	70	50*	7	700	18	-24	-16	51	89	23*	0	352	9	-1	17	168	0	22*
-8	660	17	-6	8	150	8	7	-15	114	21	40*	1	355	10	16	18	48	0	-54*
-7	290	8	-8	9	31	73	10*	-14	225	12	6	2	704	28	-7		K,L= 2,	4	
-6	199	7	-9	10	353	10	12	-13	151	15	-3	3	643	17	-21	-17	98	0	7*
-5	73	21	12*	11	389	11	32	-12	47	81	8*	4	595	15	-16	-16	72	0	-10*
-4	752	19	-71	12	0	90	-36*	-11	397	11	22	5	194	7	-17	-15	0100	-16*	
-3	355	9	-23	13	212	11	12	-10	344	10	31	6	128	8	13	-14	98	71	-39*
-2	823	21	-45	14	279	11	-10	-9	55	73	28*	7	485	13	13	-13	221	13	13
-1	386	10	-11	15	161	15	21	-8	134	9	15	8	528	14	18	-12	0106	-37*	
0	114	66	46*	16	23	83	-37*	-7	722	27	-49	9	204	9	8	-11	52103	23*	
1	733	19	6	17	109	46	-46*	-6	490	13	-31	10	382	11	29	-10	398	12	10
2	275	7	14	18	85	0	-31*	-5	776	20	-82	11	305	10	7	-9	377	12	-2
3	234	7	13	19	67	0	3*	-4	258	7	22	12	243	11	20	-8	631	17	76
4	580	15	52		K,L= 2,		0	-3	293	8	-9	13	91	65	-7*	-7	46	85	-21*
5	520	14	-8	-19	57	0	24*	-2	758	19	13	14	188	13	6	-6	215	9	18
6	244	7	23	-18	93	0	-10*	-1	99	4	1	15	198	13	1	-5	484	13	-24
7	54	65	6*	-17	96	23	18*	0	112	4	8	16	0	94	-14*	-4	65	39	47*
8	855	22	54	-16	66	99	-31*	1	133	4	-16	17	36106	-35*	-3	31	69	-15*	
9	317	10	9	-15	235	12	122	2	756	21	-28	18	58	0	-22*	-2	109	10	-12
10	551	15	28	-14	39	98	-15*	3	372	10	-8	19	59	0	-28*	-1	561	27	-26
11	175	12	10	-12	34	89	2*	4	0	66	-16*		K,L= 2,		3	0	403	11	11
12	84	91	19*	-11	210	10	-12	5	836	22	-43	-18	86	0	5*	1	118	8	-7
13	246	11	1	-10	545	14	20	6	526	14	-52	-17	23	0	-53*	2	732	19	37
14	81	86	-2*	-9	247	8	1	7	669	17	-32	-16	57	82	-36*	3	638	17	4
15	0101	-58*	-8	872	23	-4	8	70	57	-10*	-15	50100	-29*	4	479	13	-5		
16	57	97	10*	-7	319	9	-11	9	54	64	19*	-14	157	16	16	5	88	26	58*
17	108	46	-51*	-6	201	7	-5	10	451	12	29	-13	274	11	15	6	164	10	151
18	102	0	8*	-5	382	10	-19	11	186	11	0	-12	163	15	-5	7	472	13	78





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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL		
-1	385	16	-12	18	161	0	-48*	-4	392	10	-7	12	29	89	7*	-12	0	96	-10*		
0	151	7	33		K,L=	3,	-2	-3	88	12	29	13	499	14	36	-11	127	15	6		
1	334	9	11	-18	93	0	48*	-2	602	16	-2	14	0	99	-16*	-10	71	28	-6*		
2	312	22	15	-17	0	0	-27*	-1	227	6	-16	15	423	12	3	-9	177	9	-10		
3	1183	86	82	-16	48	94	27*	0	1583	51	29	16	44102	39*	-8	43	70	4*			
4	348	35	44	-15	228	12	-20	1	365	10	27	17	83	64	36*	-7	186	7	-17		
5	457	32	28	-14	133	20	-22	2	749	19	21	18	48	0	25*	-6	17	55	-20*		
6	85	48	47*	-13	361	12	2	3	114	6	24	19	75	0	12*	-5	388	10	-4		
7	292	9	14	-12	95	53	37*	4	418	11	-34		K,L=	3,	1	-4	131	6	48		
8	92	64	-5*	-11	138	14	31	5	141	6	-1	-19	0	0	-6*	-31	145	38	-101		
9	151	14	11	-10	215	10	9	6	438	12	-42	-18	116	0	-44*	-2	100	7	23		
10	59	95	29*	-9	632	17	-6	7	26	61	-1*	-17	61	94	6*	-1	761	20	16		
11	92	76	46*	-8	134	10	8	8	60	64	9*	-16	241	11	1	1	834	21	33		
12	77103		69*	-7	346	9	31	9	34	71	24*	-15	89	57	48*	2	44	36	-13*		
13	234	13	16	-6	11	61	-40*	10	296	9	13	-14	97	60	-22*	3	684	18	-34		
14	68	87	-17*	-5	32	57	-43*	11	34	83	8*	-13	120	19	23	4	56	24	6*		
15	280	12	-39	-4	64	19	3*	12	598	16	12	-12	596	16	21	5	95	8	32		
16	59	0	2*	-3	548	14	-64	13	77	95	52*	-11	40	73	-1*	6	76	12	23		
17	53	0	-15*	-2	218	6	-3	14	138	17	-4	-10	330	10	2	7	262	8	20		
			K,L=	3,	-3	-1	679	17	-30	15	66	98	58*	-9	89	26	-31*	8	75	32	-15*
-18	29	0	16*	0	346	9	75	16	266	11	-13	-8	30	65	24*	9	679	18	16		
-17	0	0	-10*	1	750	24	-15	17	96	69	86*	-7	57	60	46*	10	106	26	46*		
-16	56	0	-10*	2	197	6	-14	18	173	0	-13*	-6	315	8	-34	11	172	12	36		
-15	25101		-55*	31	153	34	-66	19	46	0	23*	-5	64	24	-46*	12	45	80	25*		
-14	96	99	46*	4	254	7	18		K,L=	3,	0	-4	385	10	-28	13	436	13	17		
-13	18	89	-43*	5	392	10	-6	-19	40	0	8*	-3	172	6	20	14	28101	-40*			
-12	436	13	-6	6	5	60	-3*	-18	71	0	36*	-2	758	19	26	15	298	11	-6		
-11	235	11	-13	7	220	7	-13	-17	0	95	-49*	-1	212	6	43	16	0	97	-16*		
-10	472	13	42	8	51	64	12*	-16	57	96	25*	0	1620	50	12	17	41	0	31*		
-9	84	50	11*	9	83	31	-19*	-15	371	12	3	1	31	34	-11*	18	0	0	-25*		
-8	123	13	28	10	75	46	20*	-14	142	17	9	2	689	18	-15	19	27	0	11*		
-7	253	30	4	11	104	19	-17	-13	448	13	11	3	201	6	41		K,L=	3,	3		
-6	378	10	5	12	72	84	29*	-12	25	90	7*	4	544	14	-15	-18	116	0	-74*		
-5	54	65	34*	13	348	11	19	-11	144	12	-4	5	41	54	15*	-17	34	0	7*		
-4	28	59	7*	14	0	102	-79*	-10	121	13	18	6	135	7	20	-16	225	12	-20		
-3	114	7	2	15	421	12	-6	-9	470	12	-3	7	43	61	-24*	-15	52	84	44*		
-2	223	7	-13	16	0	88	-42*	-8	112	10	12	8	186	7	-31	-14	58103	-62*			
-1	273	7	8	17	78	0	14*	-7	131	8	-10	9	37	71	12*	-13	0	102	-34*		
0	976	37	-50	18	16	0	16*	-6	126	7	-2	10	493	22	29	-12	406	12	2		
1	372	15	19	19	65	0	-43*	-5	129	6	-14	11	52	73	10*	-11	25	86	16*		
2	642	17	-23		K,L=	3,	-1	-4	99	7	23	12	641	17	20	-10	155	13	13		
3	41	56	24*	-19	49	0	26*	-31	143	29	-112	13	22	95	11*	-9	86	60	59*		
4	535	34	23	-18	72	0	7*	-2	156	5	-19	14	42	99	-16*	-8	85	18	9*		
5	347	27	63	-17	76	81	12*	-1	753	19	-53	15	77	86	61*	-7	64	68	7*		
6	820	54	128	-16	176	13	-7	0	0	36	-0*	16	228	11	-1	-6	717	19	45		
7	118	11	22	-15	79	99	1*	1	819	21	-9	17	53	95	48*	-5	44	65	-2*		
8	108	23	6*	-14	100	48	23*	2	150	5	-3	18	17	0	-71*	-4	502	13	-42		
9	48	81	29*	-13	103	48	-12*	31	224	31	-71	19	59	0	41*	-3	0	57	-36*		
10	78	87	6*	-12	584	15	19	4	72	9	30		K,L=	3,	2	-2	652	31	-63		
11	39	94	-24*	-11	207	10	-2	5	153	6	-23	-19	56	0	-29*	-1	102	7	15		
12	405	12	4	-10	488	13	5	6	16	55	-43*	-18	54	0	21*	0	1110	35	-95		
13	68103		21*	-9	88	15	4	7	36	60	-33*	-17	73	0	17*	1	42	53	27*		
14	95	60	-34*	-8	173	8	-20	8	72	29	25*	-16	0	99	-38*	2	284	8	13		
15	56101		46*	-7	89	19	-9*	9	430	11	-10	-15	396	12	-15	3	30	55	8*		
16	241	11	-9	-6	38	57	30*	10	46	78	39*	-14	71	99	1*	4	140	7	-3		
17	61	0	8*	-5	124	7	2	11	160	11	-5	-13	366	12	21	5	103	16	76		

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
6	335	9	-3	-10	76113	49*	13	75	0	-44*	-4	37	0	-20*	3	226	13	-23	
7	114	11	-14	-9	0112	-5*	14	42	0	11*	-3	0	0	-13*	4	160	17	-21	
8	160	10	29	-8	182	16	-5	15	0	0	-42*	-2	92	0	2*	5	161	17	7
9	32	71	-1*	-7	67100	58*	K,L= 3, 7		-1	60	0	37*	6	48104	46*				
10	534	14	21	-6	646	18	-26	-13	54	0	51*	0	0	0	-9*	7	0105	-28*	
11	85	94	-7*	-5	168	13	13	-12	69	0	63*	1	55	0	7*	8	155	18	2
12	503	14	6	-4	347	11	0	-11	0	0	-15*	2	0	0	-15*	9	115	26	-18*
13	91102	21*	-3	68	84	58*-10	82	0	10*	3	34	0	26*	10	0	0	-82*		
14	75	99	45*	-2	498	14	-19	-9	0	75	-28*	4	102	0	-70*	11	92	0	-41*
15	34	89	8*	-1	155	11	23	-8	184	17	-18	5	76	0	-48*	12	176	0	-45*
16	69	96	-47*	0	630	17	20	-7	0114	-94*	K,L= 4, -9		K,L= 4, -6						
17	86	0	82*	1	246	9	151	-6	432	13	-39	-3	68	0	-16*-14	48	0	2*	
18	39	0	23*	2	82	20	20*	-5	157	18	20	-2	81	0	58*-13	0	0	-109*	
K,L= 3, 4				3	84	20	14*	-4	180	16	-6	-1	104	0	31*-12	122	0	-14*	
-17	67	0	-1*	4	73	86	-45*	-3	74105	47*	0	124	0	-73*-11	0108	-61*			
-16	0	0	-20*	5	279	10	189	-2	278	12	7	1	0	0	-67*-10	131	23	-45	
-15	301	11	-20	6	419	12	26	-1	209	13	100	2	88	0	-35*	-9	91	35	-2*
-14	36	95	10*	7	151	16	16	0	189	14	-8	3	33	0	-76*	-8	45105	35*	
-13	235	13	4	8	0104	-57*	1	161	15	158	4	58	0	-30*	-7	167	17	17	
-12	71107	21*	9	0109	-10*	2	71	98	61*	K,L= 4, -8		-6	165	17	-28				
-11	18	86	-45*	10	405	13	5	3	0	99	-12*	-9	59	0	-24*	-5	57	67	23*
-10	40	98	20*	11	138	24	10	4	203	14	-7	-8	59	0	52*	-4	264	11	-9
-9	81	66	-19*	12	298	13	4	5	0107	-121*	-7	0	0	-5*	-3	368	11	-40	
-8	55	87	36*	13	41111	18*	6	298	12	-19	-6	31	0	-111*	-2	216	11	26	
-7	267	9	3	14	24	0	12*	7	94106	-53*	-5	62	0	54*	-1	330	11	19	
-6	70	75	44*	15	56	0	32*	8	99104	94*	-4	76	0	-84*	0	241	11	46	
-5	391	11	-24	16	0	0	-23*	9	88108	41*	-3	155	0	-30*	1	248	11	-15	
-4	100	13	-10	K,L= 3, 6		10	200	0	-33*	-2	22	99	-60*	2	30	94	-31*		
-31099	51	-47	-15	121	0	-76*	11	102	0	28*	-1	196	13	5	3	234	11	-1	
-2	196	7	2	-14	85	0	50*	12	106	0	-29*	0	113	21	72*	4	90100	-68*	
-1	358	10	-12	-13	0	0	-84*	13	83	0	81*	1	99	26	-8*	5	196	14	2
0	68	34	39*-12	0113	-10*	K,L= 3, 8		2	58	96	14*	6	268	12	-28				
1	483	19	1	-11	94	39	92*-10	72	0	40*	3	201	13	-31	7	20106	-1*		
2	53	59	38*-10	9	77	-8*	-9	164	0	-61*	4	78	0	-8*	8	214	15	-16	
3	263	8	11	-9	241	15	3	-8	92	0	-9*	5	0	0	-10*	9	285	13	-10
4	118	10	33	-8	95112	40*	-7	0	0	-112*	6	176	0	-26*	10	115	27	-15*	
5	48	71	6*	-7	224	15	-14	-6	0	0	-24*	7	47	0	-25*	11	129	24	2*
6	47	77	-10*	-6	82104	44*	-5	211	14	-41	8	119	0	-26*	12	70	0	64*	
7	458	12	24	-5	384	12	-15	-4	44	72	-60*	9	68	0	-53*	13	147	0	-16*
8	124	30	34*	-4	127	20	11	-3	269	12	-35	10	0	0	-26*	14	0	0	-76*
9	570	15	-3	-3	639	17	-22	-2	124	20	56	K,L= 4, -7		15	48	0	-71*		
10	97	56	-4*	-2	76	93	-21*	-1	67	62	19*-12	86	0	-38*	K,L= 4, -5				
11	42	93	-16*	-1	145	14	-7	0	0	99	-17*-11	0	0	-32*-15	99	0	37*		
12	93	58	60*	0	80	89	67*	1	106	22	81*-10	0	0	-61*-14	93	0	63*		
13	289	12	-3	1	132	16	-27	2	155	15	116	-9	78	0	-87*-13	0108	-63*		
14	77	94	16*	2	309	10	282	3	125	20	-23	-8	95	31	32*-12	110111	-47*		
15	148	16	8	3	114	19	23	4	85100	-45*	-7	194	14	-30	-11	90	39	50*	
16	29	0	23*	4	182	13	84	5	0103	-13*	-6	50103	-20*-10	0108	-16*				
17	55	0	36*	5	76	97	50*	6	40	0	27*	-5	80101	25*	-9	249	13	-24	
K,L= 3, 5				6	75102	26*	7	204	0	-36*	-4	225	13	16	-8	75104	-36*		
-16	137	0	-34*	7	365	12	-13	8	85	0	-45*	-3	97101	34*	-7	285	12	-8	
-15	84	0	57*	8	89113	-66*	9	159	0	-22*	-2	171	15	81	-6	267	11	-3	
-14	51112	-52*	9	361	13	-14	10	0	0	-57*	-1	133	19	33	-5	184	12	4	
-13	0112	-3*	10	24110	-86*	K,L= 3, 9		0	364	12	-11	-4	417	12	40				
-12	176	20	-1	11	20111	8*	-6	184	0	-67*	1	205	13	38	-1	72	83	2*	
-11	76116	56*	12	0112	-32*	-5	87	0	-14*	2	119	21	-3	0	552	15	1		

STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
1	317	10	-3	-14	91	92	-19*	4	165	6	45	K,L=	4,	0	-4	0	51	-24*	
2	53	56	38*	-13	134	19	-6	5	552	23	-14	-19	24	0	-56*	-3	451	12	-36
3	391	11	1	-12	149	16	13	6	350	9	9	-18	87	0	-15*	-2	410	11	-39
4	240	10	-2	-11	38	94	-16*	7	214	7	28	-17	106	0	17*	-1	106	6	27
5	289	10	-6	-10	211	11	5	8	548	14	7	-16	91	95	50*	0	75	7	38
6	207	12	-11	-9	297	10	10	9	555	15	8	-15	160	16	29	1	90	6	18
7	50100	-32*	-8	201	13	79	10	419	11	-17	-14	131	19	52	2	733	19	-26	
8	253	12	-11	-7	444	12	-8	11	46	84	35*	-13	82	98	-26*	3	248	7	-24
9	33107	-93*	-6	510	14	-8	12	78	31	-14*	-12	234	10	-1	4	153	6	-6	
10	195	15	17	-5	414	11	1	13	255	11	-15	-11	202	10	10	5	834	21	-55
11	268	13	40	-4	444	17	27	14	83	86	42*	-10	395	11	3	6	589	15	-19
12	283	13	-10	-3	267	8	-10	15	49101	10*	-9	326	9	-6	7	673	18	-35	
13	165	19	-20	-2	425	11	-36	16	68	87	10*	-8	508	13	-24	8	0	65	-35*
14	68	0	63*	-1	169	6	13	17	107	0	-12*	-7	440	12	-31	9	0	70	-4*
15	89	0	4*	0	539	14	1	18	101	0	7*	-6	148	7	-6	10	395	11	-13
16	89	0	-20*	1	376	10	2	19	54	0	8*	-5	387	10	-53	11	237	9	4
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-17	56	0	56*	3	540	32	-0	-19	62	0	16*	-3	715	18	-31	13	111	40	18*
-16	0	0	-4*	4	217	7	10	-18	71	0	-63*	-2	742	19	-28	14	195	13	-5
-15	143	0	-28*	5	557	26	26	-17	111	0	-12*	-1	771	20	75	15	157	16	11
-14	79	85	-7*	6	513	32	49	-16	61	97	-9*	0	758	19	70	16	67	87	60*
-13	95	68	1*	7	327	9	68	-15	199	13	2	1	808	21	70	17	195	12	-9
-12	228	12	-7	8	387	11	12	-14	207	13	28	2	722	19	-18	18	66	0	-34*
-11	137	35	-37*	9	129	13	18	-13	197	12	-1	3	577	15	-18	19	71	0	-12*
-10	236	11	-24	10	341	10	22	-12	80	89	47*	4	350	9	-34		K,L=	4,	2
-9	47	91	4*	11	326	11	2	-11	77	65	6*	5	425	11	-47	-18	91	0	-21*
-8	114	17	-2	12	271	11	1	-10	405	11	-1	6	210	7	-4	-17	64	0	-56*
-7	382	11	26	13	249	12	2	-9	243	8	8	7	406	11	-7	-16	106	45	46*
-6	229	12	38	14	115	39	-5*	-8	39	67	30*	8	712	18	-3	-15	82	84	23*
-5	136136	82*	15	98	51	-16*	-7	504	13	-4	9	339	9	10	-14	63	93	54*	
-4	323	9	-24	16	78	83	1*	-6	707	18	-39	10	439	12	-11	-13	254	11	-7
-3	619	16	-41	17	70	0	9*	-5	678	18	-38	11	191	10	0	-12	126	17	8
-2	490	13	-2	18	72	0	-11*	-4	263	7	-22	12	110	18	-8	-11	116	17	33
0	404	11	42		K,L=	4,	-2	-3	269	7	-56	13	232	11	89	-10	427	12	-6
1	468	12	22	-18	66	0	8*	-2	637	16	-45	14	63	98	32*	-9	423	11	-14
2	185	7	3	-17	45	0	2*	-1	0	57	-18*	15	196	19	96	-8	571	15	-6
3	0	68	-15*	-16	81	93	64*	0	56	57	-16*	16	77	86	52*	-7	189	7	-17
4	164	8	14	-15	184	14	-13	1	235	6	-4	17	54	97	-44*	-6	237	7	1
5	416	11	38	-14	82	94	-36*	2	370	10	-15	18	98	0	-10*	-5	566	15	-1
6	321	9	12	-13	34100	-18*	3	482	12	-21	19	66	0	12*	-4	265	14	3	
7	75	60	-15*	-12	274	11	15	4	32	46	-14*		K,L=	4,	1	-3	167	6	-12
8	473	13	48	-11	190	11	24	5	665	17	-38	-19	28	0	-7*	-2	301	8	-21
9	468	13	25	-10	366	11	17	6	659	17	-12	-18	69	0	-41*	-1	538	14	-24
10	269	11	-4	-9	237	9	-18	7	587	15	-1	-17	93	0	-27*	1	208	6	-7
11	15101	-81*	-8	233	8	-12	8	172	7	-6	-16	60	96	24*	2	736	19	-30	
12	87	67	25*	-7	464	12	-7	9	62	69	49*	-15	168	29	-28	3	415	11	-33
13	216	16	-8	-6	34	61	10*	10	393	11	16	-14	215	12	18	4	674	17	-19
14	41102	-45*	-5	224	7	-20	11	332	10	3	-13	264	11	20	5	193	6	13	
15	73102	-8*	-4	452	12	-50	12	162	13	11	-12	70	79	-46*	6	190	7	32	
16	71	0	-25*	-3	612	16	-52	13	236	11	12	-11	207	10	17	7	387	10	-8
17	47	0	-32*	-2	619	16	-13	14	166	15	-11	-10	377	11	-6	8	543	14	0
	K,L=	4,	-3	-1	43	50	11*	15	146	17	15	-9	55	72	26*	9	186	9	6
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-17	110	0	19*	1	552	24	6	17	135	17	-12	-7	574	15	-4	11	227	10	17
-16	104	0	-20*	2	290	8	-17	18	134	0	28*	-6	589	15	-48	12	77	80	-18*
-15	128	38	-12*	3	157	6	-16	19	0	0	-65*	-5	680	18	-62	13	115	41	-10*

STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
14	149	17	4	-6	202	9	-2	K,L=	4,	6	K,L=	4,	8	9	48	0	19*		
15	93102	-38*	-5	433	26	-12	-14	48	0	-85*-10	96	0	-77*	K,L=	5,	0	-7		
16	36	89	-64*	-4	117	10	8	-13	42	0	-65*-9	86	0	57*-11	0	0	-40*		
17	0	0	-46*	-3	17	67	-16*-12	65	0	50*-8	51	0	-93*-10	37	0	-23*			
18	121	0	19*	-2	26	43	-3*-11	58	73	-18*-7	106	0	-49*-9	0	0	-15*			
19	43	0	-18*	-1	429	18	-4	-10	224	15	-47	-6	53	0	25*-8	93	0	90*	
	K,L=	4,	3	0	196	7	2	-9	138	23	-13	-5	98	0	-18*-7	44101	-31*		
-18	23	0	-67*	1	131	33	94*	-8	309	13	-41	-4	135	19	-1	-6	68	68	-11*
-17	21	0	-64*	2	775	20	-4	-7	179	16	25	-3	131	19	69	-5	114	22	-2*
-16	83	0	-8*	3	318	9	-1	-6	101	28	19*	-2	155	16	-28	-4	172	15	-12
-15	59101	-75*	4	575	15	-23	-5	264	12	-27	-1	76	97	42*	-3	70	99	-20*	
-14	173	15	5	5	59	65	-26*	-4	38	98	-5*	0	0	99-112*	-2	416	13	-25	
-13	227	12	13	6	61	75	-31*	-3	82	33	8*	1	107	22	31*	-1	0100	-46*	
-12	133	36	-33*	7	344	22	17	-2	203	12	8	2	298	11	-36	0	136	18	11
-11	360	11	23	8	368	10	4	-1	211	11	-9	3	0100	-5*	1	0	99	-47*	
-10	271	10	-4	9	102	20	94*	0	177	12	36	4	165	15	-9	2	248	12	2
-9	69	70	-17*	10	144	15	-2	1	118	18	9	5	106	0	-24*	3	0101	-40*	
-8	311	9	-2	11	157	32	-85*	2	559	15	6	6	33	0	-3*	4	77104	-63*	
-7	428	19	6	12	117	22	21*	3	143	15	10	7	70	0	-4*	5	169	15	-9
-6	382	18	40	13	65	92	39*	4	379	12	6	8	0	0	-11*	6	8	69	-24*
-5	603	28	-17	14	219	13	2	5	166	15	-14	9	0	0	-22*	7	0106	-131*	
-4	278	8	-4	15	65	82	-8*	6	89101	30*	K,L=	4,	9	8	143	19	-6		
-3	298	8	-40	16	70	0	-21*	7	201	14	7	-5	95	0	51*	9	0	0	-6*
-2	435	20	-50	17	0	0	-7*	8	145	19	19	-4	0	0	-85*	10	208	0	-24*
-1	281	15	16	K,L=	4,	5	9	101108	20*	-3	28	0	-30*	11	0	0	-32*		
0	316	8	-34	-16	98	0	-14*	10	43105	41*	-2	61	0	55*	12	0	0	-7*	
1	378	10	-11	-15	0	0	-46*	11	79106	-15*	-1	187	0	-63*	K,L=	5,	0	-6	
2	384	10	-11	-14	85	0	3*	12	97	0	-16*	0	0	0	-6*-13	59	0	-18*	
3	240	7	6	-13	212	15	7	13	60	0	55*	1	143	0	-32*-12	0	0	-22*	
4	181	7	3	-12	172	19	23	14	95	0	-95*	2	83	0	-5*-11	104	0	-33*	
5	833	22	-11	-11	340	13	20	K,L=	4,	7	3	70	0	-4*-10	97	29	21*		
6	332	9	-6	-10	78111	11*-12	93	0	7*	4	82	0	10*	-9	0106	-3*			
7	537	14	-8	-9	28108	-61*-11	188	0	-51*	5	84	0	-23*	-8	96	31	-38*		
8	237	9	5	-8	225	13	-2	-10	0	0	-35*	K,L=	5,	-9	-7	70	70	-7*	
9	60	74	43*	-7	297	11	11	-9	0	73	-42*	-1	0	0	-31*	-6	112	24	30*
10	273	10	20	-6	111	21	-18*	-8	151	20	-38	0	82	0	-16*	-5	318	12	-42
11	0	93	-22*	-5	281	10	-8	-7	102	31	-36*	1	42	0	21*	-4	98	26	45*
12	132	18	56	-4	339	10	-14	-6	86105	85*	2	63	0	-81*	-3	150	15	5	
13	72	84	62*	-3	152	12	-16	-5	43106	-14*	K,L=	5,	-8	-2	88	94	62*		
14	153	16	14	-2	211	9	10	-4	194	14	-14	-8	70	0	13*	-1	399	12	17
15	119	41	-21*	-1	394	11	-10	-3	83	37	-5*	-7	81	0	79*	0	152	15	109
16	0100	-49*	1	421	12	-6	-2	69101	-12*	-6	82	0	56*	1	459	13	-8		
17	185	0	-29*	2	209	9	12	-1	365	12	-9	-5	89	0	-51*	2	163	14	-36
18	0	0	-47*	3	200	10	29	0	158	16	41	-4	0	0	-20*	3	80	96	73*
	K,L=	4,	4	4	253	10	-2	1	329	11	-4	-3	82	0	-40*	4	232	12	4
-17	61	0	-50*	5	578	16	-6	2	20	97	-42*	-2	54	0	-17*	5	0	68	-5*
-16	24	0	-45*	6	168	14	100	3	119	21	-5	-1	194	0	-14*	6	0105	-28*	
-15	0	89	-27*	7	302	11	6	4	130	20	-23	0	97	0	14*	7	209	14	-13
-14	132	19	46	8	192	14	-15	5	297	12	-14	1	251	0	-50*	8	168	16	21
-13	222	13	20	9	68	69	51*	6	0105	-21*	2	110	0	6*	9	0	70	-16*	
-12	23	84	-10*	10	0112	-132*	7	92	34	-12*	3	47	0	-2*	10	0107	-43*		
-11	82	58	75*	11	116	27	24*	8	154	18	-3	4	93	0	10*	11	272	13	-36
-10	383	12	2	13	88	39	8*	9	73105	31*	5	0	0	-95*	12	66	0	60*	
-9	327	11	26	14	56	0	25*	10	0	0	-54*	6	0	0	-13*	13	195	0	-23*
-8	550	25	24	15	92	0	-30*	11	111	0	-25*	7	48	0	-11*	14	92	0	19*
-7	68	80	17*	16	76	0	39*	12	68	0	51*	8	70	0	-33*	K,L=	5,	-5	

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	
-15	68	0	36*	7	452	12	-26	-11	30	77	-61*	7	0	63	-24*	-15	0101	-60*		
-14	179	0	-26*	8	134	27	-3*	-10	226	9	62	8	865	33	14	-14	46	97	32*	
-13	66	0	-12*	9	64	74	16*	-9	71	61	-15*	9	226	8	-8	-13	102	43	-10*	
-12	0109	-72*	10	88	62	62*	-8	125	11	-4	10	519	14	21	-12	40	89	38*		
-11	57106	-51*	11	419	12	-16	-7	527	14	8	11	209	9	8	-11	169	11	-1		
-10	103105	73*	12	89	98	54*	-6	67	16	29*	12	87	41	55*	-10	437	12	-12		
-9	88107	53*	13	255	11	-10	-5	933	24	-48	13	198	12	-5	-9	174	9	-2		
-8	126	22	-41	14	108	51	-9*	-4	62	23	58*	14	0	97	-34*	-8	772	20	-19	
-7	9103	-99*	15	55	0	53*	-3	123	7	-27	15	51	99	-32*	-7	123	8	13		
-6	143	16	-13	16	49	0	-64*	-2	330	9	-10	16	27	97	27*	-6	99	9	-5	
-5	131	16	4	17	0	0	-9*	-1	566	20	-22	17	119	0	-17*	-5	346	9	-25	
-4	433	12	-10	K.L= 5,			-3	0	137	6	25	18	72	0	-24*	-4	541	14	-36	
-3	98	20	29*	-17	56	0	48*	1	295	8	-10	19	52	0	36*	-3	256	7	-19	
-2	652	18	-13	-16	101	0	-18*	2	431	11	-34	K.L= 5,			0	-2	472	12	12	
-1	159	12	37	-15	78	95	67*	3	117	7	22	-18	46	0	12*	-1	476	12	14	
0	127	14	-8	-14	222	12	4	4	394	10	7	-17	170	0	-18*	0	216	6	-6	
1	240	10	19	-13	75	98	-5*	5	688	18	24	-16	48	98	14*	1	383	10	2	
2	271	10	9	-12	73	83	8*	6	211	7	4	-15	77	98	-2*	2	542	14	-55	
3	59	55	36*	-11	193	12	-6	7	640	17	2	-14	114	118	-35*	3	206	6	-18	
4	76	88	58*	-10	99	35	6*	8	123	10	4	-13	83	72	38*	4	615	16	-73	
5	248	11	-34	-9	217	10	159	9	73	75	8*	-12	46	93	20*	5	323	9	-13	
6	0	94	-14*	-8	416	11	-15	10	218	9	-4	-11	250	10	-18	6	220	7	-36	
7	199	13	-4	-7	134	11	-8	11	453	12	-2	-10	193	9	-24	7	347	9	2	
8	349	12	-11	-6	158	8	-13	12	35	83	-10*	-9	103	13	-4	8	668	17	-5	
9	132	21	88	-5	41	66	-24*	13	169	14	-35	-8	44	67	-44*	9	183	8	8	
10	373	13	-2	-4	670	17	9	14	210	12	-7	-7	687	18	-43	10	392	11	-12	
11	96107	87*	-3	119	8	4	15	49	87	0*	-6	258	7	-22	11	263	9	-12		
12	48107	24*	-2	836	22	-22	16	112	21	6*	-5	899	23	-108	12	146	13	19		
13	0109	-76*	-1	290	8	-7	17	52	0	-43*	-4	88	8	-7	13	212	11	20		
14	205	0	-10*	0	150	7	45	18	57	0	-20*	-3	200	6	10	14	134	17	30	
15	82	0	65*	1	417	11	-14	K.L= 5,			-1	-2	531	14	-42	15	171	14	25	
16	42	0	-27*	2	93	15	-0	-18	59	0	-35*	-1	228	6	-20	16	77	97	51*	
	K.L= 5,			-4	3	31	60	-4*	-17	0	0	-60*	0	59	10	31	17	46	0	-57*
-16	23	0	0*	4	237	7	16	-16	106	44	-10*	1	144	5	28	18	74	0	-27*	
-15	143	0	28*	5	451	12	27	-15	51	99	-4*	2	658	17	-29	19	50	0	-9*	
-14	76	95	22*	6	95	12	29	-14	171	14	13	3	281	8	-8	K.L= 5,			2	
-13	113	34	16*	7	98	27	-6*	-13	208	12	62	4	131	6	-2	-18	0	0	-57*	
-12	45	99	8*	8	670	40	29	-12	26	89	12*	5	844	22	-96	-17	117	0	-4*	
-11	109	37	41*	9	127	13	26	-11	211	10	2	6	384	10	-25	-16	81	86	33*	
-10	123	35	-26*	10	546	26	25	-10	301	9	16	7	673	18	-42	-15	0	98	-37*	
-9	104	38	39*	11	89	45	31*	-9	63	51	36*	8	0	66	-2*	-14	139	18	-30	
-8	207	10	-13	12	47	95	-24*	-8	664	17	-34	9	63	23	-18*	-13	173	14	-4	
-7	282	9	-6	13	170	14	6	-7	178	7	7	10	280	9	-11	-12	29	92	-1*	
-6	131	12	105	14	162	15	-2	-6	195	7	-20	11	300	10	1	-11	381	11	10	
-5	642	17	-18	15	0	99	-42*	-5	116	7	-7	12	47	78	41*	-10	275	9	14	
-4	56	71	36*	16	50	0	13*	-4	767	20	-48	13	140	28	-5*	-9	34	77	-16*	
-3	234	8	-14	17	104	0	-23*	-3	107	6	-1	14	236	11	17	-8	56	63	-37*	
-2	97	23	-21*	18	57	0	-0*	-2	631	16	-38	15	170	14	38	-7	647	17	-11	
-1	637	17	-2	K.L= 5,			-2	-1	328	13	-18	16	100	81	60*	-6	336	9	18	
0	189	8	155	-18	0	0	-3*	0	156	6	11	17	129	0	-30*	-5	705	26	-8	
1	471	12	24	-17	196	0	-18*	1	540	14	-2	18	75	0	-24*	-4	295	8	42	
2	345	18	3	-16	82	0	47*	2	359	9	48	19	23	0	-43*	-3	194	6	-20	
3	29	68	-13*	-15	102	51	5*	3	208	6	26	K.L= 5,			1	-2	474	12	-39	
4	262	8	19	-14	83	85	-28*	4	486	17	-19	-18	75	0	-3*	-1	176	6	-16	
5	278	9	-14	-13	92	96	33*	5	403	11	-11	-17	89	0	13*	0	211	6	-19	
6	81	34	31*	-12	153	28	114	6	112	8	-2	-16	0	98	-69*	1	319	8	-8	

