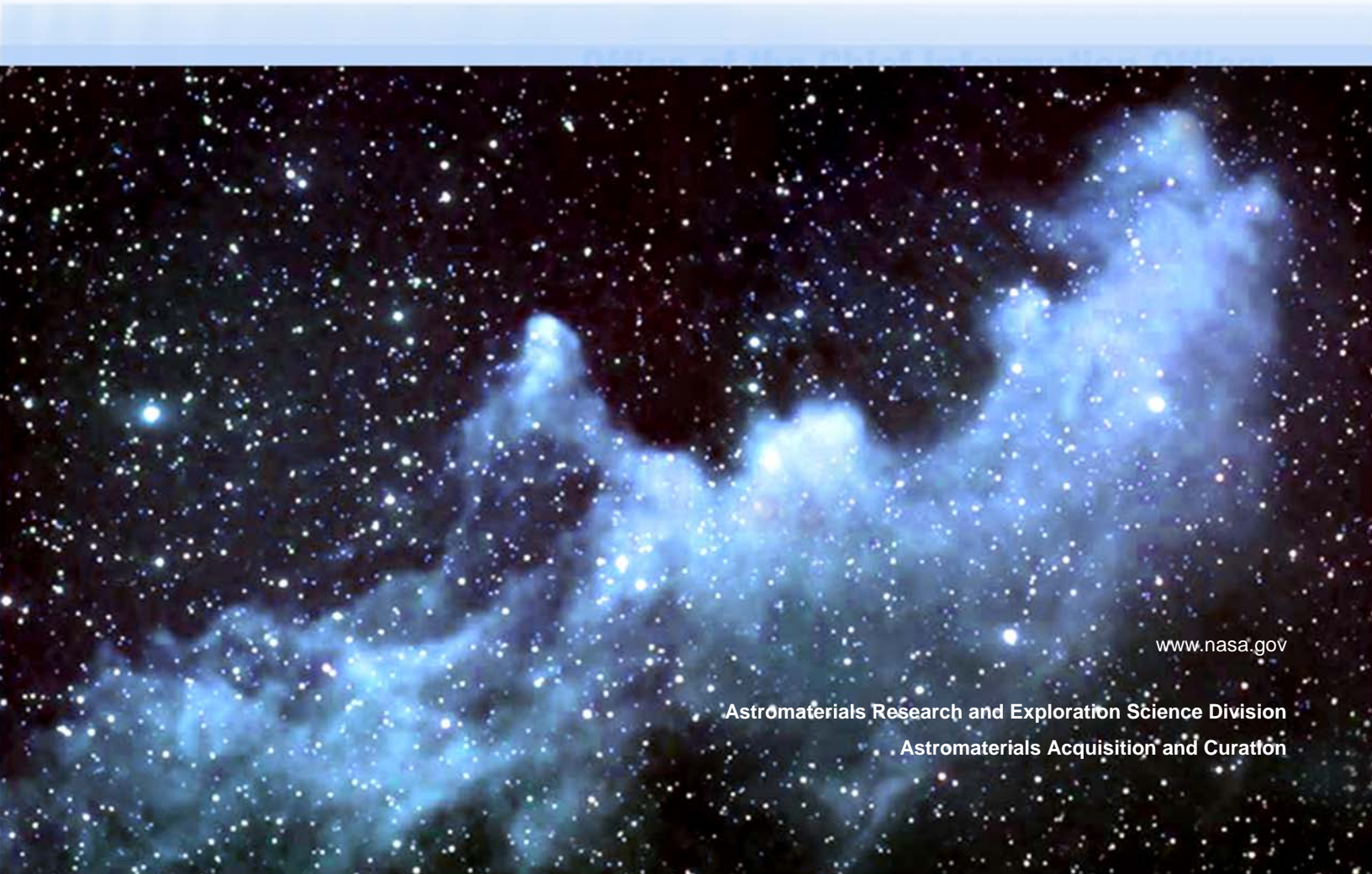


National Aeronautics and Space Administration



# Cosmic Dust Catalog Volume 22

Particles from Collectors U2168, W7317, W7318 and  
W7319



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Astromaterials Research and Exploration Science Division  
Astromaterials Acquisition and Curator



# Cosmic Dust Catalog

Volume 22

Particles from Collectors U2168, W7317, W7318 and  
W7319

Compiled By:

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## Introduction

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Since May 1981, the National Aeronautics and Space Administration (NASA) has used aircraft to collect cosmic dust (CD) particles from Earth's stratosphere. Specially designed dust collectors are prepared for flight and processed after flight in an ultraclean (Class-100) laboratory constructed for this purpose at the Lyndon B. Johnson Space Center (JSC) in Houston, Texas. Particles are individually retrieved from the collectors, examined and cataloged, and then made available to the scientific community for research. Cosmic dust thereby joins lunar samples and meteorites as an additional source of extraterrestrial materials for scientific study.

This catalog summarizes preliminary observations on particles retrieved from collection surfaces U2168, W7317, W7318 and W7319. These surfaces were flat plate collectors which were coated with silicone oil (dimethyl siloxane) and then flown aboard NASA ER-2 aircraft during a series of flights as follows:

<b>U2168</b>	36.4 hours of flight time during August 8, 2016 to October 8, 2016 over Namibia to Brazil-Oracles
<b>W7317, W7318 &amp; W7319</b>	9 hours of flight time during May 1, 2017 to August 31, 2017

All of the collectors were installed in specially constructed wing pylons which ensured that the necessary level of cleanliness was maintained between periods of active sampling. During successive periods of high altitude (20 km) cruise, the collectors were exposed in the stratosphere by barometric controls and then retracted into sealed storage containers prior to descent.

## Processing of Particles

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Particle mounts designed for the JEOL 100CX scanning transmission electron microscope (STEM) are currently the standard receptacles for CD particles in the JSC laboratory. Each mount consists of a graphite frame (size ~3x6x24 mm) onto which a Nucleopore filter (0.4  $\mu\text{m}$  pore size) is attached. A conductive coat of carbon is vacuum evaporated onto the mount and then a microscopic reference pattern is "stenciled" onto the carbon-coated filter by vacuum evaporation of aluminum through an appropriately sized template. Particles are individually removed from collectors using glass-needle micromanipulators under a binocular stereo-microscope. Each particle is positioned on an aluminum-free area of a Freon-cleaned (Freon 113), carbon-coated filter and washed in place with hexane to remove silicone oil. Each mount is normally limited to 16 particles. All processing and storage of each particle is performed in a Class-100 clean room.

## Preliminary Examination of Particles

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Each rinsed particle is examined before leaving the Class-100 clean room processing area, with a petrographic research microscope equipped with transmitted, reflected and oblique light illuminators. At a magnification of 200-500X, size, shape, transparency, color, and luster are determined and recorded for each particle.

After optical description, each mount (with uncoated particles) is examined by scanning electron microscopy (SEM) and X-ray energy-dispersive spectrometry (EDS). Secondary-electron imaging of each particle was performed with an ISI SEM at an accelerating voltage of 15 kV. Images are therefore of relatively low contrast and resolution due to deliberate avoidance of conventionally applied conductive coats (carbon or gold-palladium) which might interfere with later elemental analyses of particles. EDS data are collected with the same SEM. Using an accelerating voltage of 20 kV, each particle is raster scanned and its X-ray spectrum recorded over the 0-10 keV range by counting for 30 sec. No system (artifact) peaks of significance appear in the spectra.

## Catalog Format

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Each page in the main body of the catalog is devoted to one particle and consists of an SEM image, an EDS spectrum, and a brief summary of preliminary examination data obtained by optical microscopy. The unique identification number assigned to the particle appears at the top of the page. Sources of the descriptive data are as follows:

### Size

Size ( $\mu\text{m}$ ) is measured using the original SEM image and its known magnification factor. For an irregularly shaped particle, the minimum dimension in the plane of the field of view is located and determined; then a second (maximum) dimension is measured at a right angle to the first. For a spherical or equidimensional particle, only a single size is recorded.

### Shape

Shape is generalized to be spherical (S), equidimensional (E), or irregular (I).

### Transparency

Transparency is determined by optical microscopy to be transparent (T), translucent (TL), or opaque (O). Significant variations in transparency within a particle are annotated on the SEM image.

### Color

Color is determined by optical microscopy using oblique (fiber optic, quartz halogen) illumination supplemented with normal reflected (tungsten-lamp) illumination.

## Luster

Luster is determined by optical microscopy using reflected normal (tungsten lamp) illumination and supplemented with oblique (fiber optic, quartz halogen) illumination. Commonly applied descriptions, adopted from mineralogical usage, include Dull (D), Metallic (M), Submetallic (SM), Subvitreous (SV), and Vitreous (V). Lusters transitional between categories or difficult to identify are indicated accordingly (Dull/Submetallic, etc.).

## Type

Type indicates a provisional first order identification of each particle based on its morphology (from SEM image), elemental composition (from EDS spectrum), and optical properties. We emphasize that, for catalog purposes, types are defined for their descriptive and curatorial utility, not as scientific classifications. These tentative categorizations, which reflect judgments based on the collective experience of the CDPET, should not be construed to be firm identifications and should not dissuade any investigator from requesting any given particle for detailed study and more complete identification. The precise identification of each particle in our inventory is beyond the scope and intent of our collection and Curation program. Indeed, the reliable identification and scientific classification of cosmic dust is one of many important research tasks that we hope this catalog will stimulate. We indicate particle "TYPE" only to aid the users of this catalog (especially those new to small particle analysis) in distinguishing possible cosmic dust particles from other particles which are invariably collected during stratospheric dust sampling.

In this catalog, particles are organized according to their type. Categories used in this catalog are defined as follows:

### **Cosmic (C)**

Interplanetary dust (variety unspecified) or other extraterrestrial material. In the strict sense, "Cosmic Dust" refers only to those particles which have not been modified during passage from interplanetary space to Earth's stratosphere. In this catalog, though, particle type "Cosmic" is used to conveniently group together all particles which are judged to be of extraterrestrial origin, including those that have apparently experienced strong ablational heating or melting.

Type "Cosmic" particles are provisionally identified as those having one of the three following sets of attributes:

- a) Irregular to spherical, opaque, dark-colored particles composed mostly of Fe with minor S and/or Ni.
- b) Irregular to spherical, translucent to opaque, dark-colored particles containing various proportions of Mg, Si, and Fe with traces of S and/or Ni.
- c) Irregular to faceted or blocky, transparent to translucent particles containing mostly Mg, Si, and Fe but with traces S and/or Ni.

Category (a) and (b) particles commonly display either complex, porous aggregate-type morphologies or distinctively spherical shapes and dull to metallic lusters which distinguish them from terrestrial minerals. Their EDS spectra are reminiscent of those exhibited by meteoritic Fe-NiS minerals, or combinations of Fe-Ni-S phases with olivine and/or pyroxene. Category (c) particles display morphologies and EDS spectra which suggest that they are fragments of olivine or pyroxene crystals, neither of which are significant components of stratospheric volcanic ash. Particles which do not fall easily into categories (a), (b), or (c) but which possess some of the same attributes may be classified here as “C?” or “Possibly Cosmic”.

**Artificial  
Terrestrial  
Contamination  
(TCA)**

Particles included in the “TCA” category are commonly irregular in shape (though a few may be spherical) and may be transparent, translucent, or opaque. Their EDS spectra commonly show Al, Fe, or Si as the principal peaks but with a variety of minor peaks including those of Cd, Ti, V, Cr, Mn, Ni, Cu, or Zn, and at abundances that are frequently much greater than those expected in common minerals. However, such compositions are similar to those expected for certain metal alloys.

In some cases, a high intensity (relative to intensities of characteristic X-ray peaks) of continuum radiation occurs in the EDS spectrum, suggesting that low atomic number elements not detectable by the EDS (e.g., H, C, N, O) are abundant in the particle. Such “TCA” particles are tacitly inferred to be synthetic carbon based materials. (This category probably includes particles produced by or derived from aircraft operation or collector hardware, or possibly spacecraft debris. However, some of these particles are worthy of additional research and may represent true extraterrestrial “low-Z” material).

**Natural  
Terrestrial  
Contamination  
(TCN)**

“TCN” particles may be transparent to opaque and may exhibit a variety of colors. However, they are commonly irregular in shape and distinctively rich in Si and Al with minor abundances of Na, K, Ca, or Fe. Some Fe-S particles are classified as TCN despite the fact that they may well be extraterrestrial. This action is due to the lack of conclusive investigations regarding these particular particles. Many particles containing only low-Z elements are also classified as TCN for the same reason.

Morphologies and EDS spectra of most “TCN” particles compare favorably with respective properties of silica polymorphs, feldspar, or



silicic volcanic glass, three materials that are principal components of stratospheric volcanic ash. In addition, platy or porous aggregate-type particles of light color and Si, Al-rich composition may be silicic clay minerals, common phases in Earth's surface soils. Irregular, reddish Fe-rich particles may also be products of terrestrial rock weathering.

Recognition of these and other phases as "TCN" particles is based mostly on CDPET's collective mineralogical experience and comparison with reference samples. Less commonly, the "TCN" category may include distinctive particles with apparently non-random shapes which are rich in low atomic number elements (as inferred from their EDS spectra having high levels of continuum x radiation and relatively small peaks for characteristic X-rays). Those rare particles are distinguished from "TCA" particles by their unusual, organized morphologies and probably represent biological contaminants.

**Aluminum or  
Aluminum  
Oxide Sphere  
(AOS)**

An AOS particle is transparent, subvitreous, vitreous to metallic in luster, colorless to pale yellow, and at least approximately spherical. However, shape may range from nearly perfect sphericity to pronounced ellipticity and surface texture may range from very smooth to rough. Other spheres or irregularly shaped material may be attached to its surface. Al is the distinctively dominant (or only) peak in its EDS spectrum. A sphere displaying the attributes of an AOS except with major elements in addition to Al may be listed as "AOS?" or "?". Transparent Al rich particles of irregular shape would probably be listed as "TCA". Most AOS particles are products of solid fuel rocket exhausts.

Again, this system for provisional classification of particles is presented only as a first order attempt to distinguish particles which are probably extraterrestrial in origin from those which are probably contaminants. All particles will require careful research examination before they can be satisfactorily identified.

### Comments

Comments are included for particles with special features or histories. Any large "cluster" particles, which have broken apart on the collector, have small portions present in the catalog as different "sibling" grains; the comments reflect these relationships. For example, any particle with a cluster number designation in the comments field represents a much larger parent particle remaining on the collection plate, which is also available for allocation in part or in whole.

## Sample Requests

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Scientists desiring to perform detailed research on particles described in this catalog should apply in writing to:

**Curator, Cosmic Dust Program**

NASA Johnson Space Center

Code X12

Houston, Texas 77058 U.S.A.

Telephone: (281) 483-5128

FAX: (281) 483-5347

Sample requests should refer to specific particle identification numbers and should describe the research being proposed as well as the qualifications and facilities of the investigator making the request. Publication reprints are frequently useful in sample allocation considerations. Additionally, requests for particles not yet passed through preliminary examination will be considered if the requester can demonstrate a strong need for them. NASA will arrange for a review of the scientific merits of each request and will inform the requester of the results.

Approval of a sample request does not imply or include funding for the proposed research. Questions about NASA funding should be directed to:

**Discipline Scientist, Cosmochemistry Program**

NASA Headquarters

Code SL

Washington, DC 20546 U.S.A.

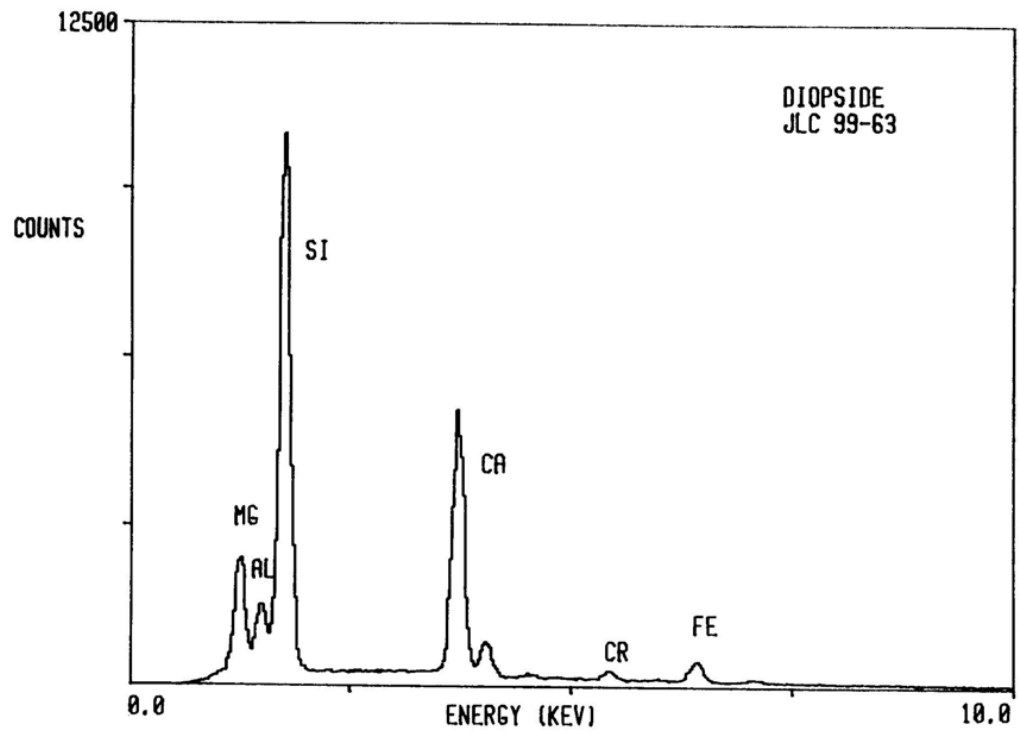
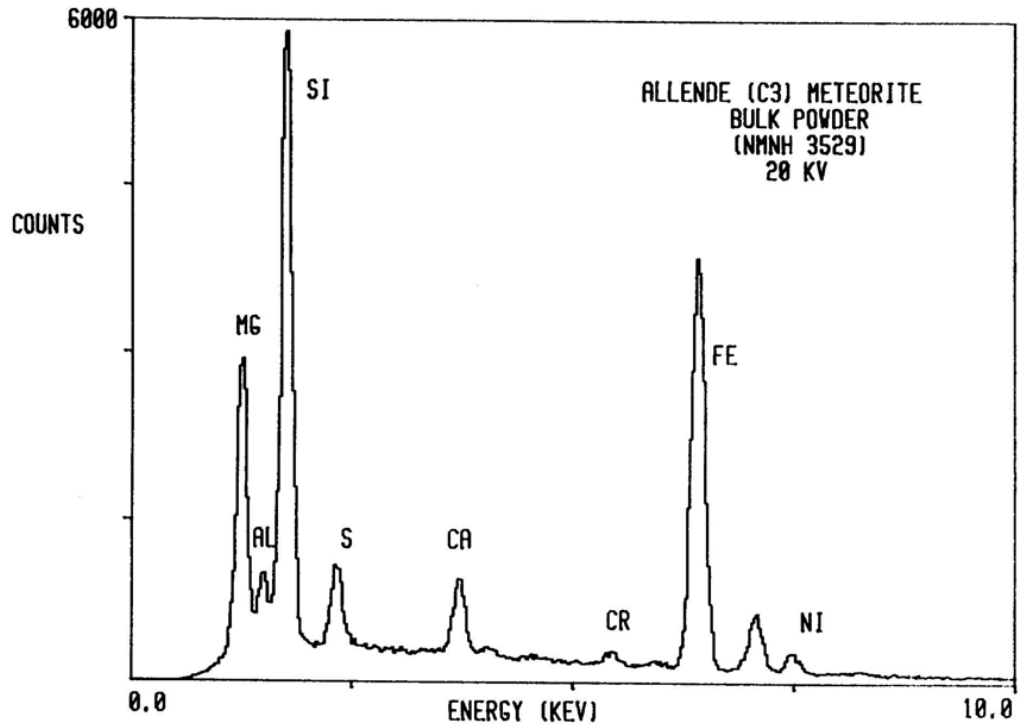
Although foreign scientists are welcome to request samples, NASA cannot provide funds to be spent outside the U.S.A. by citizens of other countries.

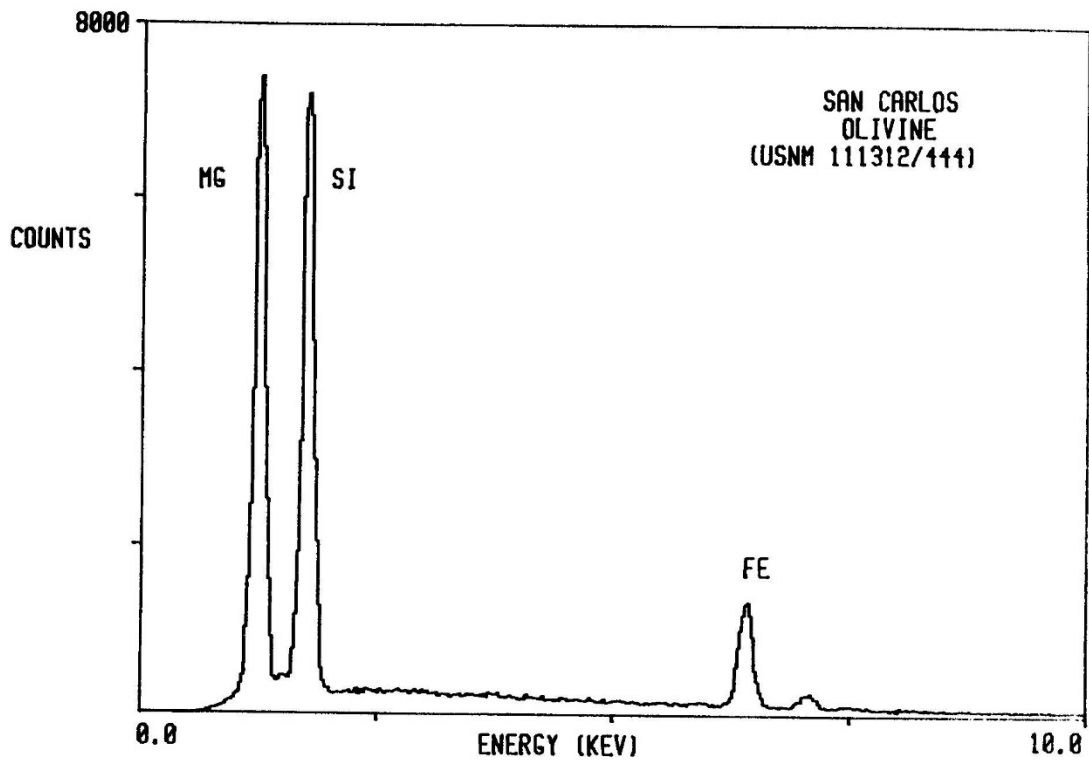
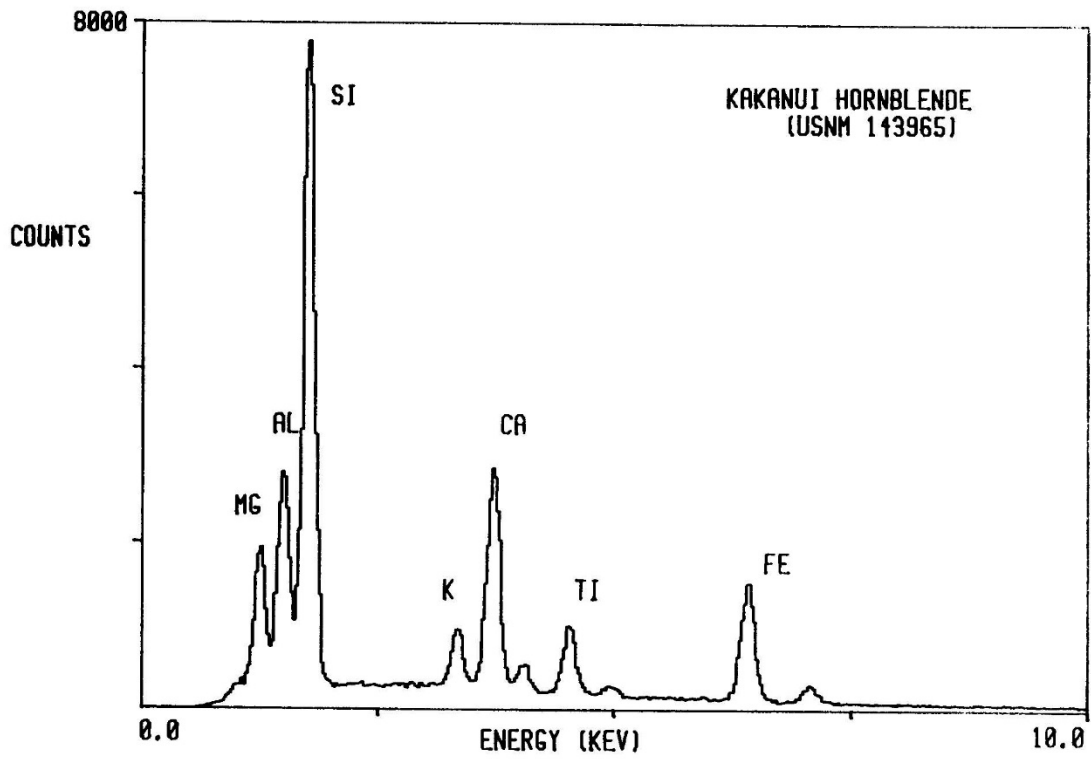
## Acknowledgements

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The ER-2 flight personnel at NASA Dryden Research Center performed the loading and unloading of the cosmic dust collectors on the ER-2 aircraft and provided flight log data and other critical assistance.

## Standard Spectra





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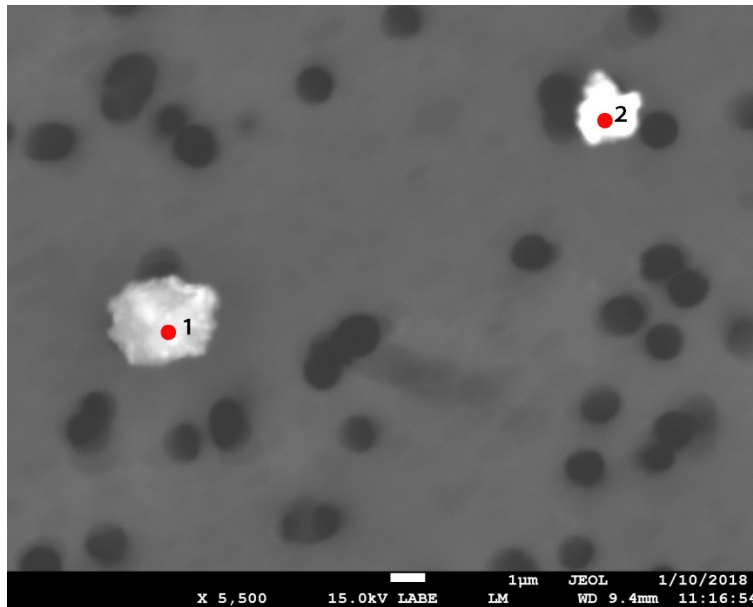


# Particle Descriptions

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## Cosmic and Possibly Cosmic Samples (C and C? Types)

## W7317 A5



<b>Particle Size:</b>	2-3 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Translucent
<b>Color:</b>	AMBER, BROWN, CLEAR
<b>Luster:</b>	Vitreous to Subvitreous
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7317 Cluster 5
<b>Comments:</b>	

SEM Photo of sample W7317 A5 with labeled EDS testing locations.

### Cluster of Origin: W7317 Cluster 5



Photo of cluster W7317 Cluster 5.

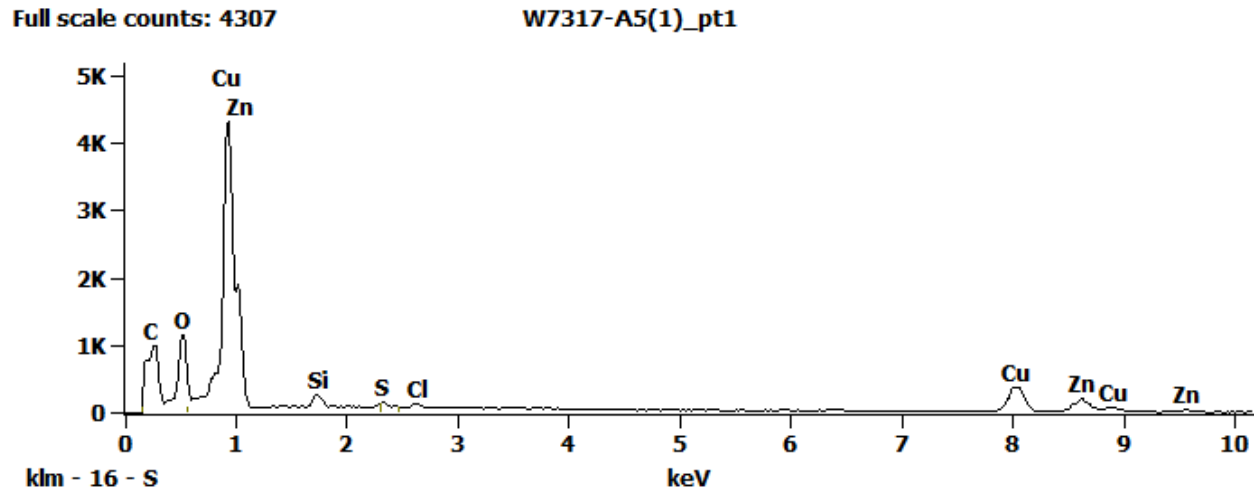
*W7317 A5 - EDS Spectra*

Figure 1. EDS Spectra for sample W7317-A-5 taken at test area 1. The test area is labeled in the particle SEM photo.

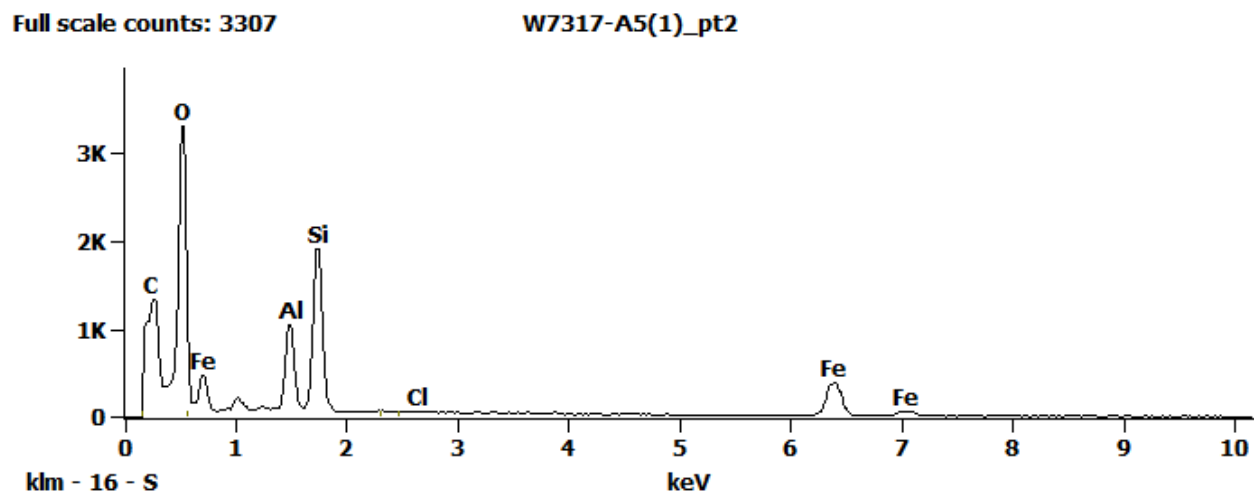
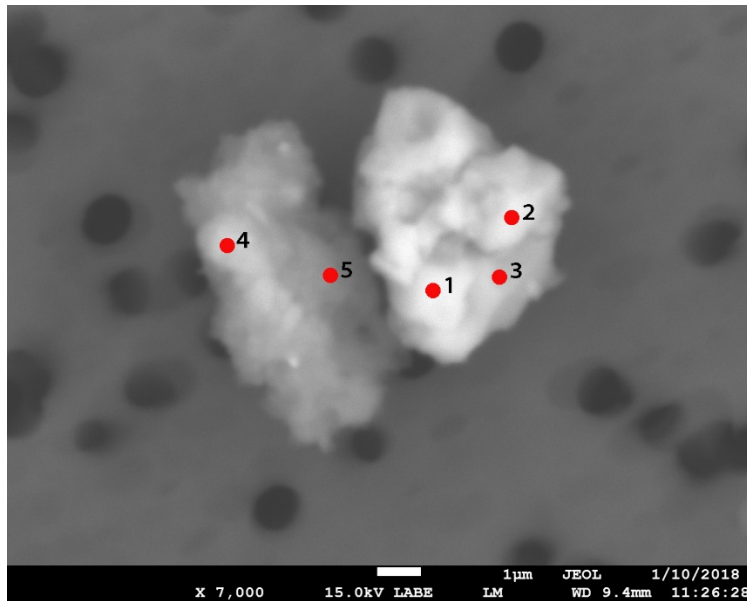


Figure 2. EDS Spectra for sample W7317-A-5 taken at test area 2. The test area is labeled in the particle SEM photo.

**W7317 A7**

SEM Photo of sample W7317 A7 with labeled EDS testing locations.

<b>Particle Size:</b>	12 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Pearly to Subvitreous
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7317 Cluster 7
<b>Comments:</b>	

*Cluster of Origin: W7317 Cluster 7*

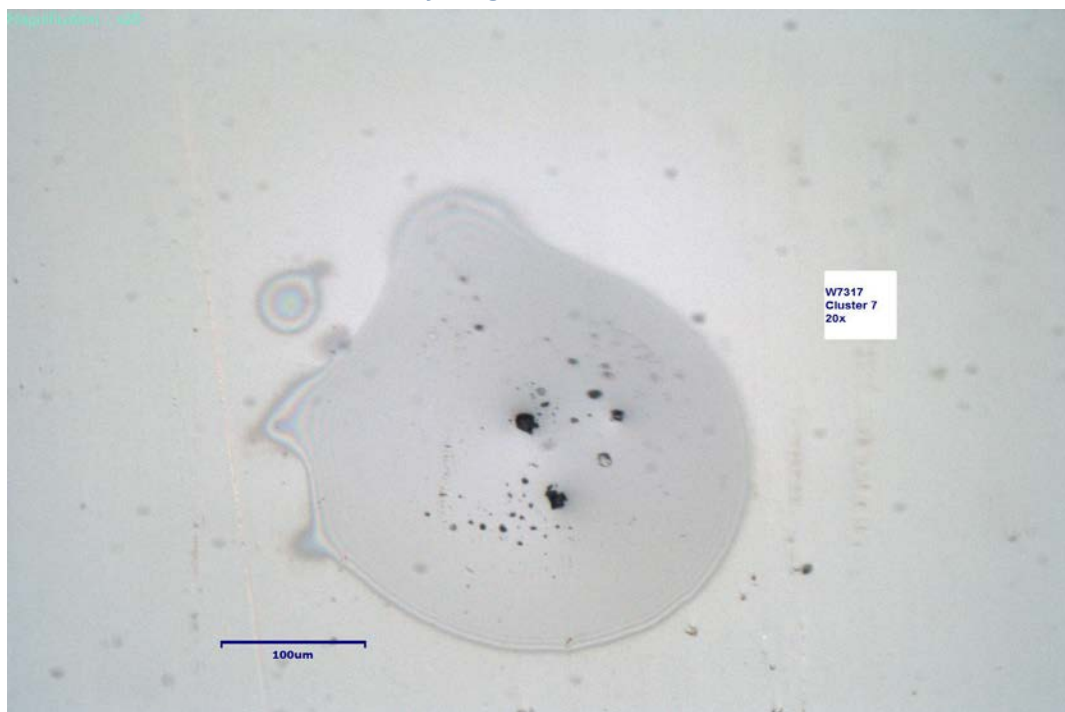


Photo of cluster W7317 Cluster 7.

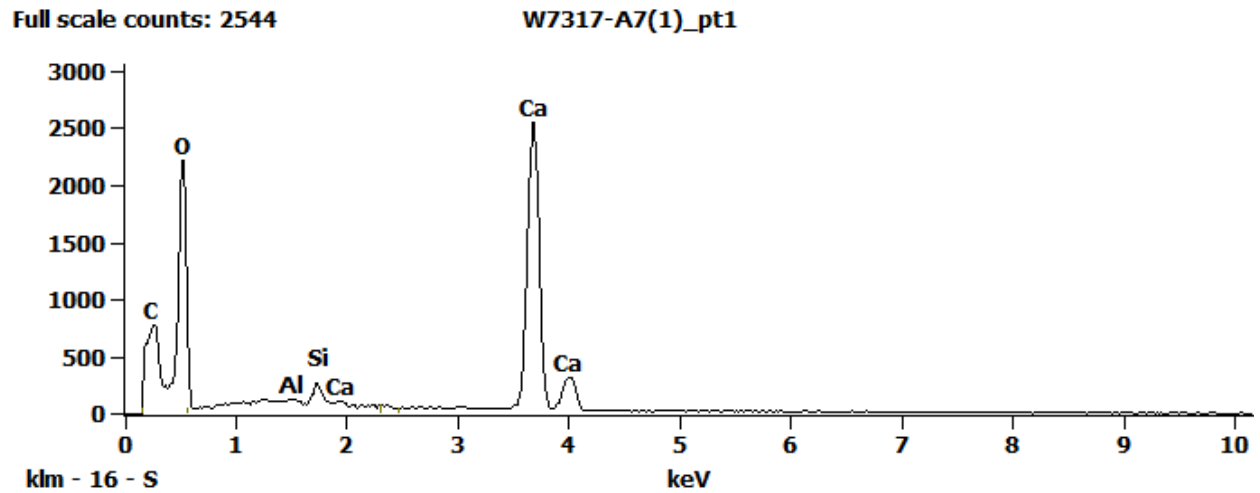
*W7317 A7 - EDS Spectra*

Figure 1. EDS Spectra for sample W7317-A-7 taken at test area 1. The test area is labeled in the particle SEM photo.

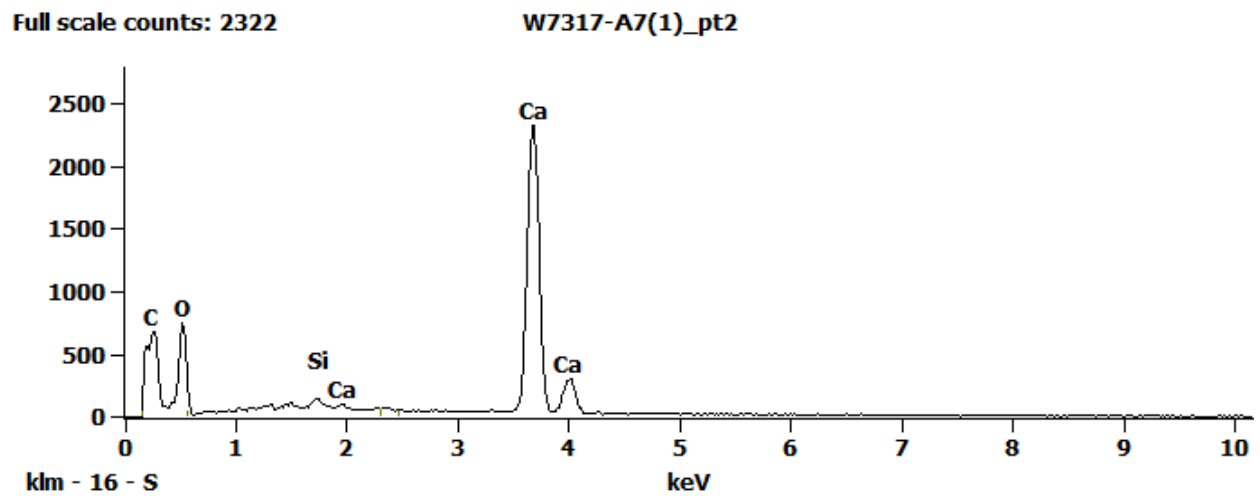


Figure 2. EDS Spectra for sample W7317-A-7 taken at test area 2. The test area is labeled in the particle SEM photo.

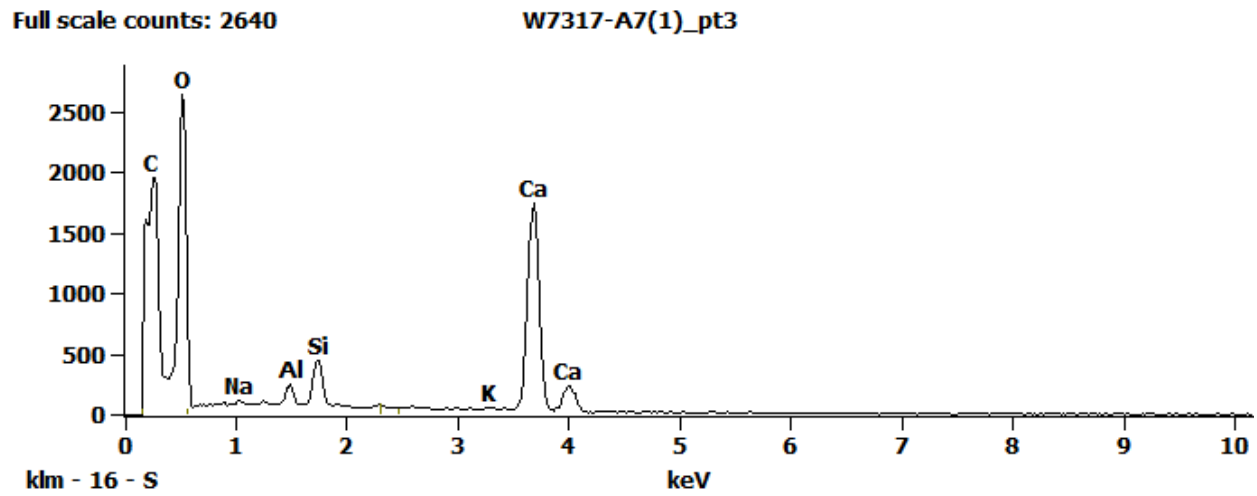


Figure 3. EDS Spectra for sample W7317-A-7 taken at test area 3. The test area is labeled in the particle SEM photo.

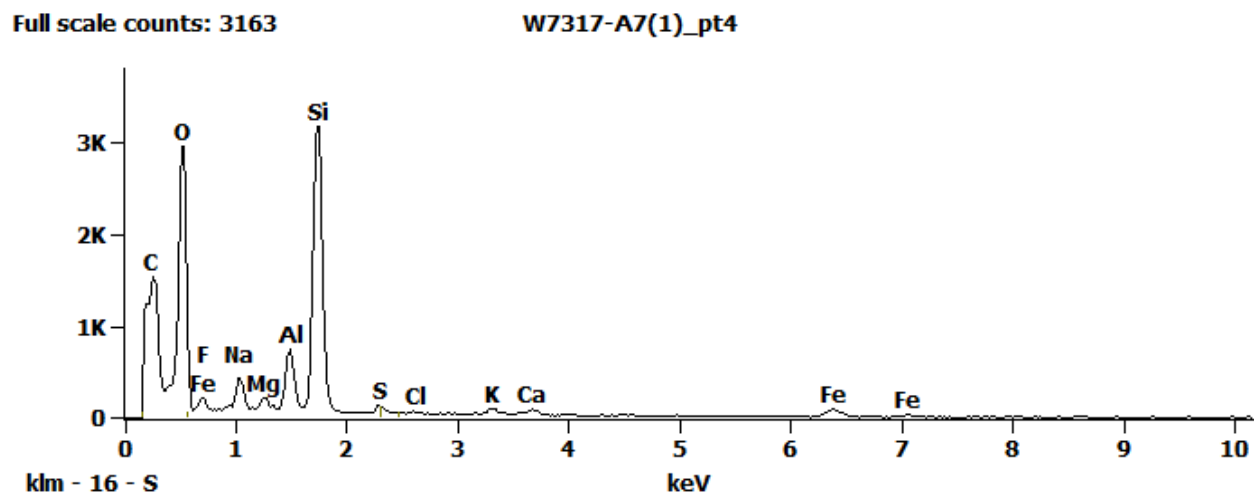
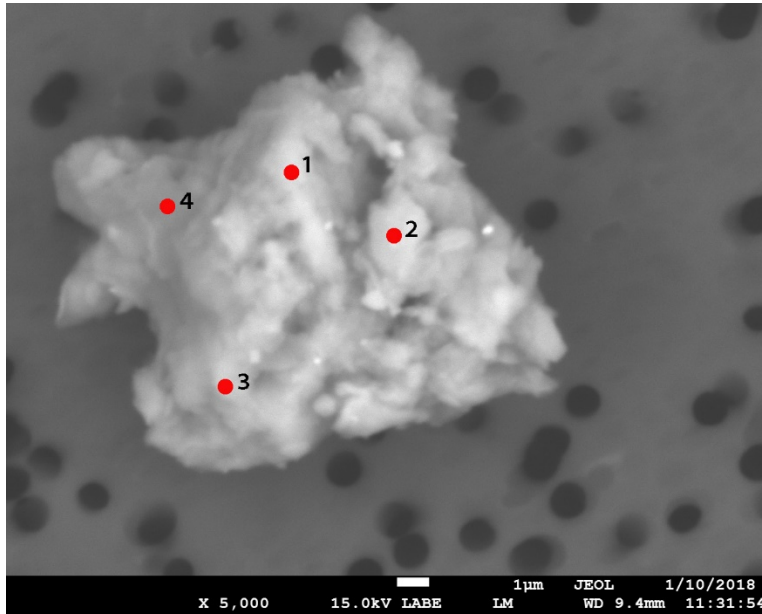


Figure 4. EDS Spectra for sample W7317-A-7 taken at test area 4. The test area is labeled in the particle SEM photo.

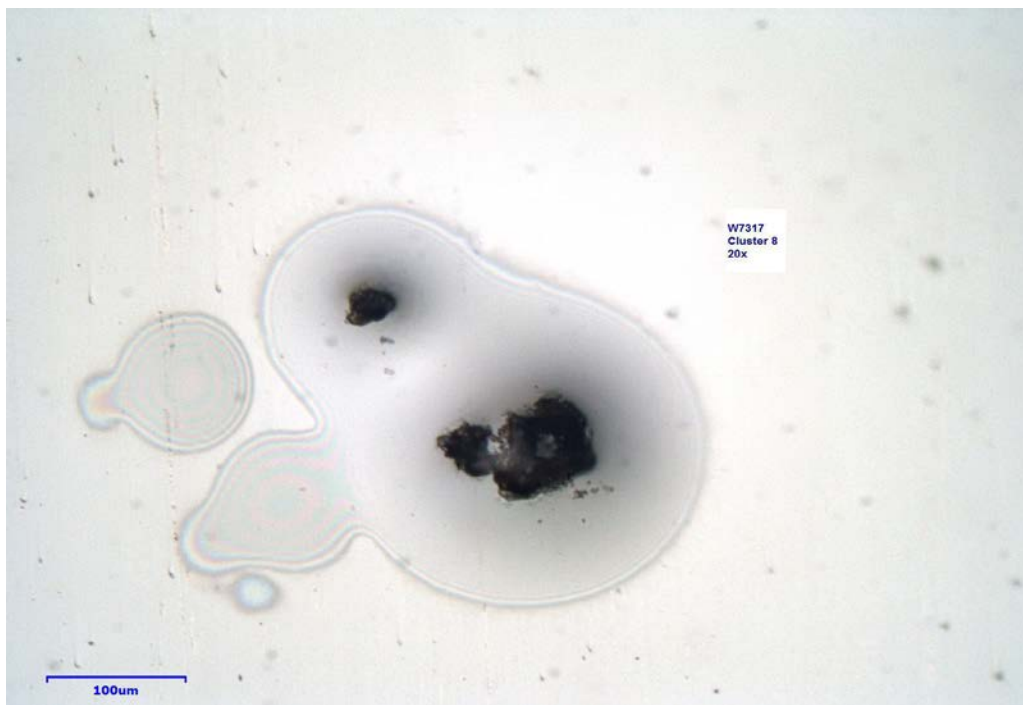
## W7317 A8



**Particle Size:** 15 µm  
**Shape:** Equidimensional  
**Transparency:** Translucent to Opaque  
**Color:** BLACK, GRAY  
**Luster:** Pearly to Dull  
**Particle Type:** POSSIBLY COSMIC  
**Cluster No.:** W7317 Cluster 8  
**Comments:**

*SEM Photo of sample W7317 A8 with labeled EDS testing locations.*

### *Cluster of Origin: W7317 Cluster 8*



*Photo of cluster W7317 Cluster 8.*

## W7317 A8 - EDS Spectra

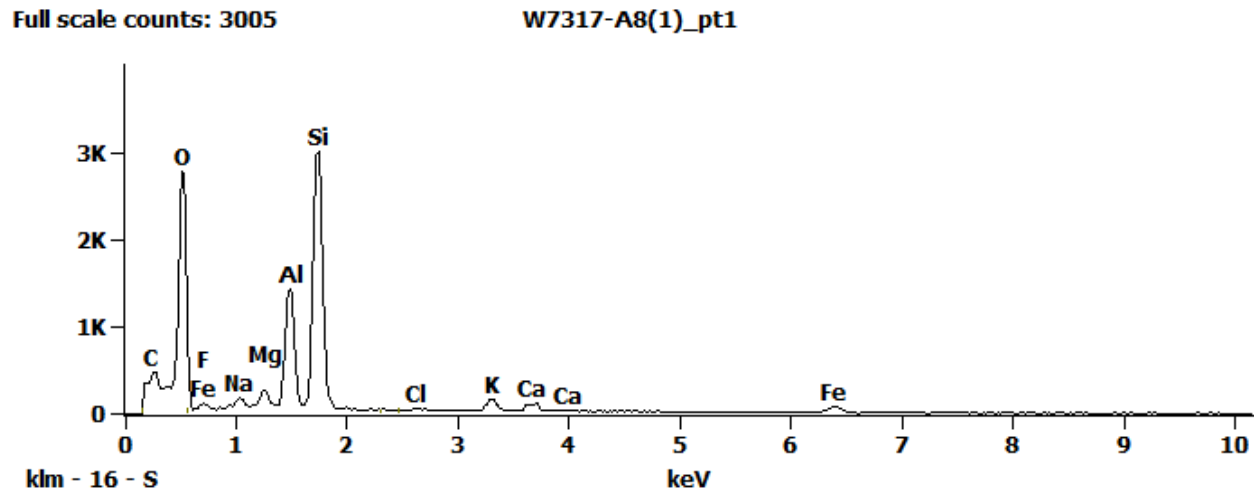


Figure 1. EDS Spectra for sample W7317-A-8 taken at test area 1. The test area is labeled in the particle SEM photo.

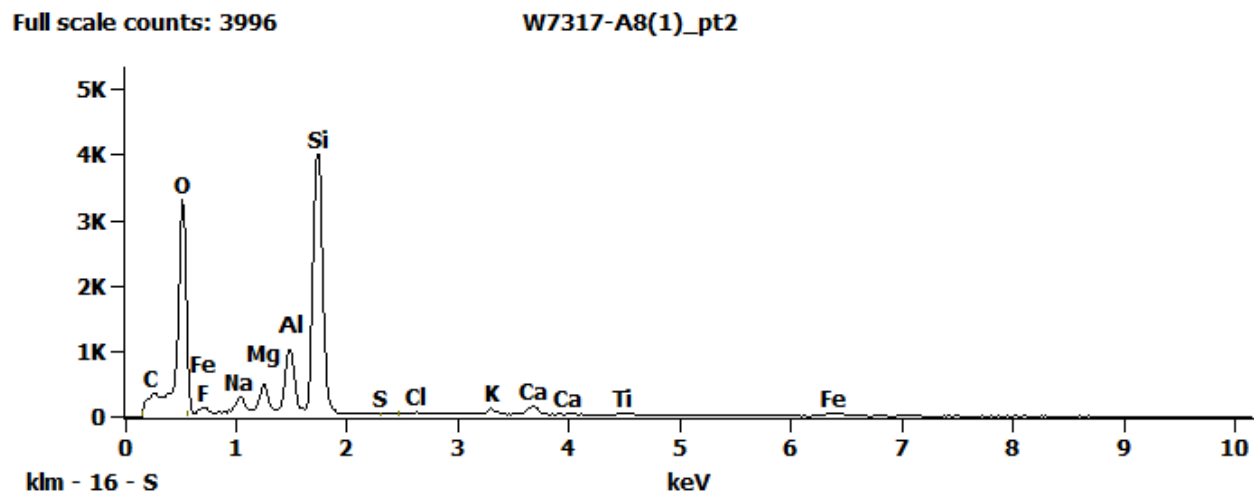


Figure 2. EDS Spectra for sample W7317-A-8 taken at test area 2. The test area is labeled in the particle SEM photo.



Full scale counts: 4850

W7317-A8(1)\_pt3

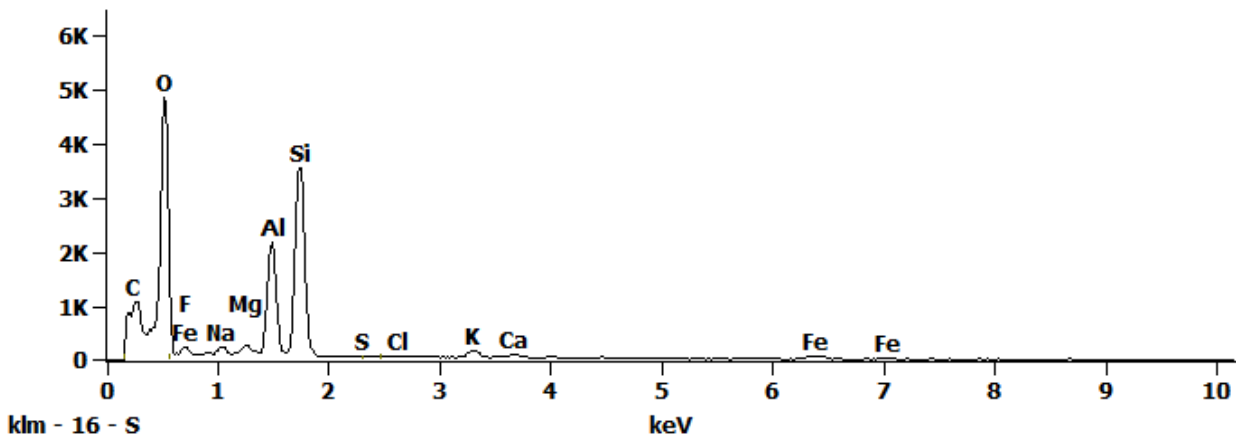


Figure 3. EDS Spectra for sample W7317-A-8 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 2394

W7317-A8(1)\_pt4

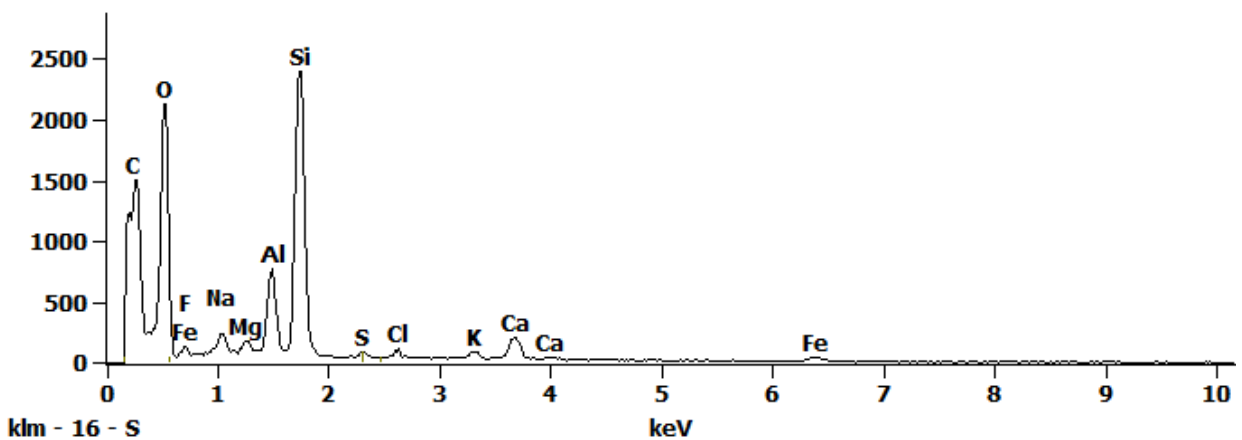
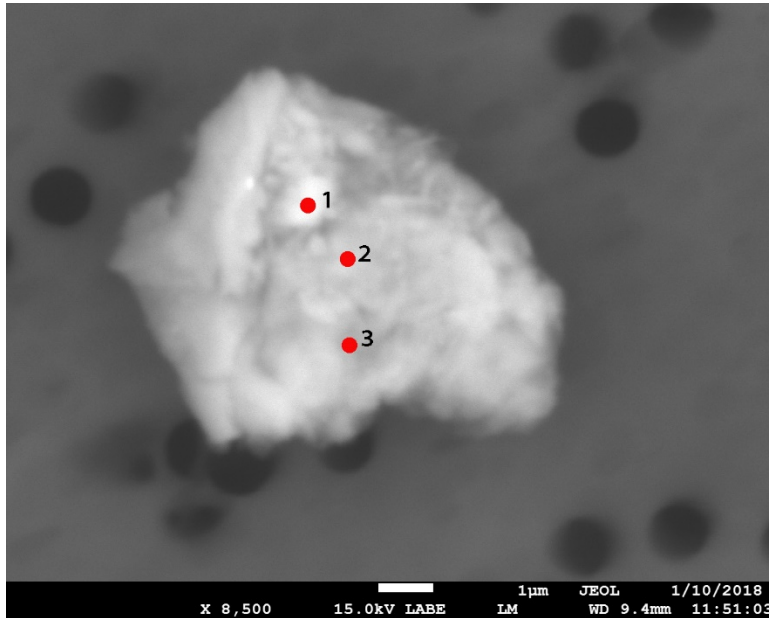


Figure 4. EDS Spectra for sample W7317-A-8 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7317 A12



<b>Particle Size:</b>	22 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7317 Cluster 12
<b>Comments:</b>	

*SEM Photo of sample W7317 A12 with labeled EDS testing locations.*

### *Cluster of Origin: W7317 Cluster 12*



*Photo of cluster W7317 Cluster 12.*

## W7317 A12 - EDS Spectra

Full scale counts: 3640

W7317-A12(1)\_pt1

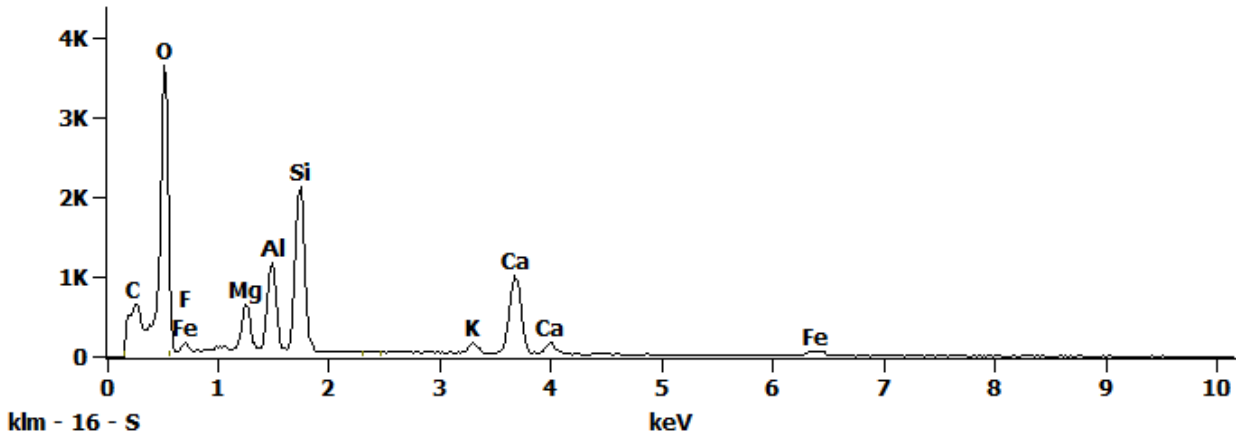


Figure 1. EDS Spectra for sample W7317-A-12 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 4406

W7317-A12(1)\_pt2

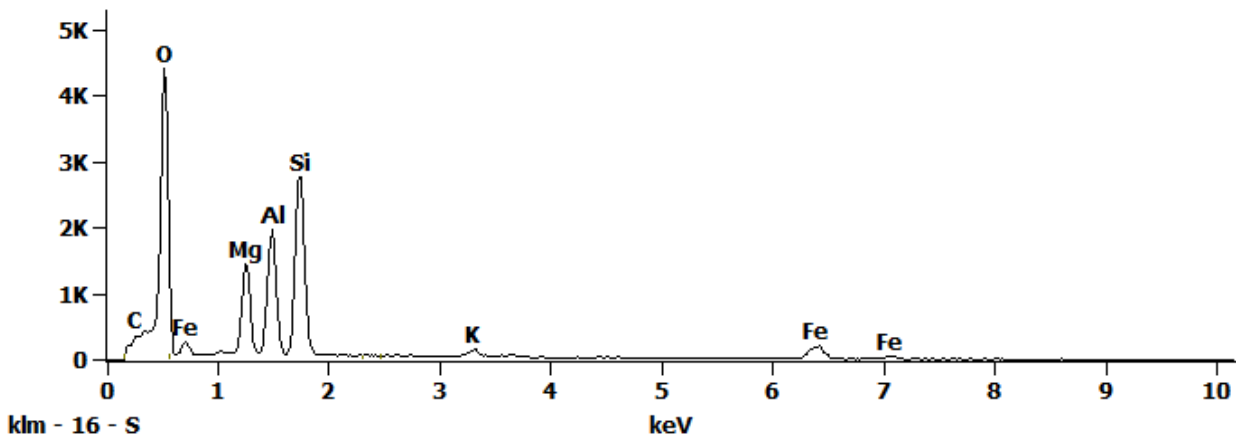


Figure 2. EDS Spectra for sample W7317-A-12 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 3560

W7317-A12(1)\_pt3

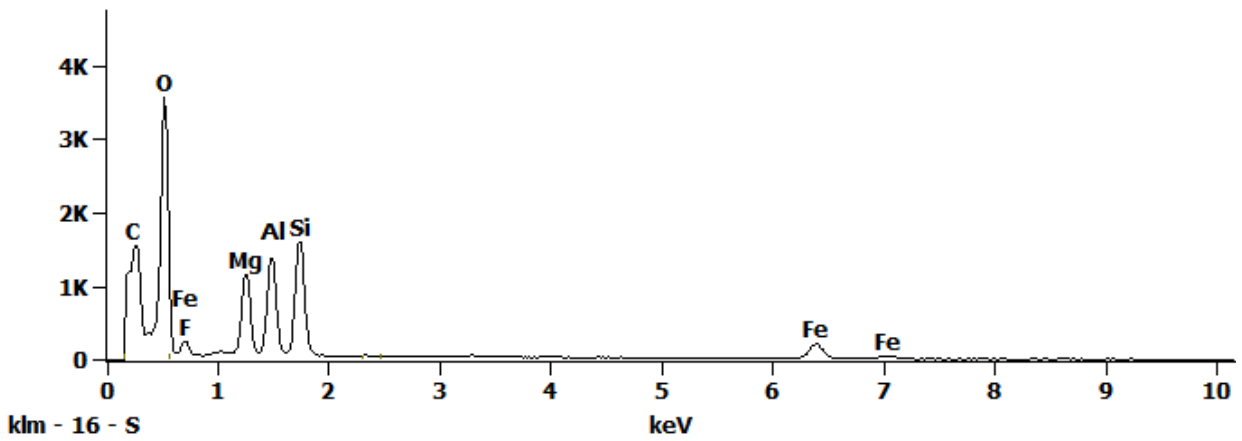
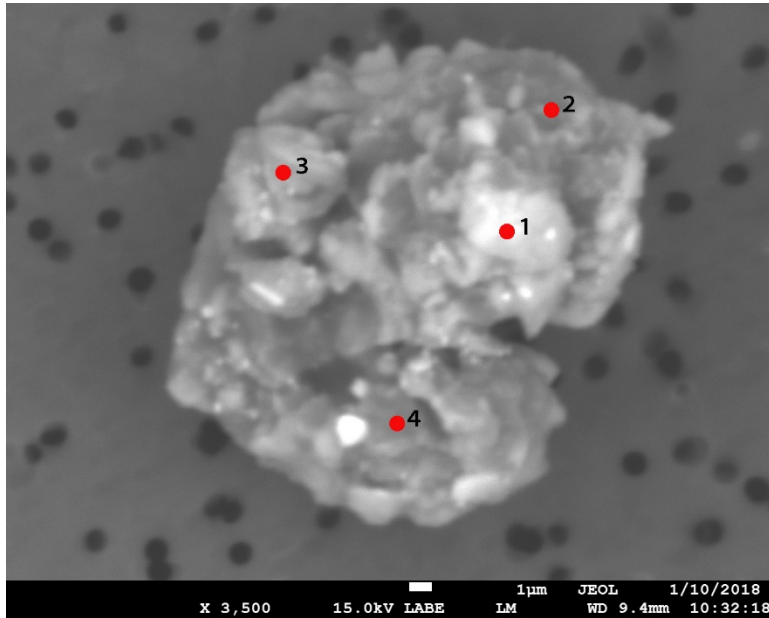


Figure 3. EDS Spectra for sample W7317-A-12 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 A13



<b>Particle Size:</b>	23 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7317 Cluster 13
<b>Comments:</b>	

SEM Photo of sample W7317 A13 with labeled EDS testing locations.

### Cluster of Origin: W7317 Cluster 13

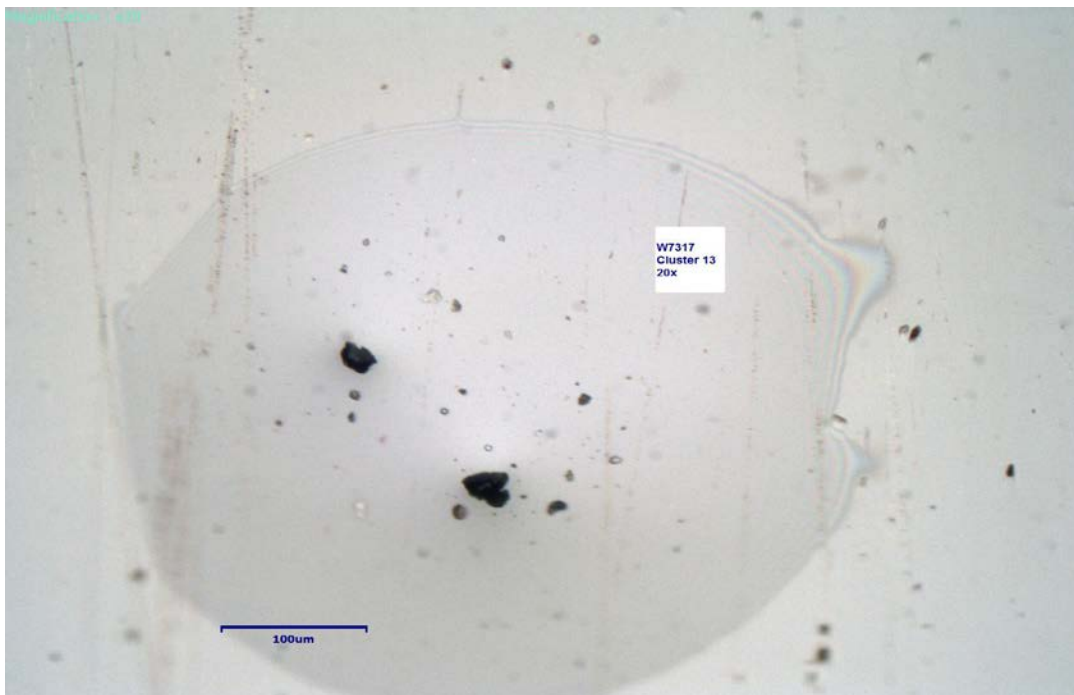


Photo of cluster W7317 Cluster 13.

## W7317 A13 - EDS Spectra

Full scale counts: 3533

W7317-A13(1)\_pt1

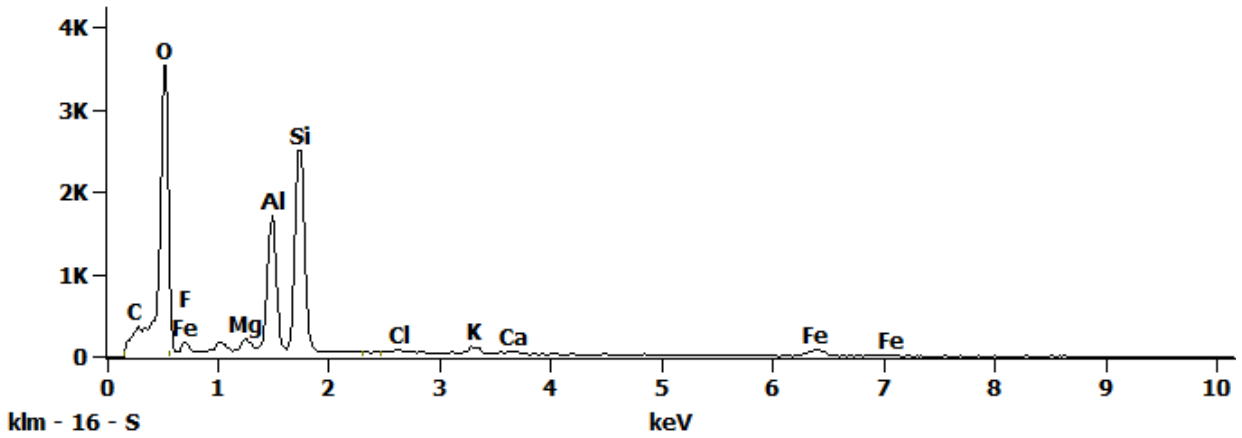


Figure 1. EDS Spectra for sample W7317-A-13 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 446

W7317-A13(1)\_pt2

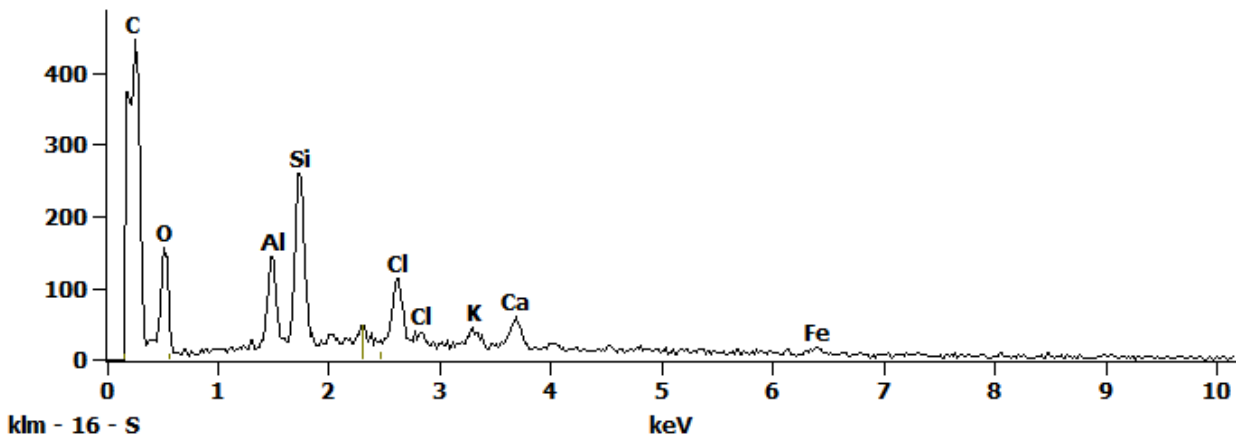


Figure 2. EDS Spectra for sample W7317-A-13 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2333

W7317-A13(1)\_pt3

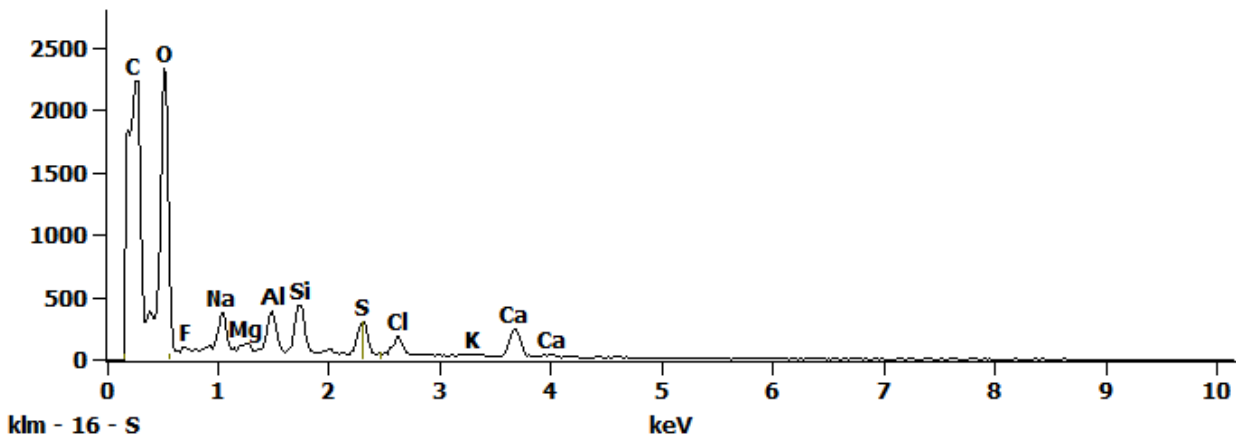


Figure 3. EDS Spectra for sample W7317-A-13 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1755

W7317-A13(1)\_pt4

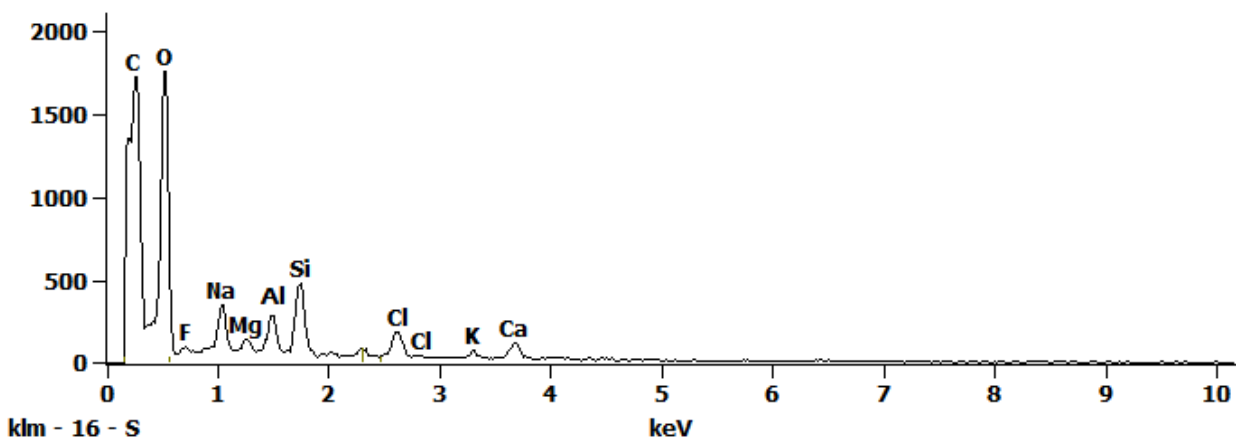
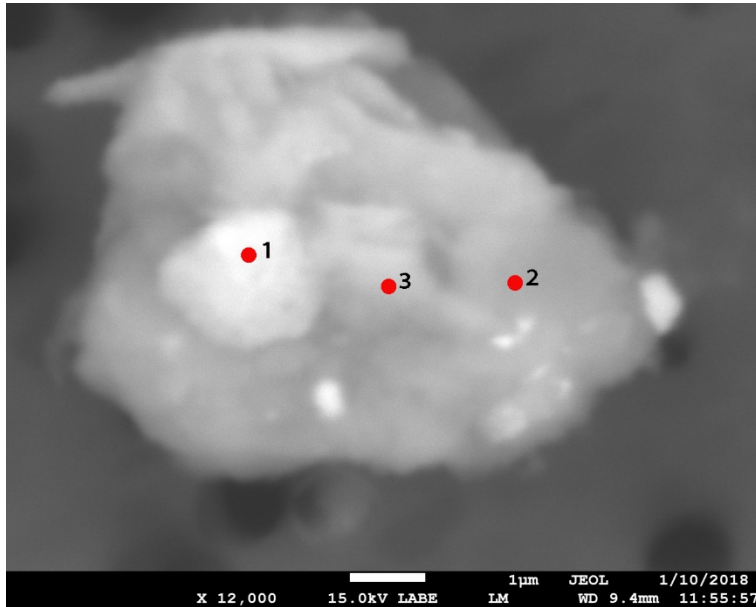


Figure 4. EDS Spectra for sample W7317-A-13 taken at test area 4. The test area is labeled in the particle SEM photo.

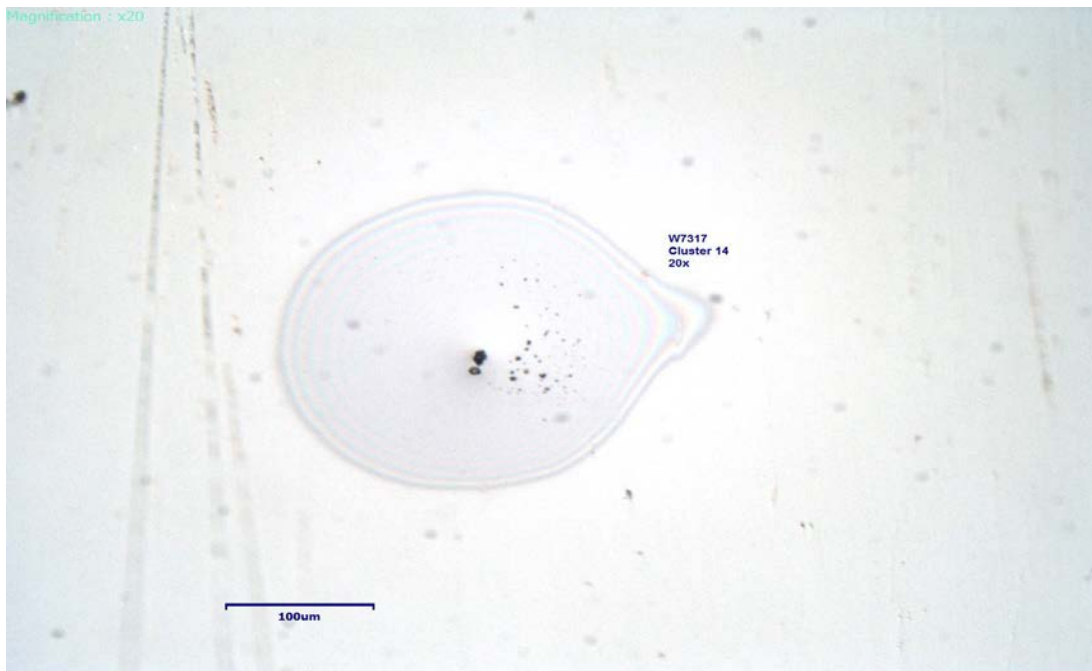
## W7317 A14



<b>Particle Size:</b>	8 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7317 Cluster 14
<b>Comments:</b>	

*SEM Photo of sample W7317 A14 with labeled EDS testing locations.*

### *Cluster of Origin: W7317 Cluster 14*



*Photo of cluster W7317 Cluster 14.*



## W7317 A14 - EDS Spectra

Full scale counts: 5009

W7317-A14(1)\_pt1

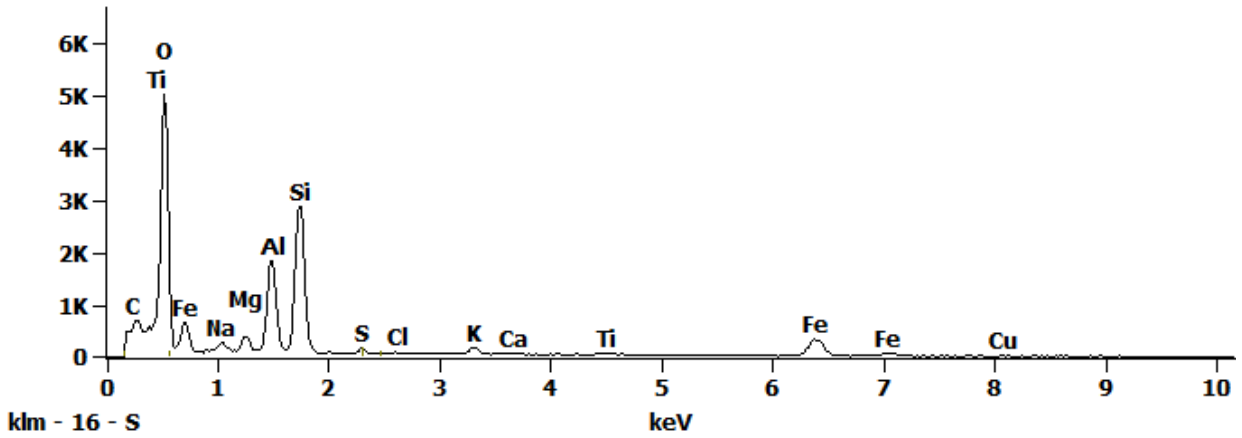


Figure 1. EDS Spectra for sample W7317-A-14 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 3295

W7317-A14(1)\_pt2

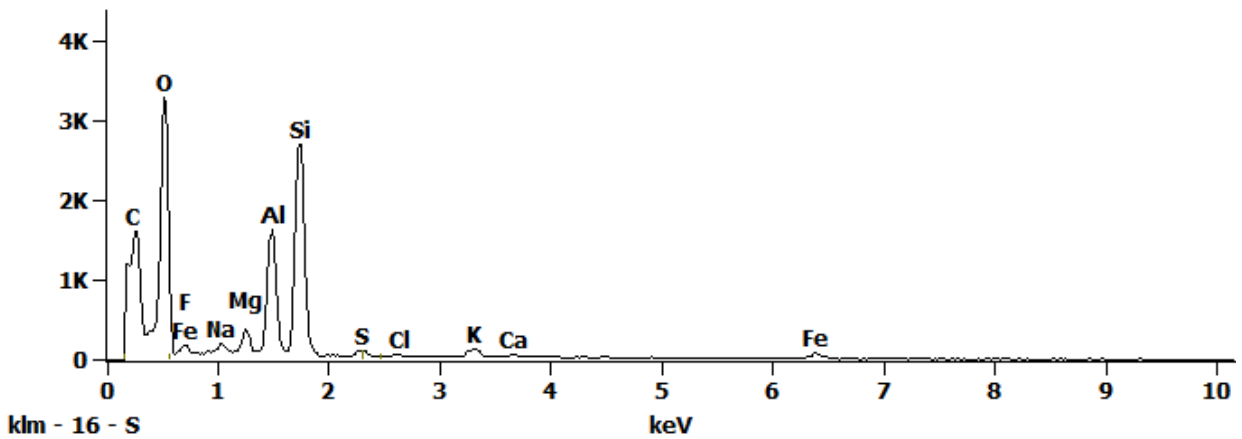


Figure 2. EDS Spectra for sample W7317-A-14 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 5681

W7317-A14(1)\_pt3

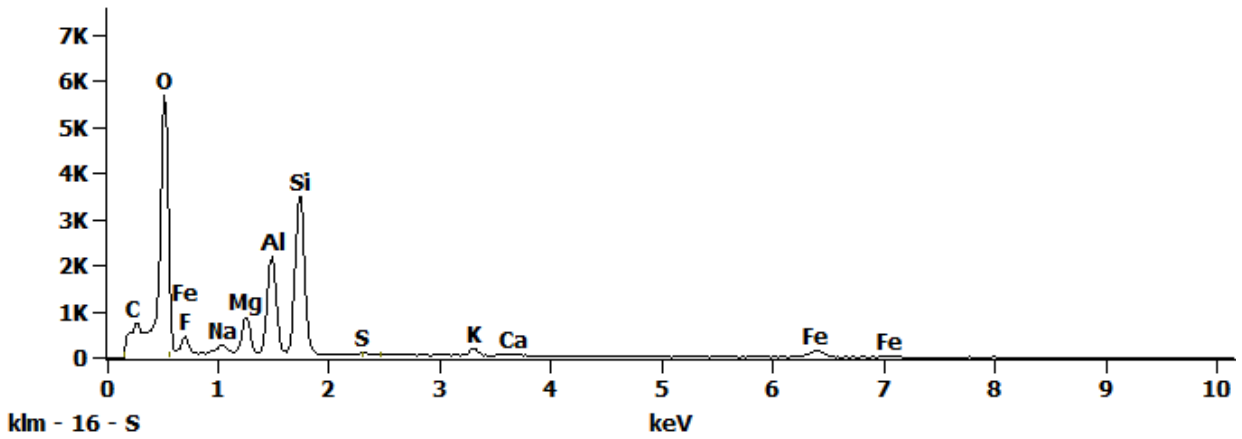
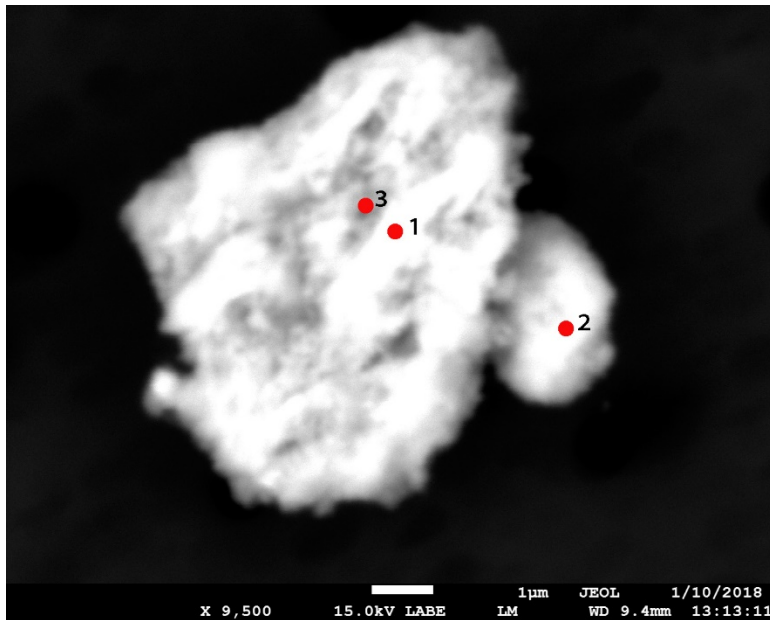


Figure 3. EDS Spectra for sample W7317-A-14 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 A16



**Particle Size:** 9 µm  
**Shape:** Spherical  
**Transparency:** Translucent  
**Color:** BROWN, GRAY  
**Luster:** Subvitreous  
**Particle Type:** POSSIBLY COSMIC  
**Cluster No.:** W7317 Cluster 16  
**Comments:**

*SEM Photo of sample W7317 A16 with labeled EDS testing locations.*

### *Cluster of Origin: W7317 Cluster 16*



*Photo of cluster W7317 Cluster 16.*

## W7317 A16 - EDS Spectra

Full scale counts: 4622

W7317-A16(1)\_pt1

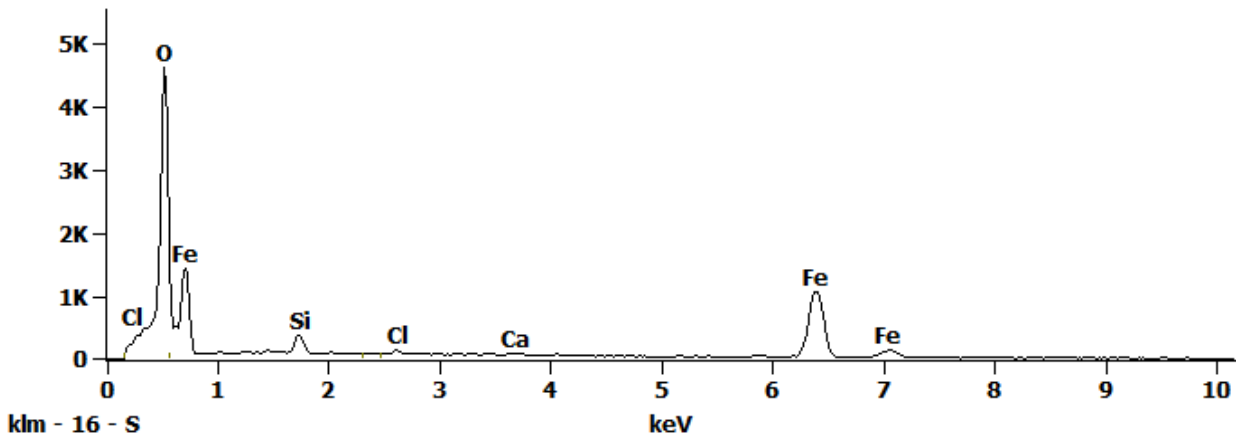


Figure 1. EDS Spectra for sample W7317-A-16 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 4283

W7317-A16(1)\_pt2

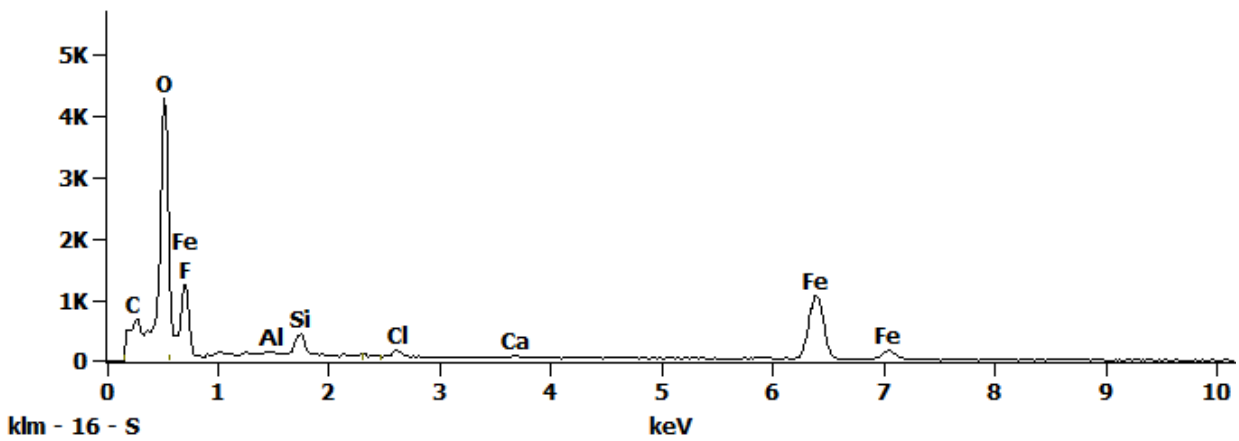


Figure 2. EDS Spectra for sample W7317-A-16 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 3540

W7317-A16(1)\_pt3

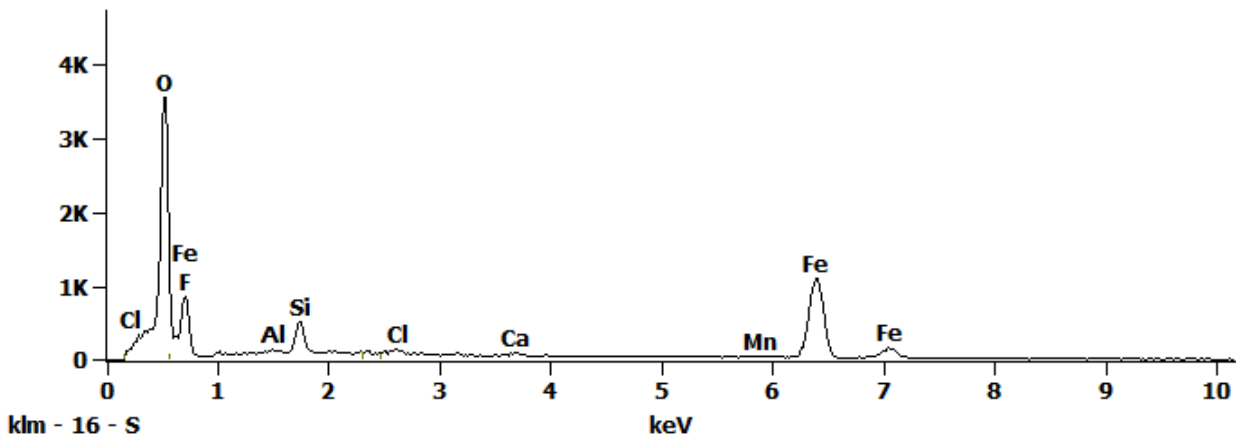
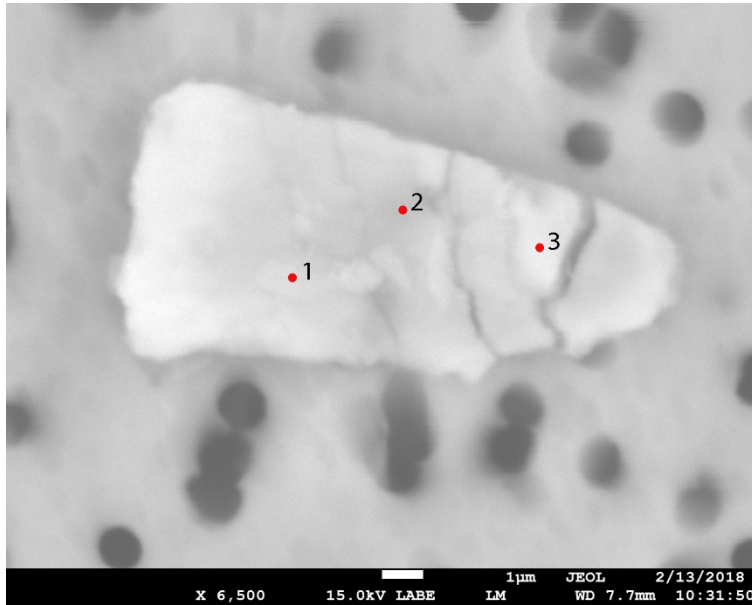


Figure 3. EDS Spectra for sample W7317-A-16 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 C2



<b>Particle Size:</b>	10 $\mu\text{m}$
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque to Subvitreous
<b>Color:</b>	GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7317 Cluster 15
<b>Comments:</b>	

*SEM Photo of sample W7317 C2 with labeled EDS testing locations.*

### *Cluster of Origin: W7317 Cluster 15*



*Photo of cluster W7317 Cluster 15.*

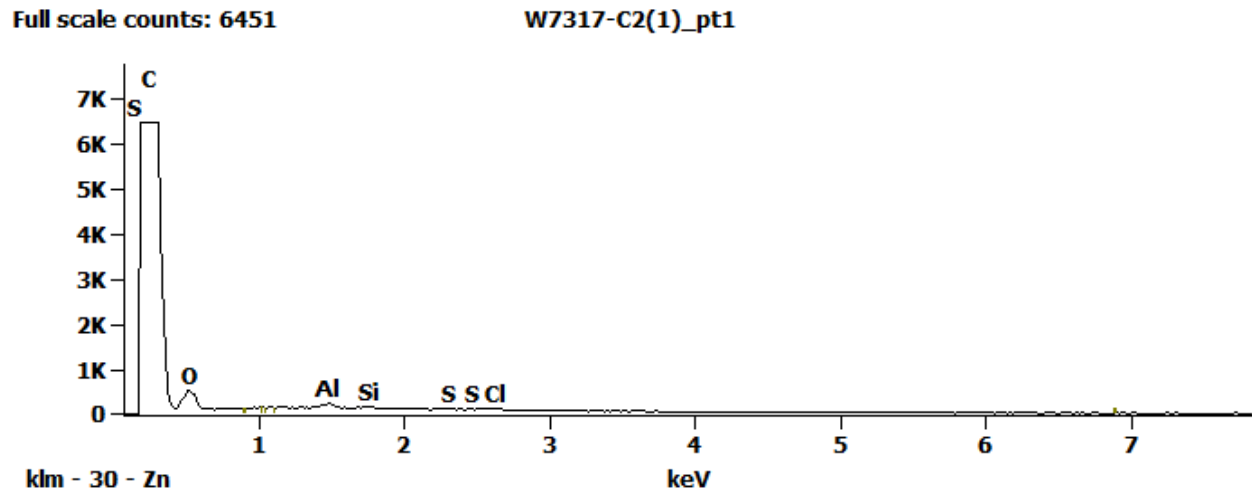
*W7317 C2 - EDS Spectra*

Figure 1. EDS Spectra for sample W7317-C-2 taken at test area 1. The test area is labeled in the particle SEM photo.

