

# UC Berkeley

## Archaeological X-ray Fluorescence Reports

### Title

XRF Analysis of samples from the Anillo Obsidian Source near Cotahuasi, Arequipa, Peru

### Permalink

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### Supplemental Material

<https://escholarship.org/uc/item/6vb1790z#supplemental>

### Data Availability

The data associated with this publication are in the supplemental files.

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# Anillo Obsidian Source Geochemistry Report

21 October 2025

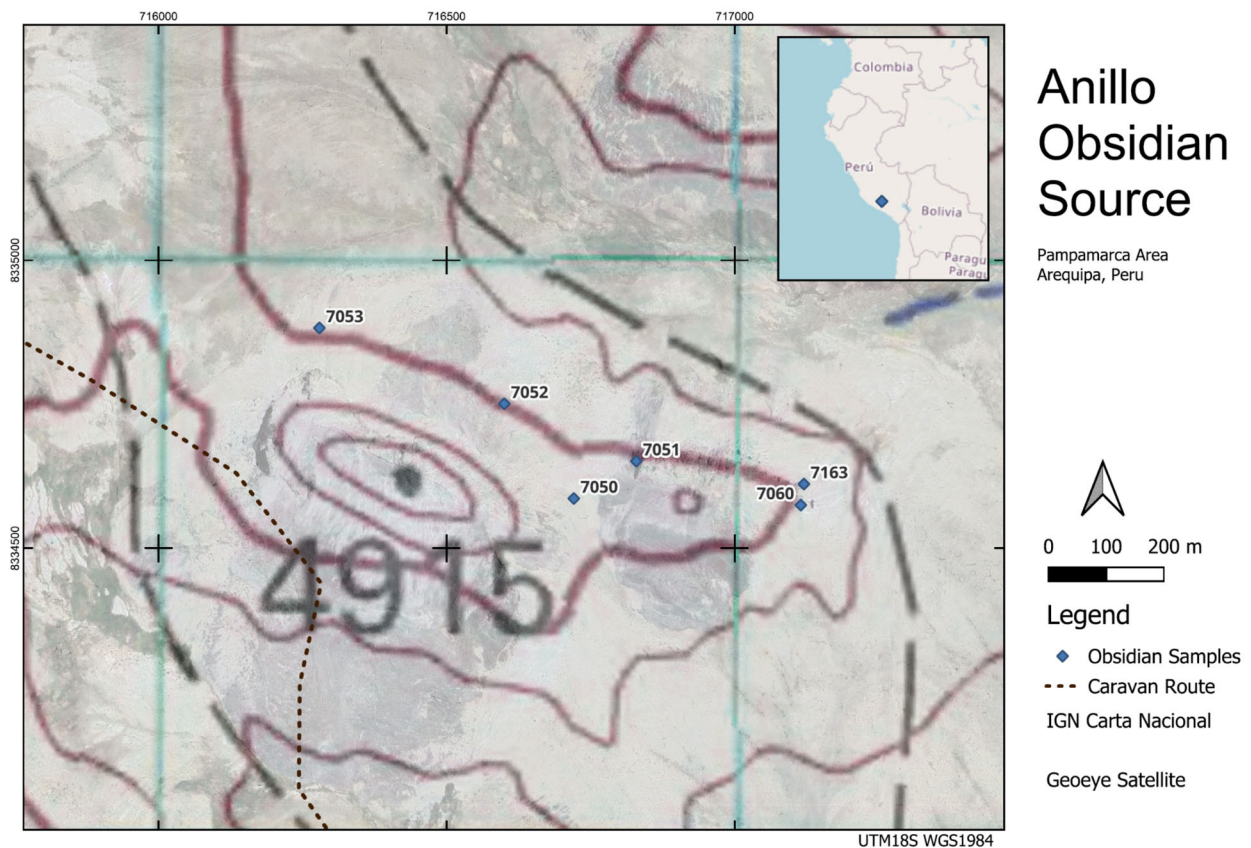
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Developed using EasyCal. Best with Rb, Sr, Zr, and sometimes Y  
Leave out Mn and Ba

In 2007 in the course of a llama caravan research project (Tripcevich 2016) local herder Fidel Cruz from the area of Pampamarca (Cotahuasi, Arequipa, Peru) indicated that obsidian known locally as Anillo could be found at around 4900 masl in the headwaters of the Quebrada Chancara in the Tastapi area ( $-72.985^{\circ}$ ,  $-15.056^{\circ}$ ). Tripcevich collected geological samples from six locations and the XRF analysis of these samples is reported here.

Large nodules from the Anillo source range from 15 to 20 cm which is smaller than the 30 cm and larger nodules encountered at the Alca Source. But as with Alca the Anillo glass is homogeneous and fracture quality is uniformly high.



**Instrument:** Bruker Tracer 5g (900F7431) belonging to the Archaeological Research Facility, UC Berkeley.

**Conditions:** 3mm collimator, air, 30 second analysis time.

**Energy:** kV: 50,  $\mu$ A: 35

**Filter:** Cu 100 $\mu$ m, Ti 25  $\mu$ m, Al 300  $\mu$ m

An empirical calibration using Bruker easycal was developed by Tripcevich in 2023 using the MURR 40 samples reference set and the MURR recommended values.

A solid glass sample of USGS Rhyolite Glass Mountain (RGM) was used as reference standard at the start and end of the analysis session and these results are included here. Elemental concentrations in Parts per million are reported and the PDZ spectra files are attached.

| Spectrum | Name       | Rb  | Sr  | Y  | Zr  | Th |
|----------|------------|-----|-----|----|-----|----|
| 277      | RGM Solid1 | 153 | 119 | 31 | 222 | 23 |
| 278      | 7150-1     | 169 | 169 | 21 | 135 | 32 |
| 279      | 7150-2     | 167 | 166 | 17 | 128 | 28 |
| 280      | 7150-4     | 173 | 170 | 24 | 132 | 31 |
| 281      | 7151-3     | 184 | 171 | 19 | 144 | 34 |
| 282      | 7151-1     | 182 | 174 | 23 | 138 | 30 |
| 283      | 7151-4     | 173 | 156 | 20 | 132 | 27 |
| 284      | 7151-3     | 186 | 165 | 21 | 154 | 40 |
| 285      | 7151-5     | 151 | 147 | 21 | 118 | 28 |
| 286      | 7152-1     | 149 | 138 | 18 | 109 | 32 |
| 287      | 7152-4     | 177 | 161 | 21 | 135 | 34 |
| 288      | 7153-1     | 165 | 152 | 18 | 126 | 29 |
| 289      | 7160-1     | 195 | 107 | 17 | 84  | 29 |
| 290      | 7163-1     | 164 | 148 | 21 | 115 | 31 |
| 291      | RGM Solid2 | 146 | 122 | 30 | 208 | 25 |

Elemental concentrations from K-Alpha lines in parts per million for 13 obsidian nodules collected at 6 locations in the area of the Anillo source (Arequipa, Peru).

The attached documents include a CSV table showing the elemental concentrations shown here. The Spectra.zip provides the spectra in Bruker PDZv25 format.