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
2	500	13	-9	-17	33	0	0*	4	411	12	61	0	253	11	63	6	165	0	-57*
3	230	7	-14	-16	78	0	4*	5	65	43	49*	1	184	14	-4	7	144	0	-36*
4	120	7	-10	-15	78	0	32*	6	116	19	101	2	292	11	-6	8	83	0	-35*
5	855	22	-14	-14	93	97	-3*	7	285	11	-11	4	209	13	-1	K,L= 6,		6	-7
6	354	9	4	-13	214	13	0	8	90101	-22*	5	88	99	18*-11	0	0	0	-33*	
7	577	15	28	-12	130	38	-4*	9	77102	41*	6	0101	-92*-10	40	0	0	-25*		
8	81	15	20*-11	359	11	-4	10	173	17	27	7	120	22	19*	-9	144	0	-16*	
9	25	67	13*-10	183	12	6	11	157	19	-28	8	78	40	75*	-8	160	0	-49*	
10	302	9	23	-9	0	90	-32*	12	193	15	21	9	97	0	-1*	-7	168	0	-11*
11	117	16	31	-8	165	12	-3	13	103	27	46*	10	51	0	-26*	-6	0	99	-72*
12	84	73	31*	-7	399	22	-19	14	119	0	-25*	11	68	0	-7*	-5	62	66	55*
13	69	95	-10*	-6	251	9	-8	15	80	0	-54*	12	90	0	-32*	-4	168	15	5
14	200	13	-3	-5	361	22	-16	16	0	0	-38*	K,L= 5,		8	-3	99	27	12*	
15	152	16	-4	-4	193	8	-14	K,L= 5,		6	-9	61	0	13*	-2	151	17	69	
16	50	95	26*	-3	226	8	14	-14	88	0	51*	-8	103	0	-22*	-1	0	98	-17*
17	151	0	-28*	-2	299	8	-9	-13	129	0	-79*	-7	0	0	-17*	0	53	99	5*
18	101	0	-16*	-1	429	20	-19	-12	0	0	-154*	-6	84	0	61*	1	73	42	-21*
K,L= 5,		3	0	334	10	6	-11	223	14	-20	-5	55	0	2*	2	116	21	7	
-18	66	0	7*	1	348	9	-13	-10	59106	-32*	-4	143	0	-28*	3	277	11	-20	
-17	48	0	-36*	2	337	9	-10	-9	0107	-32*	-3	158	16	-13	4	228	12	-13	
-16	71	0	59*	3	274	8	17	-8	165	18	-38	-2	61	66	0*	5	183	14	-9
-15	86	99	46*	4	318	9	16	-7	104107	-29*	-1	207	12	-11	6	93	96	80*	
-14	119	20	3	5	543	14	-7	-6	102	28	-1*	0	198	13	-54	7	133	19	12
-13	144	36	-17*	6	346	10	14	-5	81102	-41*	1	94102	-28*	8	127	0	-63*		
-12	23	81	8*	7	382	22	41	-4	284	11	6	2	80	32	34*	9	145	0	-31*
-11	52	79	11*	8	189	10	-3	-3	245	11	-7	3	0	99	-17*	10	6	0	-91*
-10	473	23	-20	9	151	13	12	-2	0	94	-60*	4	144	0	-1*	11	0	0	-42*
-9	261	9	-1	10	187	12	7	-1	369	12	-14	5	77	0	-14*	K,L= 6,		6	-6
-8	588	25	-5	11	0	96	-40*	0	365	11	8	6	79	0	69*-13	42	0	22*	
-7	62	50	18*	12	133	38	-28*	1	267	11	53	7	66	0	-48*-12	51	0	-74*	
-6	107	22	-1*	13	49	97	-1*	2	89	96	-54*	8	54	0	-35*-11	0	0	-152*	
-5	416	20	-9	14	36	99	-87*	3	211	11	106	9	94	0	-28*-10	118	0	-47*	
-4	199	7	-5	15	119	0	-31*	4	262	11	22	K,L= 5,		9	-9	81103	5*		
-3	103	9	4	16	61	0	-36*	5	244	12	-3	-4	99	0	-33*	-8	83	34	58*
-2	121	7	9	17	67	0	-53*	6	135	18	20	-3	121	0	-36*	-7	168	15	-5
-1	485	13	-11	K,L= 5,		5	7	235	12	16	-2	80	0	48*	-6	237	12	15	
0	334	9	3	-16	112	0	35*	8	102105	-44*	-1	48	0	-40*	-5	221	13	28	
1	209	7	-10	-15	0	0	-31*	9	138	20	-16	0	95	0	10*	-4	197	13	42
2	713	19	-52	-14	133	0	-19*	10	102104	71*	1	120	0	2*	-3	53	65	42*	
3	518	14	-10	-13	149	19	8	11	0107	-87*	2	109	0	-11*	-2	0	96	-65*	
4	526	14	13	-12	75107	49*	12	136	0	-24*	3	38	0	-61*	-1	120	20	94	
5	111	9	-10	-11	0108	-62*	13	80	0	50*	4	57	0	-54*	0	240	11	5	
6	91	16	3	-10	338	12	11	14	50	0	-1*	K,L= 6,		-8	1	213	12	54	
7	355	10	4	-9	247	13	7	K,L= 5,		7	-7	0	0	-115*	2	206	12	1	
8	364	10	-5	-8	360	12	3	-12	57	0	43*	-6	127	0	-4*	3	109	22	8*
9	156	11	75	-7	57	98	35*-11	0	0	-70*	-5	129	0	-67*	4	197	13	12	
10	278	10	8	-6	132	17	14	-10	150	0	-19*	-4	90	0	-28*	5	239	12	-31
11	270	10	8	-5	280	11	-2	-9	158	0	-16*	-3	64	0	55*	6	397	12	-26
12	196	11	-7	-4	44	89	-10*	-8	139	20	-18	-2	0	0	-39*	7	220	13	-30
13	61	97	22*	-3	34	86	-3*	-7	62	70	-7*	-1	107	0	26*	8	144	18	-8
14	146	17	-16	-2	15	82	-2*	-6	143	19	8	0	86	0	27*	9	70103	57*	
15	130	19	-34	-1	374	11	-13	-5	131	21	-13	1	93	0	36*	10	96102	44*	
16	0	0	-46*	0	349	10	57	-4	145	17	-7	2	44	0	-43*	11	98	0	36*
17	37	0	-10*	1	79	83	9*	-3	183	14	-14	3	0	0	-29*	12	0	0	-31*
18	86	0	9*	2	569	16	24	-2	87	98	31*	4	95	0	0*	13	87	0	45*
K,L= 5,		4	3	388	11	-31	-1	240	11	21	5	136	0	-25*	14	84	0	43*	

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
	K,L=	6,	-5	8	146	13	3	-8	85	31	11*	10	47	70	-11*	-11	118	28	-5*
-15	0	0	-57*	9	64	88	26*	-7	175	8	-41	11	159	11	7	-10	102	28	-18*
-14	96	0	31*	10	71	77	55*	-6	224	8	-3	12	85	50	8*	-9	315	9	-1
-13	53	0	-47*	11	43	95	22*	-5	29	42	-23*	13	357	11	-15	-8	51	69	-5*
-12	99	28	14*	12	174	13	-7	-4	98	9	-9	14	118	19	12	-7	47	63	29*
-11	0104		-43*	13	72	82	-10*	-3	178	6	0	15	353	11	-16	-6	88	11	-24
-10	151	18	-8	14	52	95	-30*	-2	228	7	-16	16	80	81	37*	-5	240	7	-5
-9	303	12	5	15	82	0	61*	-1	292	8	-19	17	61	0	20*	-4	155	6	-24
-8	286	12	-16	16	127	0	-47*	01103	37	82	18	68	0	57*	-31020	26	13		
-7	259	12	-7	17	95	0	8*	1	459	12	-9		K,L=	6,	0	-2	216	6	15
-6	77	96	39*		K,L=	6,	-3	2	580	15	29	-18	60	0	-14*	-1	623	16	-15
-5	66	93	58*-17	0	0	-34*	3	63	21	5*-17	50	0	-24*	0	40	43	34*		
-4	209	12	91	-16	10	0	7*	4	489	13	12	-16	173	13	2	1	633	16	-31
-3	61	92	59*-15	0	0	-135*	5	317	9	28	-15	84	85	30*	2	207	6	-3	
-1	114	17	4	-14	94	48	-19*	6	527	14	26	-14	79	84	-2*	3	870	22	-62
0	0	89	-66*-13	203	12	5	7	14	69	-50*-13	99	47	-21*	4	84	9	-0		
1	198	11	-8	-12	104	22	6*	8	59	71	9*-12	461	13	-8	5	135	7	-21	
2	242	10	-6	-11	84	78	19*	9	51	65	26*-11	190	11	6	6	32	59	14*	
3	568	16	-14	-10	197	11	4	10	156	11	4	-10	379	11	4	7	68	33	12*
4	347	11	11	-9	450	12	31	11	86	53	1*	-9	40	76	-36*	8	59	59	-10*
5	307	11	-1	-8	314	10	40	12	374	11	-9	-8	53	62	-24*	9	468	12	-12
6	18	95	13*	-7	340	10	12	13	0	97	-87*	-7	153	8	-13	10	59	76	35*
7	126	21	-45	-6	47	71	33*	14	83	96	-18*	-6	73	25	-30*	11	133	13	36
8	195	14	-35	-5	59	67	18*	15	72	80	48*	-5	118	7	10	12	70	87	34*
9	208	14	13	-4	117	10	9	16	208	12	-20	-4	274	8	-23	13	387	11	-8
10	62104		-4*	-3	216	7	-33	17	0	0	-62*	-3	97	7	19	14	72	85	27*
11	0103		-11*	-2	255	8	0	18	131	0	-51*	-2	471	13	-48	15	312	11	-9
12	0104		-25*	-1	331	9	-5		K,L=	6,	-1	-1	252	7	-21	16	0	96	-18*
13	53	0	-49*	0	160	7	5	-18	68	0	37*	01269	32	28	17	61	0	46*	
14	90	0	25*	1	425	11	-10	-17	0	0	-37*	1	241	7	1	18	0	0	-4*
15	146	0	-54*	2	347	9	-2	-16	63	0	45*	2	512	13	-4		K,L=	6,	2
	K,L=	6,	-4	3	911	24	-15	-15	221	12	-14	3	24	50	-14*-18	109	0	-32*	
-16	63	0	50*	4	350	9	-3	-14	165	14	-11	4	399	11	-26	-17	86	0	23*
-15	81	0	34*	5	425	11	41	-13	300	11	6	5	146	6	5	-16	191	0	3*
-14	14	0	-33*	6	40	64	-14*-12	43	90	-39*	6	256	7	-2	-15	70	93	38*	
-13	64	93	14*	7	277	9	29	-11	70	85	-20*	7	30	63	-13*-14	6	95	-69*	
-12	231	11	-19	8	156	10	18	-10	183	10	-8	8	41	68	-17*-13	117	33	17*	
-11	221	11	2	9	71	82	19*	-9	456	12	13	9	41	64	-13*-12	408	12	3	
-10	286	11	-14	10	66	78	58*	-8	151	9	-3	10	346	10	9	-11	64	79	-2*
-9	35	92	-47*	11	73	90	14*	-7	214	7	12	11	17	86	-71*-10	226	9	12	
-8	42	87	-8*	12	63	79	61*	-6	124	8	7	12	501	14	-19	-9	77	21	6*
-7	249	10	37	13	216	12	-4	-5	97	9	-16	13	52	93	-1*	-8	0	73	-30*
-6	299	9	17	14	64	98	-60*	-4	89	8	-8	14	62	97	-39*	-7	37	60	20*
-5	235	11	56	15	313	11	-10	-3	643	17	-46	15	33	84	6*	-6	405	11	13
-4	110	16	22	16	93	0	21*	-2	337	9	-29	16	227	12	-21	-5	203	7	31
-3	102	12	11	17	24	0	-20*	-1	562	15	-17	17	33	0	9*	-4	475	12	30
-2	135	9	-3		K,L=	6,	-2	0	75	8	24	18	147	0	18*	-3	31	56	28*
-1	86	88	34*-17	0	0	-41*	1	609	16	29	19	0	0	-14*	-2	586	15	-27	
0	589	15	24	-16	79	0	8*	2	328	9	-20		K,L=	6,	1	-1	219	8	3
1	406	11	2	-15	80	95	-2*	31093	28	-38	-18	64	0	14*	01184	36	-15		
2	459	12	8	-14	95	86	45*	4	270	7	-17	-17	52	0	13*	1	143	6	12
3	49	71	16*-13	90	27	-6*	5	304	8	-1	-16	69	95	23*	2	308	8	-6	
4	345	10	-11	-12	390	12	-8	6	42	60	6*-15	314	11	8	3	41	54	-8*	
5	336	10	-16	-11	219	11	-15	7	94	21	-35*-14	125	35	-21*	4	306	8	15	
6	556	15	-8	-10	405	11	16	8	41	69	-8*-13	345	11	10	5	46	53	23*	
7	208	10	4	-9	0	80	-64*	9	180	9	-13	-12	42	91	21*	6	118	9	1

STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
7	37	67	14*	-9	56	89	21*	13	178	0	-22*	11	0	0	-6*	3	181	14	-19
8	85	30	-27*	-8	115	33	24*	14	0	0	-21*	12	64	0	55*	4	94	27	12*
9	74	39	5*	-7	78	82	32*	15	65	0	-19*	K,L=	6,	8	5	0	99	-21*	
10	444	12	18	-6	557	14	-17	K,L=	6,	6	-9	69	0	42*	6	195	13	-32	
11	75	86	58*	-5	34	64	13*-14	89	0	23*	-8	78	0	-63*	7	57	0	27*	
12	513	14	-7	-4	390	11	-22	-13	75	0	65*	-7	89	0	55*	8	82	0	-69*
13	73	80	44*	-3	51	69	-2*-12	85	0	6*	-6	234	0	-73*	9	124	0	-25*	
14	77	95	36*	-2	572	26	-27	-11	20	0	-1*	-5	72	0	-13*	10	0	0	-27*
15	60	95	58*	-1	48	67	10*-10	76103	17*	-4	71	0	-34*	11	55	0	-44*		
16	126	18	-34	0	802	30	-6	-9	67100	48*	-3	0	0	-17*	K,L=	7,	-6		
17	34	0	28*	1	253	35	198	-8	164	17	1	-2	157	0	5*-12	116	0	6*	
18	82	0	28*	2	122	10	26	-7	0104	-21*	-1	126	0	86*-11	0	0	-26*		
	K,L=	6,	3	3	33	63	13*	-6	494	14	-14	0	40	0	-46*-10	0	0	-30*	
-17	75	0	28*	4	0	72	-1*	-5	60101	-3*	1	14	0	8*	-9	146	18	-29	
-16	39	0	-9*	5	249	49	242*	-4	213	12	10	2	64	0	57*	-8	61	67	24*
-15	285	11	-25	6	297	9	-8	-3	84	31	25*	3	97	0	86*	-7	194	14	-23
-14	98	24	31*	7	148	11	84	-2	354	11	4	4	146	0	-21*	-6	45102	-93*	
-13	252	11	-2	8	68	78	6*	0	306	11	-4	5	0	0	-70*	-5	0	98	-64*
-12	63	93	35*	9	53	75	22*	1	180	13	146	6	169	0	-65*	-4	247	12	20
-11	64	92	-33*	10	408	12	-5	2	59	63	-1*	7	41	0	-53*	-3	143	17	81
-10	67	75	12*	11	89	94	31*	3	78	32	57*	8	59	0	51*	-2	196	13	79
-9	0	85	-60*	12	347	11	5	4	151	16	-8	K,L=	6,	9	-1	75	39	12*	
-8	71	46	5*	13	72	94	31*	5	169	15	109	-2	70	0	33*	0	365	12	0
-7	207	8	33	14	72	94	50*	6	287	12	-6	-1	26	0	2*	1	163	15	45
-6	56	70	16*	15	73	0	63*	7	102	26	1*	0	42	0	30*	2	99	26	-6*
-5	372	10	19	16	69	0	5*	8	85	34	42*	1	81	0	42*	3	277	11	-0
-4	64	65	6*	17	82	0	79*	9	0104	-14*	2	54	0	20*	4	132	19	6	
-3	940	30	-37	K,L=	6,	5	10	253	12	-17	K,L=	7,	-8	5	177	15	-22		
-2	62	28	-12*-15	205	0	-20*	11	0	0	-57*	-6	0	0	-30*	6	55	99	5*	
-1	480	13	-5	-14	66	0	61*	12	202	0	-1*	-5	77	0	55*	7	68	58	27*
0	107	9	-38	-13	130	0	8*	13	0	0	-21*	-4	56	0	-40*	8	173	15	12
1	530	14	24	-12	83	38	25*	14	0	0	-12*	-3	97	0	12*	9	124	21	-9
2	78	22	13*-11	0104	-31*	K,L=	6,	7	-2	0	0	-60*	10	45	0	-71*			
3	406	11	-10	-10	60105	41*-12	43	0	31*	-1	0	0	-61*	11	131	0	18*		
4	60	46	9*	-9	172	17	9	-11	52	0	21*	0	189	0	-43*	12	190	0	-43*
5	50	65	38*	-8	54101	12*-10	0	0	-2*	1	56	0	2*	13	92	0	4*		
6	65	43	18*	-7	184	14	3	-9	144	0	-59*	2	81	0	-29*	K,L=	7,	-5	
7	341	10	-1	-6	62	95	45*	-8	81	0	42*	3	128	0	-5*-14	68	0	40*	
8	191	9	157	-5	352	11	15	-7	144	18	-12	4	80	0	-10*-13	91	0	2*	
9	515	14	-10	-4	72	90	54*	-6	47	67	-12*	5	94	0	-24*-12	0	0	-142*	
10	54	87	3*	-3	738	20	5	-5	268	12	-19	6	16	0	-21*-11	64102	11*		
11	103	20	22*	-2	86	23	-23*	-4	0101	-60*	7	62	0	31*-10	159	17	-29		
12	54	85	51*	-1	254	10	6	-3	386	12	-29	K,L=	7,	-7	-9	77	99	74*	
13	326	11	1	0	0	84	-17*	-2	0103	-78*-10	57	0	-53*	-8	46102	39*			
14	0	97	-21*	1	245	10	1	-1	51	99	-30*	-9	30	0	-34*	-7	183	15	22
15	198	12	-8	2	310	10	258	0	0100	-1*	-8	47	0	37*	-6	194	13	5	
16	0	0	-8*	3	84	24	29*	1	0	97	-52*	-7	0	0	-32*	-5	179	13	130
17	82	0	61*	4	207	11	160	2	200	13	193	-6	157	0	-1*	-4	192	13	-8
	K,L=	6,	4	5	80	28	46*	3	138	17	26	-5	81	32	63*	-3	434	12	-2
-16	158	0	-23*	6	46	95	-17*	4	80	97	-10*	-4	131	19	-27	-2	218	11	19
-15	0	0	-23*	7	326	11	-16	5	88	95	73*	-3	212	12	-24	-1	285	10	30
-14	0	97	-83*	8	76	42	5*	6	50	98	42*	-2	90	29	36*	0	216	11	20
-13	0	96	-43*	9	435	13	-13	7	253	12	-27	-1	181	14	0	1	258	11	16
-12	232	11	-10	10	0106	-45*	8	81	0	-1*	0	128	19	62	2	137	15	11	
-11	38	95	29*	11	49	70	21*	9	209	0	-43*	1	190	13	44	3	160	14	-8
-10	50	94	-15*	12	0104	-16*	10	58	0	-3*	2	0101	-62*	4	143	15	10		



STRUCTURE FACTORS CONTINUED FOR  
 THORIUM TETRA(METHYLTRIHYDROBORATE).