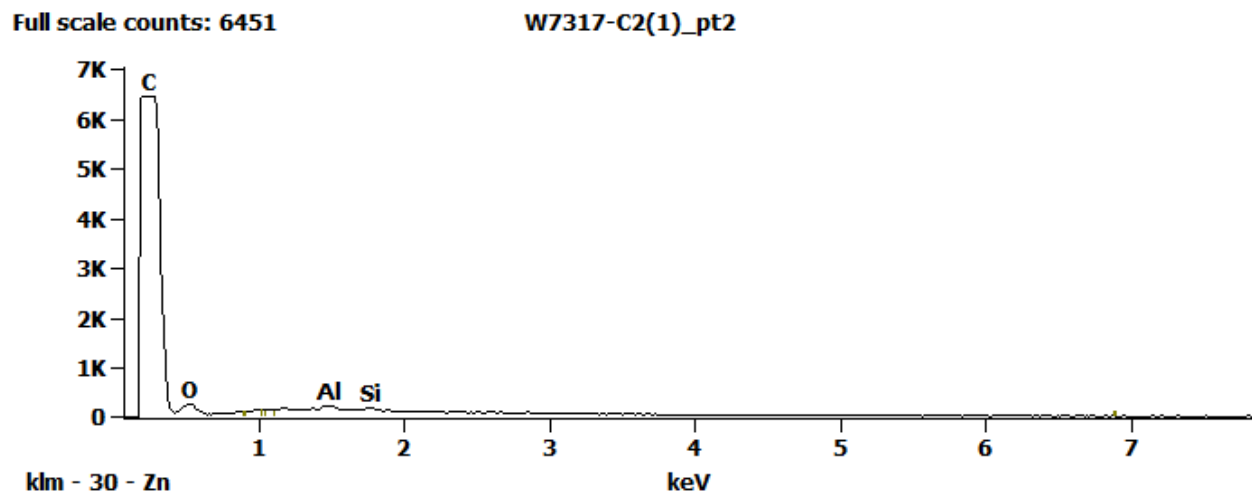


Figure 2. EDS Spectra for sample W7317-C-2 taken at test area 2. The test area is labeled in the particle SEM photo.

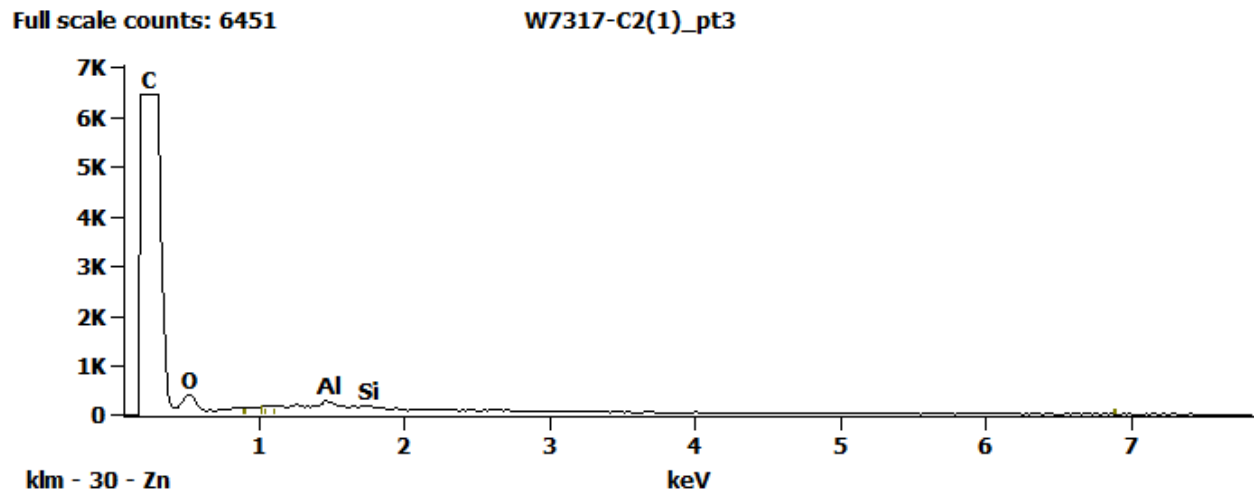
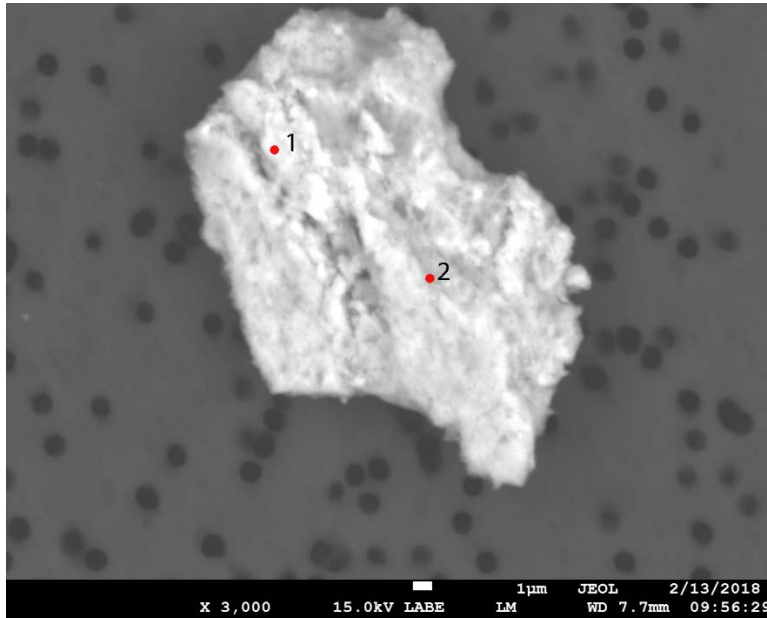


Figure 3. EDS Spectra for sample W7317-C-2 taken at test area 3. The test area is labeled in the particle SEM photo.



## W7317 C3



<b>Particle Size:</b>	28 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7317 C3 with labeled EDS testing locations.

### W7317 C3 - EDS Spectra

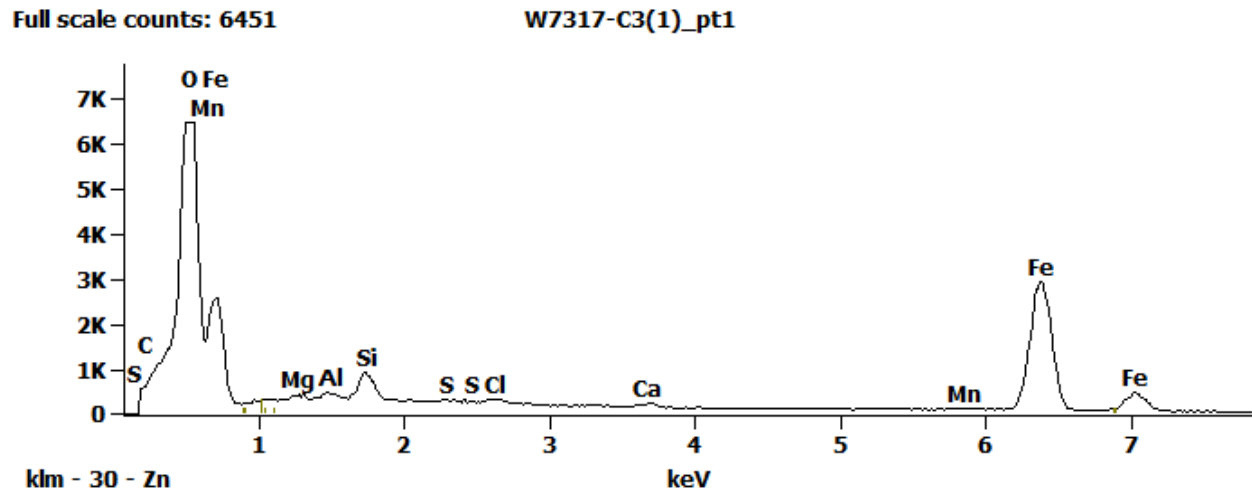


Figure 1. EDS Spectra for sample W7317-C-3 taken at test area 1. The test area is labeled in the particle SEM photo.

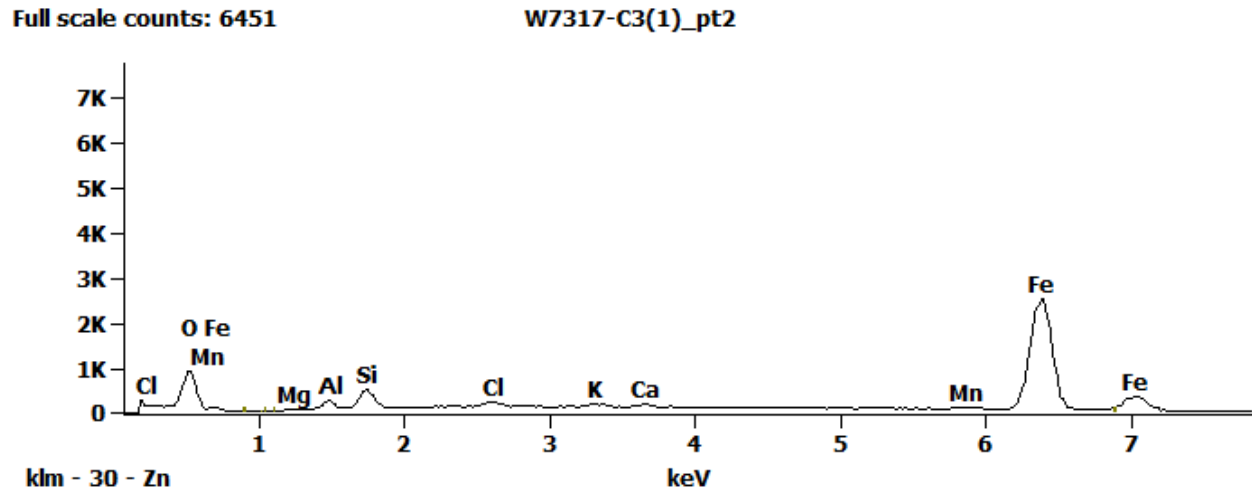
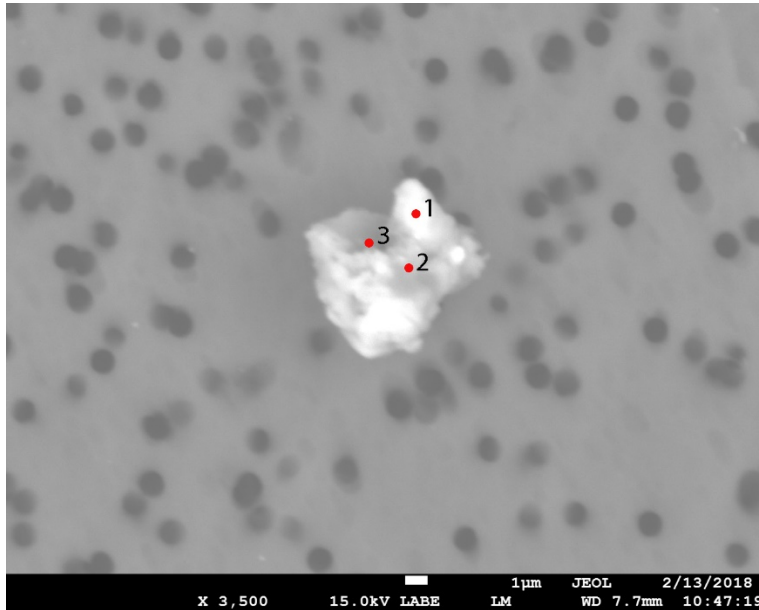


Figure 2. EDS Spectra for sample W7317-C-3 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7317 C4



<b>Particle Size:</b>	10 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7317 C4 with labeled EDS testing locations.

### W7317 C4 - EDS Spectra

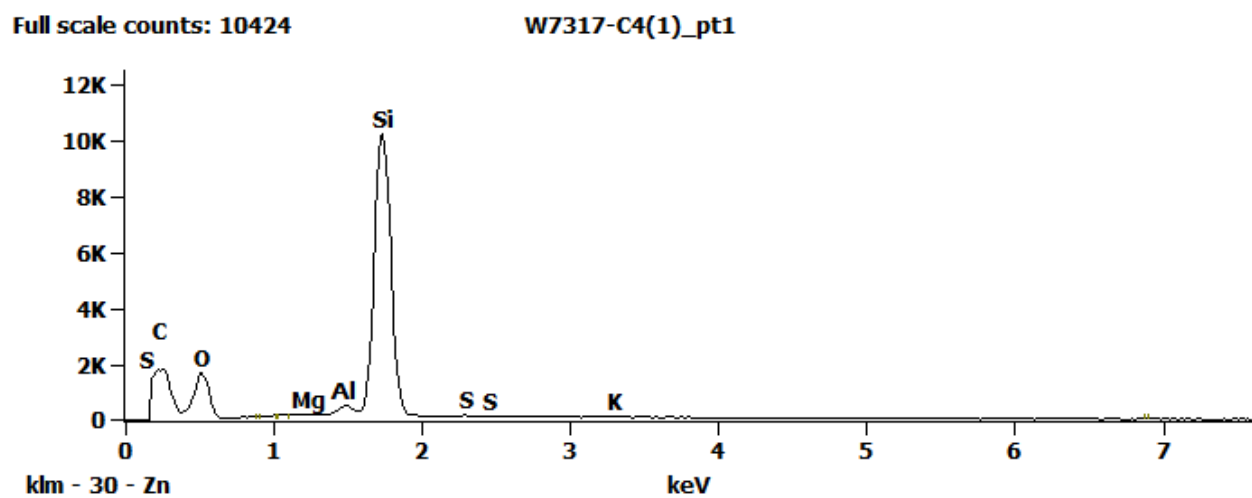


Figure 1. EDS Spectra for sample W7317-C-4 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 10424

W7317-C4(1)\_pt2

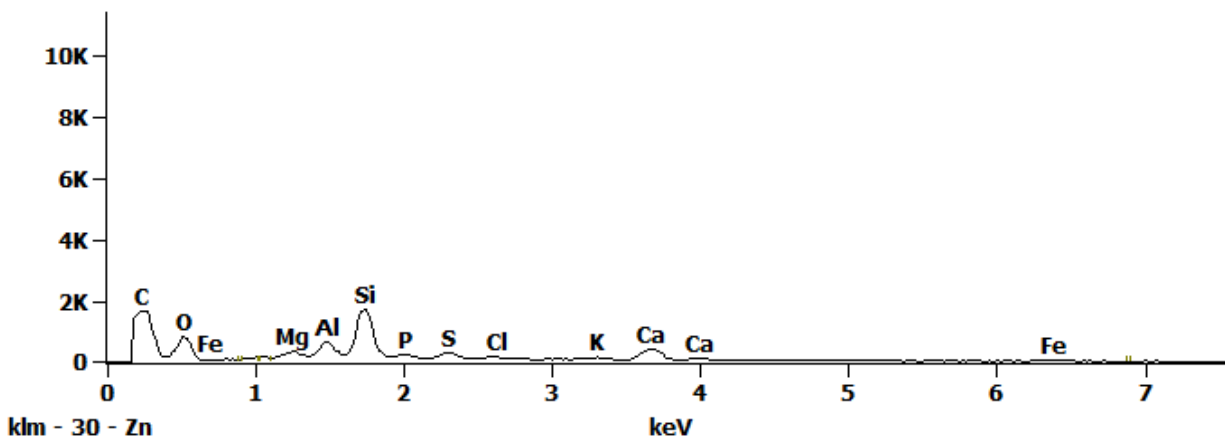


Figure 2. EDS Spectra for sample W7317-C-4 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 10424

W7317-C4(1)\_pt3

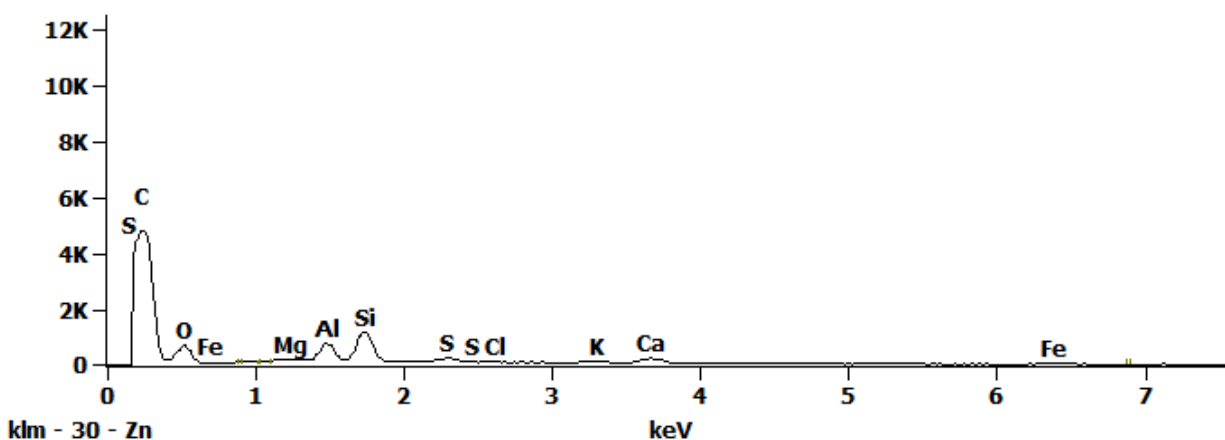
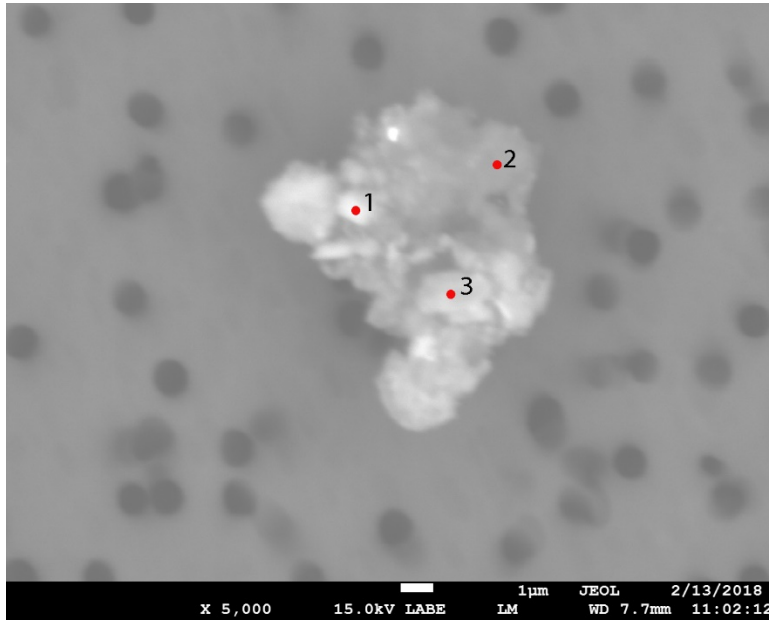


Figure 3. EDS Spectra for sample W7317-C-4 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 C5



<b>Particle Size:</b>	12 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7317 C5 with labeled EDS testing locations.

### W7317 C5 - EDS Spectra

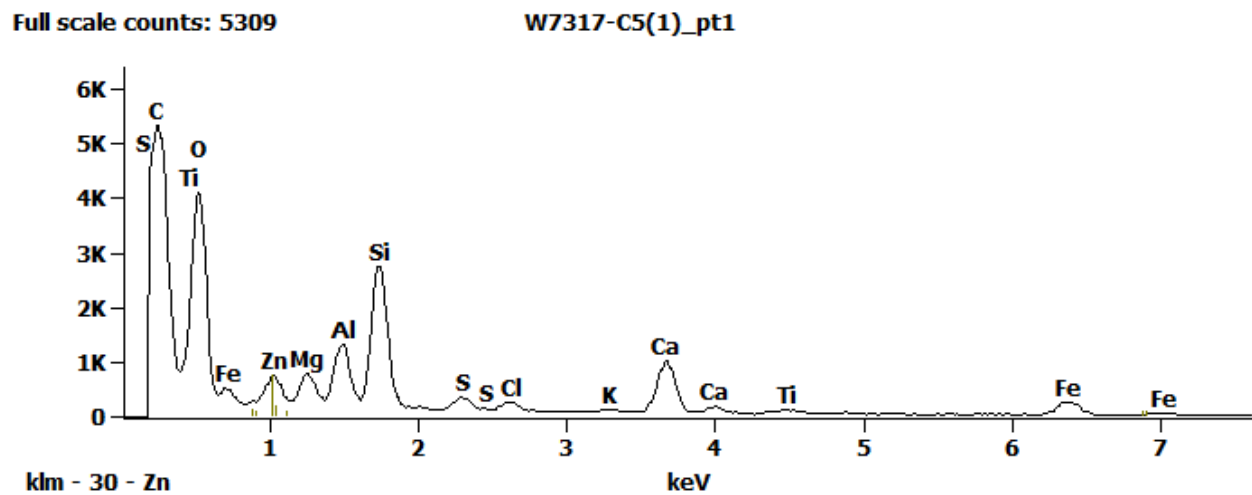


Figure 1. EDS Spectra for sample W7317-C-5 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 5309

W7317-C5(1)\_pt2

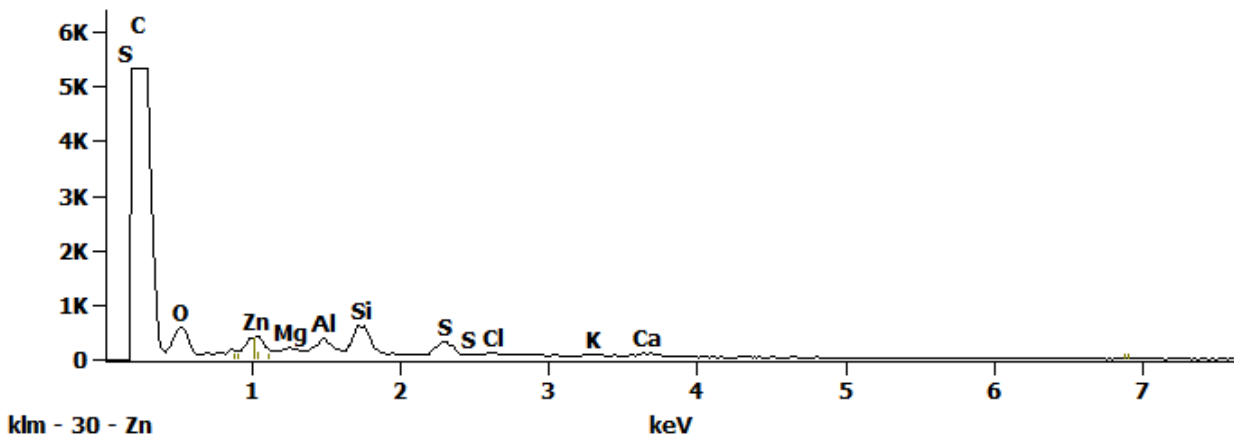


Figure 2. EDS Spectra for sample W3717-C-5 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 5309

W7317-C5(1)\_pt3

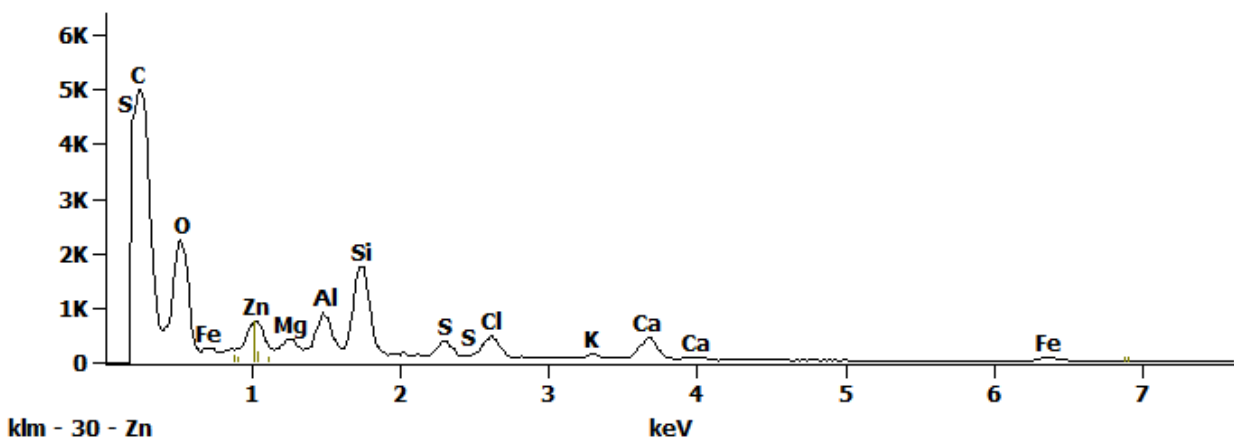
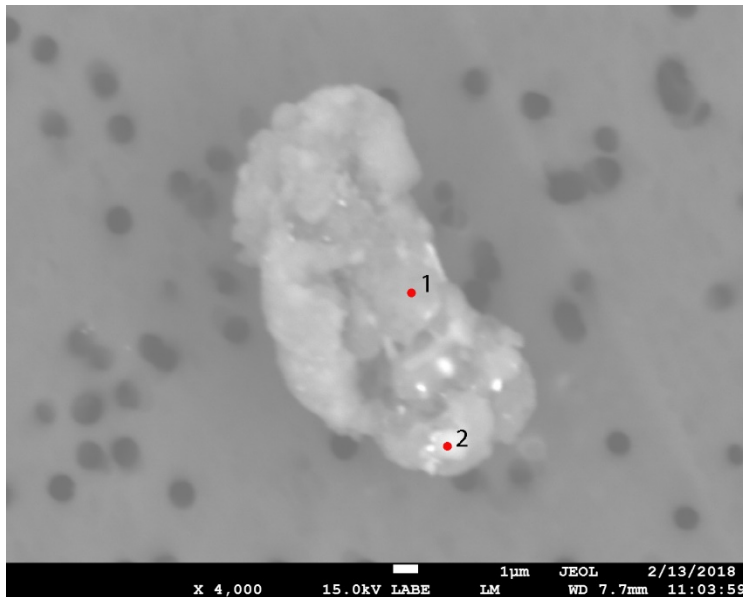


Figure 3. EDS Spectra for sample W3717-C-5 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 C6



<b>Particle Size:</b>	17x10 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7317 C6 with labeled EDS testing locations.

### W7317 C6 - EDS Spectra

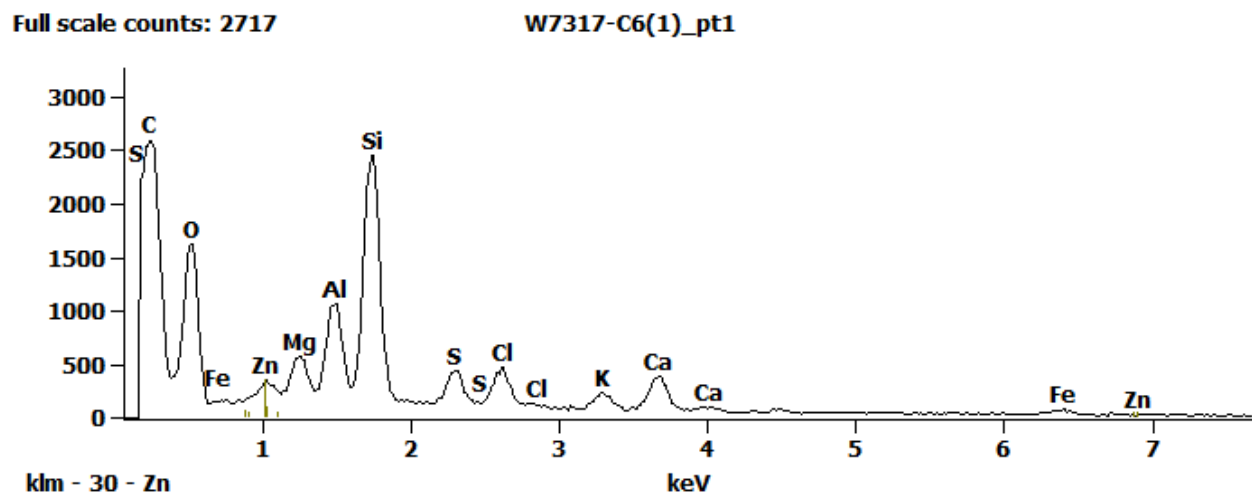


Figure 1. EDS Spectra for sample W7317-C-6 taken at test area 1. The test area is labeled in the particle SEM photo.

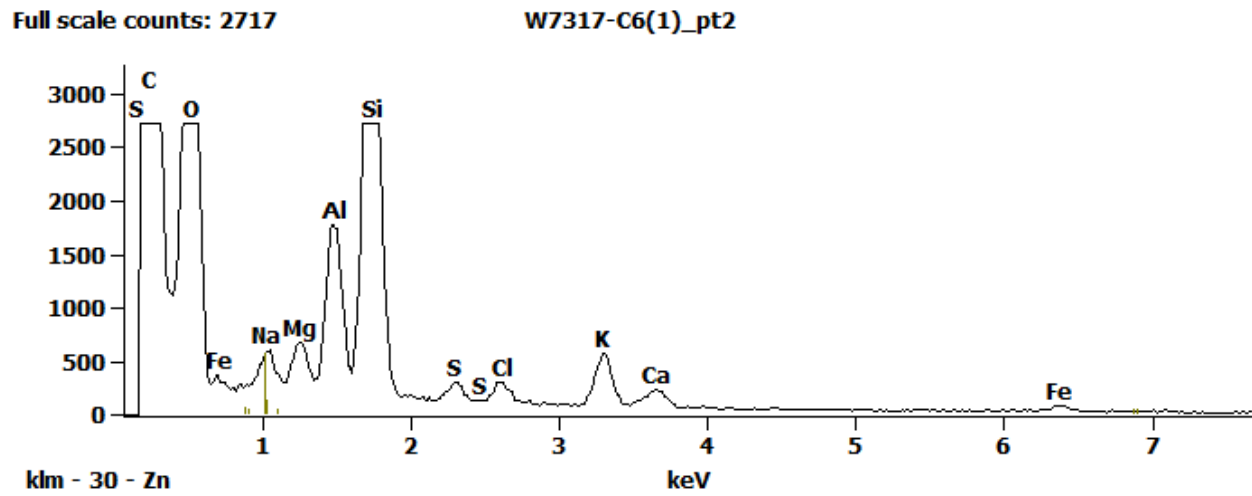
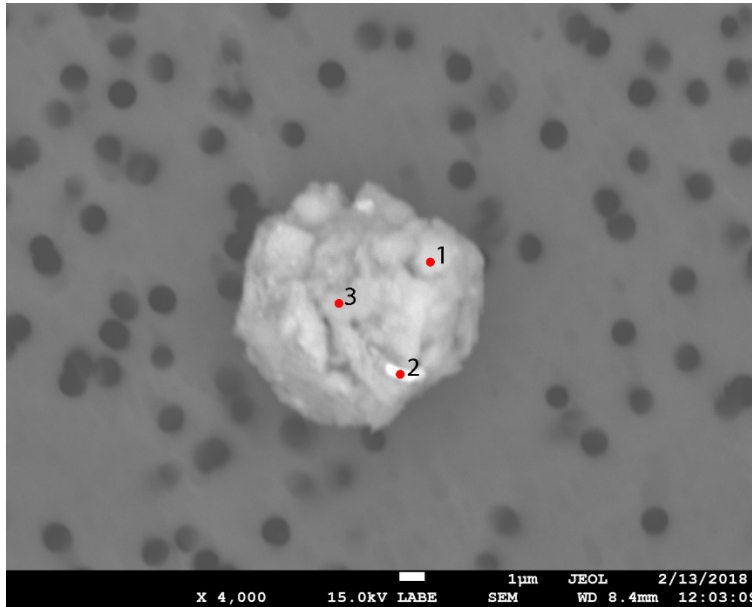


Figure 2. EDS Spectra for sample W7317-C-6 taken at test area 2. The test area is labeled in the particle SEM photo.



## W7317 C12



<b>Particle Size:</b>	10 µm
<b>Shape:</b>	Spherical
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	AMBER
<b>Luster:</b>	Resinous
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7317 C12 with labeled EDS testing locations.

### W7317 C12 - EDS Spectra

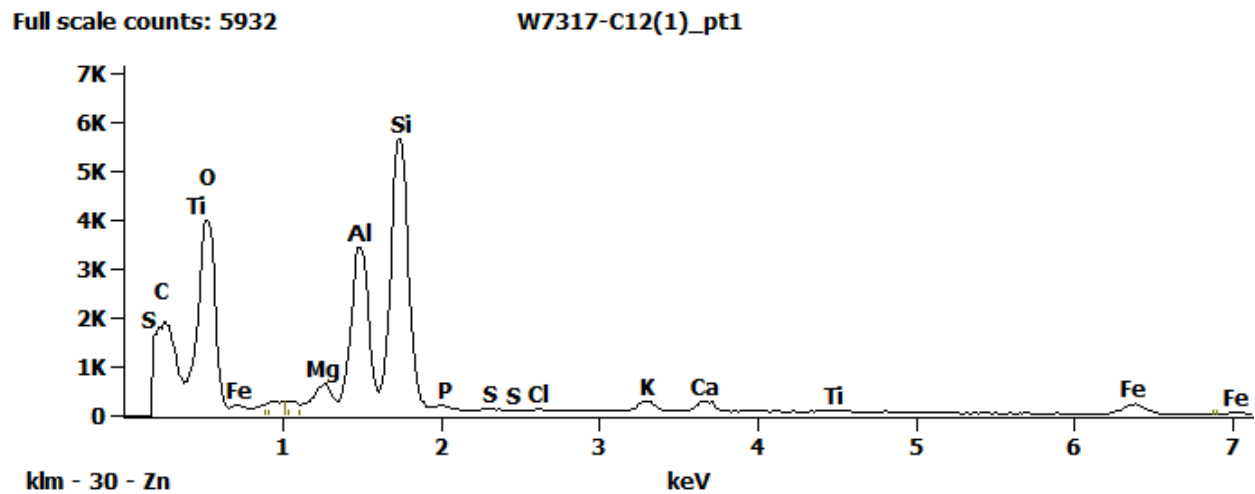


Figure 1. EDS Spectra for sample W7317-C-12 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 5932

W7317-C12(1)\_pt2

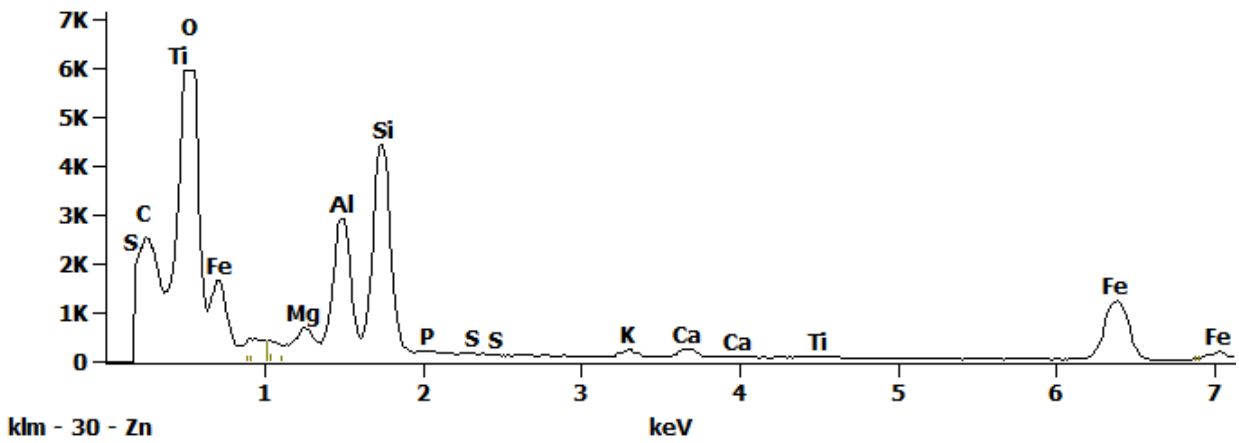


Figure 2. EDS Spectra for sample W7317-C-12 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 5932

W7317-C12(1)\_pt3

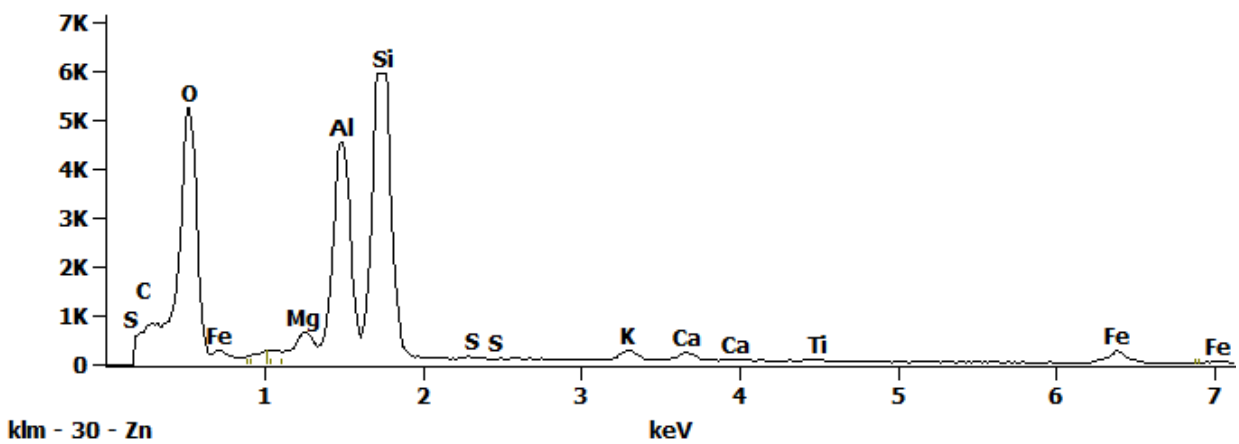
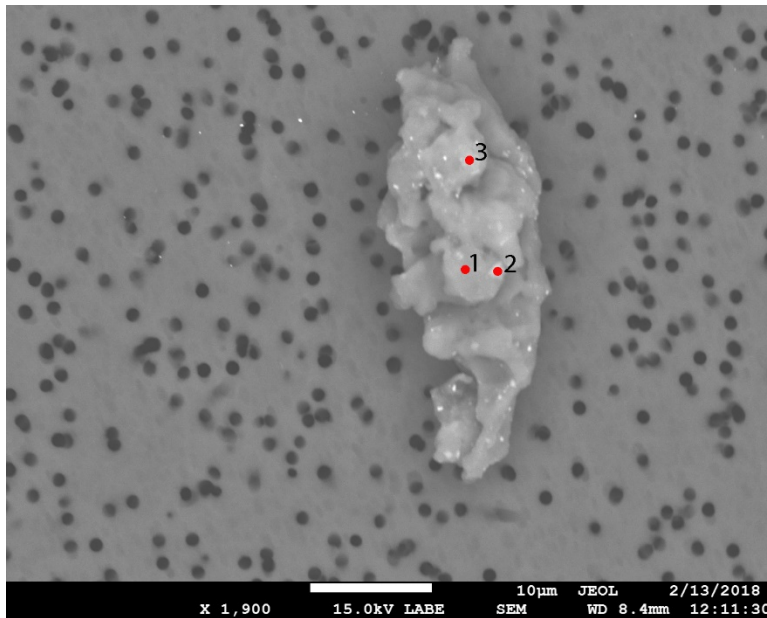


Figure 3. EDS Spectra for sample W7317-C-12 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 C14



<b>Particle Size:</b>	34x15 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	AMBER, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7317 C14 with labeled EDS testing locations.

### W7317 C14 - EDS Spectra

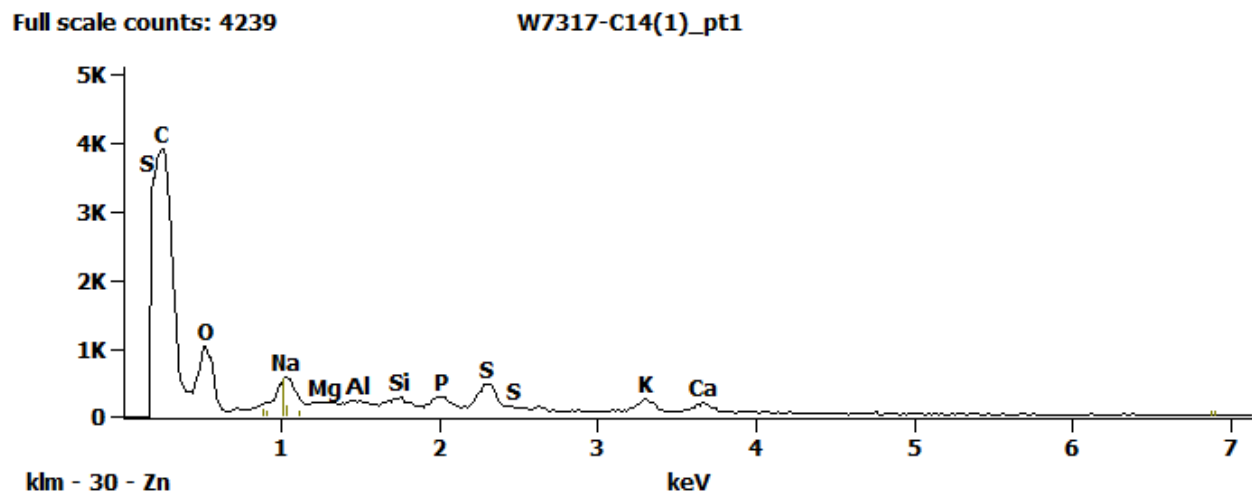


Figure 1. EDS Spectra for sample W7317-C-14 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 4239

W7317-C14(1)\_pt2

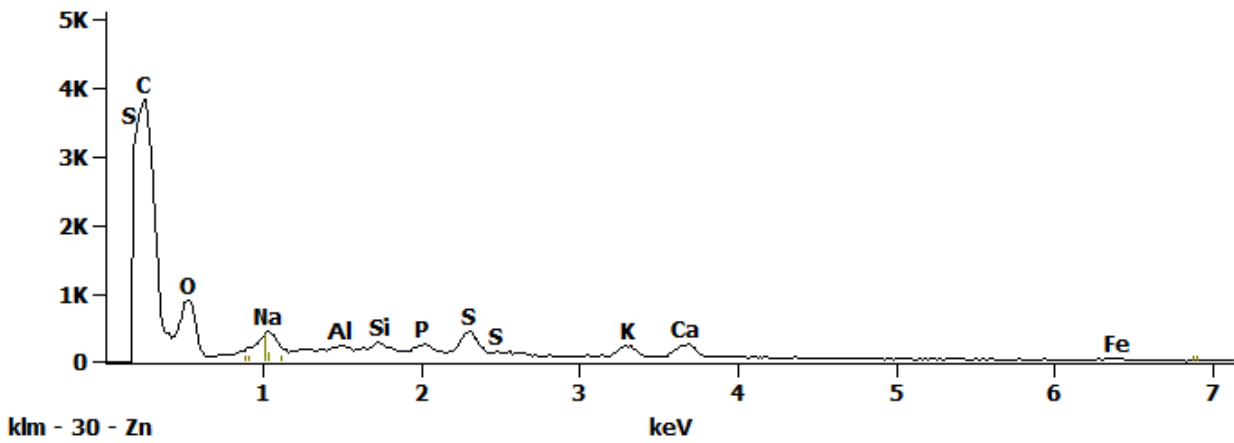


Figure 2. EDS Spectra for sample W7317-C-14 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 4239

W7317-C14(1)\_pt3

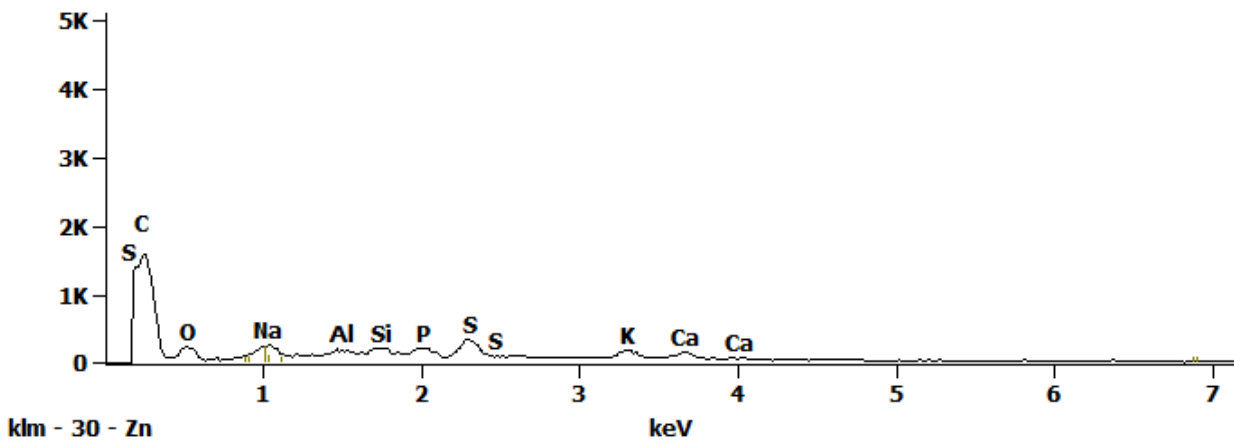
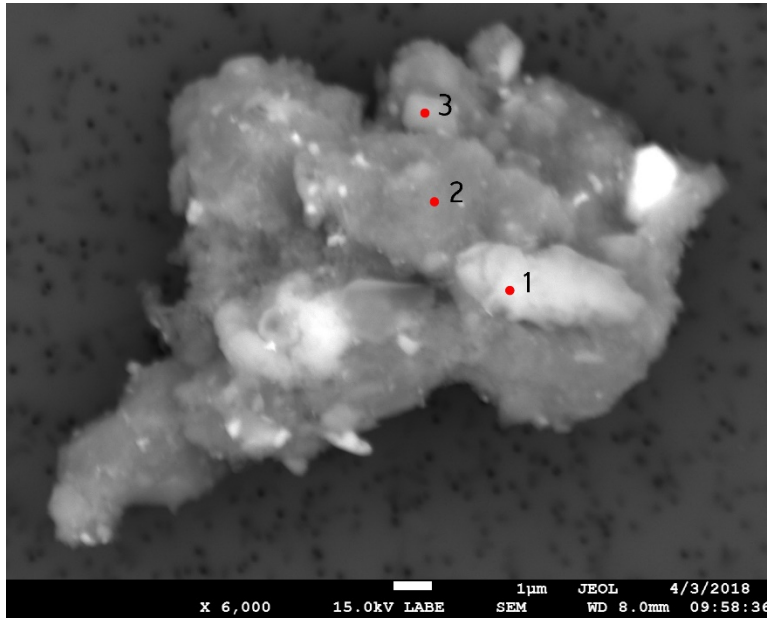


Figure 3. EDS Spectra for sample W7317-C-14 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7318 A1



<b>Particle Size:</b>	20 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BROWN
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7318 Cluster 1
<b>Comments:</b>	

*SEM Photo of sample W7318 A1 with labeled EDS testing locations.*

### *Cluster of Origin: W7318 Cluster 1*



*Photo of cluster W7318 Cluster 1.*

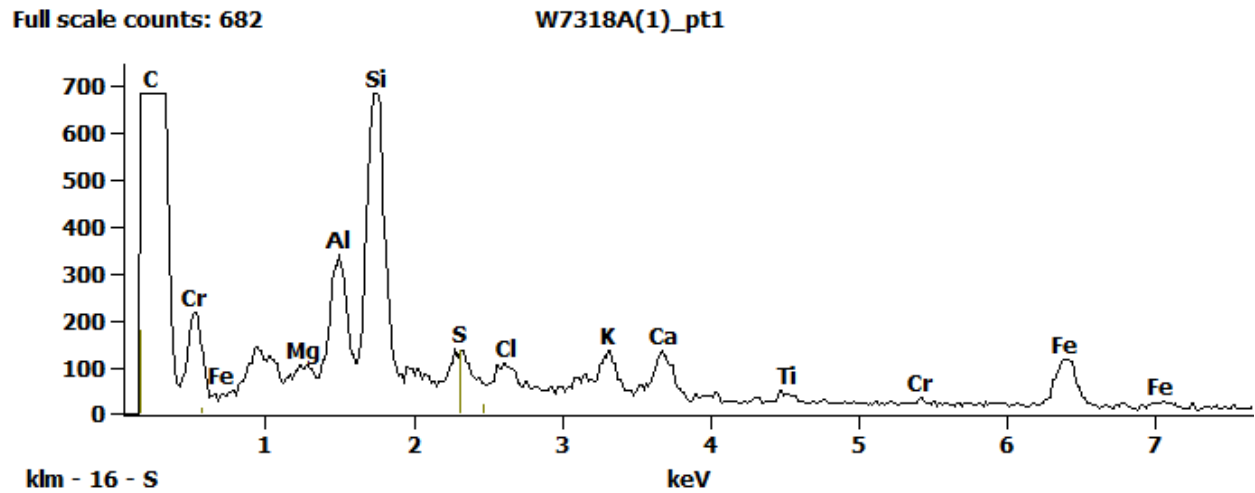
*W7318 A1 - EDS Spectra*

Figure 1. EDS Spectra for sample W7318-A-1 taken at test area 1. The test area is labeled in the particle SEM photo.

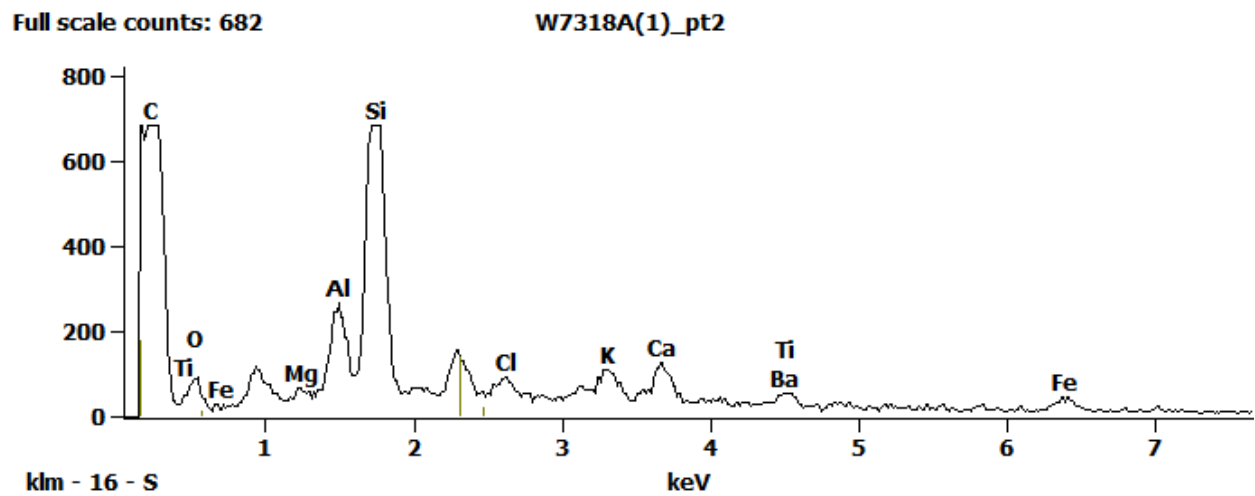


Figure 2. EDS Spectra for sample W7318-A-1 taken at test area 2. The test area is labeled in the particle SEM photo.

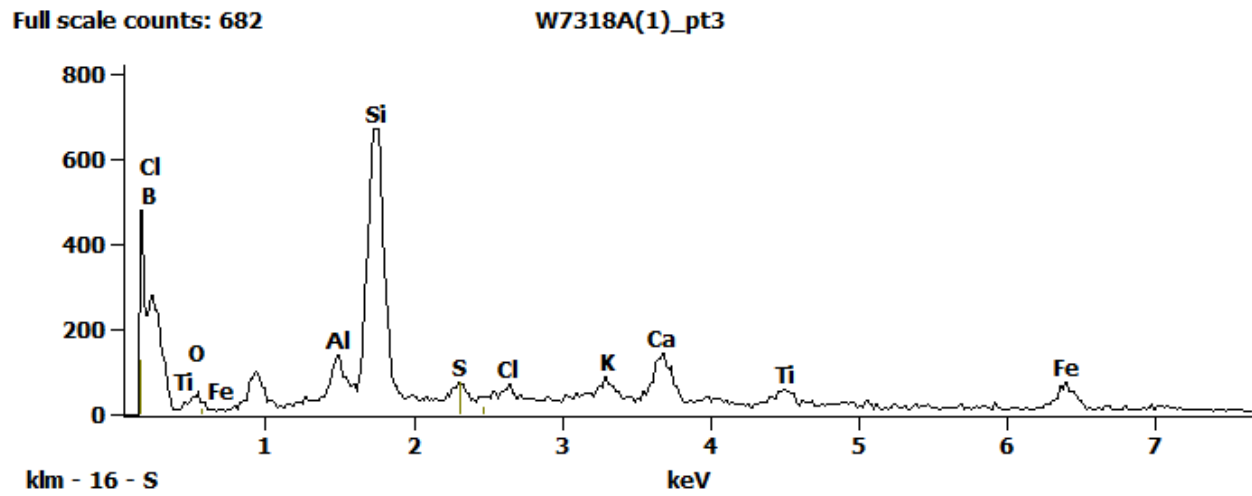
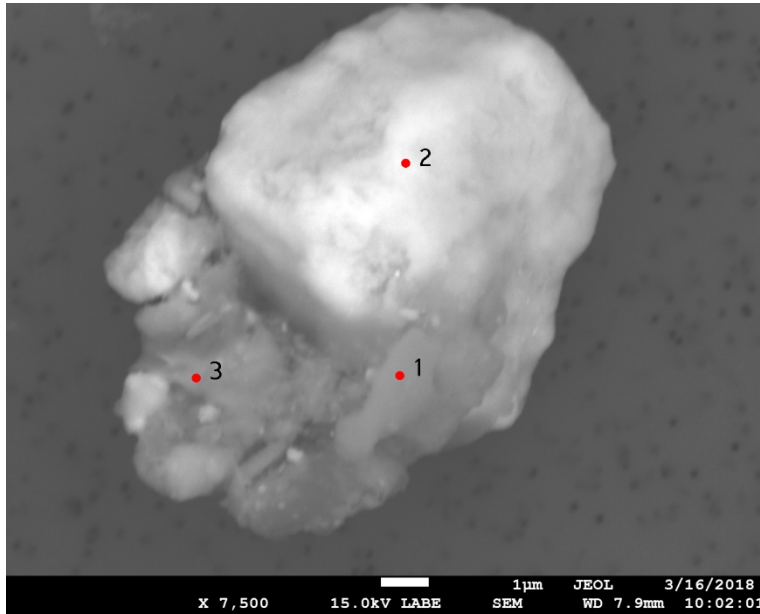


Figure 3. EDS Spectra for sample W7318-A-1 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7318 A2



<b>Particle Size:</b>	20x10 µm
<b>Shape:</b>	Irregular to Spherical
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7318 Cluster 1
<b>Comments:</b>	

*SEM Photo of sample W7318 A2 with labeled EDS testing locations.*

### *Cluster of Origin: W7318 Cluster 1*



*Photo of cluster W7318 Cluster 1.*



## W7318 A2 - EDS Spectra

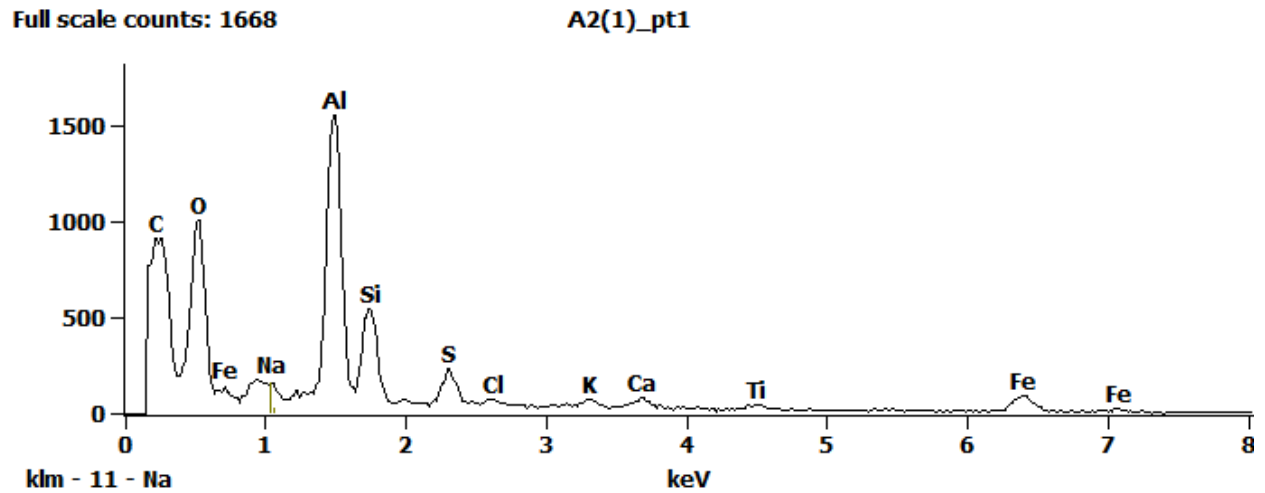


Figure 1. EDS Spectra for sample W7318-A-2 taken at test area 1. The test area is labeled in the particle SEM photo.

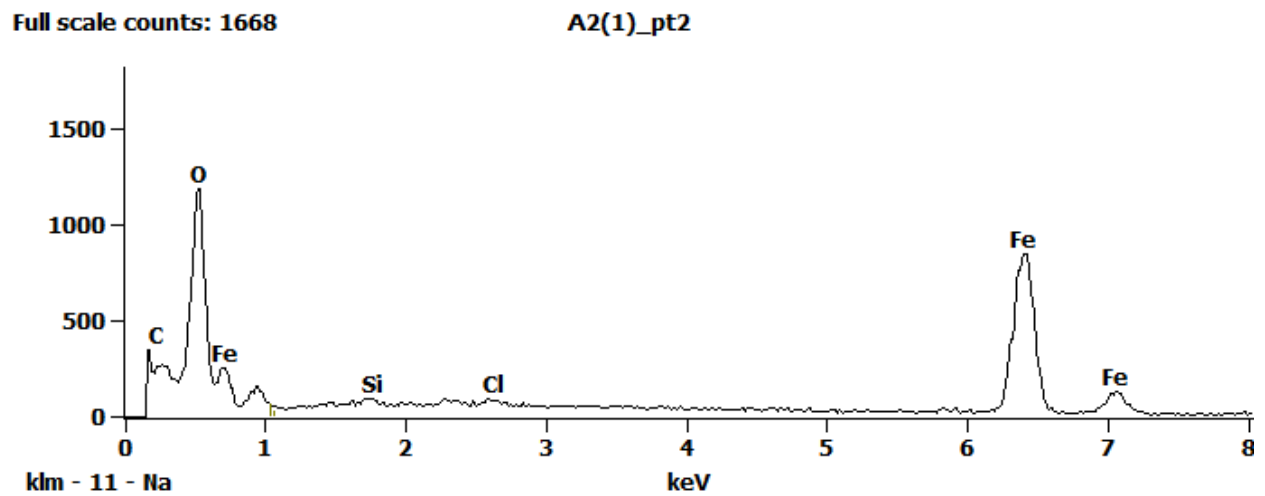


Figure 2. EDS Spectra for sample W7318-A-2 taken at test area 2. The test area is labeled in the particle SEM photo.

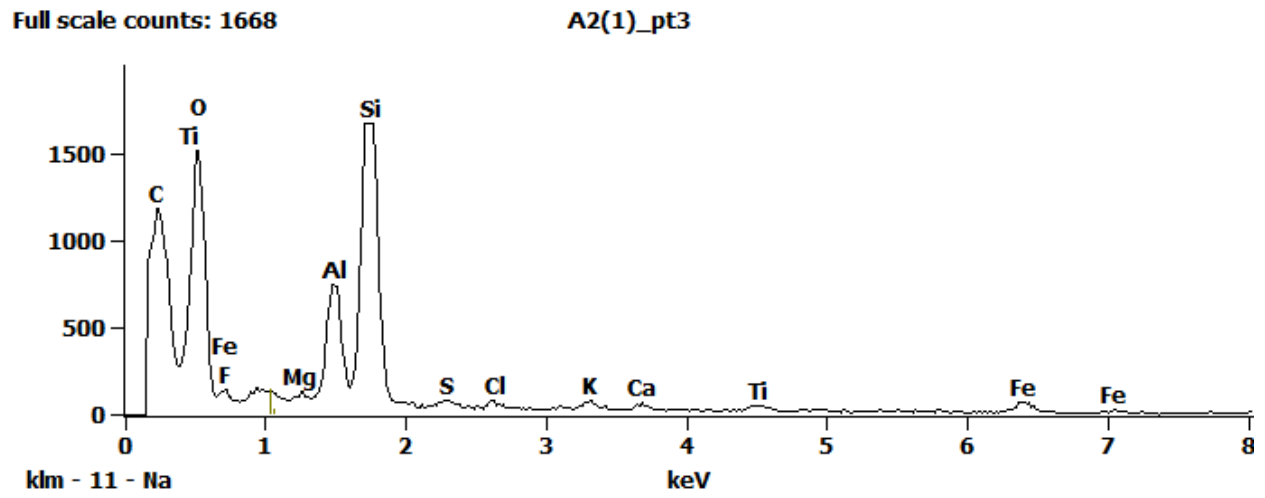
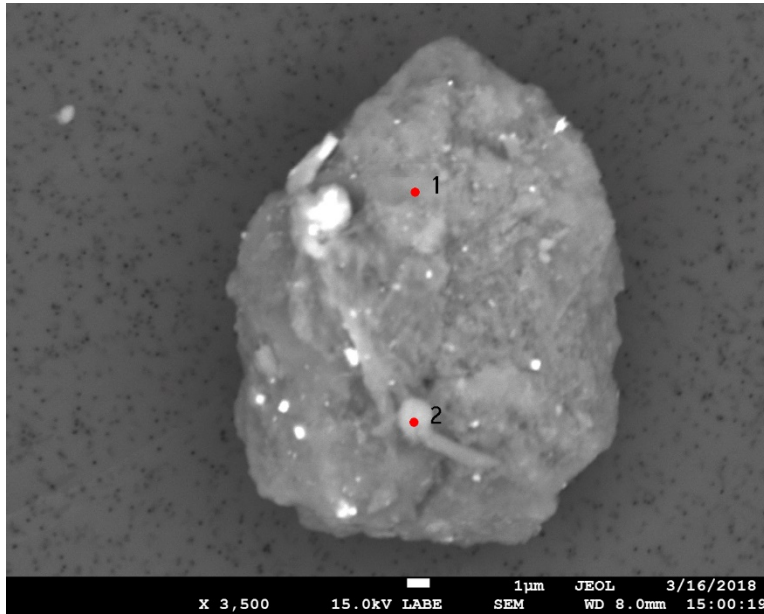


Figure 3. EDS Spectra for sample W7318-A-2 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7318 A13



<b>Particle Size:</b>	25 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 A13 with labeled EDS testing locations.

### W7318 A13 - EDS Spectra

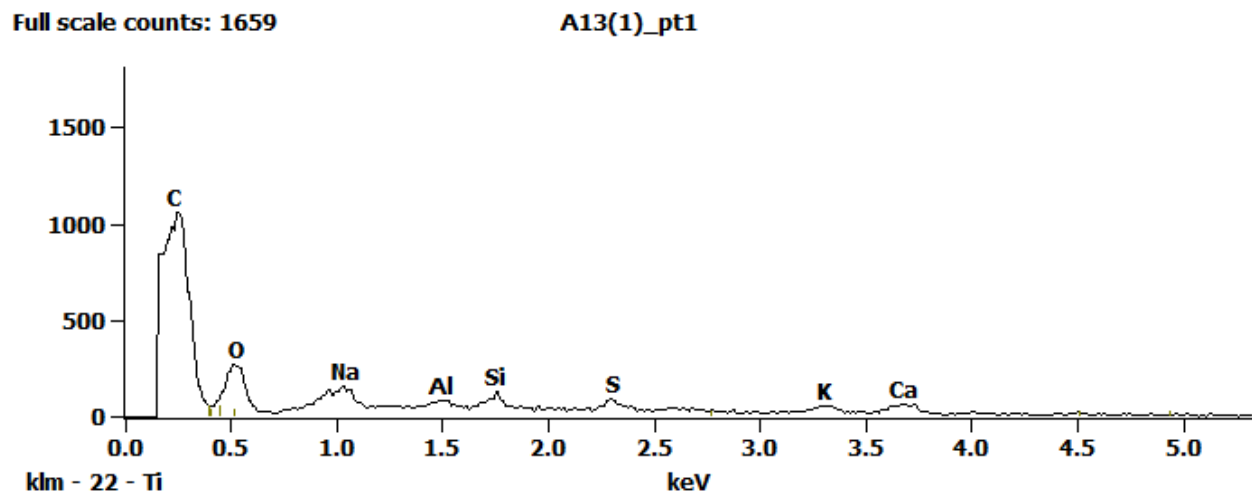


Figure 1. EDS Spectra for sample W7318-A-13 taken at test area 1. The test area is labeled in the particle SEM photo.

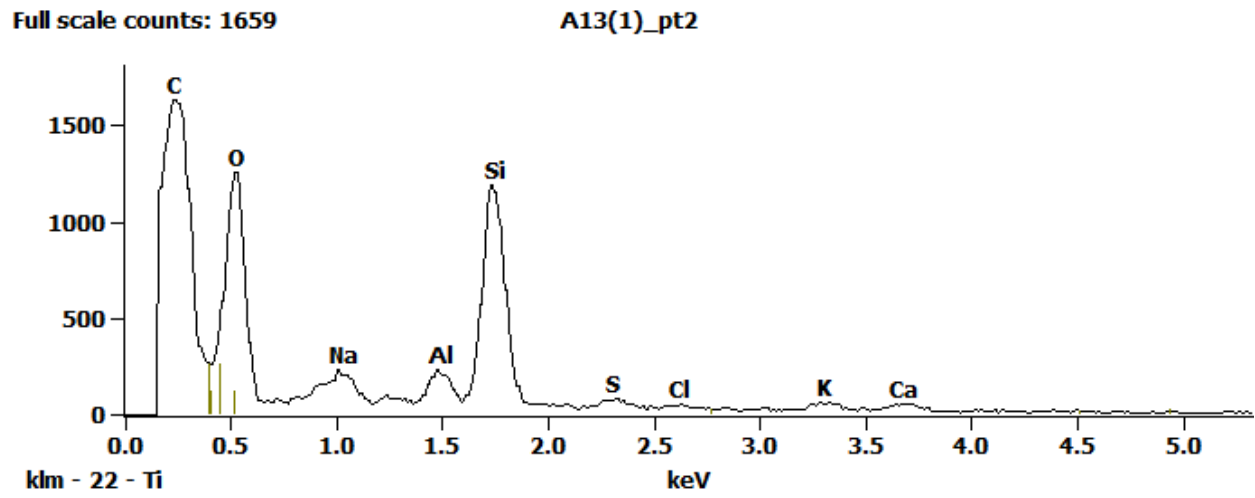
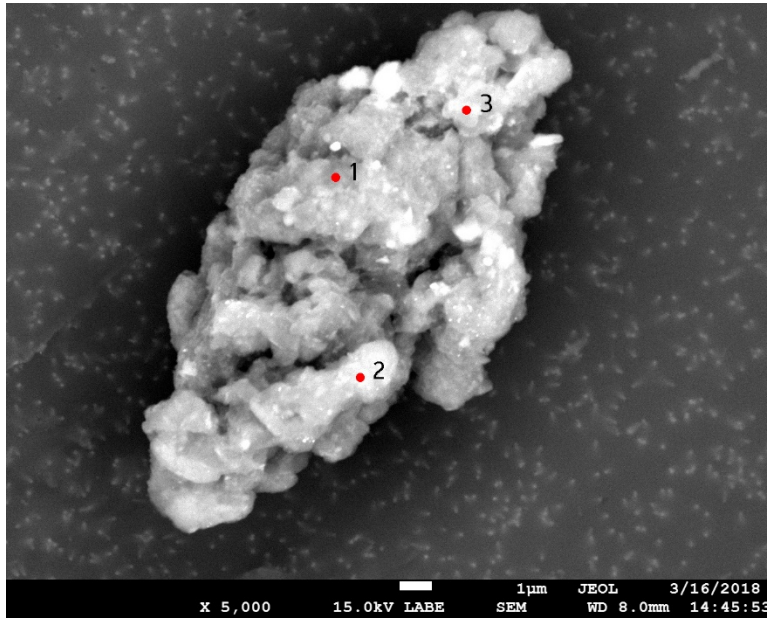


Figure 2. EDS Spectra for sample W7318-A-13 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7318 A16



<b>Particle Size:</b>	22x10 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 A16 with labeled EDS testing locations.

### W7318 A16 - EDS Spectra

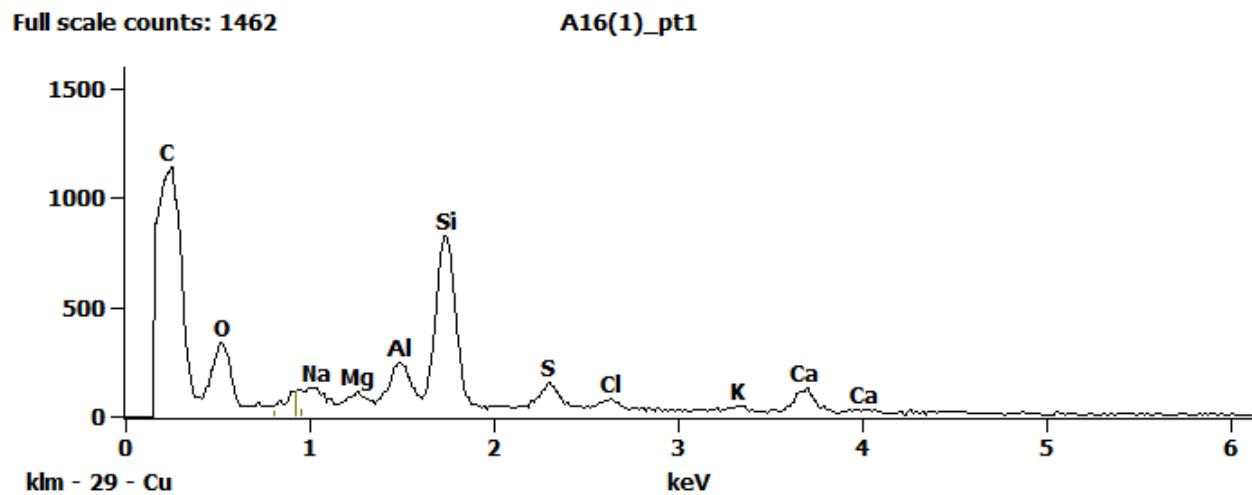


Figure 1. EDS Spectra for sample W7318-A-16 taken at test area 1. The test area is labeled in the particle SEM photo.

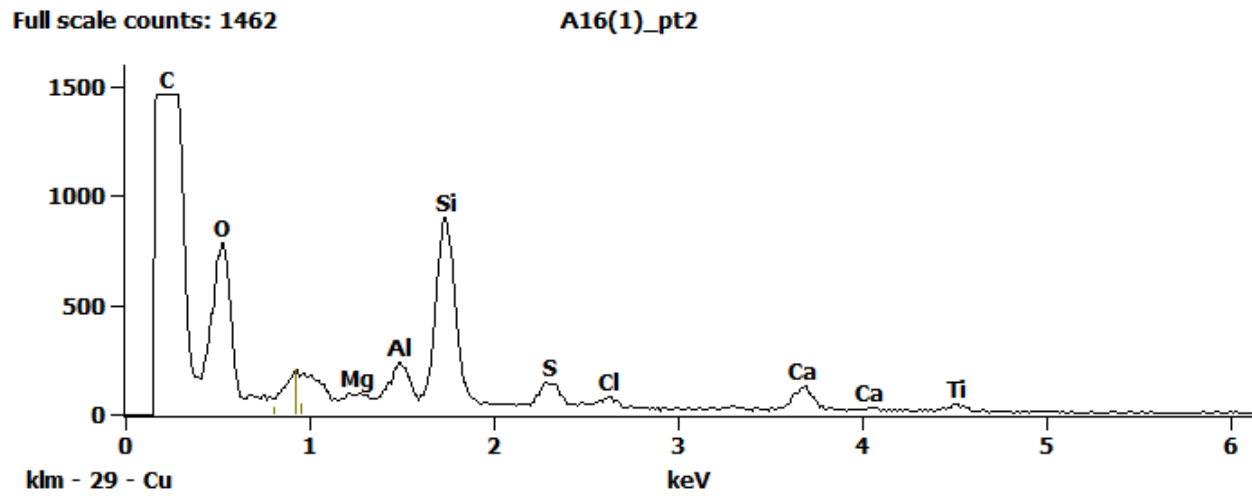


Figure 2. EDS Spectra for sample W7318-A-16 taken at test area 2. The test area is labeled in the particle SEM photo.

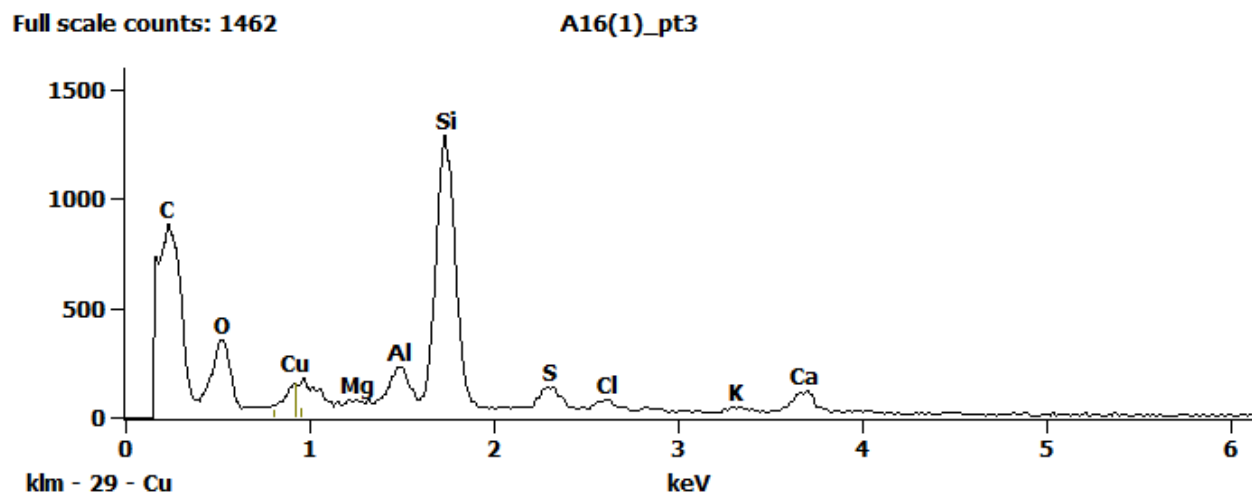
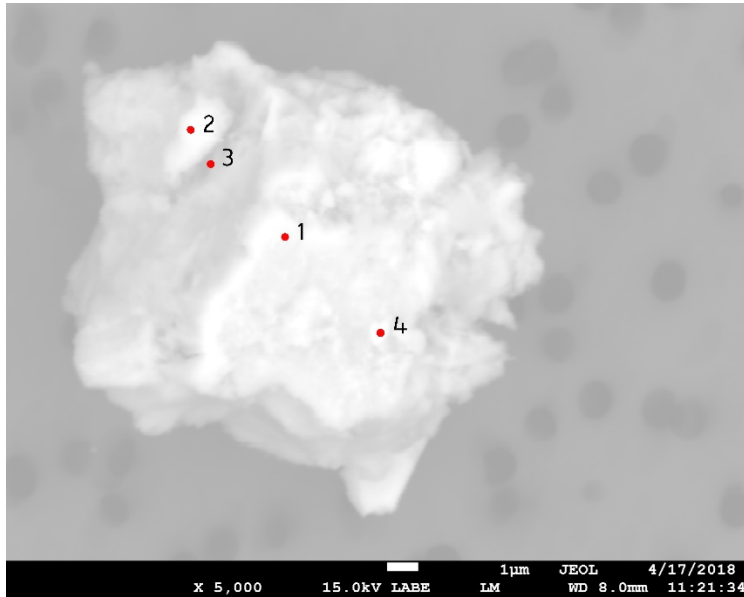


Figure 3. EDS Spectra for sample W7318-A-16 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 A13



<b>Particle Size:</b>	13 μm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BROWN
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7319 Cluster 7
<b>Comments:</b>	

SEM Photo of sample W7319 A13 with labeled EDS testing locations.

### Cluster of Origin: W7319 Cluster 7



Photo of cluster W7319 Cluster 7.

## W7319 A13 - EDS Spectra

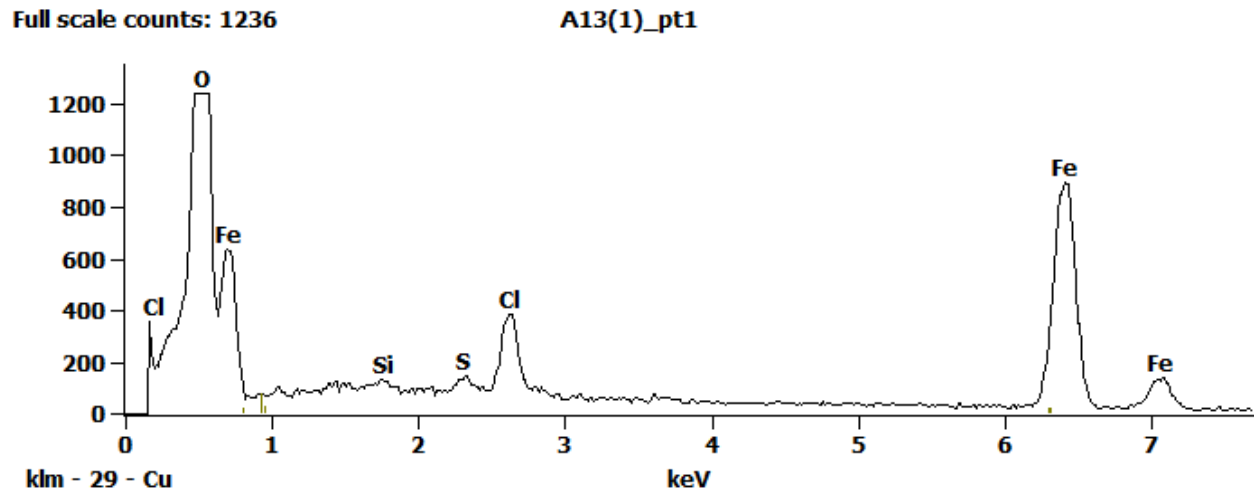


Figure 1. EDS Spectra for sample W7319-A-13 taken at test area 1. The test area is labeled in the particle SEM photo.

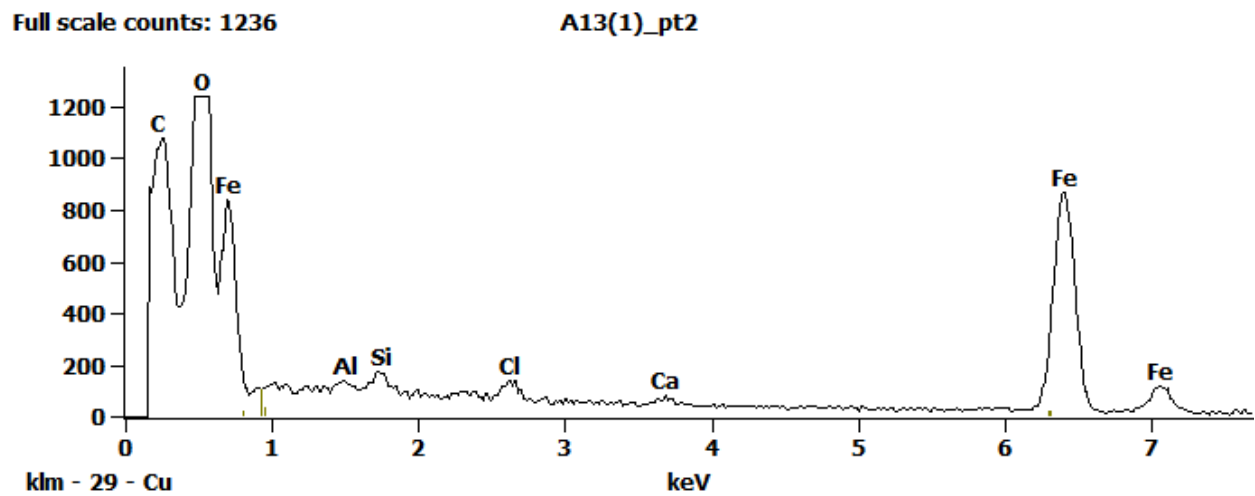


Figure 2. EDS Spectra for sample W7319-A-13 taken at test area 2. The test area is labeled in the particle SEM photo.



Full scale counts: 1236

A13(1)\_pt3

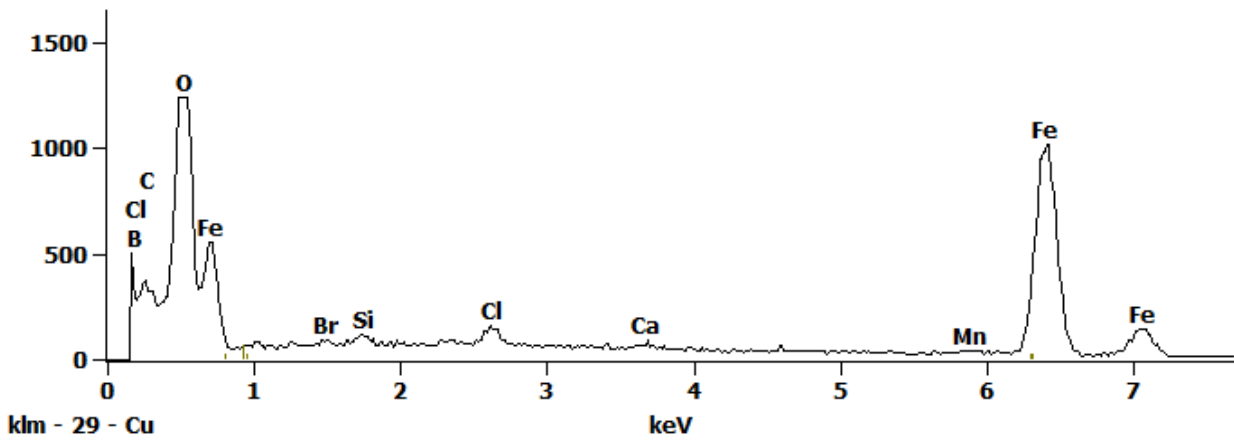


Figure 3. EDS Spectra for sample W7319-A-13 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A13(1)\_pt4

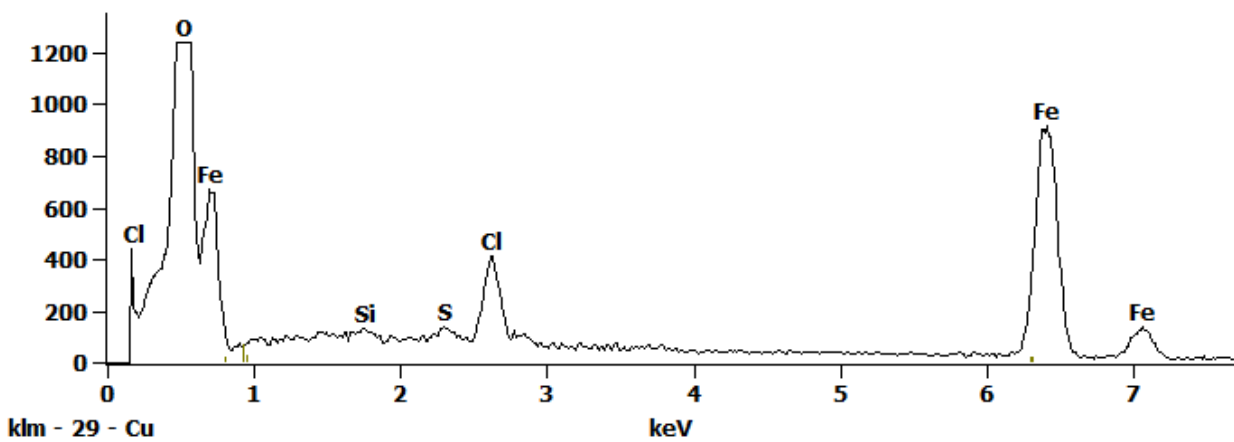
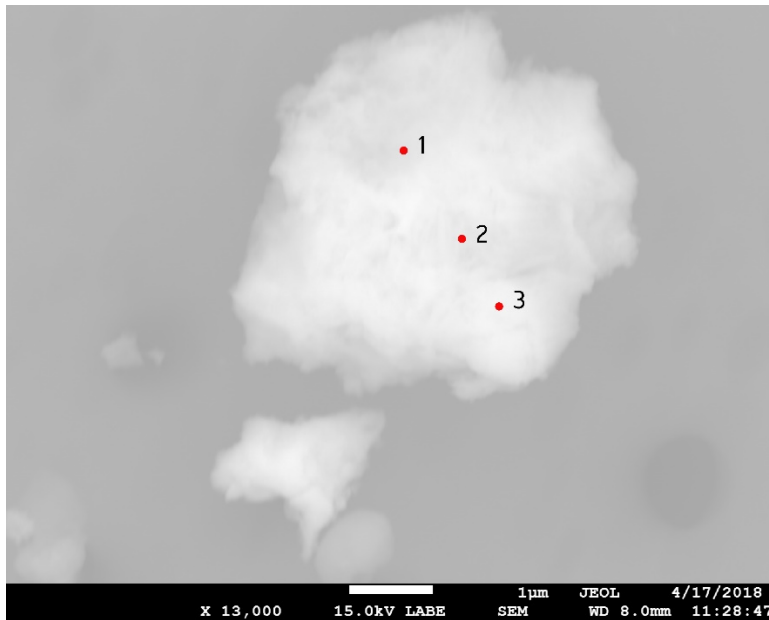


Figure 4. EDS Spectra for sample W7319-A-13 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7319 A14



<b>Particle Size:</b>	23 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque to Subvitreous
<b>Color:</b>	BROWN, GRAY
<b>Luster:</b>	Resinous
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	W7319 Cluster 7
<b>Comments:</b>	

SEM Photo of sample W7319 A14 with labeled EDS testing locations.

### Cluster of Origin: W7319 Cluster 7



Photo of cluster W7319 Cluster 7.

## W7319 A14 - EDS Spectra

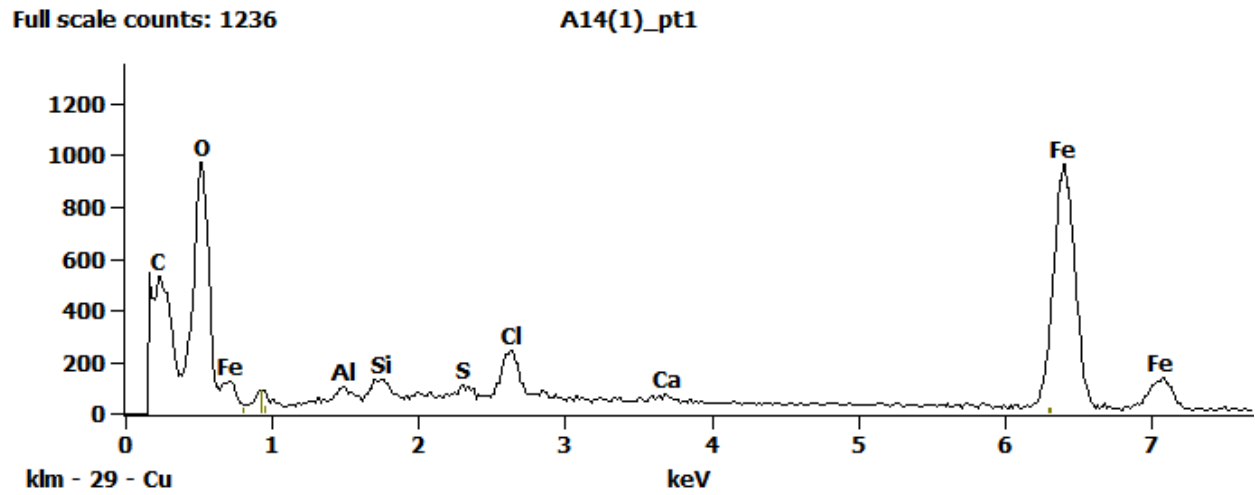


Figure 1. EDS Spectra for sample W7319-A-14 taken at test area 1. The test area is labeled in the particle SEM photo.

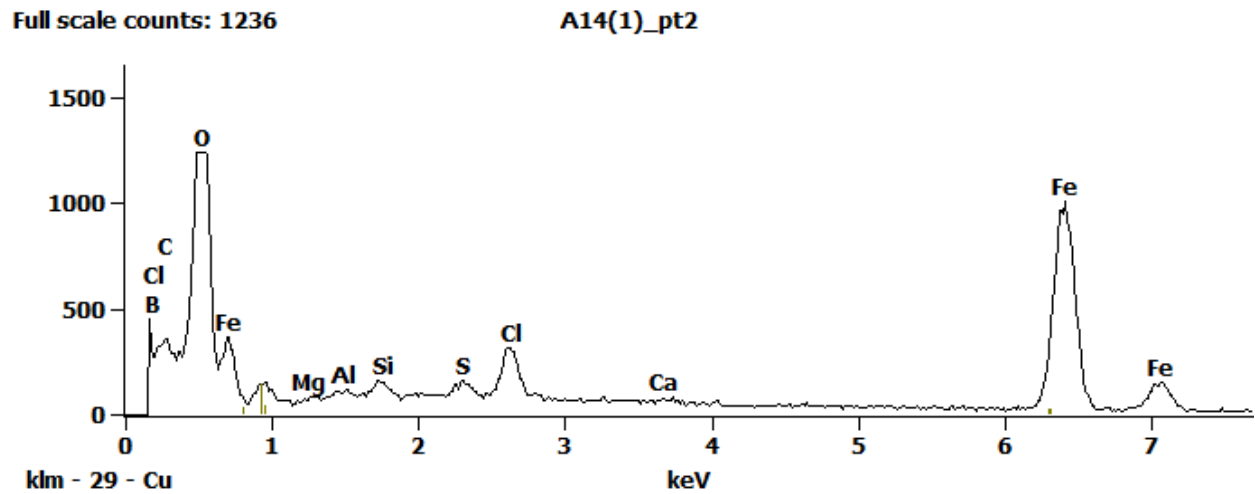


Figure 2. EDS Spectra for sample W7319-A-14 taken at test area 2. The test area is labeled in the particle SEM photo.

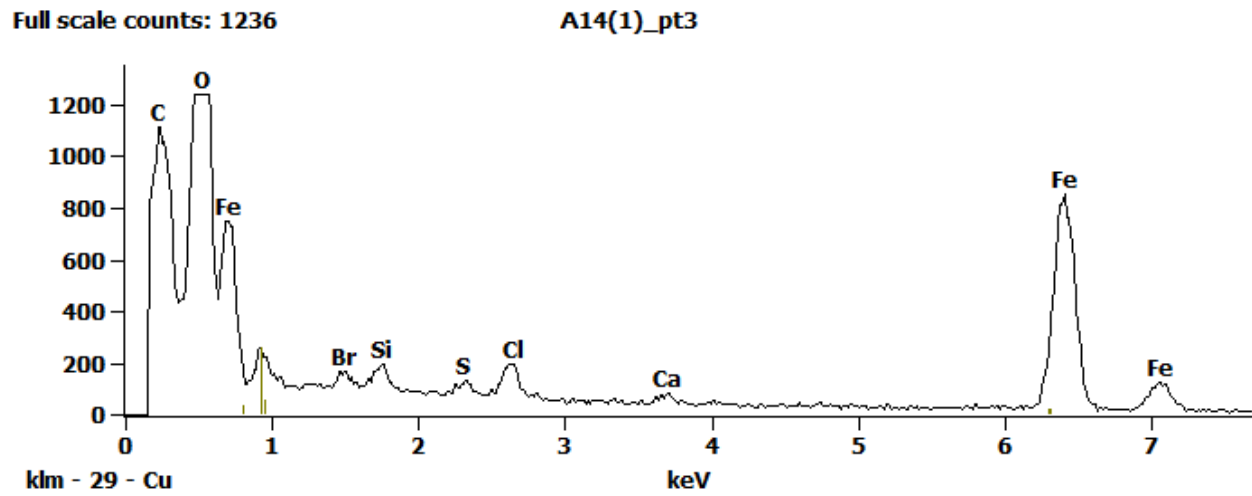
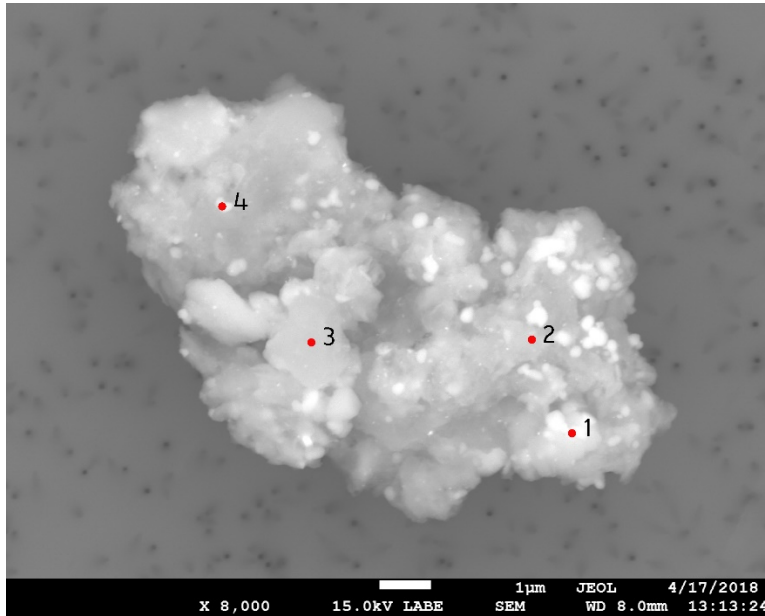


Figure 3. EDS Spectra for sample W7319-A-14 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 B1



<b>Particle Size:</b>	30 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY, RED
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7319 B1 with labeled EDS testing locations.

### W7319 B1 - EDS Spectra

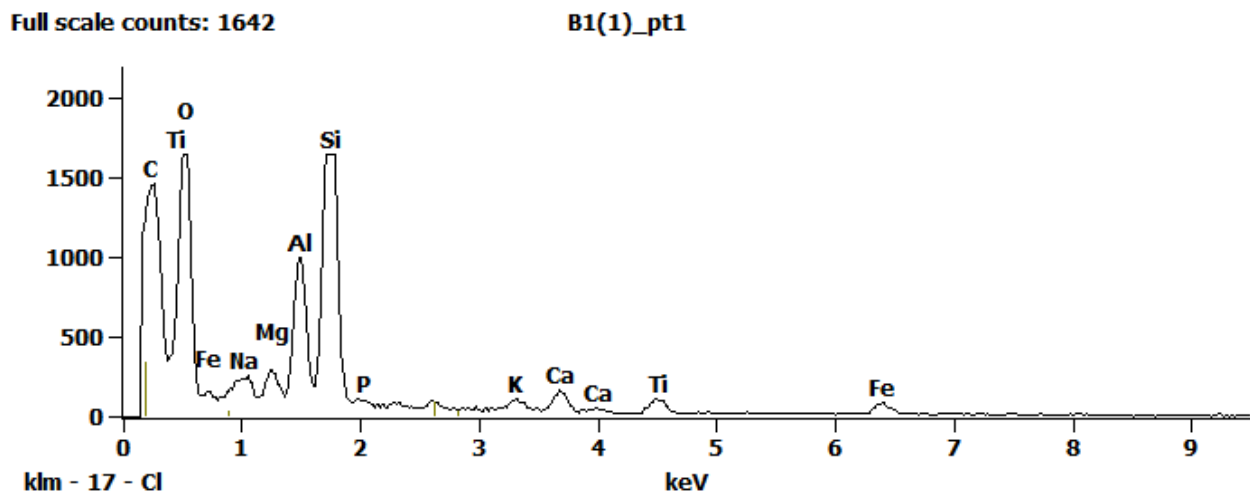


Figure 1. EDS Spectra for sample W7319-B-1 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1642

B1(1)\_pt2

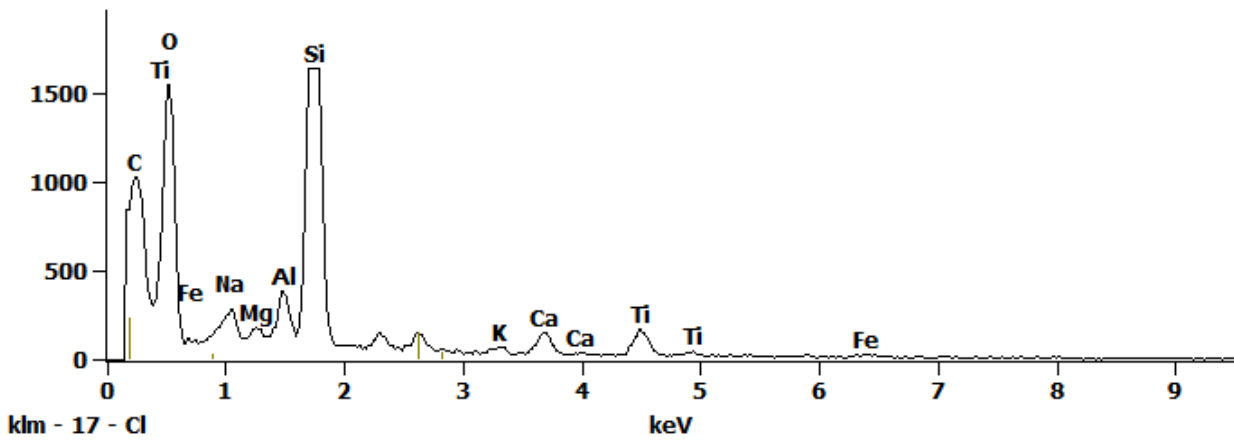


Figure 2. EDS Spectra for sample W7319-B-1 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1642

B1(1)\_pt3

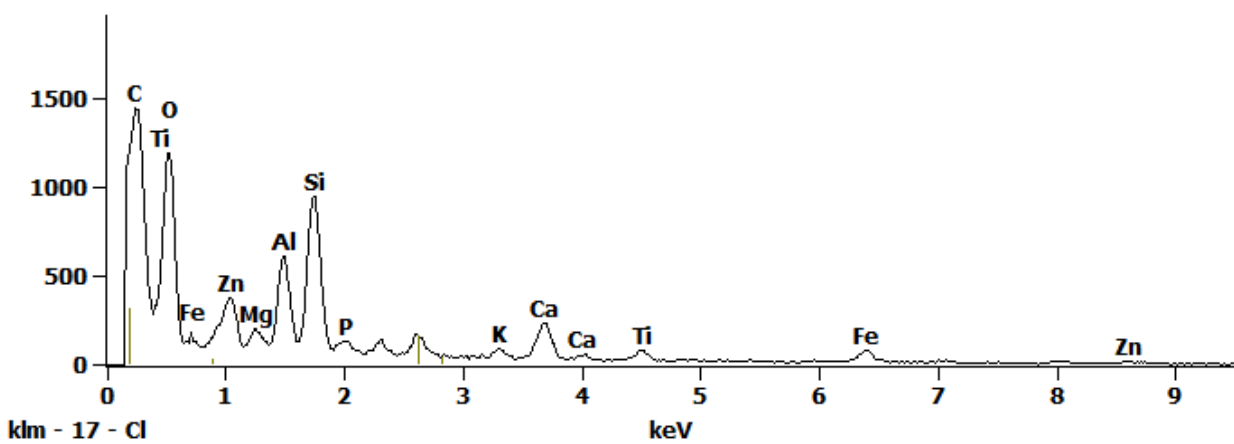


Figure 3. EDS Spectra for sample W7319-B-1 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1642

B1(1)\_pt4

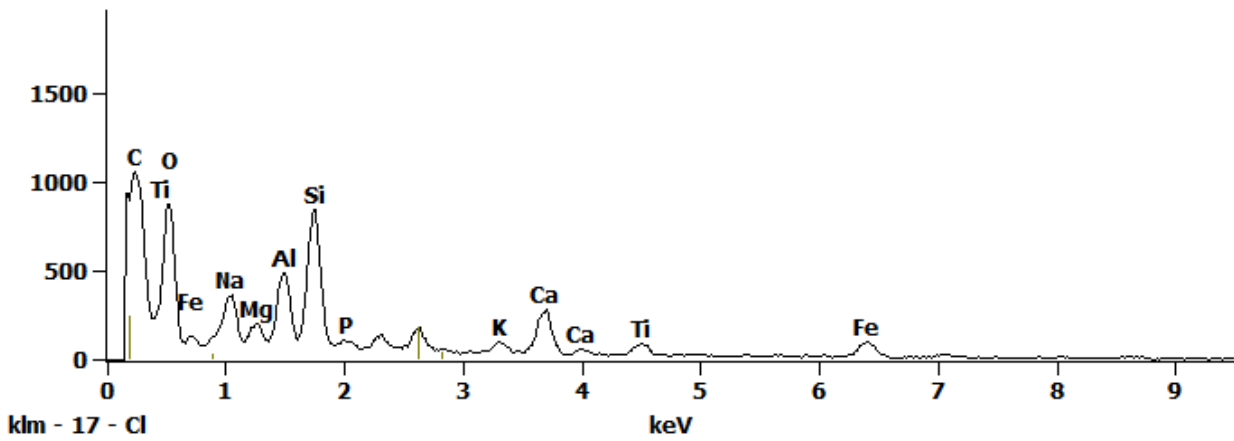
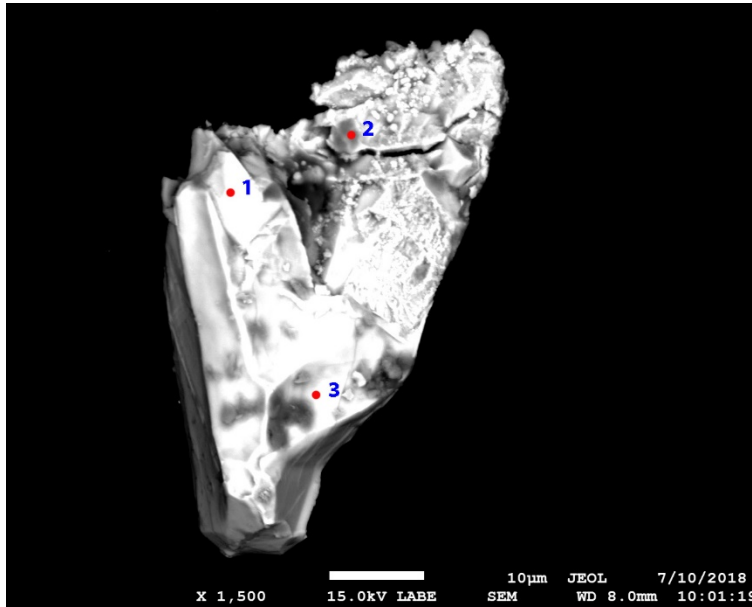


Figure 4. EDS Spectra for sample W7319-B-1 taken at test area 4. The test area is labeled in the particle SEM photo.

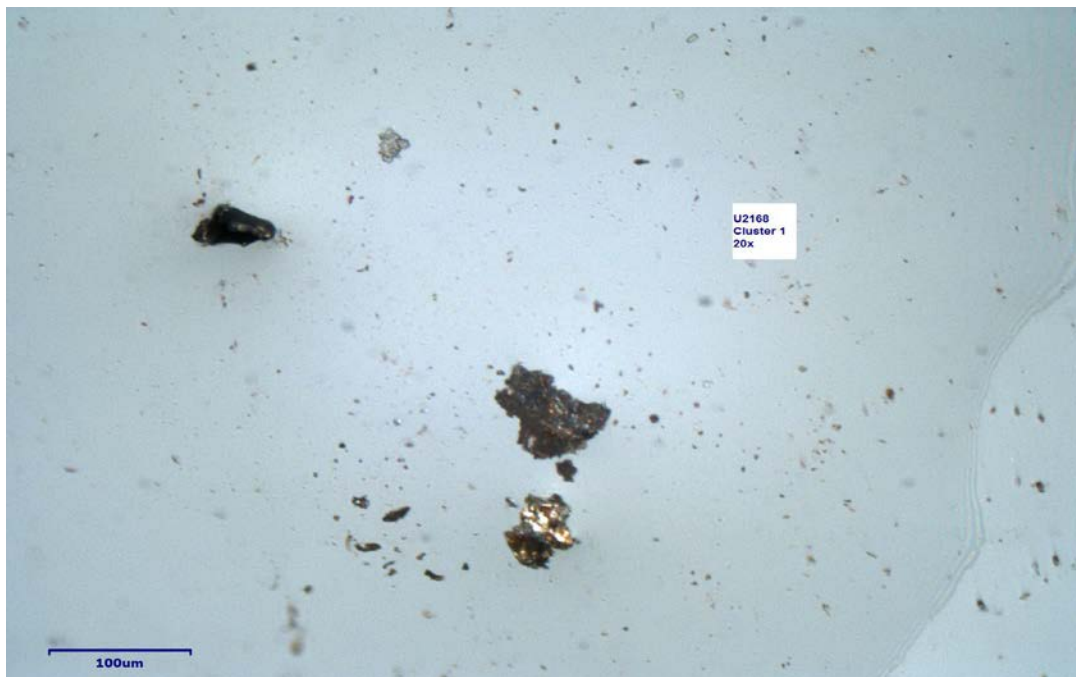
## U2168 A2



<b>Particle Size:</b>	50x20 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	COSMIC
<b>Cluster No.:</b>	U2168 Cluster 1
<b>Comments:</b>	

*SEM Photo of sample U2168 A2 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 1*



*Photo of cluster U2168 Cluster 1.*



## U2168 A2 - EDS Spectra

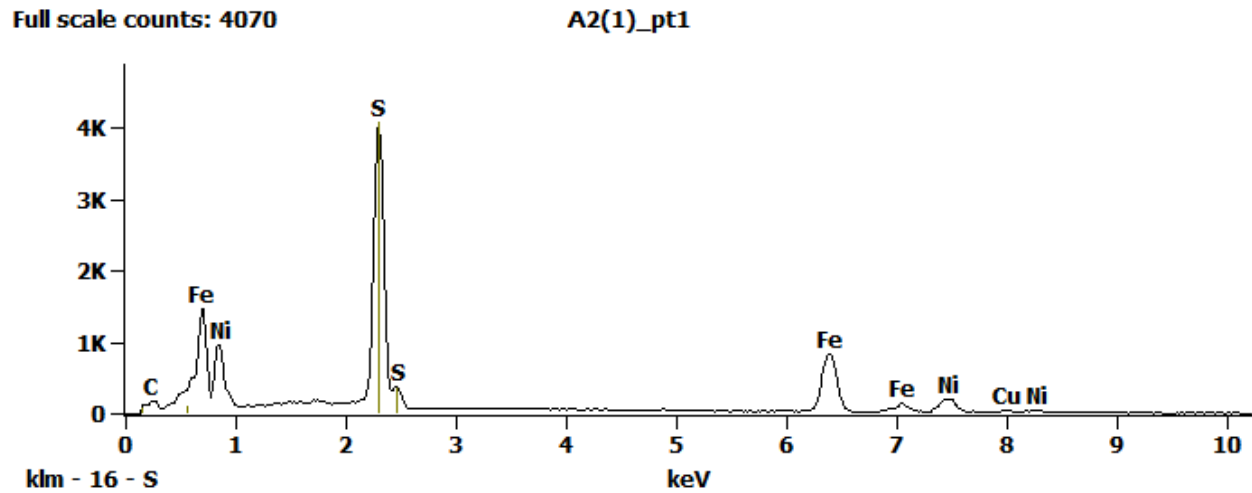


Figure 1. EDS Spectra for sample U2168-A-2 taken at test area 1. The test area is labeled in the particle SEM photo.

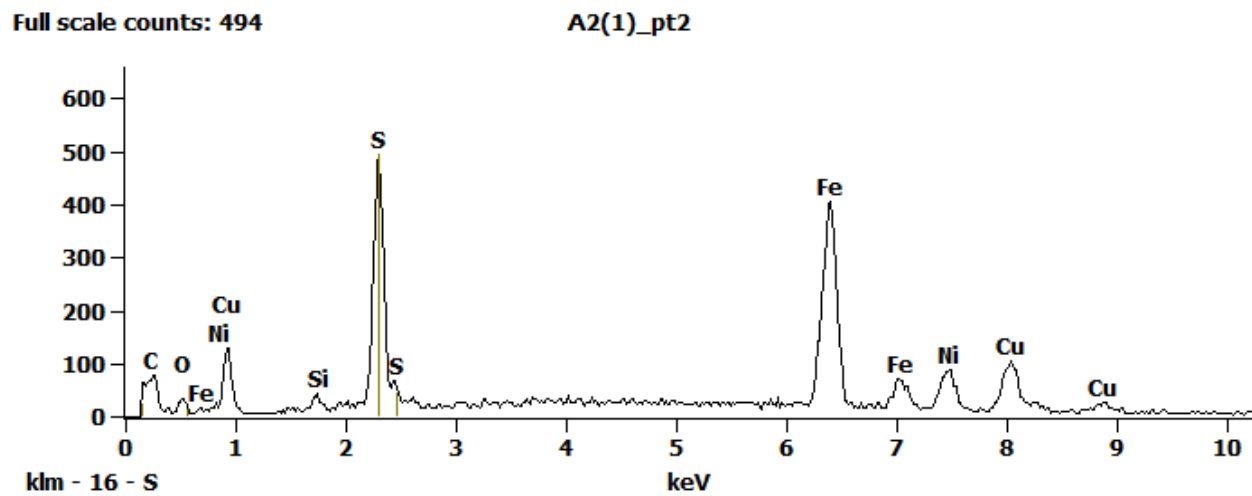


Figure 2. EDS Spectra for sample U2168-A-2 taken at test area 2. The test area is labeled in the particle SEM photo.

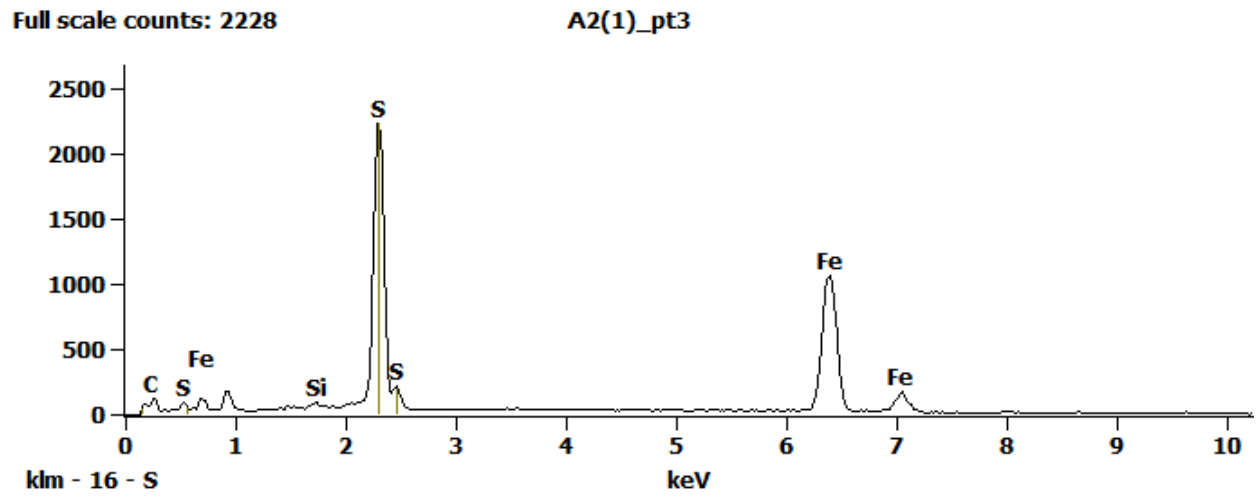
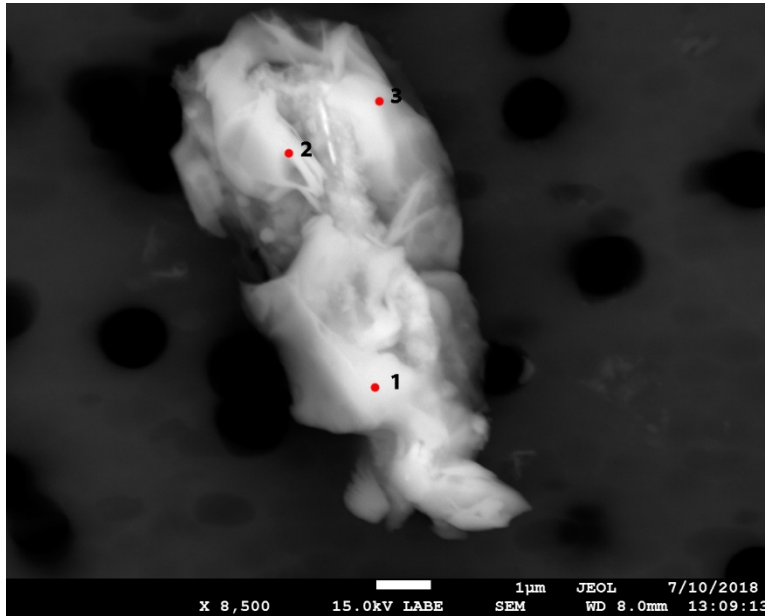


Figure 3. EDS Spectra for sample U2168-A-2 taken at test area 3. The test area is labeled in the particle SEM photo.

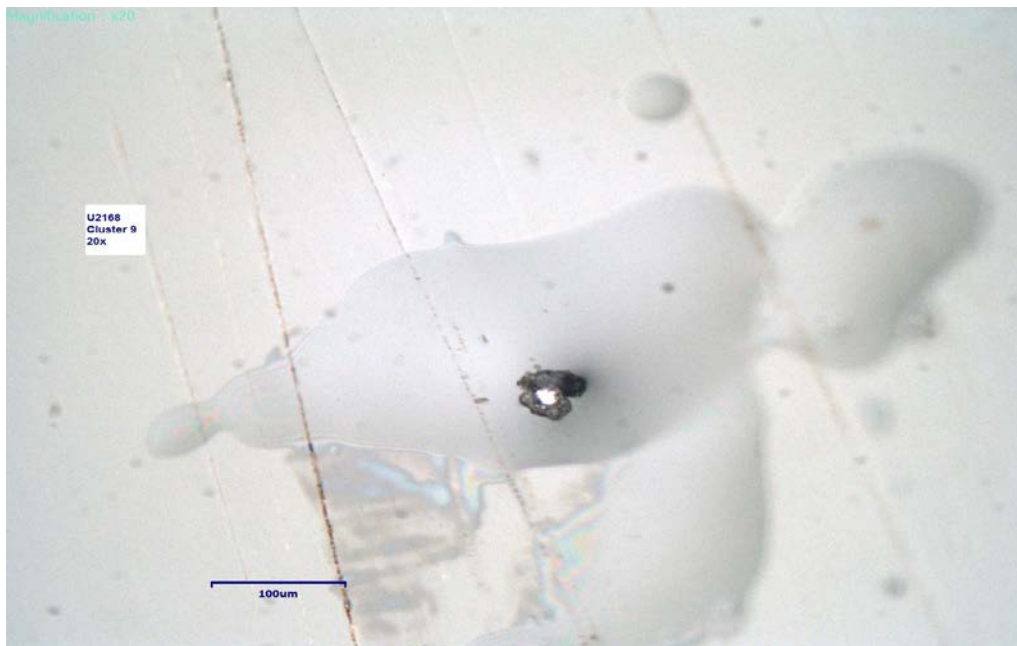
## U2168 B2



**Particle Size:** 5x10 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** BROWN, GRAY  
**Luster:** Dull  
**Particle Type:** COSMIC  
**Cluster No.:** U2168 Cluster 9  
**Comments:**

*SEM Photo of sample U2168 B2 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 9*



*Photo of cluster U2168 Cluster 9.*

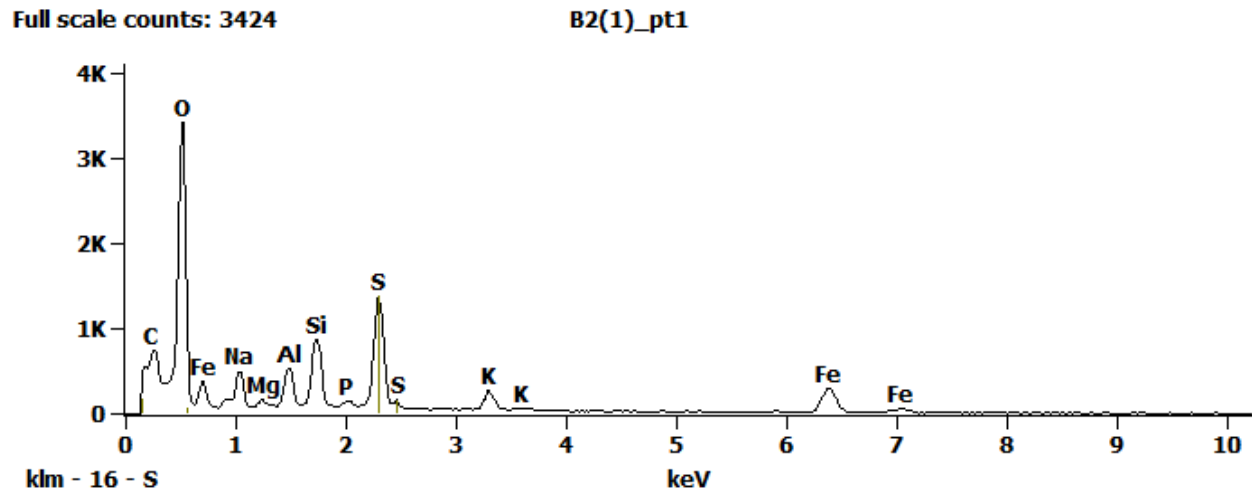
*U2168 B2 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-B-2 taken at test area 1. The test area is labeled in the particle SEM photo.

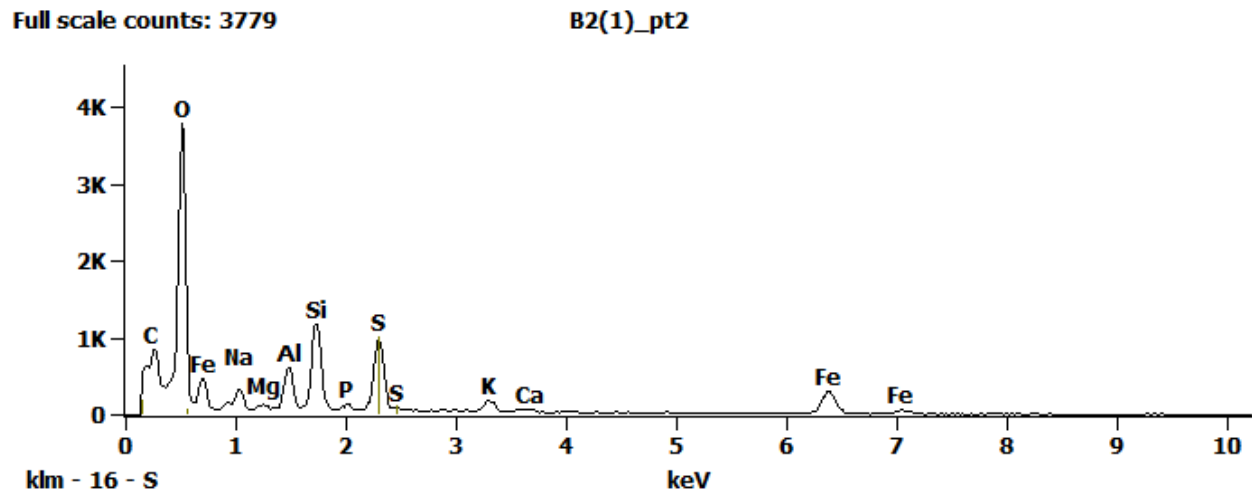


Figure 2. EDS Spectra for sample U2168-B-2 taken at test area 2. The test area is labeled in the particle SEM photo.

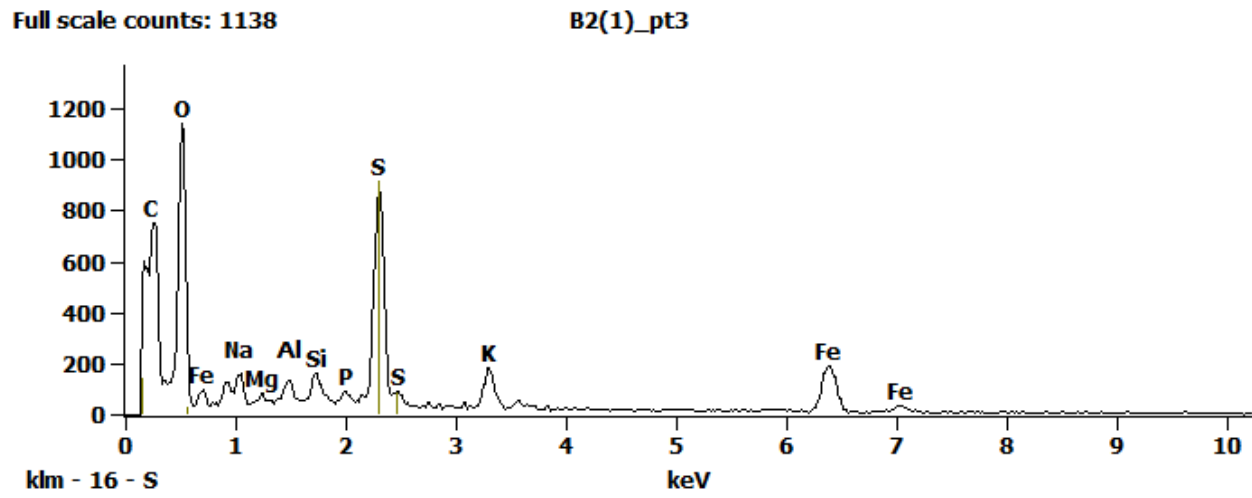
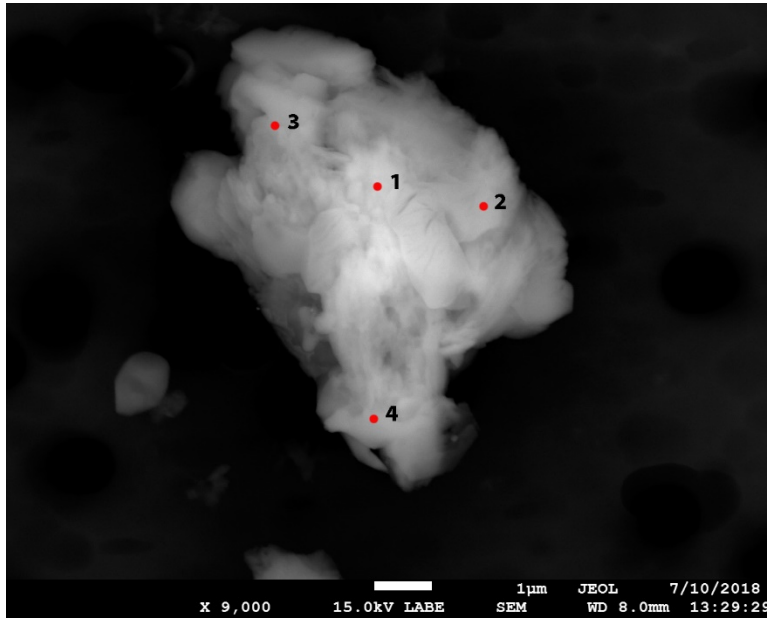


Figure 3. EDS Spectra for sample U2168-B-2 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 B8



<b>Particle Size:</b>	20 µm
<b>Shape:</b>	Equidimensional to Spherical
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	COSMIC
<b>Cluster No.:</b>	U2168 Cluster 12
<b>Comments:</b>	

SEM Photo of sample U2168 B8 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 12

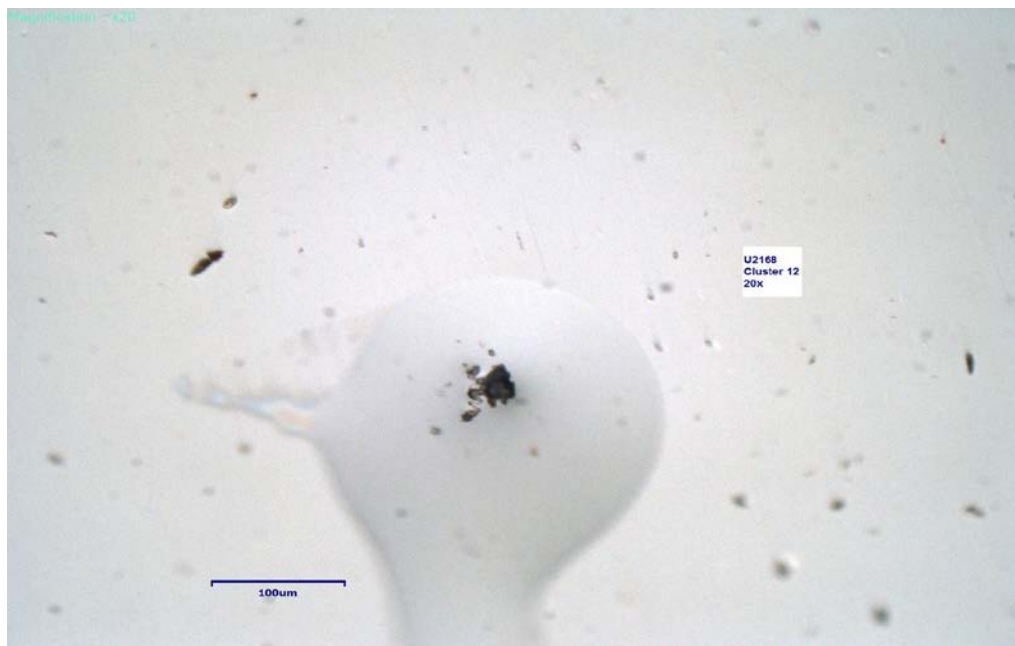


Photo of cluster U2168 Cluster 12.

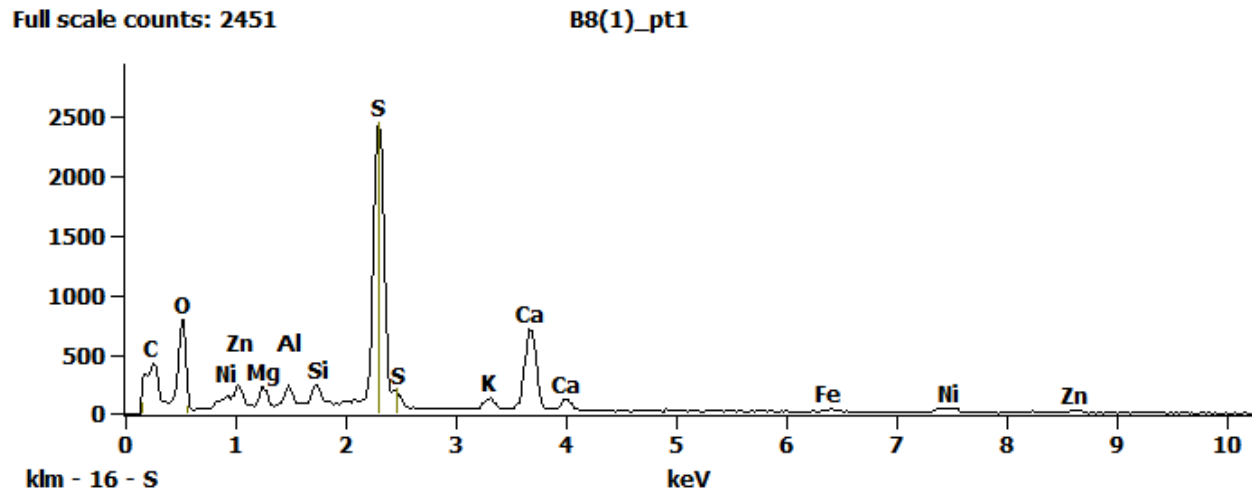
*U2168 B8 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-B-8 taken at test area 1. The test area is labeled in the particle SEM photo.

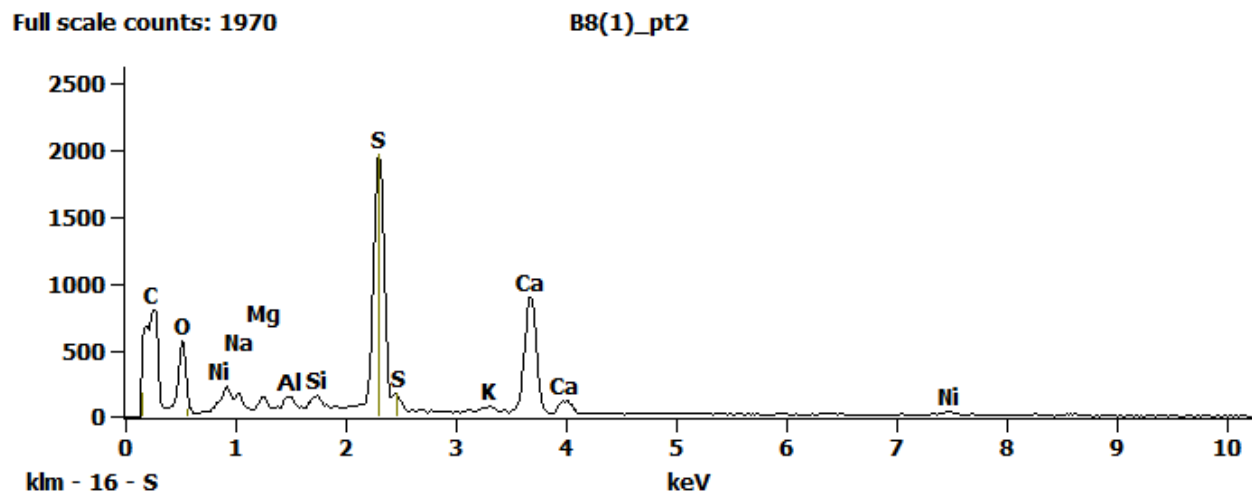


Figure 2. EDS Spectra for sample U2168-B-8 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1973

B8(1)\_pt3

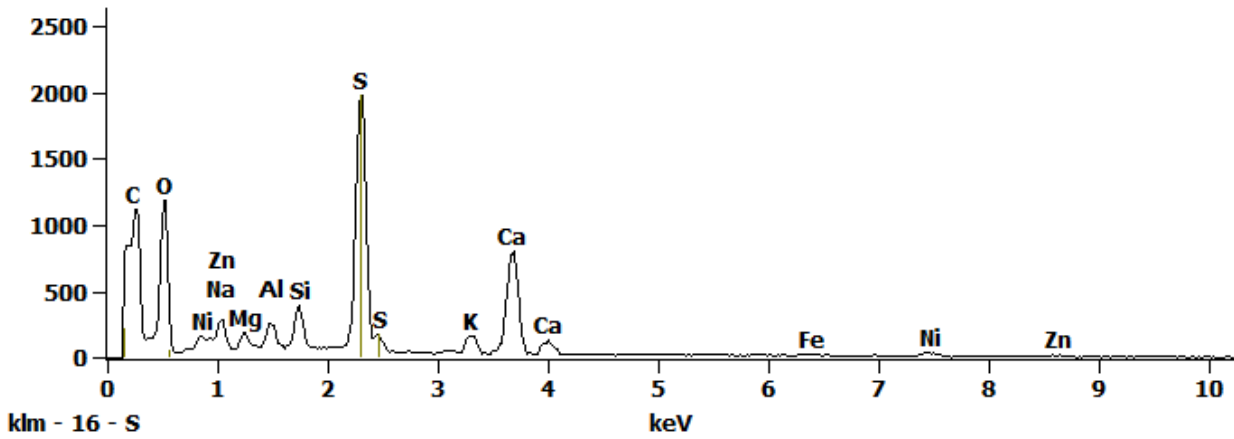


Figure 3. EDS Spectra for sample U2168-B-8 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1211

B8(1)\_pt4

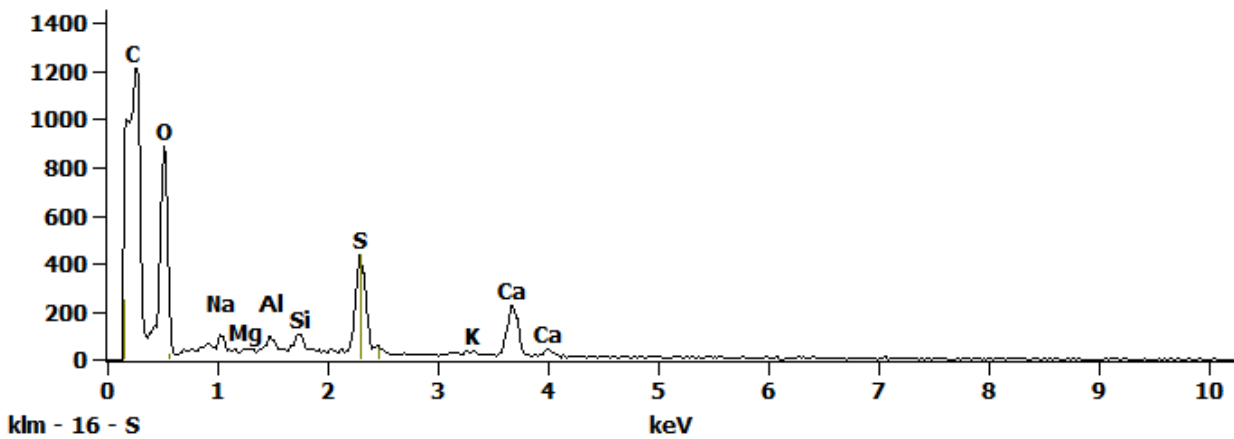
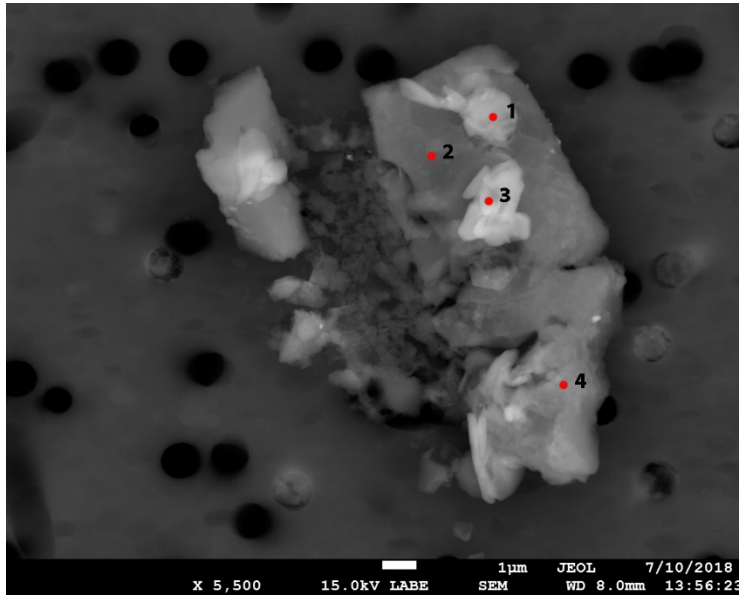


Figure 4. EDS Spectra for sample U2168-B-8 taken at test area 4. The test area is labeled in the particle SEM photo.



## U2168 B11



<b>Particle Size:</b>	16x12 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 B11 with labeled EDS testing locations.

### U2168 B11 - EDS Spectra

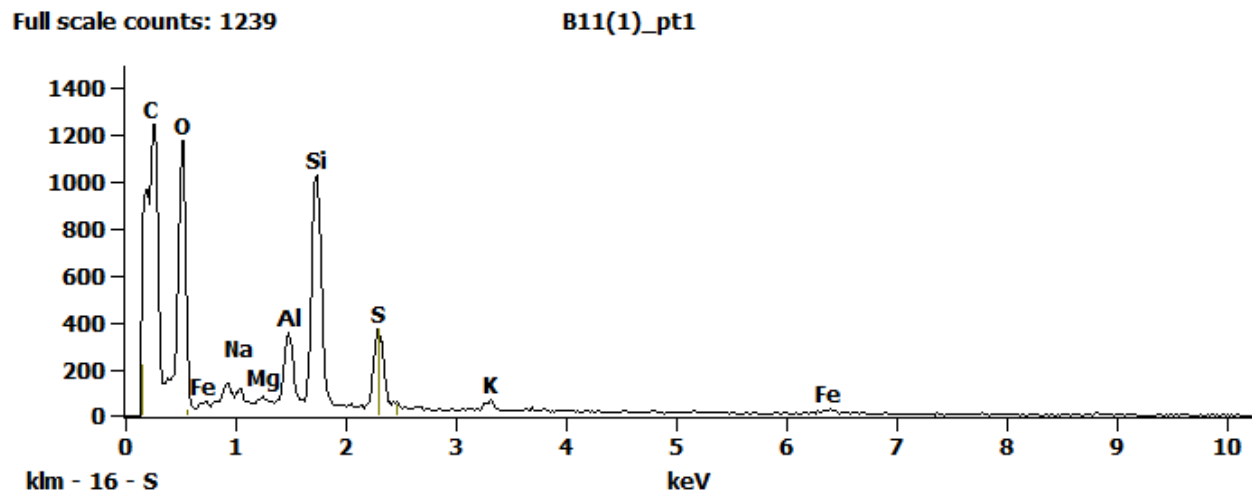


Figure 1. EDS Spectra for sample U2168-B-11 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2192

B11(1)\_pt2

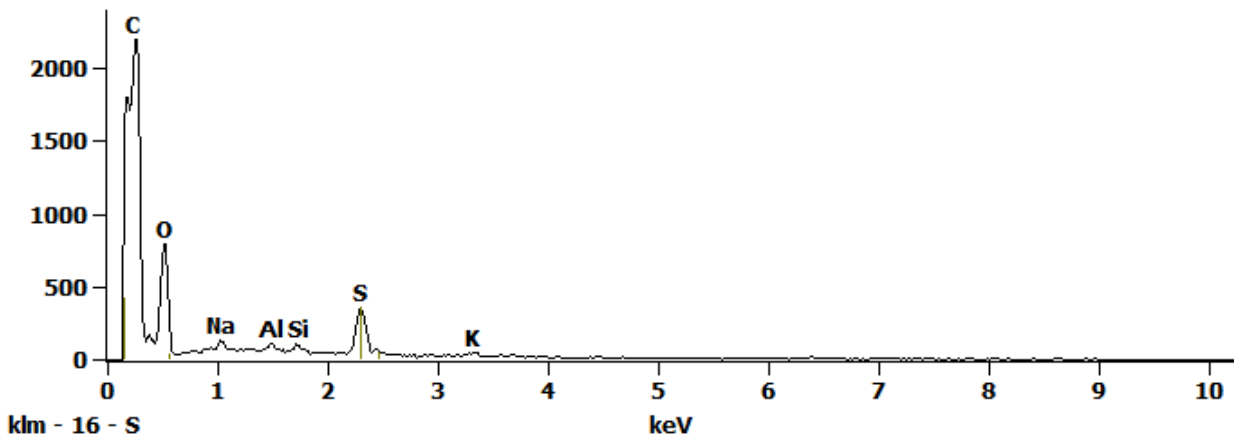


Figure 2. EDS Spectra for sample U2168-B-11 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1596

B11(1)\_pt3

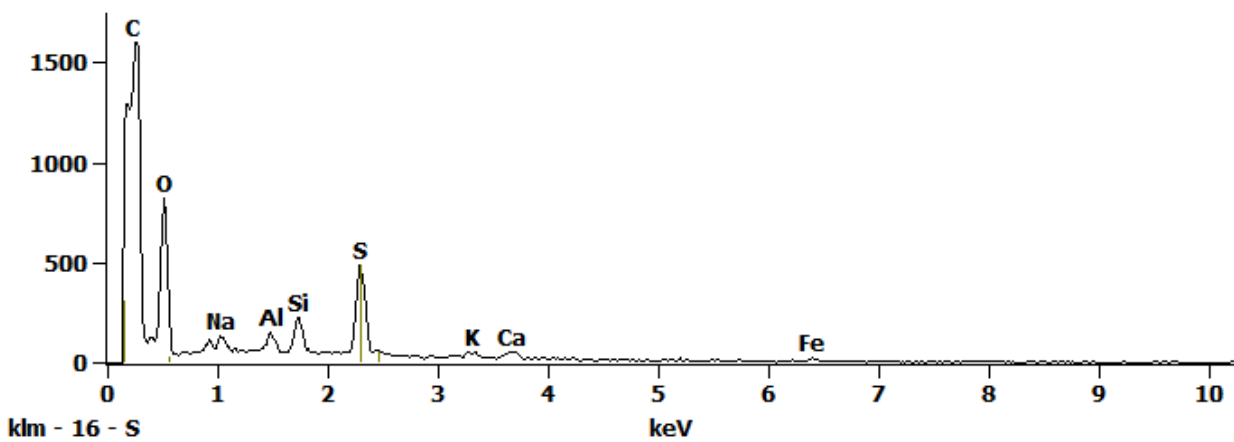


Figure 3. EDS Spectra for sample U2168-B-11 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1664

B11(1)\_pt4

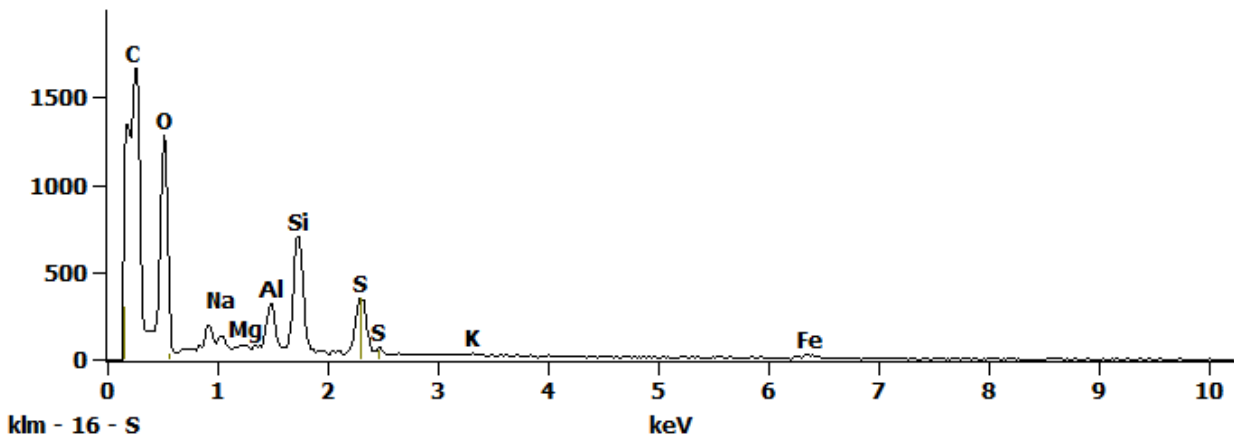
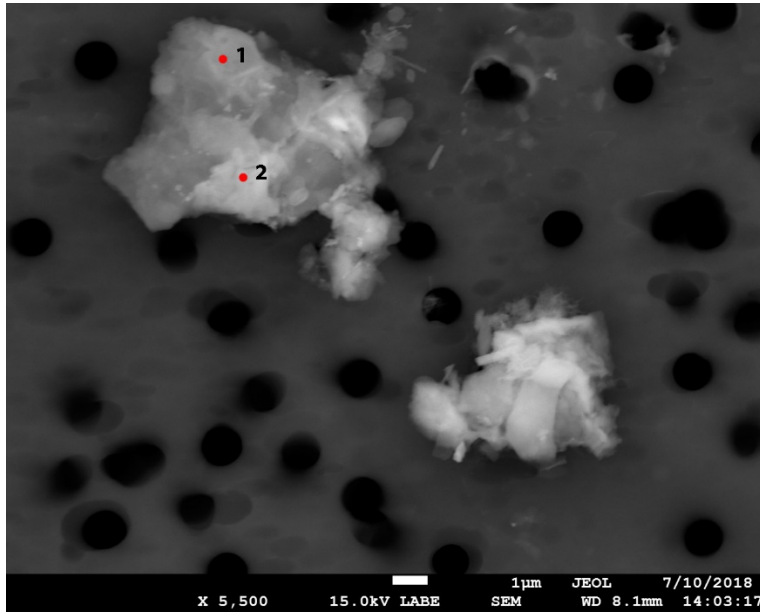


Figure 4. EDS Spectra for sample U2168-B-11 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 B12



<b>Particle Size:</b>	7 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 B12 with labeled EDS testing locations.

### U2168 B12 - EDS Spectra

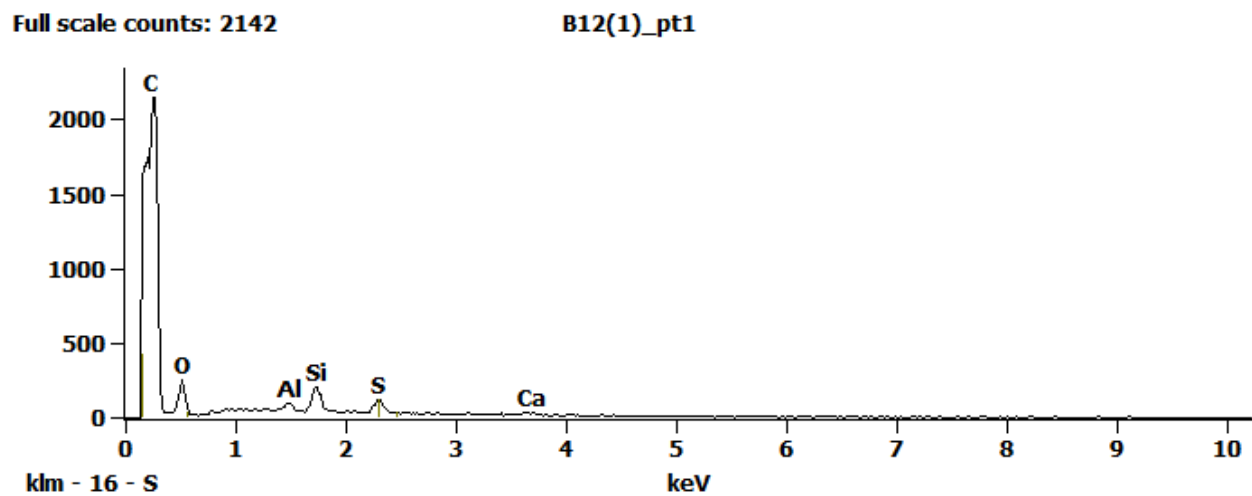


Figure 1. EDS Spectra for sample U2168-B-12 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2253

B12(1)\_pt2

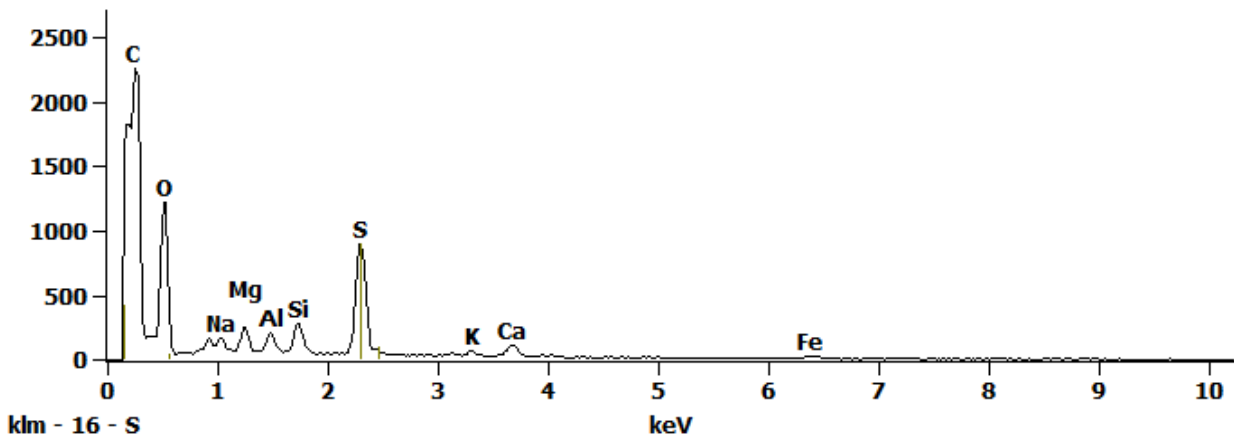
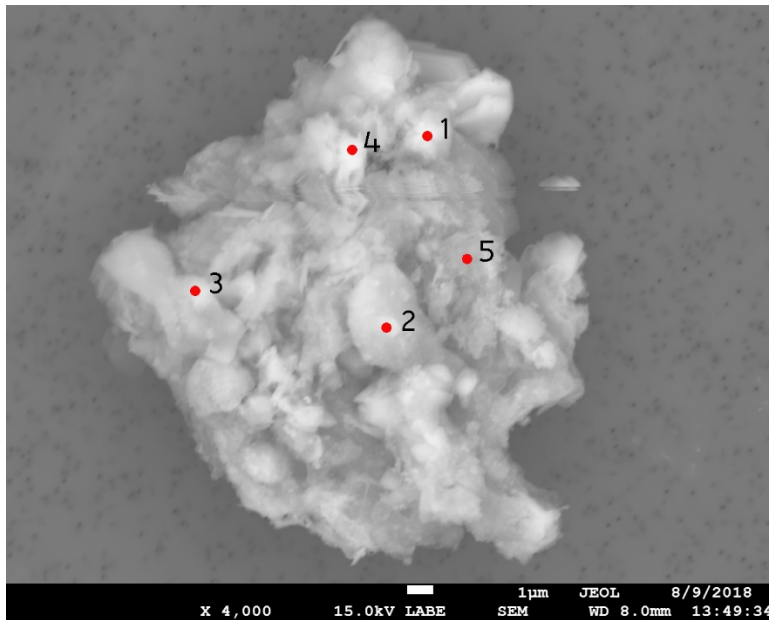


Figure 2. EDS Spectra for sample U2168-B-12 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 C4



<b>Particle Size:</b>	20 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C4 with labeled EDS testing locations.

### U2168 C4 - EDS Spectra

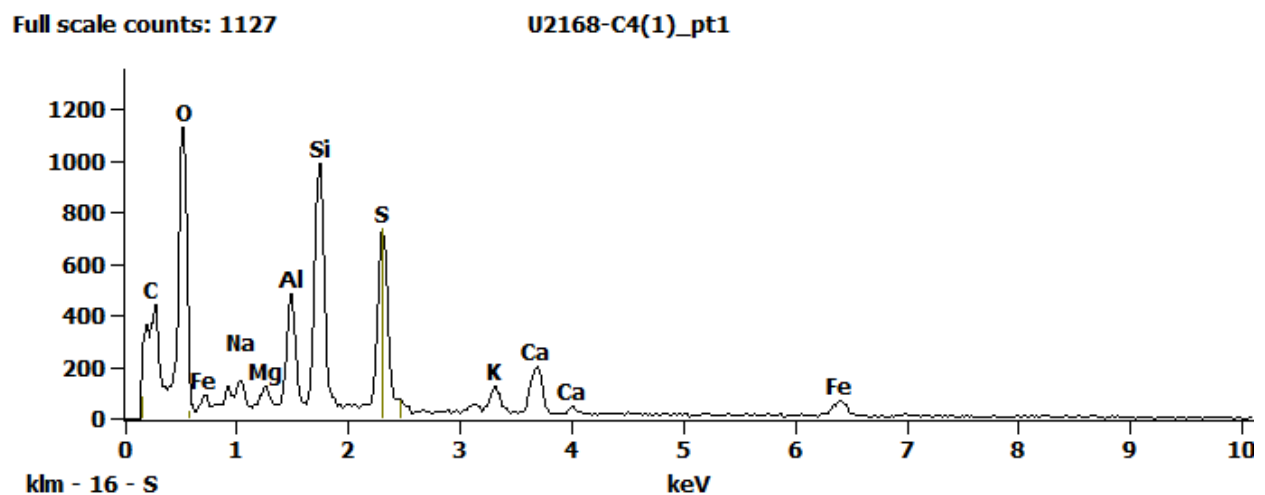


Figure 1. EDS Spectra for sample U2168-C-4 taken at test area 1. The test area is labeled in the particle SEM photo.

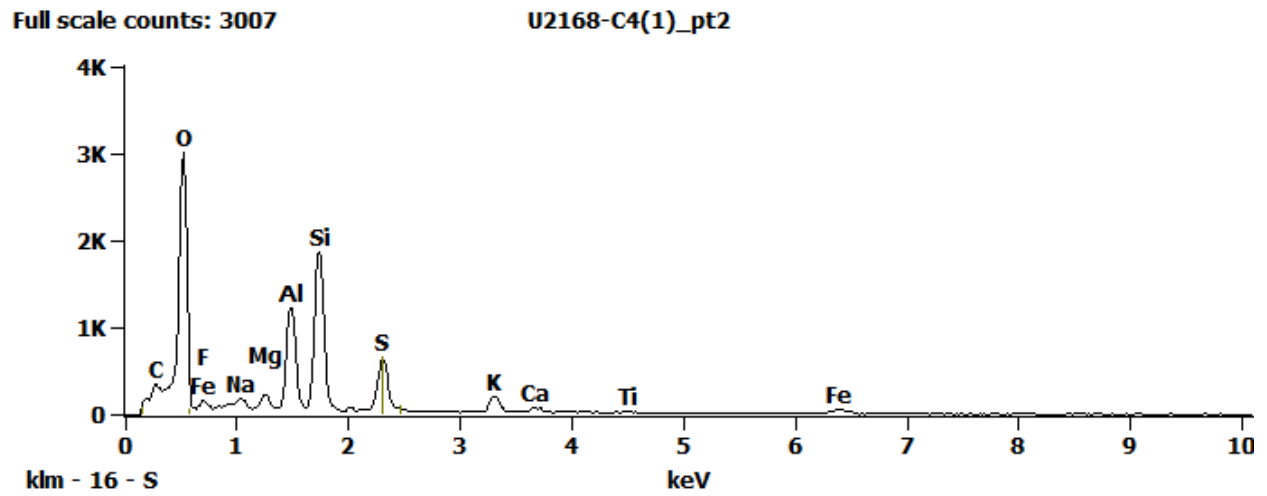


Figure 2. EDS Spectra for sample U2168-C-4 taken at test area 2. The test area is labeled in the particle SEM photo.

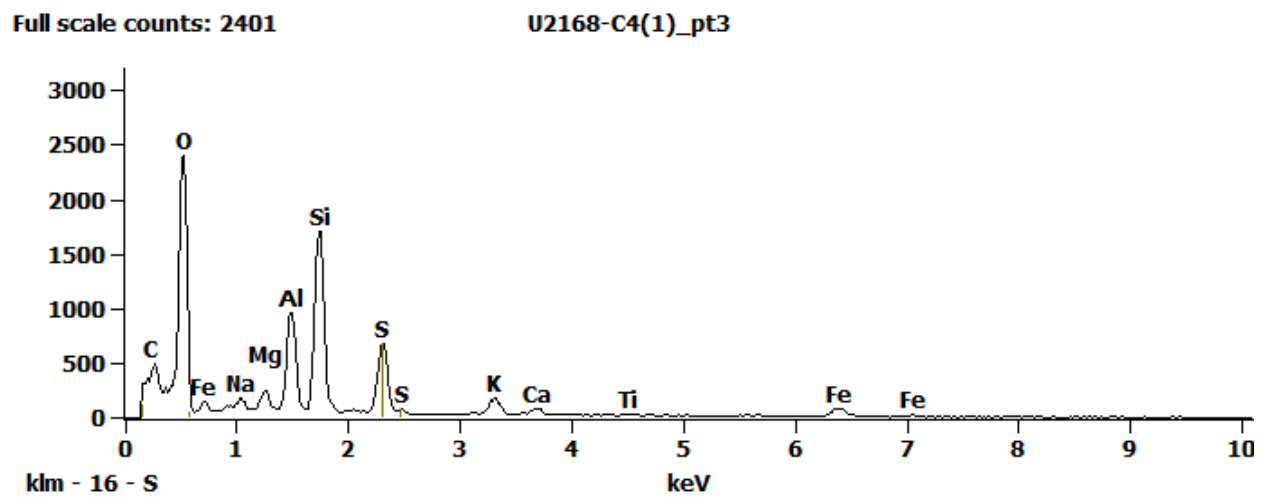


Figure 3. EDS Spectra for sample U2168-C-4 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1123

U2168-C4(1)\_pt4

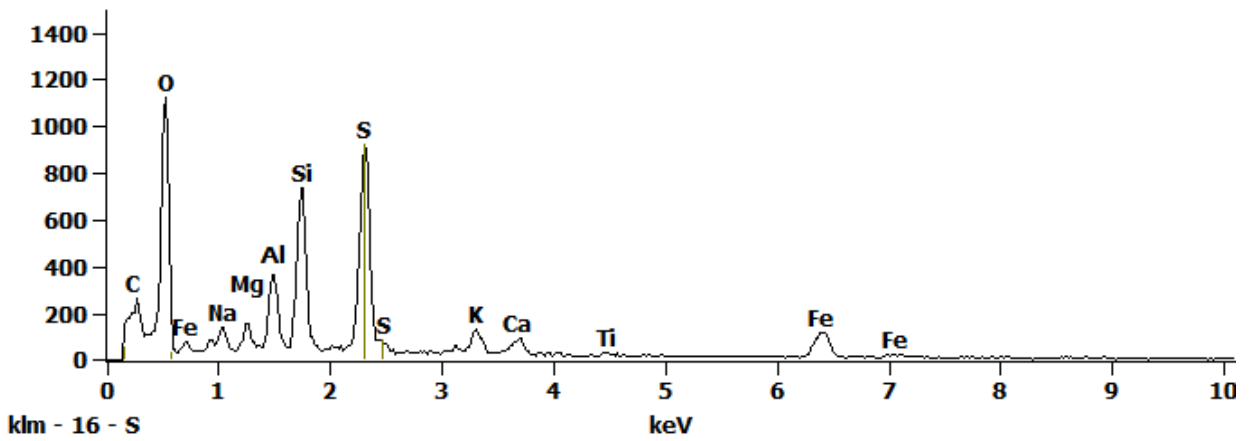


Figure 4. EDS Spectra for sample U2168-C-4 taken at test area 4. The test area is labeled in the particle SEM photo.

Full scale counts: 1148

U2168-C4(1)\_pt5

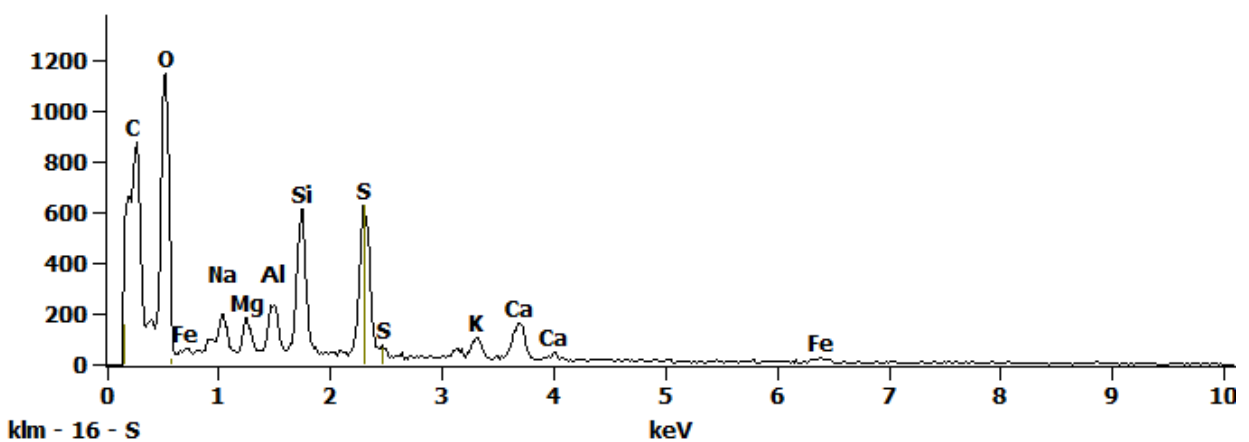
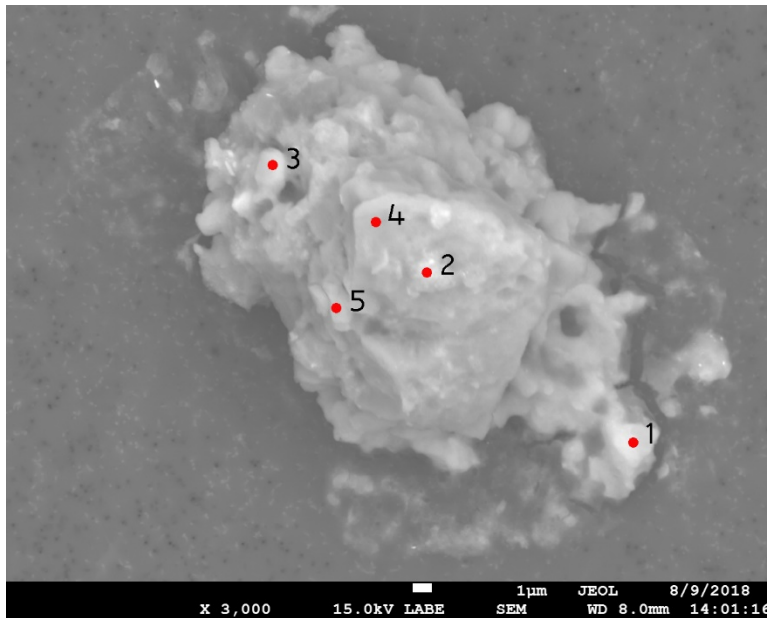


Figure 5. EDS Spectra for sample U2168-C-4 taken at test area 5. The test area is labeled in the particle SEM photo.



## U2168 C5



<b>Particle Size:</b>	30 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C5 with labeled EDS testing locations.

### U2168 C5 - EDS Spectra

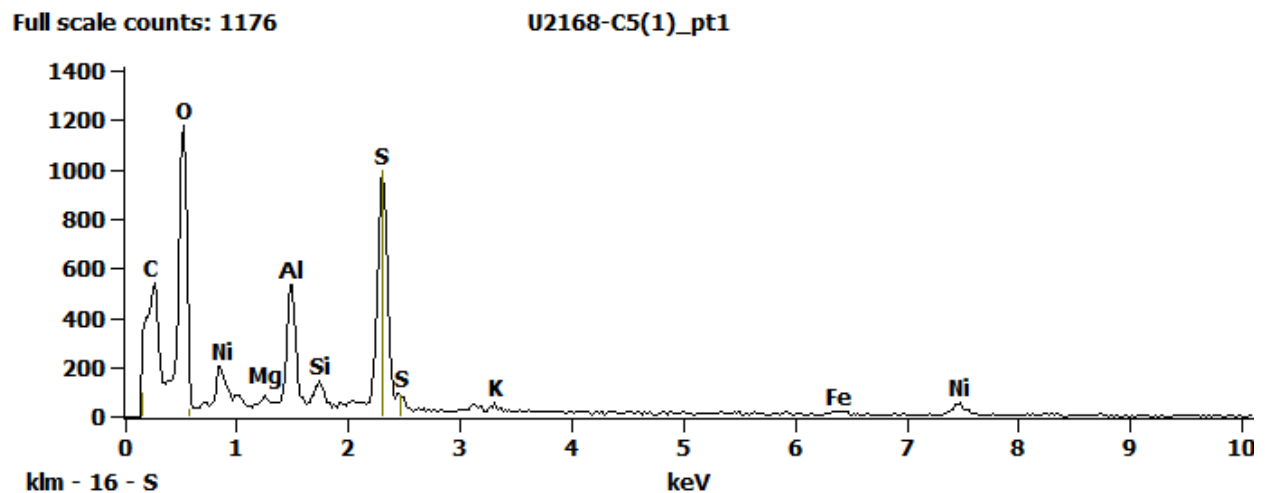


Figure 1. EDS Spectra for sample U2168-C-5 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2739

U2168-C5(1)\_pt2

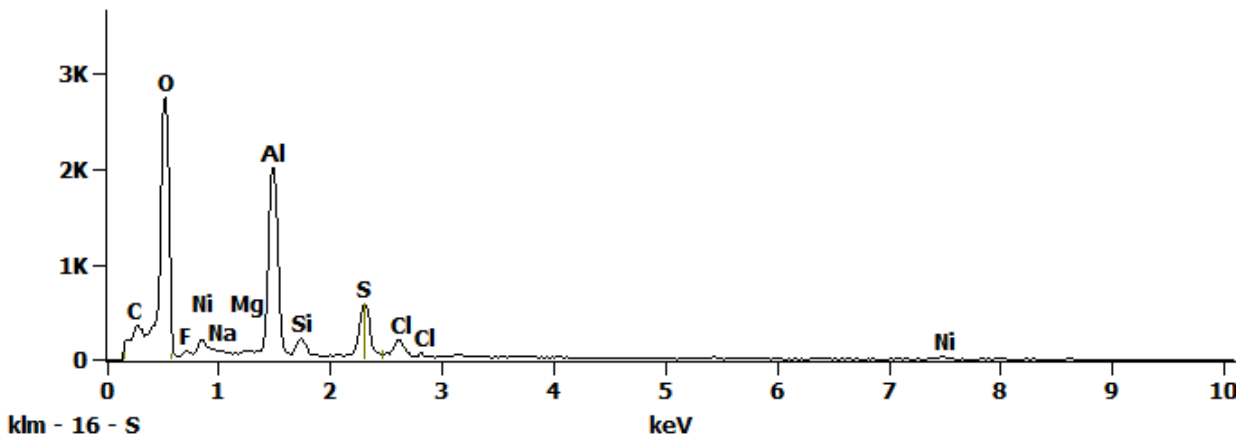


Figure 2. EDS Spectra for sample U2168-C-5 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1906

U2168-C5(1)\_pt3

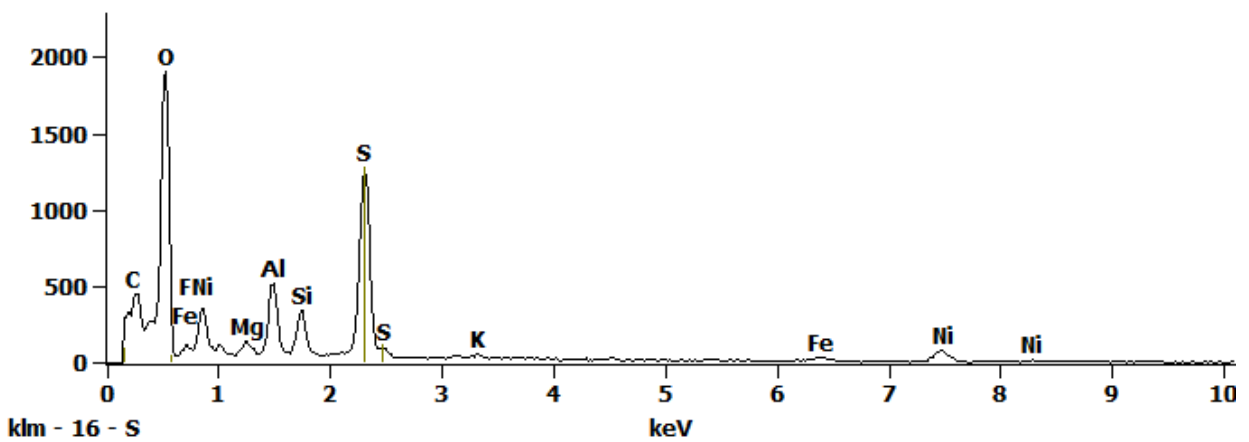


Figure 3. EDS Spectra for sample U2168-C-5 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 2761

U2168-C5(1)\_pt4

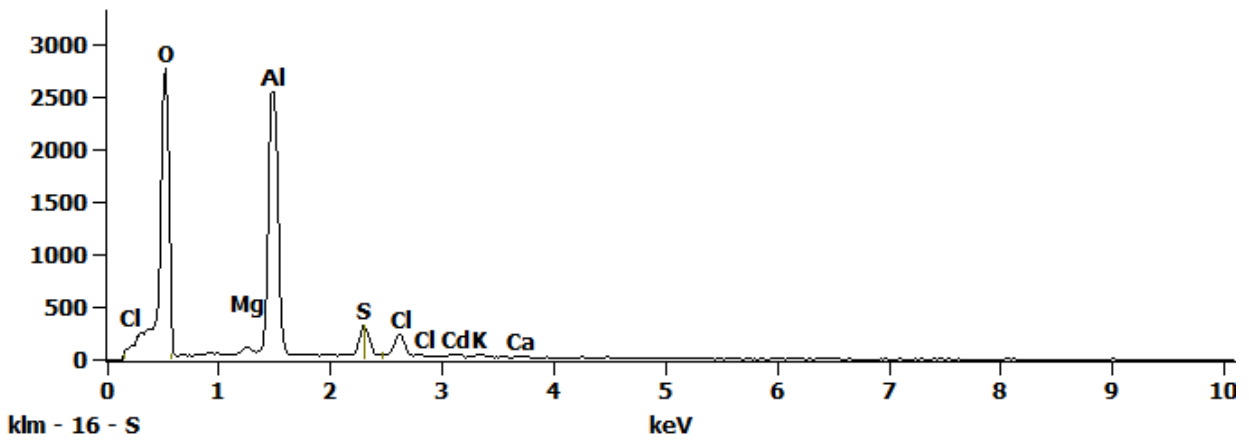


Figure 4. EDS Spectra for sample U2168-C-5 taken at test area 4. The test area is labeled in the particle SEM photo.

Full scale counts: 3064

U2168-C5(1)\_pt5

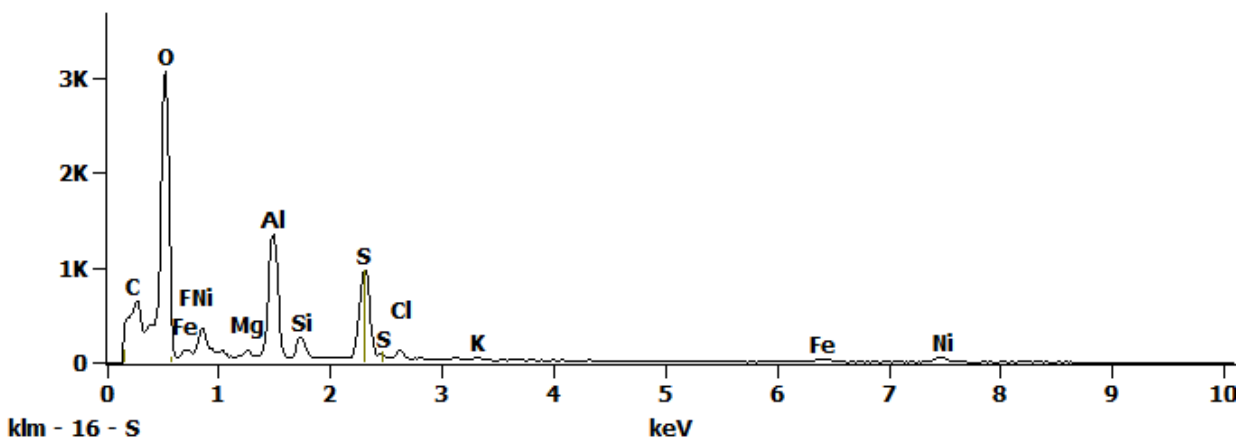
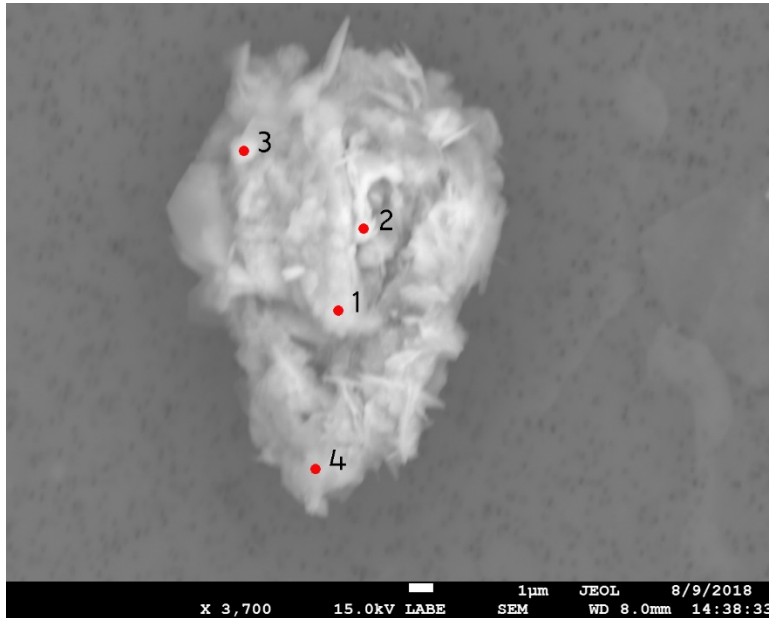


Figure 5. EDS Spectra for sample U2168-C-5 taken at test area 5. The test area is labeled in the particle SEM photo.

## U2168 C12



<b>Particle Size:</b>	17 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C12 with labeled EDS testing locations.

### U2168 C12 - EDS Spectra

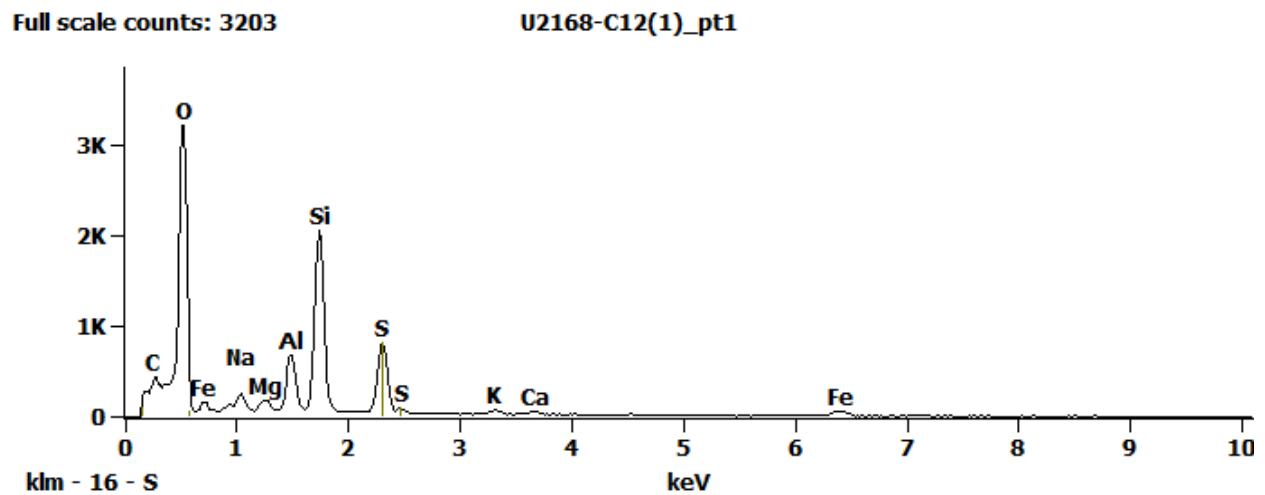


Figure 1. EDS Spectra for sample U2168-C-12 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2014

U2168-C12(1)\_pt2

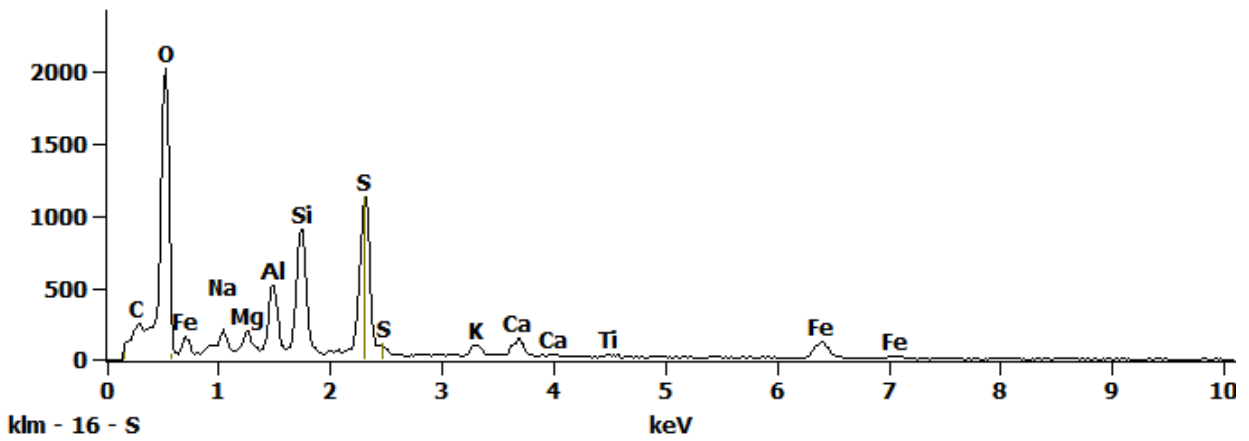


Figure 2. EDS Spectra for sample U2168-C-12 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2136

U2168-C12(1)\_pt3

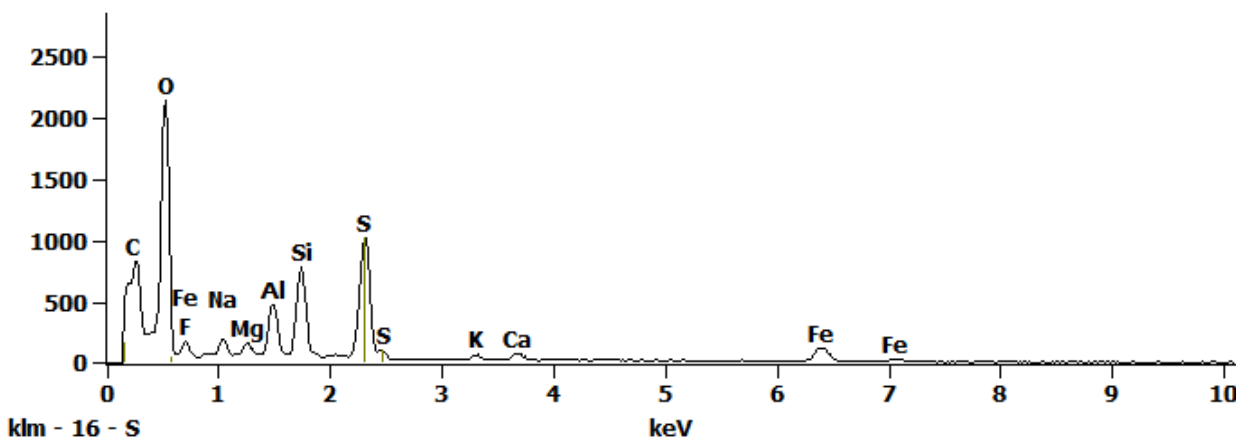


Figure 3. EDS Spectra for sample U2168-C-12 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 2030

U2168-C12(1)\_pt4

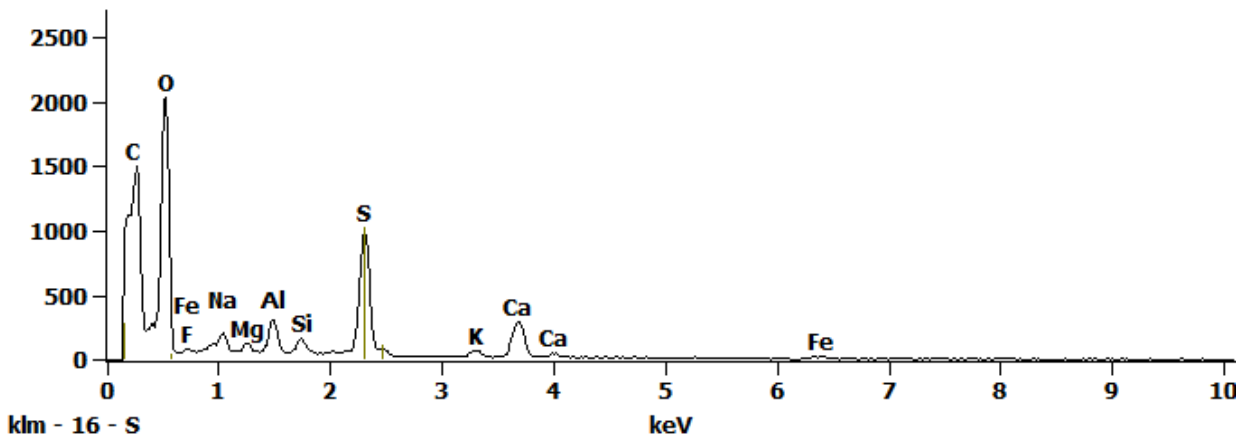
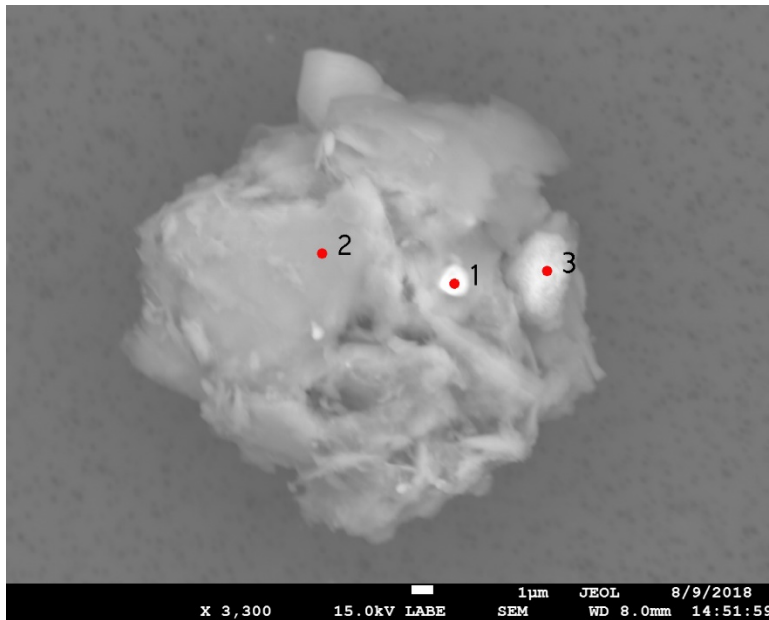


Figure 4. EDS Spectra for sample U2168-C-12 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 C14



<b>Particle Size:</b>	25 µm
<b>Shape:</b>	Spherical
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C14 with labeled EDS testing locations.