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	
5	140	16	-9	-4	263	8	-12	16	98	0	39*	-1	134	6	49	17	97	0	47*	
6	275	11	-13	-3	604	16	-23	17	84	0	7*	0	98	7	2	18	77	0	-18*	
7	0	99	-17*	-2	363	10	-10	18	70	0	-24*	1	224	7	19	K <sub>o</sub> L= 7, 2				
8	239	13	-19	-1	189	7	-5	K <sub>o</sub> L= 7, -1				2	600	16	32	-17	92	0	5*	
9	308	12	-17	0	453	20	-3	-17	36	0	6*	3	418	11	-18	-16	0	0	-36*	
10	152	17	48	1	367	10	20	-16	53	0	5*	4	60	26	-13*	-15	146	15	-8	
11	120	23	-4*	2	193	7	-8	-15	119	24	-21*	5	536	14	-28	-14	105	38	-17*	
12	0	102	-20*	3	20	66	-9*	-14	106	26	30*	6	565	15	-20	-13	218	11	6	
13	168	0	-16*	4	131	9	27	-13	83	83	44*	7	381	10	-20	-12	101	50	-30*	
14	78	0	34*	5	411	11	37	-12	250	9	-2	8	73	17	6*	-11	160	13	2	
15	74	0	-35*	6	339	10	12	-11	157	10	17	9	0	73	-51*	-10	313	10	-17	
K <sub>o</sub> L= 7, -4				7	142	11	0	-10	276	9	-20	10	339	10	-6	-9	17	80	11*	
-15	78	0	16*	8	370	11	27	-9	275	8	-3	11	229	10	-3	-8	216	9	13	
-14	42	0	3*	9	493	13	20	-8	203	7	-6	12	117	17	37	-7	320	9	15	
-13	86	91	-9*	10	258	10	14	-7	445	12	-19	13	181	12	0	-6	487	21	-14	
-12	95	55	-23*	11	33	91	-19*	-6	45	57	19*	14	139	29	-18*	-5	575	15	18	
-11	0	94	-36*	12	80	67	17*	-5	300	8	-24	15	124	34	-4*	-4	58	43	-14*	
-10	78	91	53*	13	227	11	-3	-4	271	8	3	16	75	82	72*	-3	417	11	28	
-9	266	10	-11	14	0	79	-40*	-3	592	15	-6	17	65	0	-62*	-2	476	13	3	
-8	86	56	21*	15	0	0	-39*	-2	540	14	-35	18	90	0	-11*	0	197	7	27	
-7	278	11	-8	16	49	0	-36*	0	582	15	26	K <sub>o</sub> L= 7, 1				1	1	28	49	12*
-6	294	11	-1	17	88	0	7*	1	405	11	24	-18	56	0	-32*	2	419	11	-3	
-5	147	14	-17	K <sub>o</sub> L= 7, -2				2	437	11	43	-17	67	0	-8*	3	239	7	-1	
-4	343	11	12	-17	90	0	25*	3	315	8	25	-16	73	0	16*	4	230	7	6	
-3	0	87	-73*	-16	64	0	-31*	4	66	25	-27*	-15	96	49	19*	5	635	16	18	
-1	0	81	-5*	-15	118	0	-29*	5	340	9	-18	-14	48	83	-3*	6	399	11	-22	
0	495	14	16	-14	68	95	-8*	6	240	7	3	-13	158	14	7	7	490	13	-3	
1	272	9	2	-13	101	44	-37*	7	263	8	-12	-12	172	13	-20	8	74	43	-23*	
2	76	81	5*	-12	92	25	12*	8	430	11	-15	-11	108	30	-7*	9	45	77	19*	
3	417	12	7	-11	61	82	16*	9	451	12	-12	-10	307	10	11	10	326	10	44	
4	211	10	6	-10	223	10	16	10	340	10	0	-9	346	10	-13	11	110	34	6*	
5	287	10	-2	-9	223	9	12	11	72	28	8*	-8	357	10	6	12	130	29	86*	
6	297	10	-4	-8	73	22	39*	12	93	46	-24*	-7	285	8	4	13	85	93	32*	
7	148	15	68	-7	375	10	-17	13	203	12	-9	-6	175	7	-30	14	122	33	-8*	
8	255	11	8	-6	452	12	-21	14	44	93	29*	-5	313	9	10	15	118	36	-8*	
9	119	22	-2	-5	333	9	-9	15	76	80	27*	-4	213	7	-1	16	67	0	24*	
10	204	14	-26	-4	378	10	12	16	69	78	38*	-3	375	10	8	17	168	0	-3*	
11	176	16	-21	-3	193	7	-20	17	82	0	-10*	-2	492	13	13	18	17	0	-58*	
12	260	12	-3	-2	399	11	-27	18	75	0	-23*	-1	397	11	22	K <sub>o</sub> L= 7, 3				
13	142	19	-11	-1	31	58	8*	K <sub>o</sub> L= 7, 0				0	0	546	14	61	-17	63	0	-21*
14	58	0	29*	0	318	9	3	-18	66	0	-35*	1	265	7	6	-16	80	0	17*	
15	90	0	-17*	1	259	7	5	-17	100	0	5*	2	523	14	-34	-15	72	0	51*	
16	80	0	-4*	2	408	11	57	-16	0	0	-50*	3	453	12	-23	-14	29	93	19*	
K <sub>o</sub> L= 7, -3				3	472	21	6	-15	163	14	-21	4	364	10	-26	-13	169	25	-31	
-16	0	0	-9*	4	104	9	17	-14	140	16	12	5	390	10	-28	-12	74	79	-8*	
-15	135	0	3*	5	501	13	44	-13	174	13	4	6	152	7	5	-11	49	91	33*	
-14	95	42	36*	6	514	14	-21	-12	59	90	30*	7	428	11	-21	-10	280	10	-9	
-13	64	90	22*	7	210	8	-13	-11	65	88	-31*	8	459	12	-18	-9	353	10	7	
-12	217	11	3	8	277	9	7	-10	290	10	0	9	296	9	-6	-8	428	12	2	
-11	116	30	20*	9	85	37	19*	-9	150	10	-13	10	327	10	-7	-7	96	30	-9*	
-10	245	10	-23	10	322	10	8	-8	57	71	50*	11	116	28	-61*	-6	262	8	23	
-9	130	14	19	11	218	10	14	-7	366	10	-26	12	91	49	-10*	-5	434	23	2	
-8	27	82	-46*	12	233	11	-4	-6	621	16	-32	13	173	13	61	-4	108	10	12	
-7	361	10	23	13	213	11	-12	-5	471	12	-20	14	34	96	-49*	-3	60	40	-19*	
-6	149	10	1	14	88	74	-11*	-4	146	7	-7	15	91	26	-32*	-2	177	7	-21	
-5	71	38	-11*	15	111	39	-11*	-3	381	10	-9	16	32	91	26*	-1	379	10	-23	

STRUCTURE FACTORS CONTINUED FOR  
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H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL
1	126	8	41	-11	82	37	18*	-11	66	0	-20*	-7	0	0	-12*	-1	387	12	-3
2	566	15	-0	-10	255	12	27	-10	126	0	-36*	-6	71	0	45*	1	344	11	-6
3	482	13	-26	-9	234	13	10	-9	75	0	-6*	-5	141	0	-35*	2	207	12	-1
4	482	13	-5	-8	355	12	-9	-8	166	0	-27*	-4	31	0	25*	3	26	78	18*
5	0	69	-22*	-7	0100	-94*	-7	71	0	-45*	-3	73	98	-34*	4	180	10	-14	
6	64	64	20*	-6	138	17	-17	-6	82	35	-8*	-2	0	97	-52*	5	58	65	18*
7	349	10	-7	-5	252	11	-16	-5	163	15	3	-1	205	12	-14	6	100	25	88*
8	395	11	8	-4	71	91	68*	-4	82	97	15*	0	90	96	-16*	7	218	13	-31
9	230	10	126	-3	0	90	-53*	-3	94	27	10*	1	278	11	-6	8	152	17	38
10	230	10	8	-2	63	42	52*	-2	91100	-33*	2	146	16	4	9	0100	-16*		
11	156	14	-29	-1	293	10	-12	-1	121	20	24	3	68	44	57*	10	76	42	26*
12	135	16	17	0	145	14	5	0	0	98	-70*	4	104	23	29*	11	269	12	-29
13	92	24	51*	1	94	22	-10*	1	84	32	-3*	5	0	0	-57*	12	25	0	5*
14	89	72	-40*	2	506	14	20	2	323	11	-18	6	0	0	-27*	13	162	0	-36*
15	111	0	23*	3	249	10	26	3	64	99	-27*	7	0	0	-81*	14	50	0	-32*
16	82	0	24*	4	399	12	-2	4	240	12	-2	8	79	0	-2*	K,L= 8,	-4		
17	0	0	-14*	5	55	92	-11*	5	124	19	-7	9	0	0	-38*	-15	84	0	40*
	K,L= 7,	4	6	0	94	-46*	6	87	29	70*	10	71	0	6*	-14	131	0	-34*	
-16	64	0	-12*	7	228	12	4	7	99	25	-25*	K,L= 8,	-6	-13	90	0	11*		
-15	54	0	-41*	8	187	14	6	8	0	0	-53*	-11	0	0	-44*	-12	0101	-41*	
-14	85	0	-11*	9	82103	67*	9	0	0	-46*	-10	63	0	14*	-11	114	22	9*	
-13	136	16	-12	10	97100	7*	10	86	0	83*	-9	0	0	-7*	-10	0102	-11*		
-12	120	38	-44*	11	110	25	-14*	11	0	0	-65*	-8	93	96	59*	-8	185	14	-16
-11	234	11	-6	12	0103	-99*	K,L= 7,	8	-7	0101	-66*	-7	134	18	79				
-10	122	38	-41*	13	0	0	-4*	-8	78	0	-43*	-6	0	99	-93*	-6	153	15	-2
-9	35	90	-65*	14	132	0	-23*	-7	81	0	18*	-5	85	97	6*	-5	51	91	-47*
-8	212	10	-7	15	75	0	15*	-6	63	0	43*	-4	183	14	-7	-4	418	12	-13
-7	278	10	-3	K,L= 7,	6	-5	0	0	-25*	-3	79	99	-32*	-3	0	91	-80*		
-6	265	9	1	-13	85	0	-48*	-4	59	0	-68*	-2	407	12	-15	-2	594	16	6
-5	338	10	-21	-12	82	0	-42*	-3	50	0	-20*	-1	130	19	15	-1	66	94	-129*
-4	265	9	-0	-11	190	0	-32*	-2	89	0	86*	0	0101	-77*	0	69	85	11*	
-3	214	8	-3	-10	60102	22*	-1	209	0	-18*	1	72	46	5*	1	171	12	6	
-2	254	8	-10	-9	52101	-22*	0	99	0	19*	2	249	11	17	2	206	10	-2	
-1	276	8	-8	-8	195	14	-1	1	181	0	-34*	3	35	99	-30*	3	24	86	10*
0	265	10	-13	-7	91104	-47*	2	89	0	30*	4	79	99	13*	4	83	88	-5*	
1	252	8	-5	-6	0102	-65*	3	0	0	-58*	5	150	16	2	5	220	11	-18	
2	228	8	18	-5	178	14	15	4	98	0	-21*	6	93	96	35*	6	37	63	21*
3	215	8	8	-4	220	12	-5	5	121	0	-50*	7	79101	-45*	7	154	15	-4	
4	241	8	-13	-3	138	17	-6	6	70	0	54*	8	131	20	-49	8	416	12	32
5	531	14	16	-2	95	96	29*	7	0	0	-70*	9	14	0	-7*	9	89	31	78*
6	238	9	52	-1	304	11	-3	8	85	0	-11*	10	202	0	-43*	10	359	12	5
7	364	11	7	0	208	13	9	K,L= 8,	-8	11	0	0	-8*	11	20100	-9*			
8	163	12	-23	1	282	11	15	-4	5	0	-69*	12	65	0	54*	12	58	68	22*
9	99	35	26*	2	70	95	48*	-3	14	0	-51*	K,L= 8,	-5	13	0101	-56*			
10	156	14	-1	3	7	98	-78*	-2	158	0	-51*	-13	0	0	-69*	14	151	0	-19*
11	44	93	29*	4	212	12	-3	-1	76	0	11*	-12	0	0	-34*	15	19	0	-19*
12	93	79	16*	5	352	12	0	0	64	0	-24*	-11	106	0	10*	16	0	0	-53*
13	58	92	53*	6	120	20	69	1	0	0	-1*	-10	101	25	9*	K,L= 8,	-3		
14	22	0	-55*	7	213	13	4	2	119	0	-31*	-9	0	99	-26*	-16	0	0	-53*
15	105	0	4*	8	147	17	-10	3	94	0	4*	-8	80102	-26*	-15	0	0	-81*	
16	58	0	6*	9	0104	-52*	4	105	0	-6*	-7	104	25	-3*	-14	59	0	7*	
	K,L= 7,	5	10	0103	-77*	5	45	0	-63*	-6	185	14	84	-13	75	84	-9*		
-15	44	0	-2*	11	67	0	-3*	6	0	0	-26*	-5	358	12	-13	-12	56	90	44*
-14	79	0	17*	12	67	0	12*	K,L= 8,	-7	-4	76	95	57*	-11	49	82	30*		
-13	80	0	-71*	13	77	0	18*	-9	0	0	-9*	-3	136	17	-4	-10	143	27	65*
-12	94102	91*	K,L= 7,	7	-8	0	0	-58*	-2	0	97	-33*	-9	63	87	1*			

STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	
-8	120	30	-48*	13	142	15	12	-4	644	17	-18	15	134	15	32	-1	220	8	-25	
-7	275	9	-10	14	63	85	-52*	-3	139	7	-13	16	0	0	-10*	0	171	8	1	
-6	57	67	-8*	15	14	92	-38*	-2	521	14	14	17	130	0	-16*	1	323	9	28	
-5	580	15	-23	16	0	0	-15*	-1	373	10	45	18	84	0	14*	2	299	9	-4	
-4	22	72	-24*	17	93	0	-27*	0	52	56	4*			K,L= 8,	2	3	197	8	17	
-3	117	11	-13					-1	1	387	10	35	-17	50	0	-17*	4	74	38	-5*
-2	59	64	-14*-17	112	0	-53*		2	419	11	55	-16	73	0	34*	5	583	15	-12	
-1	469	19	-5	-16	65	0	24*	3	182	7	-14	-15	76	0	11*	6	244	9	-2	
0	10	80	2*-15	61	0	-2*		4	497	13	-31	-14	61	91	25*	7	395	11	17	
1	330	9	-7	-14	80	28	-15*	5	255	8	1	-13	72	92	-31*	8	112	29	-38*	
2	323	9	-24	-13	75	32	35*	6	184	7	-15	-12	51	92	20*	9	52	73	20*	
3	56	59	51*-12	161	11	101		7	101	21	16*-11		83	91	-25*	10	190	11	42	
4	279	8	23	-11	97	43	-43*	8	610	16	-18	-10	354	11	-16	11	103	52	76*	
5	320	9	29	-10	106	32	-12*	9	122	12	23	-9	74	63	10*	12	115	37	11*	
6	90	33	59*-9	85	37	-27*		10	318	10	-3	-8	557	15	-8	13	55	92	31*	
7	499	13	23	-8	95	27	-23*	11	175	11	-11	-7	77	59	27*	14	137	15	7	
8	84	70	-10*-7	501	13	-16		12	0	90	-27*	-6	0	73	-50*	15	95	0	-29*	
9	81	54	29*-6	0	69	-38*		13	165	13	10	-5	312	9	4	16	70	0	47*	
10	56	90	-11*-5	734	19	-29		14	69	91	41*	-4	367	10	-2	17	79	0	-71*	
11	385	11	-27	-4	79	24	-10*	15	6	94	-80*	-3	76	14	-15			K,L= 8,	4	
12	58	82	46*-3	78	12	-7		16	0	0	-21*	-2	148	8	8	-15	27	0	3*	
13	142	30	-40*-2	323	9	-15		17	14	0	-85*	-1	435	11	12	-14	83	0	-30*	
14	115	18	-16	-1	349	9	7	18	0	0	-79*	0	196	7	2	-13	68	0	-23*	
15	0	0	-14*0	45	57	18*				K,L= 8,	1	1	261	8	25	-12	69	90	69*	
16	0	0	-82*1	96	9	21	-17	112	0	-12*	2	582	15	4	-11	0	94	-26*		
17	71	0	38*2	451	12	28	-16	69	0	41*	3	244	8	8	-10	337	13	-2		
			K,L= 8,-2	3	105	9	4	-15	34	0	2*	4	489	13	-11	-9	111	41	-54*	
-16	66	0	-37*4	313	9	-13	-14	120	17	2	5	158	8	3	-8	412	12	9		
-15	33	0	30*5	569	15	-58	-13	94	23	23*	6	156	8	-2	-7	40	87	27*		
-14	145	14	-1	6	128	9	-17	-12	33	84	-0*	7	193	8	14	-6	63	75	18*	
-13	92	81	3*7	539	14	-39	-11	268	10	-3	8	450	12	-7	-5	251	9	-18		
-12	82	88	72*8	0	73	-34*-10	127	14	23	9	65	81	14*	-4	83	56	-8*			
-11	167	12	9	9	53	70	-28*-9	83	40	2*	10	284	10	18	-3	0	76	-8*		
-10	100	51	-25*10	106	31	-26*-8	0	76	-48*	11	214	10	-3	-2	0	75	-9*			
-9	0	87	-100*11	335	10	-26	-7	558	15	-8	12	116	31	32*	-1	351	10	13		
-8	399	11	-9	12	15	80	11*-6	123	10	-7	13	124	17	12	0	181	11	-13		
-7	72	22	-2*13	169	13	17	-5	664	17	-21	14	97	60	-13*	1	0	74	-71*		
-6	139	10	12	14	159	14	-34	-4	163	10	-16	15	108	19	-6	2	559	15	-5	
-5	42	69	38*15	0	92	-41*-3	147	7	4	16	46	0	-0*	3	279	9	-3			
-4	554	15	1	16	0	0	-62*-2	441	12	37	17	78	0	10*	4	390	11	21		
-3	30	65	-12*17	64	0	-36*-1	90	10	-9					K,L= 8,	3	5	82	59	31*	
-2	650	17	-14	18	29	0	-42*0	31	58	-42*-16	0	0	-38*	6	139	12	65			
-1	198	7	-11					1	230	7	63	-15	69	0	60*	7	241	10	32	
0	101	13	31	-17	33	0	-6*2	474	12	2	-14	90	0	-18*	8	247	10	-0		
1	415	11	47	-16	109	0	28*3	146	7	11	-13	143	15	2	9	39	90	24*		
2	99	18	44*-15	86	60	51*4	92	10	-2	-12	77	91	65*	10	120	35	-5*			
3	31	62	-6*-14	91	50	4*5	727	19	-32	-11	318	11	-18	11	179	12	-6			
4	299	9	30	-13	83	83	-6*6	182	8	-16	-10	165	12	20	12	60	85	-67*		
5	319	9	5	-12	0	92	-16*7	515	14	-30	-9	0	79	-15*	13	100	43	82*		
6	51	71	34*-11	187	11	-9	8	8	49	-10*-8	56	72	-18*	14	140	0	-1*			
7	59	73	-15*-10	233	10	10	9	59	79	-22*-7	485	22	29	15	116	0	9*			
8	569	15	-8	-9	0	71	-3*10	243	9	-9	-6	182	9	10	16	0	0	-42*		
9	66	70	25*-8	546	14	-12	11	214	10	14	-5	406	11	14				K,L= 8,	5	
10	405	11	-14	-7	60	64	2*12	110	33	45*-4	233	9	38	-14	92	0	29*			
11	64	91	-36*-6	174	8	-4	13	76	90	7*-3	128	9	-1	-13	140	0	-38*			
12	83	52	29*-5	76	20	4*14	189	11	6	-2	362	10	-27	-12	74	0	-10*			

STRUCTURE FACTORS CONTINUED FOR  
 THORIUM TETRA(METHYLTRIHYDROBORATE).

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
-11	242	12	2	-8	74	0	-42*	5	161	0	-16*	13	0	0	-52*	8	86	48	-5*
-10	971	01	16*	-7	83	0	20*	6	139	0	-58*	14	0	0	-46*	9	64	87	11*
-9	83	35	72*	-6	0	0	-36*	7	149	0	-42*	K,L=	9,	-4	10	59	89	25*	
-8	154	17	6	-5	78	95	40*	8	83	0	-0*-14	66	0	0	-2*	11	33	90	-12*
-7	207	13	-2	-4	137	17	-12	9	0	0	-19*-13	91	0	0	1*	12	182	12	-9
-6	127	19	1	-3	561	01	-77*	K,L=	9,	-6	-12	112	0	0	31*	13	75	81	-8*
-5	184	13	16	-2	0	98	-43*-11	35	0	0	6*-11	0	99	0	-35*	14	28	0	-29*
-4	208	12	1	-1	250	12	-28	-10	68	0	-6*-10	135	19	0	-17	15	34	0	10*
-3	141	15	-2	0	201	13	-12	-9	114	0	-14*-9	237	12	0	-6	16	105	0	-48*
-2	182	12	21	1	167	15	8	-8	154	0	-57*-8	261	12	0	-5	K,L=	9,	0	-2
-1	326	11	-11	2	0	98	-80*	-7	108	0	-31*-7	230	12	0	53	-16	66	0	57*
0	175	13	5	3	136	17	54	-6	79	97	17*	-6	14	97	-23*-15	112	0	0	0*
1	290	11	-2	4	166	14	18	-5	0	97	-9*	-5	94	94	87*-14	85	0	0	-53*
2	205	11	13	5	135	18	-14	-4	154	16	21	-3	0	95	-79*-13	111	38	0	-29*
3	246	11	96	6	61	0	15*	-3	0100	0	-31*-2	64	96	0	-34*-12	52	83	0	-27*
4	196	12	7	7	81	0	-24*	-2	138	17	82	-1	107	19	0	-11	55	84	4*
5	359	11	-0	8	92	0	-17*	-1	0	99	-15*	0	71	92	-9*-10	204	11	0	30
6	158	15	26	9	81	0	-21*	0	117	20	42	1	242	10	10	-9	296	10	12
7	239	12	25	10	0	0	-7*	1	114	21	13*	2	285	10	4	-8	196	10	-24
8	901	02	-52*	K,L=	8,	8	2	128	19	-20	3	481	13	20	0	-7	193	9	12
9	87	99	-5*	-7	79	0	18*	3	264	11	-28	4	309	11	-17	-6	45	70	-9*
10	0103	-92*	-6	57	0	-10*	4	250	12	-12	5	229	11	-11	-5	53	73	0	1*
11	59	68	-11*	-5	53	0	-22*	5	174	13	15	6	93	25	30*	-4	0	71	-16*
12	98	0	-21*	-4	119	0	-19*	6	72	96	62*	7	138	17	27	-3	222	8	-5
13	0	0	-5*	-3	93	0	-26*	7	98	99	-1*	8	173	15	-12	-2	246	8	-27
14	82	0	-7*	-2	38	0	-20*	8	180	0	-16*	9	0103	0	-97*	-1	254	9	-26
K,L=	8,	6	-1	94	0	-30*	9	111	0	-13*	10	0100	0	-17*	0	76	26	0	-8*
-12	44	0	33*	0	152	0	36*	10	64	0	-13*	11	0100	0	-11*	1	320	9	38
-11	0	0	-41*	1	92	0	-4*	11	44	0	27*	12	0100	0	-9*	2	395	11	-7
-10	197	0	-21*	2	130	0	-55*	12	83	0	59*	13	90	0	-11*	3	762	20	39
-9	92	31	-46*	3	125	0	4*	K,L=	9,	-5	14	0	0	0	-84*	4	308	9	8
-8	194	14	-18	4	109	0	-1*-13	81	0	53*	15	135	0	-50*	5	265	8	13	
-7	82	99	30*	5	0	0	-58*-12	69	0	-53*	K,L=	9,	-3	6	74	74	0	11*	
-6	121	19	52	6	0	0	-62*-11	123	0	-40*-15	77	0	20*	7	117	22	0	-26*	
-5	165	15	-16	7	48	0	-6*-10	56	0	-67*-14	59	0	17*	8	87	20	0	8*	
-4	26	67	-35*	K,L=	9,	-8	-9	11	99	-74*-13	15	0	-52*	9	76	82	0	15*	
-3	79	99	-7*	-2	43	0	-54*-8	9100	0	-4*-12	187	12	-8	10	26	87	0	1*	
-2	110	22	12*	-1	72	0	53*	-7	138	19	-47	-11	201	11	-23	11	51	89	-31*
-1	237	12	-2	0	43	0	25*	-6	154	17	8	-10	231	10	0	12	37	89	12*
0	265	11	79	1	25	0	-38*	-5	204	13	16	-9	59	89	-7*	13	130	35	-74*
1	92	95	45*	2	23	0	-11*	-4	931	02	-6*	-8	48	86	26*	14	121	17	-7
2	375	12	-5	3	107	0	-19*	-3	0	99	-56*	-7	213	14	2	15	223	0	-45*
3	233	11	27	K,L=	9,	-7	-2	58	98	-33*	-6	151	23	-16	16	40	0	0	-30*
4	247	11	20	-8	0	0	-23*	-1	0	97	-49*	-5	26	69	-44*	17	0	0	-31*
5	73	95	49*	-7	67	0	-46*	0	233	12	-16	-4	19	78	-1*	K,L=	9,	0	-1
6	28	66	19*	-6	101	0	2*	1	245	11	27	-3	90	31	29*-16	49	0	0	-18*
7	159	16	13	-5	110	0	-75*	2	179	13	-9	-2	152	9	-2	-15	0	0	-74*
8	86	97	62*	-4	0	0	-95*	3	76	96	27*	-1	158	9	4	-14	94	39	38*
9	82	57	24*	-3	0	0	-9*	4	146	17	-10	0	523	14	25	-13	98	41	-10*
10	0	0	-64*	-2	57	0	9*	5	274	11	-19	1	375	10	-4	-12	279	10	-9
11	101	0	-17*	-1	87	0	14*	6	319	11	-18	2	387	11	41	-11	219	11	-17
12	124	0	-8*	0	69	0	-24*	7	200	13	-26	3	0	74	-12*-10	270	10	0	7
13	0	0	-31*	1	83	0	-4*	8	961	02	-24*	4	305	9	15	-9	56	72	51*
K,L=	8,	7	2	82	0	-1*	9	0101	0	-23*	5	315	9	-0	-8	0	80	0	-22*
-10	22	0	-12*	3	87	0	44*	10	0	99	-27*	6	421	12	4	-7	140	11	6
-9	18	0	1*	4	77	0	-24*	12	66	0	7*	7	176	10	-10	-6	41	64	-13*

STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL		
-5	0	70	-34*	16	0	0	-43*	3	430	11	9	-8	36	90	-35*	-10	24	0	5*		
-4	60	48	-19*	17	59	0	36*	4	46	69	-46*	-7	118	31	3*	-9	127	0	-2*		
-3	35	65	-25*				K,L= 9,	1	5	79	40	-7*	-6	56	77	29*	-8	67	97	30*	
-2	204	7	-10	-16	106	0	-3*	6	66	55	62*	-5	232	9	-6	-7	130	18	-10		
-1	321	10	-9	-15	0	0	-52*	7	139	10	30	-4	97	18	-10	-6	0	98	-31*		
0	804	21	52	-14	72	87	20*	8	96	32	12*	-3	615	16	-20	-5	231	12	-18		
1	366	10	11	-13	97	45	-13*	9	332	10	-9	-2	84	39	12*	-4	76	39	24*		
2	413	11	2	-12	329	11	20	10	97	19	59*	-1	256	9	1	-3	416	12	-22		
3	26	57	14*	-11	121	31	-1*	11	86	50	-7*	0	59	78	-17*	-2	0101	-39*			
4	349	9	7	-10	218	10	6	12	89	50	34*	1	292	9	14	-1	129	18	10		
5	258	8	-18	-9	32	83	-13*	13	256	10	-5	2	258	9	213	0	74	39	31*		
6	329	9	-11	-8	29	79	-5*	14	65	90	-2*	3	201	9	4	1	149	16	28		
7	0	74	-44*	-7	0	76	-17*	15	183	0	-36*	4	172	10	134	2	202	13	174		
8	10	68	3*	-6	141	10	2	16	49	0	40*	5	64	74	9*	3	39	66	9*		
9	21	72	17*	-5	156	9	-22	17	62	0	54*	6	90	54	42*	4	53100	41*			
10	162	11	-17	-3	40	56	24*				K,L= 9,	3	7	230	10	-3	5	44	97	23*	
11	41	89	-48*	-2	394	10	48	-15	60	0	48*	8	110	30	51*	6	67	48	17*		
12	306	10	-32	-1	310	9	41	-14	16	0	-46*	9	361	11	-19	7	206	13	-33		
13	100	53	18*	0	889	23	43	-13	57	61	-27*	10	51	80	44*	8	0	97	-5*		
14	29	90	-43*	1	304	8	26	-12	226	10	-17	11	25	90	-13*	9	226	0	-40*		
15	0	0	-43*	2	322	9	-6	-11	0	90	-20*	12	71	89	33*	10	90	0	45*		
16	161	0	-27*	3	67	41	11*	-10	116	17	16	13	186	0	-30*	11	51	0	43*		
17	68	0	0*	4	258	8	-2	-9	77	87	24*	14	40	0	36*	12	83	0	80*		
			K,L= 9,	0	5	34	69	-19*	-8	47	84	23*	15	67	0	-40*				K,L= 9,	7
-16	44	0	1*	6	82	41	7*	-7	67	71	-11*				K,L= 9,	5	-9	0	0	-9*	
-15	143	0	-22*	7	54	73	28*	-6	371	11	31	-13	0	0	-26*	-8	86	0	-13*		
-14	149	14	-1	8	71	75	18*	-5	179	9	44	-12	106	0	-9*	-7	75	0	47*		
-13	206	11	-10	9	0	80	-15*	-4	308	9	6	-11	25	0	-4*	-6	249	0	-50*		
-12	90	45	45*	10	278	10	-13	-3	30	72	1*-10	0	99	-8*	-5	90	0	69*			
-11	92	63	8*	11	127	15	17	-2	391	11	-25	-9	0	99	-22*	-4	118	0	-5*		
-10	165	12	3	12	402	12	-19	-1	173	9	-15	-8	104	25	13*	-3	71	40	17*		
-9	266	9	-18	13	90	23	39*	0	667	18	-43	-7	85	32	23*	-2	195	13	-21		
-8	73	79	2*	14	53	89	2*	1	0	92	-75*	-6	375	12	17	-1	145	16	125		
-7	101	26	-20*	15	61	0	29*	2	183	8	-6	-5	64	99	0*	0	137	17	-15		
-6	61	71	-22*	16	107	0	-53*	3	31	71	7*	-4	201	13	-12	1	111	21	80*		
-5	49	62	-32*	17	0	0	-40*	4	111	12	6	-3	0	95	-31*	2	24	94	11*		
-4	74	32	-38*				K,L= 9,	2	5	60	67	54*	-2	293	11	-8	3	31	96	9*	
-3	503	13	-21	-16	0	0	-61*	6	135	12	0	-1	0	97	-53*	4	107	0	-31*		
-2	332	9	-7	-15	197	0	-23*	7	116	28	95*	0	449	13	9	5	85	0	75*		
-1	507	13	56	-14	52	0	-58*	8	59	84	-22*	1	182	13	165	6	191	0	-30*		
0	67	40	40*	-13	200	11	-9	9	61	77	18*	2	82	29	14*	7	69	0	6*		
1	515	14	27	-12	93	39	90*	10	331	10	-10	3	23	95	20*	8	75	0	70*		
2	361	10	23	-11	60	91	-20*	11	97	59	44*	4	0	96	-12*	9	72	0	46*		
3	732	19	-5	-10	104	38	38*	12	320	11	-22	5	164	15	129					K,L= 9,	8
4	185	7	17	-9	176	11	-10	13	64	90	62*	6	252	11	-12	-5	65	0	-102*		
5	127	9	8	-8	0	83	-36*	14	52	0	20*	7	0	99	-21*	-4	70	0	55*		
6	59	69	31*	-7	36	77	-6*	15	65	0	41*	8	83	98	16*	-3	176	0	-47*		
7	45	73	39*	-6	61	74	0*	16	26	0	-67*	9	0	99	-48*	-2	36	0	-13*		
8	0	77	-10*	-5	215	8	14				K,L= 9,	4	10	254	12	-24	-1	51	0	26*	
9	191	10	-27	-4	213	8	43	-15	120	0	-71*	11	0	0	-5*	0	59	0	58*		
10	67	85	8*	-3	776	20	50	-14	55	0	13*	12	210	0	-7*	1	75	0	65*		
11	79	64	-19*	-2	258	8	36	-13	105	0	-39*	13	23	0	7*	2	74	0	66*		
12	0	90	-51*	-1	346	10	-1	-12	59	75	37*	14	0	0	-5*	3	60	0	-39*		
13	265	10	-15	0	59	39	34*	-11	76	88	20*				K,L= 9,	6	4	84	0	47*	
14	73	90	-28*	1	440	12	-17	-10	51	78	31*	-12	0	0	-29*	5	20	0	13*		
15	242	10	-17	2	200	8	11	-9	0102	-3*	-11	78	0	70*		K,L= 10,	-7				

STRUCTURE FACTORS CONTINUED FOR  
 THORIUM TETRA(METHYLTRIHYDROBORATE).