### U2168 C14 - EDS Spectra

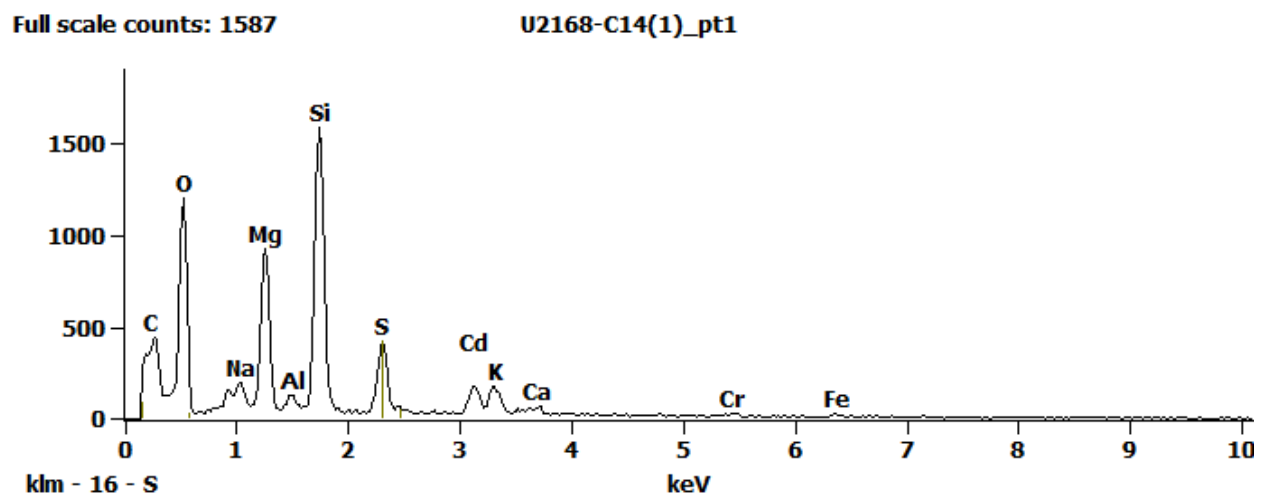


Figure 1. EDS Spectra for sample U2168-C-14 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 3639

U2168-C14(1)\_pt2

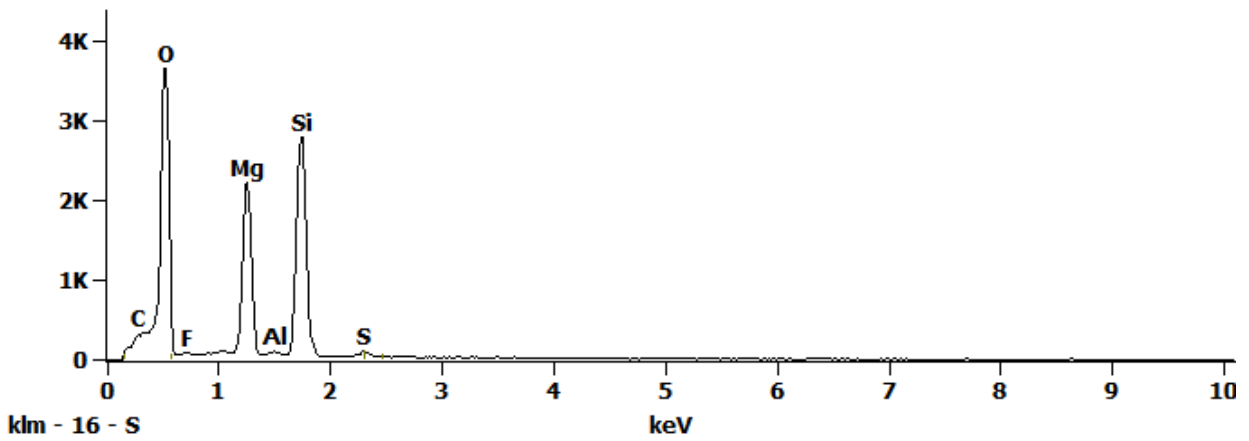


Figure 2. EDS Spectra for sample U2168-C-14 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 983

U2168-C14(1)\_pt3

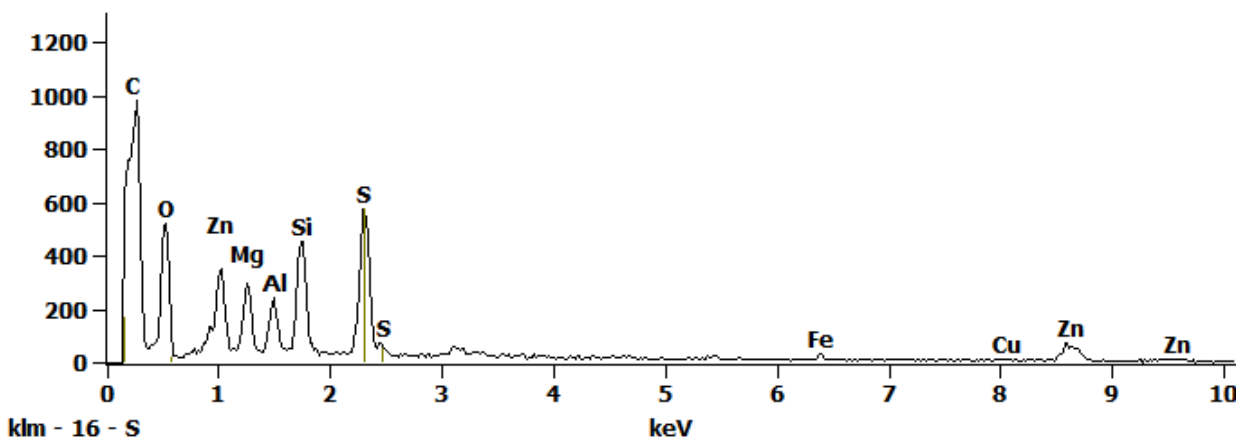
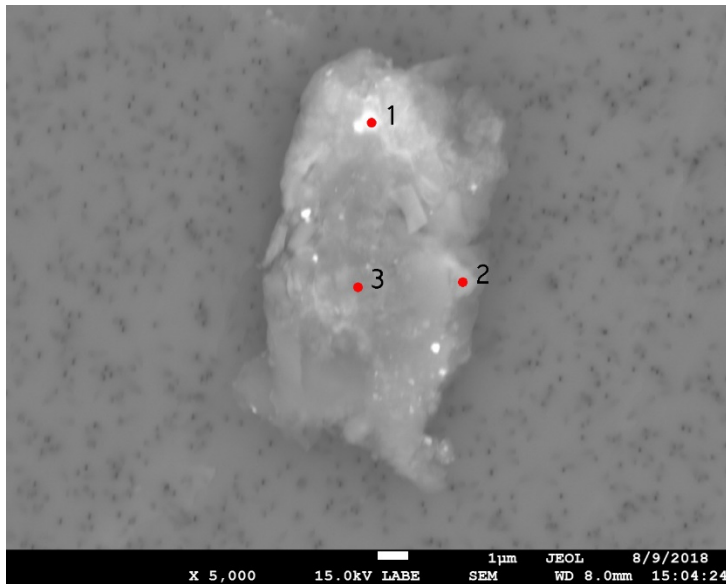


Figure 3. EDS Spectra for sample U2168-C-14 taken at test area 3. The test area is labeled in the particle SEM photo.



## U2168 C16



<b>Particle Size:</b>	18 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C16 with labeled EDS testing locations.

### U2168 C16 - EDS Spectra

Full scale counts: 1162

U2168-C16(1)\_pt1

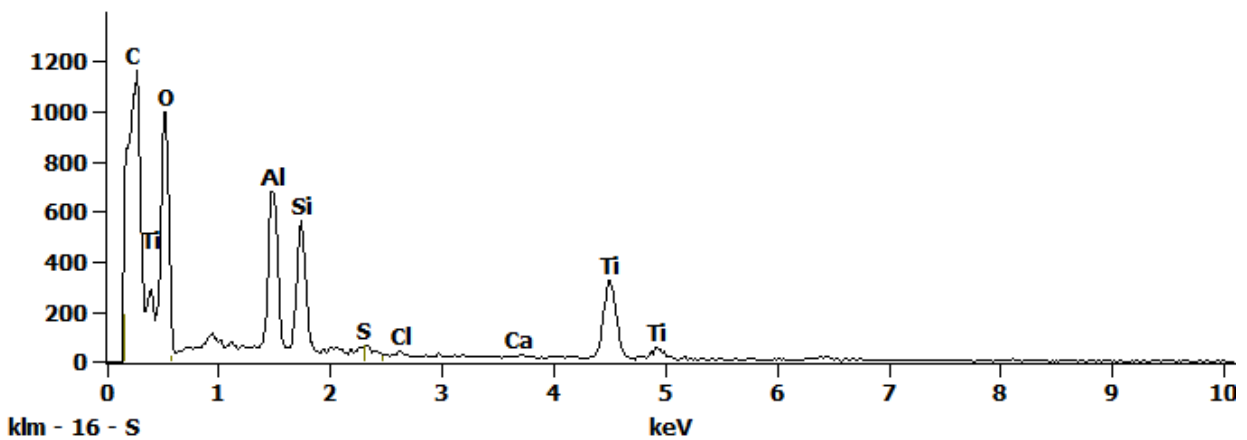


Figure 1. EDS Spectra for sample U2168-C-16 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1204

U2168-C16(1)\_pt2

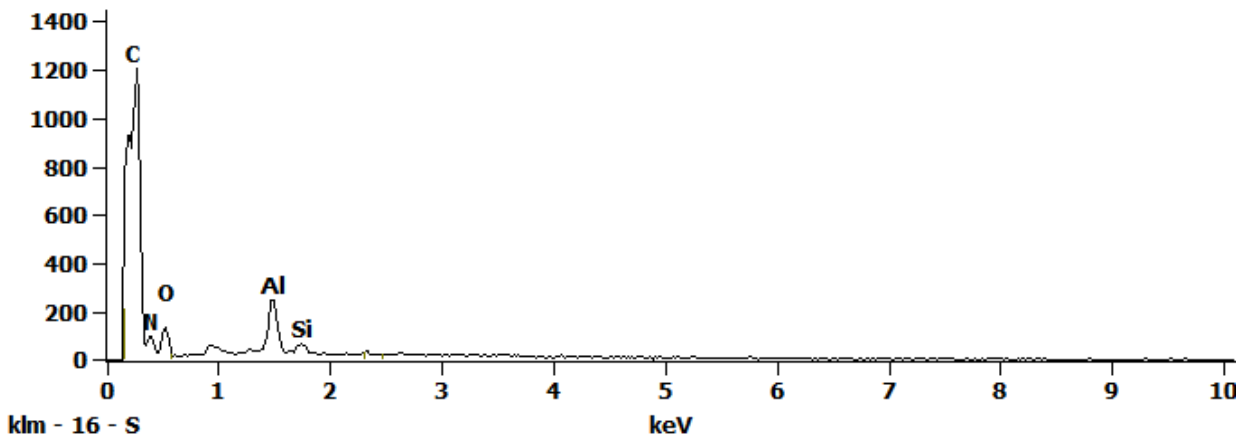


Figure 2. EDS Spectra for sample U2168-C-16 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1396

U2168-C16(1)\_pt3

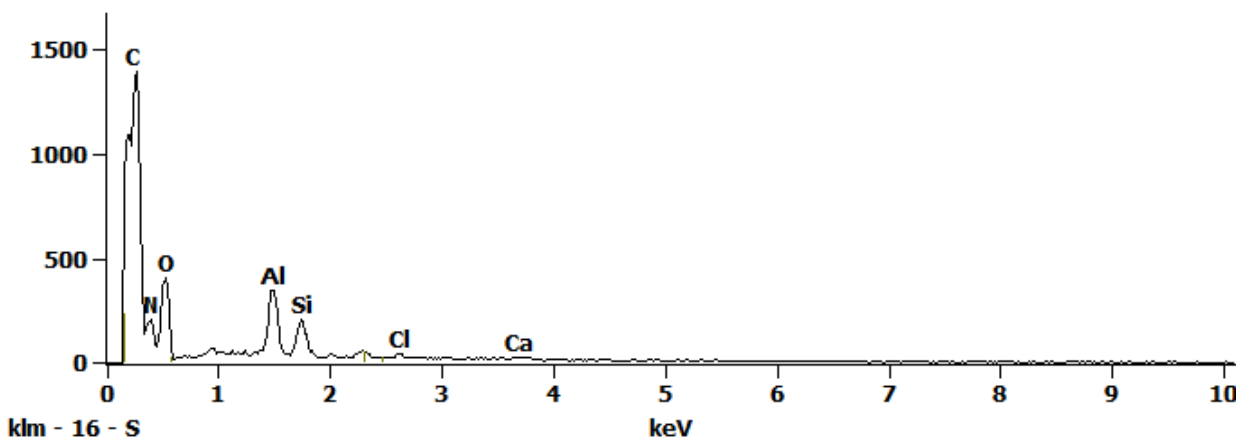
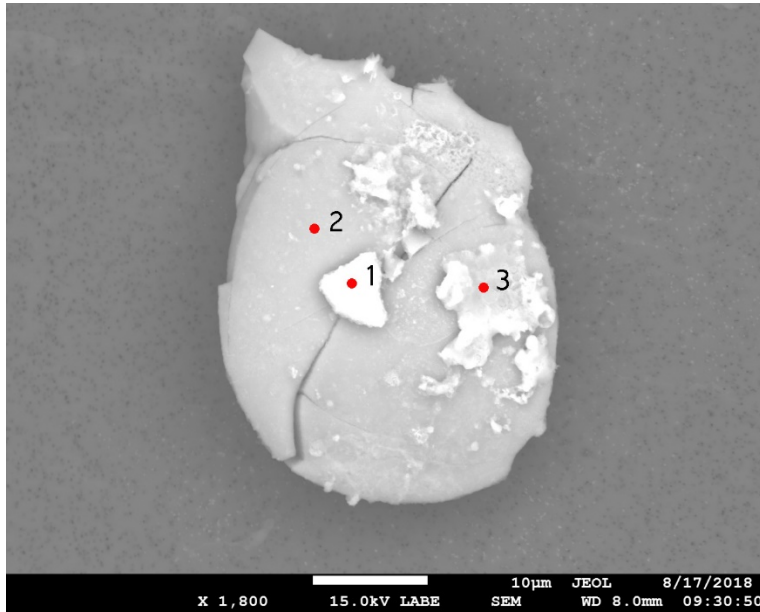


Figure 3. EDS Spectra for sample U2168-C-16 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 D1



<b>Particle Size:</b>	35 $\mu\text{m}$
<b>Shape:</b>	Irregular to Spherical
<b>Transparency:</b>	Opaque
<b>Color:</b>	CLEAR, GRAY, WHITE, YELLOW
<b>Luster:</b>	Resinous to Dull
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D1 with labeled EDS testing locations.

### U2168 D1 - EDS Spectra

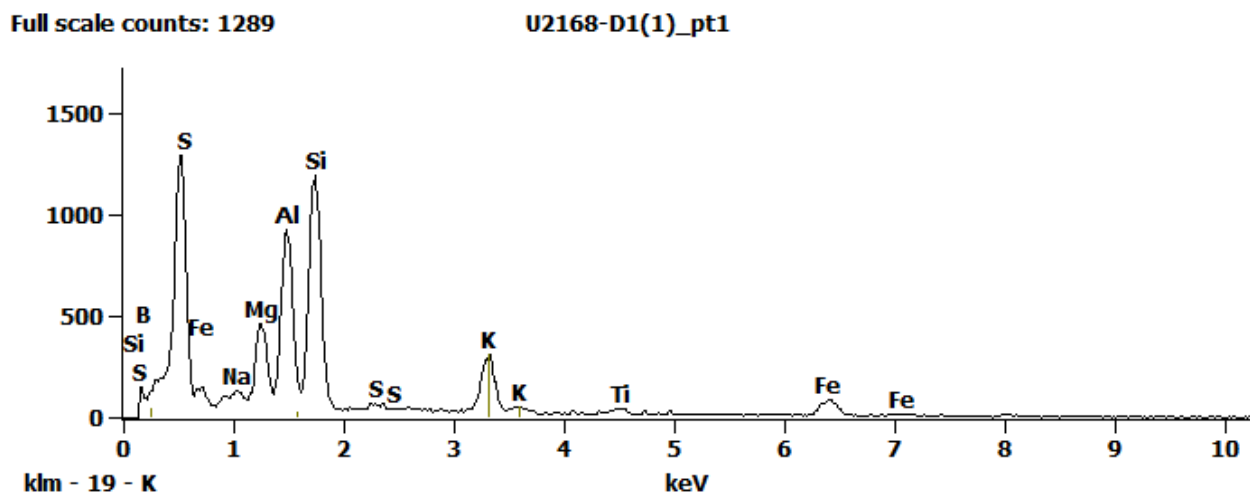


Figure 1. EDS Spectra for sample U2168-D-1 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1711

U2168-D1(1)\_pt2

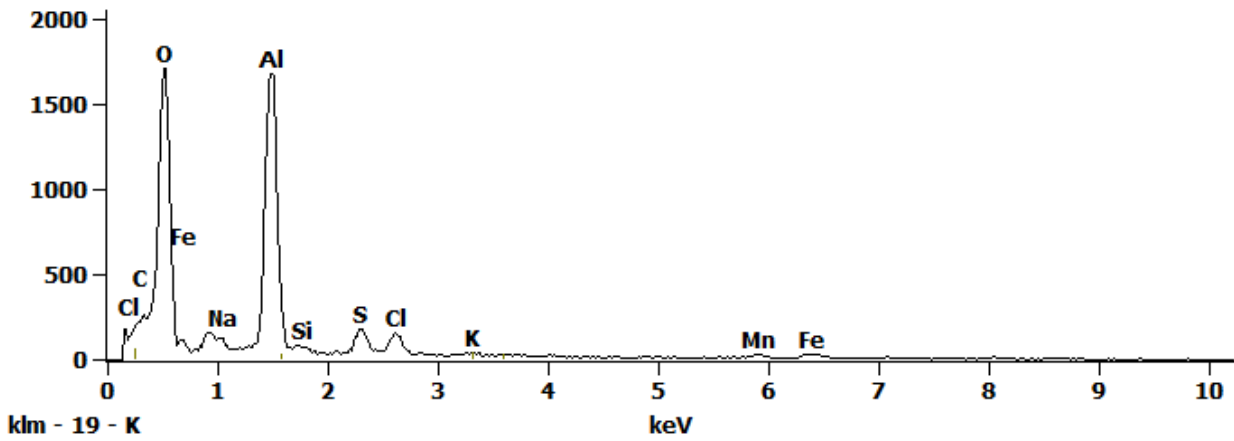


Figure 2. EDS Spectra for sample U2168-D-1 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1640

U2168-D1(1)\_pt3

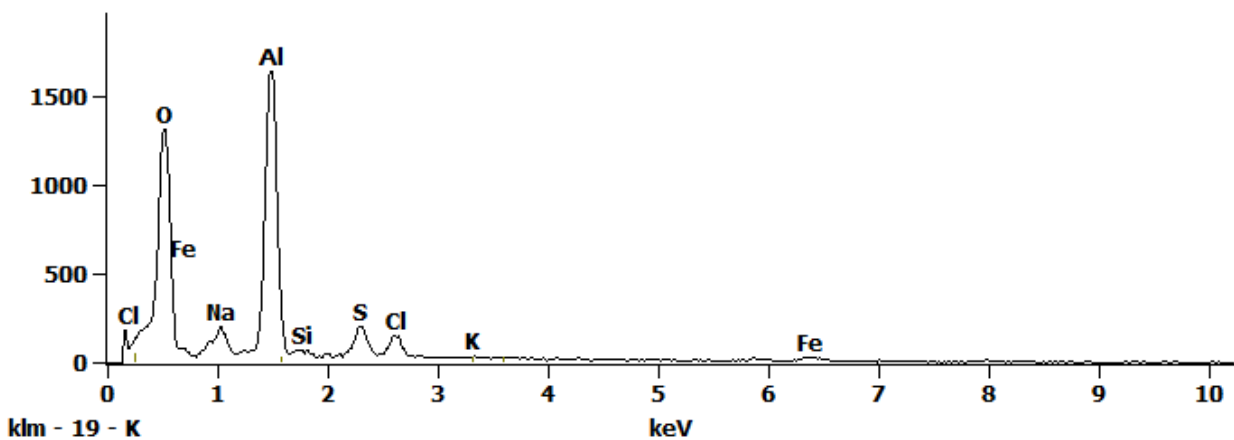
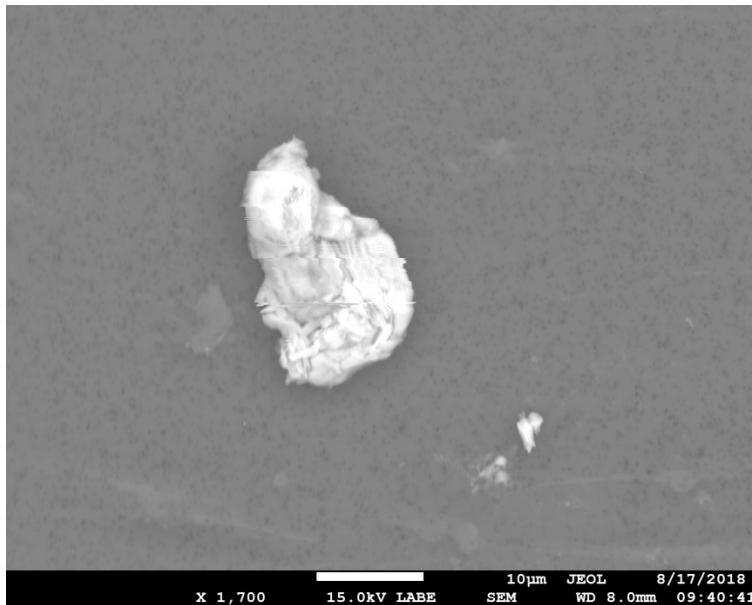


Figure 3. EDS Spectra for sample U2168-D-1 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 D2



<b>Particle Size:</b>	22 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Transparent to Translucent
<b>Color:</b>	CLEAR
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D2

### U2168 D2 - EDS Spectra

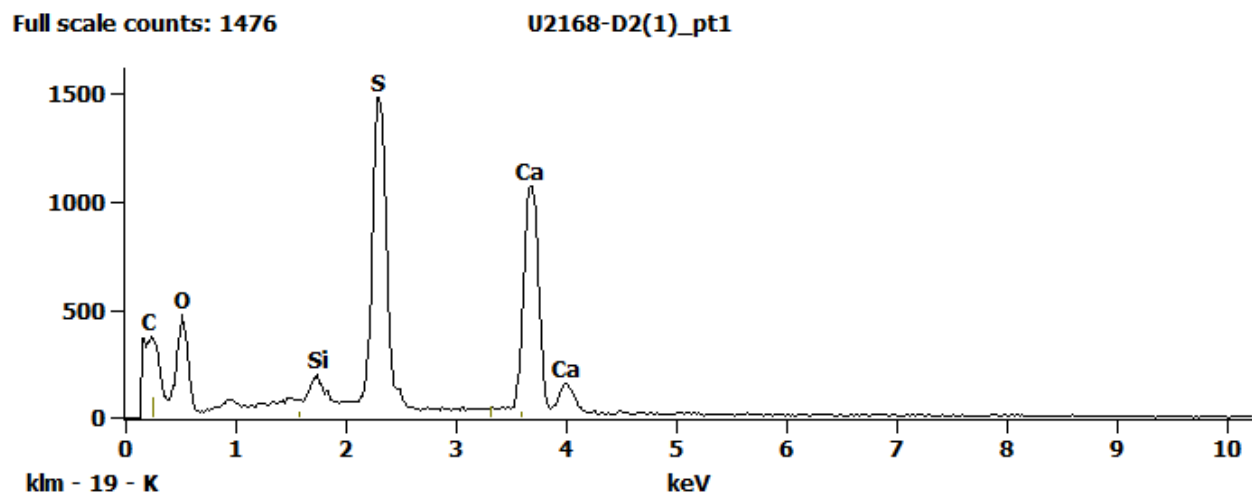


Figure 1. EDS Spectra for sample U2168-D-2 taken at test area 1. The test area is labeled in the particle SEM photo.

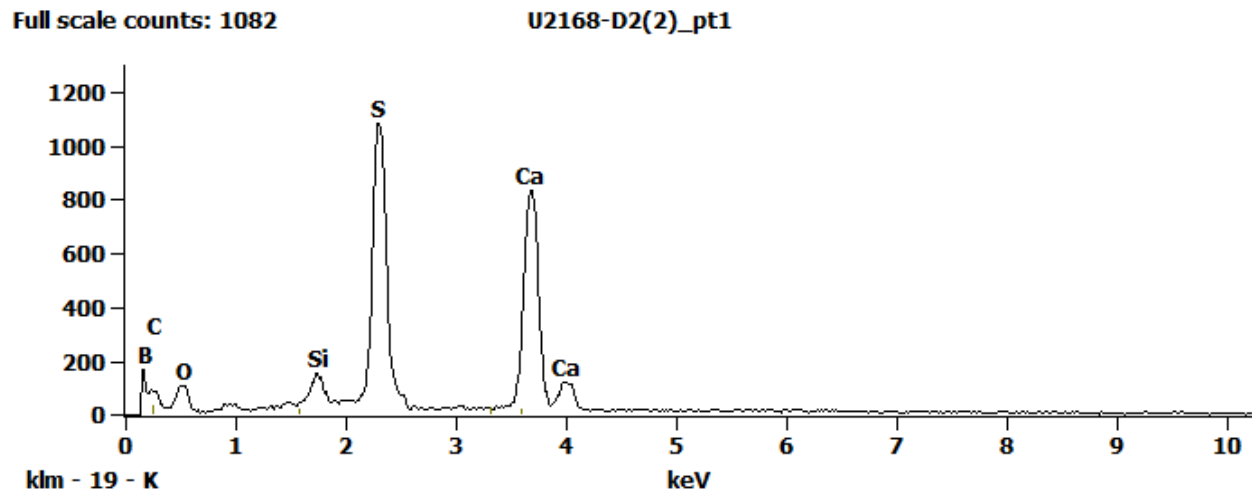
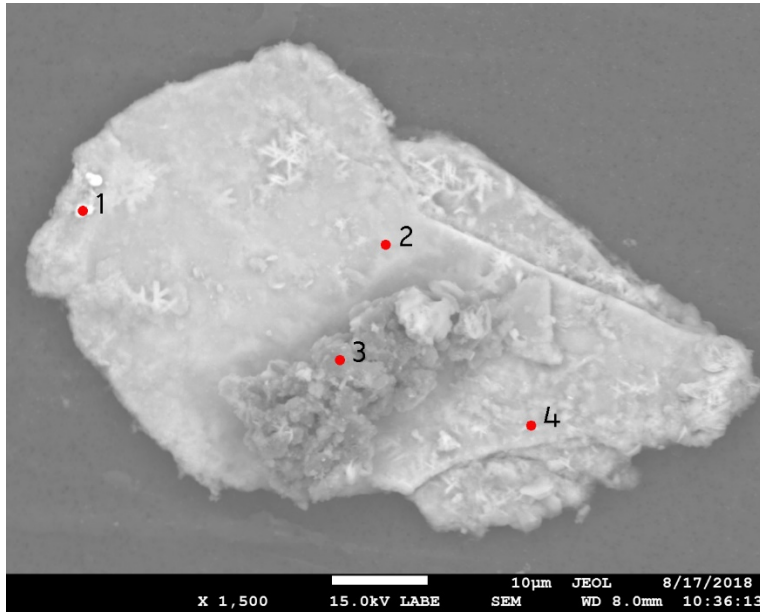


Figure 2. EDS Spectra for sample U2168-D-2 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 D15



<b>Particle Size:</b>	79x39 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	BLACK, CLEAR, GRAY, YELLOW
<b>Luster:</b>	Subvitreous to Vitreous
<b>Particle Type:</b>	POSSIBLY COSMIC
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D15 with labeled EDS testing locations.

### U2168 D15 - EDS Spectra

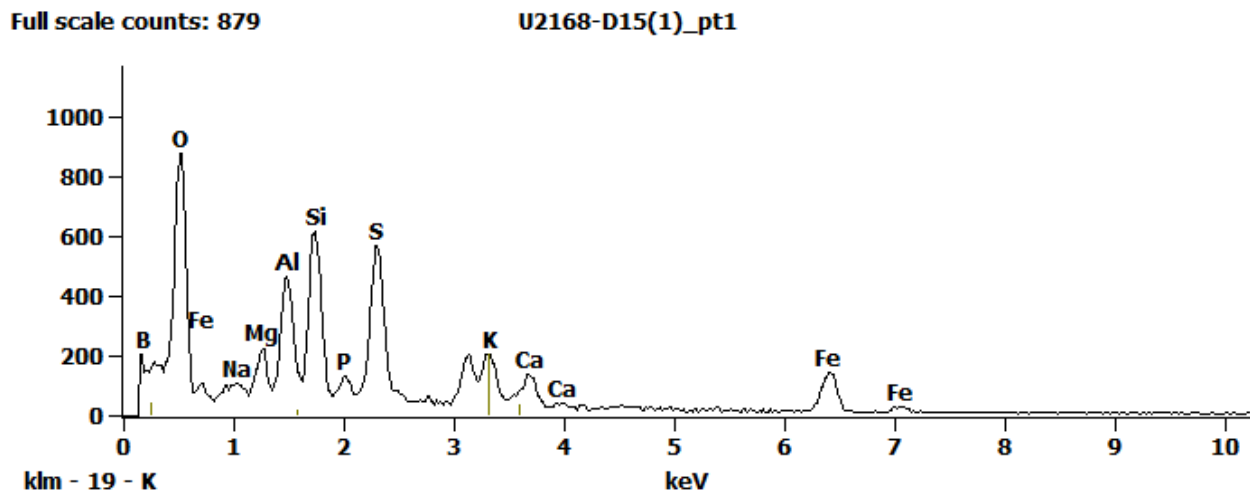


Figure 1. EDS Spectra for sample U2168-D-15 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1231

U2168-D15(1)\_pt2

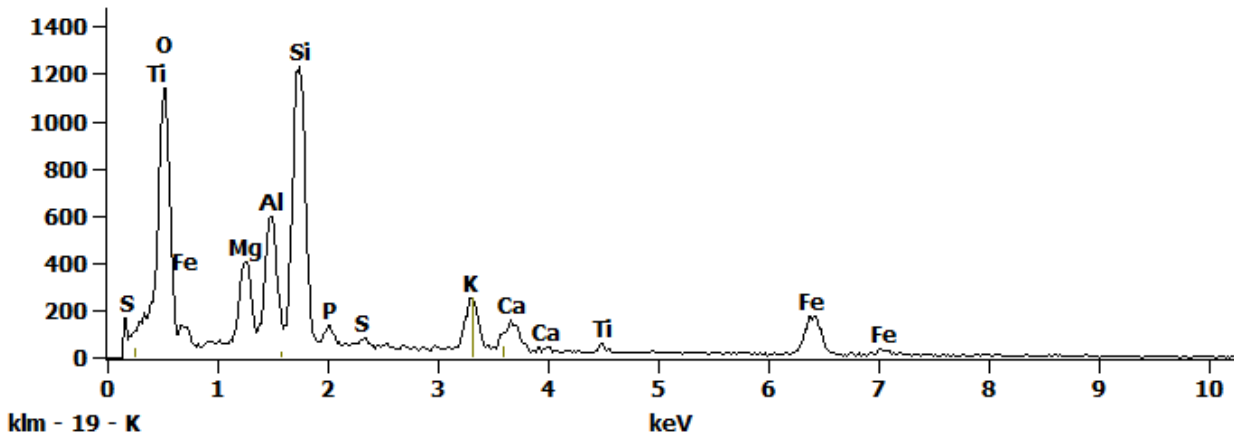


Figure 2. EDS Spectra for sample U2168-D-15 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1164

U2168-D15(1)\_pt3

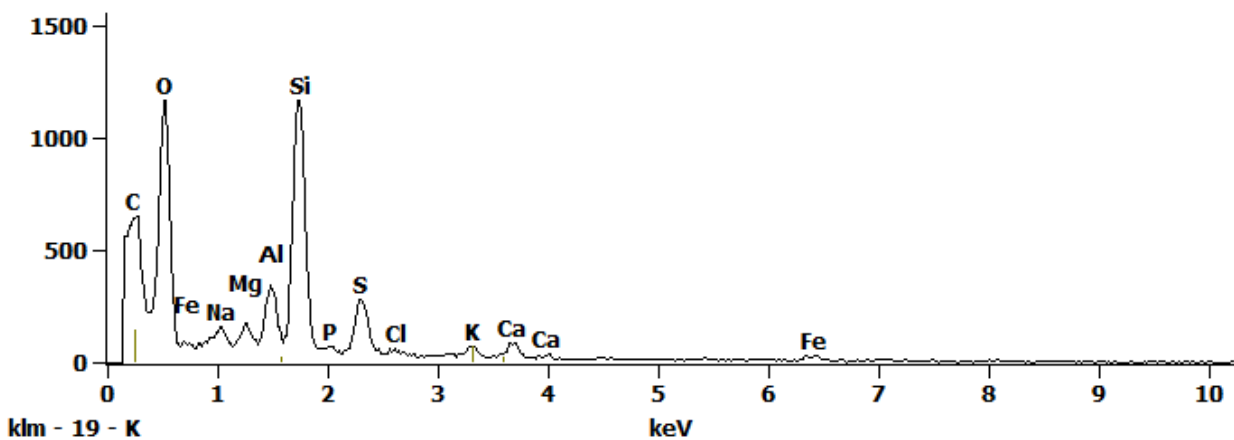


Figure 3. EDS Spectra for sample U2168-D-15 taken at test area 3. The test area is labeled in the particle SEM photo.



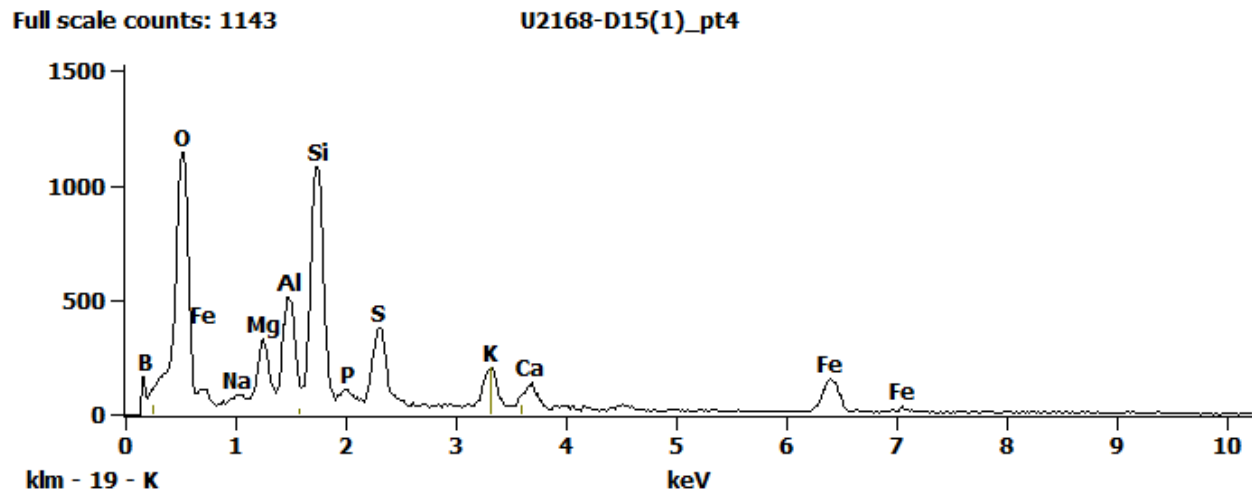


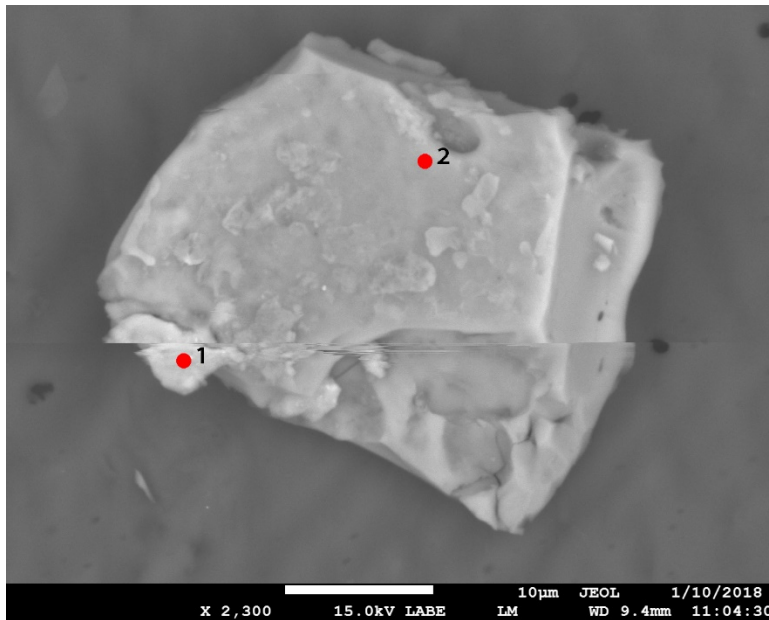
Figure 4. EDS Spectra for sample U2168-D-15 taken at test area 4. The test area is labeled in the particle SEM photo.

# Particle Descriptions

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## Artificial Terrestrial Contamination and Possibly Artificial Terrestrial Contamination (TCA and TCA ? Types)

## W7317 A2



**Particle Size:** 40 µm  
**Shape:** Irregular  
**Transparency:** Transparent  
**Color:** CLEAR  
**Luster:** Vitreous  
**Particle Type:** ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** W7317 Cluster 2  
**Comments:**

SEM Photo of sample W7317 A2 with labeled EDS testing locations.

### Cluster of Origin: W7317 Cluster 2

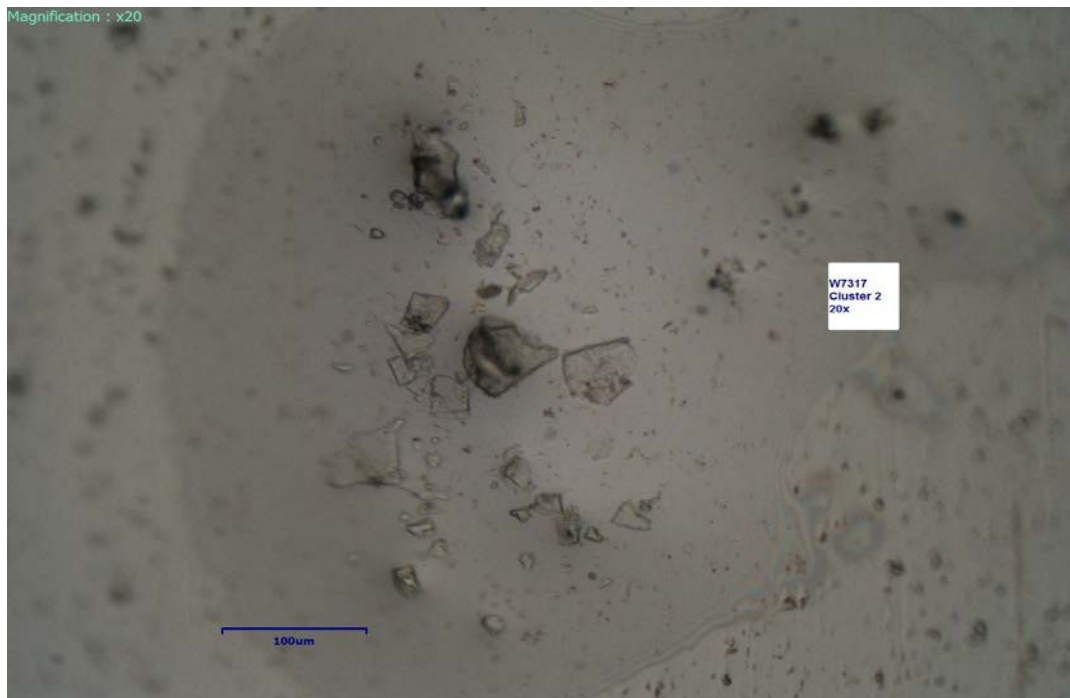


Photo of cluster W7317 Cluster 2.

## W7317 A2 - EDS Spectra

Full scale counts: 4875

W7317-A2(1)\_pt1

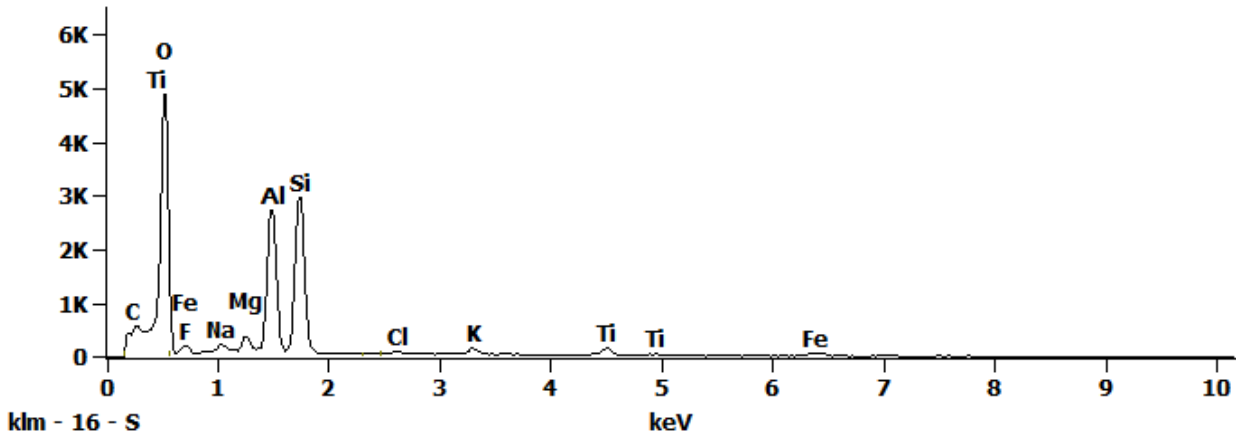


Figure 1. EDS Spectra for sample W7317-A-2 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 4637

W7317-A2(1)\_pt2

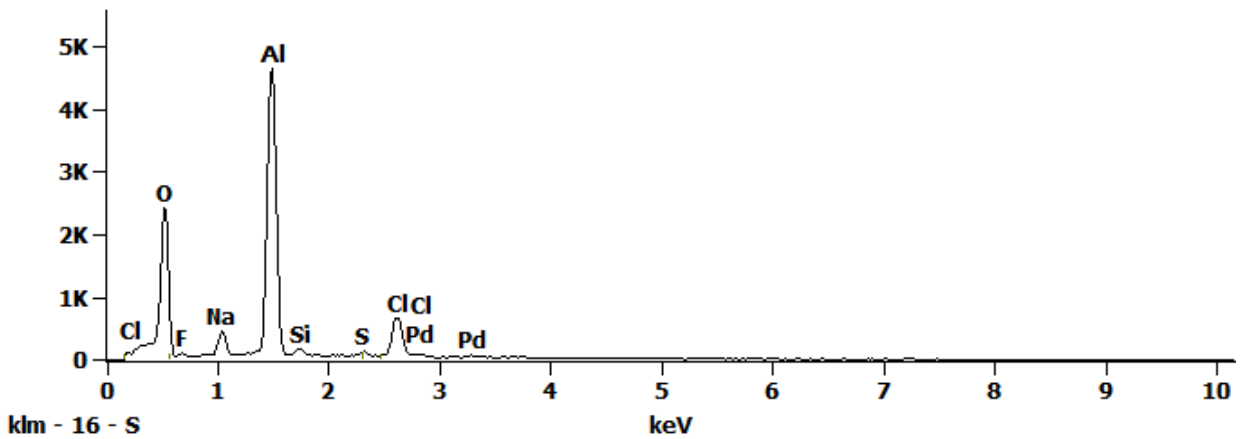
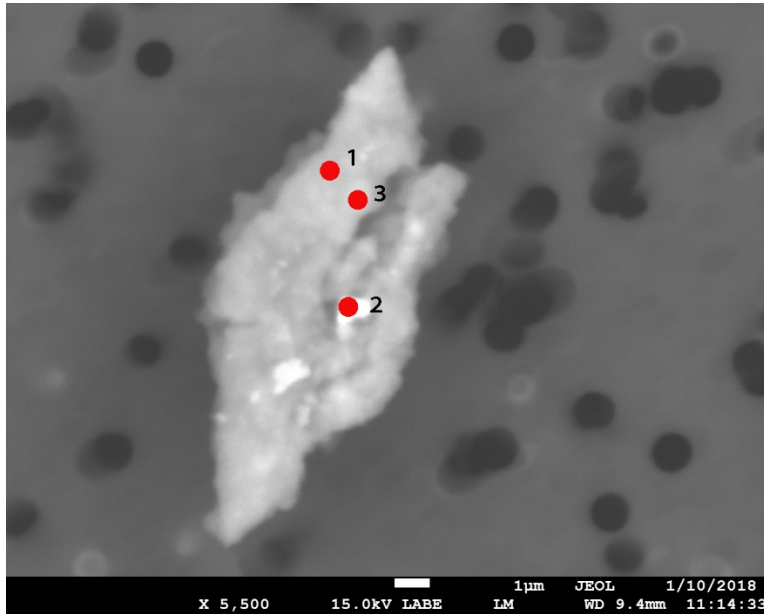


Figure 2. EDS Spectra for sample W7317-A-2 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7317 A3



<b>Particle Size:</b>	5x20 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Translucent
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Vitreous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7317 Cluster 3
<b>Comments:</b>	

SEM Photo of sample W7317 A3 with labeled EDS testing locations.

### Cluster of Origin: W7317 Cluster 3



Photo of cluster W7317 Cluster 3.

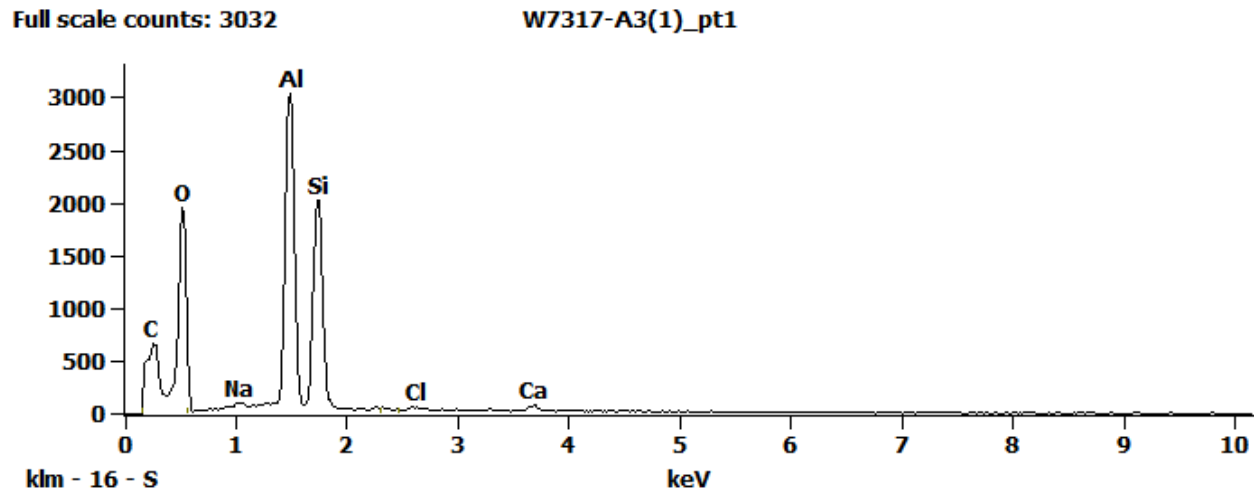
*W7317 A3 - EDS Spectra*

Figure 1. EDS Spectra for sample W7317-A-3 taken at test area 1. The test area is labeled in the particle SEM photo.

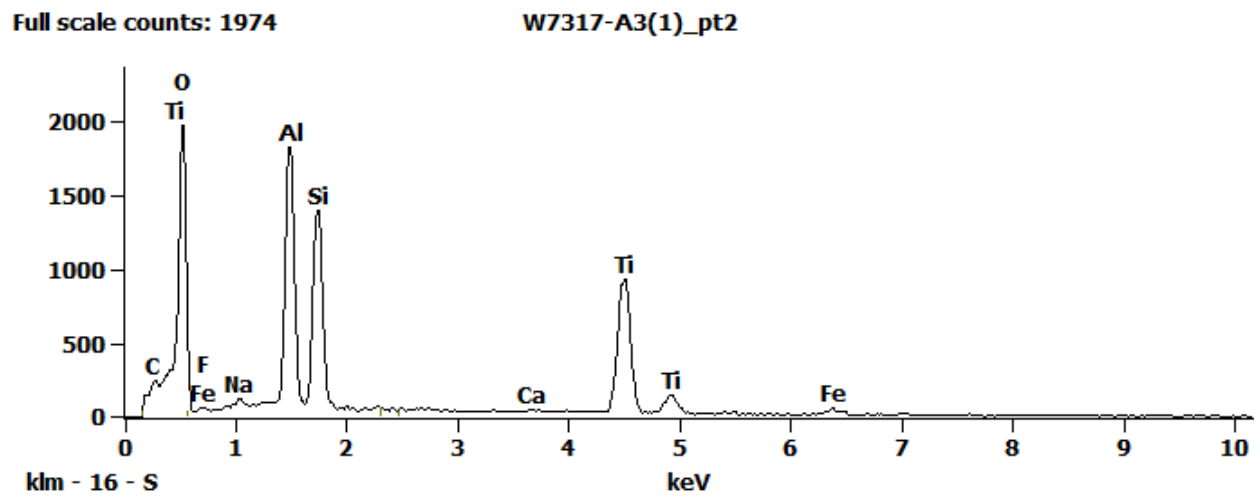


Figure 2. EDS Spectra for sample W7317-A-3 taken at test area 2. The test area is labeled in the particle SEM photo.

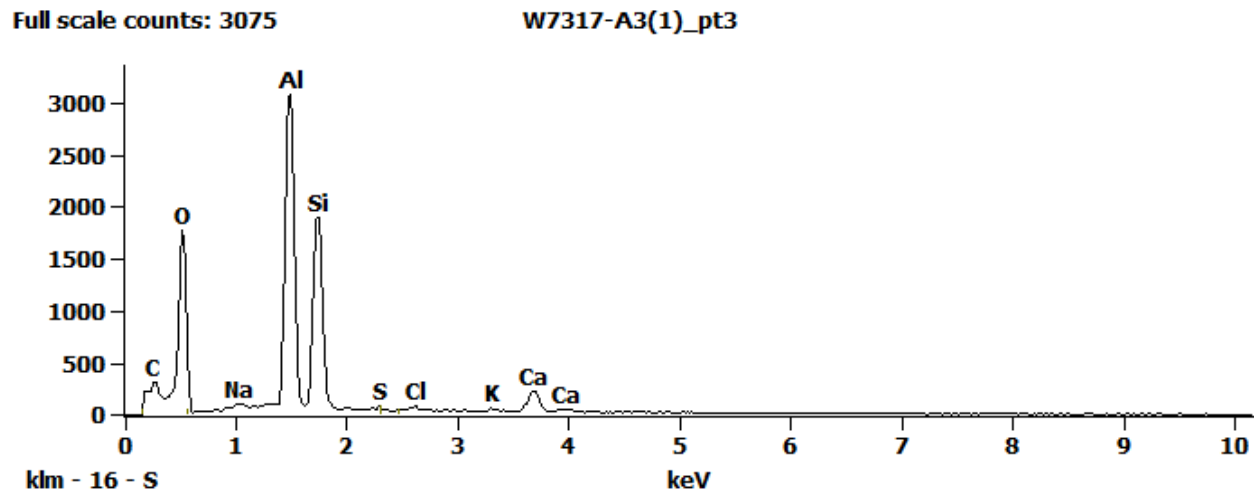
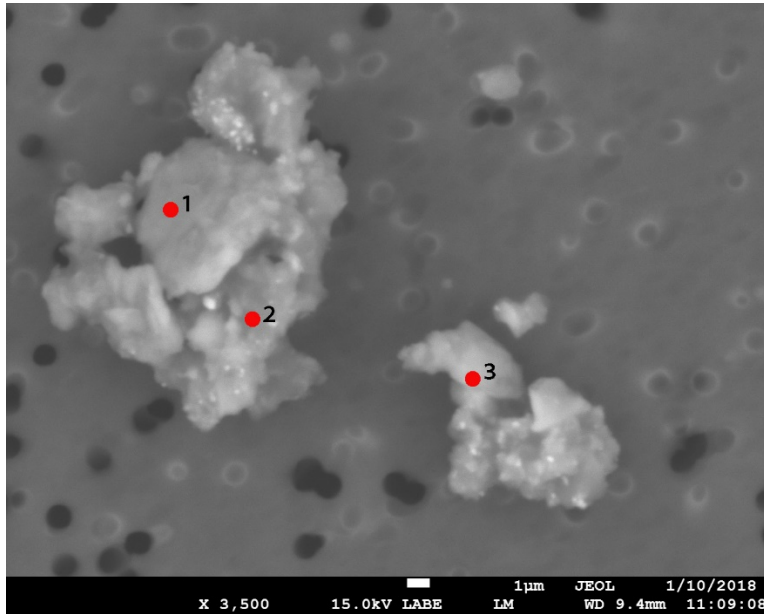


Figure 3. EDS Spectra for sample W7317-A-3 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 A4



SEM Photo of sample W7317 A4 with labeled EDS testing locations.

<b>Particle Size:</b>	13 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Vitreous to Subvitreous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7317 Cluster 4
<b>Comments:</b>	

### Cluster of Origin: W7317 Cluster 4

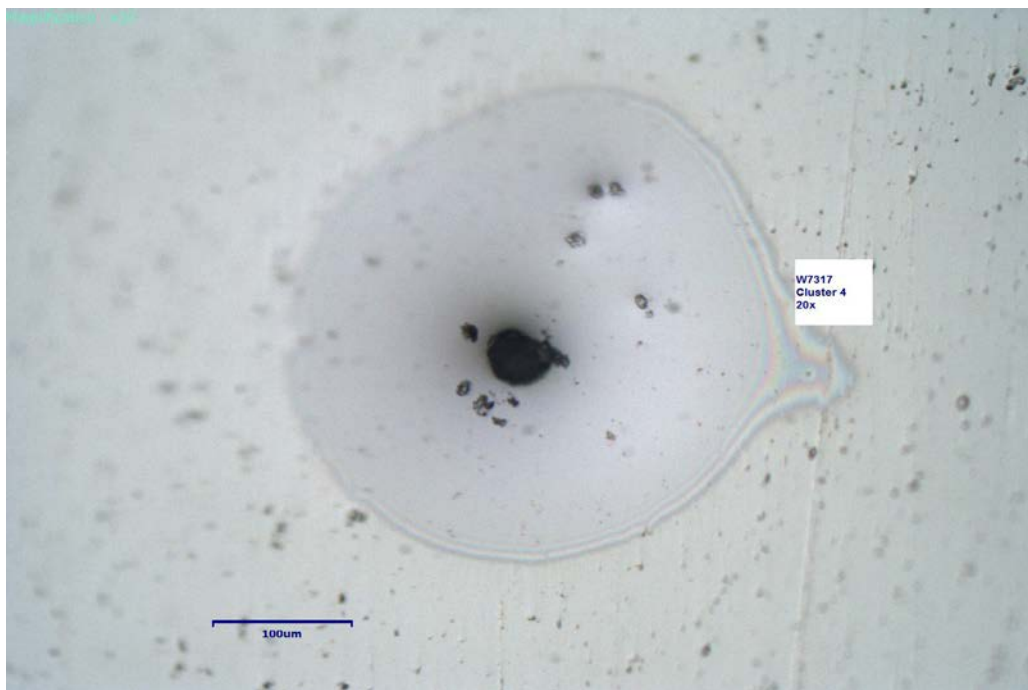


Photo of cluster W7317 Cluster 4.



## W7317 A4 - EDS Spectra

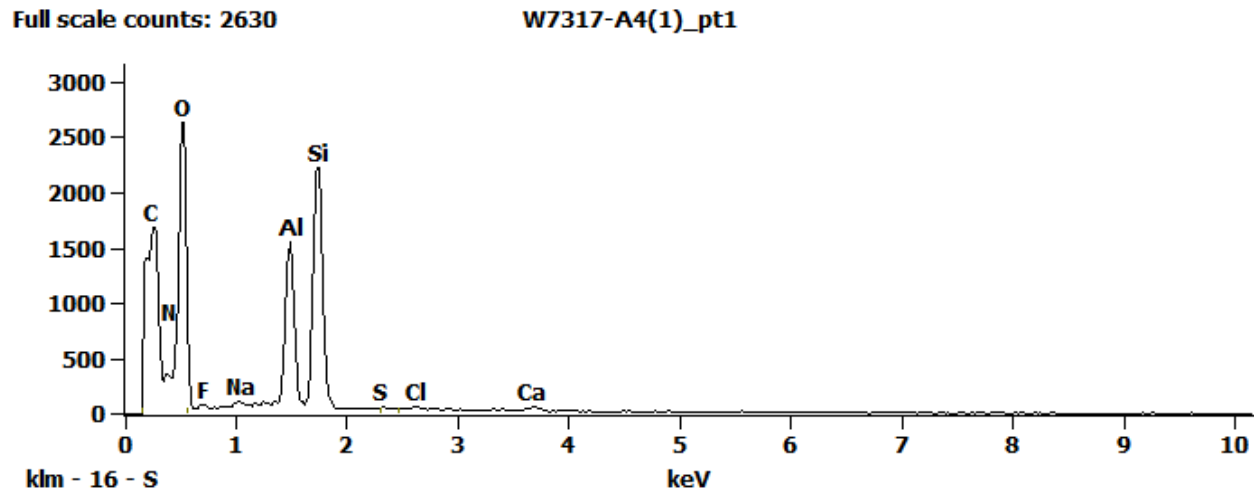


Figure 1. EDS Spectra for sample W7317-A-4 taken at test area 1. The test area is labeled in the particle SEM photo.

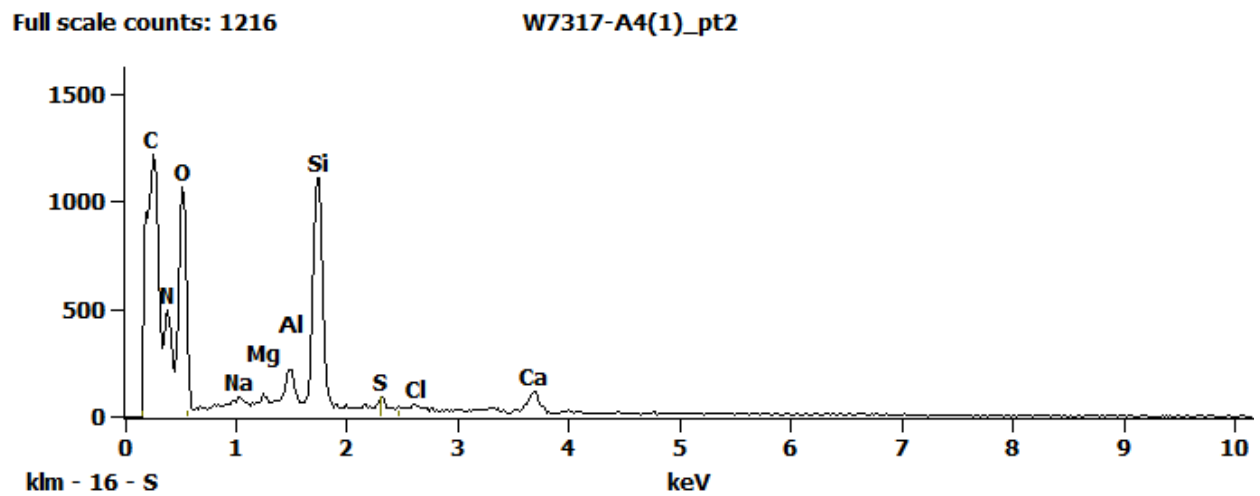


Figure 2. EDS Spectra for sample W7317-A-4 taken at test area 2. The test area is labeled in the particle SEM photo.

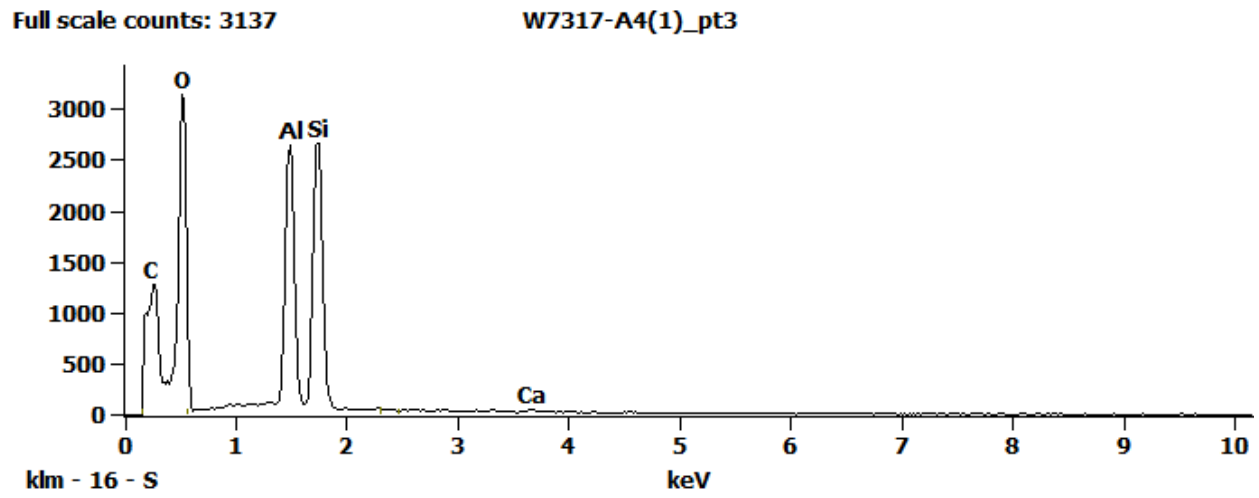
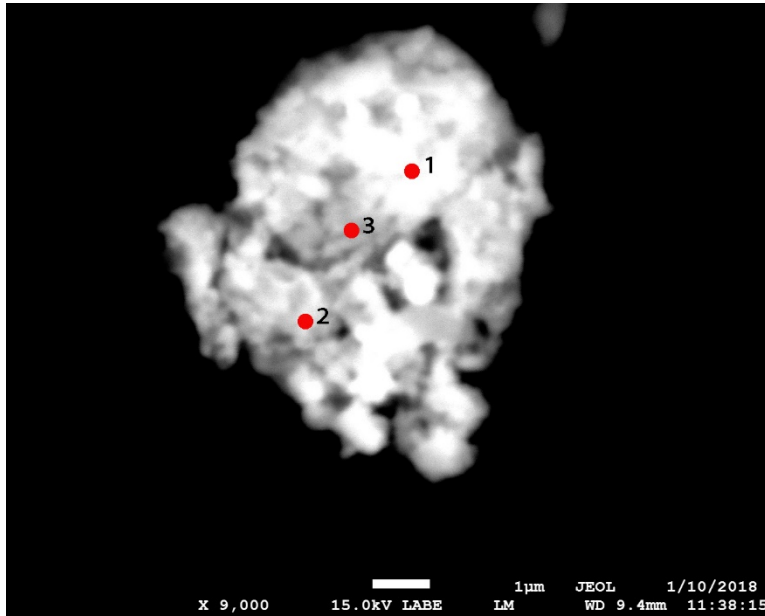


Figure 3. EDS Spectra for sample W7317-A-4 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 A9



SEM Photo of sample W7317 A9 with labeled EDS testing locations.

<b>Particle Size:</b>	10 µm
<b>Shape:</b>	Equidimensional to Spherical
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	GRAY
<b>Luster:</b>	Vitreous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7317 Cluster 9
<b>Comments:</b>	

### Cluster of Origin: W7317 Cluster 9

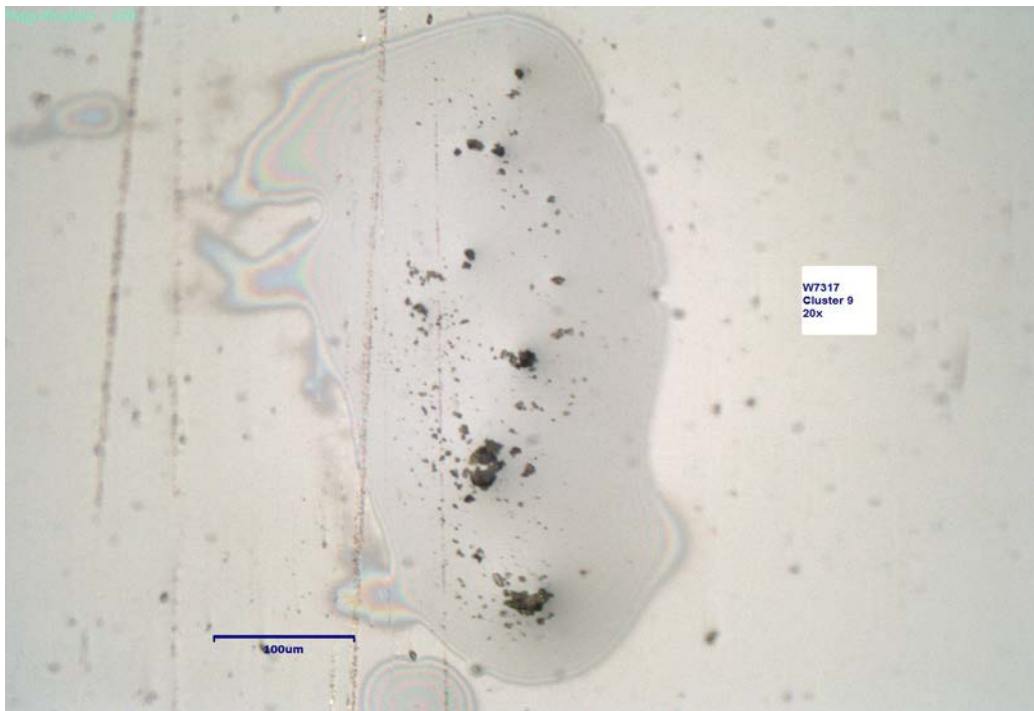


Photo of cluster W7317 Cluster 9.

## W7317 A9 - EDS Spectra

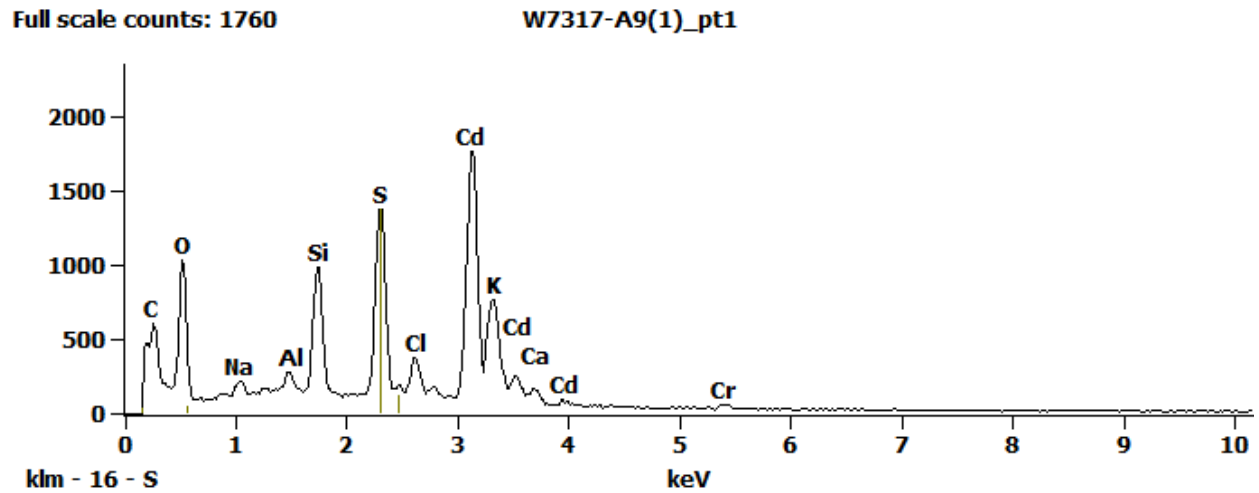


Figure 1. EDS Spectra for sample W7317-A-9 taken at test area 1. The test area is labeled in the particle SEM photo.

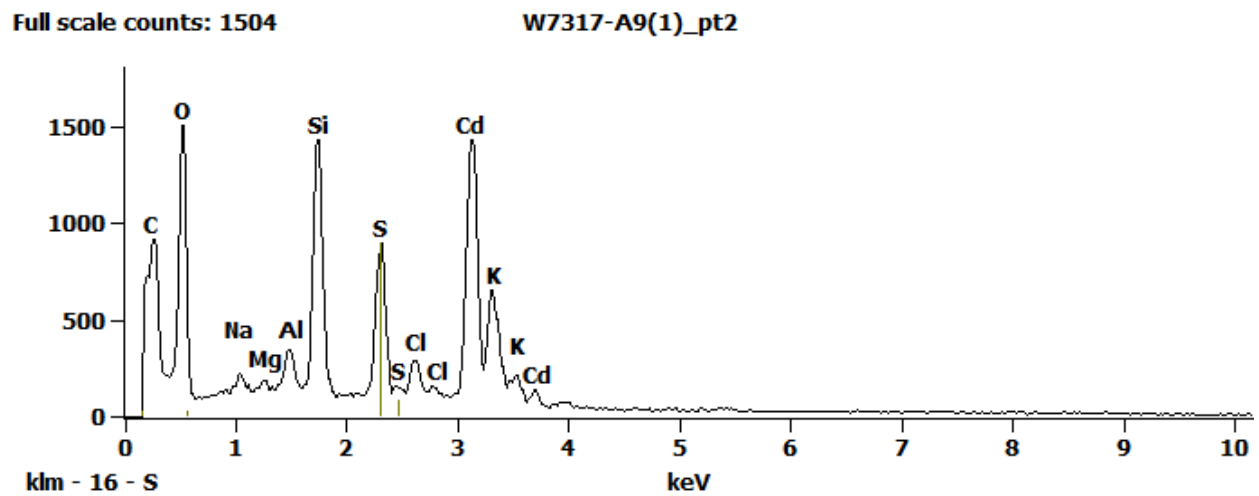


Figure 2. EDS Spectra for sample W7317-A-9 taken at test area 2. The test area is labeled in the particle SEM photo.

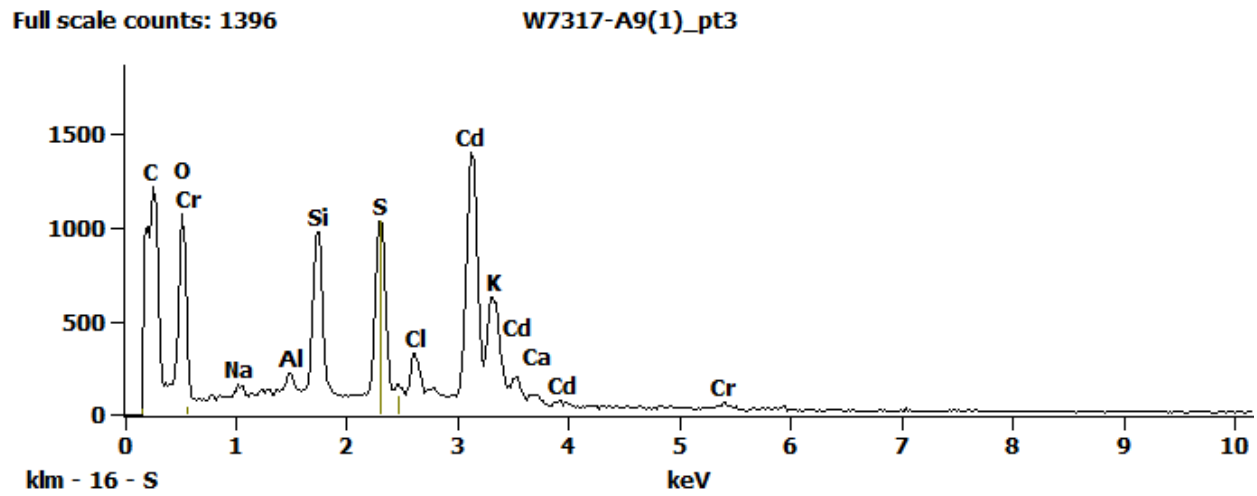
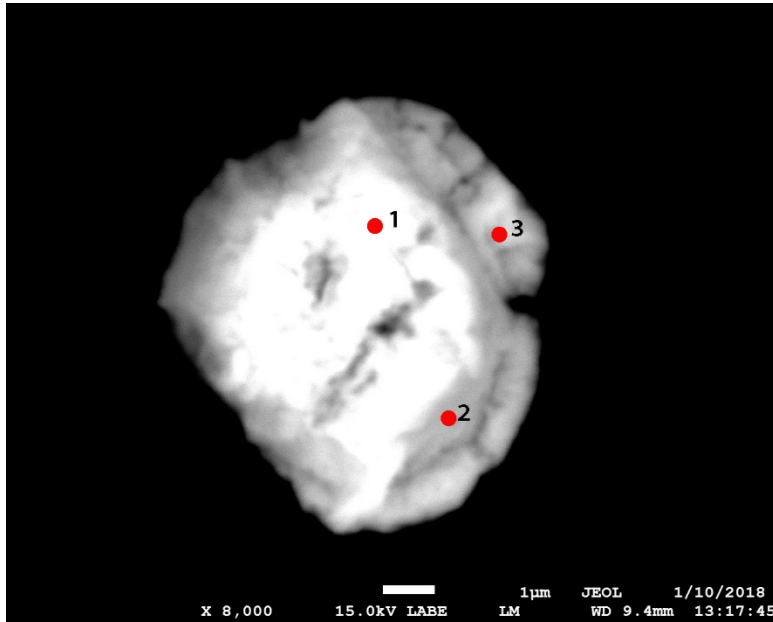


Figure 3. EDS Spectra for sample W7317-A-9 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 A17



SEM Photo of sample W7317 A17 with labeled EDS testing locations.

<b>Particle Size:</b>	11 µm
<b>Shape:</b>	Spherical
<b>Transparency:</b>	Translucent
<b>Color:</b>	YELLOW
<b>Luster:</b>	Pearly to Subvitreous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7317 Cluster 17
<b>Comments:</b>	

### Cluster of Origin: W7317 Cluster 17

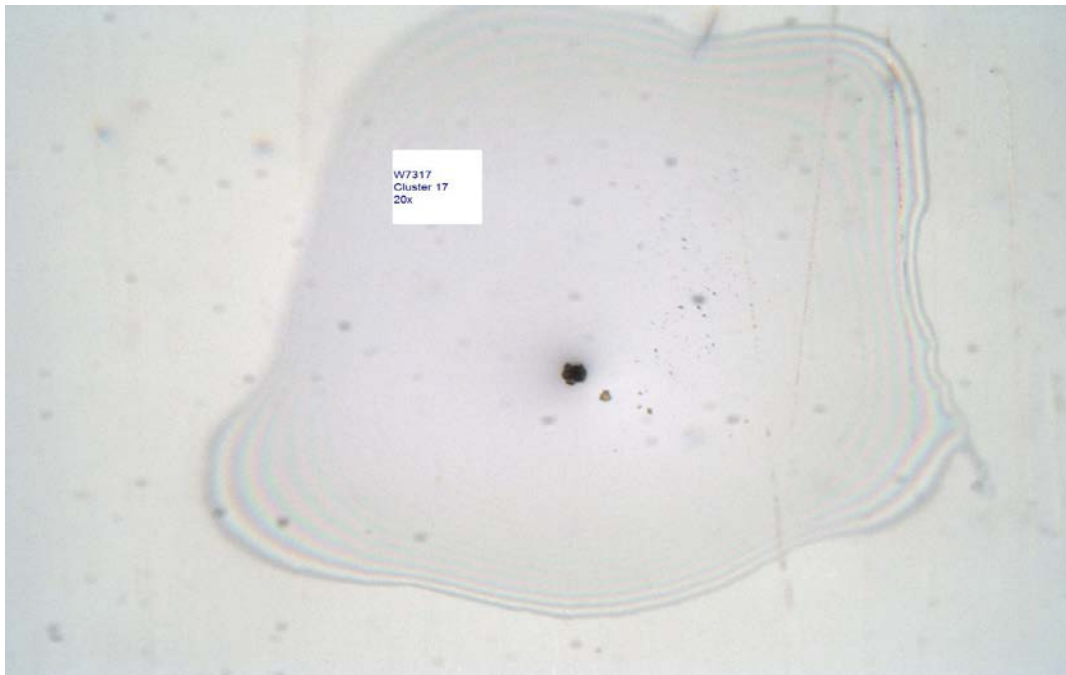


Photo of cluster W7317 Cluster 17.

## W7317 A17 - EDS Spectra

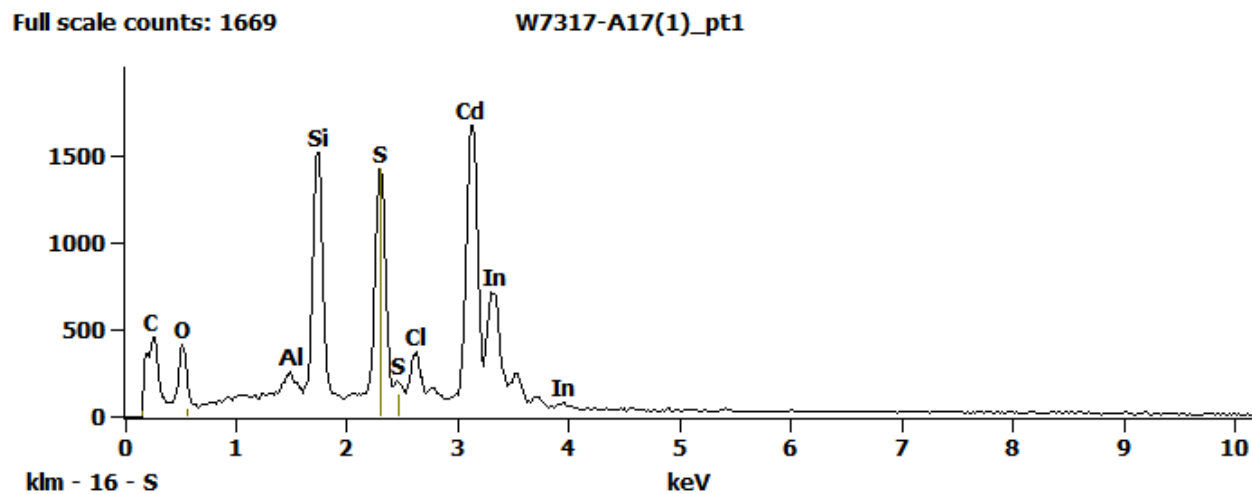


Figure 1. EDS Spectra for sample W7317-A-17 taken at test area 1. The test area is labeled in the particle SEM photo.

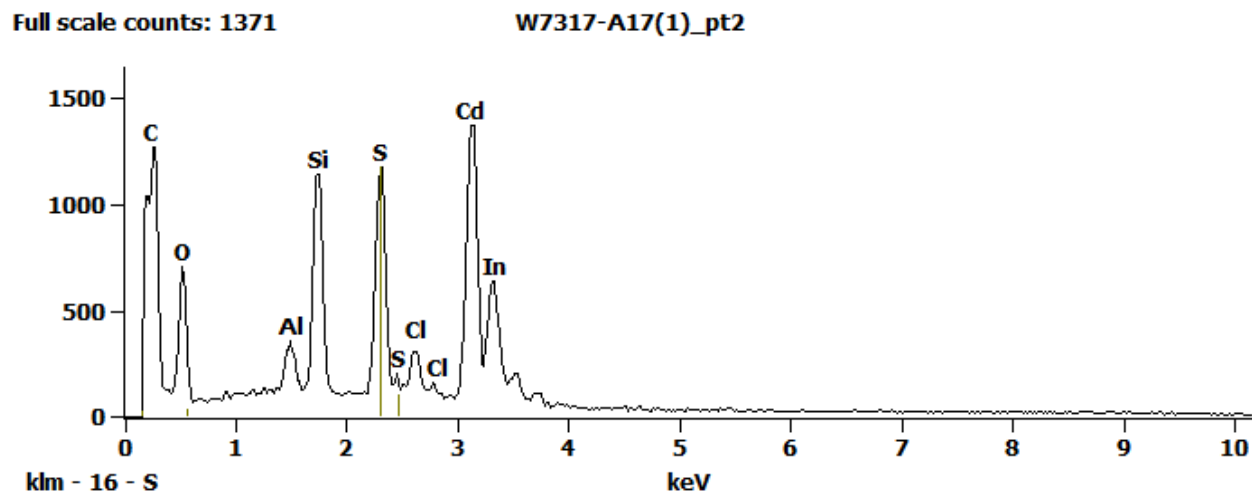


Figure 2. EDS Spectra for sample W7317-A-17 taken at test area 2. The test area is labeled in the particle SEM photo.

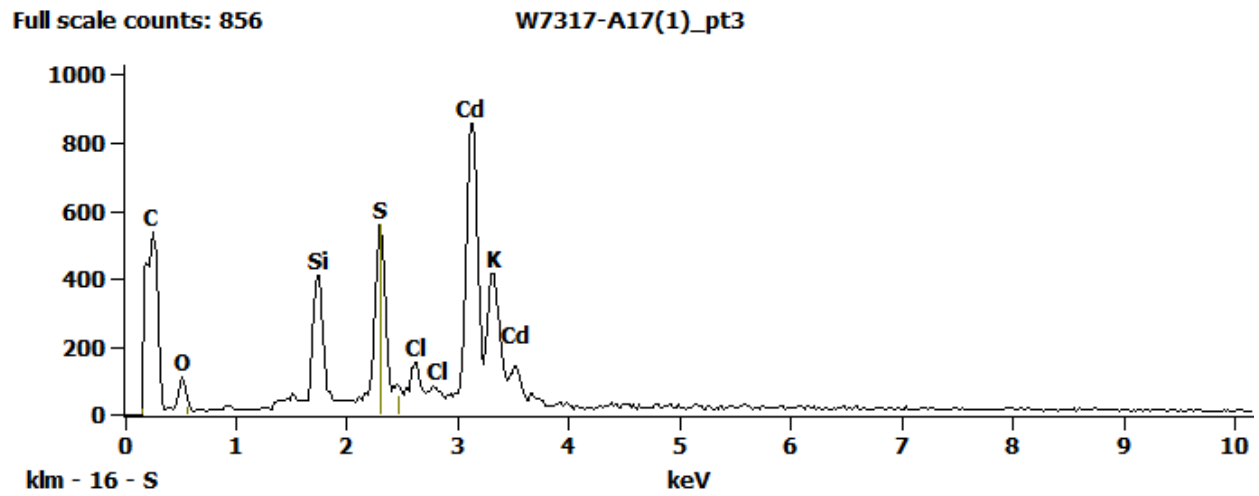
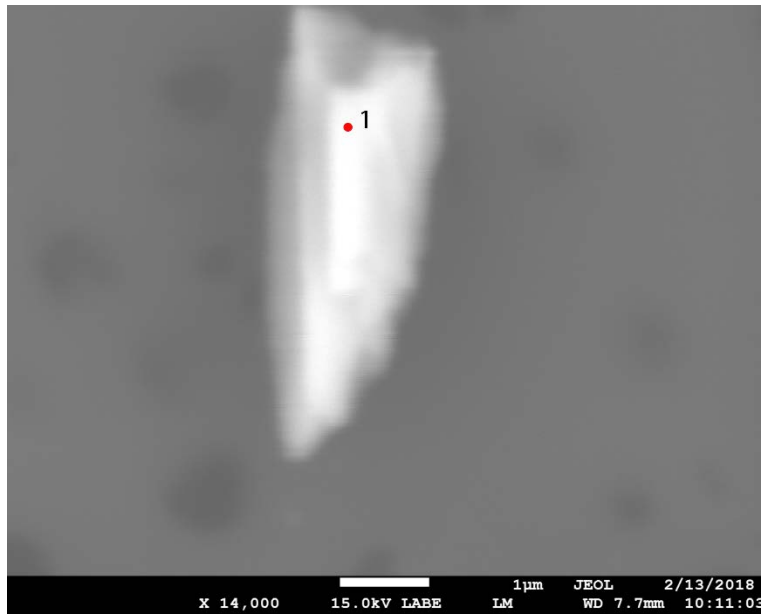


Figure 3. EDS Spectra for sample W7317-A-17 taken at test area 3. The test area is labeled in the particle SEM photo.



## W7317 C1



**Particle Size:** 4.5 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** GRAY  
**Luster:** Pearly to Dull  
**Particle Type:** ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** W7317 Cluster 15  
**Comments:**

*SEM Photo of sample W7317 C1 with labeled EDS testing locations.*

### *Cluster of Origin: W7317 Cluster 15*



*Photo of cluster W7317 Cluster 15*

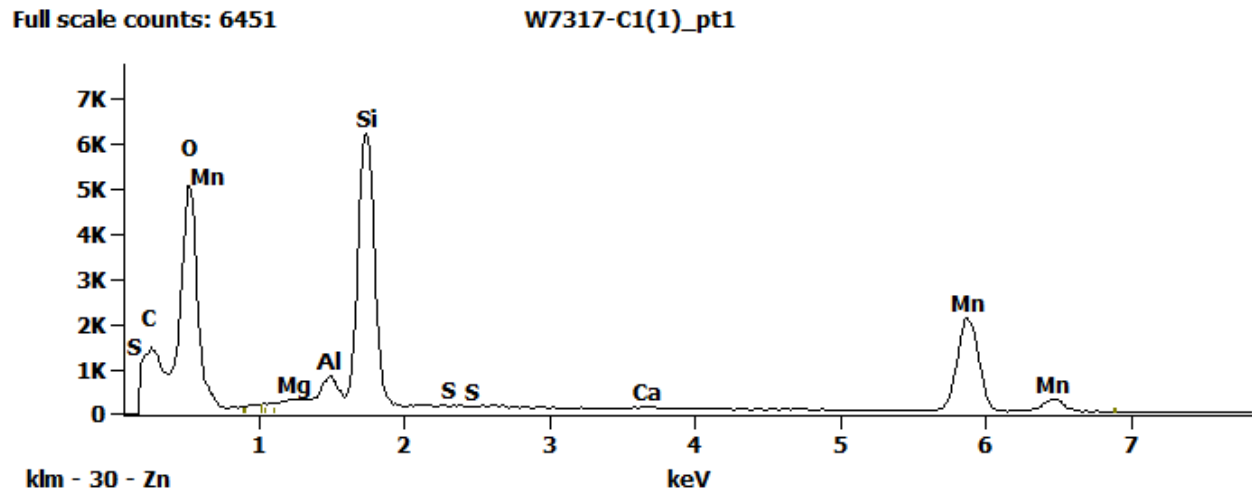
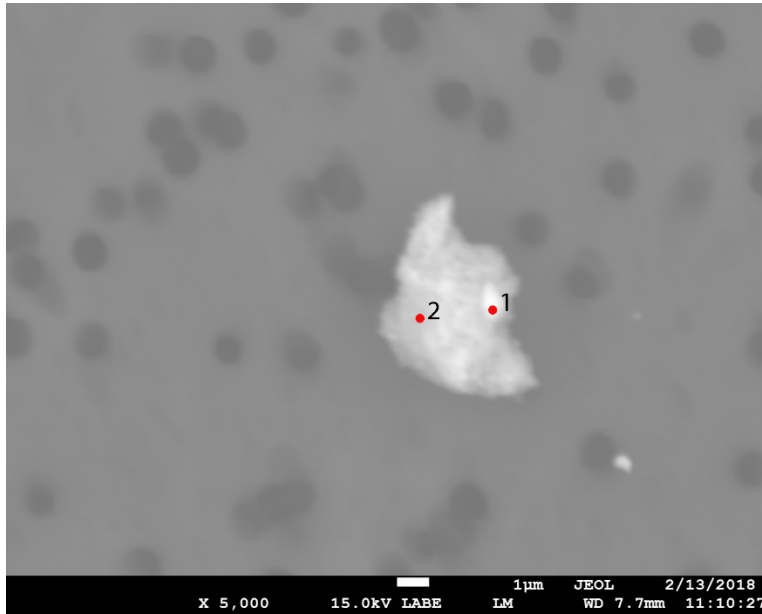
*W7317 C1 - EDS Spectra*

Figure 1. EDS Spectra for sample W7317-C-1 taken at test area 1. The test area is labeled in the particle SEM photo.

## W7317 C7



SEM Photo of sample W7317 C7 with labeled EDS testing locations.

<b>Particle Size:</b>	5 µm
<b>Shape:</b>	Equidimensional to Spherical
<b>Transparency:</b>	Opaque to Subvitreous
<b>Color:</b>	BROWN
<b>Luster:</b>	Resinous to Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7317 C7 - EDS Spectra

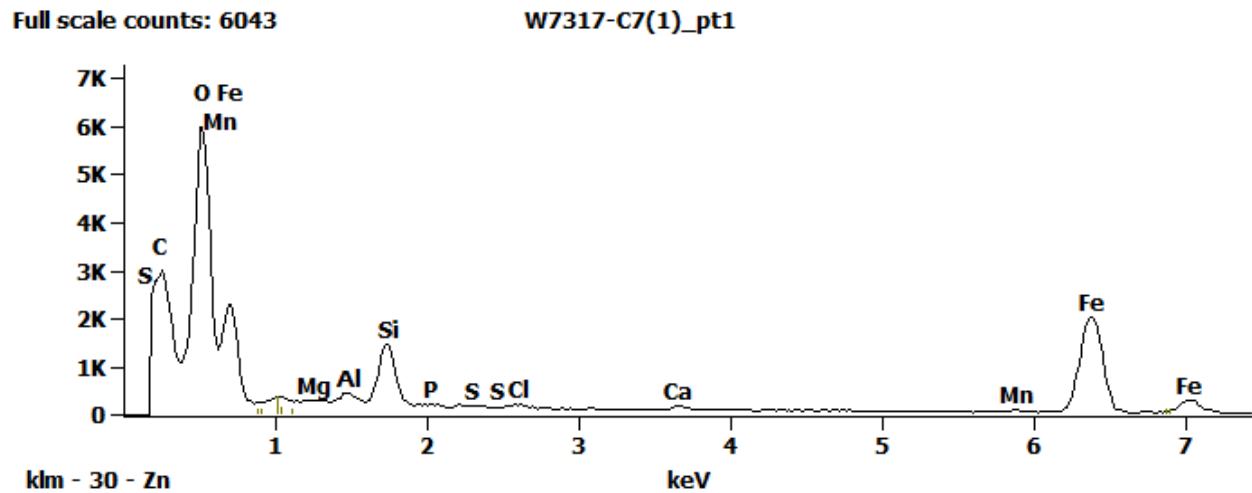


Figure 1. EDS Spectra for sample W7317-C-7 taken at test area 1. The test area is labeled in the particle SEM photo.

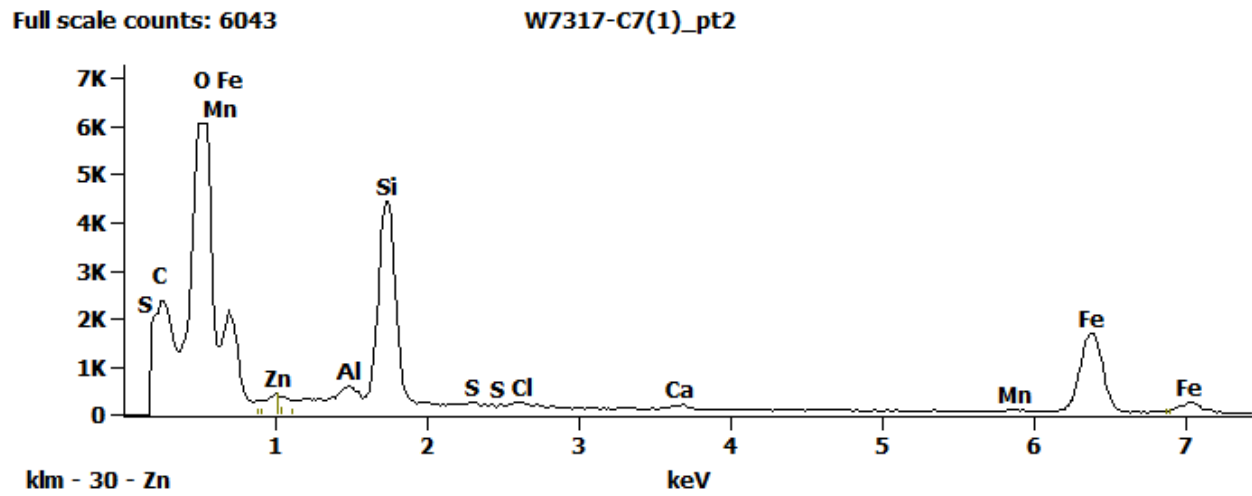
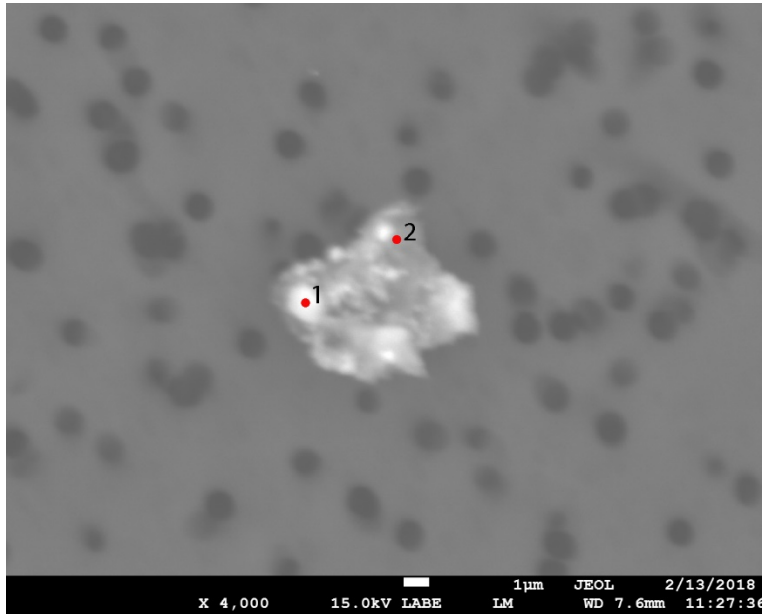


Figure 2. EDS Spectra for sample W7317-C-7 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7317 C8



SEM Photo of sample W7317 C8 with labeled EDS testing locations.