PAGE20

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
-6	55	0	2*	7	0	98	-34*	6	290	9	-3	-4	204	8	-9	K,L=	10.	1	
-5	0	0	-16*	8	114	22	-20*	7	98	39	46*	-3	228	8	-31	-16	61	0	41*
-4	80	0	-21*	9	80	36	-28*	8	183	11	-4	-2	286	9	-7	-15	67	0	-75*
-3	101	0	18*	10	96	0	-42*	9	90	66	29*	-1	50	62	-31*	-14	74	0	-16*
-2	102	0	43*	11	110	0	35*	10	217	10	0	0	189	8	-10	-13	81	58	-37*
-1	66	0	43*	12	155	0	-49*	11	92	69	-18*	1	191	8	-9	-12	56	78	-15*
0	154	0	-63*	13	0	0	-68*	12	197	11	-18	2	277	8	26	-11	66	80	44*
1	74	0	51*	K,L=	10.	-4	13	62	0	-70*	3	338	9	-0	-10	225	10	2	
2	0	0	-93*	-13	65	0	4*	14	56	0	22*	4	52	70	51*	-9	90	20	36*
3	144	0	-5*	-12	112	0	-5*	15	0	0	-93*	5	303	9	-26	-8	0	83	-70*
4	0	0	-77*	-11	0	0	-42*	K,L=	10.	-2	6	398	11	-33	-7	183	10	10	
5	94	0	-31*	-10	100	103	-59*	-15	102	0	10*	7	164	10	-9	-6	391	11	-3
6	0	0	-3*	-9	0	98	-22*	-14	34	0	-8*	8	146	11	-3	-5	342	10	4
7	68	0	39*	-8	0	102	-9*	-13	40	0	21*	9	31	83	30*	-4	54	71	-11*
K,L=	10.	-6	-7	198	13	36	-12	170	12	0	10	262	10	-16	-3	303	9	38	
-9	0	0	-21*	-6	159	15	0	-11	65	84	-12*	11	150	13	9	-2	333	9	7
-8	0	0	-7*	-4	80	96	-32*	-10	195	11	-6	12	151	18	-10	-1	107	11	25
-7	69	0	18*	-3	388	12	7	-9	98	39	-29*	13	107	36	-34*	0	91	12	78
-6	113	0	-14*	-2	0	96	-93*	-8	19	87	-8*	14	44	88	-36*	1	67	41	-8*
-5	84	0	60*	-1	164	14	-13	-7	274	9	-8	15	91	0	-29*	2	324	9	-16
-4	136	17	21	0	216	12	-18	-6	60	75	-39*	16	27	0	9*	3	258	8	-16
-3	184	14	-46	1	243	11	35	-5	118	25	-17*	K,L=	10.	0	4	122	10	13	
-2	0	96	-30*	2	153	15	-27	-4	118	12	8	-16	51	0	11*	5	360	10	-16
-1	146	17	-11	3	90	26	9*	-3	458	12	-13	-15	79	0	-10*	6	416	11	-17
0	95	25	26*	4	0	97	-101*	-2	226	8	-2	-14	69	0	8*	7	276	9	6
1	59	100	-62*	5	159	15	2	-1	38	73	-57*	-13	48	88	-14*	8	60	80	9*
2	107	23	-8*	6	258	11	7	0	371	19	7	-12	190	11	0	9	72	73	42*
3	89	98	-58*	7	47	97	-33*	1	257	8	15	-11	71	81	-14*	10	252	10	-5
4	0	97	-55*	8	200	13	26	2	237	8	36	-10	197	11	16	11	113	34	33*
5	63	96	22*	9	286	12	-11	3	142	10	20	-9	234	10	-8	12	142	14	107
6	197	0	-13*	10	66	99	-29*	4	94	25	28*	-8	98	34	-18*	13	136	14	22
7	74	0	62*	11	76	98	-2*	5	289	9	33	-7	255	9	3	14	125	15	23
8	0	0	-142*	12	57	0	7*	6	190	9	16	-6	52	77	31*	15	81	0	-22*
9	141	0	-37*	13	80	0	-73*	7	172	10	-21	-5	227	8	-4	16	67	0	38*
10	0	0	-11*	14	40	0	20*	8	213	10	-8	-4	129	10	-12	K,L=	10.	2	
11	0	0	-84*	K,L=	10.	-3	9	338	10	-25	-3	386	10	-4	-15	56	0	22*	
K,L=	10.	-5	-14	68	0	38*	10	184	11	-9	-2	326	9	7	-14	33	0	-7*	
-12	45	0	-32*	-13	79	0	-9*	11	51	96	29*	-1	146	8	30	-13	88	53	-27*
-11	0	0	-6*	-12	84	0	14*	12	95	37	26*	0	364	10	24	-12	116	33	0*
-10	66	0	51*	-11	0	88	-18*	13	151	13	-4	1	199	8	14	-11	41	87	19*
-9	163	0	-7*	-10	95	55	33*	14	64	0	59*	2	282	8	40	-10	195	11	6
-8	0	96	-11*	-9	212	11	1	15	0	0	-22*	3	322	9	27	-9	249	10	-8
-7	174	14	-9	-8	128	15	97	16	32	0	-19*	4	86	15	-11	-8	231	9	16
-6	173	14	7	-7	208	10	1	K,L=	10.	-1	5	241	8	-12	-7	170	11	-18	
-5	0	98	-33*	-6	279	10	-15	-16	48	0	-14*	6	99	27	-19*	-6	122	14	-23
-4	239	12	33	-5	32	83	-54*	-15	108	0	-1*	7	239	9	-19	-5	300	9	32
-3	72	101	53*	-4	267	9	5	-14	43	0	-17*	8	247	9	2	-4	98	14	13
-2	189	13	67	-3	108	14	1	-13	119	30	-12*	9	302	10	1	-3	220	8	7
-1	58	96	52*	-2	204	9	-11	-12	21	87	3*	10	211	10	6	-2	263	8	-25
0	297	11	-13	-1	9	78	-45*	-11	89	43	61*	11	49	79	4*	-1	247	8	-1
1	168	14	56	0	277	9	-4	-10	169	12	-6	12	104	20	-23*	0	328	9	19
2	95	98	44*	1	174	9	5	-9	158	12	-6	13	151	14	3	1	23	73	-51*
3	238	12	1	2	115	25	32*	-8	68	82	46*	14	63	89	43*	2	304	9	0
4	80	35	1*	3	356	10	4	-7	180	10	4	15	47	0	-11*	3	362	10	-24
5	211	12	13	4	130	12	33	-6	392	11	-13	16	49	0	23*	4	213	8	1
6	94	98	-1*	5	245	9	27	-5	212	9	-23	17	67	0	10*	5	177	9	1

STRUCTURE FACTORS CONTINUED FOR  
 THORIUM TETRA(METHYLTRIHYDROBORATE).

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
6	67	77	31*	-2	109	16	-21	0	0	97	-80*	-2	27	0	17*	8	76	37	26*
7	290	9	4	-1	273	9	-16	1	73	41	-26*	-1	188	0	-5*	9	94	95	80*
8	255	9	12	0	195	10	-12	2	277	11	4	0	0	98	-122*	10	0	98	-19*
9	246	10	26	1	0	81	-23*	3	152	16	0	1	211	12	-7	11	223	0	-18*
10	225	10	3	2	305	10	7	4	214	12	-5	2	125	19	-11	12	51	0	9*
11	154	12	18	3	232	136	-83*	5	80	96	-2*	3	69	0	57*	13	61	0	-71*
12	89	44	0*	4	265	9	12	6	0	97	-8*	4	79	0	8*	K <sub>o</sub> L= 11,		11,	-3
13	24	88	-40*	5	58	83	38*	7	154	0	18*	5	39	0	6*-13	85	0	22*	
14	56	0	-7*	6	41	85	26*	8	97	0	-2*	6	0	0	-7*-12	0	0	-17*	
15	98	0	7*	7	257	10	3	9	37	0	18*	7	57	0	-59*-11	94	0	30*	
16	53	0	32*	8	212	11	20	10	85	0	41*	8	77	0	35*-10	13	86	5*	
K <sub>o</sub> L= 10,		3	9	68	90	44*	11	101	0	34*	9	0	0	-34*	-9	91	48	54*	
-15	77	0	-26*	10	121	16	-7	K <sub>o</sub> L= 10,		7	K <sub>o</sub> L= 11,		-5	-8	172	12	-18		
-14	59	0	-4*	11	111	35	-7*	-8	100	0	-32*-10	73	0	43*	-7	0	87	-12*	
-13	63	0	-57*	12	14	0	-53*	-7	52	0	-33*	-9	72	0	66*	-6	112	28	-8*
-12	78	80	-34*	13	61	0	57*	-6	0	0	-20*	-8	78	0	15*	-5	79	84	31*
-11	59	81	-38*	14	0	0	-90*	-5	61	0	-34*	-7	0	0	-17*	-4	342	10	-7
-10	164	13	-21	K <sub>o</sub> L= 10,		5	-4	131	0	-6*	-6	76	38	-10*	-3	74	84	-0*	
-9	46	76	37*-13	0	0	-83*	-3	92	0	18*	-5	92	96	32*	-2	418	22	-19	
-8	91	78	-50*-12	0	0	-120*	-2	41	0	21*	-4	176	14	-13	-1	102	29	-50*	
-7	191	10	7	-11	66	0	-65*	-1	153	0	-9*	-3	88	98	-28*	0	48	79	32*
-6	304	10	14	-10	80	0	-4*	0	106	0	-34*	-2	311	11	-23	1	168	10	31
-5	290	9	17	-9	57	66	-11*	1	155	0	-16*	-1	123	19	5	2	136	12	8
-4	63	80	-22*	-8	130	20	-20	2	25	0	6*	0	0	97	-41*	3	69	63	55*
-3	207	10	-37	-7	143	17	27	3	73	0	22*	1	0	100	-74*	4	131	24	9*
-2	256	9	-2	-6	157	15	24	4	135	0	-12*	2	163	15	-13	5	145	12	11
-1	113	13	-13	-5	203	13	-19	5	164	0	-17*	3	33	66	-19*	6	55	85	20*
0	107	29	-52*	-4	152	16	-8	6	43	0	34*	4	53	65	49*	7	82	54	-6*
1	39	74	22*	-3	156	15	15	7	104	0	5*	5	118	20	-6	8	360	11	12
2	244	9	7	-2	123	19	8	8	59	0	-37*	6	0	99	-48*	9	65	75	38*
3	141	11	7	-1	167	15	24	K <sub>o</sub> L= 10,		8	7	88	94	6*	10	239	10	-26	
4	182	10	-20	1	167	14	-2	-3	94	0	25*	8	147	0	-26*	11	37	88	-18*
5	352	10	13	2	131	18	1	-2	62	0	-16*	9	50	0	8*	12	68	0	20*
6	311	10	5	3	95	96	40*	-1	70	0	23*	10	205	0	-25*	13	0	0	-56*
7	307	10	-3	4	234	12	17	0	24	0	-19*	11	0	0	-26*	14	40	0	-70*
8	79	79	-19*	5	307	11	3	1	64	0	-24*	12	58	0	36*	K <sub>o</sub> L= 11,		-2	
9	63	88	-10*	6	157	16	22	2	154	0	-26*	K <sub>o</sub> L= 11,		-4	-14	35	0	-3*	
10	200	11	23	7	208	13	-9	3	73	0	31*-12	0	0	-28*-13	0	0	-64*		
11	64	76	15*	8	121	19	-13	K <sub>o</sub> L= 11,		-7	-11	78	0	15*-12	45	0	17*		
12	82	88	36*	9	57	97	8*	-4	0	0	-72*-10	0	0	-52*-11	19	87	-6*		
13	61	0	30*	10	0	0	-83*	-3	0	0	-78*	-9	0	96	-33*-10	107	34	47*	
14	64	0	-16*	11	91	0	56*	-2	155	0	-41*	-8	0	98	-69*	-9	70	74	0*
15	56	0	-23*	12	90	0	14*	-1	95	0	9*	-7	0	100	-101*	-8	91	46	1*
K <sub>o</sub> L= 10,		4	13	58	0	42*	0	43	0	-5*	-6	90	29	16*	-7	240	10	-11	
-14	0	0	-5*	K <sub>o</sub> L= 10,		6	1	0	0	-6*	-5	309	11	-13	-6	28	84	-39*	
-13	81	0	-26*-11	0	0	-61*	2	116	0	-20*	-4	81	34	18*	-5	437	12	-8	
-12	81	0	33*-10	0	0	-123*	3	75	0	2*	-3	95	26	1*	-4	63	70	1*	
-11	4	88	-2*	-9	82	0	-66*	4	57	0	-14*	-2	0	96	-21*	-3	58	78	7*
-10	163	13	-0	-8	158	0	-51*	5	68	0	-19*	-1	310	11	-9	-2	123	12	8
-9	243	10	17	-7	83	0	10*	K <sub>o</sub> L= 11,		-6	1	237	12	16	-1	322	9	4	
-8	260	10	0	-6	72	98	-39*	-8	29	0	-18*	2	176	14	-2	0	33	68	-18*
-7	81	87	32*	-5	140	18	-17	-7	0	0	-20*	3	72	40	3*	1	105	14	8
-6	157	13	0	-4	0	97	-13*	-6	0	0	-34*	4	141	17	-4	2	216	9	3
-5	255	10	-16	-3	0	98	-82*	-5	108	0	-62*	5	0	100	-92*	3	79	58	44*
-4	54	83	5*	-2	0	98	-2*	-4	0	0	-39*	6	0	98	-13*	4	189	9	11
-3	0	84	-22*	-1	0	102	-147*	-3	103	0	8*	7	275	11	20	5	316	10	36

STRUCTURE FACTORS CONTINUED FOR  
 THORIUM TETRA(METHYLTRIHYDROBORATE).

PAGE22

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
6	0	81	-16*	-3	79	49	73*-13	51	0	-25*	13	54	0	2*	12	46	0	-37*	
7	355	10	-8	-2	171	9	24	-12	49	77	28*	14	74	0	-23*	K,L=	11,	6	
8	47	85	39*	-1	218	8	-9	-11	216	10	3	15	65	0	-8*-10	56	0	7*	
9	41	86	4*	0	50	71	46*-10	22	87	-34*	K,L=	11,	4	-9	0	0	-2*		
10	93	57	62*	1	105	23	52*-9	0	87	-38*-13	72	0	-35*	-8	0	0	-73*		
11	246	10	-30	2	231	8	18	-8	79	85	59*-12	52	0	46*	-7	0	0	-125*	
12	66	74	38*	3	46	73	21*-7	365	11	-11	-11	184	0	-23*	-6	61	0	9*	
13	102	0	-22*	4	149	10	21	-6	60	71	38*-10	85	46	8*	-5	89	0	43*	
14	92	0	-17*	5	442	12	-19	-5	399	11	16	-9	47	87	33*	-4	136	17	6
15	52	0	45*	6	46	79	7*	-4	106	15	22	-8	61	75	27*	-3	79	35	-12*
	K,L=	11,	-1	7	358	10	-5	-3	0	77	-25*	-7	268	10	-1	-2	98	24	12*
-15	53	0	44*	8	51	83	49*-2	231	9	-1	-6	77	80	-19*	-1	190	14	-33	
-14	51	0	-41*	9	63	85	-4*-1	40	74	25*	-5	195	11	-6	0	111	22	-14*	
-13	81	0	25*	10	86	88	-12*0	61	75	47*-4	144	13	7	1	169	14	-5		
-12	42	74	24*	11	217	10	-7	1	202	9	22	-3	67	85	47*2	98	25	-7*	
-11	64	88	-29*	12	21	87	9*2	248	9	6	-2	181	11	-13	3	129	18	8	
-10	86	48	-16*	13	59	76	-7*3	113	13	-9	-1	173	11	-23	4	100	25	10*	
-9	58	86	-13*	14	113	0	-5*4	78	68	14*0	88	29	-17*5	173	0	-26*			
-8	358	11	-8	15	65	0	43*5	444	12	-8	1	178	11	-18	6	55	0	-7*	
-7	63	74	42*	16	48	0	-5*6	134	12	4	2	183	10	6	7	63	0	-36*	
-6	68	80	13*	K,L=	11,	1	7	322	10	-3	3	199	10	78	8	82	0	-2*	
-5	73	79	54*-15	0	0	-18*8	27	77	-22*4	94	20	26*9	0	0	0	0	0	-52*	
-4	439	12	3	-14	20	0	6*9	78	56	15*5	356	11	-20	10	0	0	0	-40*	
-3	0	76	-19*-13	63	0	16*10	163	12	24	6	115	33	-1*	K,L=	11,	7			
-2	374	10	-0	-12	78	53	51*11	61	79	-33*7	188	11	8	-6	65	0	34*		
-1	177	9	2	-11	62	88	-40*12	96	39	50*8	59	88	-17*-5	44	0	-47*			
0	54	71	39*-10	234	10	16	13	0	0	-4*9	43	86	37*-4	71	0	-5*			
1	216	8	11	-9	19	59	3*14	98	0	-36*10	90	46	-2*-3	90	0	27*			
2	137	10	54	-8	356	11	10	15	70	0	-1*11	90	0	72*-2	35	0	-31*		
3	36	74	-2*-7	56	73	39*	K,L=	11,	3	12	0	0	-71*-1	108	0	-37*			
4	297	9	37	-6	84	55	16*-14	68	0	15*13	0	0	-9*0	131	0	30*			
5	154	10	-5	-5	73	56	2*-13	81	0	20*14	45	0	-39*1	0	0	-28*			
6	60	78	4*-4	354	10	19	-12	65	0	56*	K,L=	11,	5	2	188	0	-27*		
7	60	71	-1*-3	28	69	-43*-11	0	88	-64*-12	76	0	70*3	0	0	0	0	-114*		
8	375	11	-25	-2	243	8	8	-10	230	10	-4	-11	0	0	-28*4	103	0	-7*	
9	0	86	-20*-1	210	8	13	-9	51	88	20*-10	200	0	-19*5	55	0	25*			
10	259	10	-17	0	0	72	-28*-7	0	87	-30*-9	107	0	25*6	41	0	36*			
11	64	87	-36*1	221	8	17	-6	29	85	10*-8	203	13	-8	7	0	0	-67*		
12	49	86	13*2	304	9	43	-5	140	13	16	-7	57	94	53*	K,L=	12,	-6		
13	66	87	-20*3	71	74	-5*-4	178	11	-19	-6	0	98	-10*-6	60	0	-13*			
14	0	0	-54*4	378	11	-21	-3	43	81	14*-5	111	22	-32*-5	129	0	-22*			
15	85	0	45*5	170	9	1	-2	62	73	15*-4	67	96	51*-4	64	0	7*			
16	61	0	36*6	52	79	-20*-1	216	9	14	-3	0	99	-2*-3	52	0	42*			
	K,L=	11,	0	7	39	73	-31*0	56	80	-11*-2	19	98	-54*-2	0	0	-49*			
-15	34	0	2*8	404	11	-26	1	147	11	-6	-1	199	13	-16	-1	46	0	21*	
-14	40	0	-29*9	45	85	15*2	412	11	4	1	92	97	52*0	0	0	0	-86*		
-13	0	0	-6*10	197	11	0	3	159	11	1	2	324	11	-18	1	131	0	16*	
-12	0	88	-25*11	132	15	-2	4	332	10	-13	3	150	16	-8	2	22	0	-44*	
-11	121	30	-9*12	0	88	-12*5	113	15	14	4	236	11	27	3	68	0	17*		
-10	64	89	-2*13	69	78	-27*6	163	11	41	5	63	95	55*4	55	0	-23*			
-9	89	44	21*14	0	0	-48*7	145	13	36	6	93	26	37*5	141	0	-39*			
-8	77	57	4*15	47	0	-9*8	260	10	-18	7	155	15	30	6	122	0	-29*		
-7	367	11	2	16	63	0	17*9	98	42	68*8	104	23	5*7	129	0	-27*			
-6	0	73	-5*2	K,L=	11,	2	10	80	89	-24*9	0	0	-30*8	52	0	1*			
-5	504	13	-1	-15	29	0	19*11	143	13	-3	10	30	0	-22*K,L=	12,	-5			
-4	60	68	-44*-14	49	0	-15*12	60	0	7*11	77	0	-36*-9	105	0	5*				