<b>Particle Size:</b>	7 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	AMBER, ORANGE
<b>Luster:</b>	Pearly to Vitreous
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7317 C8 - EDS Spectra

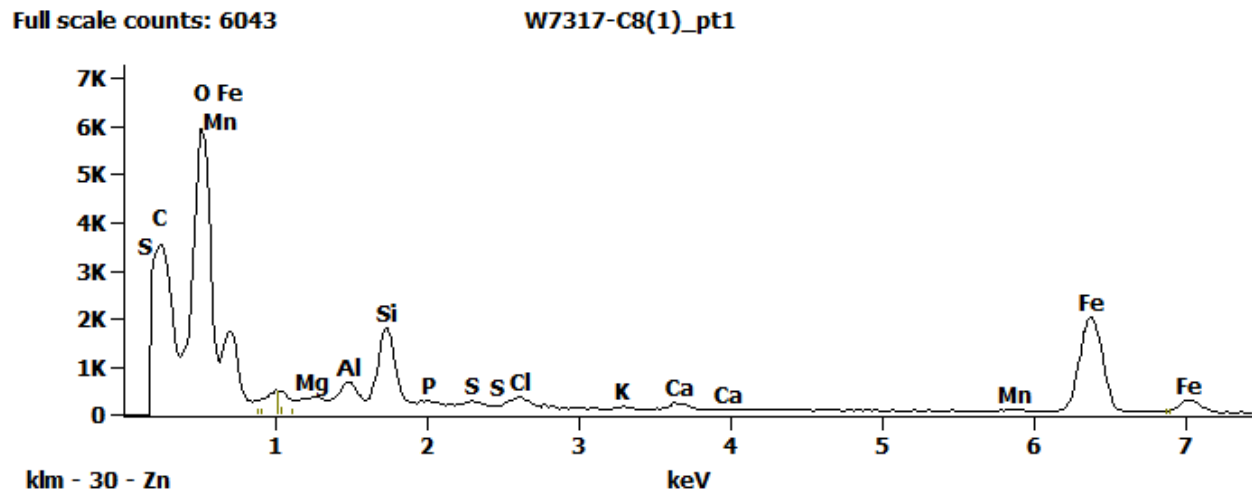


Figure 1. EDS Spectra for sample W7317-C-8 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 6043

W7317-C8(1)\_pt2

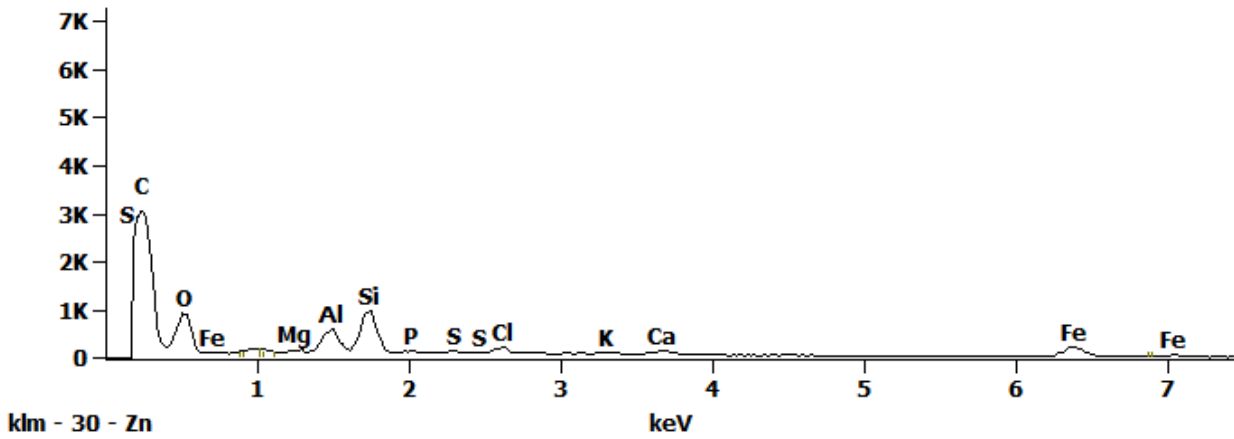
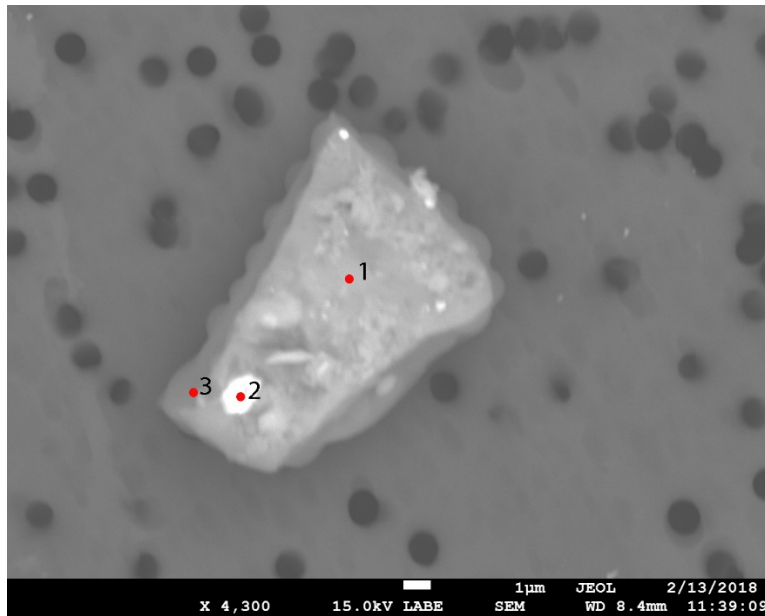


Figure 2. EDS Spectra for sample W7317-C-8 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7317 C9



<b>Particle Size:</b>	13x8 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Transparent
<b>Color:</b>	CLEAR
<b>Luster:</b>	Vitreous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7317 C9 with labeled EDS testing locations.

### W7317 C9 - EDS Spectra

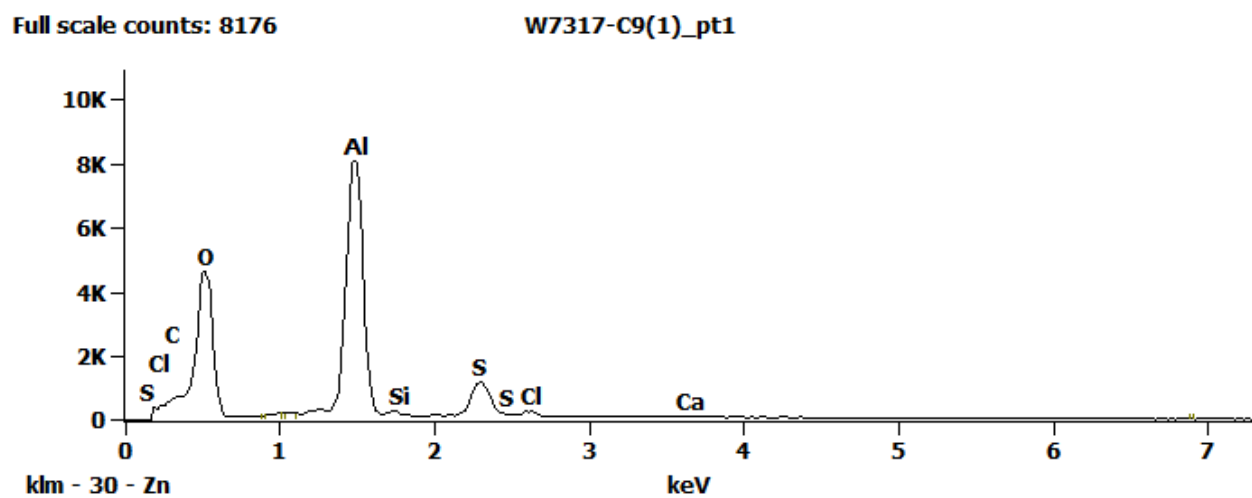


Figure 1. EDS Spectra for sample W7317-C-9 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 8176

W7317-C9(1)\_pt2

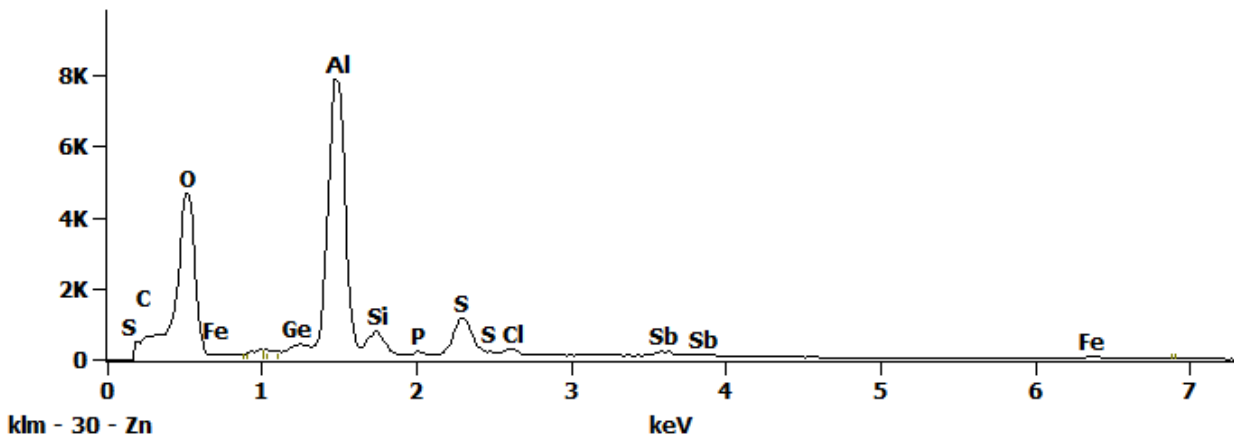


Figure 2. EDS Spectra for sample W7317-C-9 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 8176

W7317-C9(1)\_pt3

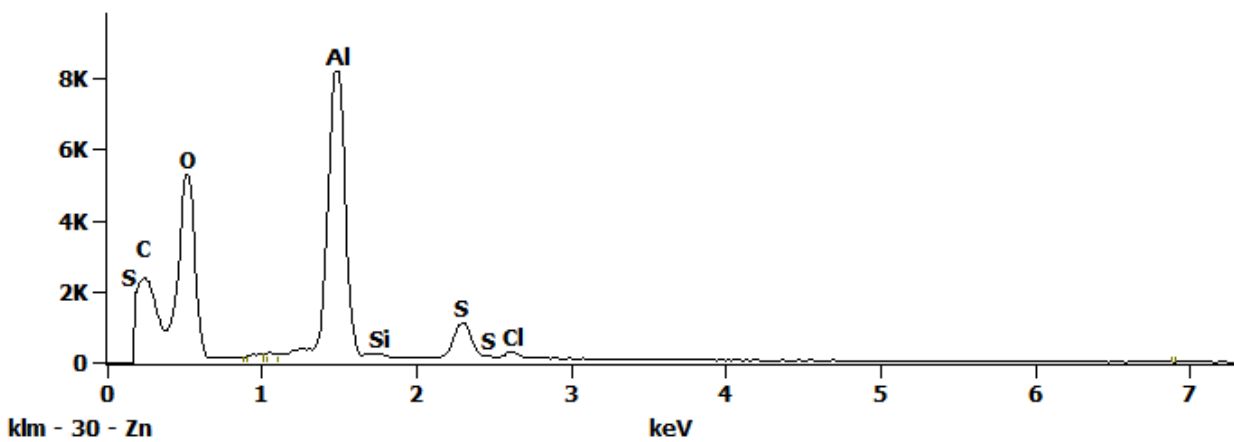
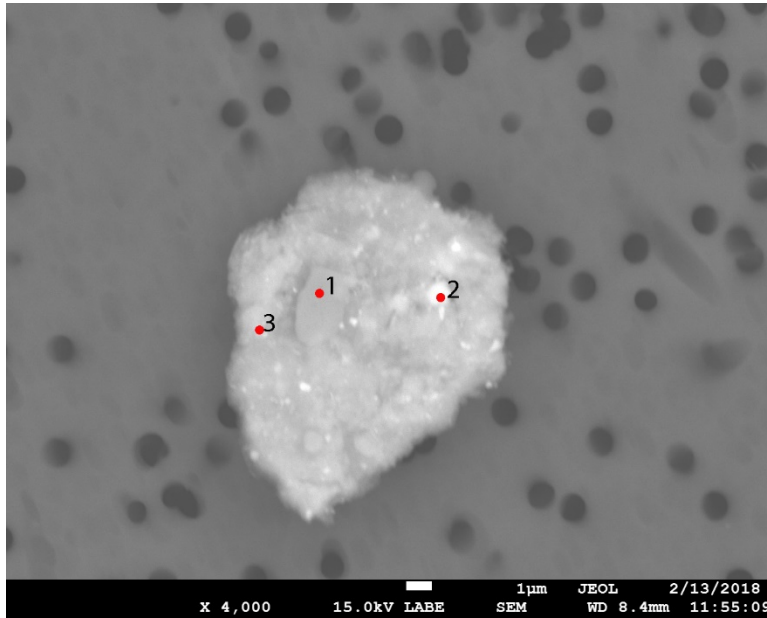


Figure 3. EDS Spectra for sample W7317-C-9 taken at test area 3. The test area is labeled in the particle SEM photo.



## W7317 C11



<b>Particle Size:</b>	12 µm
<b>Shape:</b>	Spherical
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	AMBER
<b>Luster:</b>	Resinous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7317 C11 with labeled EDS testing locations.

### W7317 C11 - EDS Spectra

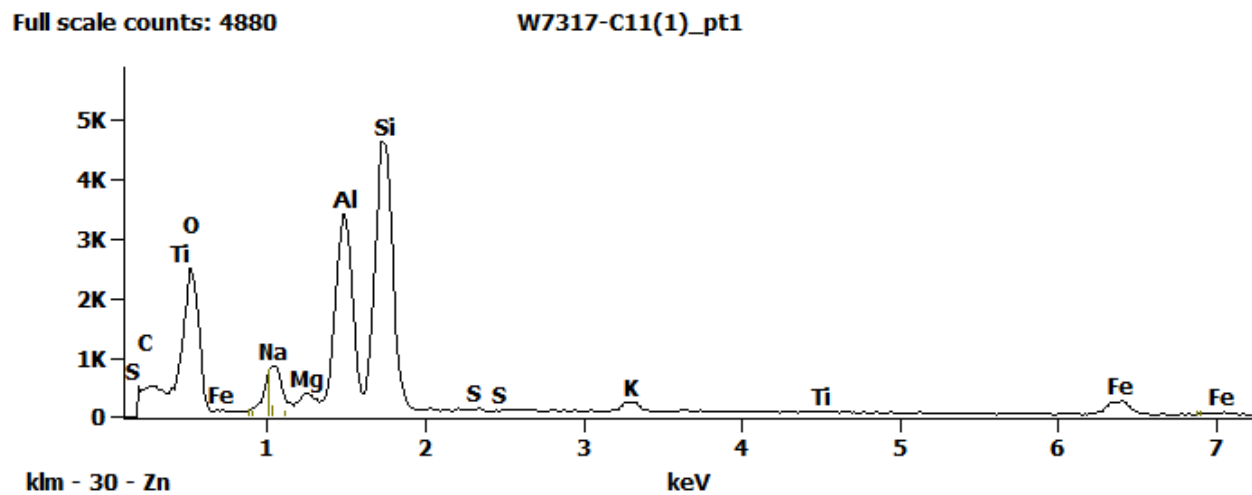


Figure 1. EDS Spectra for sample W7317-C-11 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 4880

W7317-C11(1)\_pt2

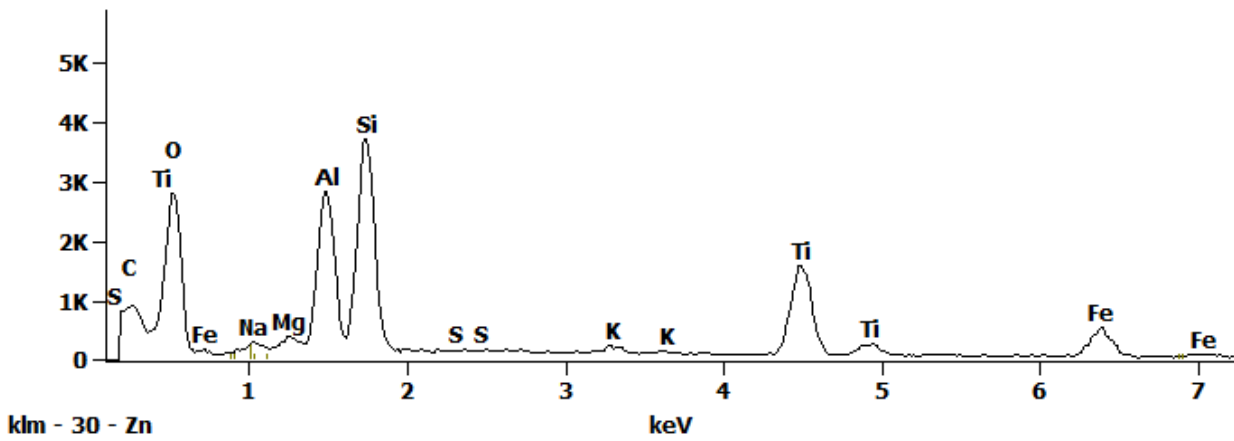


Figure 2. EDS Spectra for sample W7317-C-11 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 4880

W7317-C11(1)\_pt3

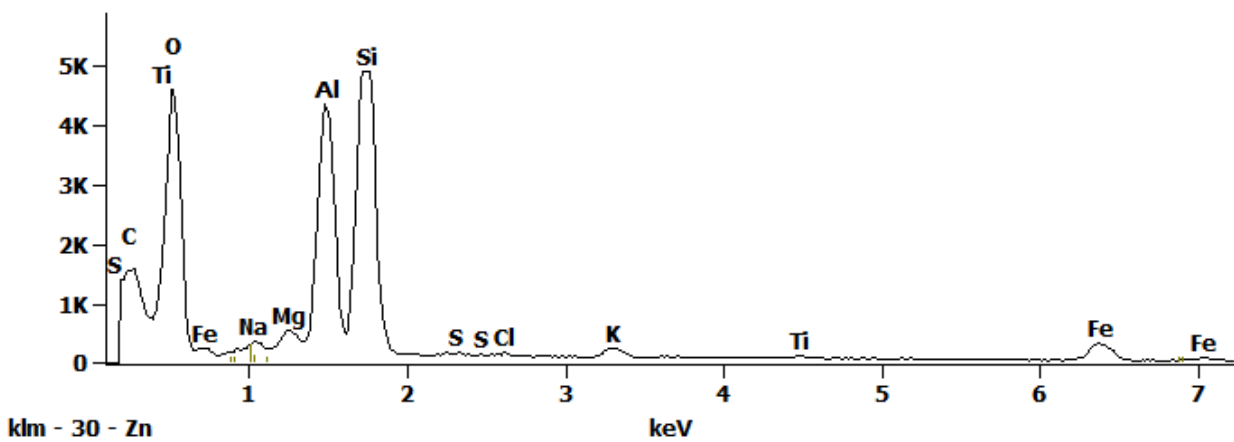
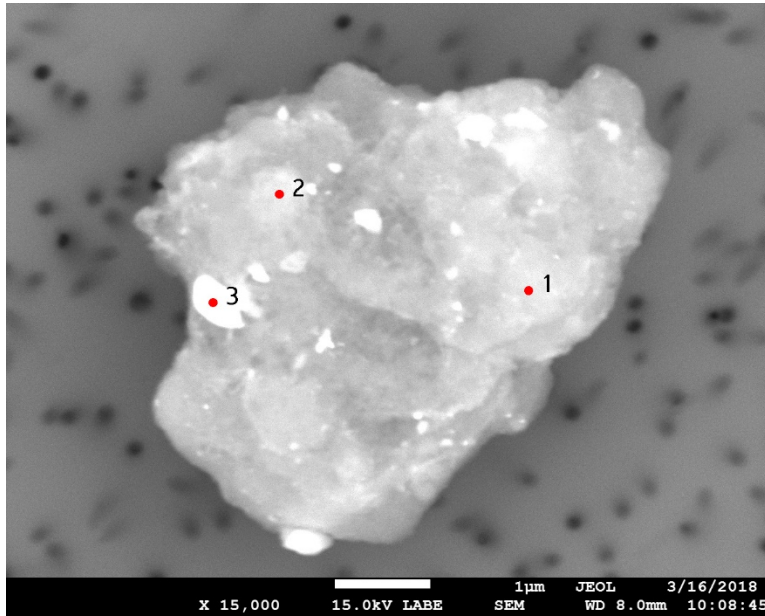


Figure 3. EDS Spectra for sample W7317-C-11 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7318 A3



**Particle Size:** 8x4 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Dull  
**Particle Type:** POSSIBLY  
ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** W7318 Cluster 2  
**Comments:**

*SEM Photo of sample W7318 A3 with labeled EDS testing locations.*

### *Cluster of Origin: W7318 Cluster 2*



*Photo of cluster W7318 Cluster 2.*

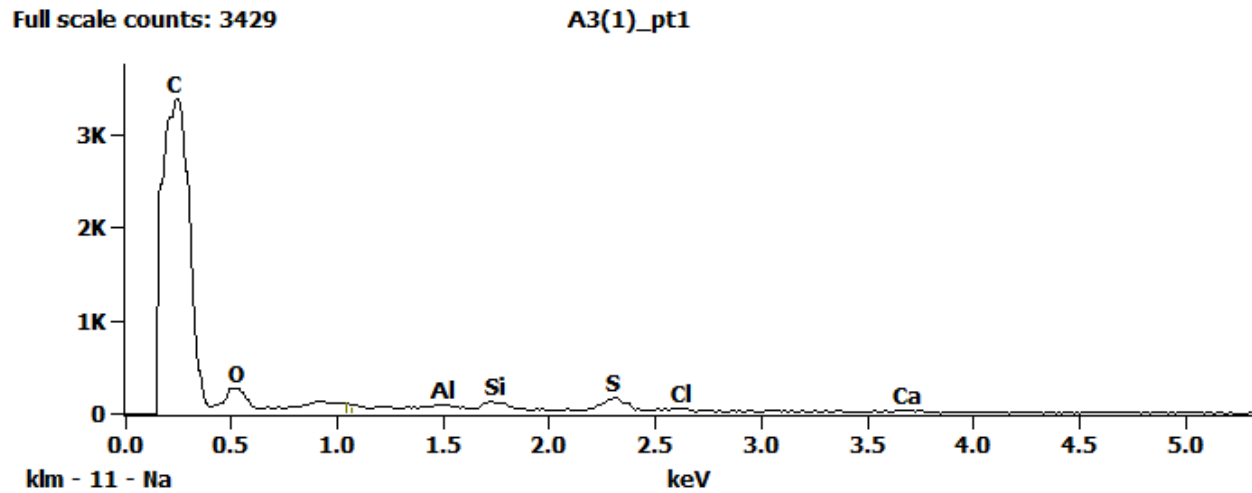
*W7318 A3 - EDS Spectra*

Figure 1. EDS Spectra for sample W7318-A-3 taken at test area 1. The test area is labeled in the particle SEM photo.

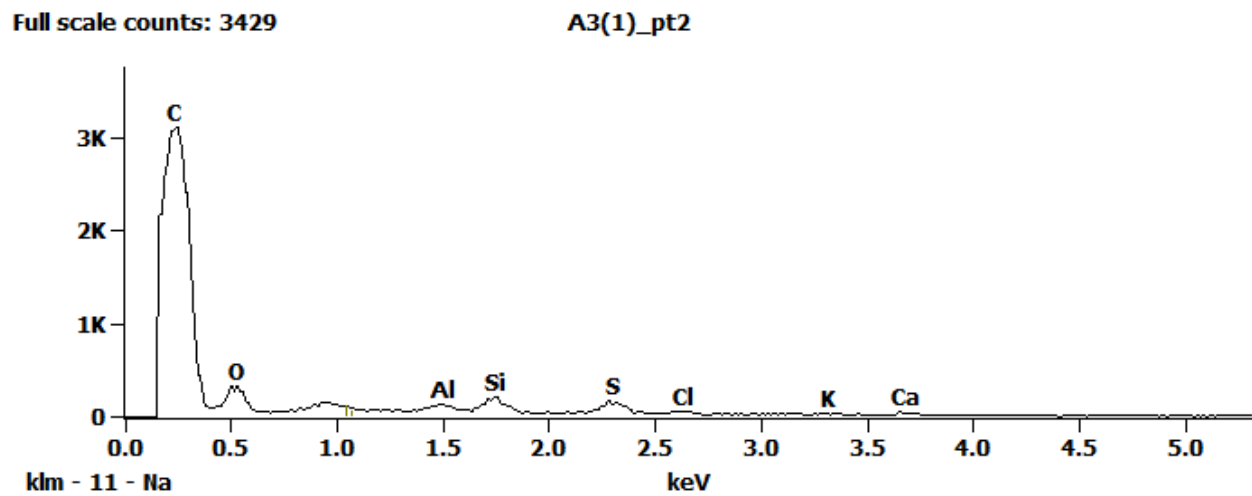


Figure 2. EDS Spectra for sample W7318-A-3 taken at test area 2. The test area is labeled in the particle SEM photo.

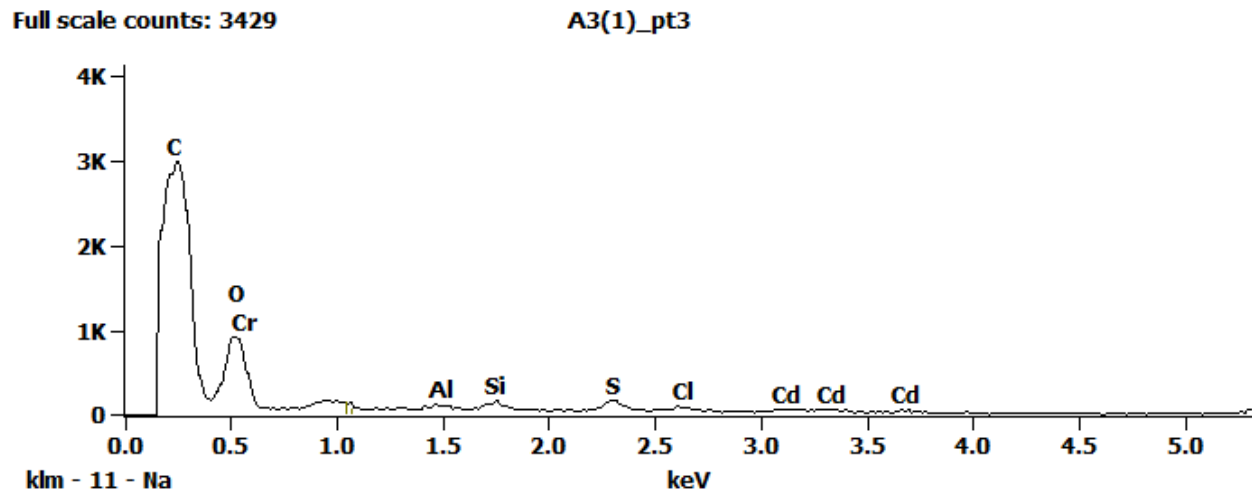
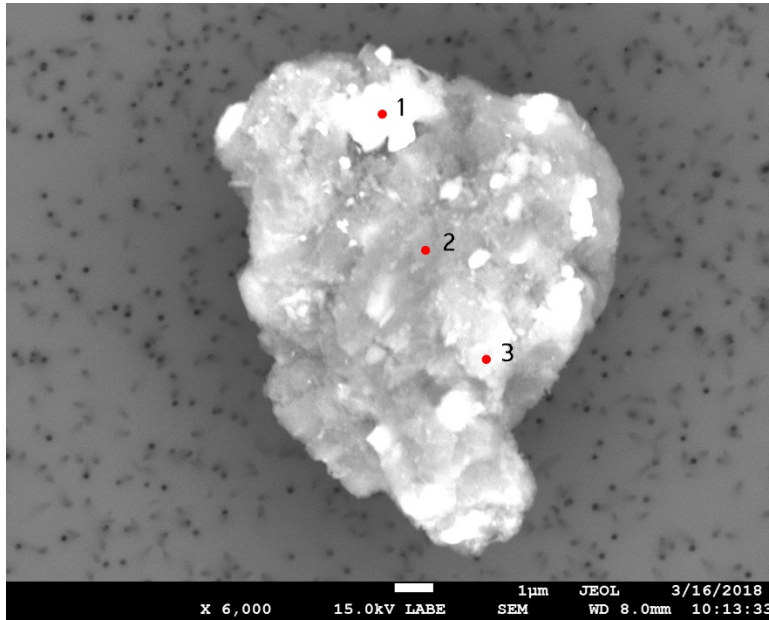


Figure 3. EDS Spectra for sample W7318-A-3 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7318 A4



**Particle Size:** 20 µm  
**Shape:** Equidimensional  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Dull  
**Particle Type:** POSSIBLY  
ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** W7318 Cluster 2  
**Comments:**

*SEM Photo of sample W7318 A4 with labeled EDS testing locations.*

### *Cluster of Origin: W7318 Cluster 2*



*Photo of cluster W7318 Cluster 2.*

## W7318 A4 - EDS Spectra

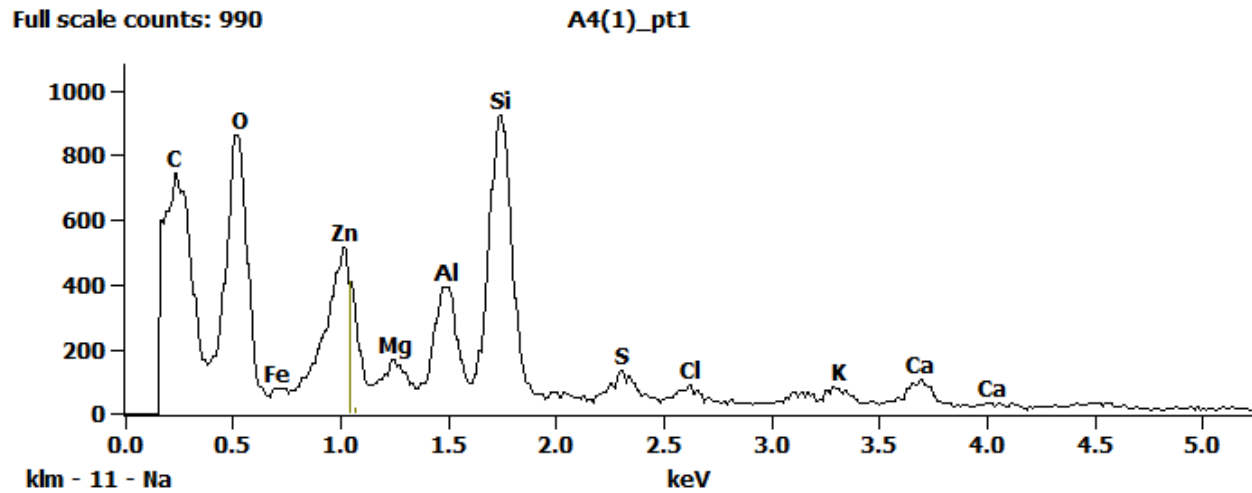


Figure 1. EDS Spectra for sample W7318-A-4 taken at test area 1. The test area is labeled in the particle SEM photo.

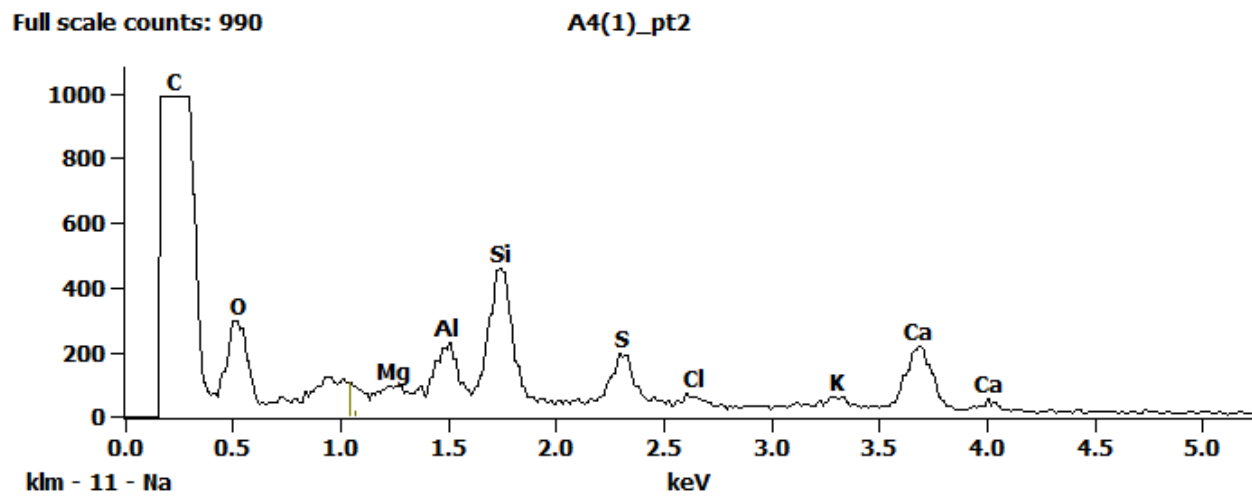


Figure 2. EDS Spectra for sample W7318-A-4 taken at test area 2. The test area is labeled in the particle SEM photo.

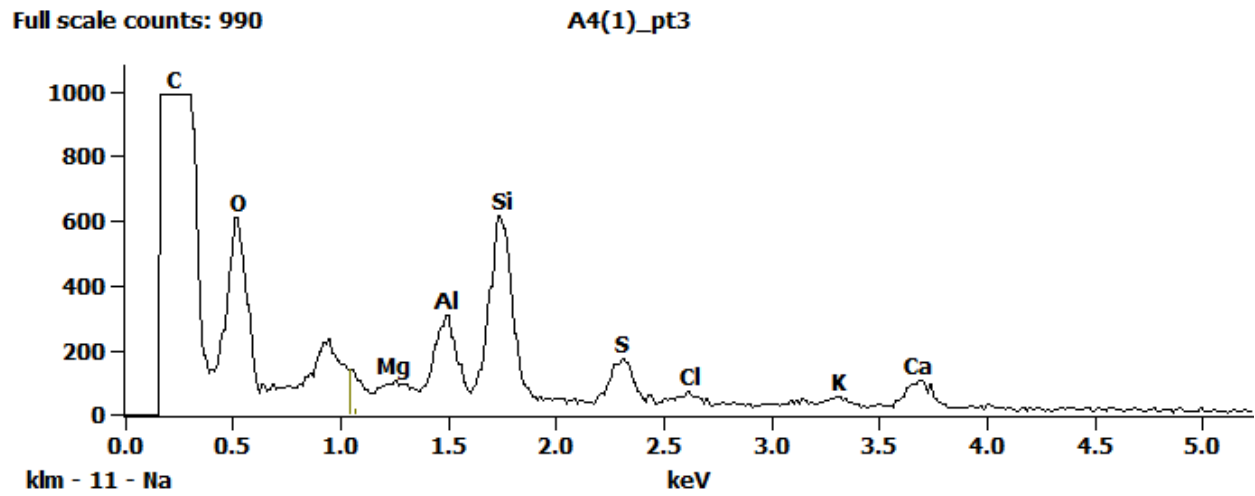
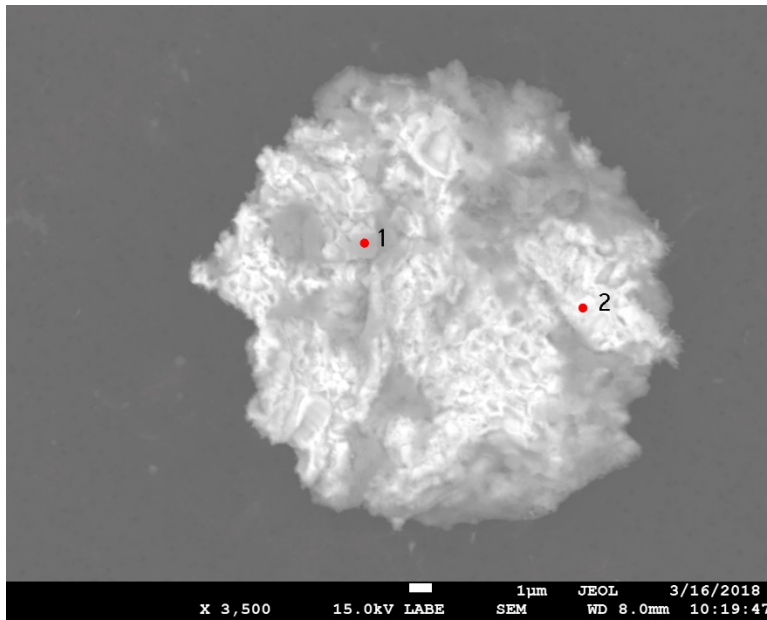


Figure 3. EDS Spectra for sample W7318-A-4 taken at test area 3. The test area is labeled in the particle SEM photo.



## W7318 A5



SEM Photo of sample W7318 A5 with labeled EDS testing locations.

<b>Particle Size:</b>	20 µm
<b>Shape:</b>	Equidimensional to Spherical
<b>Transparency:</b>	Opaque to Subvitreous
<b>Color:</b>	GRAY, SILVER
<b>Luster:</b>	Submetallic
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7318 Cluster 3
<b>Comments:</b>	

### Cluster of Origin: W7318 Cluster 3

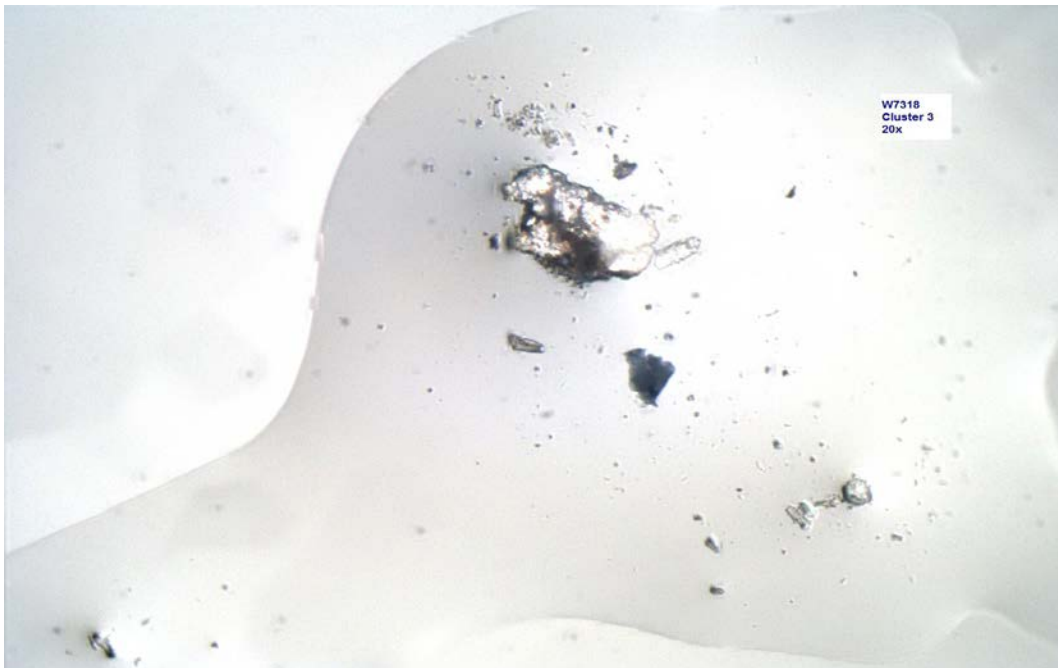


Photo of cluster W7318 Cluster 3.

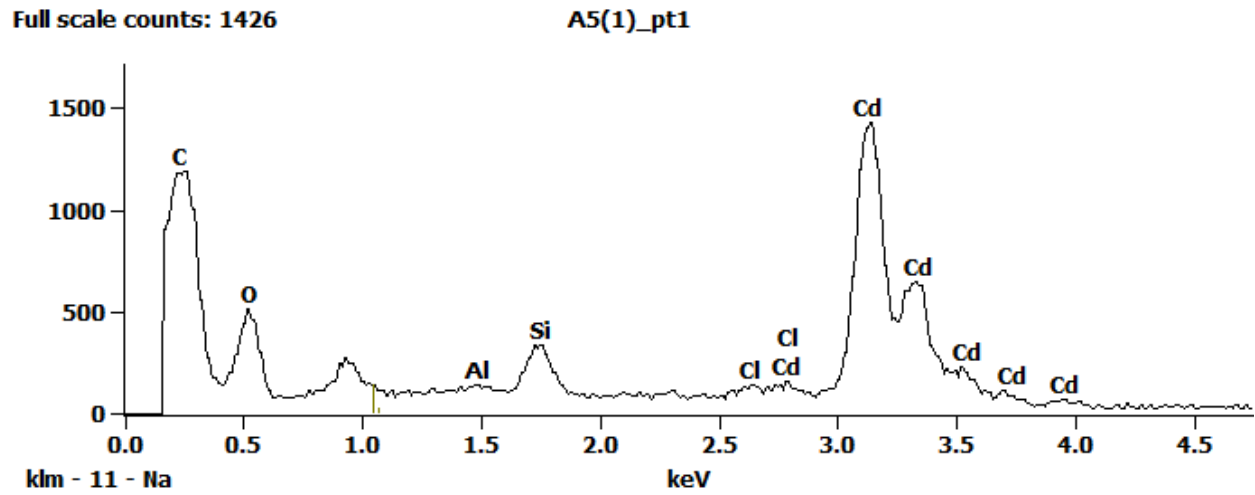
*W7318 A5 - EDS Spectra*

Figure 1. EDS Spectra for sample W7318-A-5 taken at test area 1. The test area is labeled in the particle SEM photo.

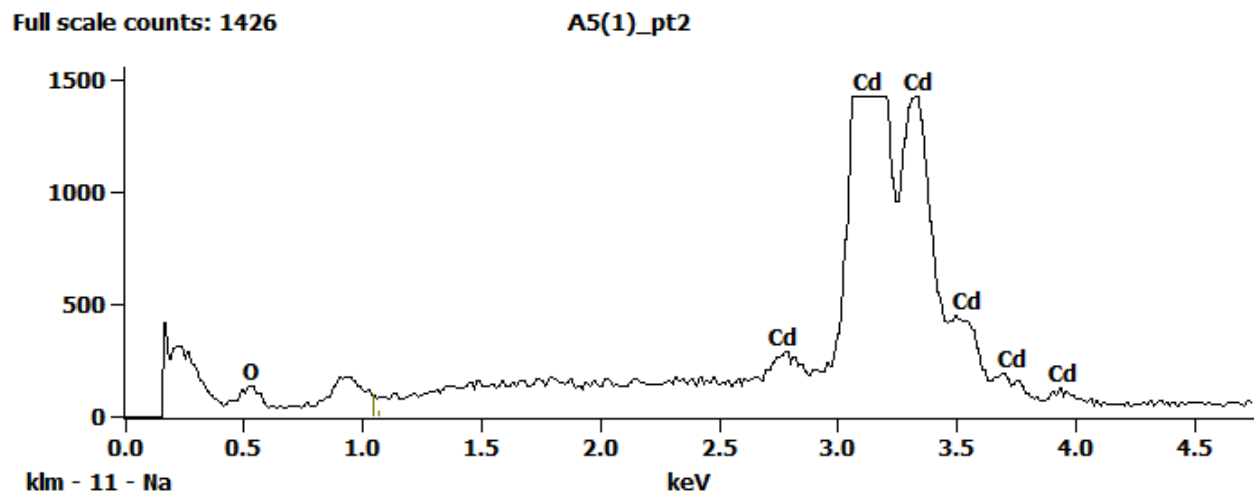
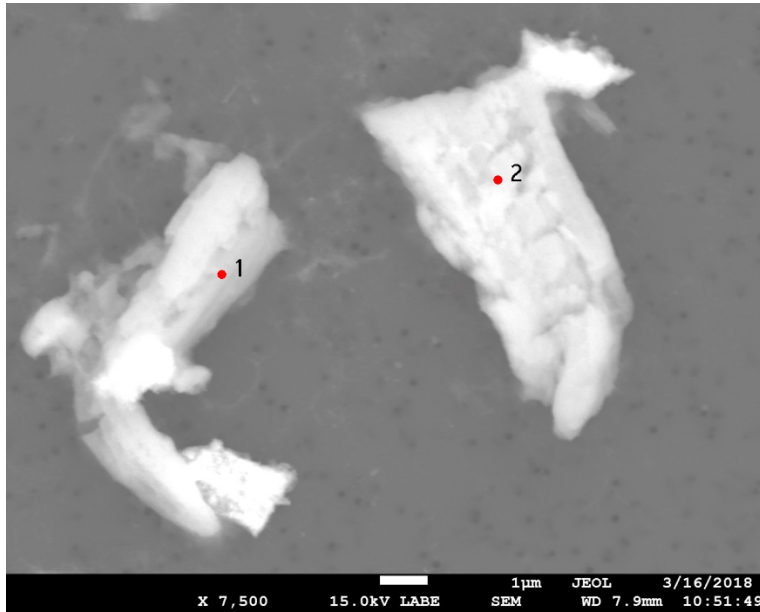


Figure 2. EDS Spectra for sample W7318-A-5 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7318 A6



<b>Particle Size:</b>	12 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7318 Cluster 3
<b>Comments:</b>	

*SEM Photo of sample W7318 A6 with labeled EDS testing locations.*

### *Cluster of Origin: W7318 Cluster 3*



*Photo of cluster W7318 Cluster 3.*

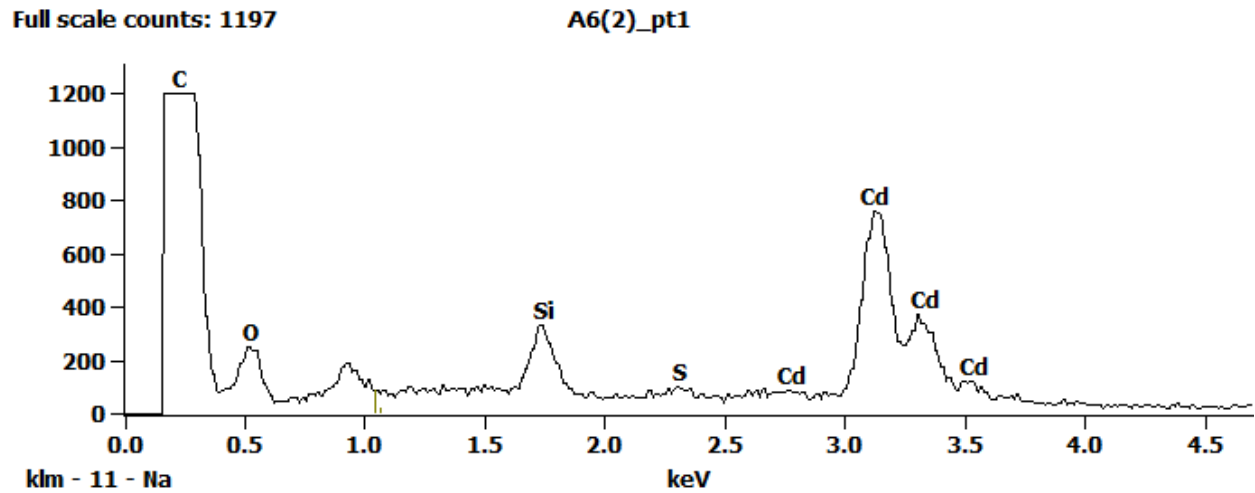
*W7318 A6 - EDS Spectra*

Figure 1. EDS Spectra for sample W7318-A-6 taken at test area 1. The test area is labeled in the particle SEM photo.

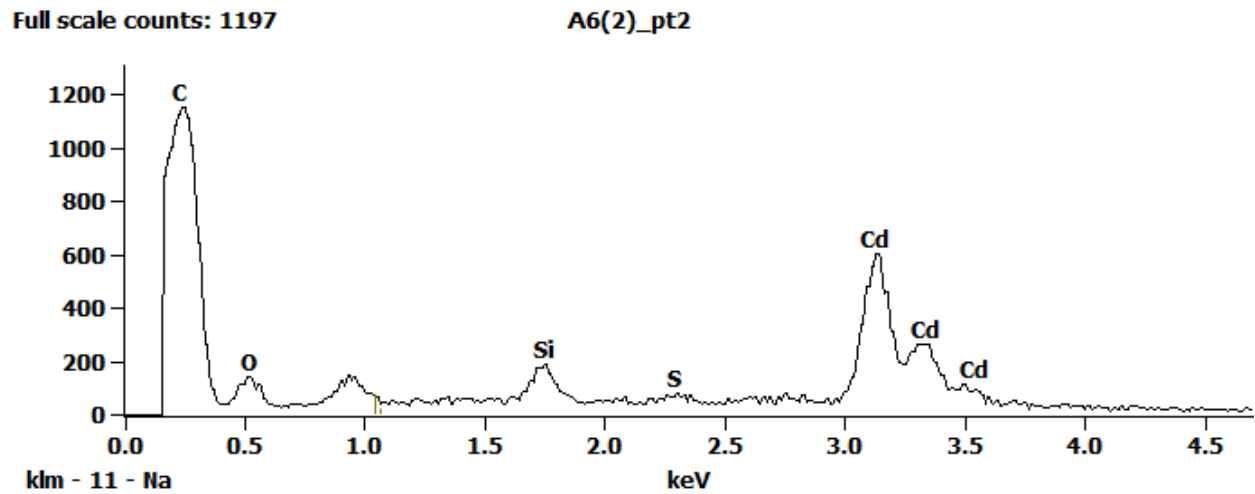
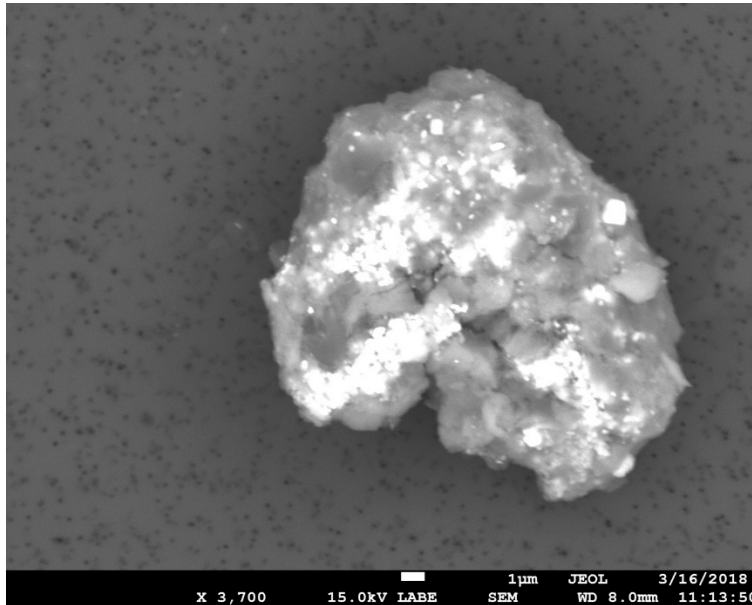


Figure 2. EDS Spectra for sample W7318-A-6 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7318 A9



<b>Particle Size:</b>	20 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BROWN, RED
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 A9

### W7318 A9 - EDS Spectra

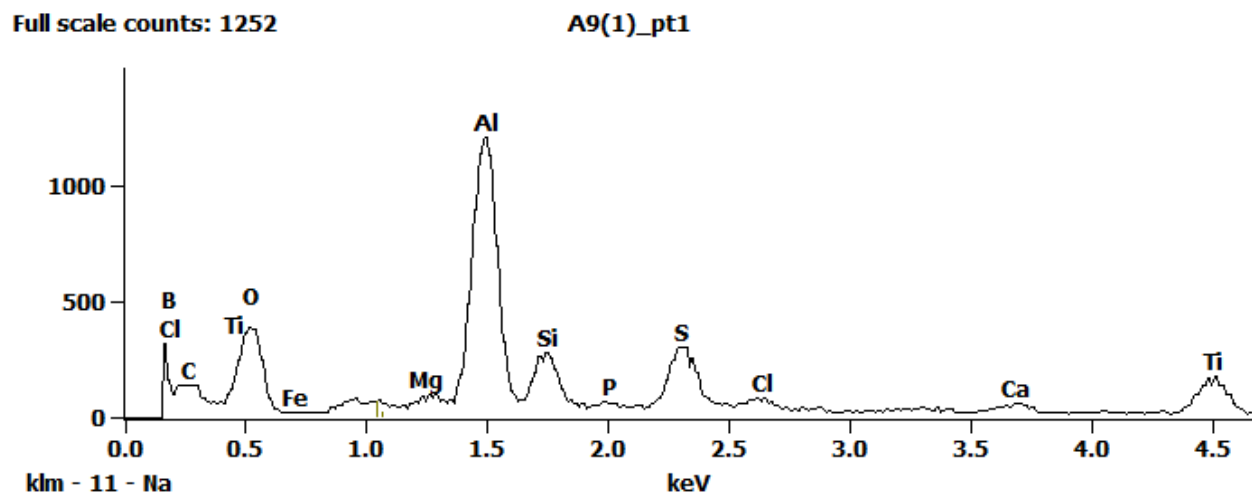


Figure 1. EDS Spectra for sample W7318-A-9 taken at test area 1. The test area is labeled in the particle SEM photo.

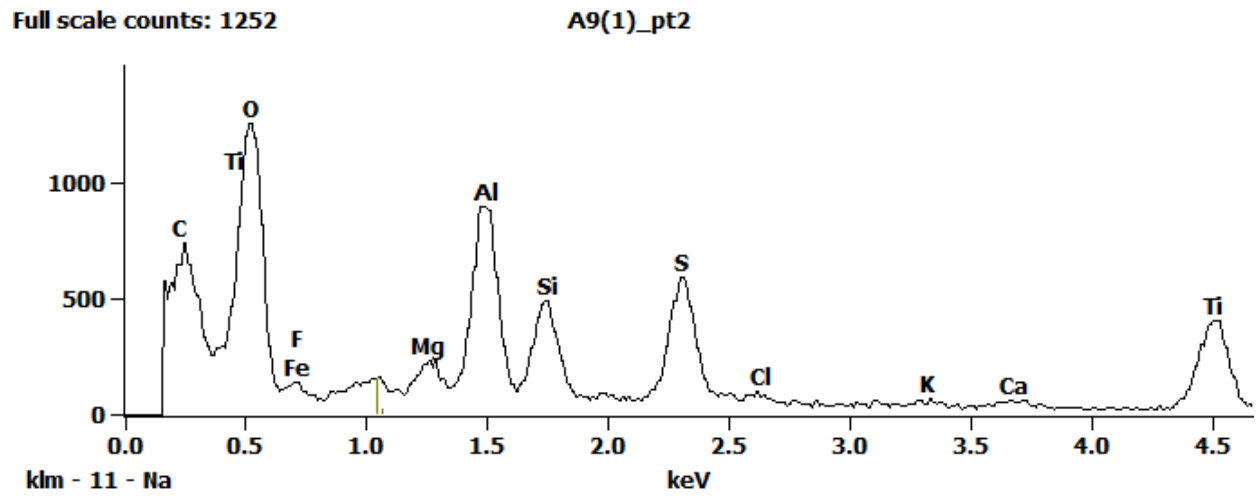
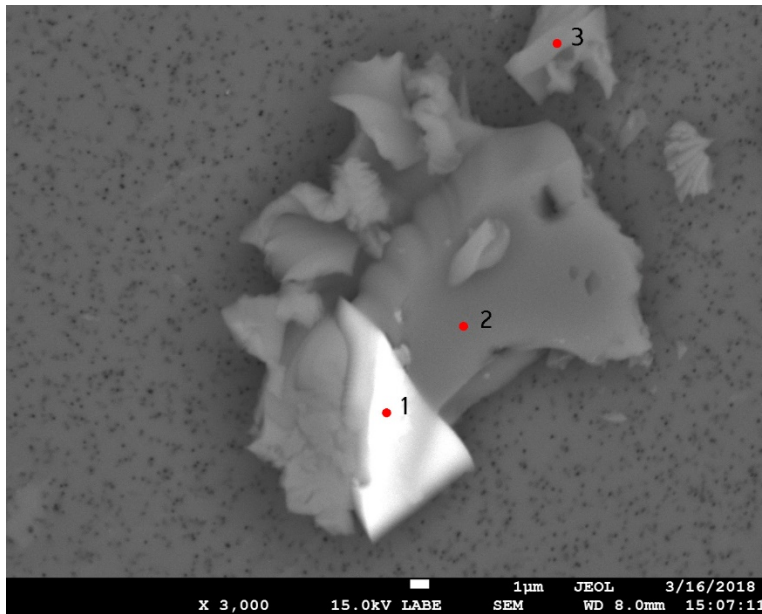


Figure 2. EDS Spectra for sample W7318-A-9 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7318 A11



<b>Particle Size:</b>	30 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, BROWN
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 A11 with labeled EDS testing locations.

### W7318 A11 - EDS Spectra

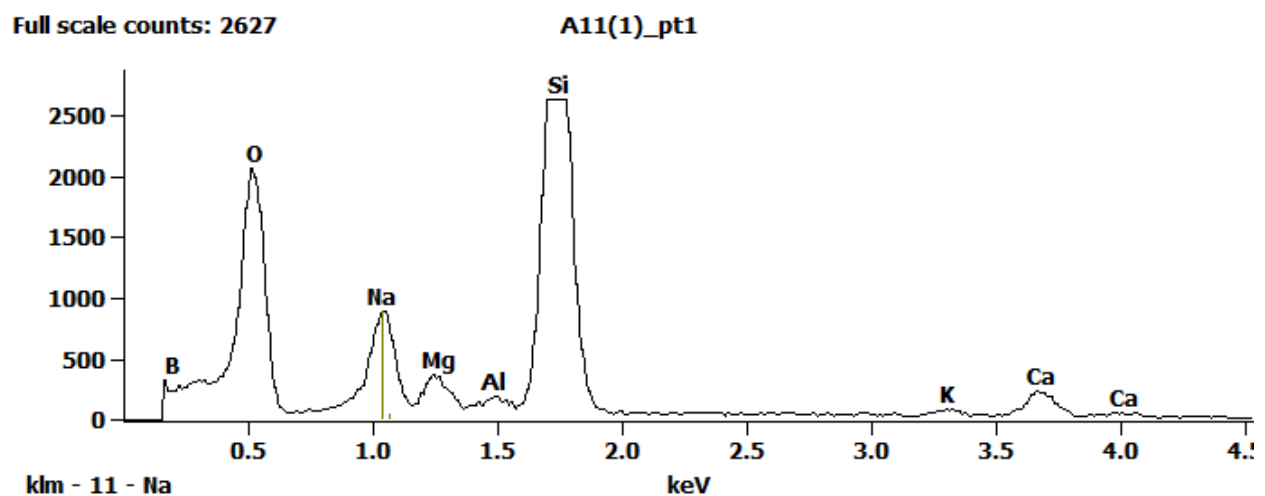


Figure 1. EDS Spectra for sample W7318-A-11 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2627

A11(1)\_pt2

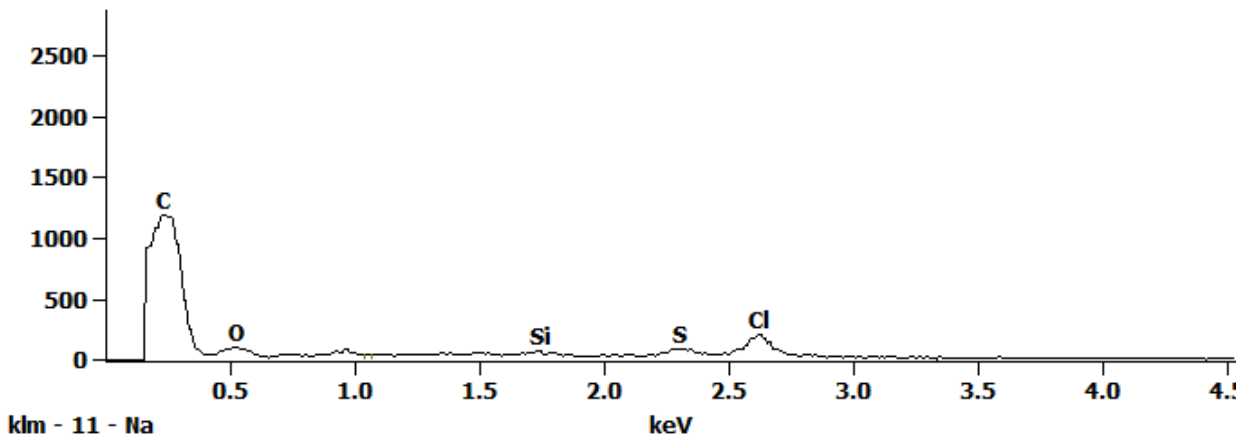


Figure 2. EDS Spectra for sample W7318-A-11 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2627

A11(1)\_pt3

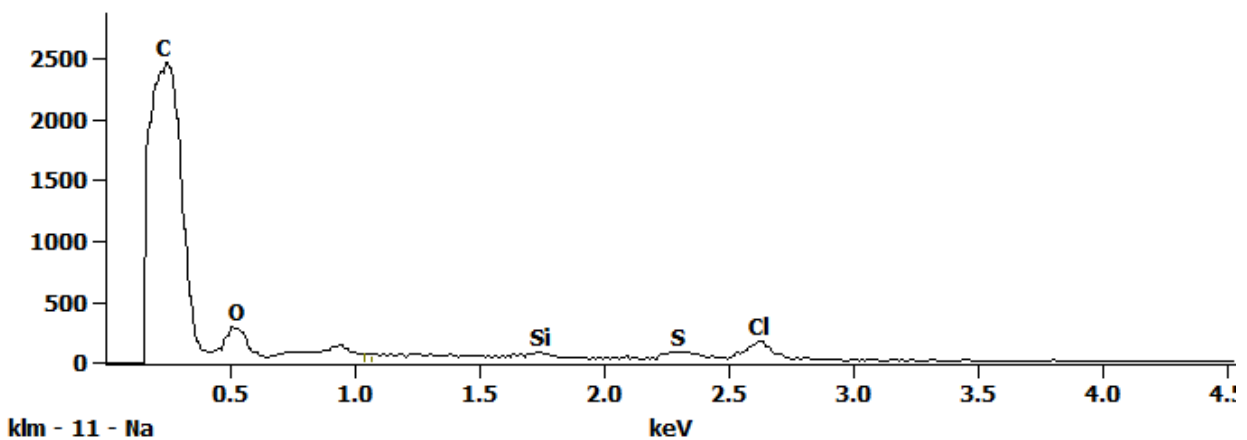
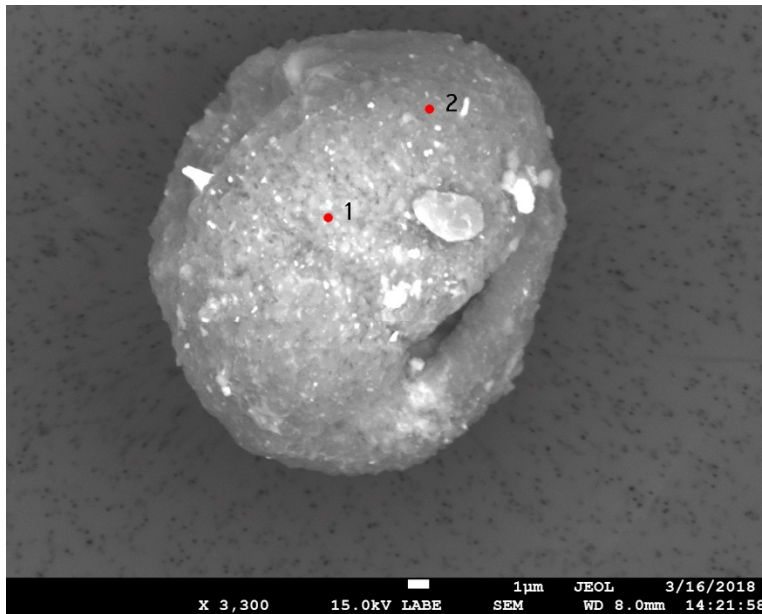


Figure 3. EDS Spectra for sample W7318-A-11 taken at test area 3. The test area is labeled in the particle SEM photo.



## W7318 A12



<b>Particle Size:</b>	21 µm
<b>Shape:</b>	Spherical
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	AMBER
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 A12 with labeled EDS testing locations.

### W7318 A12 - EDS Spectra

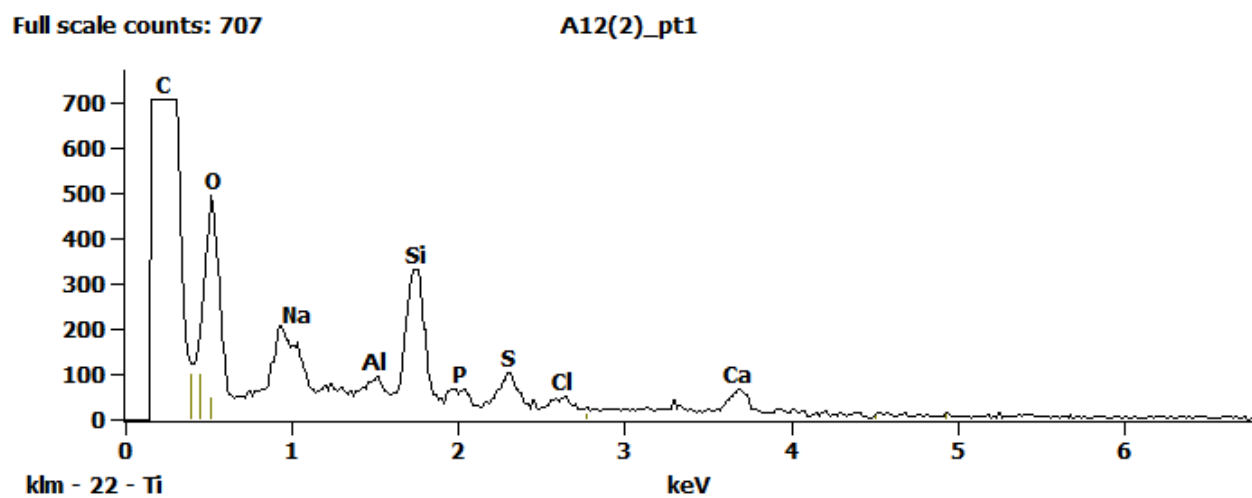


Figure 1. EDS Spectra for sample W7318-A-12 taken at test area 1. The test area is labeled in the particle SEM photo.

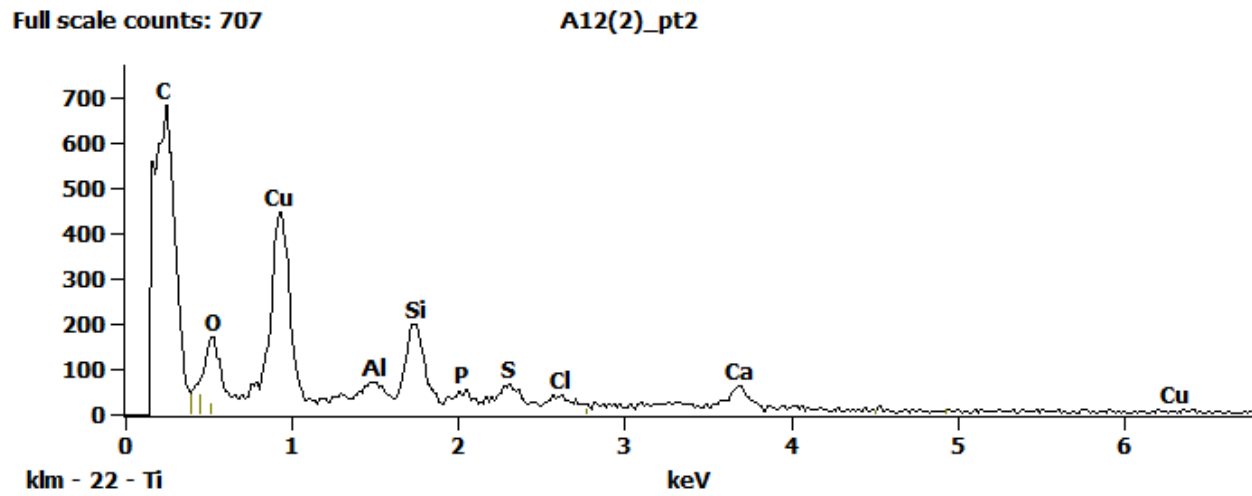
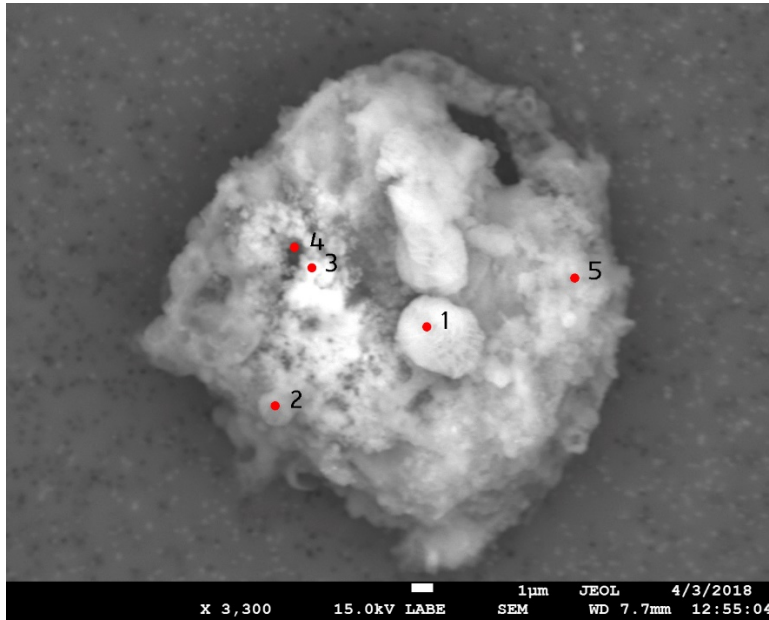


Figure 2. EDS Spectra for sample W7318-A-12 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7318 B2



<b>Particle Size:</b>	25 μm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Translucent
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly to Subvitreous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 B2 with labeled EDS testing locations.

### W7318 B2 - EDS Spectra

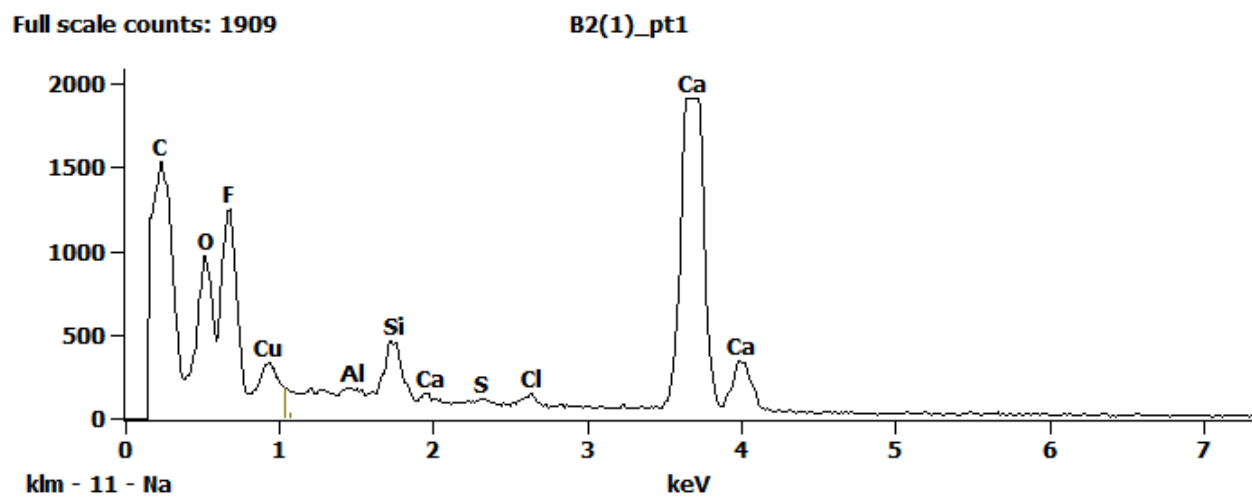


Figure 1. EDS Spectra for sample W7318-B-2 taken at test area 1. The test area is labeled in the particle SEM photo.

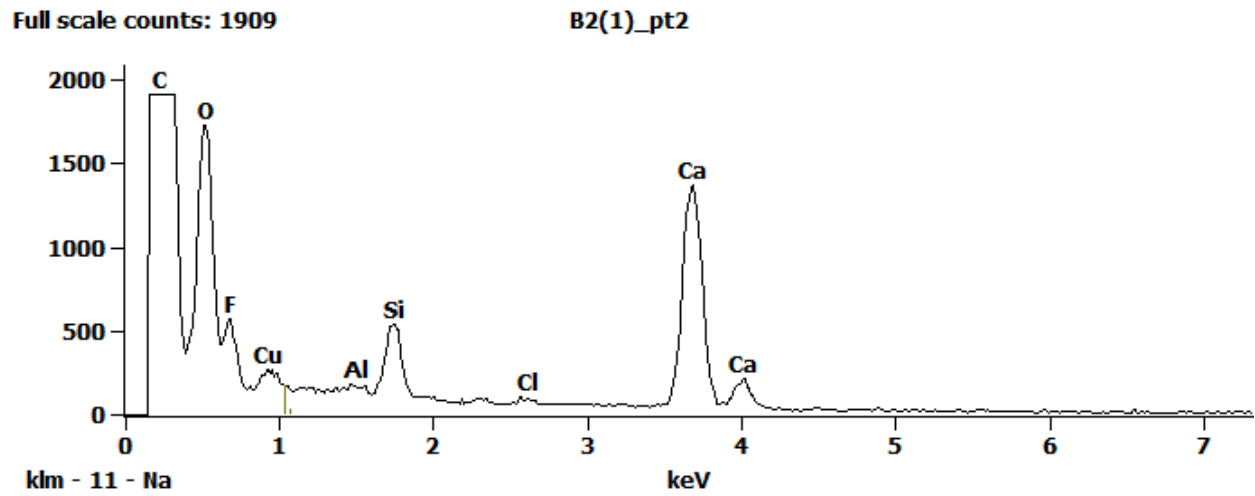


Figure 2. EDS Spectra for sample W7318-B-2 taken at test area 2. The test area is labeled in the particle SEM photo.

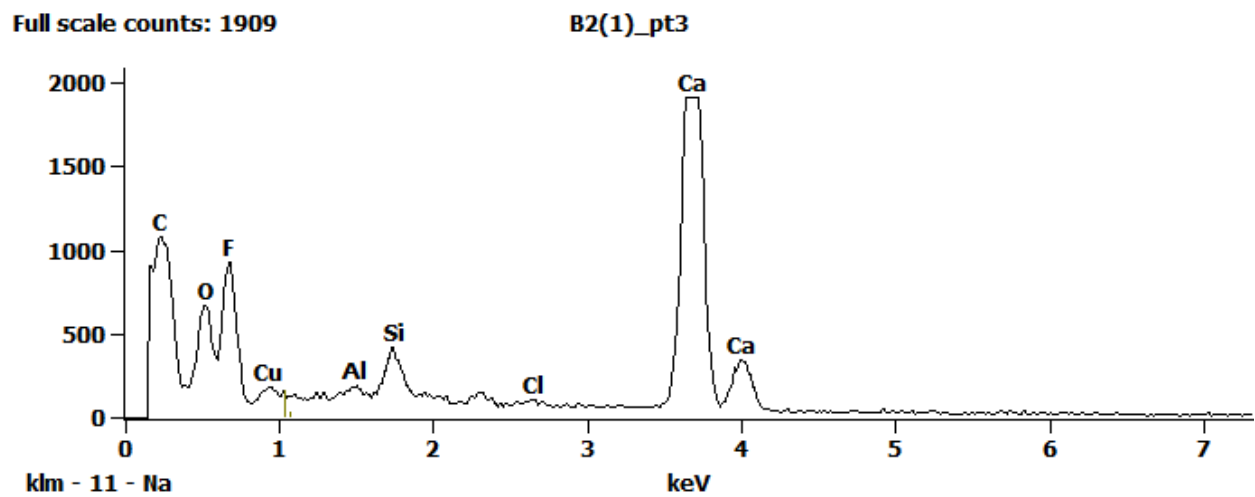


Figure 3. EDS Spectra for sample W7318-B-2 taken at test area 3. The test area is labeled in the particle SEM photo.

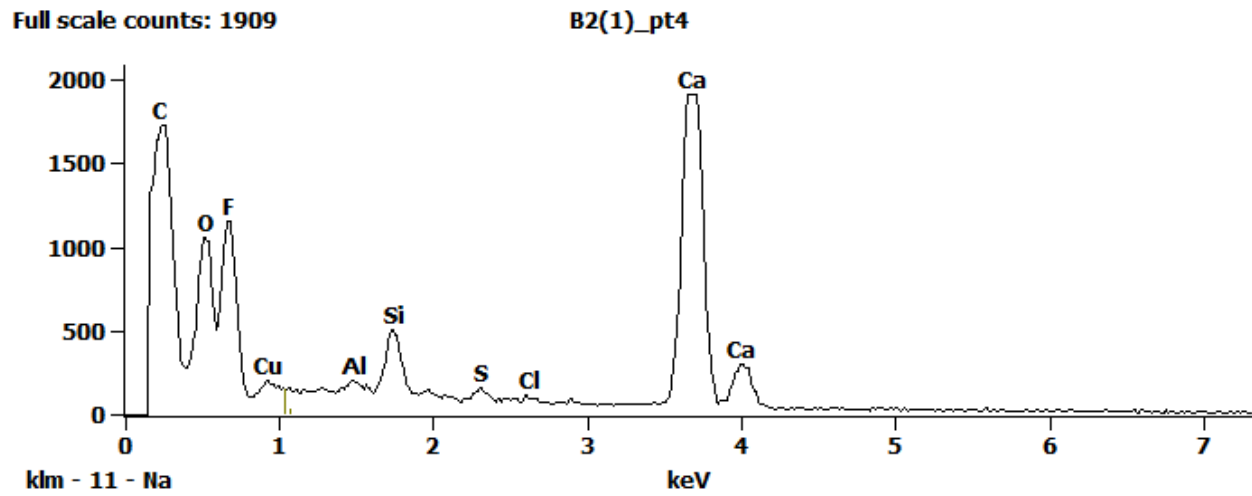


Figure 4. EDS Spectra for sample W7318-B-2 taken at test area 4. The test area is labeled in the particle SEM photo.

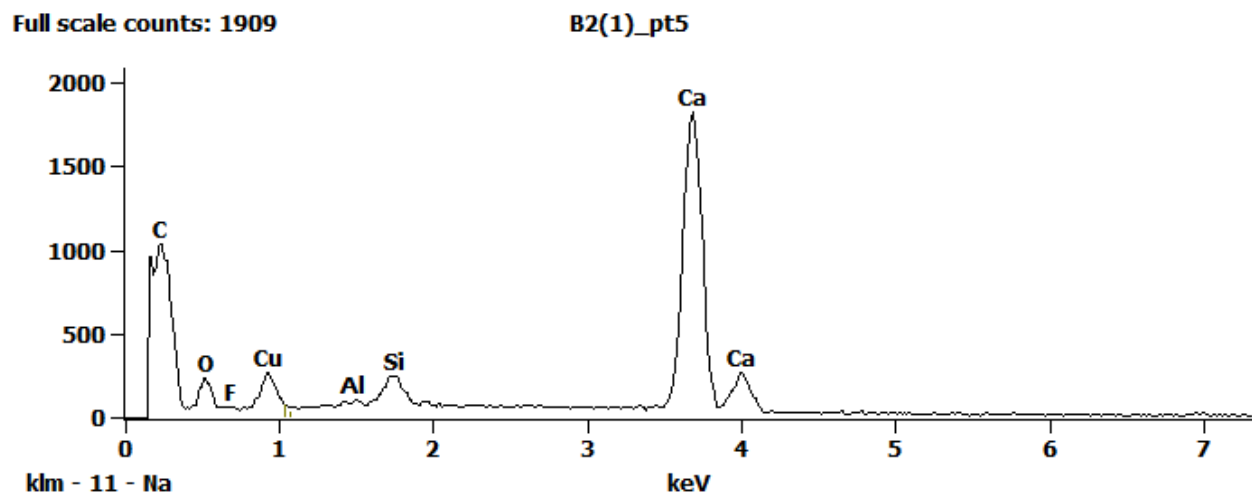
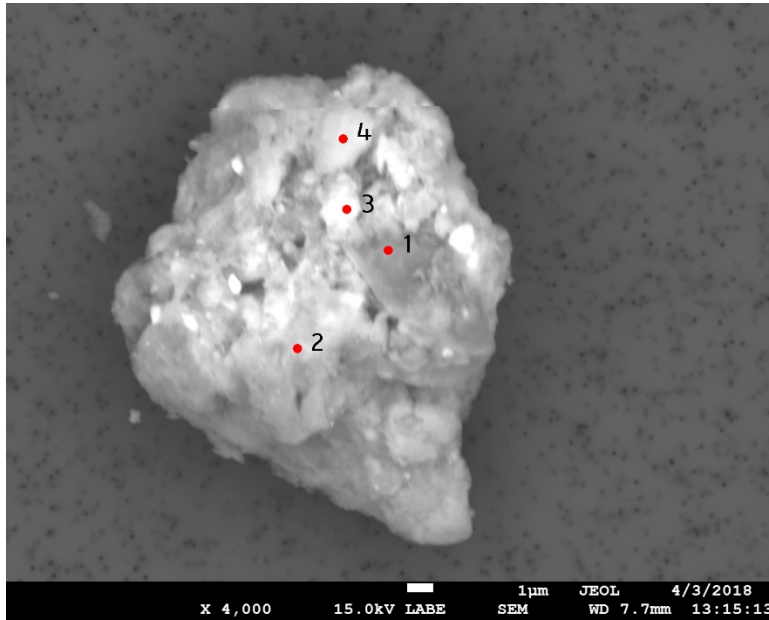


Figure 5. EDS Spectra for sample W7318-B-2 taken at test area 5. The test area is labeled in the particle SEM photo.

## W7318 B5



<b>Particle Size:</b>	22 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 B5 with labeled EDS testing locations.

### W7318 B5 - EDS Spectra

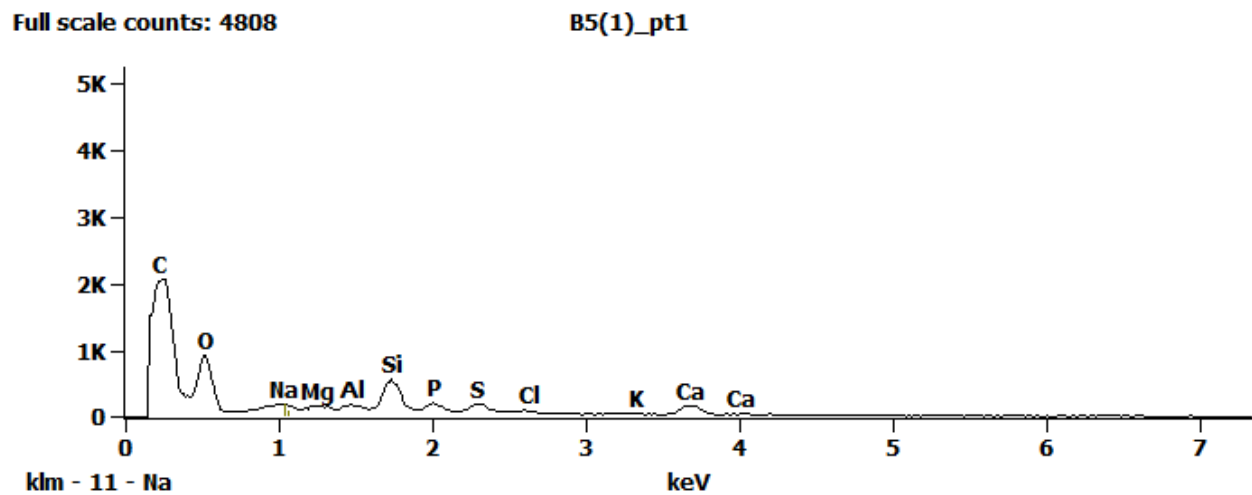


Figure 1. EDS Spectra for sample W7318-B-5 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 4808

B5(1)\_pt2

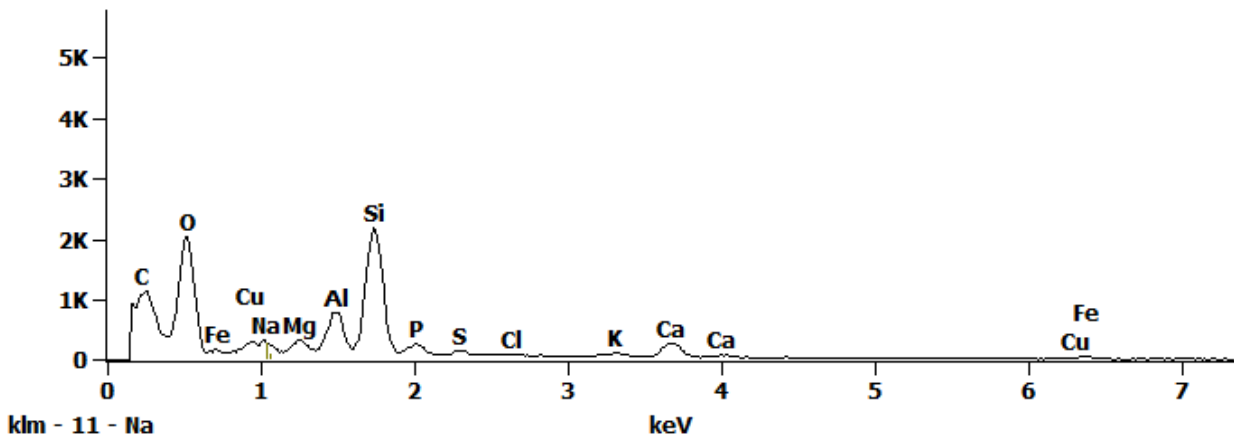


Figure 2. EDS Spectra for sample W7318-B-5 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 4808

B5(1)\_pt3

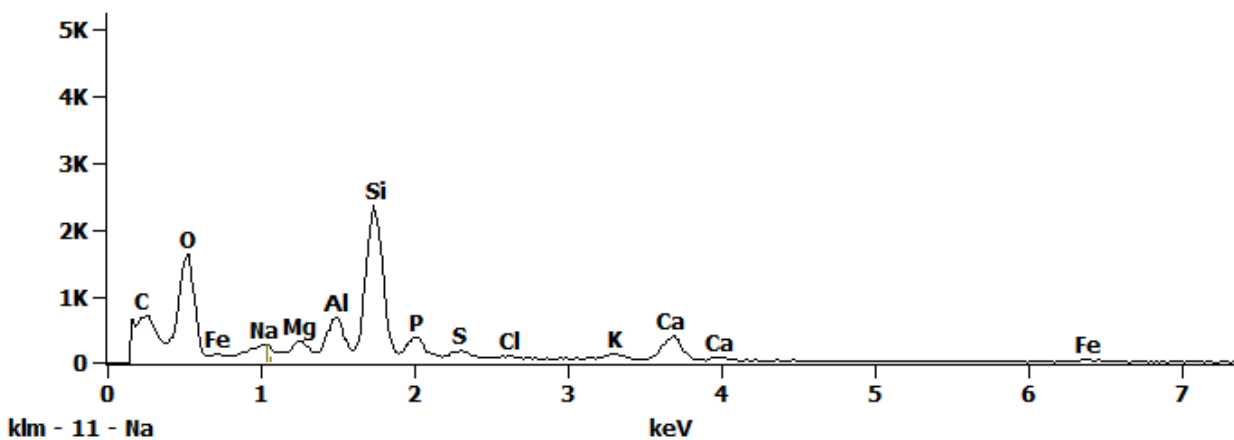


Figure 3. EDS Spectra for sample W7318-B-5 taken at test area 3. The test area is labeled in the particle SEM photo.

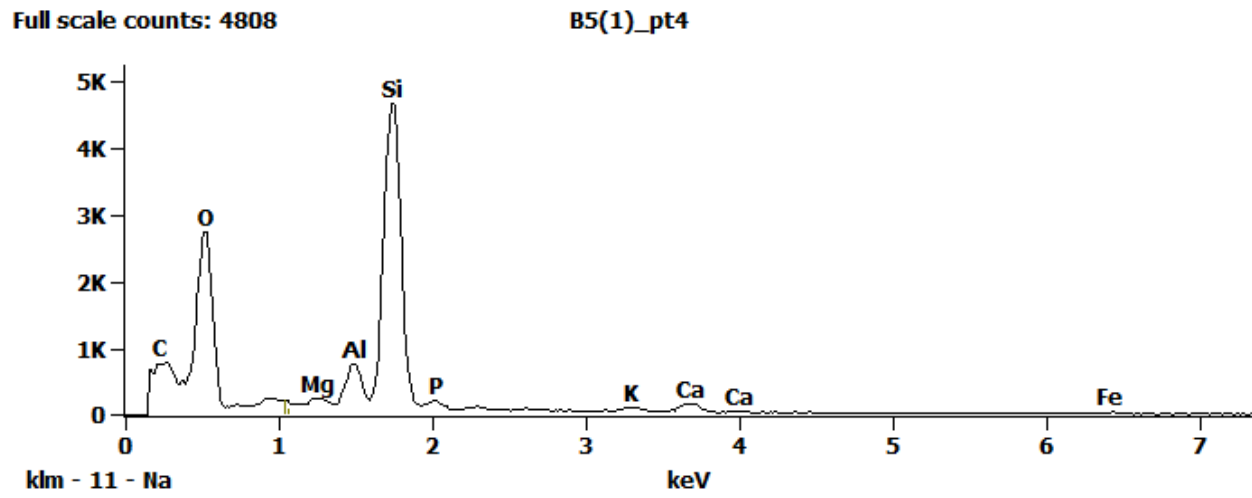
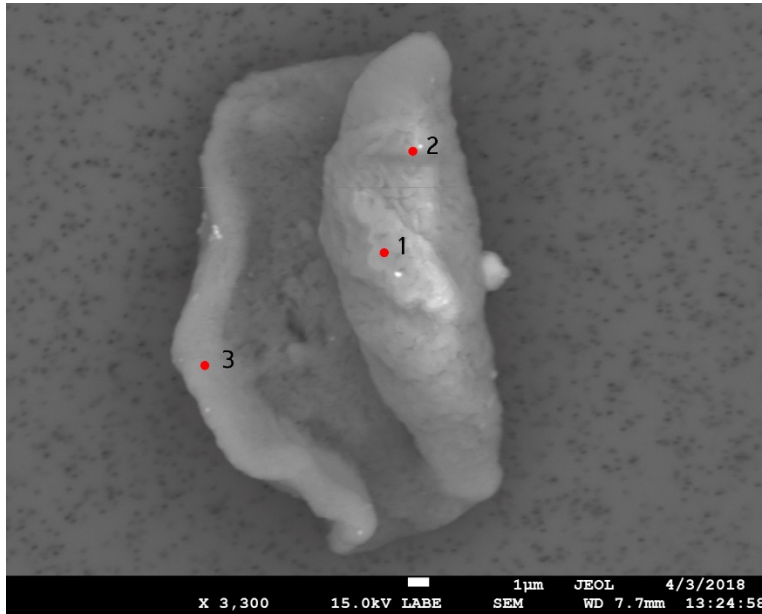


Figure 4. EDS Spectra for sample W7318-B-5 taken at test area 4. The test area is labeled in the particle SEM photo.



## W7318 B6



SEM Photo of sample W7318 B6 with labeled EDS testing locations.