STRUCTURE FACTORS CONTINUED FOR  
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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
-8	135	0	-40*	-1	71	73	-38*	-3	244	9	-15	-9	137	14	-4	-13	81	0	-44*
-7	87	0	-8*	0	15	84	-48*	-2	207	9	8	-8	65	34	43*-12	37	0	15*	
-6	67	0	34*	1	57	93	-141*	-1	198	9	34	-7	42	76	-8*-11	49	0	17*	
-5	0	0	-22*	2	227	10	5	0	28	76	-7*	-6	88	34	31*-10	83	52	31*	
-4	115	20	12	3	407	11	41	1	270	9	25	-5	132	13	-7	-9	64	87	3*
-3	90	94	86*	4	283	10	9	2	318	10	16	-4	74	68	-9*	-8	52	74	-4*
-2	90	96	89*	5	159	12	19	3	471	13	26	-3	417	11	66	-7	72	85	50*
-1	0	95	-6*	6	37	74	-14*	4	185	10	3	-2	278	9	26	-6	72	73	40*
0	69	97	8*	7	41	85	-29*	5	176	10	-4	-1	286	9	18	-5	149	13	23
1	135	17	31	8	114	16	-7	6	61	81	-2*	0	24	77	3*	-4	167	12	1
2	96	99	-59*	9	61	85	36*	7	42	72	6*	1	262	9	21	-3	435	23	-9
3	214	12	-19	10	77	61	49*	8	63	84	12*	2	253	9	17	-2	116	16	-5
4	188	14	-35	11	62	0	47*	9	43	86	-14*	3	425	12	3	-1	210	10	-33
5	109	22	-4*	12	0	0	-17*	10	39	76	-27*	4	40	73	-38*	0	73	75	-5*
6	0	0	-7*	13	72	0	-28*	11	19	87	-24*	5	86	58	-16*	1	220	10	-17
7	115	0	33*	K <sub>v</sub> L= 12, -2		12	44	84	30*	6	33	83	-33*	2	213	13	102		
8	43	0	-109*-13	58	0	-11*	13	88	0	-68*	7	55	83	48*	3	229	10	-10	
9	39	0	-36*-12	119	0	-32*	14	38	0	-63*	8	67	86	16*	4	120	26	114*	
10	0	0	-46*-11	145	0	-33*	15	132	0	-44*	9	190	11	-2	5	87	61	79*	
K <sub>v</sub> L= 12, -4		-10	157	12	3	K <sub>v</sub> L= 12, 0		10	38	77	-31*	6	34	73	32*				
-11	121	0	-16*-9	28	72	5*-14	45	0	4*	11	67	87	-0*	7	74	79	-43*		
-10	87	0	-13*-8	9	74	7*-13	59	0	-21*	12	15	77	-29*	8	97	20	44*		
-9	62	0	-6*-7	98	40	-17*-12	166	0	-27*	13	166	0	-28*	9	220	10	-30		
-8	69	0	49*-6	63	80	-12*-11	84	62	-63*	14	24	0	-57*	10	0	87	-19*		
-7	144	12	-15	-5	22	76	-1*-10	153	13	-14	15	135	0	-31*	11	0	0	-36*	
-6	135	12	39	-4	52	72	46*-9	47	75	34*	K <sub>v</sub> L= 12, 2		12	83	0	31*			
-5	119	14	8	-3	78	43	9*-8	50	76	40*-14	0	0	-29*	13	137	0	-30*		
-4	0	85	-60*-2	113	26	-37*-7	90	42	-11*-13	82	0	-4*	14	0	0	-37*			
-3	42	71	-12*-1	111	29	-45*-6	0	85	-14*-12	178	0	-0*	K <sub>v</sub> L= 12, 4						
-2	0	97	-86*0	413	11	45	-5	60	73	-23*-11	66	0	-12*-12	98	0	-22*			
-1	42	95	-12*1	297	9	6	-4	51	81	-21*-10	92	60	-26*-11	58	0	56*			
0	146	19	-68	2	221	9	22	-3	53	80	-43*-9	39	77	-7*-10	17	0	-38*		
1	236	12	-0	3	0	83	-27*-2	219	9	34	-8	0	87	-22*-9	64	0	16*		
2	171	14	44	4	203	10	-3	-1	276	9	24	-7	22	86	13*-8	47	85	21*	
3	79	97	62*5	245	9	3	0	544	14	50	-6	131	28	-4*-7	116	16	60		
4	187	13	39	6	228	10	-7	1	291	9	10	-5	170	16	20	-6	199	11	-22
5	223	12	-11	7	104	36	-0*2	253	9	43	-4	203	10	21	-5	50	89	-60*	
6	229	12	10	8	59	78	1*3	91	18	-10*-3	64	80	62*-4	181	11	8			
7	80	98	-70*9	90	21	51*4	202	9	16	-2	246	9	1	-3	65	85	10*		
8	71	93	6*10	51	75	-4*5	142	12	-3	-1	258	9	19	-2	217	10	-7		
9	47	0	16*11	78	86	24*6	177	10	-3	0	515	14	19	-1	111	17	-6		
10	0	0	-10*12	140	0	-13*7	69	83	41*1	118	14	7	0	380	11	-16			
11	0	0	-9*13	65	0	-28*8	67	84	61*2	197	10	-14	1	117	27	109*			
12	71	0	8*14	0	0	-43*9	58	85	55*3	83	37	12*2	112	16	32				
K <sub>v</sub> L= 12, -3		K <sub>v</sub> L= 12, -1		10	124	16	-18	4	122	14	-7	3	45	85	14*				
-12	46	0	-16*-14	92	0	-22*11	70	87	-30*5	57	72	28*4	26	87	9*				
-11	54	0	28*-13	83	0	-30*12	183	11	-49	6	22	83	20*5	124	15	109			
-10	94	0	-28*-12	68	0	16*13	90	0	31*7	60	87	26*6	83	47	-30*				
-9	160	12	-3	-11	32	85	-8*14	0	0	-51*8	0	86	-16*7	60	77	27*			
-8	181	11	1	-10	100	54	-51*15	74	0	34*9	66	85	45*8	65	85	9*			
-7	154	12	24	-9	185	11	10	K <sub>v</sub> L= 12, 1		10	186	11	-9	9	33	72	-13*		
-6	63	84	59*-8	135	14	8	-14	72	0	-34*11	50	79	-43*10	157	0	-54*			
-5	56	85	36*-7	71	86	-53*-13	89	0	-35*12	210	0	-57*11	46	0	2*				
-4	36	86	-32*-6	48	84	-15*-12	49	0	34*13	35	0	8*12	147	0	-50*				
-3	31	74	-27*-5	49	81	-15*-11	59	79	33*14	0	0	-33*13	0	0	-2*				
-2	110	17	-13	-4	28	82	-25*-10	102	34	-4*	K <sub>v</sub> L= 12, 3		K <sub>v</sub> L= 12, 5						

STRUCTURE FACTORS CONTINUED FOR  
THORIUM TETRA(METHYLTRIHYDROBORATE).

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL		
-10	0	0	-9*	-1	56	0	54*	-4	12	86	-54*	-2	145	12	-18	-4	61	83	42*		
-9	78	0	42*	0	137	0	-38*	-3	259	10	-15	-1	68	27	20*	-3	233	9	2		
-8	0	0	-57*	1	77	0	62*	-2	79	51	-2*	0	280	9	17	-2	204	9	15		
-7	88	0	-8*	2	75	0	17*	-1	117	15	9	1	119	14	6	-1	71	67	11*		
-6	0	95	-24*	3	0	0	-128*	0	165	11	-19	2	191	10	11	0	292	9	14		
-5	143	17	-4	4	34	0	-17*	1	139	13	1	3	115	15	18	1	51	75	-33*		
-4	110	21	9*	5	74	0	-32*	2	123	28	-14*	4	64	75	-5*	2	160	11	9		
-3	342	11	-15	K,L= 13,				-5	3	45	76	37*	5	182	11	-1	3	244	9	13	
-2	78	96	54*	-8	27	0	24*	4	49	75	-17*	6	131	14	-3	4	53	82	-3*		
-1	167	14	17	-7	12	0	-29*	5	119	15	16	7	146	13	-15	5	141	13	-15		
0	71	94	11*	-6	115	0	4*	6	165	12	-37	8	123	15	-0	6	57	85	25*		
1	150	15	20	-5	88	0	45*	7	66	85	-15*	9	228	10	-31	7	188	11	-18		
2	156	15	132	-4	62	0	2*	8	115	16	3	10	107	17	-21	8	151	12	8		
3	7	98	-43*	-3	158	0	-33*	9	208	0	-22*	11	27	0	15*	9	159	12	-24		
4	89	28	72*	-2	81	0	57*	10	76	0	28*	12	93	0	9*	10	154	12	-7		
5	69	95	38*	-1	50	0	-60*	11	62	0	15*	13	66	0	-41*	11	41	0	-21*		
6	0	96	-31*	0	81	0	-5*	12	51	0	6*	14	64	0	62*	12	70	0	-22*		
7	138	0	-21*	1	0	0	-90*	K,L= 13,				-2	K,L= 13,				0	13	49	0	-20*
8	23	0	-17*	2	63	0	-35*-12	0	0	-18*-13	39	0	-46*	14	69	0	46*				
9	196	0	-27*	3	0	0	-98*-11	39	0	22*-12	0	0	-13*	K,L= 13,				2			
10	20	0	4*	4	80	0	23*-10	69	0	18*-11	29	0	17*-13	80	0	0*					
11	66	0	44*	5	22	0	-16*	-9	122	0	-15*-10	98	38	-18*-12	50	0	-10*				
K,L= 12,				6	6	152	0	-10*	-8	52	85	35*	-9	90	22	-22*-11	67	0	53*		
-8	63	0	4*	7	54	0	11*	-7	120	28	-9*	-8	85	67	62*-10	121	0	-31*			
-7	0	0	-60*	8	75	0	-29*	-6	216	10	-17	-7	94	55	-9*	-9	47	85	23*		
-6	190	0	-35*	9	136	0	-14*	-5	24	86	-29*	-6	293	10	19	-8	57	85	-4*		
-5	57	0	26*	K,L= 13,				-4	-4	178	11	-12	-5	132	14	0	-7	107	17	20	
-4	22	0	-102*-10	0	0	0	-7*	-3	78	65	-17*	-4	134	13	-0	-6	243	10	-6		
-3	0	0	-56*	-9	110	0	-17*	-2	134	14	-5	-3	215	13	28	-5	208	10	23		
-2	147	0	-36*	-8	58	0	46*	-1	64	83	-9*	-2	217	9	24	-4	32	84	24*		
-1	81	0	38*	-7	96	0	-33*	0	198	10	9	-1	87	39	-11*	-3	246	10	14		
0	179	0	-14*	-6	146	0	-14*	1	96	37	-27*	0	89	19	18*	-2	173	11	7		
1	98	0	81*	-5	0	96	-9*	2	65	85	8*	1	153	11	-14	-1	81	43	8*		
2	86	0	52*	-4	130	19	-17	3	285	10	7	2	196	10	23	0	84	40	-5*		
3	75	0	68*	-3	24	95	6*	4	50	84	38*	3	238	9	4	1	65	83	1*		
4	52	0	1*	-1	0	96	-32*	5	166	12	12	4	84	42	17*	2	156	12	-12		
5	47	0	10*	0	205	12	3	6	236	10	6	5	200	10	14	3	152	12	4		
6	134	0	-34*	1	103	23	25*	7	53	85	28*	6	291	10	-10	4	157	11	17		
7	49	0	24*	2	89	93	71*	8	39	87	-68*	7	70	87	-35*	5	193	11	-7		
8	0	0	-28*	3	205	12	-1	9	33	86	8*	8	49	85	-20*	6	258	10	-16		
9	71	0	22*	4	27	94	-2*	10	158	12	-17	9	54	75	23*	7	184	11	-7		
K,L= 12,				7	5	161	14	27	11	64	0	14*	10	168	12	-25	8	62	86	57*	
-4	76	0	39*	6	105	23	2*	12	120	0	-31*	11	52	87	-19*	9	67	84	10*		
-3	172	0	-52*	7	38	0	1*	13	61	0	-37*	12	82	0	9*	10	144	13	4		
-2	27	0	6*	8	88	0	12*	K,L= 13,				-1	13	93	0	-7*	11	65	0	21*	
-1	37	0	-17*	9	85	0	13*-13	53	0	51*	14	14	0	-34*	12	77	0	50*			
0	0	0	-35*	10	89	0	-24*-12	120	0	-11*	K,L= 13,				1	13	52	0	-22*		
1	77	0	27*	11	77	0	38*-11	49	0	30*-13	80	0	42*	K,L= 13,				3			
2	13	0	0*	K,L= 13,				-3	-10	87	0	-45*-12	96	0	-21*-12	0	0	0	-66*		
3	0	0	-48*-11	67	0	46*	-9	69	76	-46*-11	35	0	3*-11	0	0	0	0	-2*			
4	0	0	-3*-10	75	0	-44*	-8	50	76	25*-10	79	87	-27*-10	64	0	0	0	-18*			
5	0	0	-20*-9	0	0	-42*	-7	163	12	2	-9	160	12	-19	-9	171	0	-17*			
K,L= 13,				-6	-8	66	0	57*	-6	60	86	22*	-8	49	77	-20*	-8	117	30	-16*	
-4	0	0	-81*	-7	68	87	-49*	-5	63	77	-48*	-7	151	13	-26	-7	88	39	-4*		
-3	36	0	-19*	-6	96	19	10*	-4	75	67	26*	-6	33	78	-35*	-6	144	13	14		
-2	79	0	23*	-5	0	88	-76*	-3	299	10	-12	-5	176	11	10	-5	177	11	6		

STRUCTURE FACTORS CONTINUED FOR  
 THORIUM TETRA(METHYLTRIHYDROBORATE).