<b>Particle Size:</b>	23x16 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7318 B6 - EDS Spectra

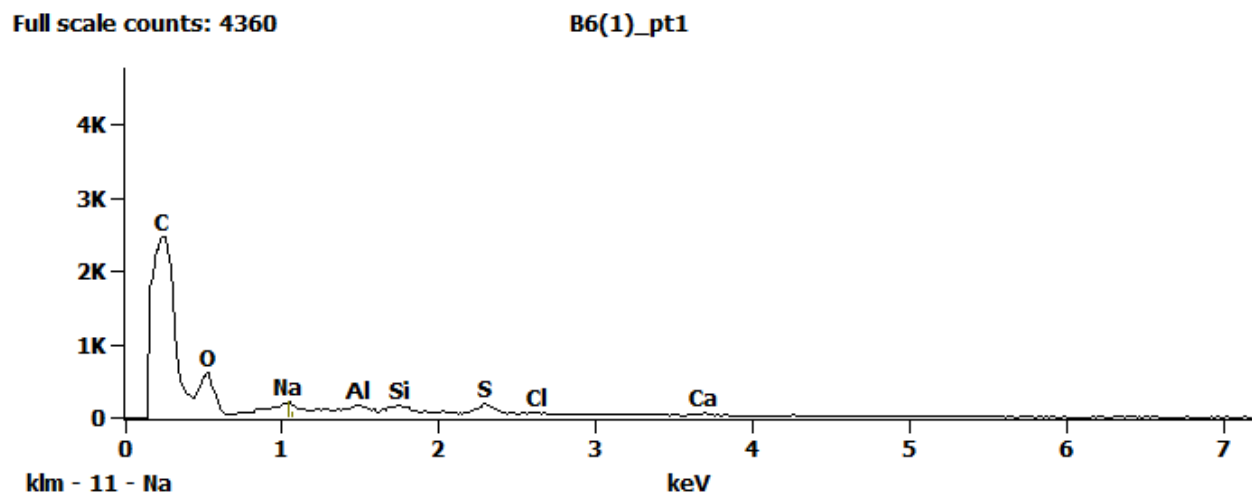


Figure 1. EDS Spectra for sample W7318-B-6 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 4360

B6(1)\_pt2

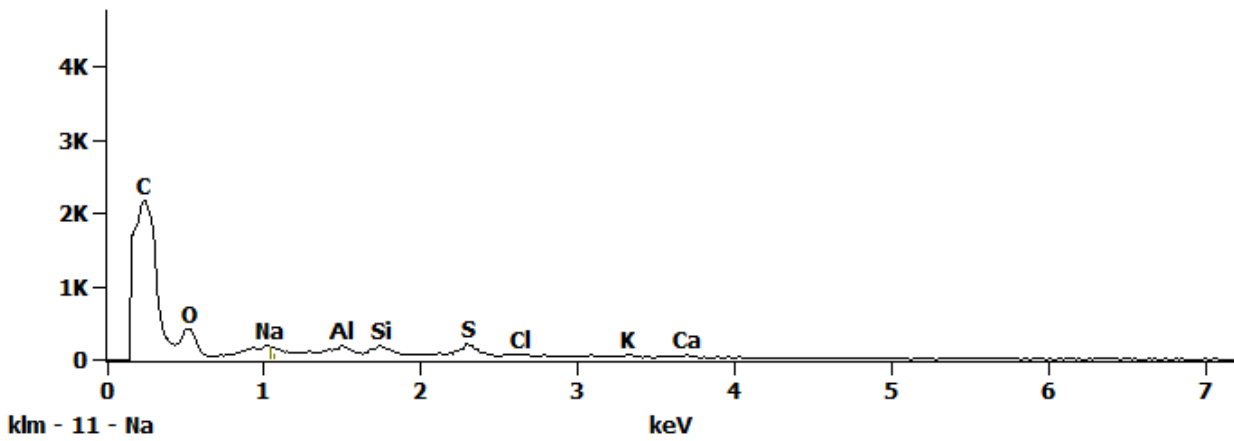


Figure 2. EDS Spectra for sample W7318-B-6 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 4360

B6(1)\_pt3

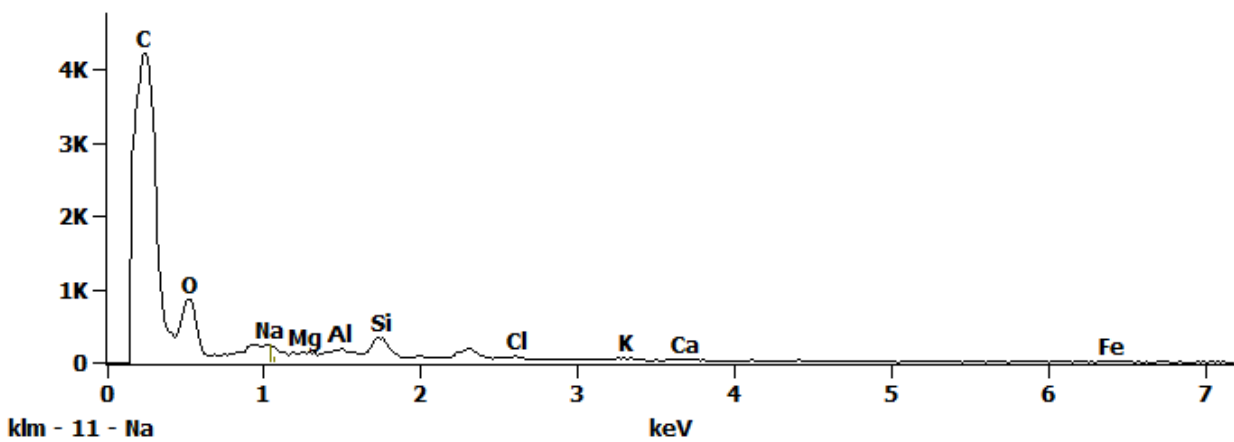
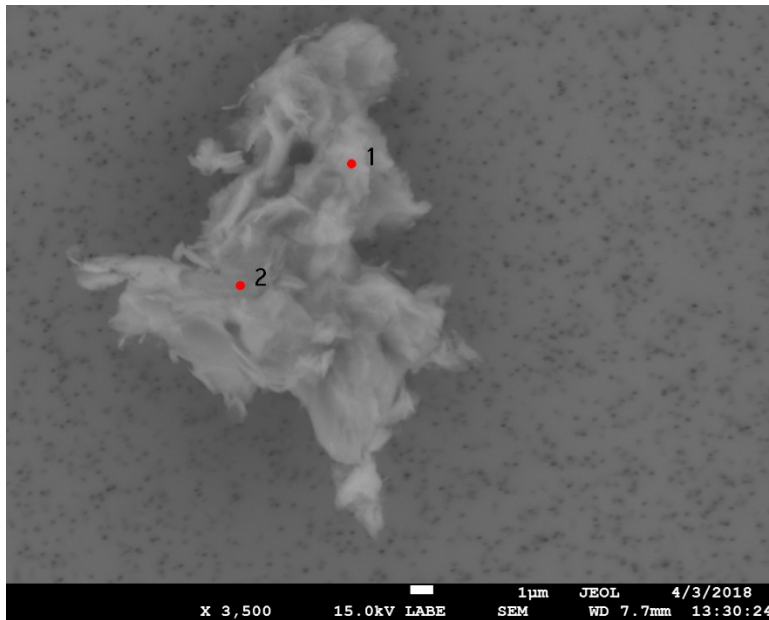


Figure 3. EDS Spectra for sample W7318-B-6 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7318 B7



SEM Photo of sample W7318 B7 with labeled EDS testing locations.

<b>Particle Size:</b>	18 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7318 B7 - EDS Spectra

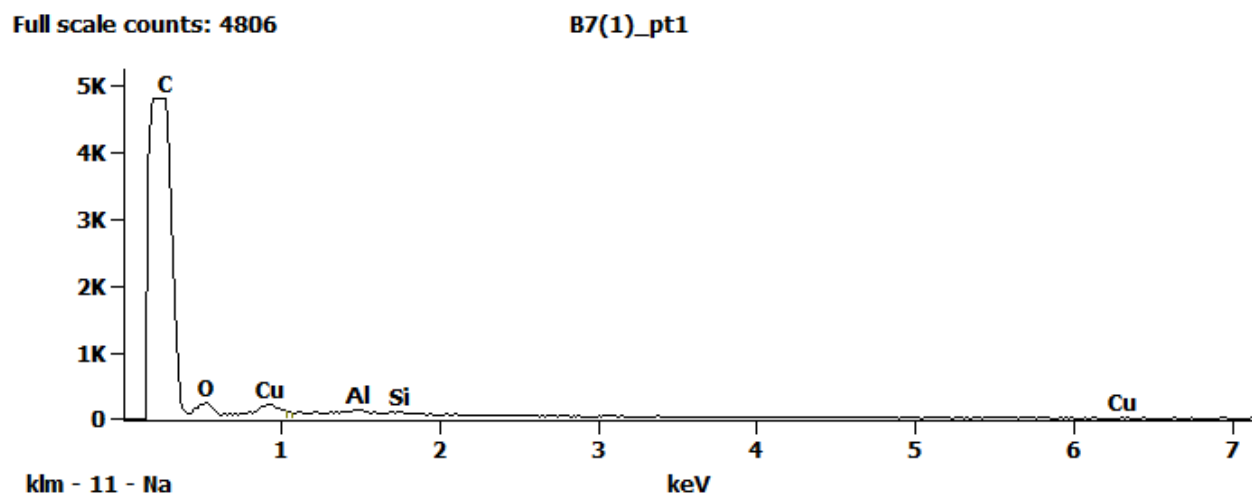


Figure 1. EDS Spectra for sample W7318-B-7 taken at test area 1. The test area is labeled in the particle SEM photo.

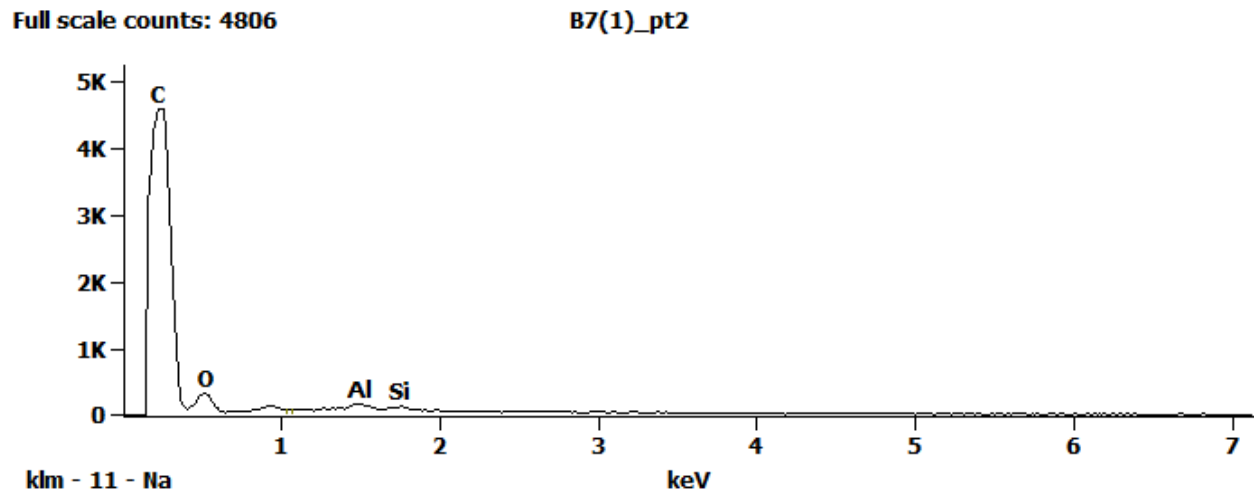
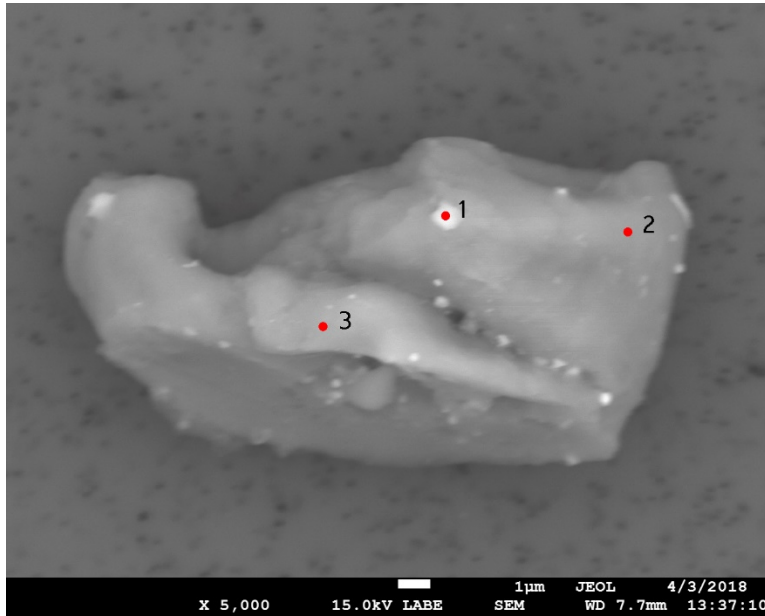


Figure 2. EDS Spectra for sample W7318-B-7 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7318 B8



SEM Photo of sample W7318 B8 with labeled EDS testing locations.

<b>Particle Size:</b>	19 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly to Subvitreous
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7318 B8 - EDS Spectra

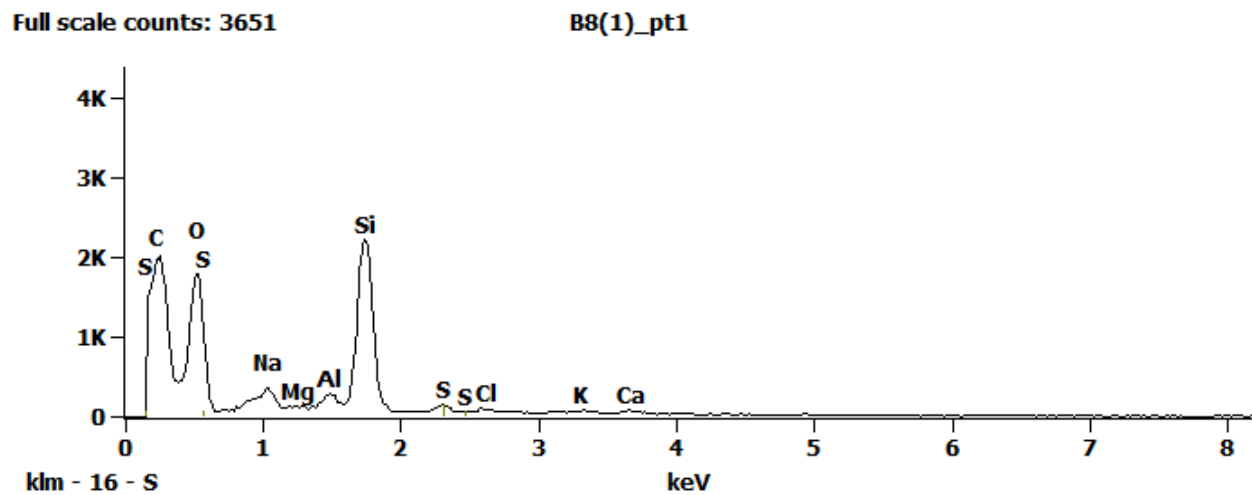


Figure 1. EDS Spectra for sample W7318-B-8 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 3651

B8(1)\_pt2

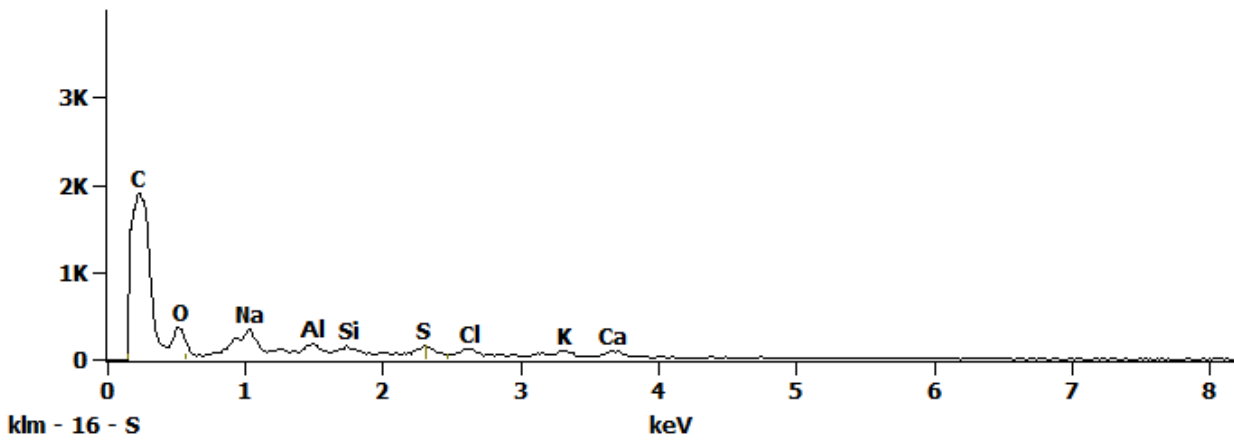


Figure 2. EDS Spectra for sample W7318- B-8 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 3651

B8(1)\_pt3

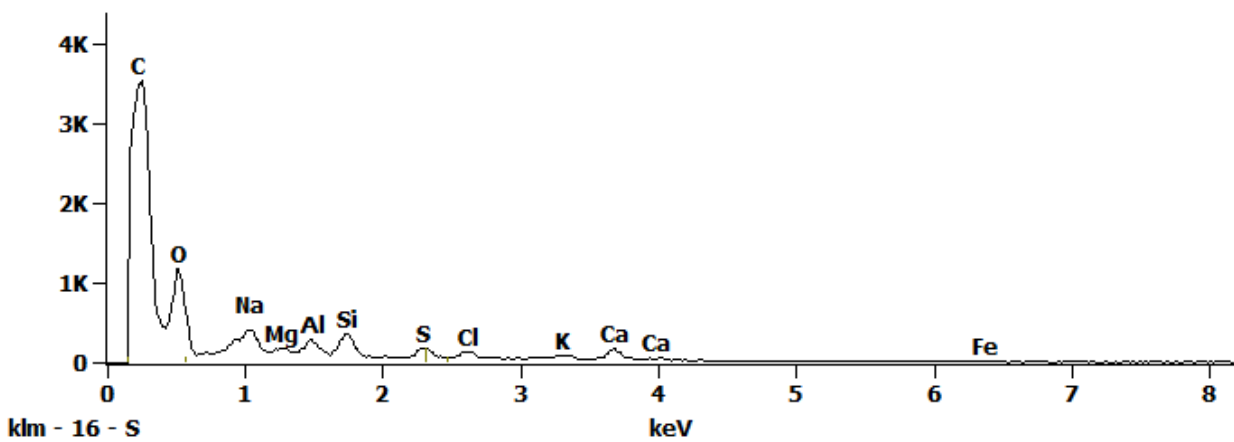
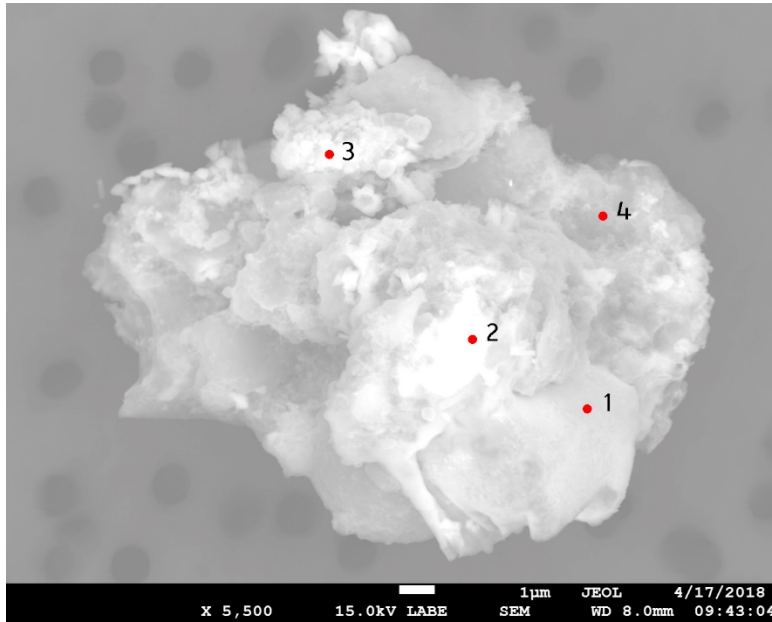


Figure 3. EDS Spectra for sample W7318- B-8 taken at test area 3. The test area is labeled in the particle SEM photo.

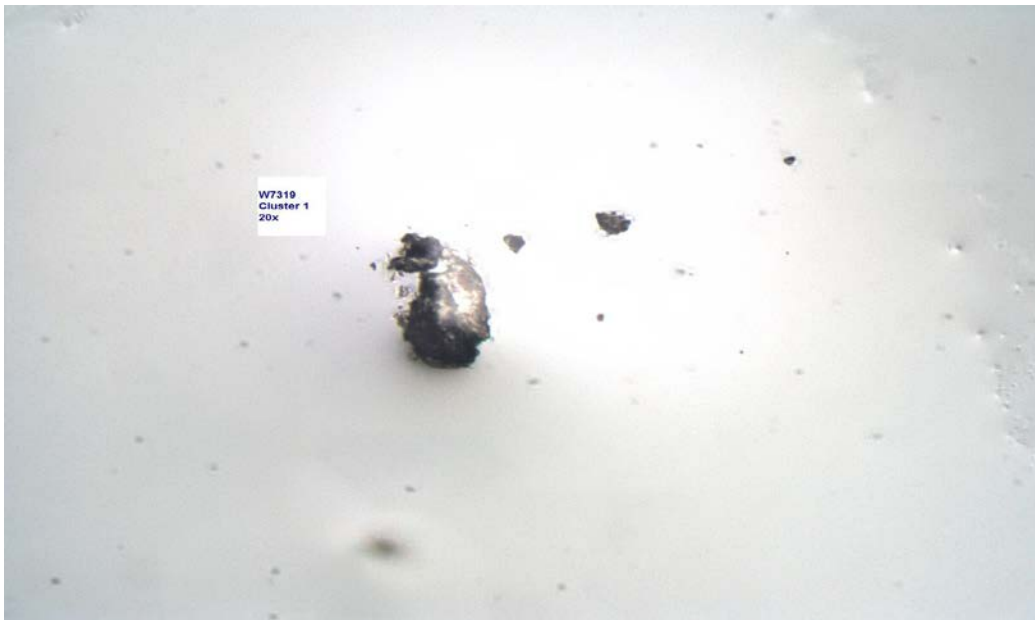
## W7319 A1



<b>Particle Size:</b>	13x18 μm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 1
<b>Comments:</b>	

*SEM Photo of sample W7319 A1 with labeled EDS testing locations.*

### *Cluster of Origin: W7319 Cluster 1*



*Photo of cluster W7319 Cluster 1.*

## W7319 A1 - EDS Spectra

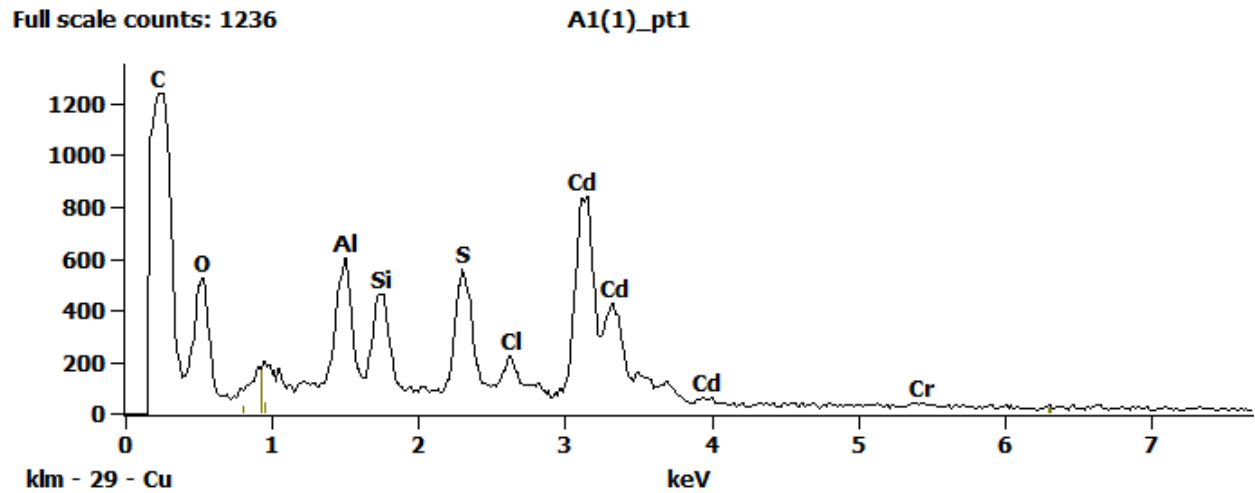


Figure 1. EDS Spectra for sample W7319-A-1 taken at test area 1. The test area is labeled in the particle SEM photo.

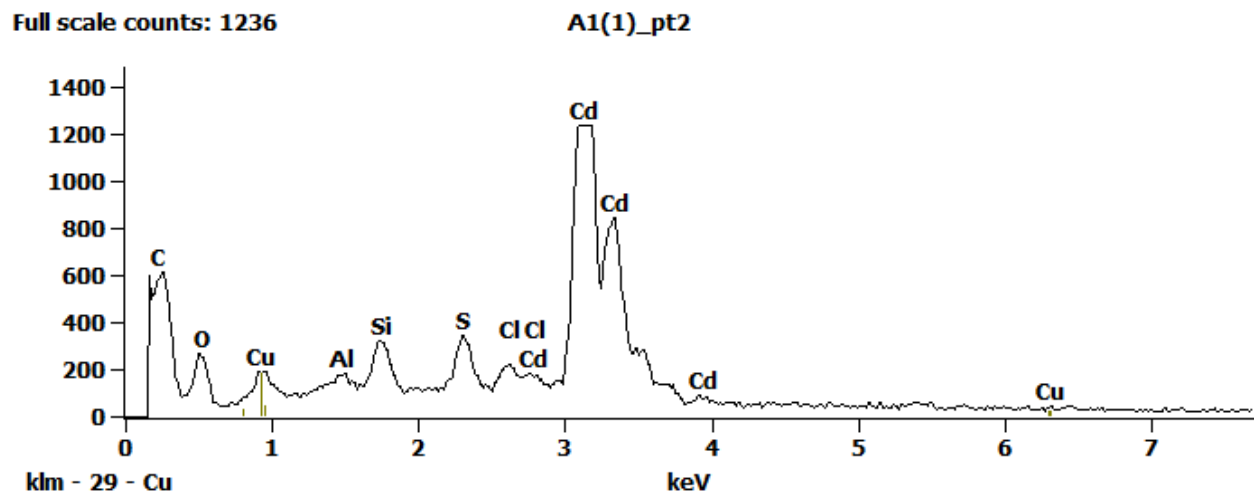


Figure 2. EDS Spectra for sample W7319-A-1 taken at test area 2. The test area is labeled in the particle SEM photo.



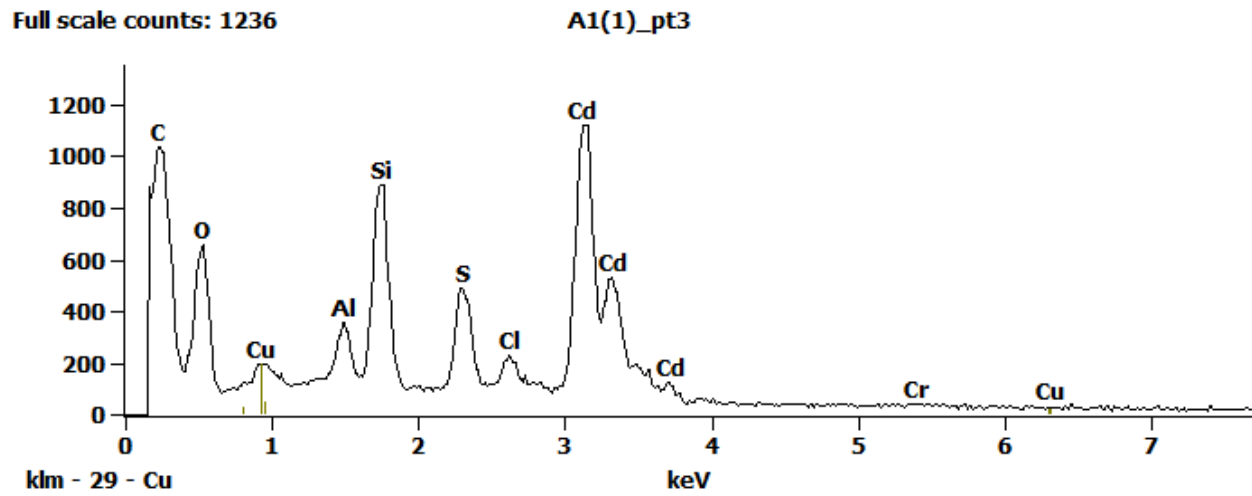


Figure 3. EDS Spectra for sample W7319-A-1 taken at test area 3. The test area is labeled in the particle SEM photo.

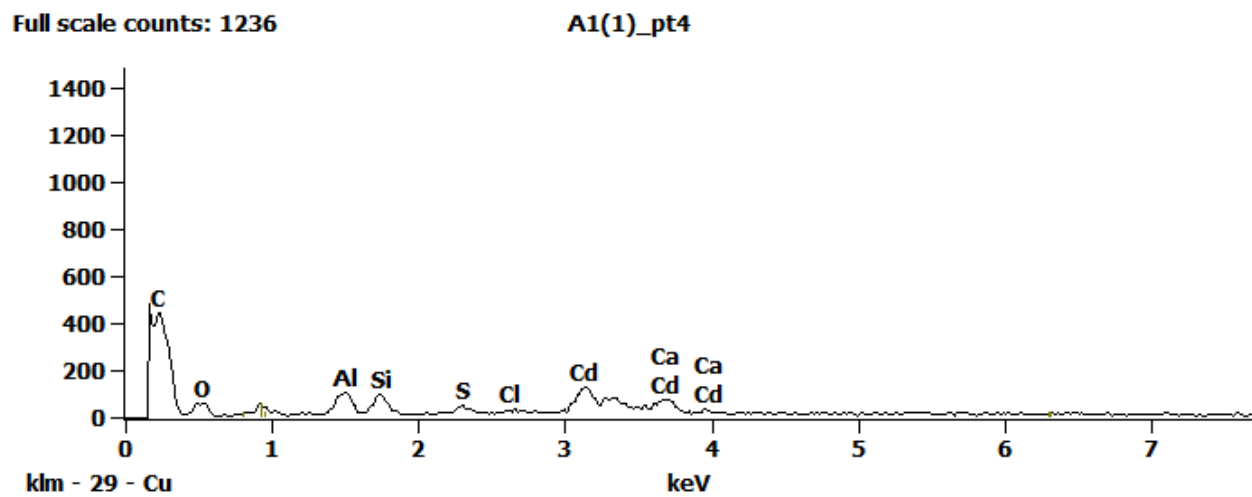
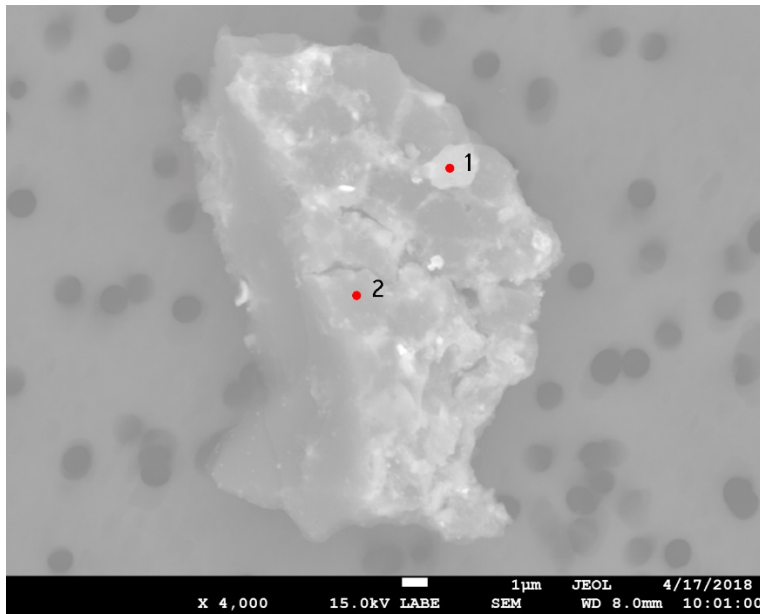


Figure 4. EDS Spectra for sample W7319-A-1 taken at test area 4. The test area is labeled in the particle SEM photo.

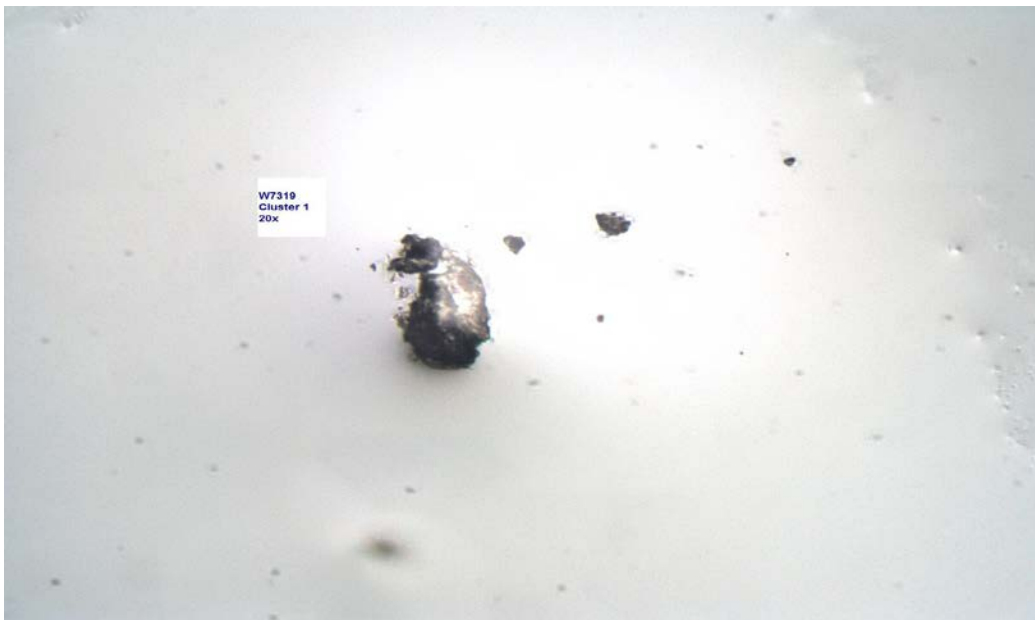
## W7319 A2



<b>Particle Size:</b>	12x21 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 1
<b>Comments:</b>	

*SEM Photo of sample W7319 A2 with labeled EDS testing locations.*

### *Cluster of Origin: W7319 Cluster 1*



*Photo of cluster W7319 Cluster 1.*

## W7319 A2 - EDS Spectra

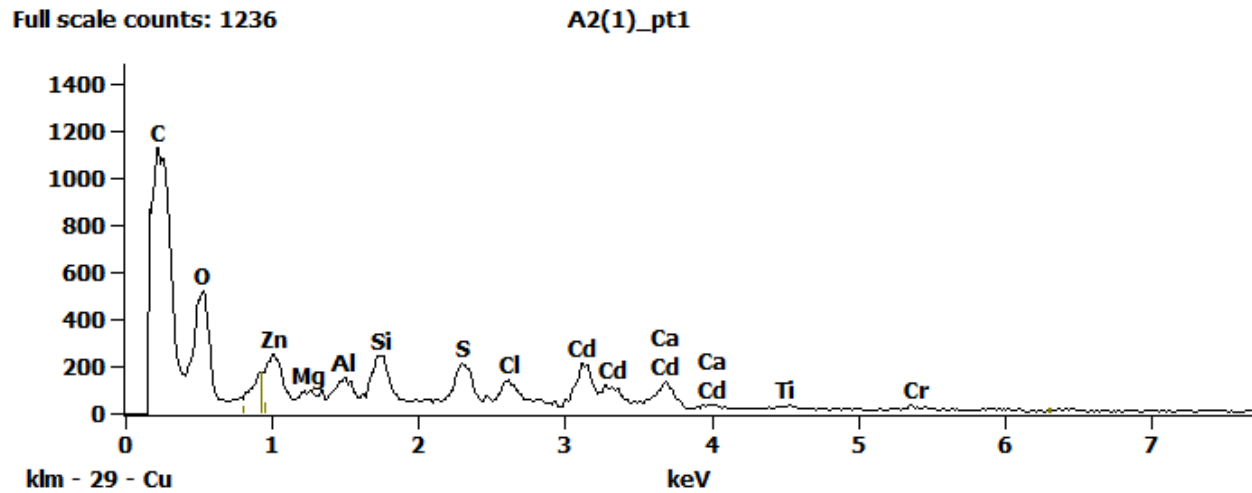


Figure 1. EDS Spectra for sample W7319-A-2 taken at test area 1. The test area is labeled in the particle SEM photo.

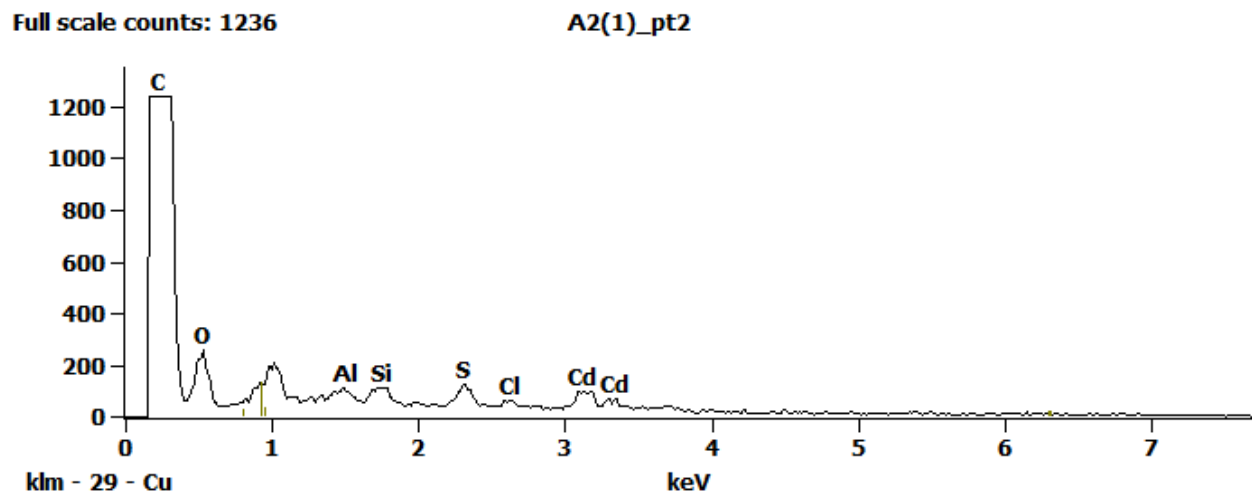
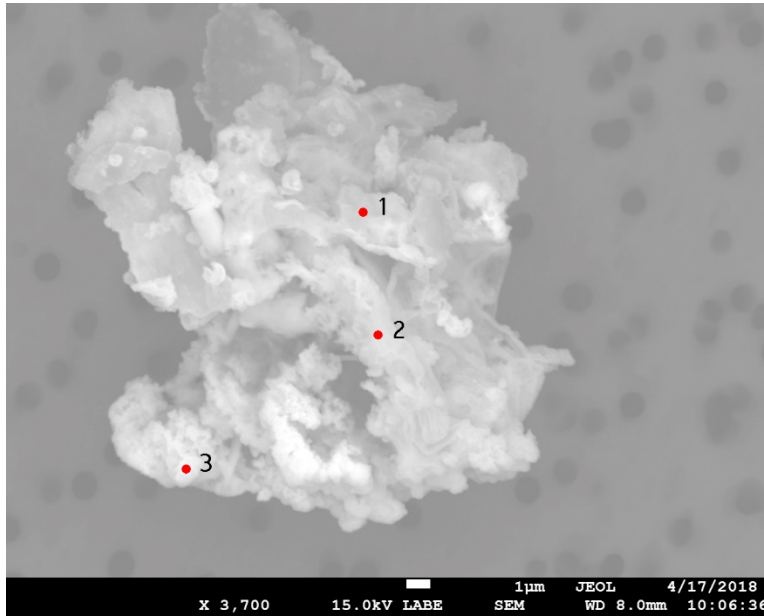


Figure 2. EDS Spectra for sample W7319-A-2 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7319 A3



**Particle Size:** 21 µm  
**Shape:** Equidimensional  
**Transparency:** Opaque  
**Color:** BLACK, BROWN  
**Luster:** Pearly to Dull  
**Particle Type:** ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** W7319 Cluster 2  
**Comments:**

*SEM Photo of sample W7319 A3 with labeled EDS testing locations.*

### *Cluster of Origin: W7319 Cluster 2*



*Photo of cluster W7319 Cluster 2.*

## W7319 A3 - EDS Spectra

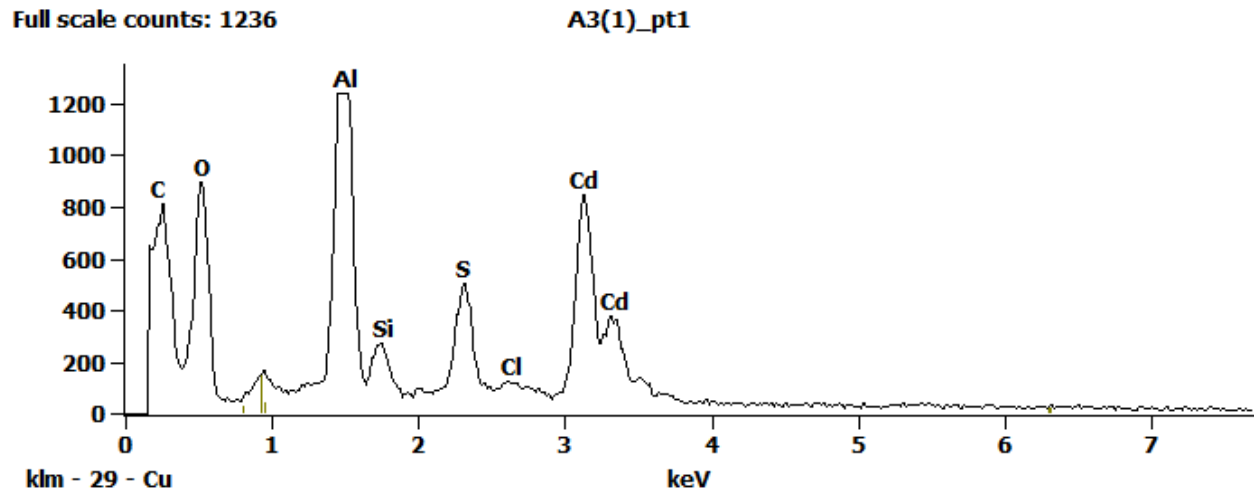


Figure 1. EDS Spectra for sample W7319-A-3 taken at test area 1. The test area is labeled in the particle SEM photo.

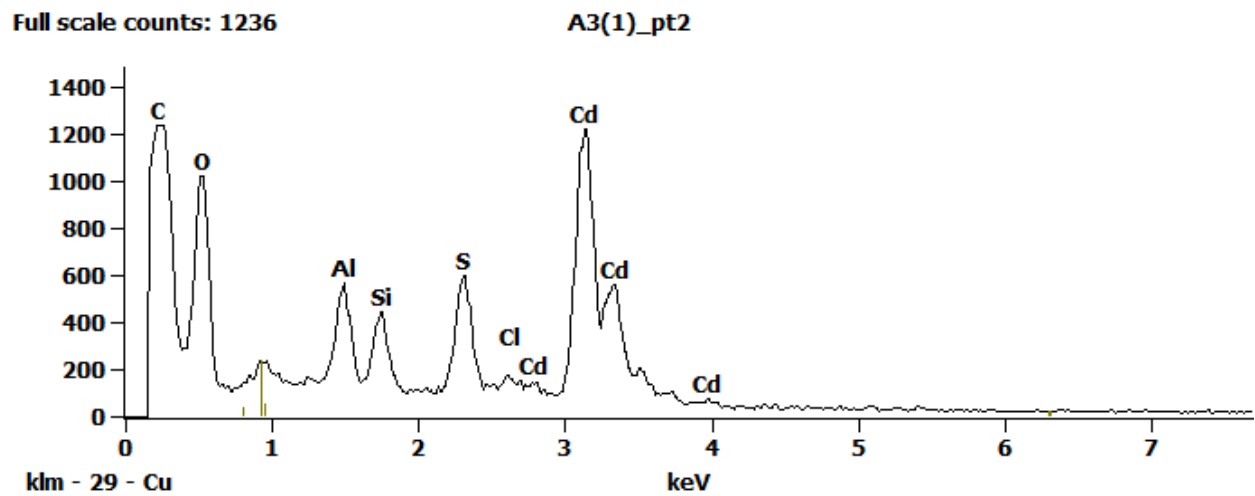


Figure 2. EDS Spectra for sample W7319-A-3 taken at test area 2. The test area is labeled in the particle SEM photo.

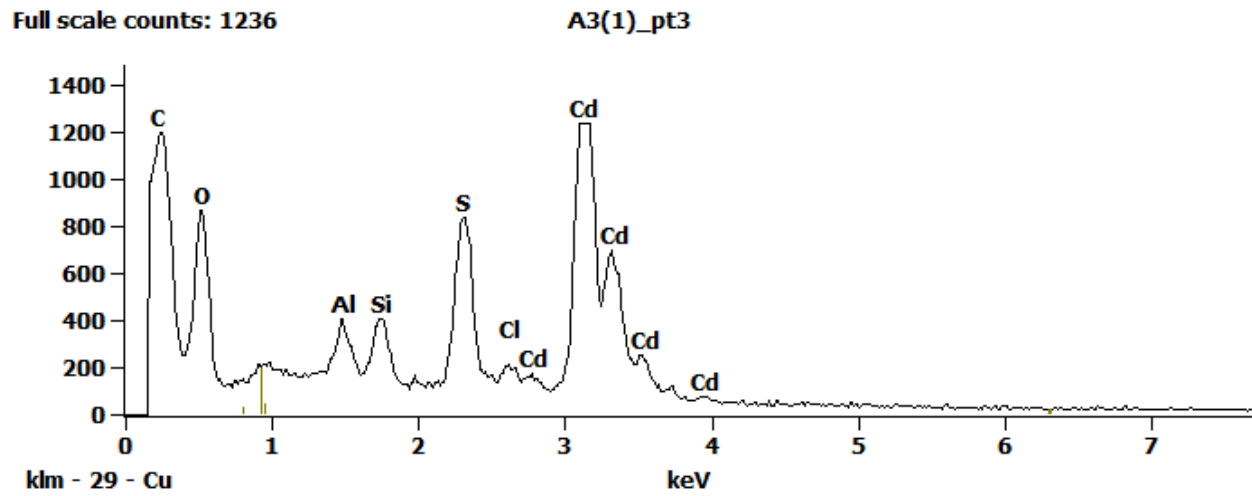
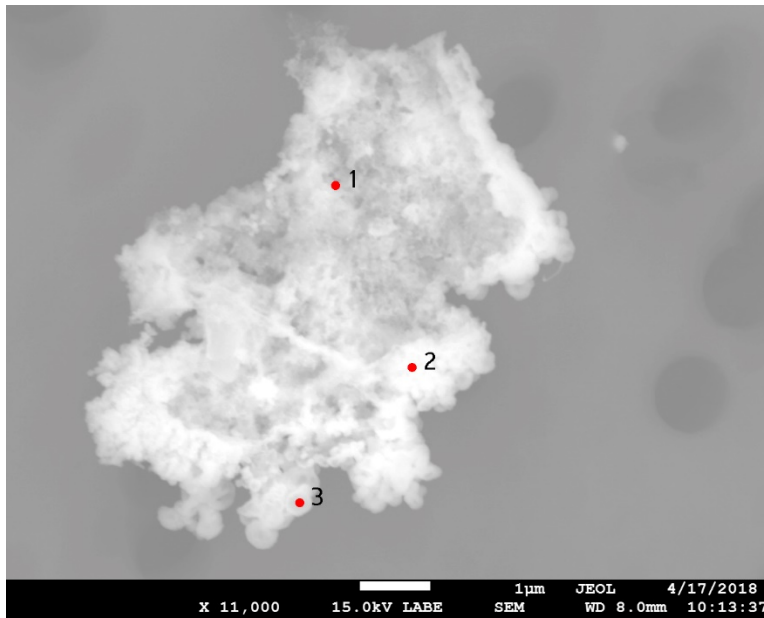


Figure 3. EDS Spectra for sample W7319-A-3 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 A4



<b>Particle Size:</b>	20 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, BROWN, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 2
<b>Comments:</b>	

*SEM Photo of sample W7319 A4 with labeled EDS testing locations.*

### *Cluster of Origin: W7319 Cluster 2*



*Photo of cluster W7319 Cluster 2.*

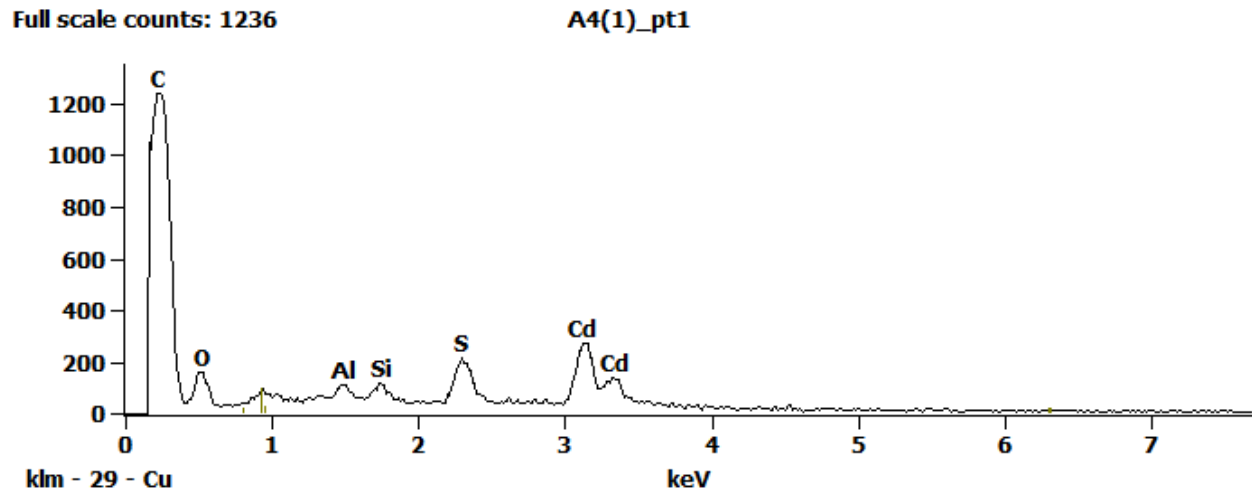
*W7319 A4 - EDS Spectra*

Figure 1. EDS Spectra for sample W7319-A-4 taken at test area 1. The test area is labeled in the particle SEM photo.

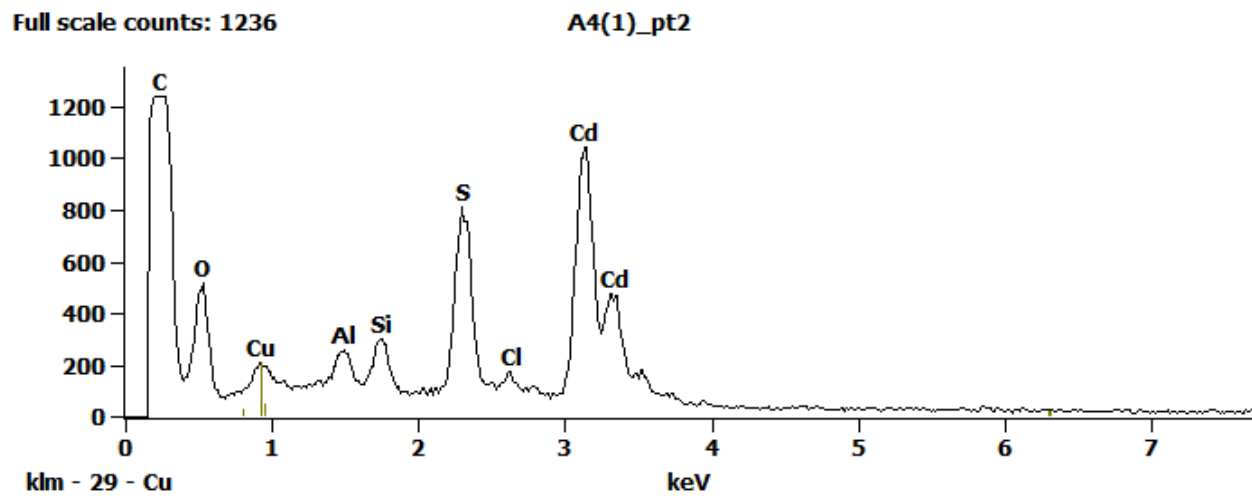


Figure 2. EDS Spectra for sample W7319-A-4 taken at test area 2. The test area is labeled in the particle SEM photo.



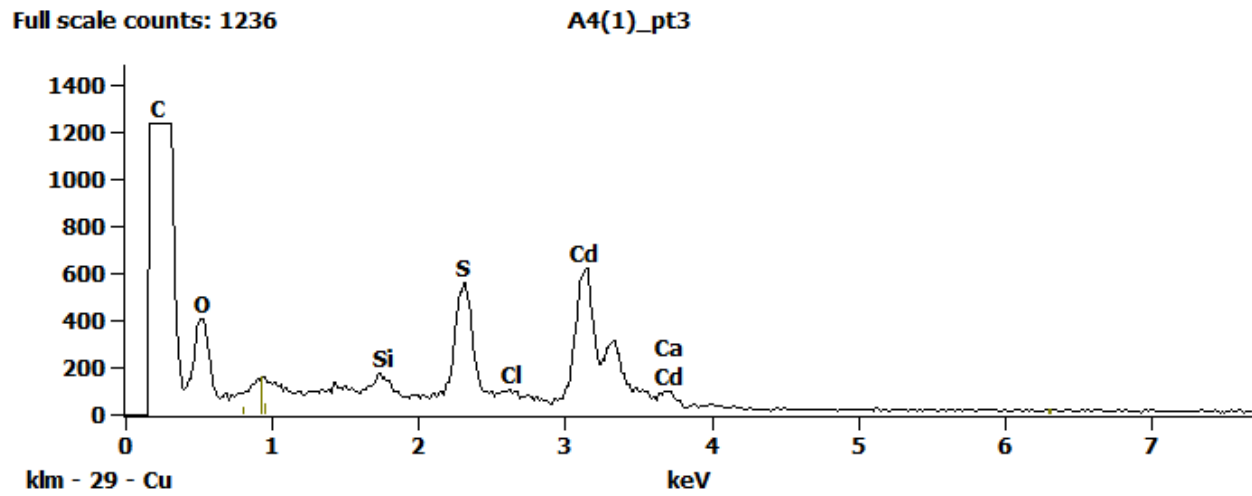
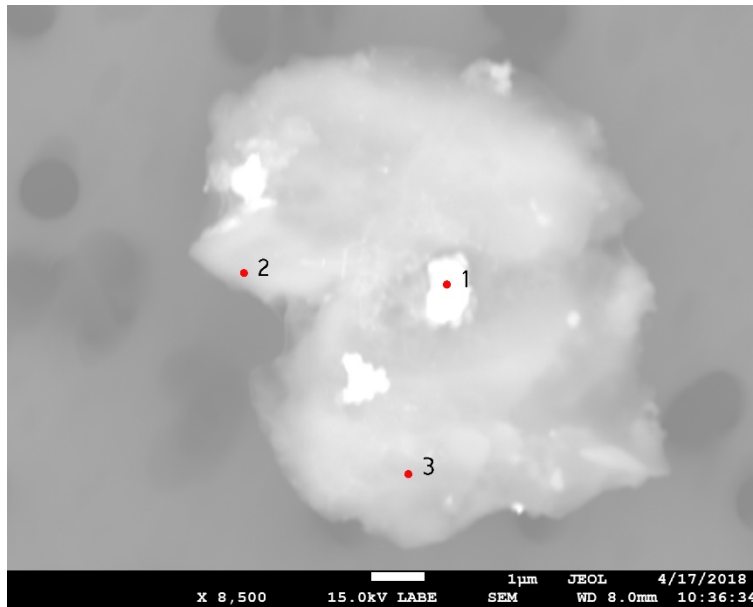


Figure 3. EDS Spectra for sample W7319-A-4 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 A7



SEM Photo of sample W7319 A7 with labeled EDS testing locations.

<b>Particle Size:</b>	10 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Transparent to Translucent
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 4
<b>Comments:</b>	

### Cluster of Origin: W7319 Cluster 4

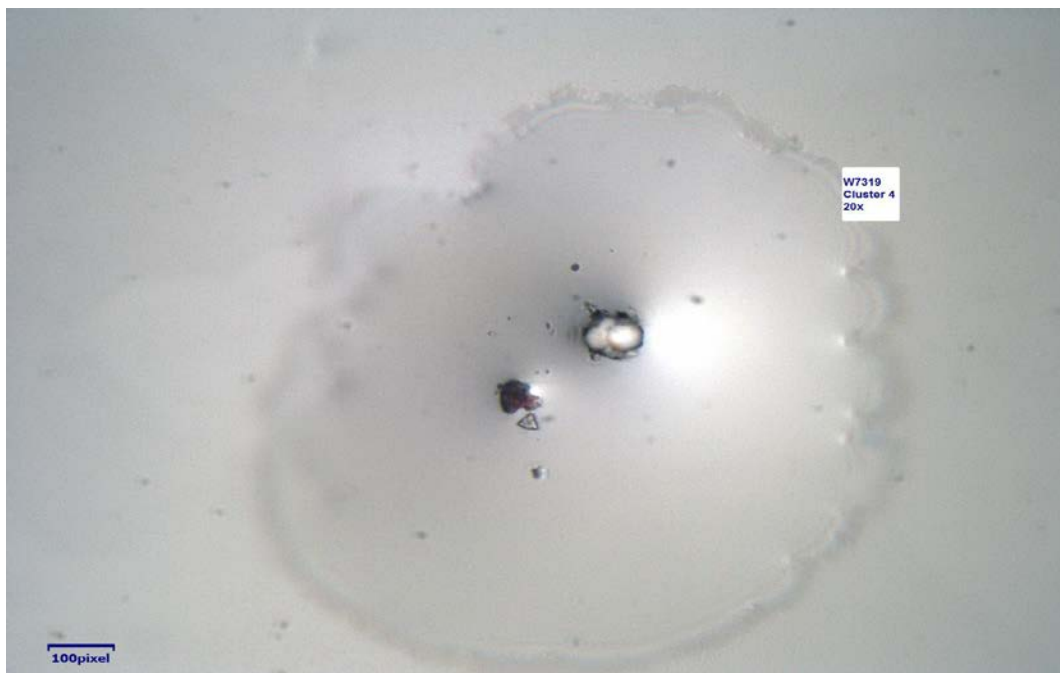


Photo of cluster W7319 Cluster 4.

## W7319 A7 - EDS Spectra

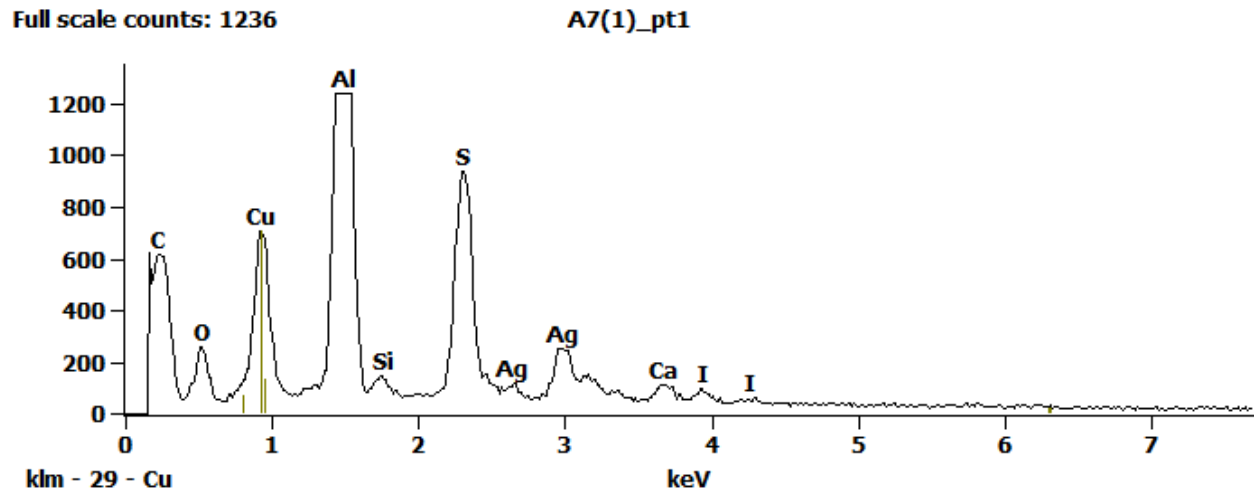


Figure 1. EDS Spectra for sample W7319-A-7 taken at test area 1. The test area is labeled in the particle SEM photo.

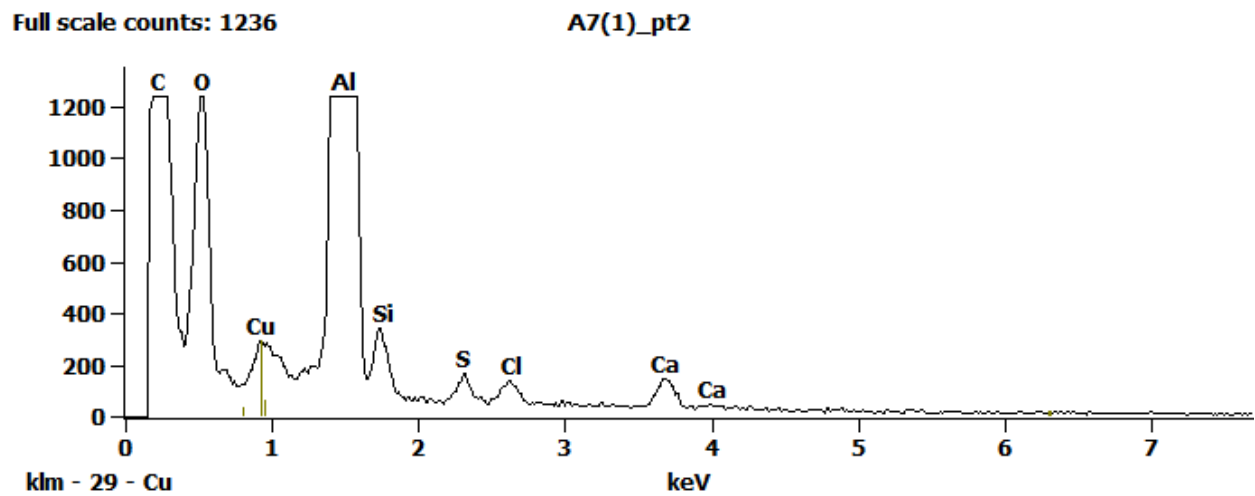


Figure 2. EDS Spectra for sample W7319-A-7 taken at test area 2. The test area is labeled in the particle SEM photo.

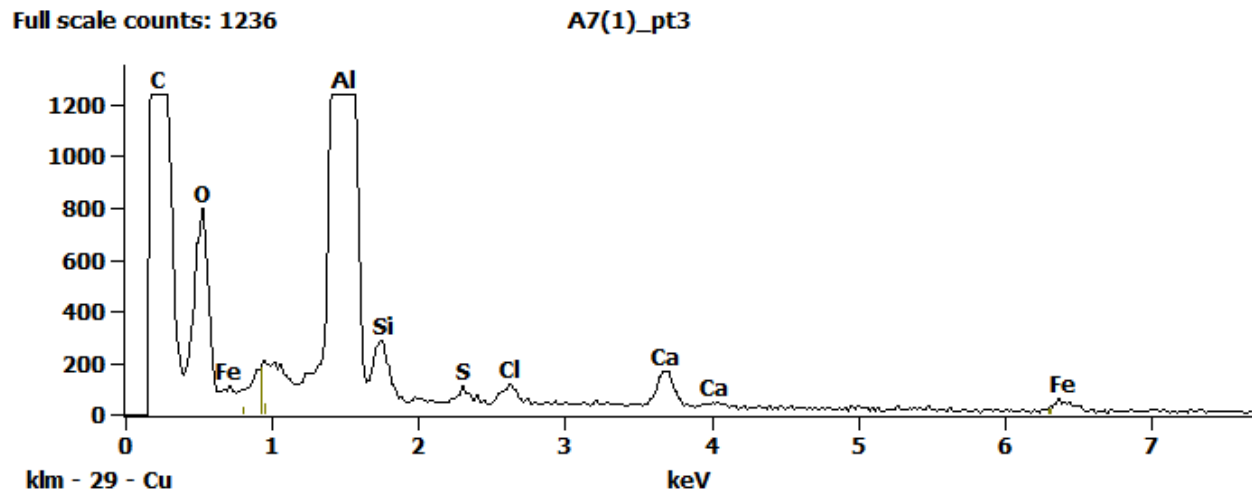
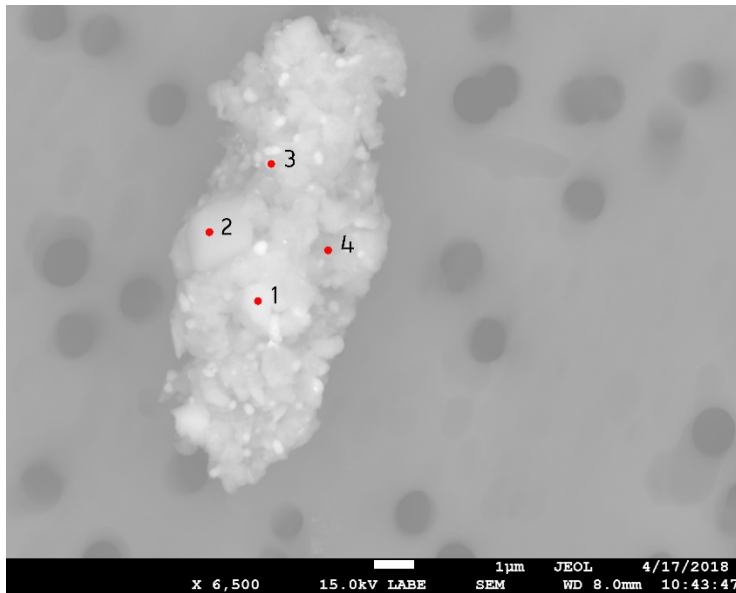


Figure 3. EDS Spectra for sample W7319-A-7 taken at test area 3. The test area is labeled in the particle SEM photo.

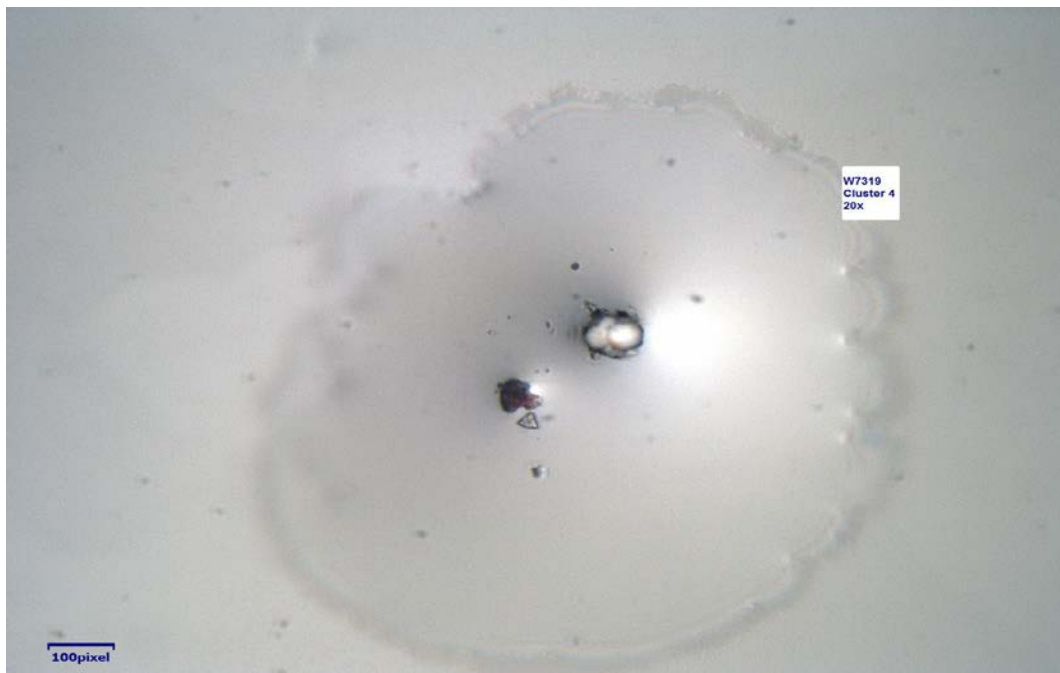
## W7319 A8



<b>Particle Size:</b>	13x5 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 4
<b>Comments:</b>	

*SEM Photo of sample W7319 A8 with labeled EDS testing locations.*

### *Cluster of Origin: W7319 Cluster 4*



*Photo of cluster W7319 Cluster 4.*

## W7319 A8 - EDS Spectra

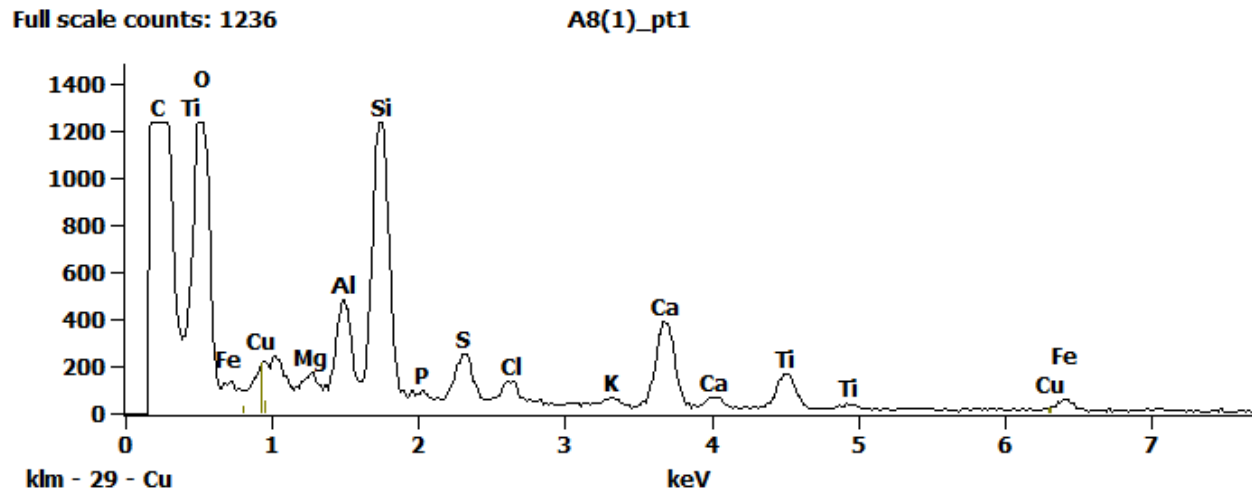


Figure 1. EDS Spectra for sample W7319-A-8 taken at test area 1. The test area is labeled in the particle SEM photo.

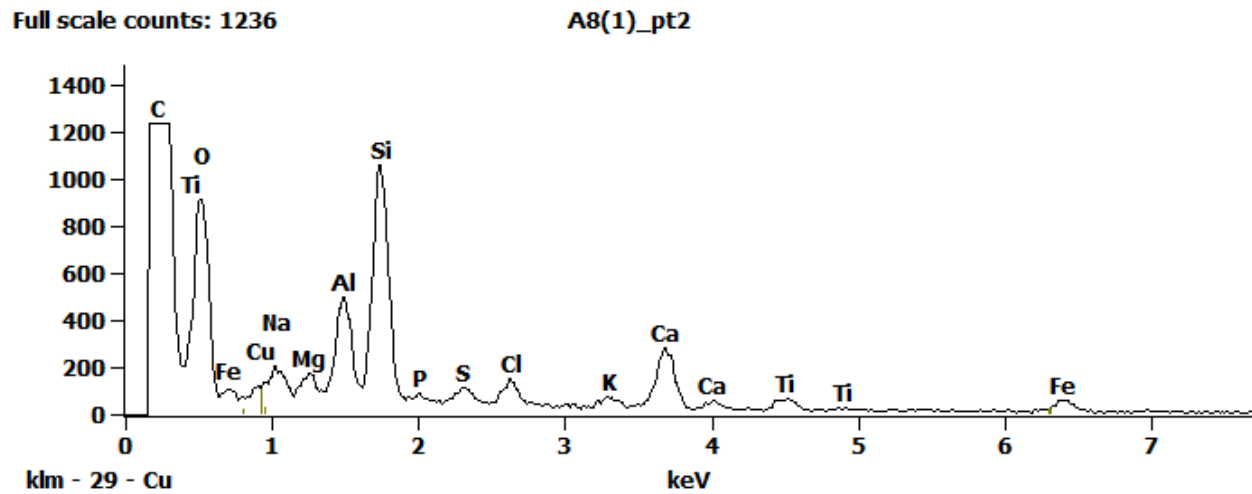


Figure 2. EDS Spectra for sample W7319-A-8 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A8(1)\_pt3

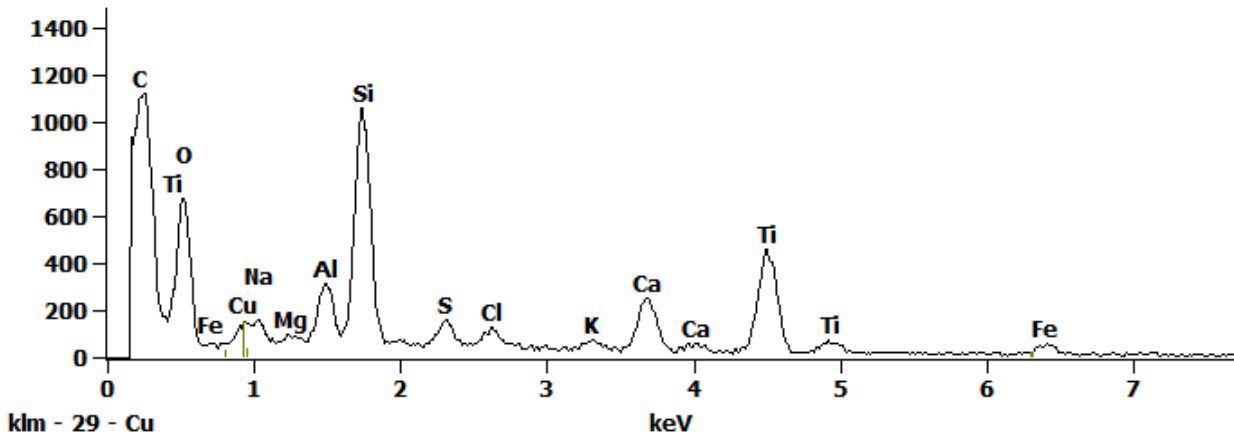


Figure 3. EDS Spectra for sample W7319-A-8 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A8(1)\_pt4

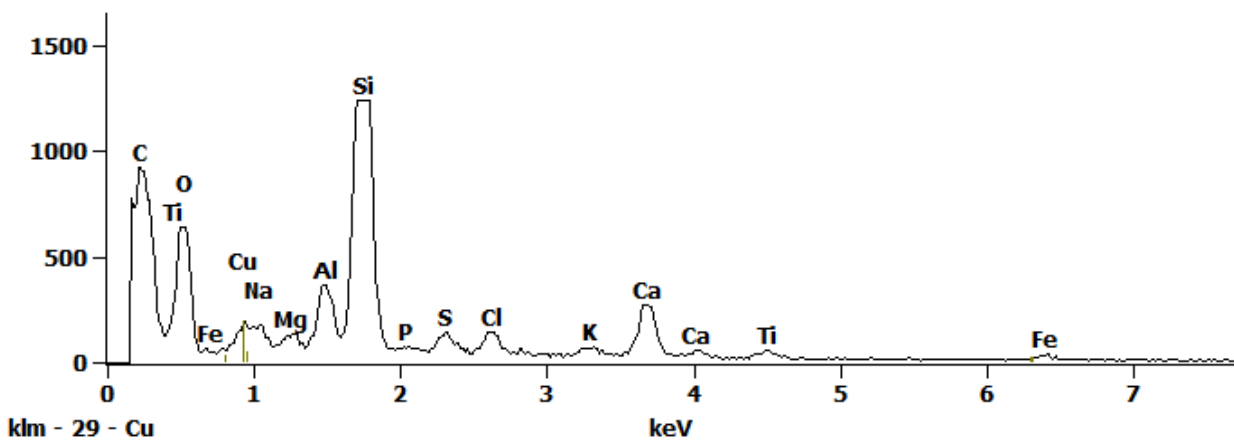
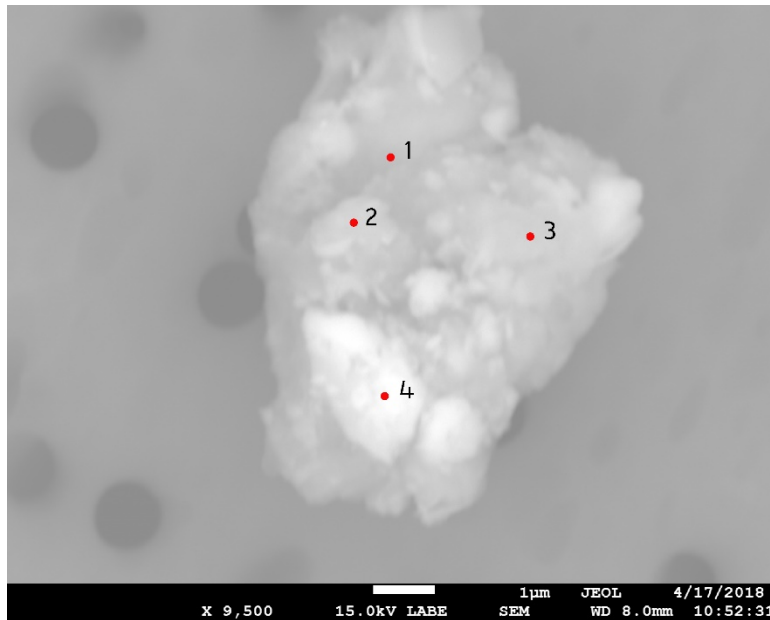


Figure 4. EDS Spectra for sample W7319-A-8 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7319 A9



**Particle Size:** 8 µm  
**Shape:** Equidimensional  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Dull  
**Particle Type:** ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** W7319 Cluster 5  
**Comments:**

SEM Photo of sample W7319 A9 with labeled EDS testing locations.

### Cluster of Origin: W7319 Cluster 5

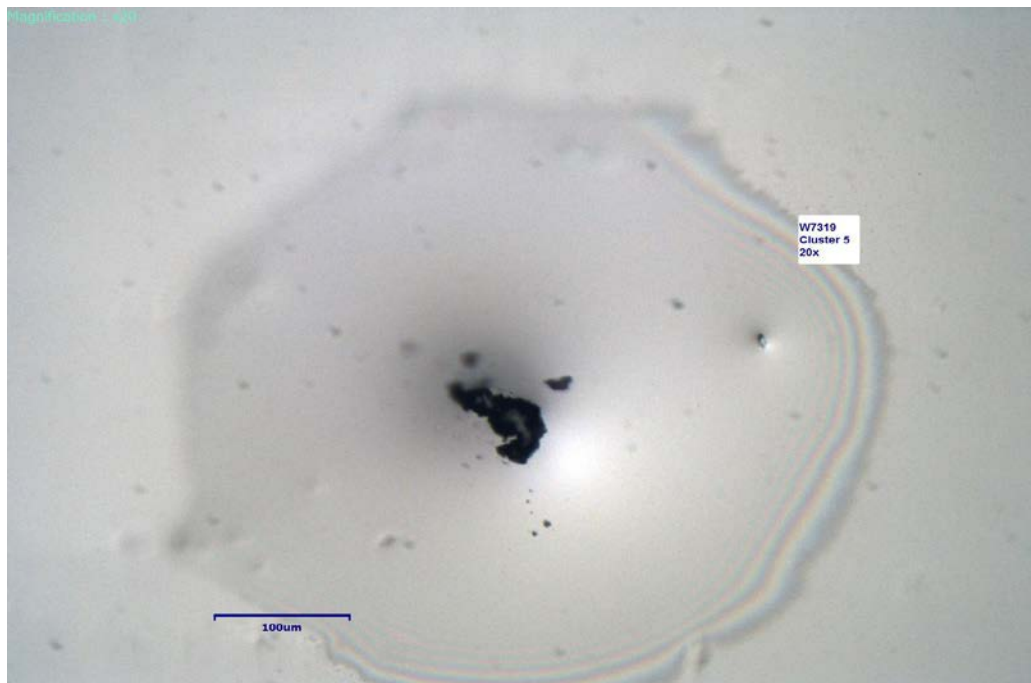


Photo of cluster W7319 Cluster 5.



## W7319 A9 - EDS Spectra

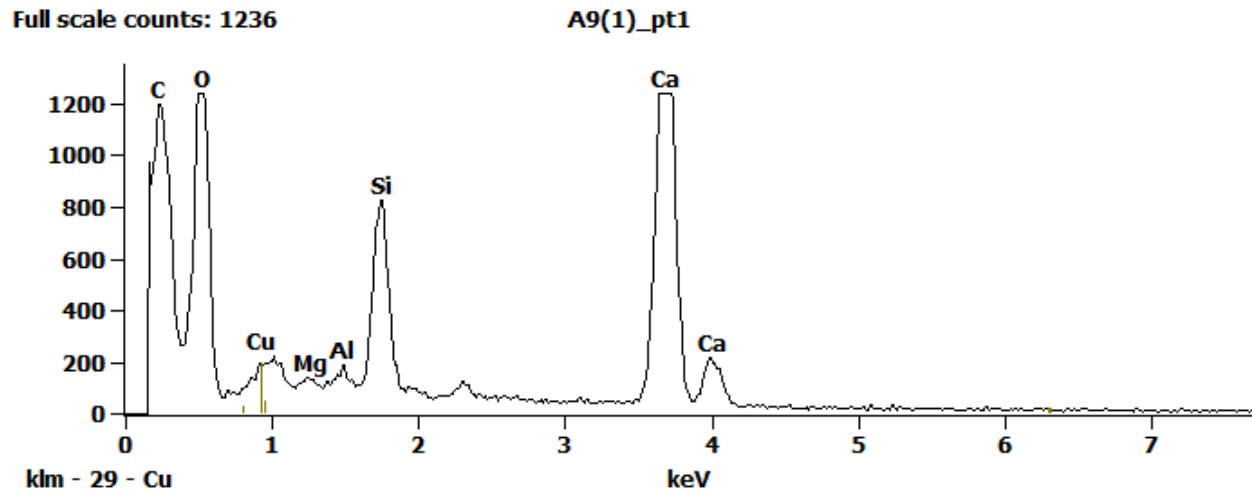


Figure 1. EDS Spectra for sample W7319-A-9 taken at test area 1. The test area is labeled in the particle SEM photo.

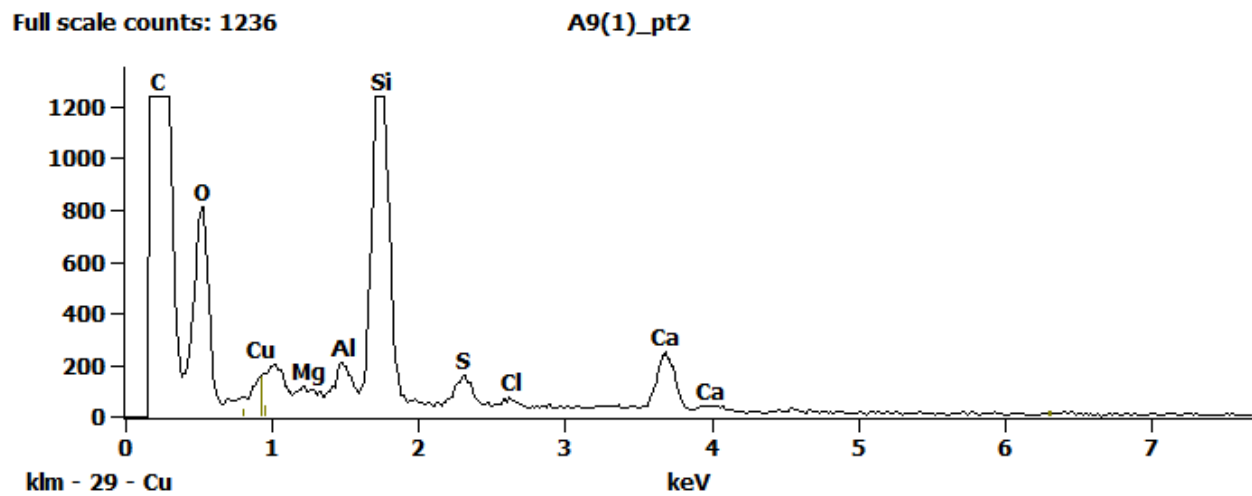


Figure 2. EDS Spectra for sample W7319-A-9 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A9(1)\_pt3

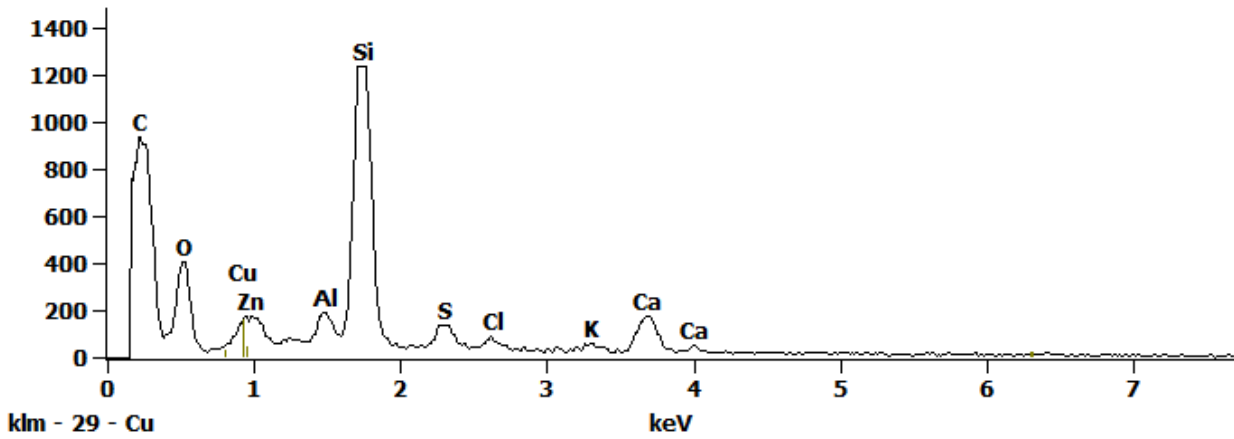


Figure 3. EDS Spectra for sample W7319-A-9 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A9(1)\_pt4

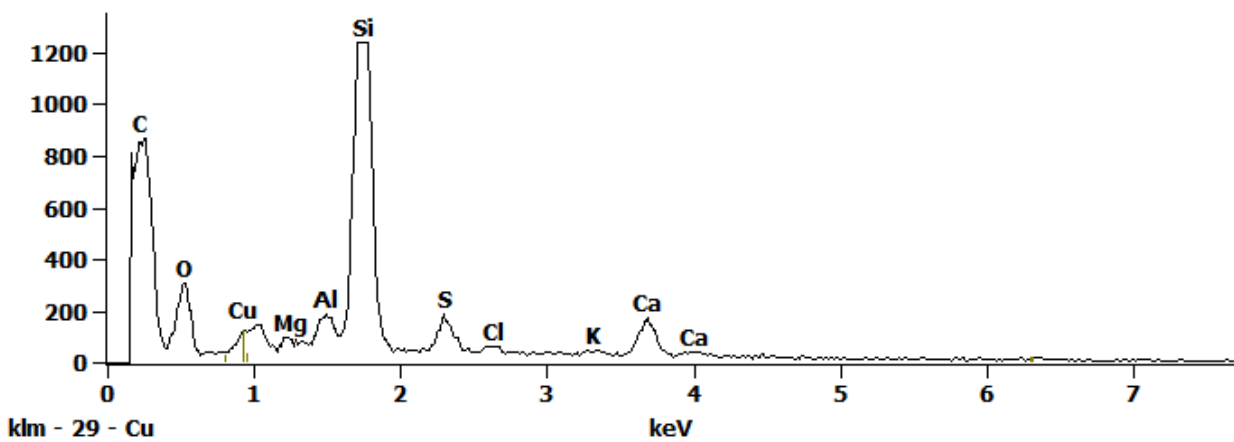
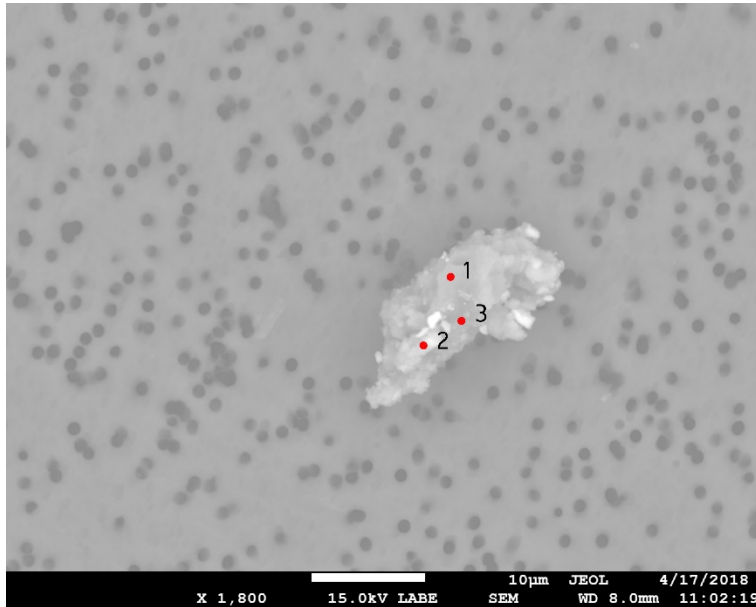


Figure 4. EDS Spectra for sample W7319-A-9 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7319 A10



SEM Photo of sample W7319 A10 with labeled EDS testing locations.

<b>Particle Size:</b>	22 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 5
<b>Comments:</b>	

### Cluster of Origin: W7319 Cluster 5

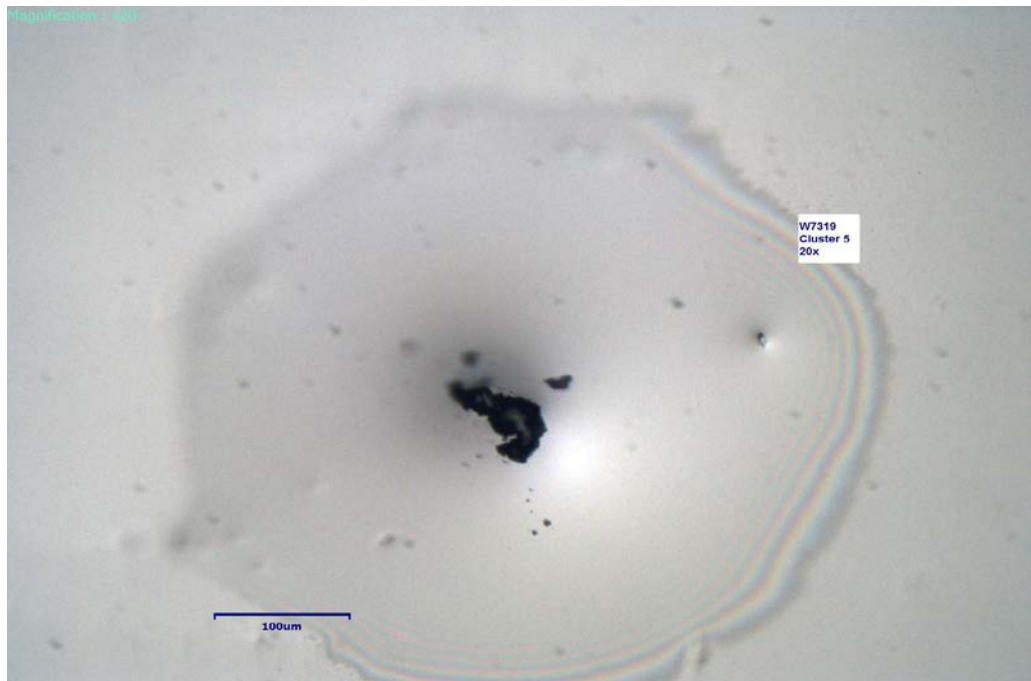


Photo of cluster W7319 Cluster 5.

## W7319 A10 - EDS Spectra

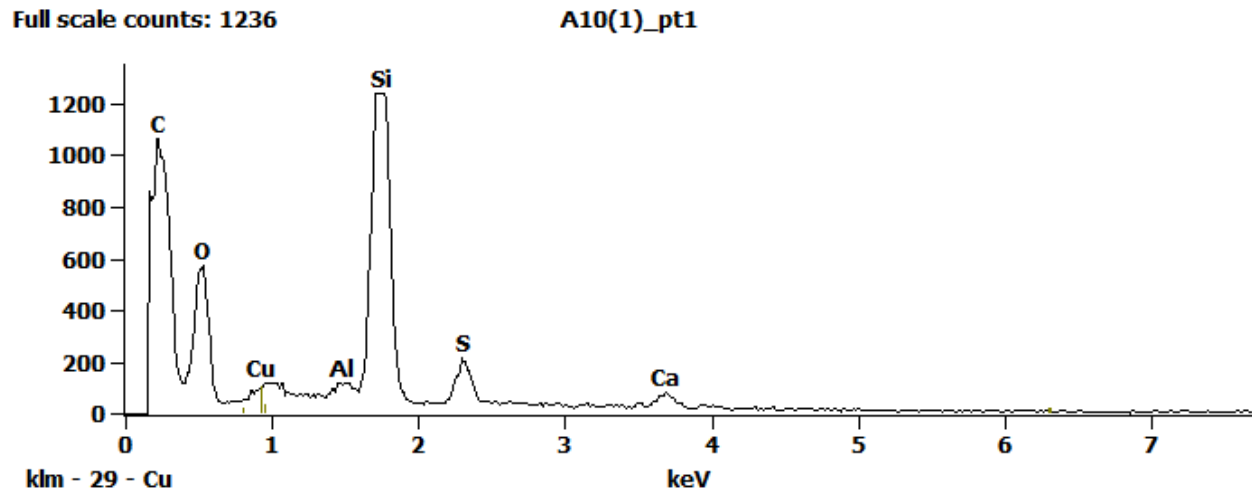


Figure 1. EDS Spectra for sample W7319-A-10 taken at test area 1. The test area is labeled in the particle SEM photo.

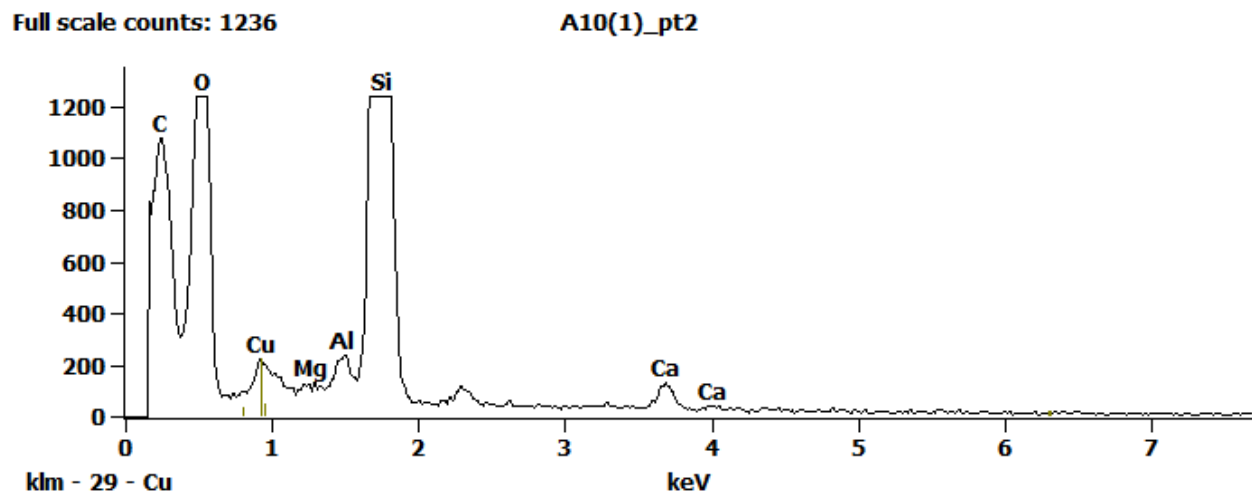


Figure 2. EDS Spectra for sample W7319-A-10 taken at test area 2. The test area is labeled in the particle SEM photo.

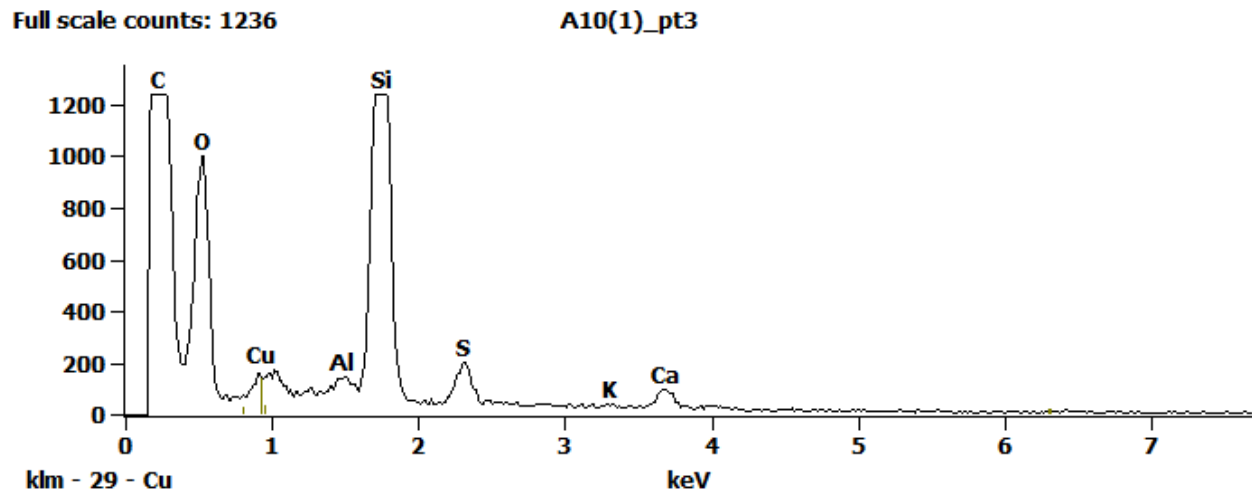
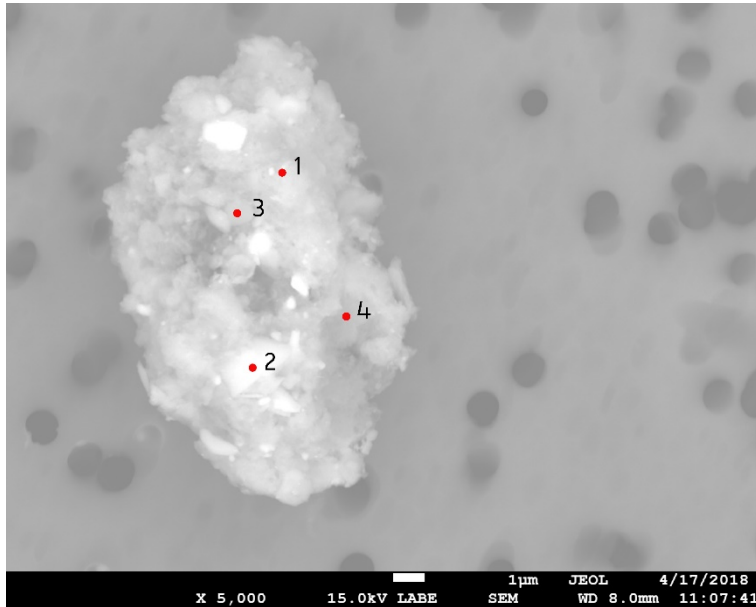


Figure 3. EDS Spectra for sample W7319-A-10 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 A11



SEM Photo of sample W7319 A11 with labeled EDS testing locations.

<b>Particle Size:</b>	15 µm
<b>Shape:</b>	Equidimensional to Spherical
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 6
<b>Comments:</b>	

### Cluster of Origin: W7319 Cluster 6

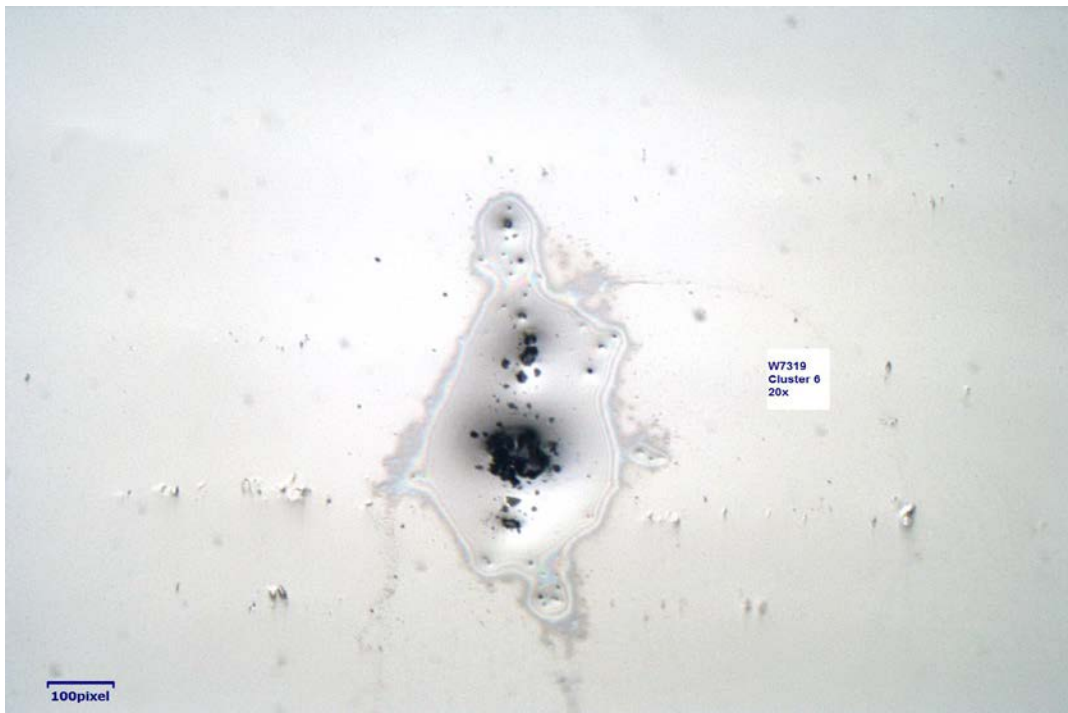


Photo of cluster W7319 Cluster 6.

## W7319 A11 - EDS Spectra

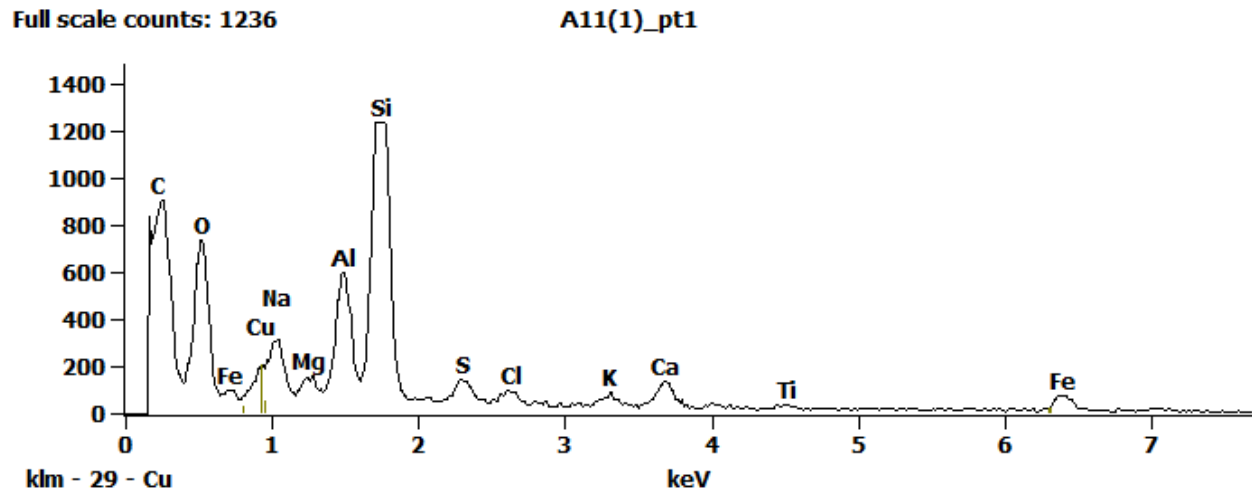


Figure 1. EDS Spectra for sample W7319-A-11 taken at test area 1. The test area is labeled in the particle SEM photo.

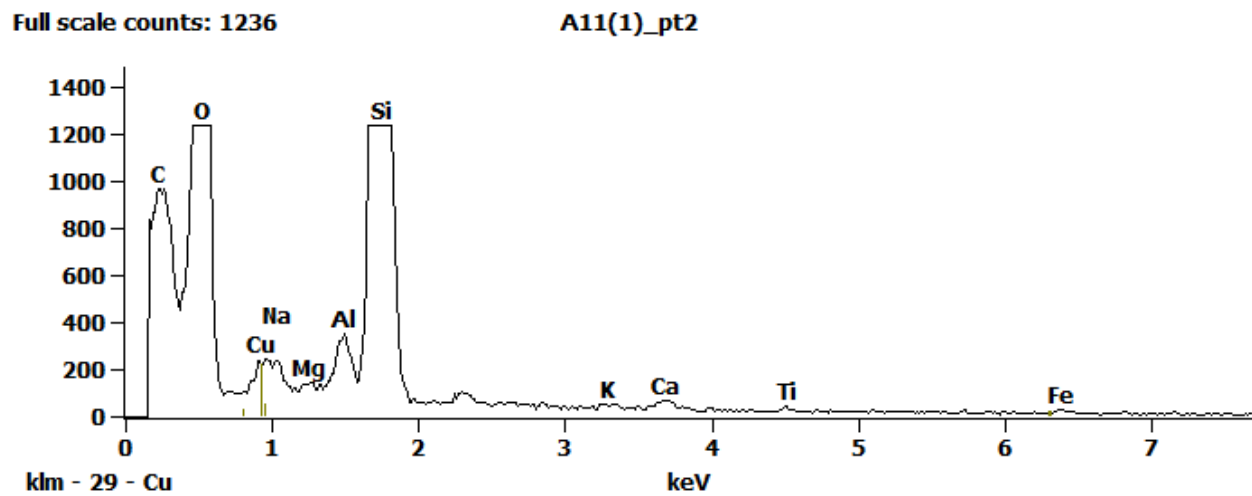


Figure 2. EDS Spectra for sample W7319-A-11 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A11(1)\_pt3

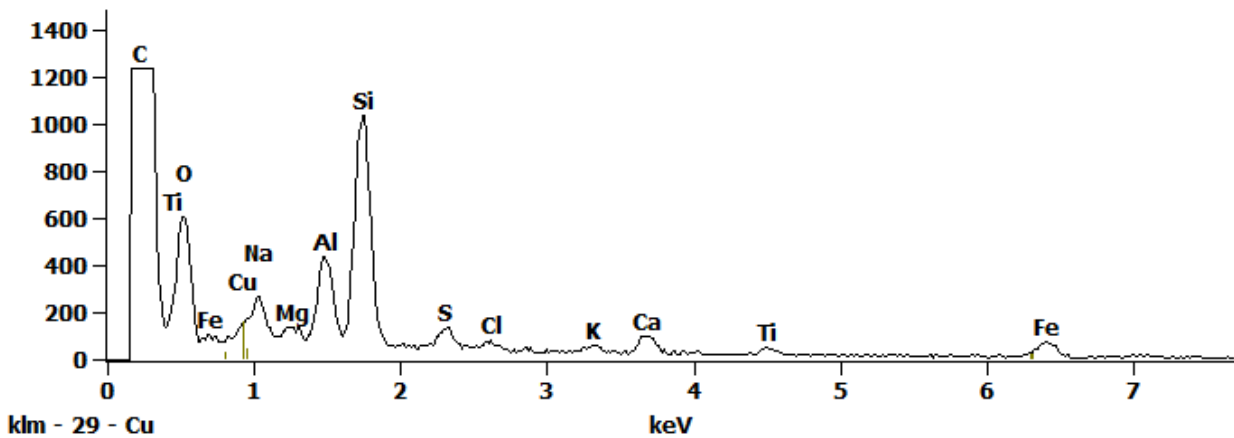


Figure 3. EDS Spectra for sample W7319-A-11 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A11(1)\_pt4

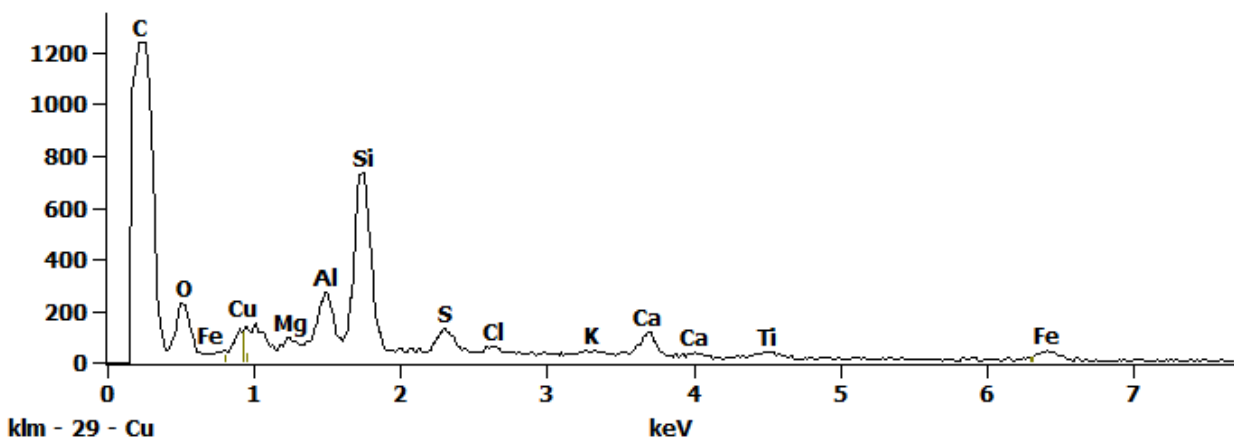
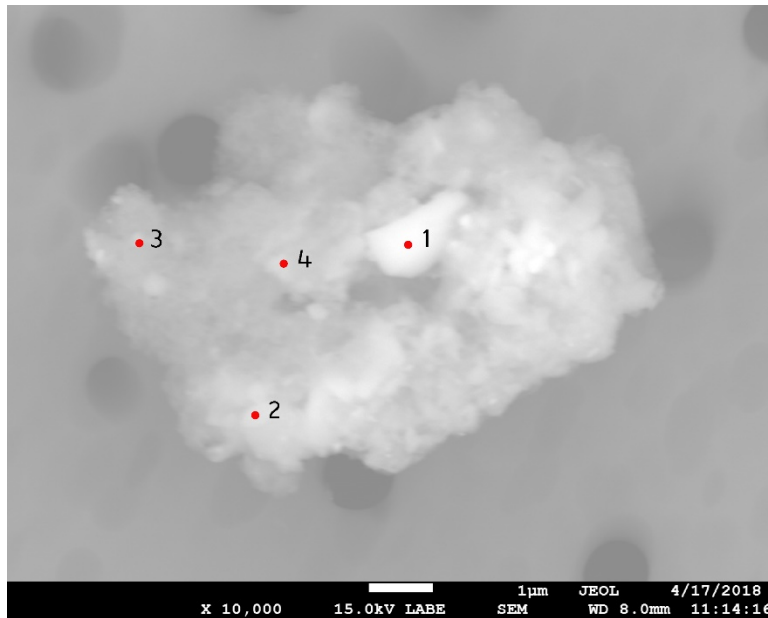


Figure 4. EDS Spectra for sample W7319-A-11 taken at test area 4. The test area is labeled in the particle SEM photo.



## W7319 A12



SEM Photo of sample W7319 A12 with labeled EDS testing locations.

<b>Particle Size:</b>	8 μm
<b>Shape:</b>	Equidimensional to Spherical
<b>Transparency:</b>	Opaque
<b>Color:</b>	AMBER, BLACK, BROWN
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 6
<b>Comments:</b>	

### Cluster of Origin: W7319 Cluster 6

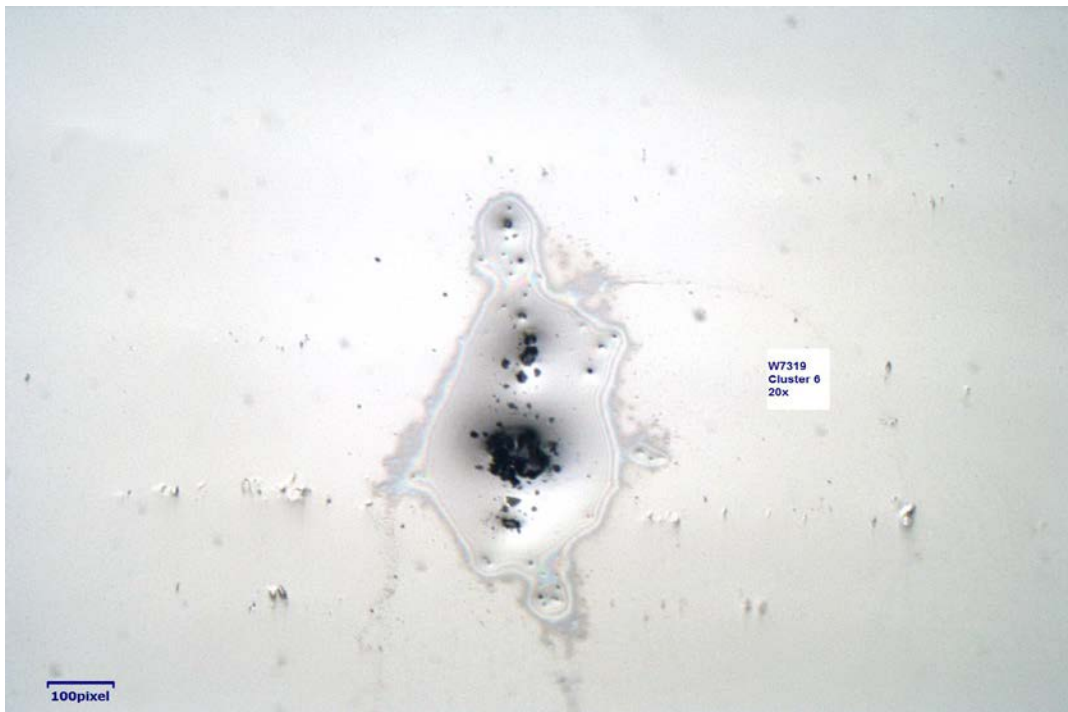


Photo of cluster W7319 Cluster 6.

## W7319 A12 - EDS Spectra

Full scale counts: 1236

A12(1)\_pt1

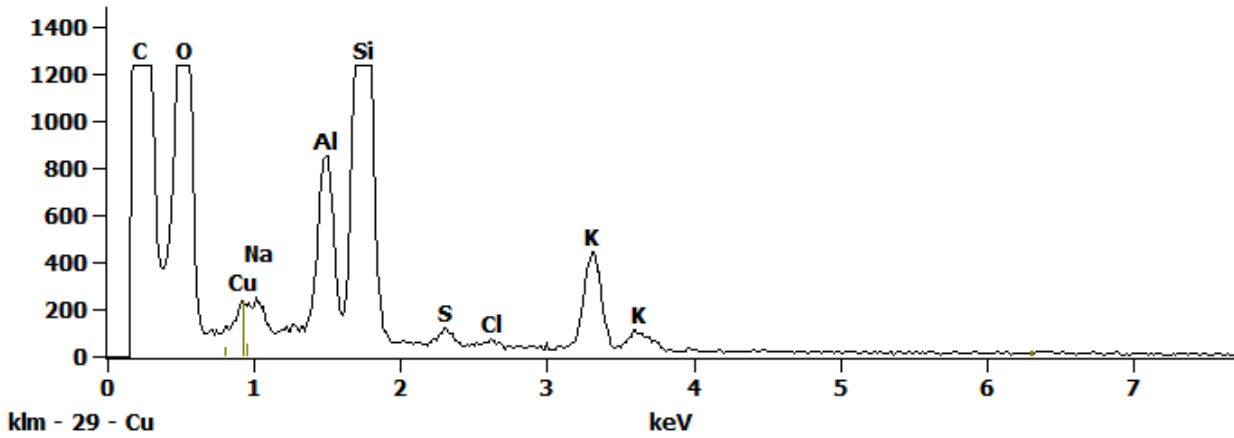


Figure 1. EDS Spectra for sample W7319-A-12 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A12(1)\_pt2

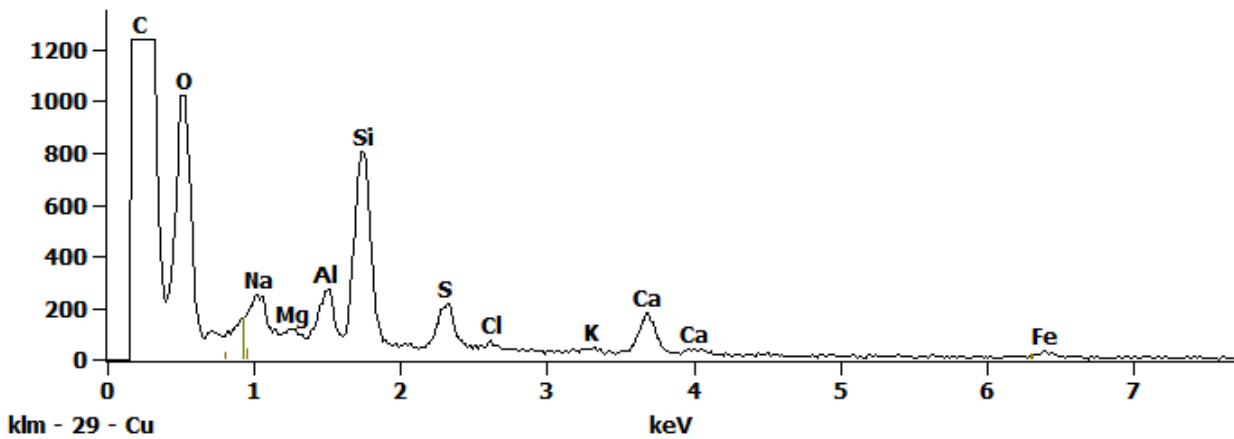


Figure 2. EDS Spectra for sample W7319-A-12 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A12(1)\_pt3

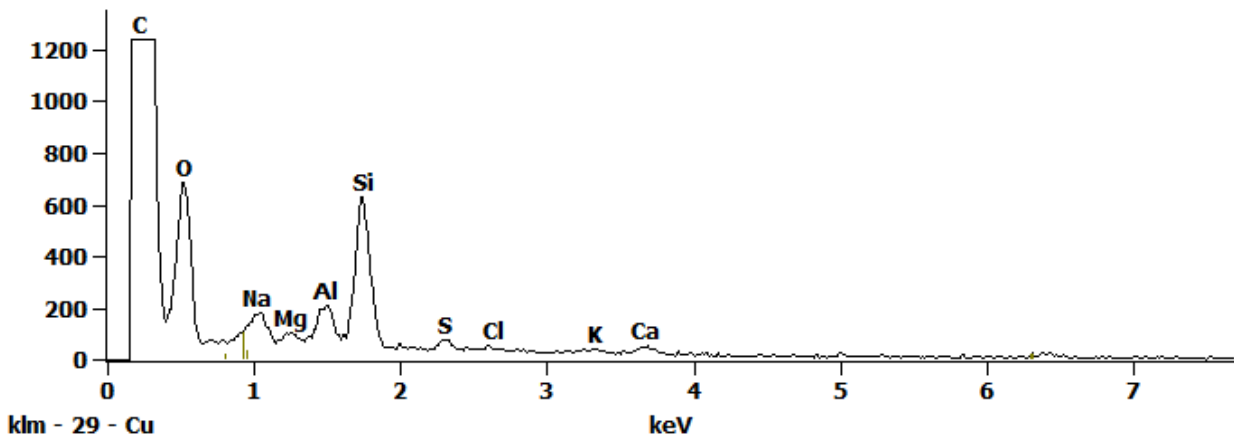


Figure 3. EDS Spectra for sample W7319-A-12 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A12(1)\_pt4

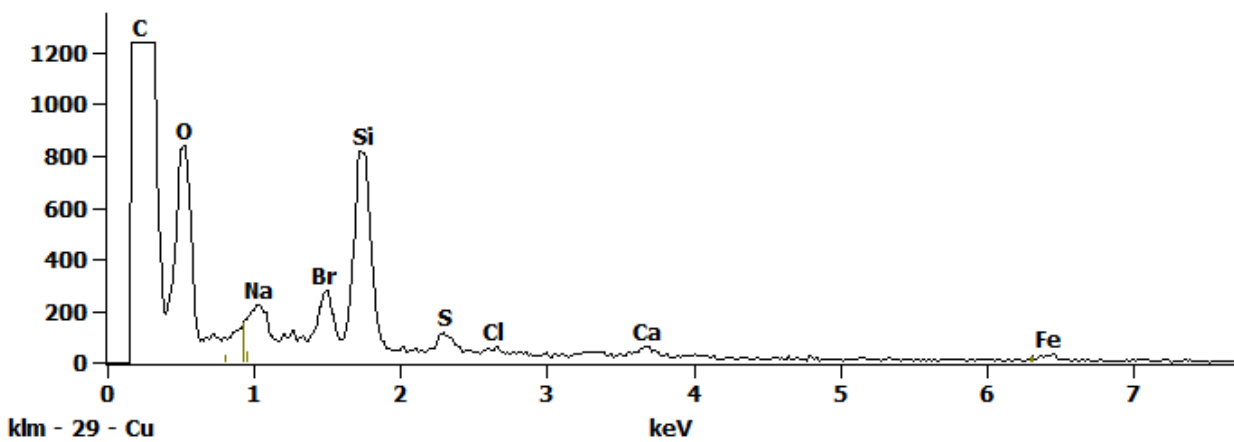
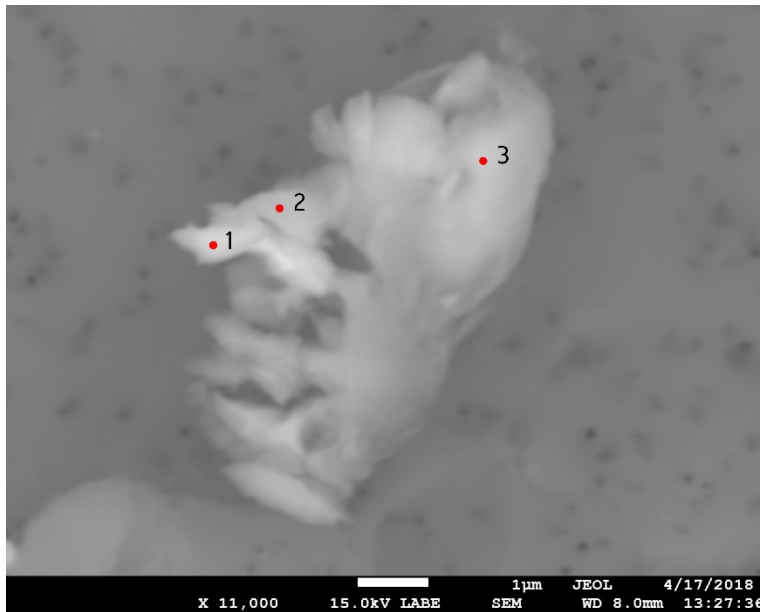


Figure 4. EDS Spectra for sample W7319-A-12 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7319 B3



<b>Particle Size:</b>	11 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7319 B3 with labeled EDS testing locations.

### W7319 B3 - EDS Spectra

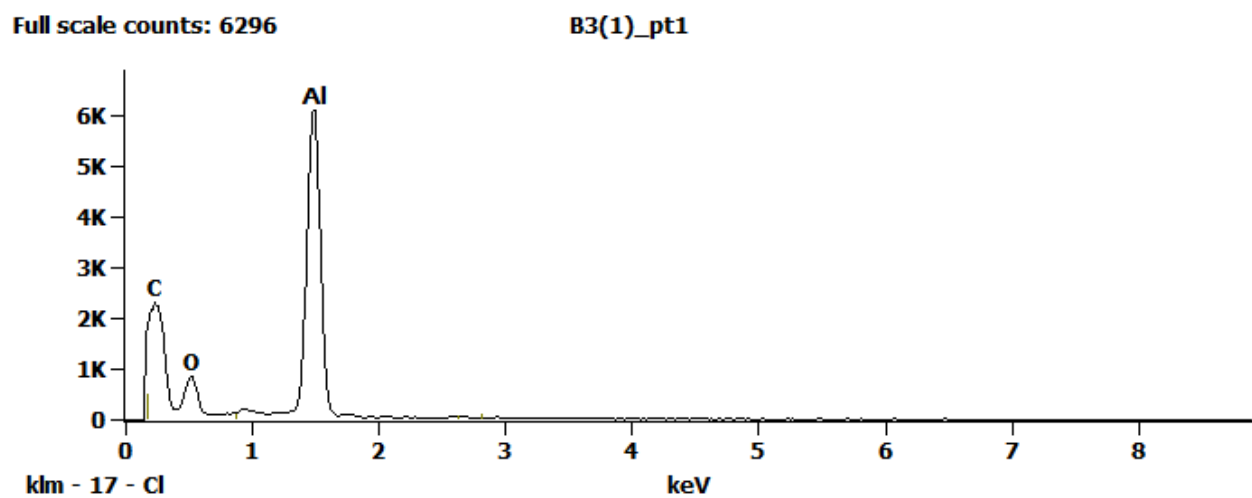


Figure 1. EDS Spectra for sample W7319-B-3 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 6296

B3(1)\_pt2

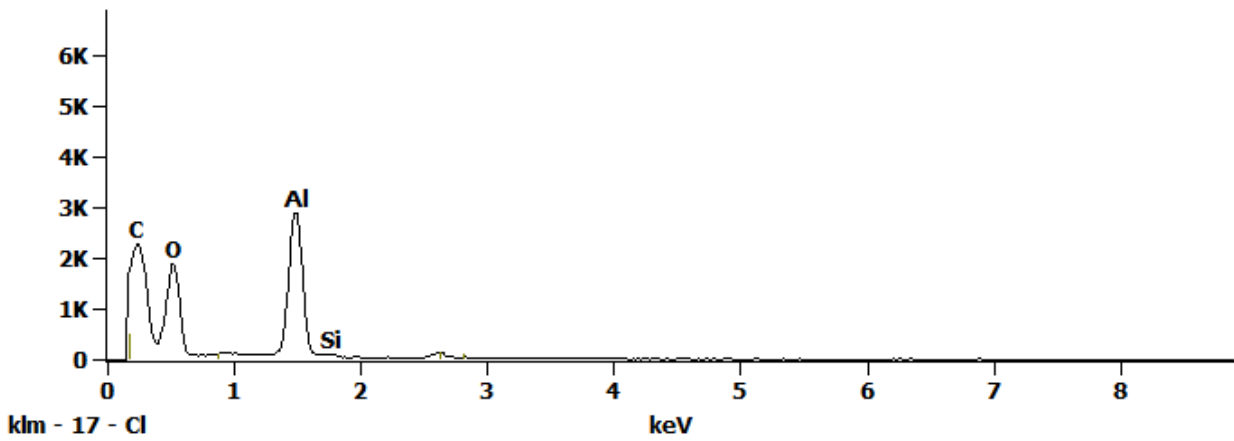


Figure 2. EDS Spectra for sample W7319-B-3 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 6296

B3(1)\_pt3

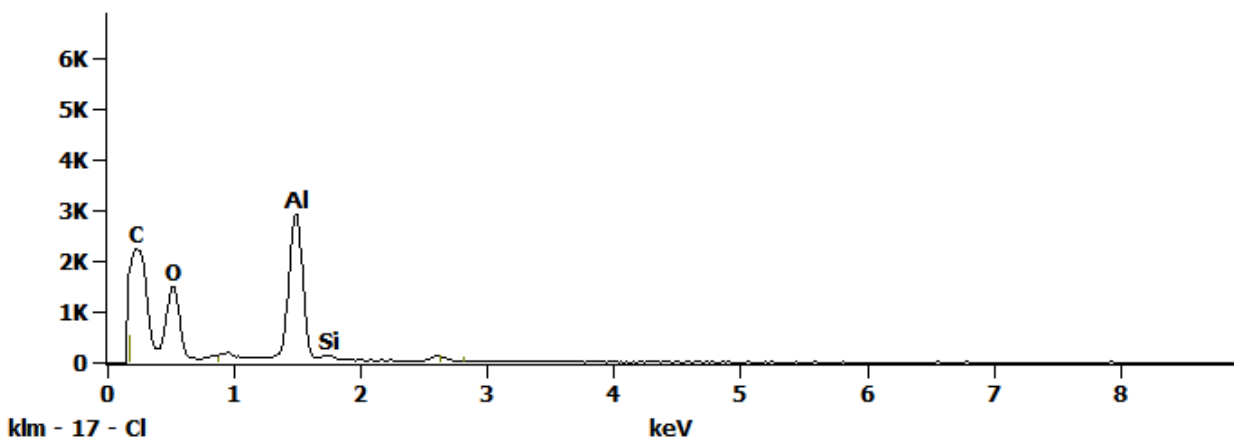
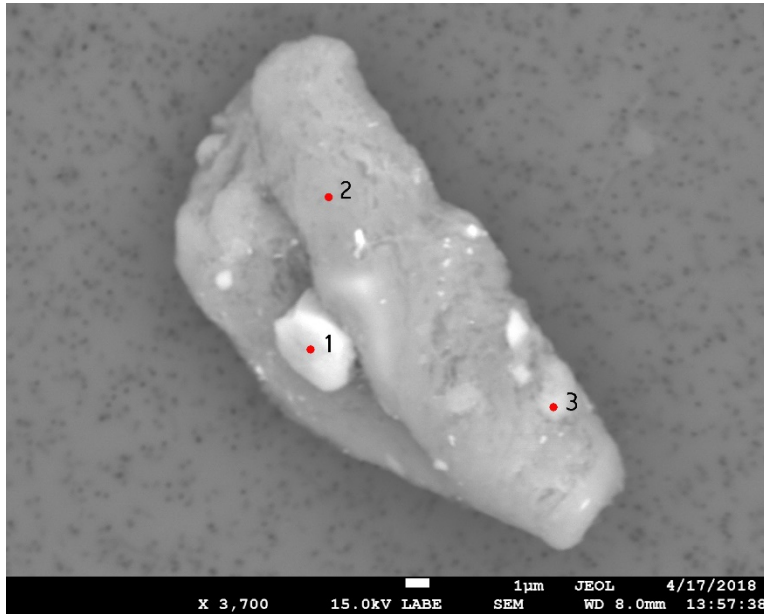


Figure 3. EDS Spectra for sample W7319-B-3 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 B9



<b>Particle Size:</b>	28x17 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque to Subvitreous
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7319 B9 with labeled EDS testing locations.

### W7319 B9 - EDS Spectra

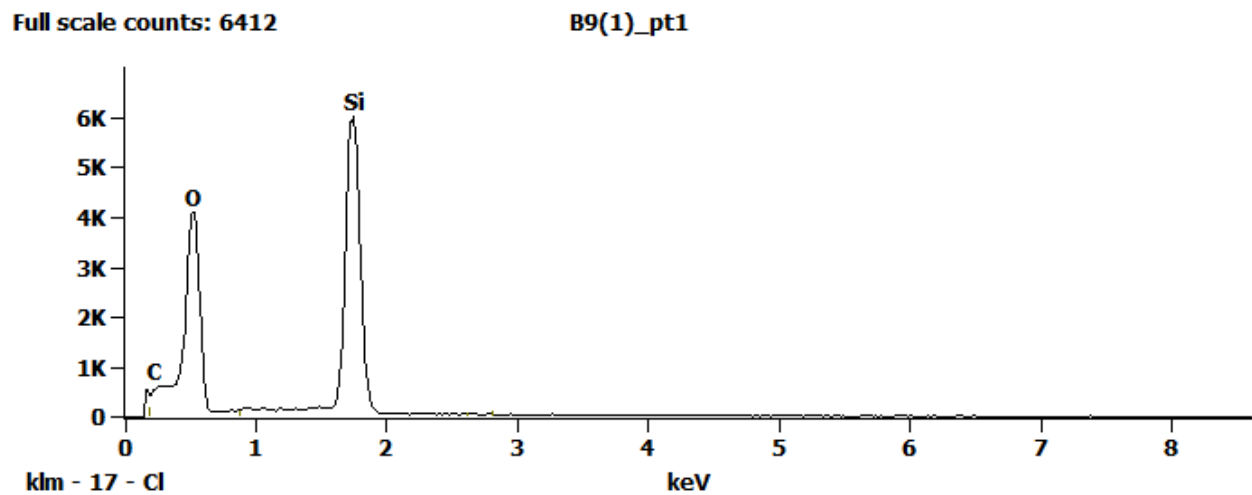


Figure 1. EDS Spectra for sample W7319-B-9 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 6412

B9(1)\_pt2

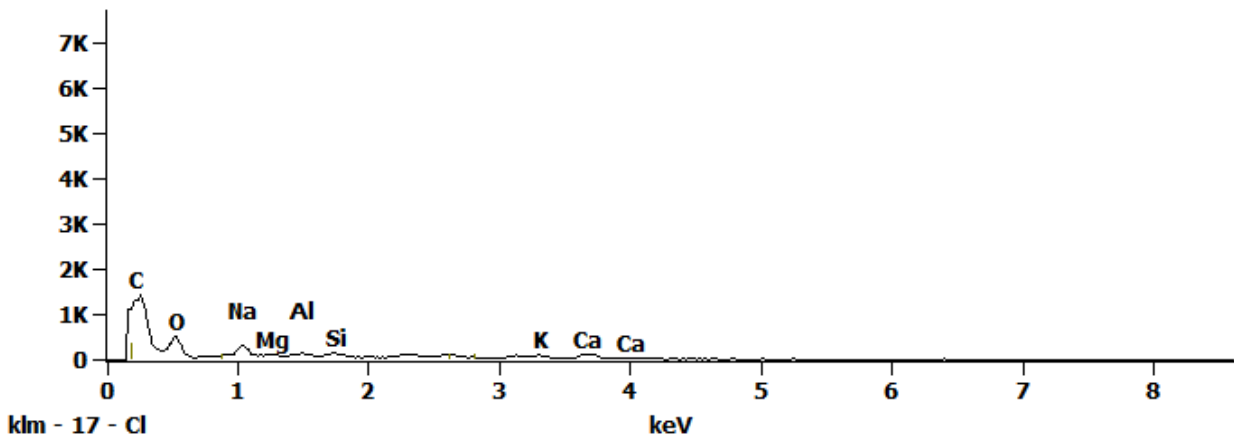


Figure 2. EDS Spectra for sample W7319-B-9 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 6412

B9(1)\_pt3

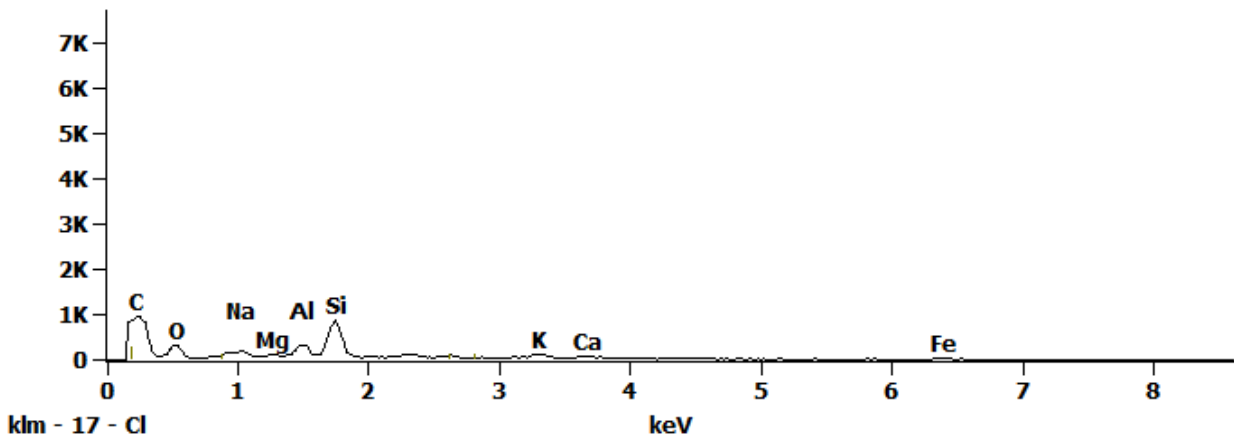
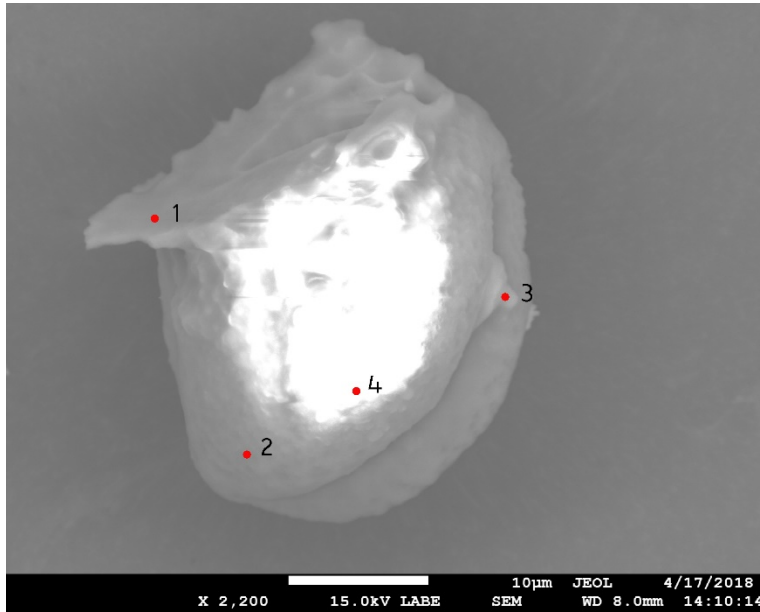


Figure 3. EDS Spectra for sample W7319-B-9 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 B11



SEM Photo of sample W7319 B11 with labeled EDS testing locations.

<b>Particle Size:</b>	40 $\mu\text{m}$
<b>Shape:</b>	Spherical to Equidimensional
<b>Transparency:</b>	Translucent
<b>Color:</b>	AMBER, YELLOW
<b>Luster:</b>	Resinous to Subvitreous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7319 B11 - EDS Spectra

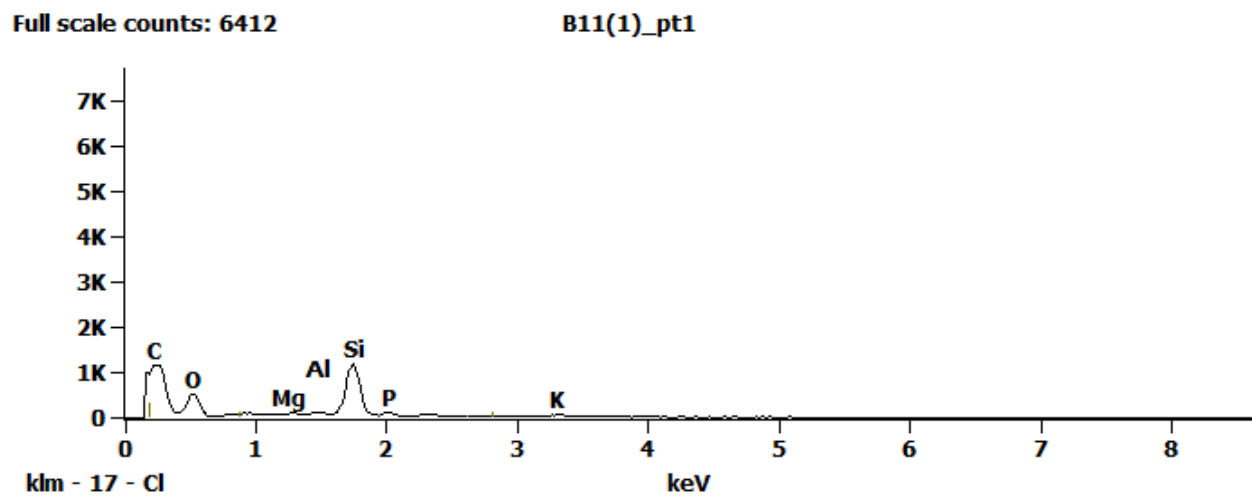


Figure 1. EDS Spectra for sample W7319-B-11 taken at test area 1. The test area is labeled in the particle SEM photo.



Full scale counts: 6412

B11(1)\_pt2

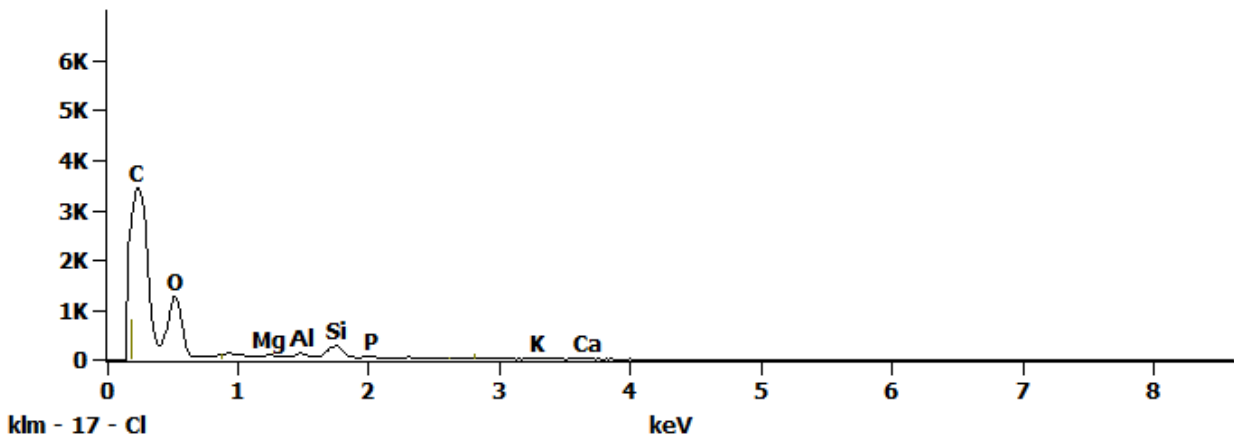


Figure 2. EDS Spectra for sample W7319-B-11 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 6412

B11(1)\_pt3

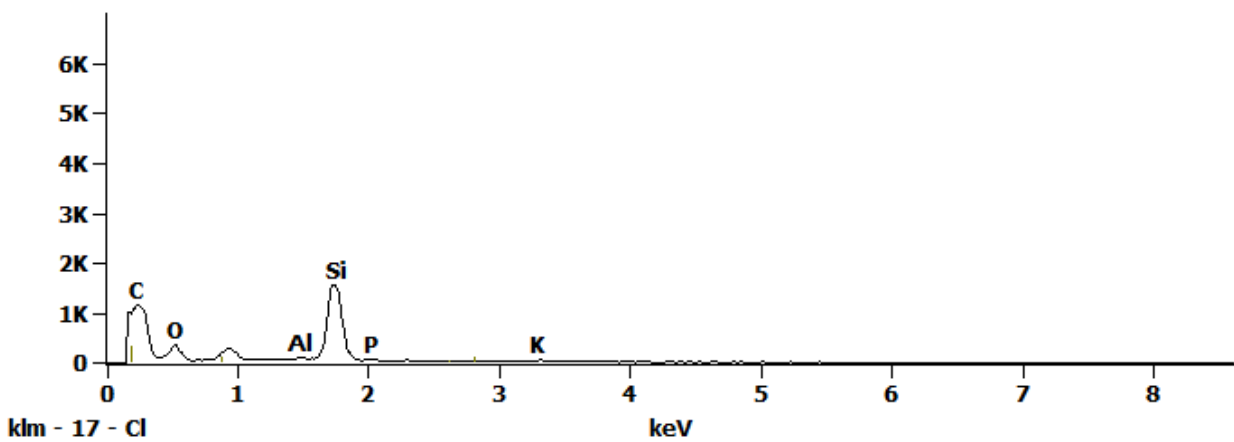


Figure 3. EDS Spectra for sample W7319-B-11 taken at test area 3. The test area is labeled in the particle SEM photo.

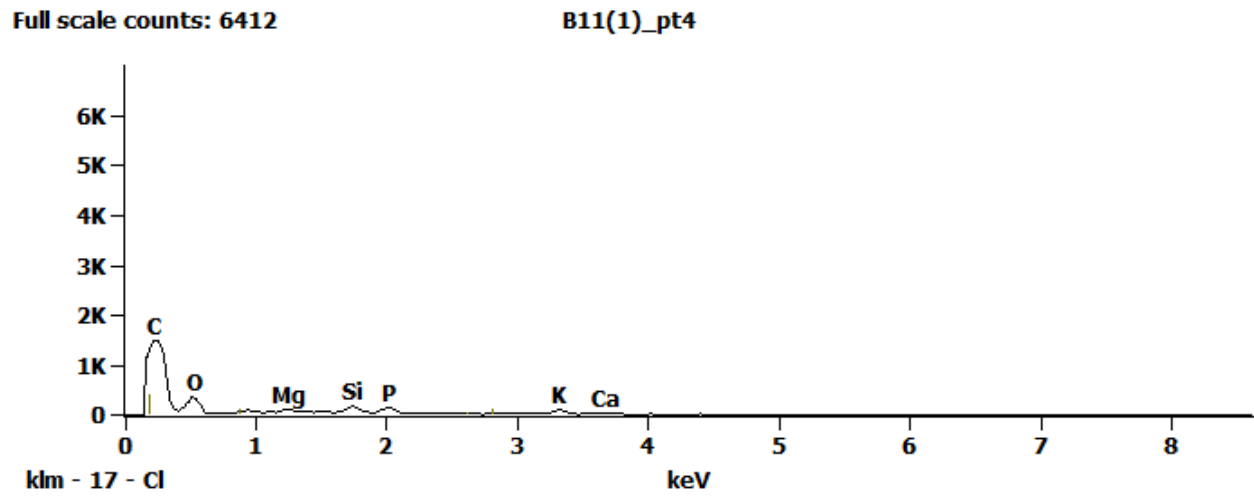
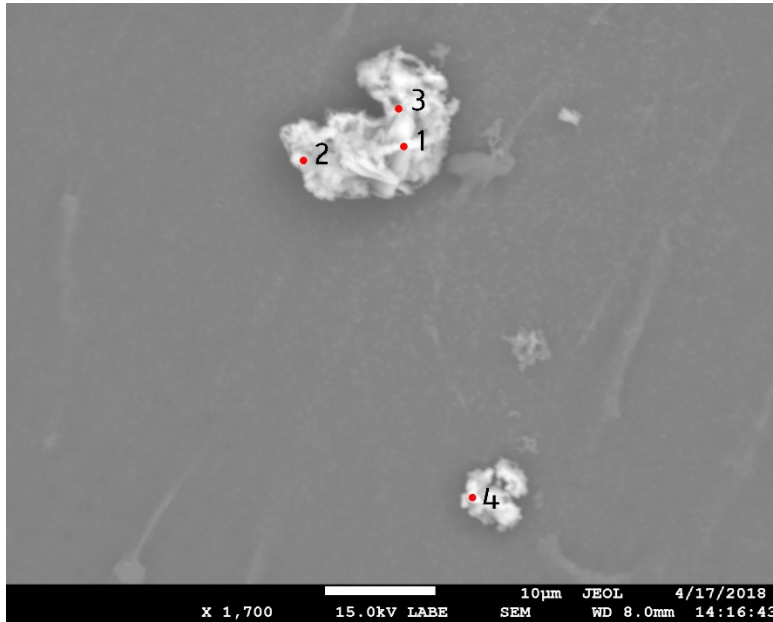


Figure 4. EDS Spectra for sample W7319-B-11 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7319 B12



<b>Particle Size:</b>	18 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque to Subvitreous
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7319 B12 with labeled EDS testing locations.

### W7319 B12 - EDS Spectra

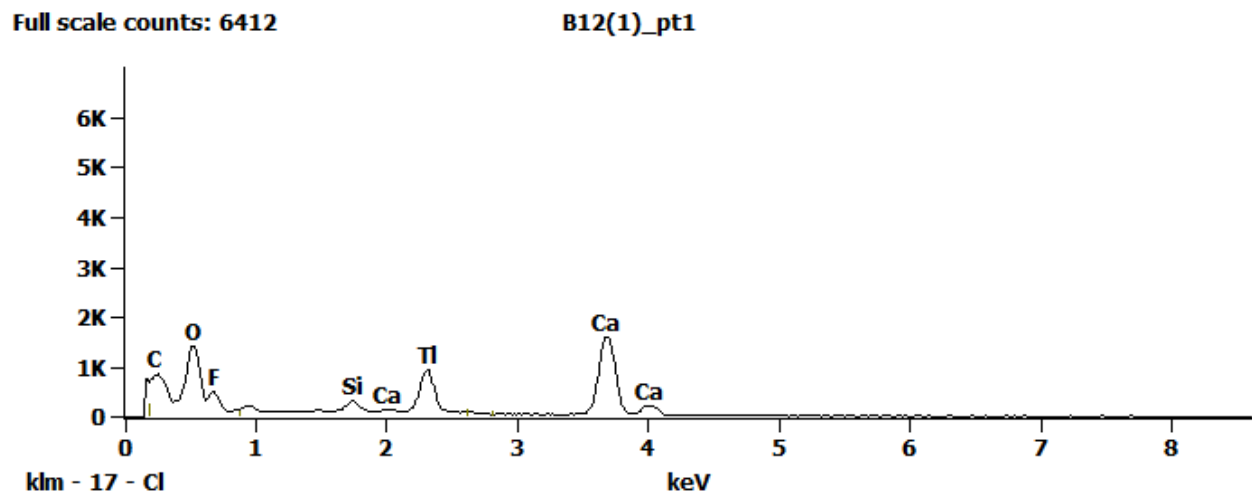


Figure 1. EDS Spectra for sample W7319-B-12 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 6412

B12(1)\_pt2

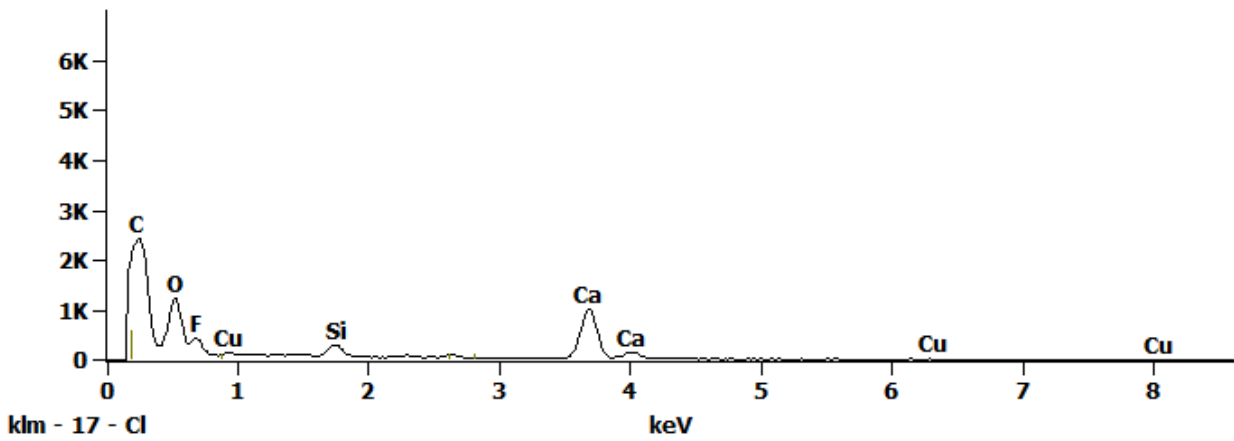


Figure 2. EDS Spectra for sample W7319-B-12 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 6412

B12(1)\_pt3

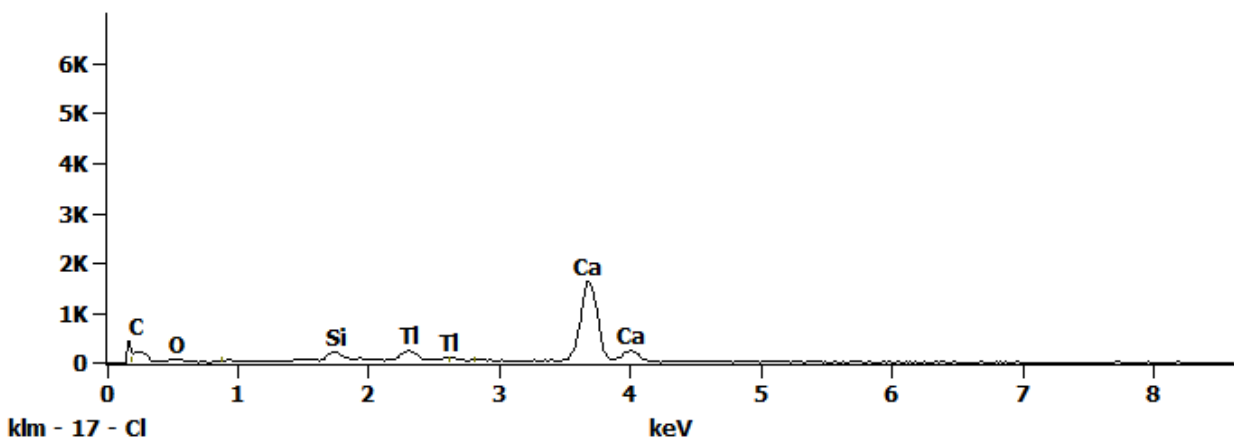


Figure 3. EDS Spectra for sample W7319-B-12 taken at test area 3. The test area is labeled in the particle SEM photo.

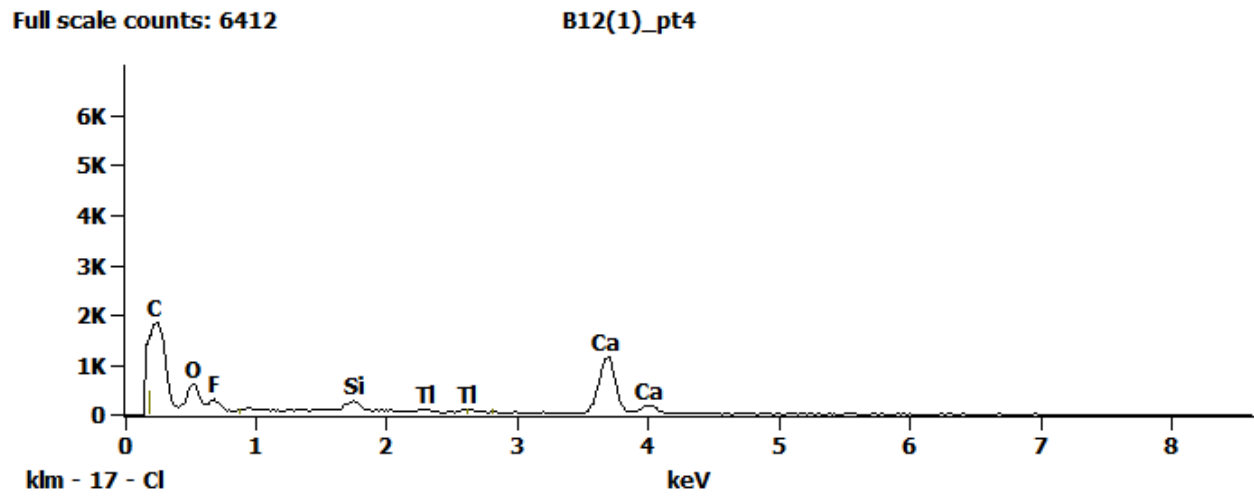
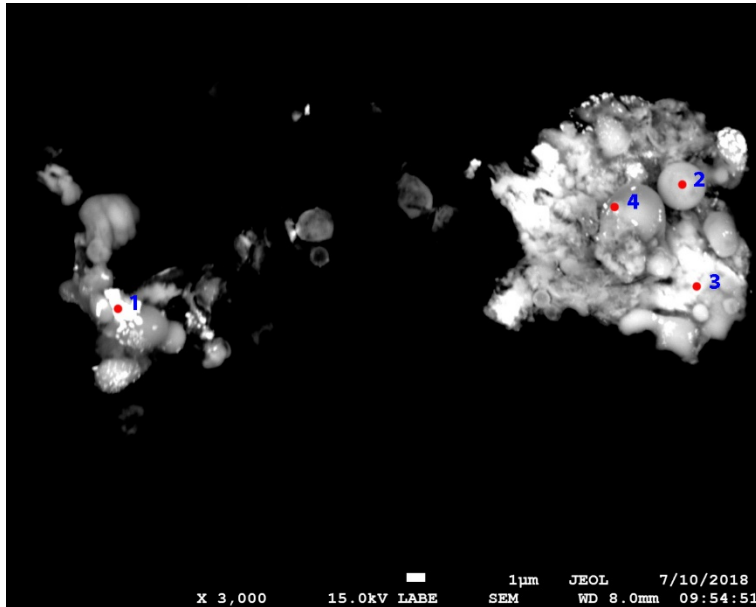


Figure 4. EDS Spectra for sample W7319-B-12 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 A1



SEM Photo of sample U2168 A1 with labeled EDS testing locations.

<b>Particle Size:</b>	10 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	AMBER, BROWN
<b>Luster:</b>	Pearly to Vitreous
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 1
<b>Comments:</b>	

### Cluster of Origin: U2168 Cluster 1

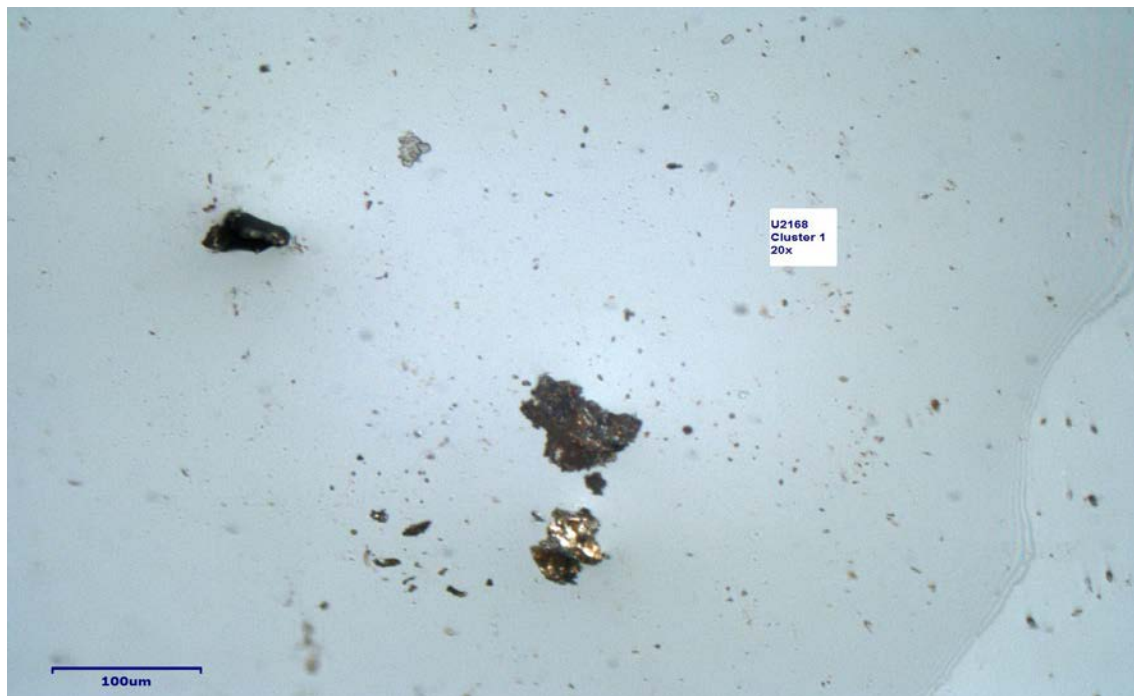


Photo of cluster U2168 Cluster 1.

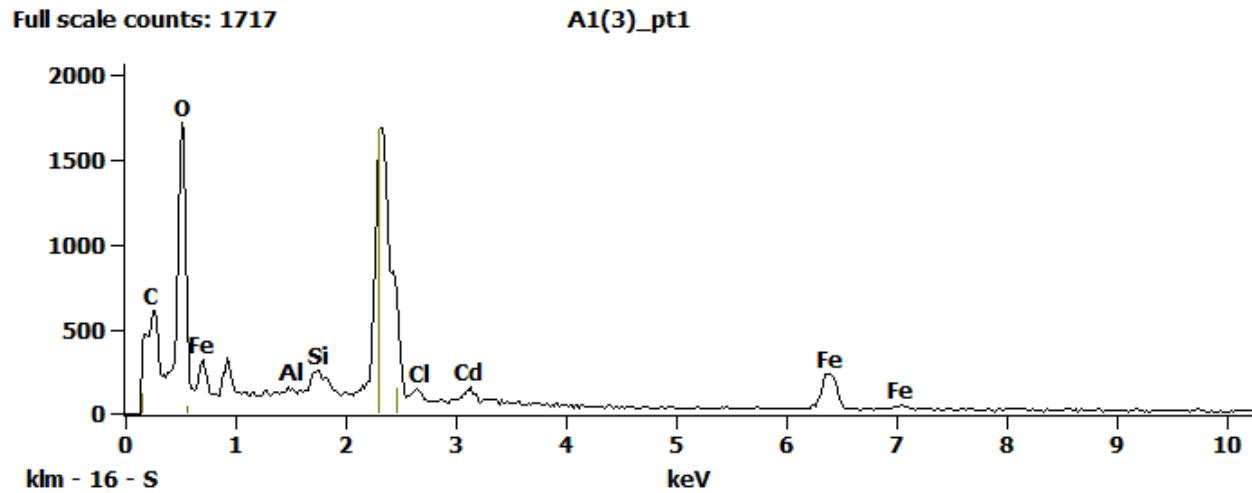
*U2168 A1 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-A-1 taken at test area 1. The test area is labeled in the particle SEM photo.

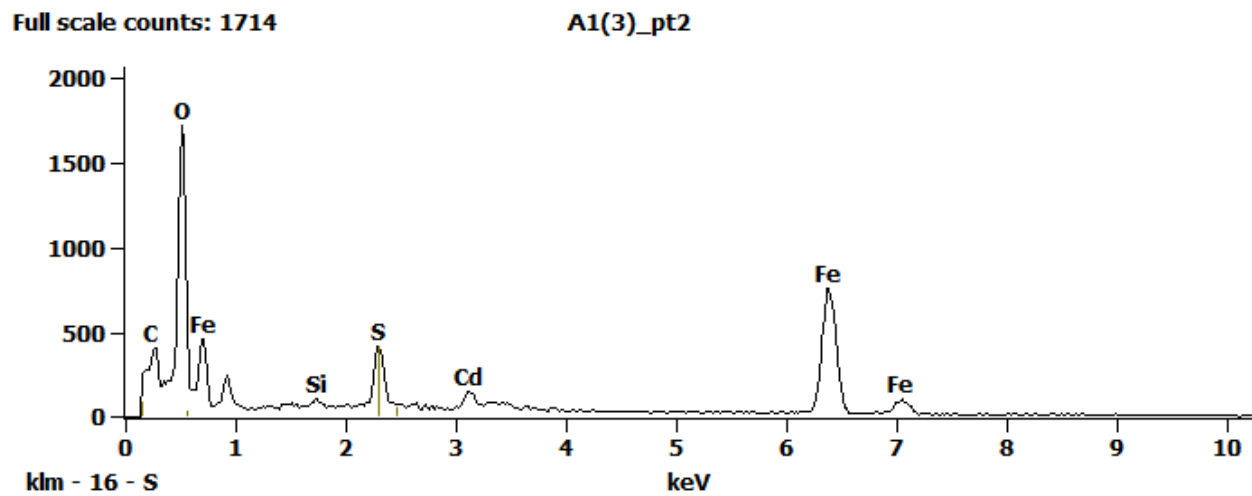


Figure 2. EDS Spectra for sample U2168-A-1 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1238

A1(3)\_pt3

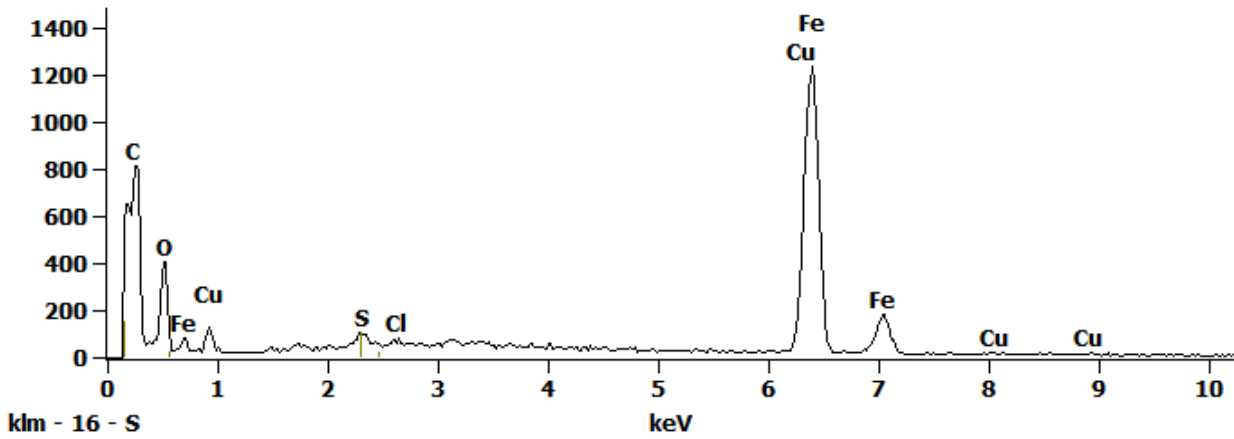


Figure 3. EDS Spectra for sample U2168-A-1 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1973

A1(3)\_pt4

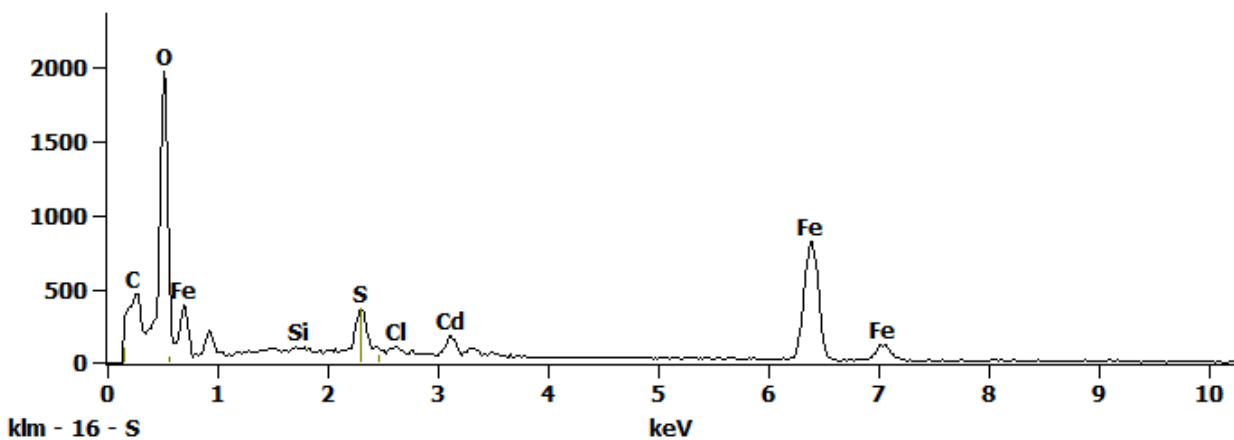
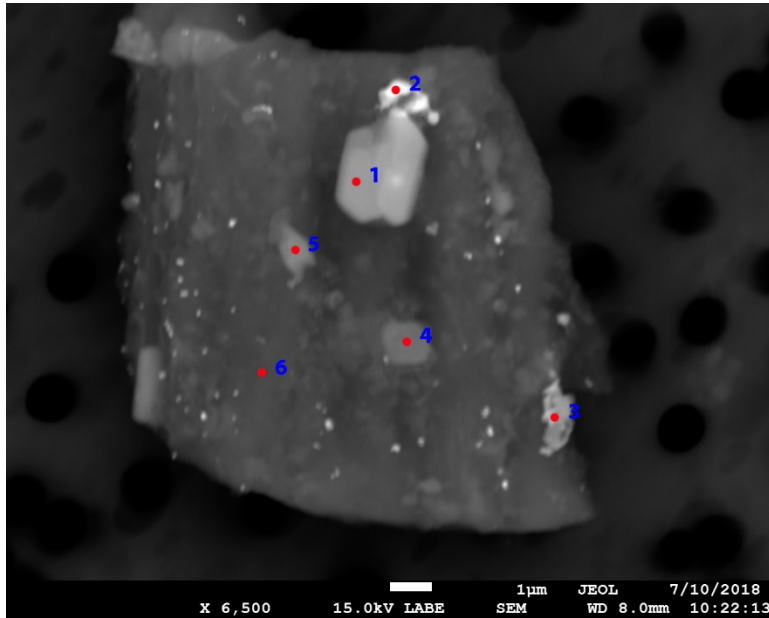


Figure 4. EDS Spectra for sample U2168-A-1 taken at test area 4. The test area is labeled in the particle SEM photo.



## U2168 A5



<b>Particle Size:</b>	15 µm
<b>Shape:</b>	Irregular to Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 3
<b>Comments:</b>	

SEM Photo of sample U2168 A5 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 3

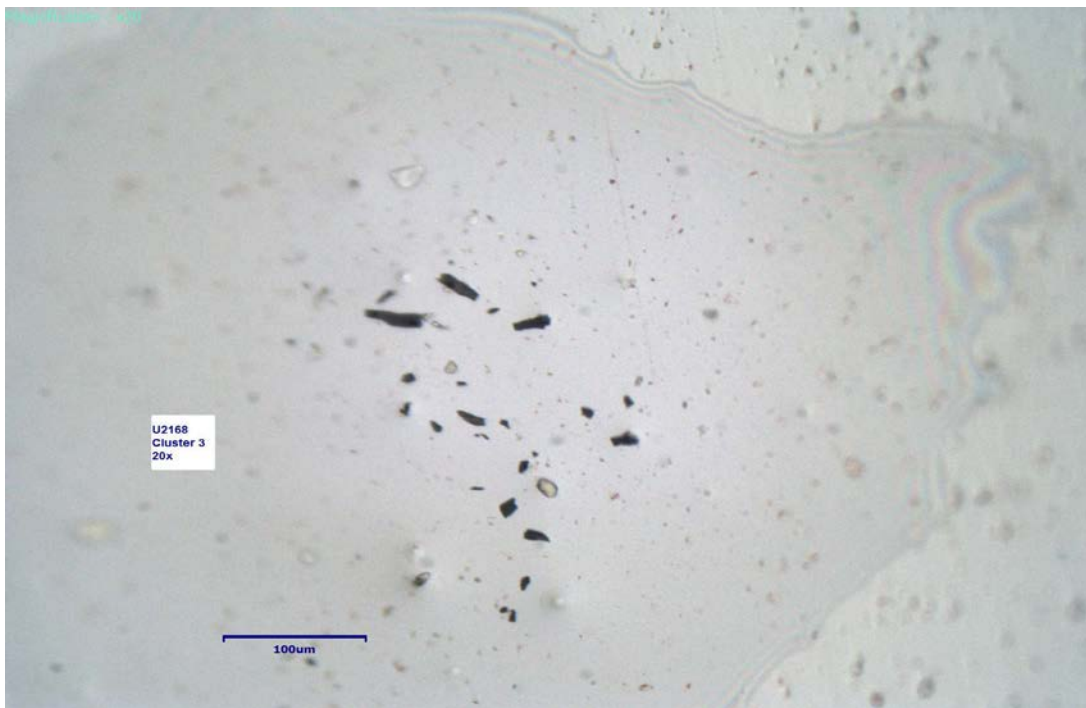


Photo of cluster U2168 Cluster 3.

*U2168 A5 - EDS Spectra*

Full scale counts: 1664

A5(1)\_pt1

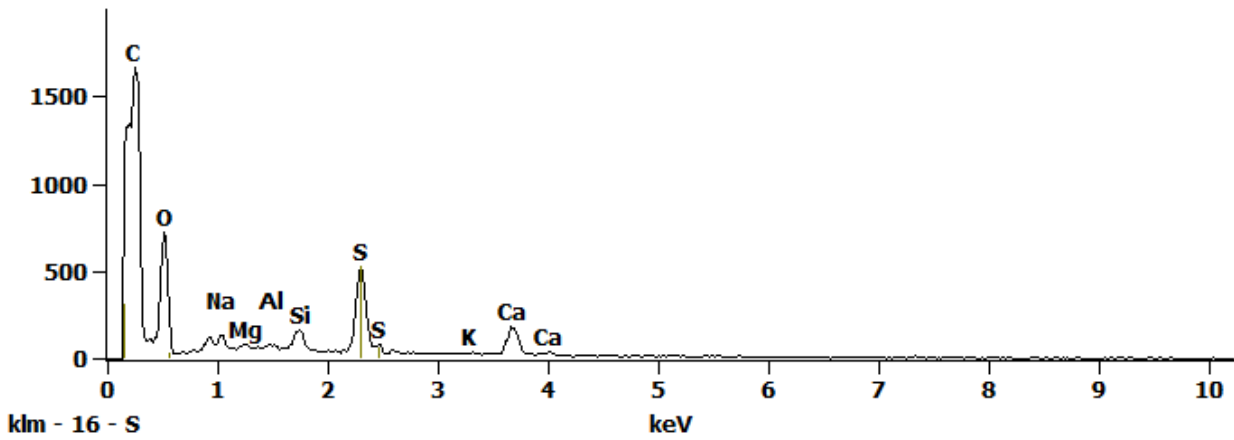


Figure 1. EDS Spectra for sample U2168-A-5 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1050

A5(1)\_pt2

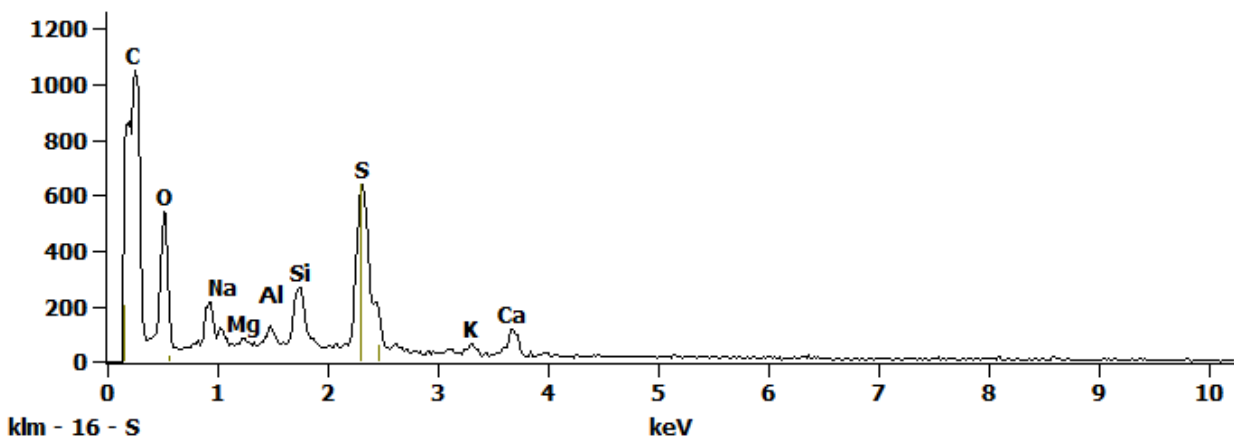


Figure 2. EDS Spectra for sample U2168-A-5 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1903

A5(1)\_pt3

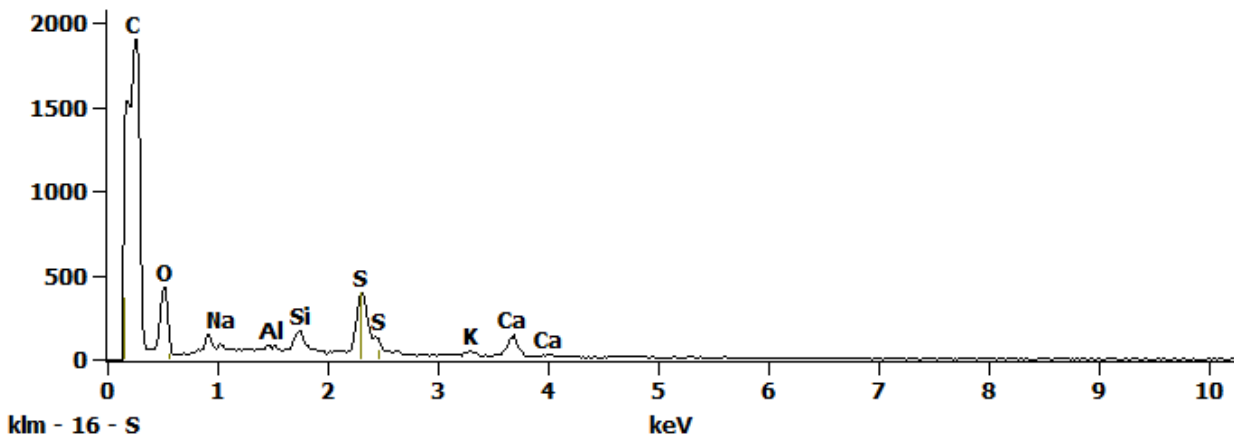


Figure 3. EDS Spectra for sample U2168-A-5 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1804

A5(1)\_pt4

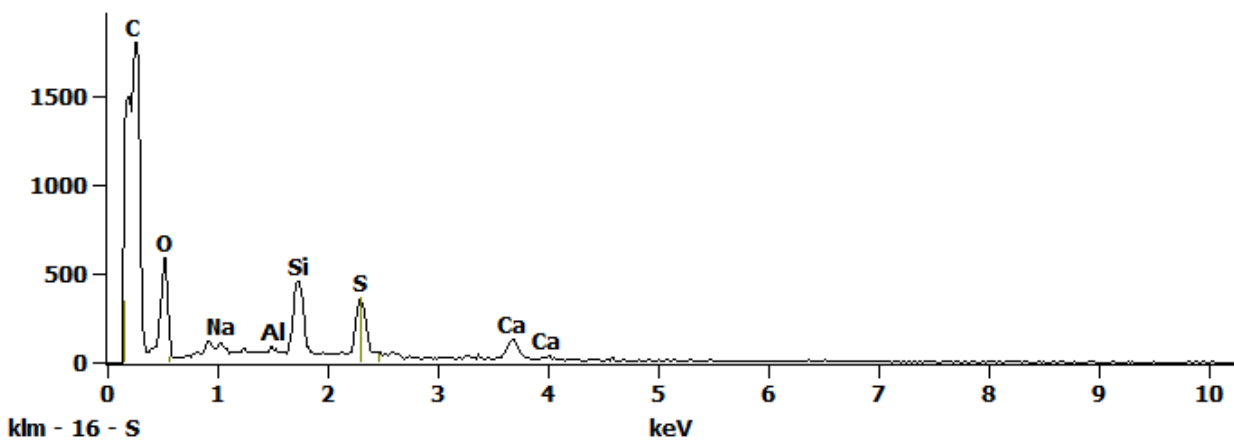


Figure 4. EDS Spectra for sample U2168-A-5 taken at test area 4. The test area is labeled in the particle SEM photo.

Full scale counts: 2177

A5(1)\_pt5

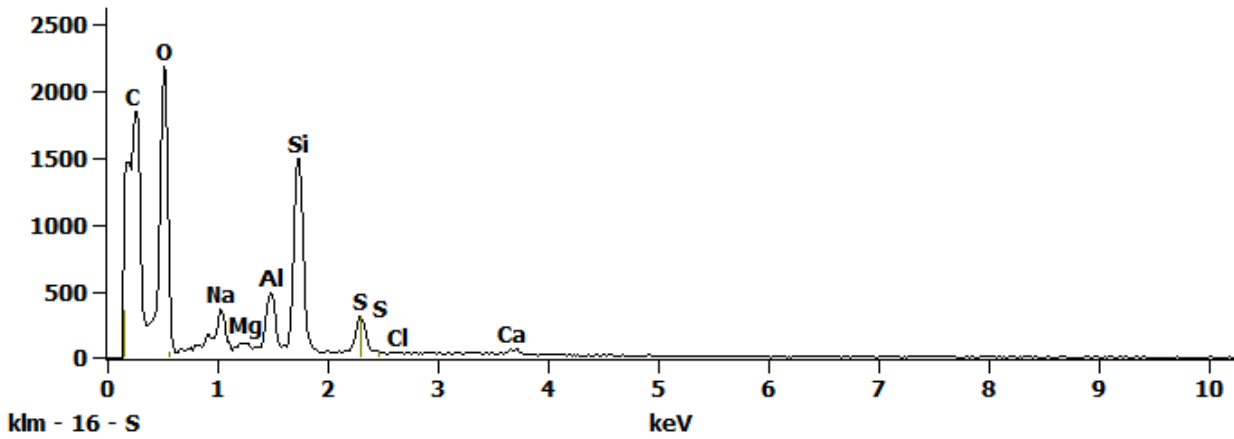


Figure 5. EDS Spectra for sample U2168-A-5 taken at test area 5. The test area is labeled in the particle SEM photo.

Full scale counts: 3031

A5(1)\_pt6

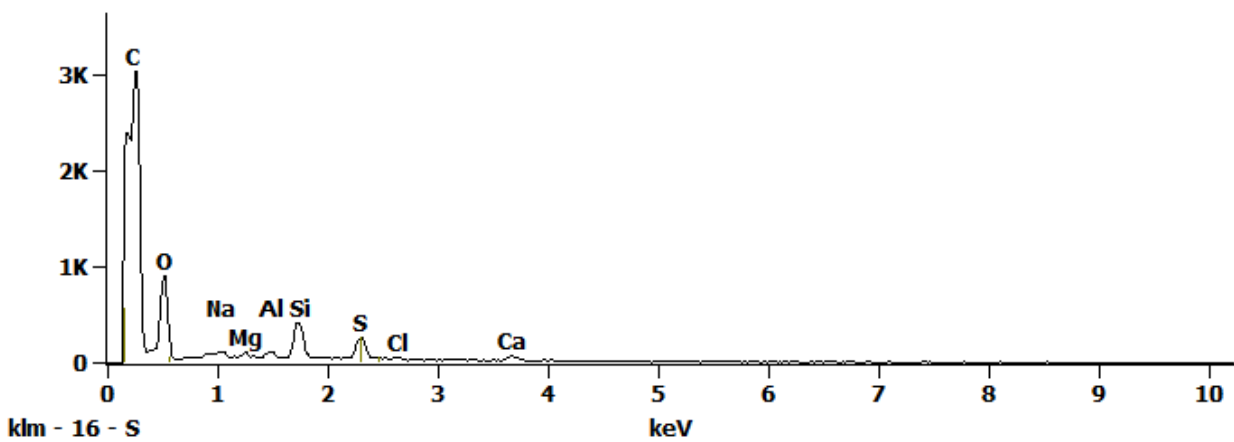
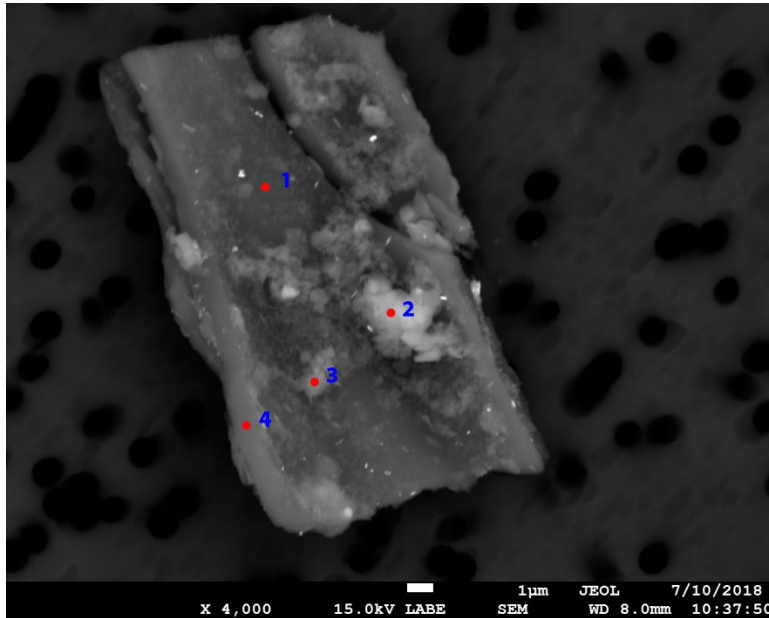


Figure 6. EDS Spectra for sample U2168-A-5 taken at test area 6. The test area is labeled in the particle SEM photo.