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H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL
-4	77	84	60*	4	159	0	-1*-10	76	0	43*	-3	74	61	48*	-1	62	85	-31*	
-3	102	18	11	5	16	0	10*	-9	28	0	-4*	-2	0	85	-40*	0	0	83	-1*
-2	154	12	-21	6	0	0	-24*	-8	8	0	-38*	-1	177	11	-8	1	134	13	49
-1	104	38	-44*	7	124	0	-28*	-7	82	0	-5*	0	34	82	-1*	2	135	13	-8
0	152	13	-25	8	40	0	-48*	-6	50	0	-25*	1	47	84	17*	3	0	85	-7*
1	61	76	58*	9	53	0	39*	-5	212	10	-8	2	127	14	-6	4	108	32	24*
2	187	11	13	10	76	0	6*	-4	48	77	-21*	3	66	83	32*	5	297	10	-10
3	222	10	-22	K,L= 13, 6				-3	4	71	-51*	4	108	30	-11*	6	58	76	48*
4	146	13	-2	-6	65	0	10*	-2	0	82	-1*	5	213	10	5	7	213	10	-18
5	64	35	9*	-5	52	0	-65*	-1	181	11	-11	6	61	85	35*	8	71	71	34*
6	0	86	-5*	-4	24	0	-76*	0	51	85	-35*	7	222	10	-35	9	56	85	-11*
7	144	26	-43	-3	34	0	-50*	1	0	87-111*	8	61	83	54*	10	62	0	9*	
8	140	13	10	-2	78	0	49*	2	110	16	-6	9	47	83	-8*	11	74	0	-31*
9	118	15	32	-1	94	0	5*	3	0	84	-55*	10	85	0	73*	12	55	0	18*
10	56	0	-78*	0	83	0	-34*	4	85	71	-11*	11	160	0	-23*	13	59	0	42*
11	58	0	-21*	1	90	0	-9*	5	82	55	2*	12	56	0	25*	K,L= 14, 2			
12	42	0	-32*	2	0	0	-30*	6	95	33	66*	13	82	0	32*-11	14	55	0	-7*
13	35	0	12*	3	0	0	-12*	7	174	0	-15*	K,L= 14, 0				-10	109	0	-25*
K,L= 13, 4				4	81	0	-40*	8	52	0	39*-12	20	0	1*	-9	78	0	47*	
-11	55	0	0*	5	140	0	-1*	9	62	0	60*-11	50	0	-9*	-8	223	0	-11*	
-10	82	0	-24*	6	84	0	21*	10	0	0	-29*-10	54	0	-18*	-7	18	85	9*	
-9	84	0	56*	7	21	0	-106*	11	135	0	-47*	-9	61	0	2*	-6	42	84	31*
-8	89	0	-2*	K,L= 14, -5				K,L= 14, -2				-8	201	10	-15	-5	36	84	-6*
-7	83	0	22*	-5	52	0	-89*-11	59	0	13*	-7	63	83	43*	-4	200	10	0	
-6	134	14	-19	-4	83	0	43*-10	83	0	67*	-6	43	73	6*	-3	0	76	-16*	
-5	99	44	-81*	-3	80	0	21*	-9	72	0	31*	-5	24	75	17*	-2	67	75	-8*
-4	0	87	-72*	-2	54	0	35*	-8	111	0	-28*	-4	258	10	-24	-1	136	13	21
-3	152	12	-6	-1	140	0	-5*	-7	0	84	-30*	-3	42	84	17*	0	51	56	42*
-2	84	55	-30*	0	48	0	-41*	-6	81	48	10*	-2	184	11	-4	1	130	14	-17
-1	101	17	26	1	23	0	-109*	-5	66	83	43*	-1	144	12	9	2	204	10	-6
0	50	87	-82*	2	47	0	-70*	-4	224	10	-6	0	46	72	11*	3	34	85	14*
1	0	77	-35*	3	0	0	-20*	-3	50	77	-49*	1	133	19	-7	4	225	10	-15
2	40	87	-88*	4	61	0	13*	-2	245	10	-20	2	112	16	25	5	102	17	36
3	20	77	-27*	5	58	0	53*	-1	89	44	-29*	3	0	85	-7*	6	68	77	-1*
4	150	13	-13	6	0	0	-4*	0	0	73	-24*	4	226	10	11	7	60	83	51*
5	170	12	-13	7	106	0	1*	1	62	78	-32*	5	126	14	32	8	207	10	-18
6	160	12	-5	K,L= 14, -4				2	59	76	21*	6	10	85	-24*	9	42	0	42*
7	179	11	-2	-8	33	0	-32*	3	44	84	43*	7	60	76	21*	10	79	0	-14*
8	21	0	-38*	-7	44	0	43*	4	143	13	8	8	252	10	-15	11	66	0	-28*
9	0	0	-64*	-6	77	0	21*	5	73	76	-10*	9	52	84	14*	12	55	0	53*
10	60	0	-34*	-5	41	0	3*	6	48	85	31*	10	106	0	-37*	K,L= 14, 3			
11	19	0	1*	-4	93	0	-47*	7	60	85	-31*	11	36	0	-28*-10	75	0	44*	
K,L= 13, 5				-3	122	0	14*	8	212	10	-30	12	0	0	-32*	-9	29	0	19*
-9	37	0	-89*	-2	208	0	-14*	9	24	0	-14*	13	52	0	2*	-8	87	0	83*
-8	0	0	-143*	-1	53	0	-59*	10	156	0	-21*	K,L= 14, 1				-7	205	0	-4*
-7	65	0	56*	0	0	92	-13*	11	80	0	26*-12	14	0	-26*	-6	59	82	56*	
-6	0	0	-114*	1	38	92	13*	12	22	0	-18*-11	105	0	6*	-5	156	12	-18	
-5	45	0	-63*	2	43	0	-66*	K,L= 14, -1				-10	57	0	41*	-4	94	34	12*
-4	79	0	73*	3	89	0	43*-11	48	0	12*	-9	55	0	-0*	-3	23	84	6*	
-3	81	94	69*	4	91	0	56*-10	45	0	28*	-8	67	72	0*	-2	79	66	-43*	
-2	91	93	35*	5	0	0	-77*	-9	25	0	-23*	-7	223	10	-2	-1	0	85	-39*
-1	65	98	-69*	6	16	0	-16*	-8	55	73	-14*	-6	0	77	-21*	0	0	85	-2*
0	87	28	2*	7	87	0	27*	-7	176	10	16	-5	257	10	0	1	80	54	-58*
1	51	93	5*	8	108	0	-38*	-6	38	84	-49*	-4	79	47	13*	2	56	87	-66*
2	145	17	-25	9	0	0	-50*	-5	278	10	-14	-3	45	84	32*	3	111	17	34
3	154	15	-30	K,L= 14, -3				-4	82	48	22*	-2	92	42	-29*	4	0	85	-48*

STRUCTURE FACTORS CONTINUED FOR  
 THORIUM TETRA(METHYLTRIHYDROBORATE).

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H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
5	261	10	-31	0	0	0	-77*	8	56	0	-16*	-4	24	84	-51*	7	14	0	-24*
6	73	83	36*	1	70	0	-27*	9	0	0	-11*	-3	0	84	-19*	8	34	0	13*
7	158	12	4	2	10	0	-31*	10	65	0	38*	-2	106	31	-0*	9	53	0	18*
8	34	0	1*	3	0	0	-29*	K <sub>o</sub> L= 15, -1				-1	180	10	25	10	78	0	-38*
9	62	0	34*	K <sub>o</sub> L= 15, -4				-10	67	0	-26*	0	270	10	5	K <sub>o</sub> L= 15, 4			
10	60	0	-2*	-6	64	0	45*	-9	0	0	-7*	1	152	12	-8	-7	89	0	60*
11	0	0	-30*	-5	26	0	4*	-8	62	0	59*	2	115	15	-8	-6	40	0	27*
K <sub>o</sub> L= 14, 4				-4	85	0	22*	-7	93	0	14*	3	87	58	37*	-5	48	0	-24*
-9	59	0	43*	-3	0	0	-17*	-6	61	0	35*	4	74	76	-30*	-4	87	0	-23*
-8	130	0	-53*	-2	41	0	14*	-5	58	84	25*	5	100	18	-6	-3	187	0	-43*
-7	0	0	-0*	-1	34	0	31*	-4	49	82	49*	6	29	83	-22*	-2	45	0	-33*
-6	43	0	33*	0	0	0	-46*	-3	63	82	10*	7	0	75	-22*	-1	91	0	-7*
-5	42	0	-37*	1	47	0	-22*	-2	0	85	-77*	8	72	0	57*	0	0	0	-51*
-4	24	0	-61*	2	88	0	-50*	-1	180	10	29	9	40	0	37*	1	98	0	-7*
-3	63	84	41*	3	132	0	-9*	0	245	9	19	10	57	0	-41*	2	92	0	36*
-2	35	84	9*	4	139	0	-42*	1	182	10	0	11	53	0	-35*	3	84	0	-5*
-1	115	28	1*	5	33	0	-40*	2	106	29	-9*	K <sub>o</sub> L= 15, 2				4	87	0	69*
0	58	83	23*	6	41	0	20*	3	58	72	32*	-10	65	0	3*	5	62	0	53*
1	80	84	4*	7	70	0	31*	4	110	16	4	-9	54	0	-11*	6	29	0	19*
2	215	10	-36	K <sub>o</sub> L= 15, -3				5	159	11	13	-8	58	0	45*	7	62	0	-11*
3	76	76	28*	-8	34	0	29*	6	82	84	-43*	-7	89	0	74*	8	54	0	3*
4	151	12	-21	-7	88	0	-1*	7	75	0	27*	-6	0	0	-33*	K <sub>o</sub> L= 15, 5			
5	44	0	21*	-6	67	0	27*	8	0	0	-14*	-5	88	41	16*	-5	72	0	10*
6	68	0	-1*	-5	58	0	-3*	9	30	0	14*	-4	123	14	19	-4	52	0	-44*
7	64	0	7*	-4	37	0	8*	10	0	0	-49*	-3	219	10	17	-3	0	0	-43*
8	101	0	-23*	-3	43	0	-0*	11	40	0	-13*	-2	146	12	-2	-2	41	0	-75*
9	62	0	59*	-2	47	0	-17*	K <sub>o</sub> L= 15, 0				-1	123	14	-26	-1	86	0	3*
10	0	0	-35*	-1	61	0	10*	-10	28	0	-61*	0	90	50	61*	0	144	0	-31*
K <sub>o</sub> L= 14, 5				0	86	0	-43*	-9	67	0	-30*	1	130	13	-7	1	0	0	-4*
-7	74	0	-55*	1	157	0	-25*	-8	47	0	-22*	2	79	68	-54*	2	53	0	20*
-6	0	0	-37*	2	108	0	23*	-7	0	0	-59*	3	185	10	-2	3	36	0	26*
-5	72	0	5*	3	0	0	-15*	-6	34	73	-17*	4	46	75	15*	4	0	0	-7*
-4	0	0	-70*	4	85	0	6*	-5	50	82	14*	5	60	72	23*	5	83	0	51*
-3	82	0	63*	5	144	0	-33*	-4	0	85	-46*	6	0	83	-21*	K <sub>o</sub> L= 16, -4			
-2	81	0	-34*	6	99	0	-23*	-3	144	18	-5	7	73	0	48*	-2	0	0	-2*
-1	0	0	-121*	7	78	0	-10*	-2	172	11	-3	8	0	0	-51*	-1	26	0	-41*
0	0	0	-39*	8	44	0	12*	-1	111	16	11	9	105	0	-22*	0	82	0	4*
1	105	0	-30*	9	64	0	27*	0	0	84	-5*	10	60	0	16*	1	37	0	-13*
2	89	0	-9*	K <sub>o</sub> L= 15, -2				1	120	27	-10*	11	30	0	-4*	2	40	0	-43*
3	43	0	-35*	-9	46	0	-37*	2	202	10	10	K <sub>o</sub> L= 15, 3				3	0	0	-36*
4	82	0	59*	-8	81	0	-31*	3	162	24	-67	-9	0	0	-30*	4	29	0	-26*
5	147	0	-46*	-7	0	0	-70*	4	76	84	-24*	-8	52	0	46*	K <sub>o</sub> L= 16, -3			
6	0	0	-44*	-6	0	0	-8*	5	75	25	8*	-7	46	0	25*	-5	70	0	56*
7	35	0	-57*	-5	50	0	22*	6	14	84	-33*	-6	72	0	-18*	-4	103	0	0*
8	0	0	-56*	-4	65	83	47*	7	80	48	77*	-5	93	0	6*	-3	0	0	-11*
K <sub>o</sub> L= 14, 6				-3	50	56	-10*	8	0	0	-8*	-4	64	0	-17*	-2	53	0	-15*
-3	0	0	-3*	-2	107	28	-5*	9	43	0	-16*	-3	59	83	49*	-1	0	0	-42*
-2	80	0	16*	-1	15	76	-54*	10	52	0	-1*	-2	121	14	2	0	82	0	-38*
-1	91	0	-11*	0	75	81	43*	11	49	0	16*	-1	107	34	-38*	1	0	0	-42*
0	68	0	-9*	1	113	15	10	K <sub>o</sub> L= 15, 1				0	228	10	-28	2	47	0	46*
1	61	0	38*	2	198	10	-1	-10	42	0	-44*	1	80	83	10*	3	142	0	-7*
2	128	0	-55*	3	207	10	-1	-9	47	0	38*	2	84	67	1*	4	69	0	56*
3	0	0	-59*	4	154	12	-13	-8	0	0	-3*	3	76	61	12*	5	80	0	3*
4	94	0	-8*	5	46	84	-46*	-7	37	0	18*	4	59	74	6*	6	96	0	-2*
K <sub>o</sub> L= 15, -5				6	0	0	-24*	-6	50	82	37*	5	69	0	64*	7	62	0	39*
-1	55	0	50*	7	11	0	-17*	-5	55	85	-20*	6	51	0	28*	K <sub>o</sub> L= 16, -2			

STRUCTURE FACTORS CONTINUED FOR  
 THORIUM TETRA(METHYLTRIHYDROBORATE).

PAGE 27

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
-7	68	0	-3*	-8	58	0	31*	-5	34	0	-47*	5	130	0	-1*	0	69	0	62*
-6	51	0	13*	-7	25	0	-18*	-4	0	0	-1*	6	0	0	-31*	1	73	0	5*
-5	80	0	33*	-6	128	0	-21*	-3	0	0	-32*	7	98	0	-38*	2	50	0	-56*
-4	55	0	46*	-5	82	0	12*	-2	43	0	-38*	K,L= 17, 1		3	93	0	-9*		
-3	116	0	-48*	-4	42	0	-16*	-1	43	0	-41*	-6	0	0	-12*				
-2	64	0	22*	-3	103	0	-20*	0	42	0	-35*	-5	0	0	-8*				
-1	59	0	-4*	-2	86	56	-4*	1	0	0	-21*	-4	127	0	-10*				
0	97	0	-43*	-1	51	81	-3*	2	87	0	12*	-3	53	0	33*				
1	0	0	-62*	0	28	81	6*	3	85	0	-48*	-2	75	0	-5*				
2	94	0	10*	1	53	74	-15*	4	45	0	-24*	-1	58	0	-9*				
3	68	0	39*	2	31	84	-58*	5	0	0	-23*	0	57	0	35*				
4	52	0	9*	3	116	25	-7*	6	0	0	-25*	1	51	0	-26*				
5	58	0	-16*	4	0	0	-50*	K,L= 17, -3		2	64	0	-1*						
6	82	0	-25*	5	35	0	-40*	-1	60	0	-3*	3	22	0	7*				
7	74	0	-3*	6	152	0	-31*	0	9	0	-6*	4	86	0	-49*				
8	46	0	-7*	7	59	0	-3*	1	36	0	15*	5	56	0	17*				
K,L= 16, -1		8	41	0	9*	2	51	0	6*	6	48	0	27*						
-8	41	0	24*	9	46	0	1*	K,L= 17, -2		7	75	0	50*						
-7	41	0	-3*	10	89	0	-24*	-4	53	0	0*	K,L= 17, 2							
-6	143	0	-7*	K,L= 16, 2		-3	50	0	29*	-5	97	0	-22*						
-5	83	0	47*	-8	83	0	49*	-2	45	0	41*	-4	33	0	6*				
-4	87	0	-5*	-7	50	0	-37*	-1	54	0	-51*	-3	32	0	10*				
-3	33	0	-45*	-6	58	0	-6*	0	14	0	-34*	-2	59	0	-1*				
-2	60	0	-31*	-5	93	0	-3*	1	38	0	-5*	-1	55	0	42*				
-1	12	0	-40*	-4	65	0	63*	2	50	0	-7*	0	57	0	50*				
0	101	16	17	-3	118	0	18*	3	0	0	-39*	1	43	0	-21*				
1	56	73	-36*	-2	94	0	-8*	4	26	0	-38*	2	45	0	-15*				
2	34	0	-12*	-1	27	0	-17*	5	76	0	0*	3	30	0	14*				
3	140	0	-5*	0	129	0	-13*	6	0	0	-25*	4	56	0	-1*				
4	35	0	19*	1	43	0	23*	K,L= 17, -1		5	115	0	-51*						
5	84	0	-5*	2	55	0	-20*	-6	0	0	-27*	6	13	0	5*				
6	134	0	-9*	3	104	0	-34*	-5	57	0	35*	K,L= 17, 3							
7	87	0	73*	4	58	0	24*	-4	125	0	-10*	-3	23	0	15*				
8	40	0	-12*	5	16	0	-49*	-3	0	0	-58*	-2	0	0	-16*				
9	79	0	73*	6	0	0	-10*	-2	107	0	-19*	-1	59	0	-0*				
K,L= 16, 0		7	86	0	-28*	-1	75	0	8*	0	74	0	72*						
-8	0	0	-4*	8	52	0	-6*	0	35	0	21*	1	63	0	-7*				
-7	98	0	-2*	9	98	0	2*	1	60	0	9*	2	81	0	-41*				
-6	42	0	33*	K,L= 16, 3		2	43	0	36*	3	59	0	55*						
-5	65	0	-5*	-7	22	0	-4*	3	39	0	30*	4	84	0	-35*				
-4	36	0	16*	-6	78	0	-47*	4	98	0	-0*	5	65	0	37*				
-3	148	0	-17*	-5	82	0	-32*	5	45	0	13*	K,L= 18, -1							
-2	85	62	-13*	-4	0	0	-3*	6	0	0	-7*	-1	0	0	-27*				
-1	58	82	50*	-3	102	0	-17*	7	55	0	9*	0	39	0	27*				
0	171	10	8	-2	85	0	-2*	K,L= 17, 0		0	1	49	0	-2*					
1	60	74	15*	-1	66	0	21*	-6	53	0	1*	2	78	0	-38*				
2	88	37	5*	0	26	0	-28*	-5	133	0	-13*	K,L= 18, 0							
3	80	45	-17*	1	27	0	-7*	-4	32	0	-8*	-2	56	0	9*				
4	36	0	-6*	2	77	0	-14*	-3	59	0	57*	-1	52	0	-42*				
5	102	0	8*	3	50	0	-9*	-2	48	0	28*	0	103	0	-11*				
6	61	0	12*	4	67	0	-33*	-1	97	0	5*	1	83	0	-24*				
7	102	0	-6*	5	45	0	-40*	0	0	0	-2*	2	66	0	7*				
8	55	0	-2*	6	132	0	-17*	1	49	0	25*	3	53	0	24*				
9	89	0	-52*	7	87	0	-9*	2	0	0	-66*	K,L= 18, 1							
10	32	0	-43*	8	49	0	27*	3	57	0	43*	-2	62	0	-33*				
K,L= 16, 1		K,L= 16, 4		4	4	85	0	23*	-1	70	0	4*							

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TECHNICAL INFORMATION DEPARTMENT  
LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720