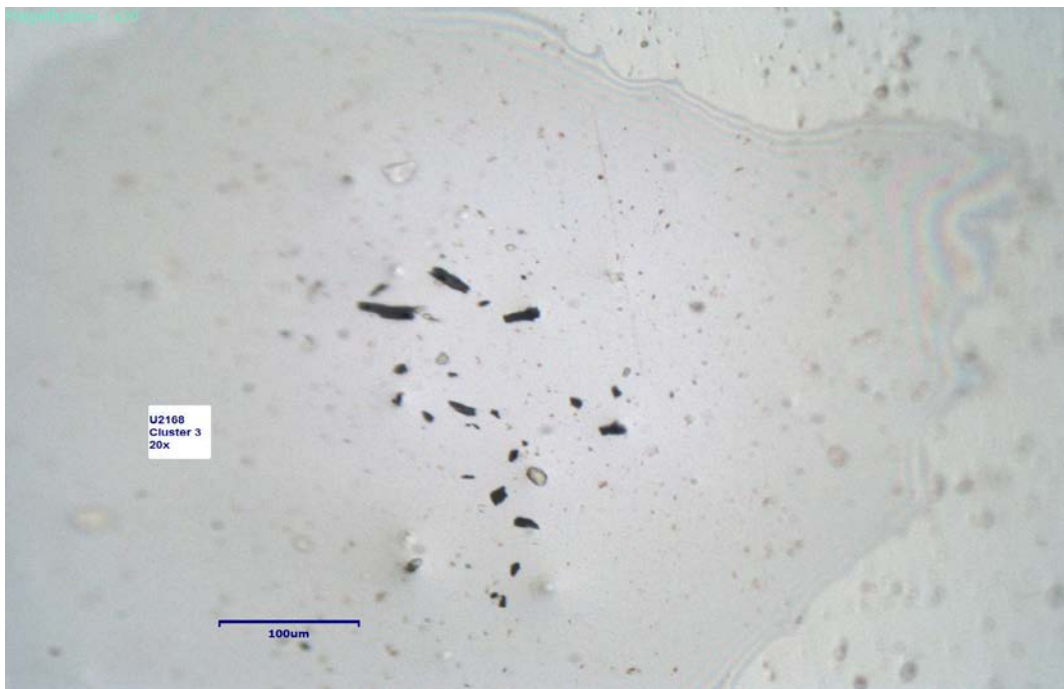
## U2168 A6



<b>Particle Size:</b>	10x20 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 3
<b>Comments:</b>	

*SEM Photo of sample U2168 A6 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 3*



*Photo of cluster U2168 Cluster 3.*

*U2168 A6 - EDS Spectra*

Full scale counts: 1177

A6(1)\_pt1

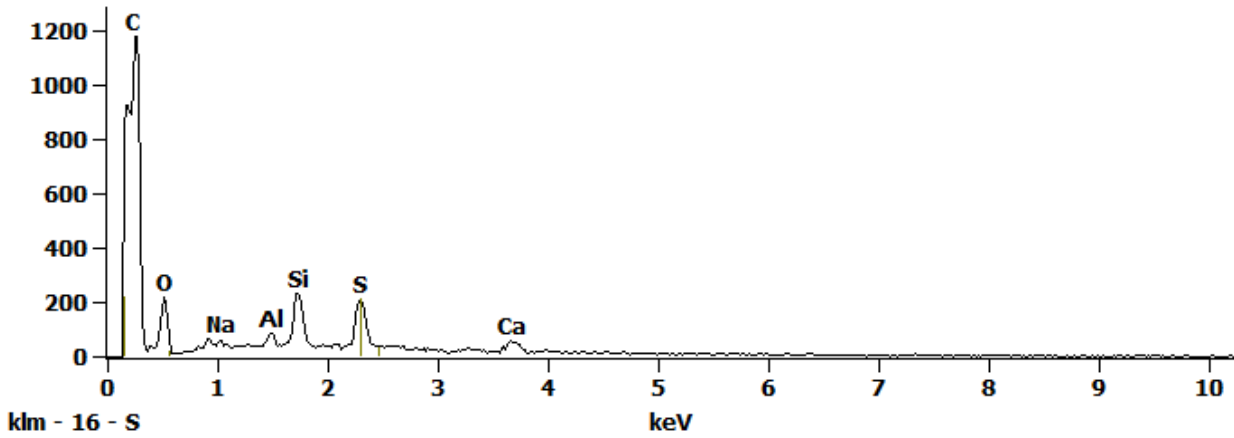


Figure 1. EDS Spectra for sample U2168-A-6 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1447

A6(1)\_pt2

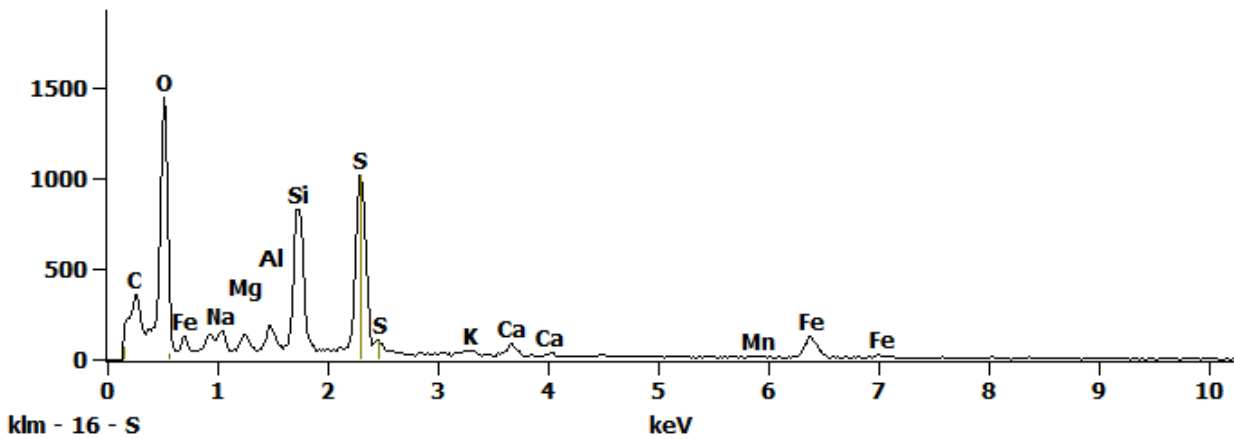


Figure 2. EDS Spectra for sample U2168-A-6 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1078

A6(1)\_pt3

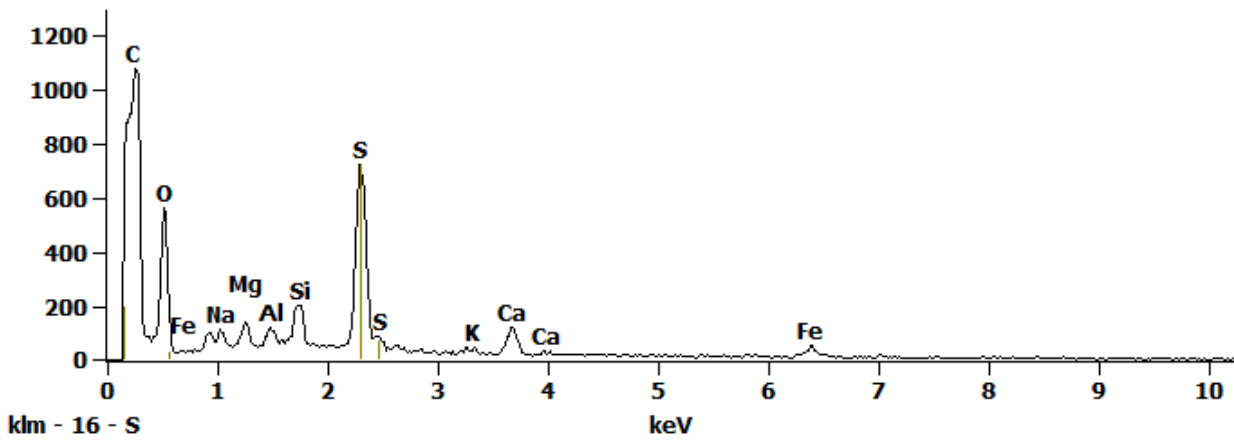


Figure 3. EDS Spectra for sample U2168-A-6 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 2570

A6(1)\_pt4

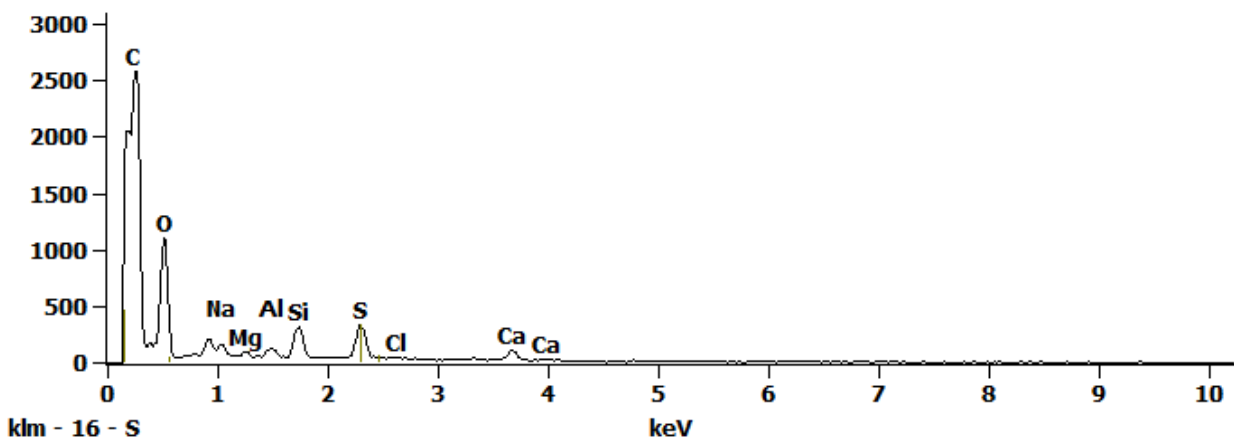
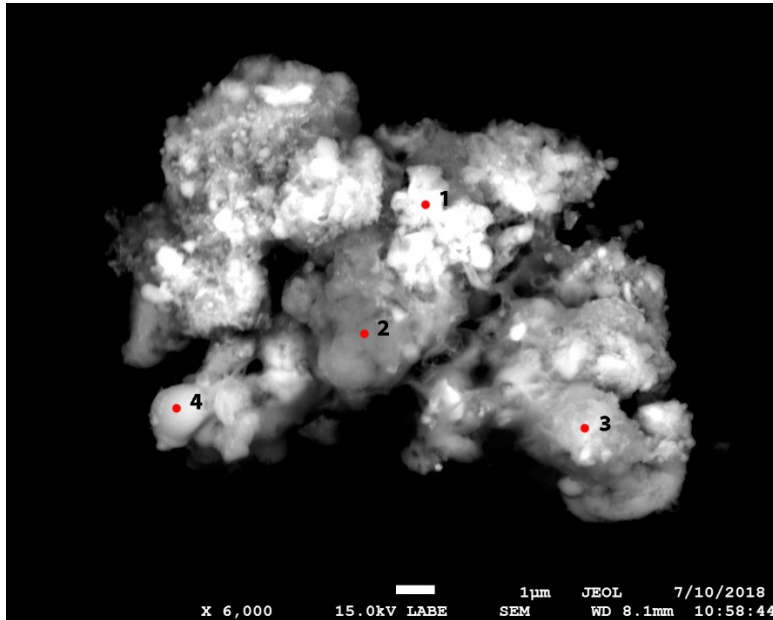


Figure 4. EDS Spectra for sample U2168-A-6 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 A9



<b>Particle Size:</b>	10x14 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 5
<b>Comments:</b>	

SEM Photo of sample U2168 A9 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 5



Photo of cluster U2168 Cluster 5.



## U2168 A9 - EDS Spectra

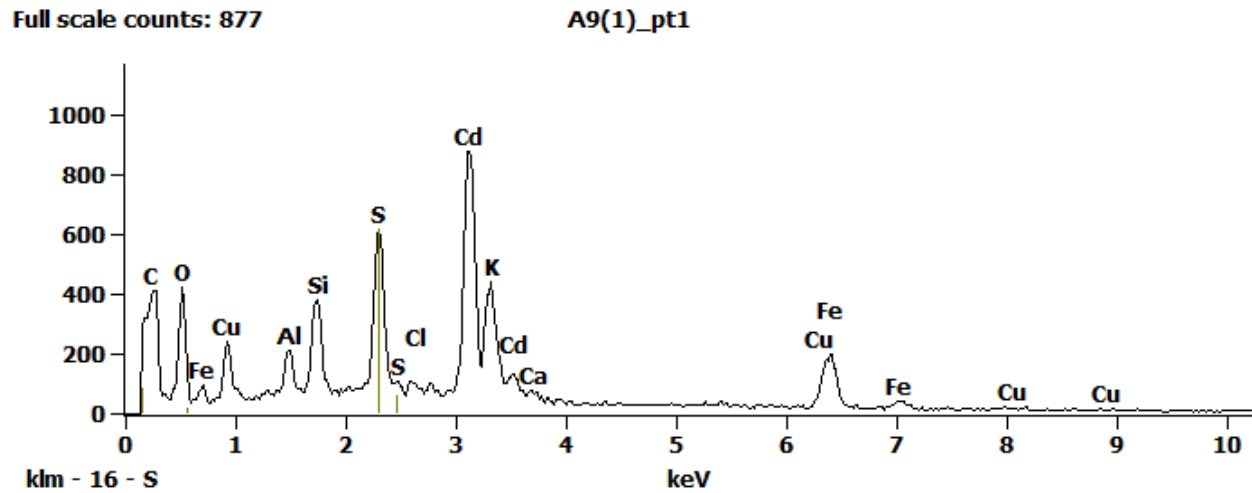


Figure 1. EDS Spectra for sample U2168-A-9 taken at test area 1. The test area is labeled in the particle SEM photo.

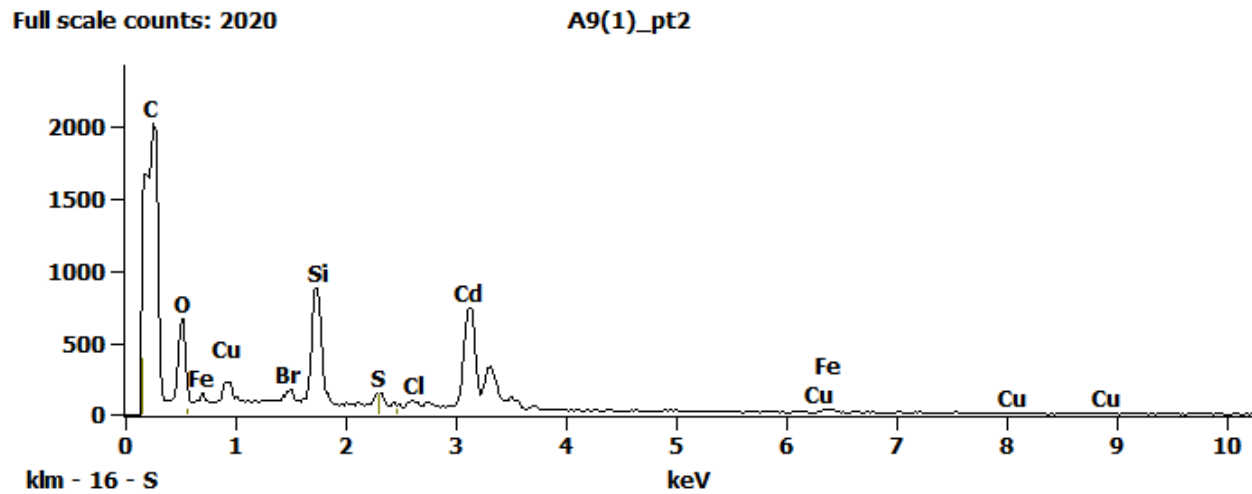


Figure 2. EDS Spectra for sample U2168-A-9 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1386

A9(1)\_pt3

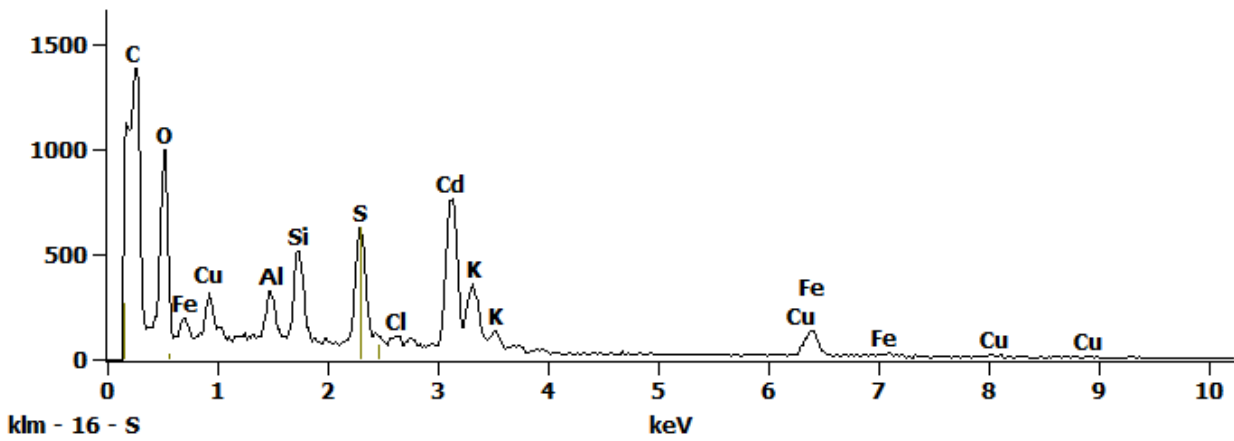


Figure 3. EDS Spectra for sample U2168-A-9 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 2415

A9(1)\_pt4

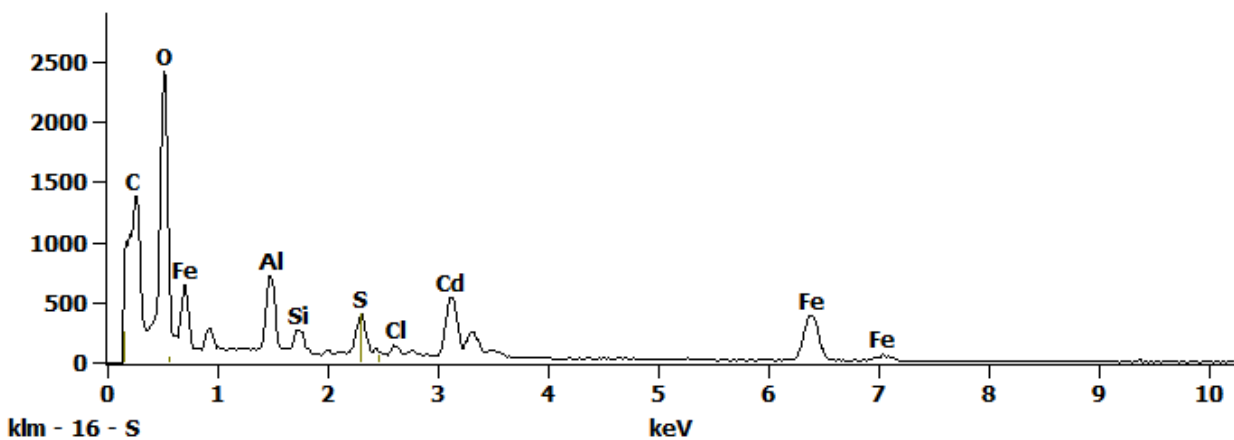
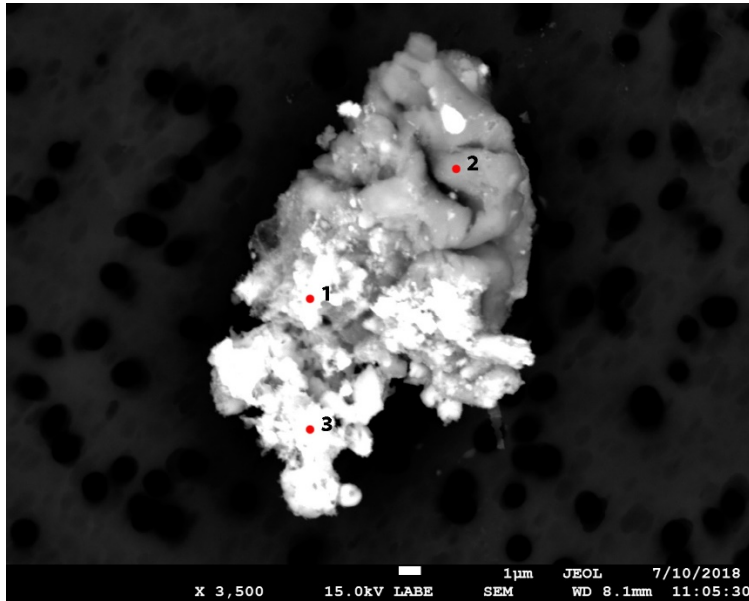


Figure 4. EDS Spectra for sample U2168-A-9 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 A10



<b>Particle Size:</b>	20 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 5
<b>Comments:</b>	

SEM Photo of sample U2168 A10 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 5



Photo of cluster U2168 Cluster 5.

## U2168 A10 - EDS Spectra

Full scale counts: 1402

A10(1)\_pt1

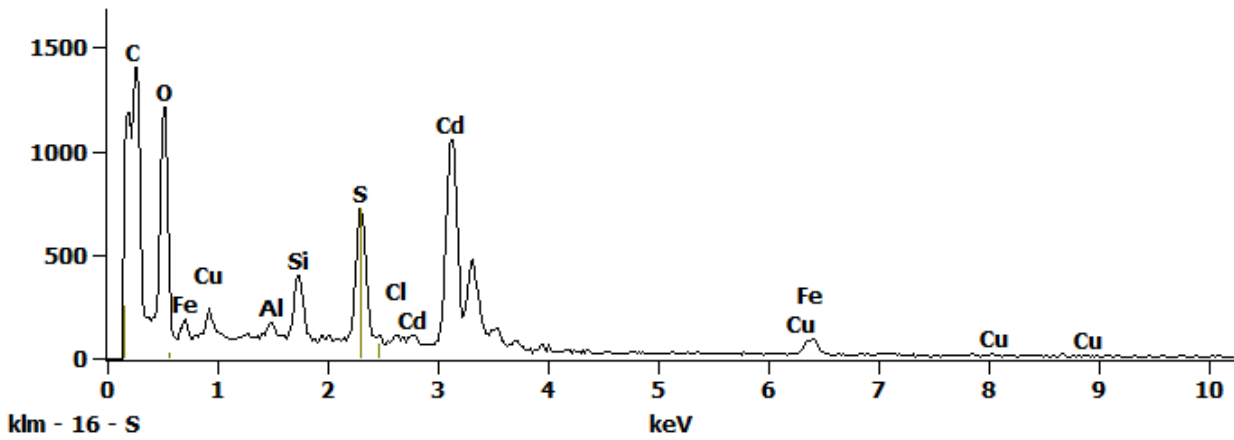


Figure 1. EDS Spectra for sample U2168-A-10 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2373

A10(1)\_pt2

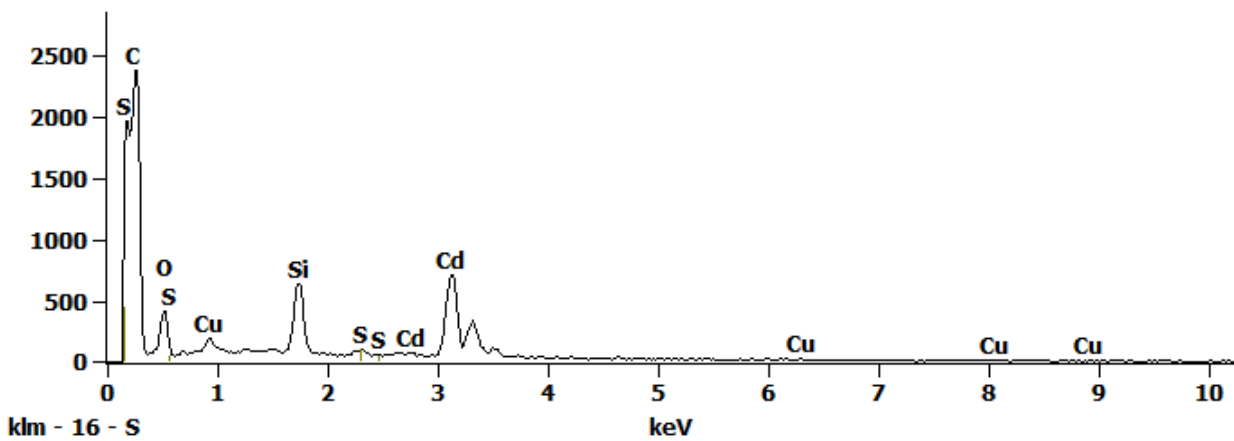


Figure 2. EDS Spectra for sample U2168-A-10 taken at test area 2. The test area is labeled in the particle SEM photo.

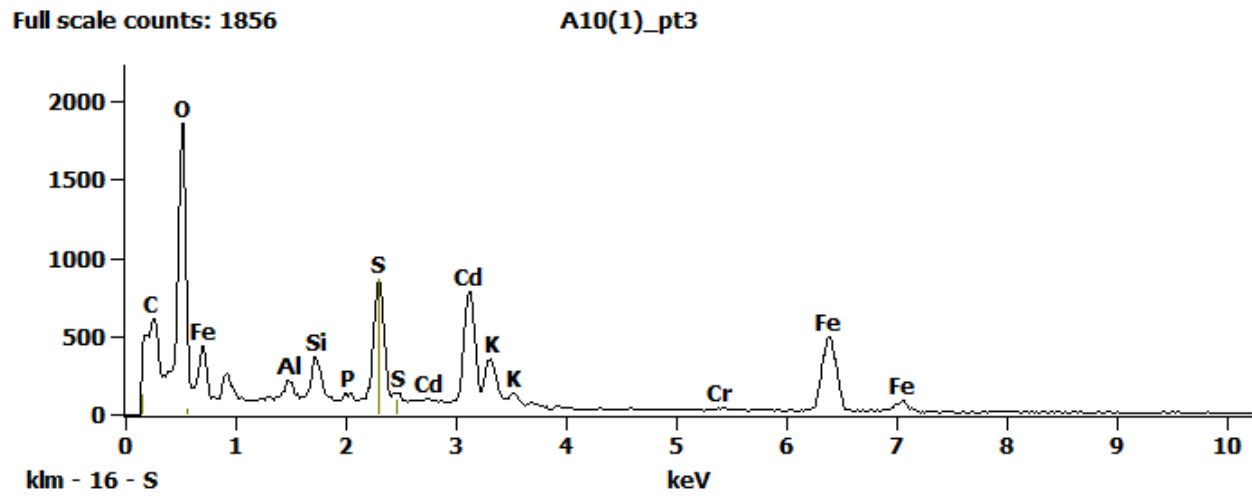
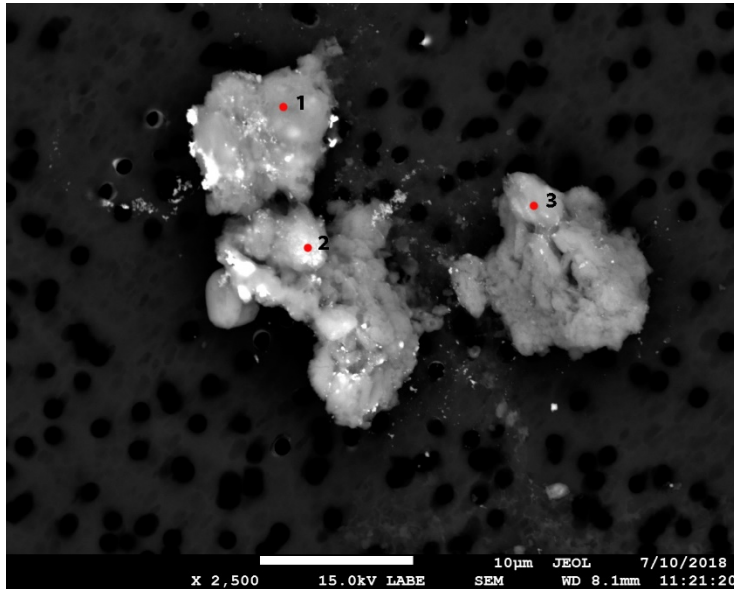


Figure 3. EDS Spectra for sample U2168-A-10 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 A12



<b>Particle Size:</b>	33x20 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 6
<b>Comments:</b>	

*SEM Photo of sample U2168 A12 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 6*



*Photo of cluster U2168 Cluster 6.*

## U2168 A12 - EDS Spectra

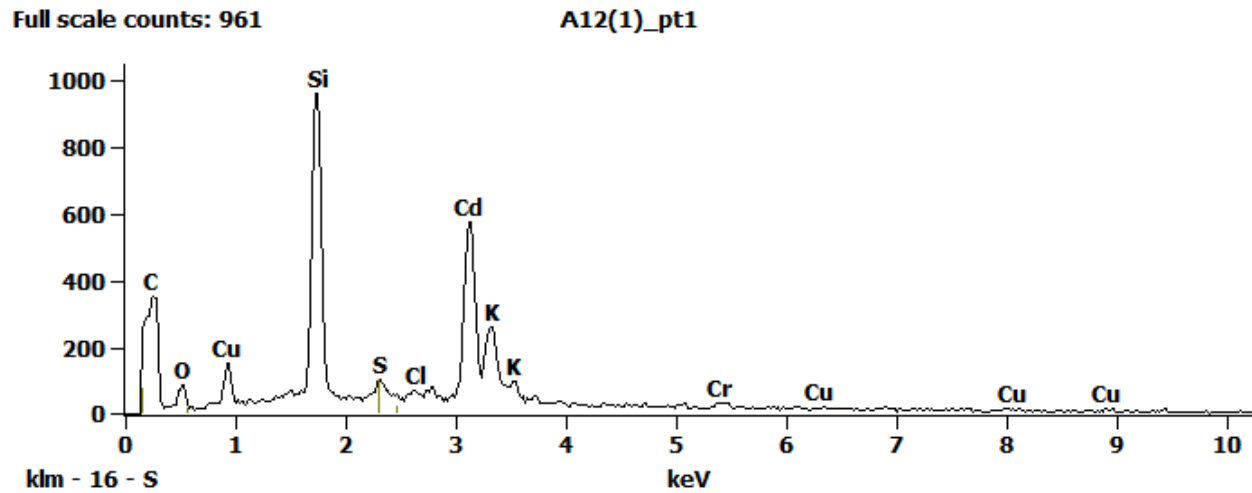


Figure 1. EDS Spectra for sample U2168-A-12 taken at test area 1. The test area is labeled in the particle SEM photo.

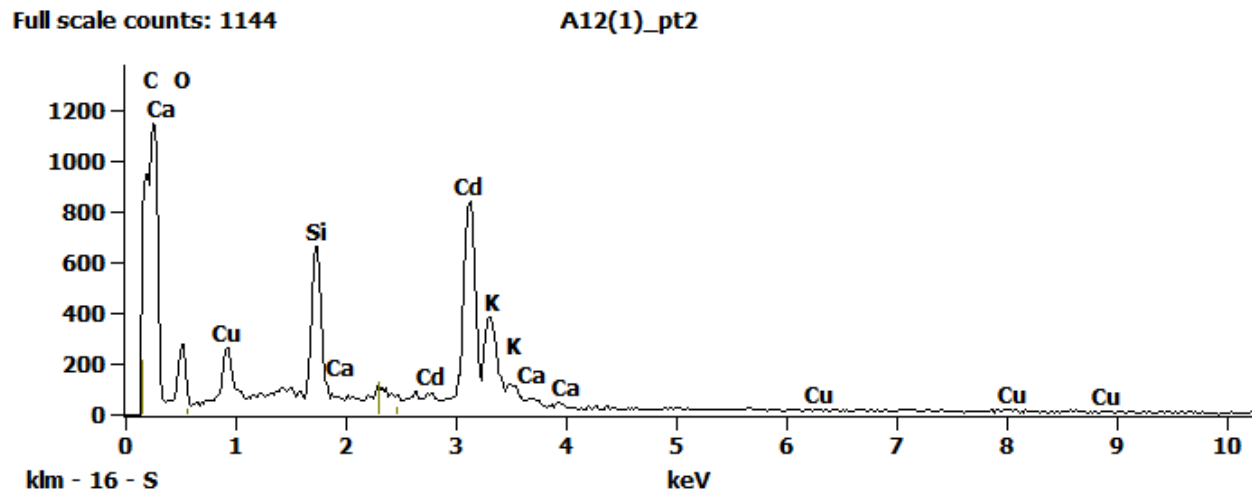


Figure 2. EDS Spectra for sample U2168-A-12 taken at test area 2. The test area is labeled in the particle SEM photo.

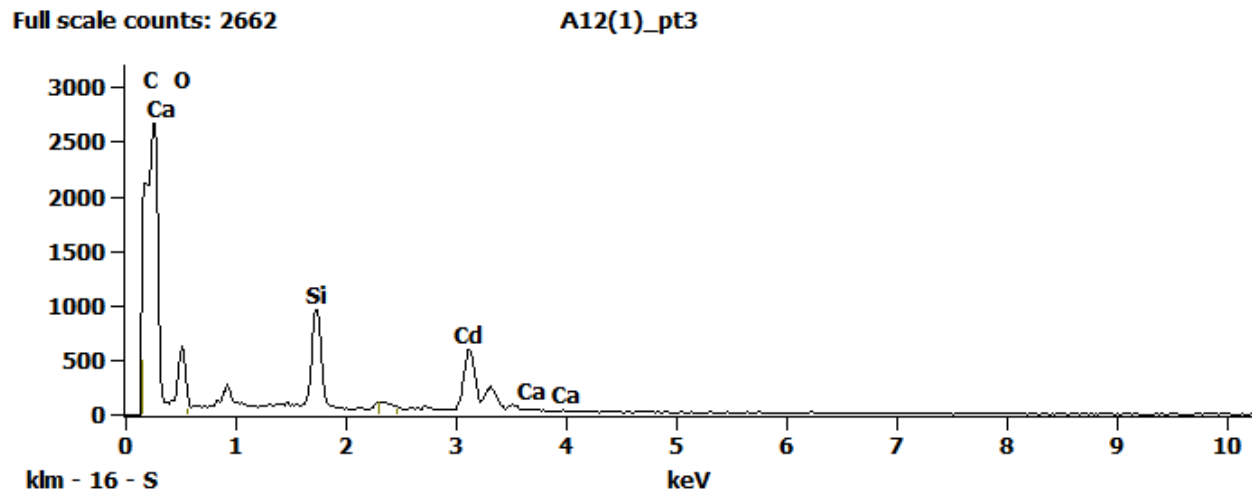
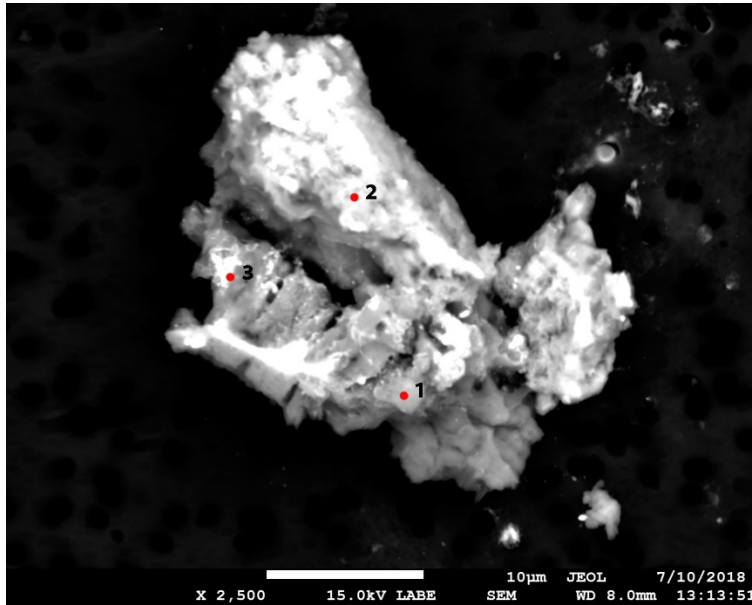


Figure 3. EDS Spectra for sample U2168-A-12 taken at test area 3. The test area is labeled in the particle SEM photo.



## U2168 B3



**Particle Size:** 26x32 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** GRAY  
**Luster:** Pearly to Dull  
**Particle Type:** ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** U2168 Cluster 10  
**Comments:**

*SEM Photo of sample U2168 B3 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 10*



*Photo of cluster U2168 Cluster 10.*

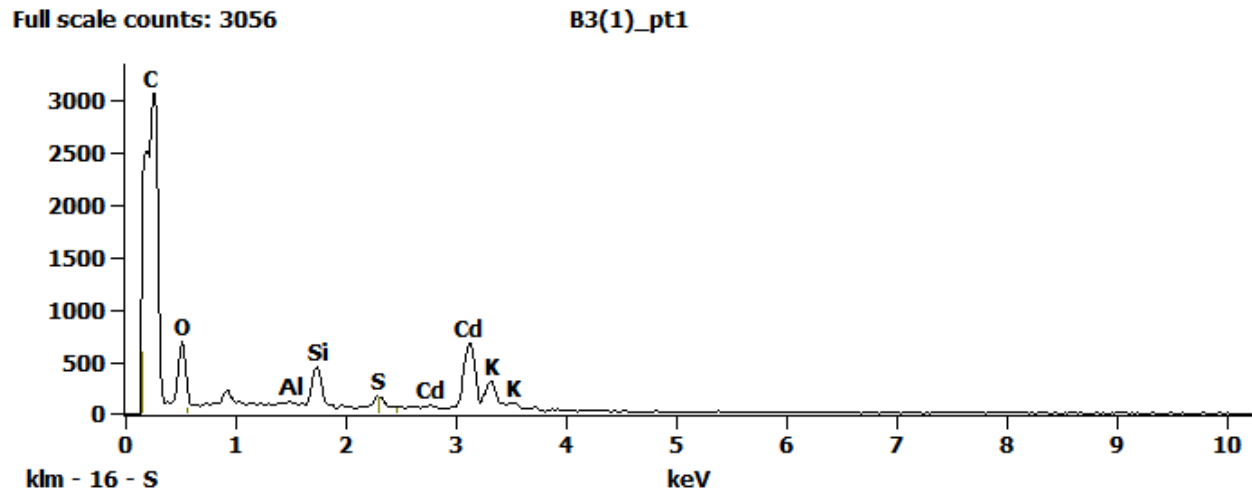
*U2168 B3 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-B-3 taken at test area 1. The test area is labeled in the particle SEM photo.

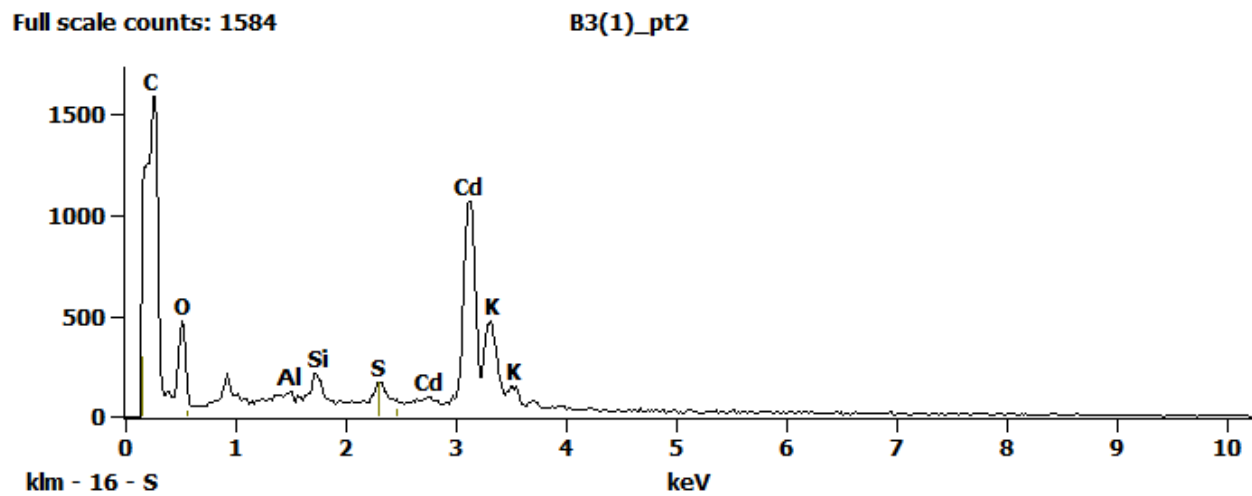


Figure 2. EDS Spectra for sample U2168-B-3 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1147

B3(1)\_pt3

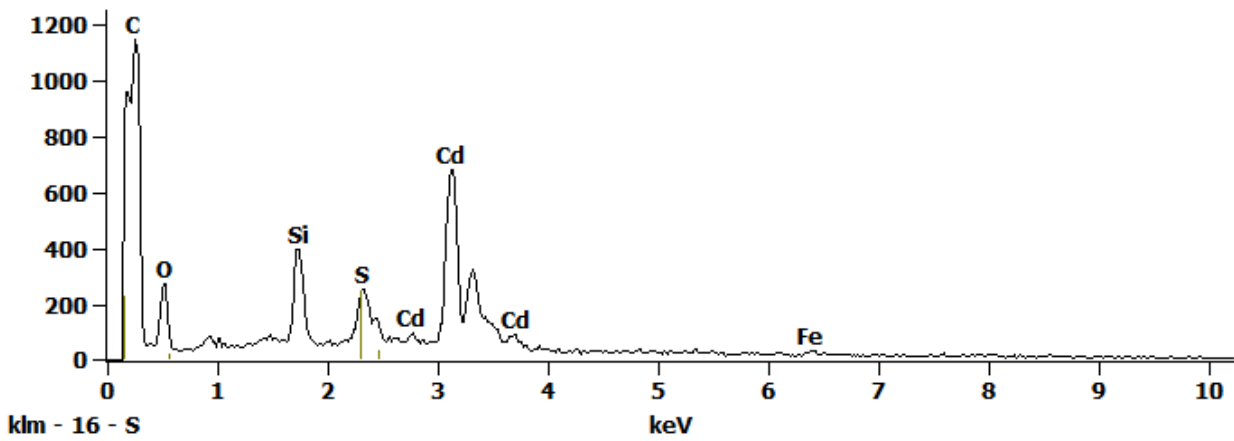
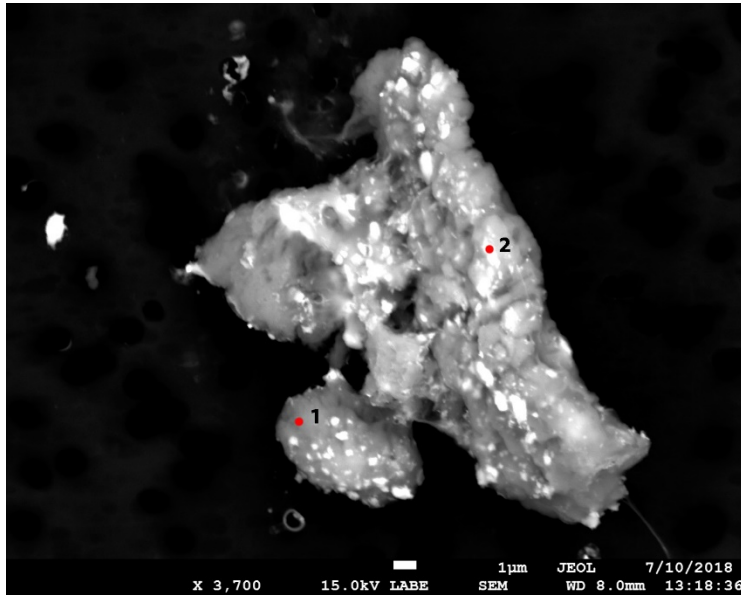


Figure 3. EDS Spectra for sample U2168-B-3 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 B4



SEM Photo of sample U2168 B4 with labeled EDS testing locations.

<b>Particle Size:</b>	20x33 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 10
<b>Comments:</b>	

### Cluster of Origin: U2168 Cluster 10



Photo of cluster U2168 Cluster 10.

## U2168 B4 - EDS Spectra

Full scale counts: 2962

B4(1)\_pt1

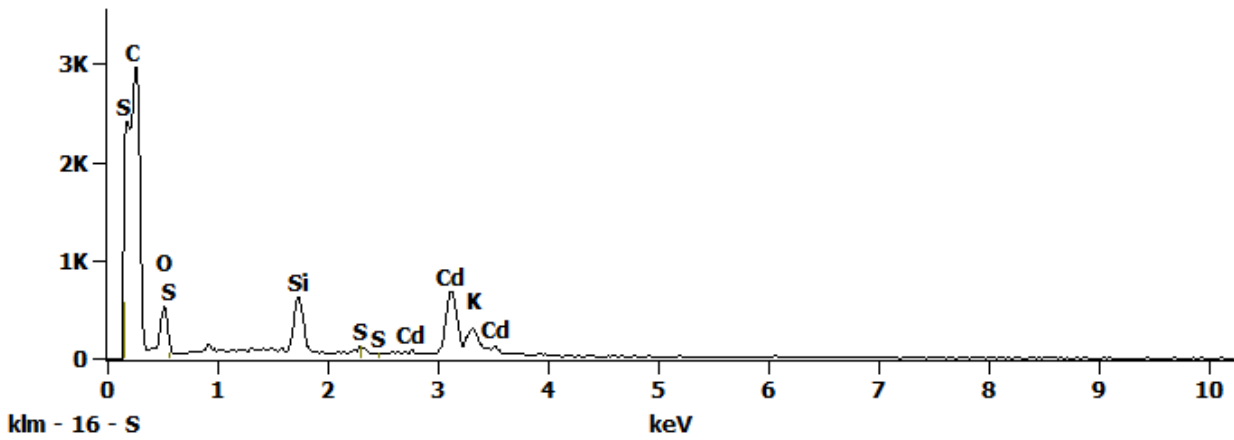


Figure 1. EDS Spectra for sample U2168-B-4 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2577

B4(1)\_pt2

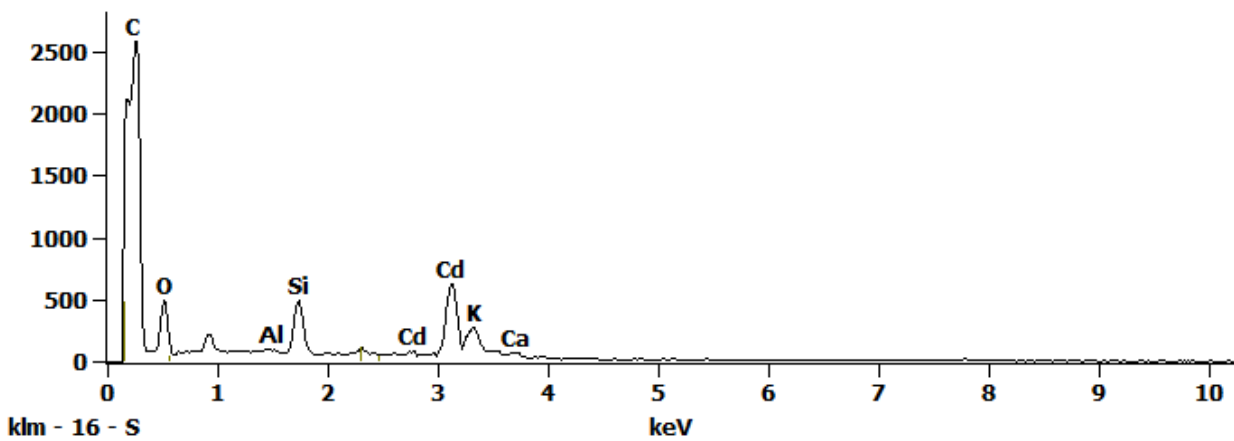
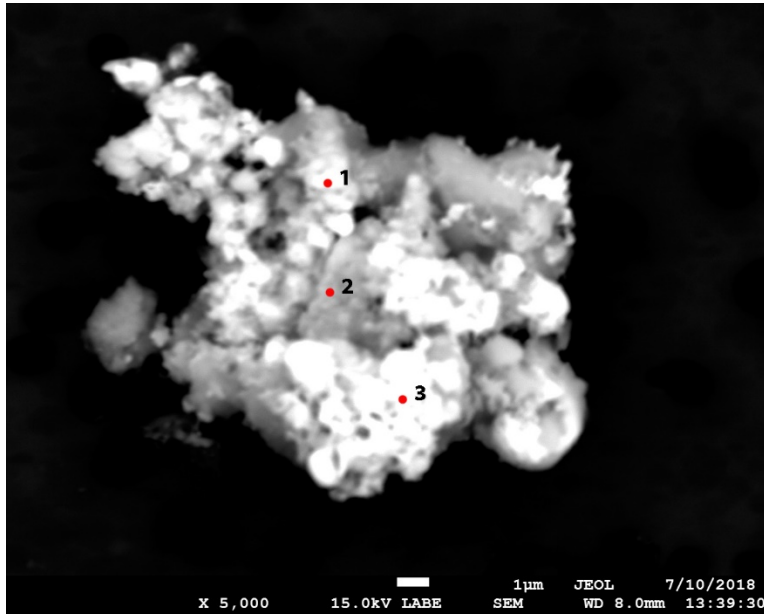


Figure 2. EDS Spectra for sample U2168-B-4 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 B5



**Particle Size:** 10x17 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Dull  
**Particle Type:** ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** U2168 Cluster 11  
**Comments:**

*SEM Photo of sample U2168 B5 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 11*



*Photo of cluster U2168 Cluster 11.*

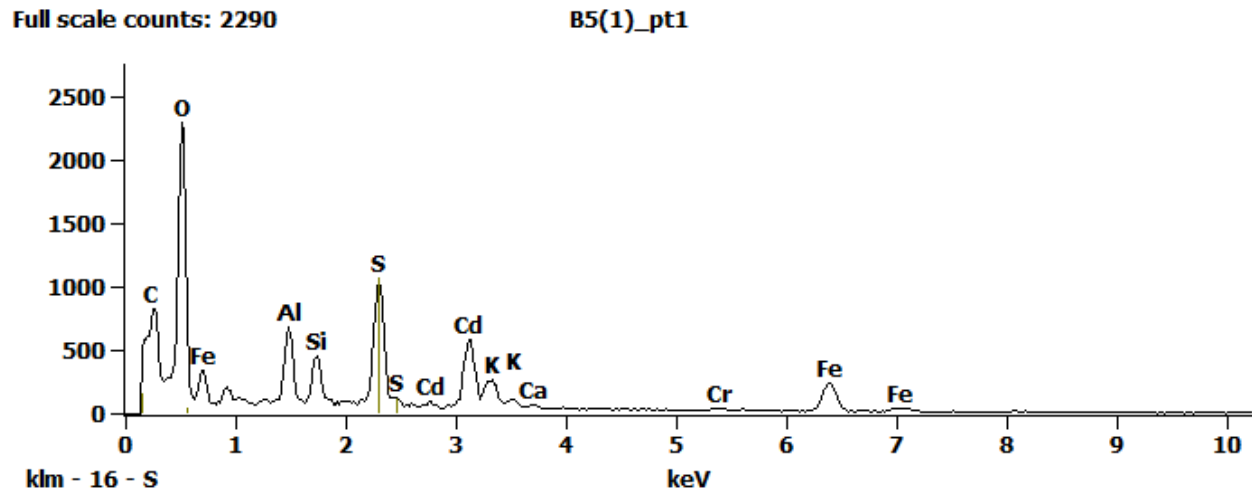
*U2168 B5 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-B-5 taken at test area 1. The test area is labeled in the particle SEM photo.

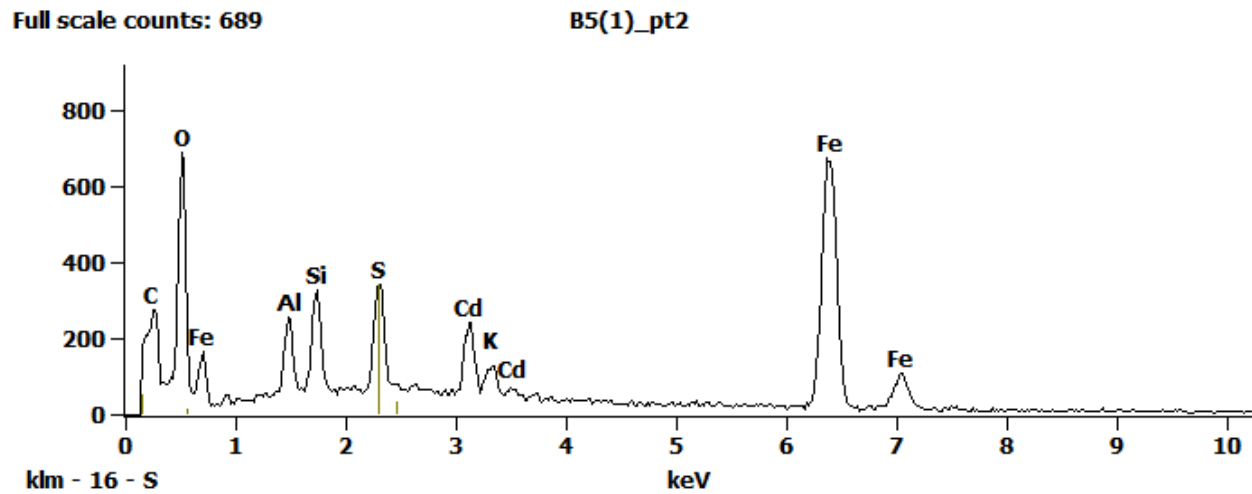


Figure 2. EDS Spectra for sample U2168-B-5 taken at test area 2. The test area is labeled in the particle SEM photo.

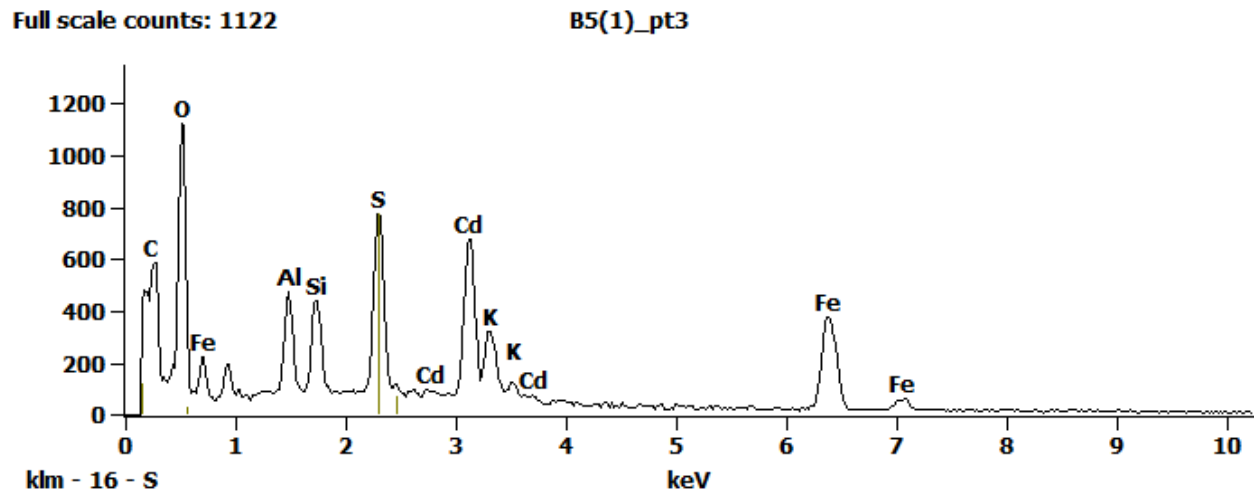
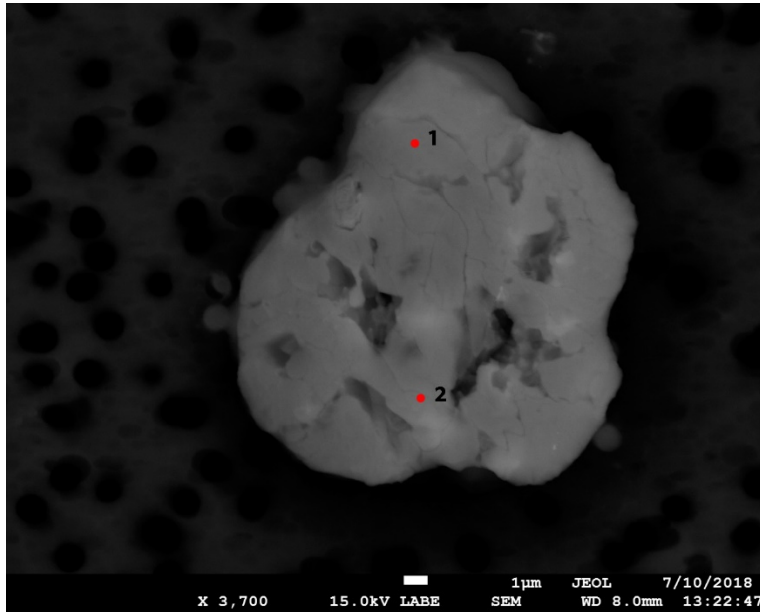


Figure 3. EDS Spectra for sample U2168-B-5 taken at test area 3. The test area is labeled in the particle SEM photo.



## U2168 B6



SEM Photo of sample U2168 B6 with labeled EDS testing locations.

<b>Particle Size:</b>	18 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	GRAY
<b>Luster:</b>	Subvitreous to Dull
<b>Particle Type:</b>	TERRESTRIAL CONTAMINATION (ARTIFICIAL/POSSIBLY NATURAL ?)
<b>Cluster No.:</b>	U2168 Cluster 11
<b>Comments:</b>	

### Cluster of Origin: U2168 Cluster 11



Photo of cluster U2168 Cluster 11.

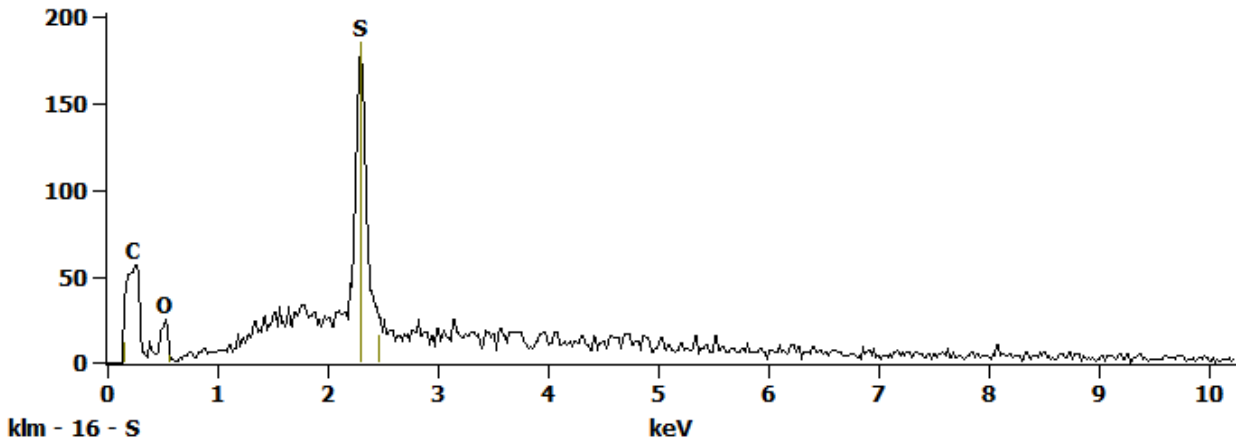
*U2168 B6 - EDS Spectra***Full scale counts: 186**

Figure 1. EDS Spectra for sample U2168-B-6 taken at test area 1. The test area is labeled in the particle SEM photo.

**Full scale counts: 627**

B6(2)\_pt2

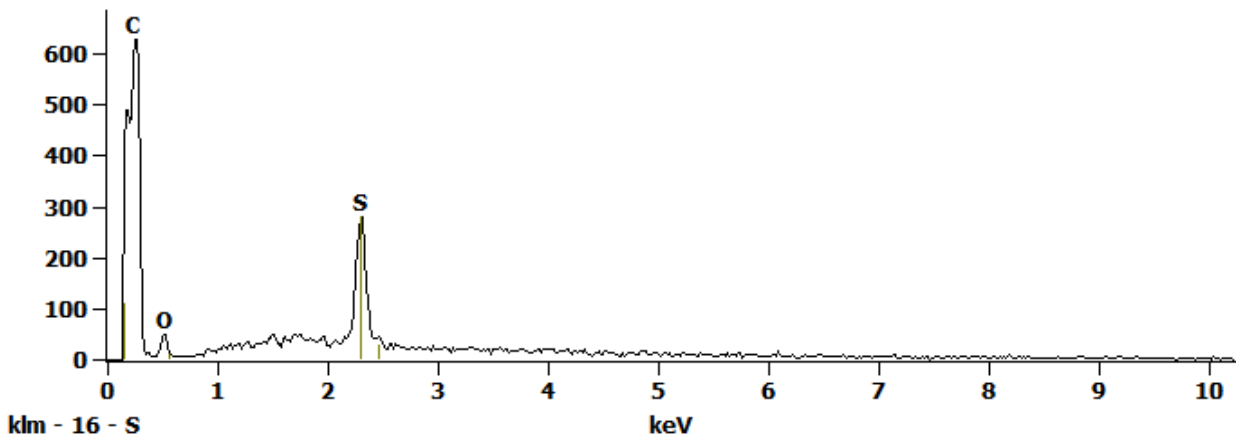
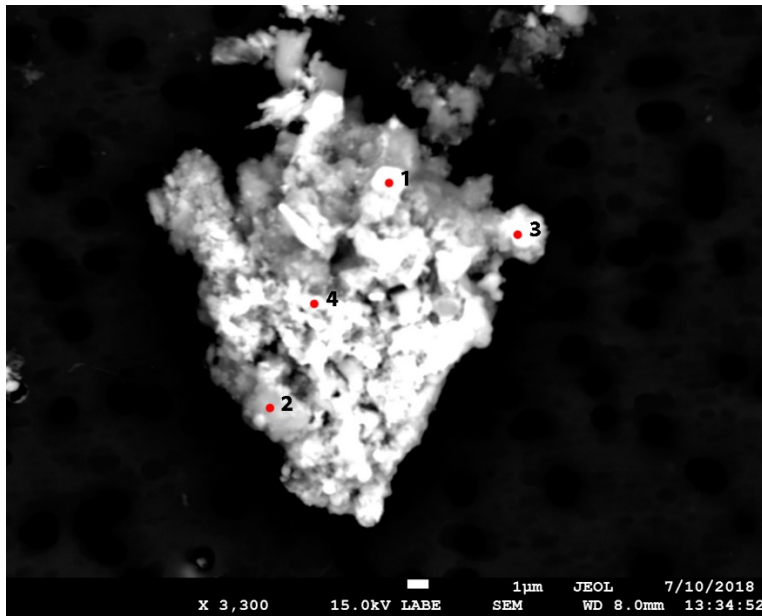


Figure 2. EDS Spectra for sample U2168-B-6 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 B9



<b>Particle Size:</b>	30 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 B9 with labeled EDS testing locations.

### U2168 B9 - EDS Spectra

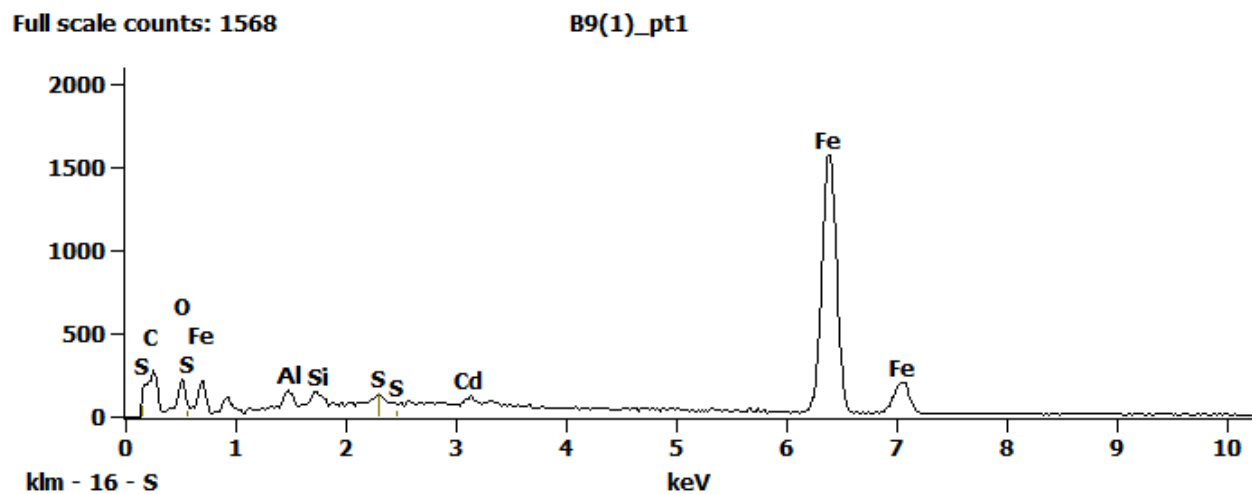


Figure 1. EDS Spectra for sample U2168-B-9 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1732

B9(1)\_pt2

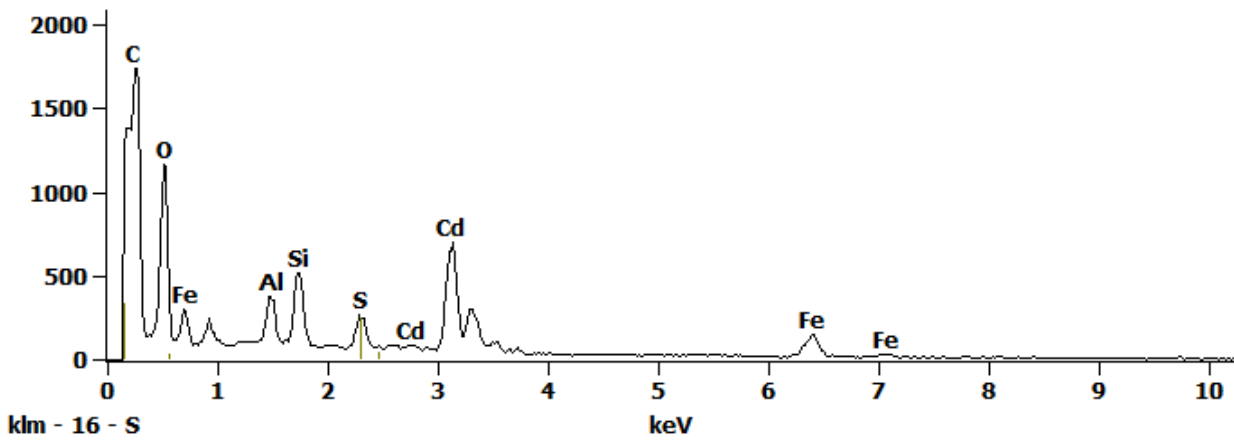


Figure 2. EDS Spectra for sample U2168-B-9 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 868

B9(1)\_pt3

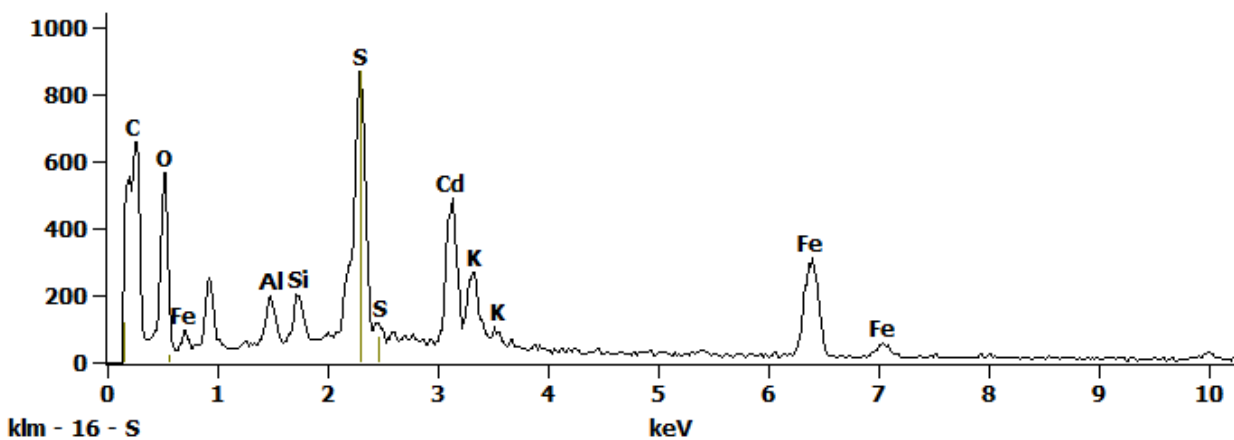


Figure 3. EDS Spectra for sample U2168-B-9 taken at test area 3. The test area is labeled in the particle SEM photo.

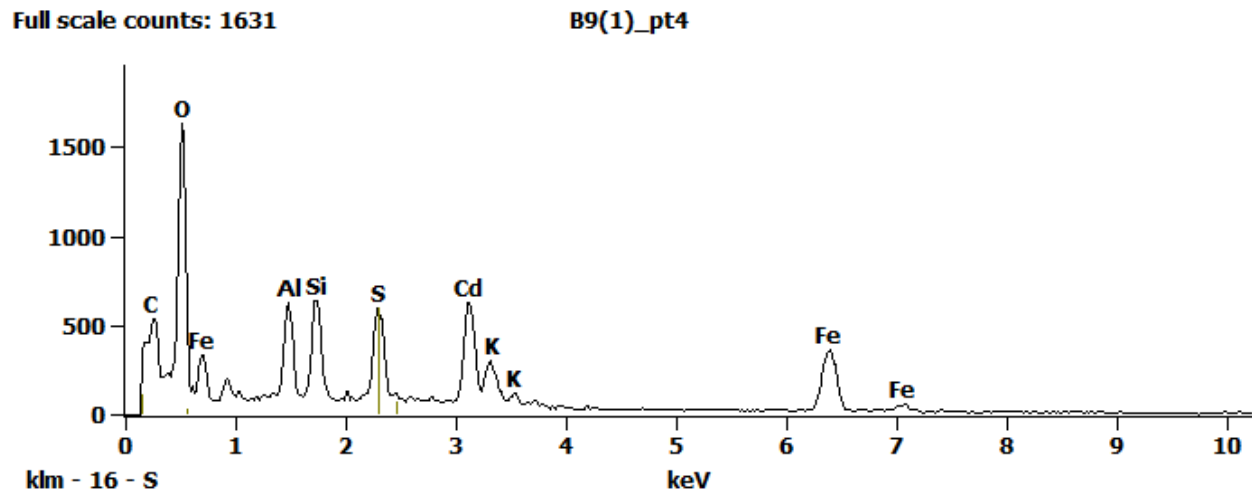
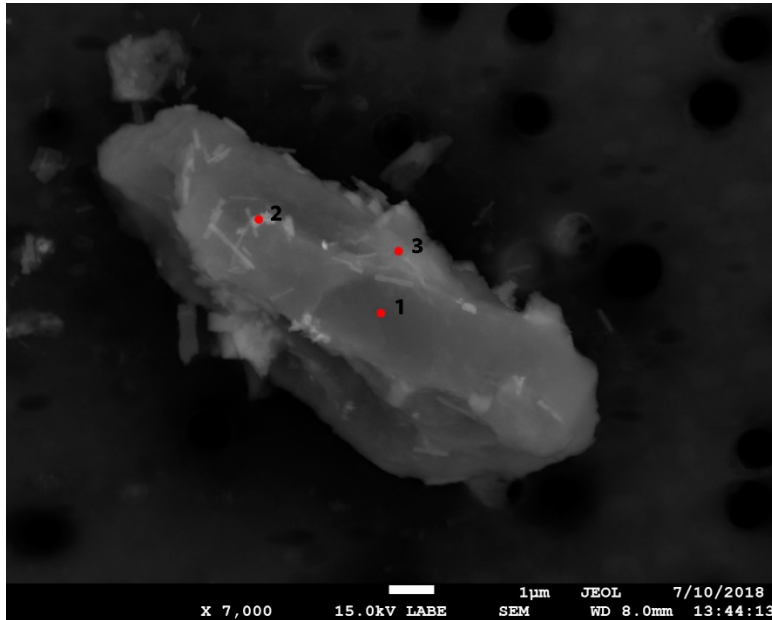


Figure 4. EDS Spectra for sample U2168-B-9 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 B10



<b>Particle Size:</b>	14x6 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 B10 with labeled EDS testing locations.

### U2168 B10 - EDS Spectra

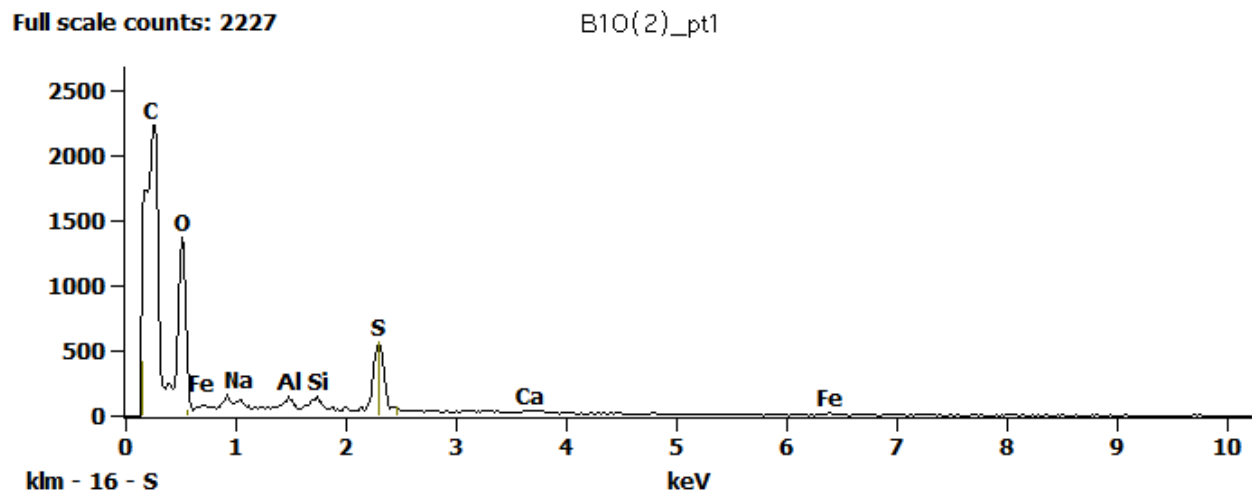


Figure 1. EDS Spectra for sample U2168-B-10 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1422

B10(2)\_pt2

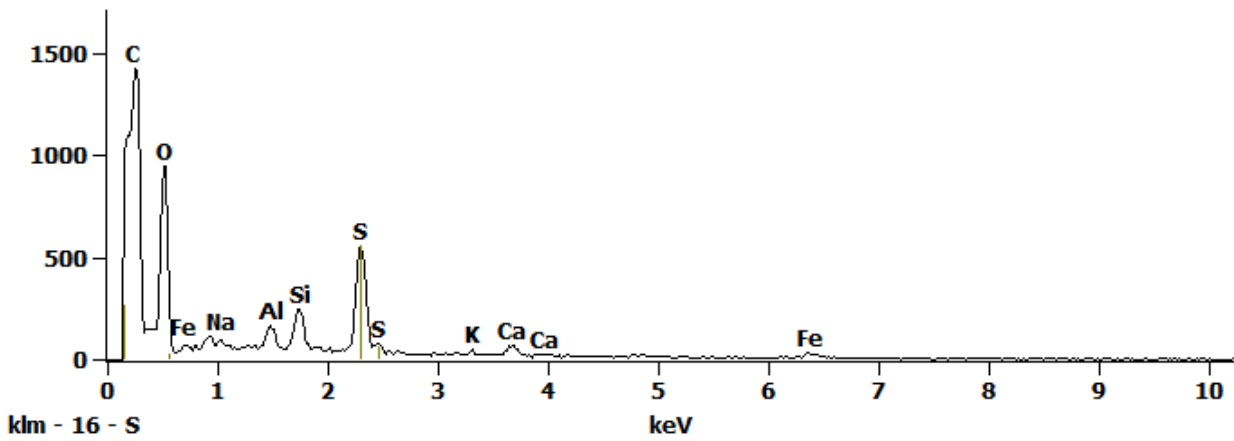


Figure 2. EDS Spectra for sample U2168-B-10 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1252

B10(2)\_pt3

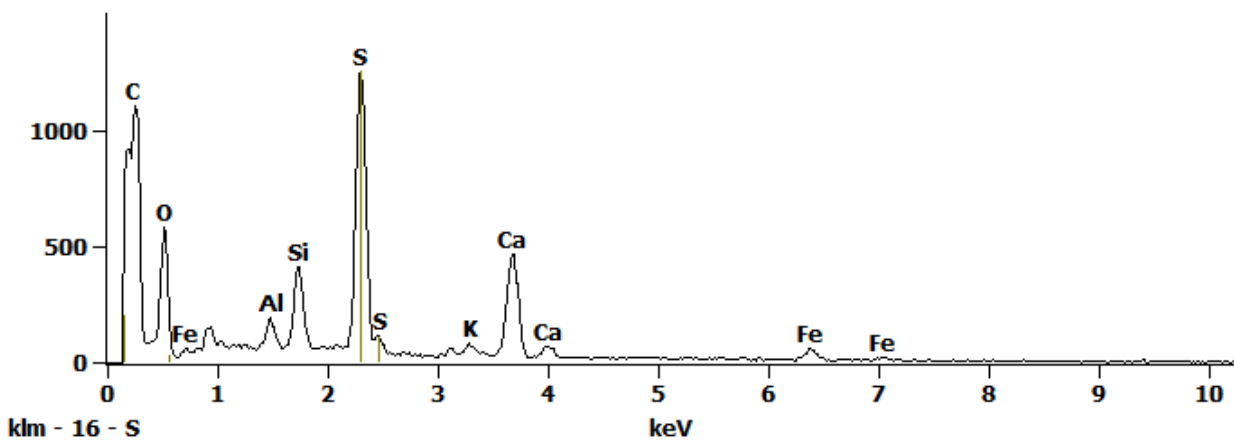
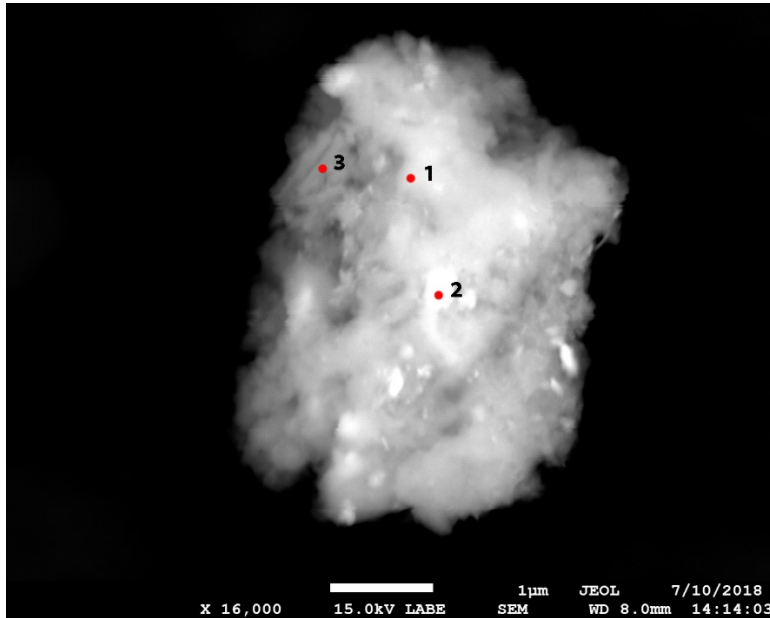


Figure 3. EDS Spectra for sample U2168-B-10 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 B13



<b>Particle Size:</b>	5 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 B13 with labeled EDS testing locations.

### U2168 B13 - EDS Spectra

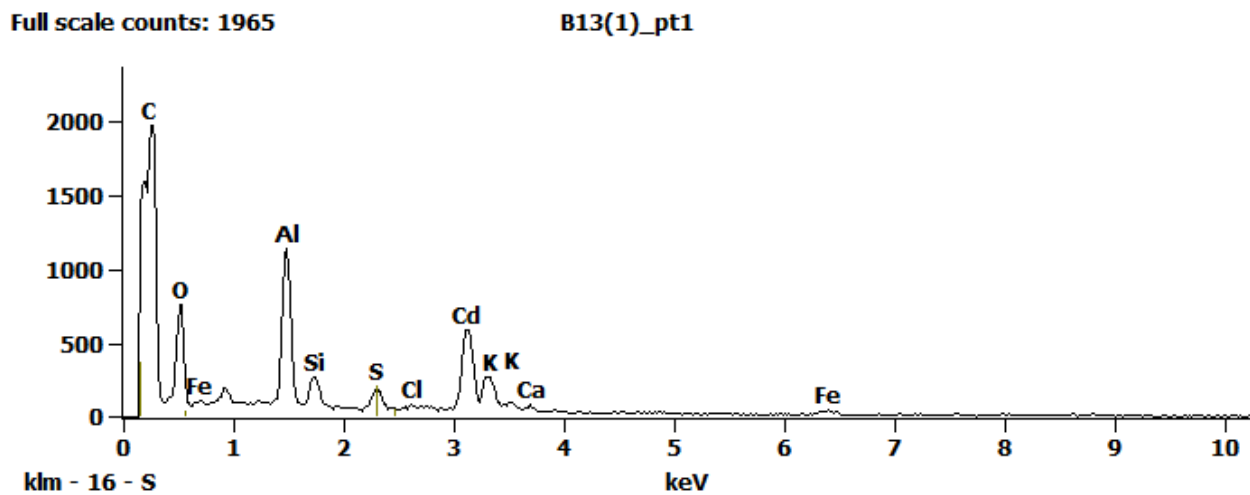


Figure 1. EDS Spectra for sample U2168-B-13 taken at test area 1. The test area is labeled in the particle SEM photo.



Full scale counts: 1686

B13(1)\_pt2

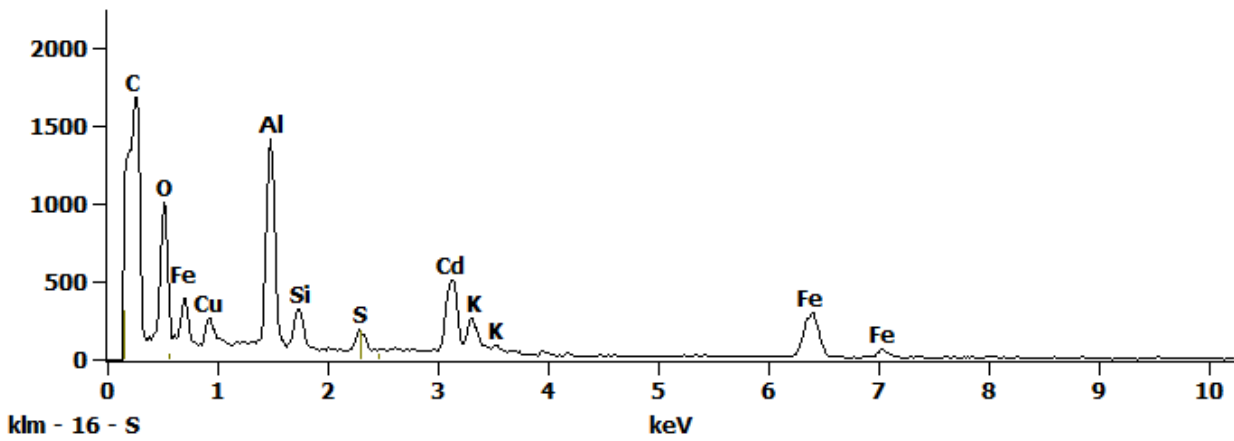


Figure 2. EDS Spectra for sample U2168-B-13 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2096

B13(1)\_pt3

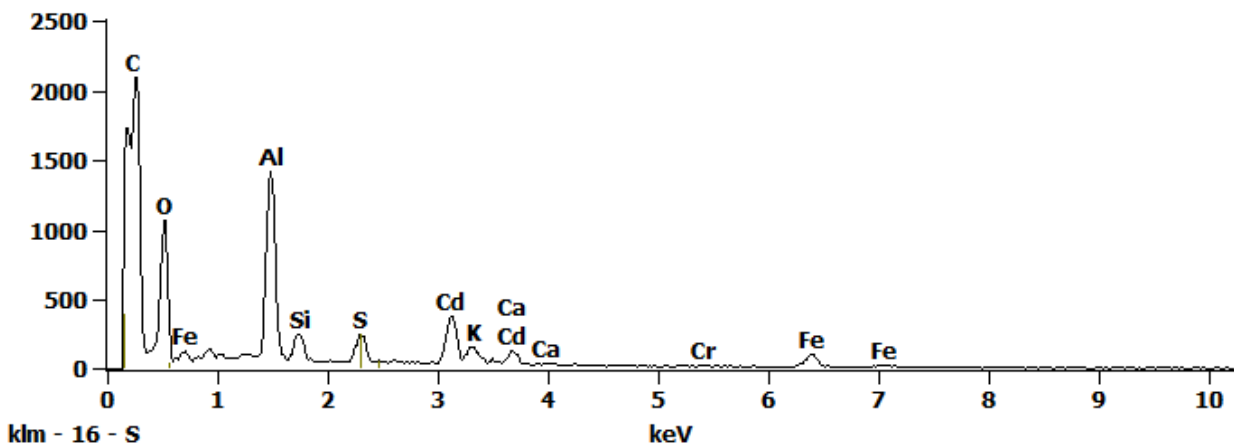
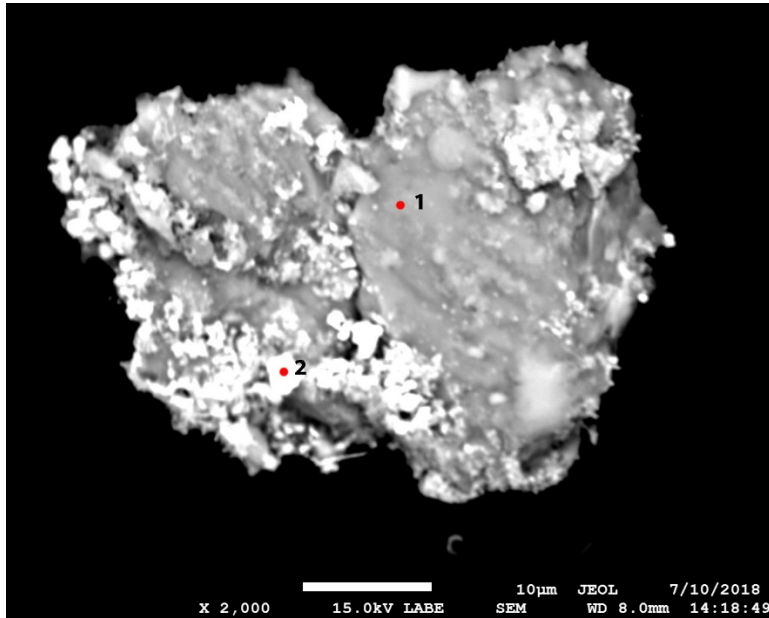


Figure 3. EDS Spectra for sample U2168-B-13 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 B14



SEM Photo of sample U2168 B14 with labeled EDS testing locations.

<b>Particle Size:</b>	45 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	BLACK, CLEAR, GRAY
<b>Luster:</b>	Metallic to Vitreous
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### U2168 B14 - EDS Spectra

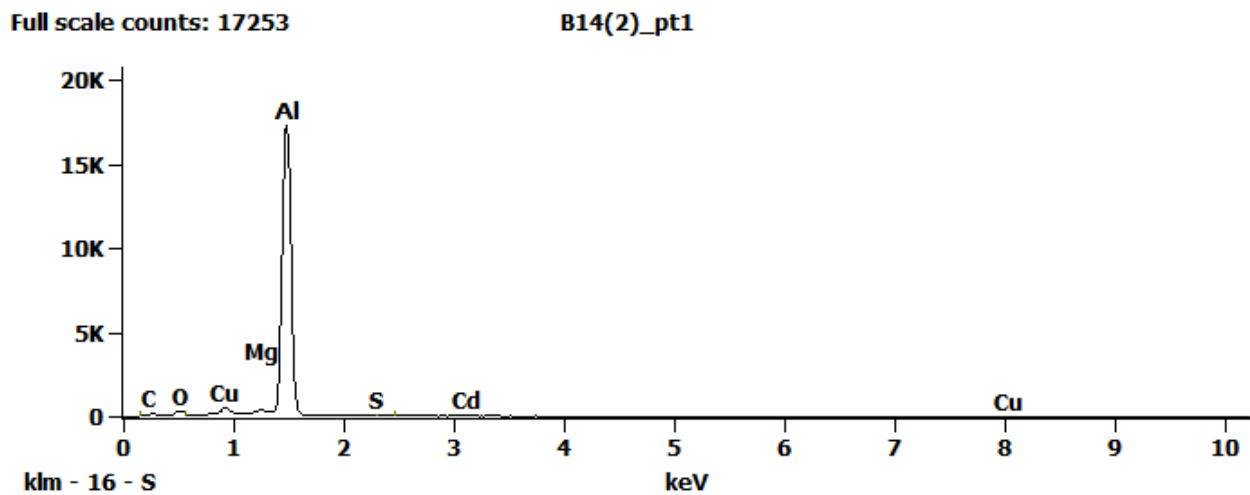


Figure 1. EDS Spectra for sample U2168-B-14 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 5210

B14(2)\_pt2

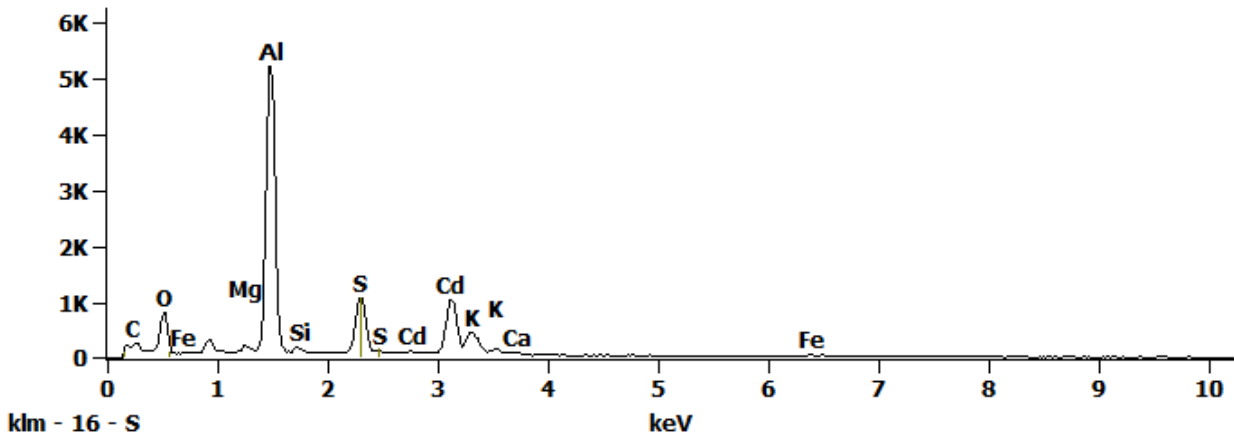
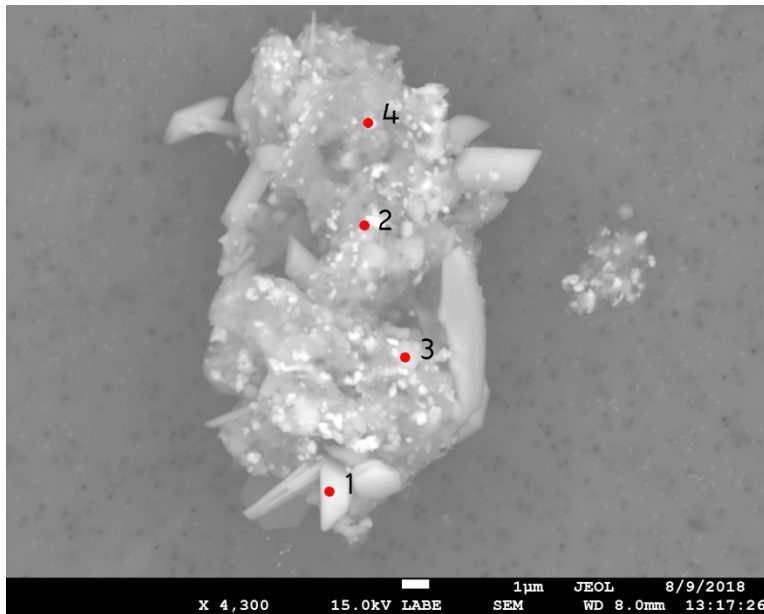


Figure 2. EDS Spectra for sample U2168-B-14 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 C1



<b>Particle Size:</b>	23 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U168 C1 with labeled EDS testing locations.

### U2168 C1 - EDS Spectra

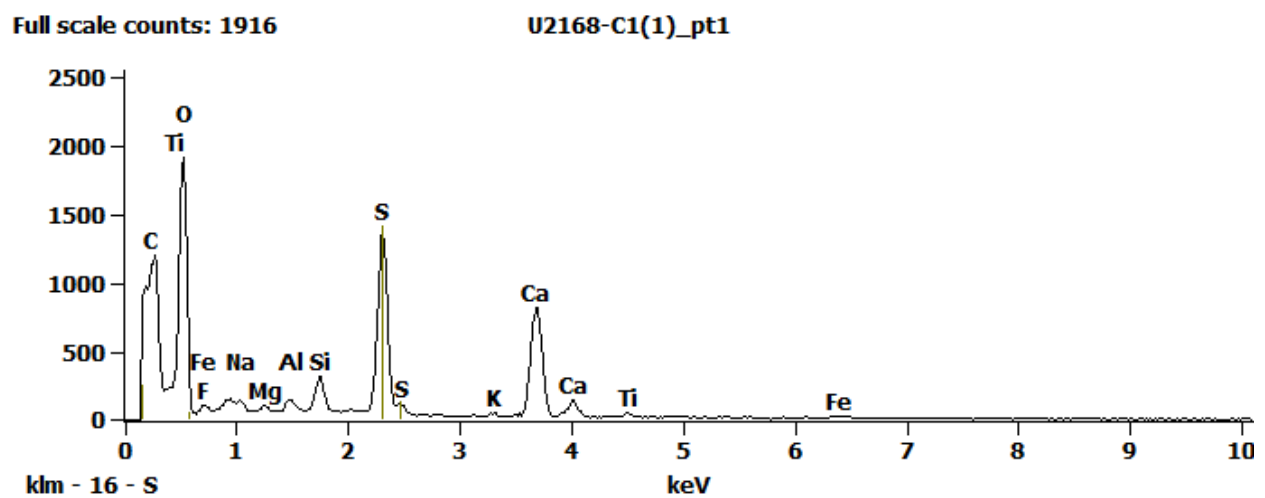


Figure 1. EDS Spectra for sample U2168-C-1 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 702

U2168-C1(1)\_pt2

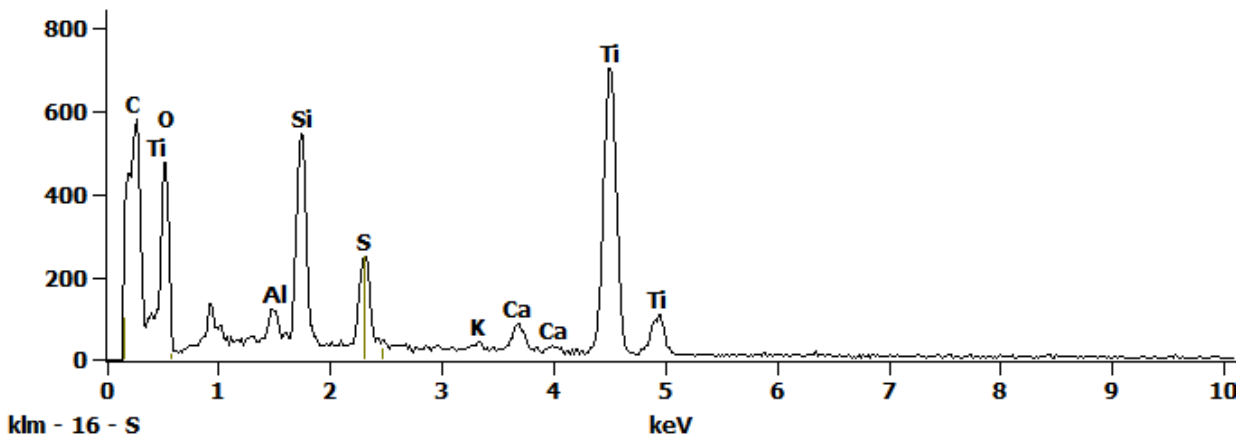


Figure 2. EDS Spectra for sample U2168-C-1 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2191

U2168-C1(1)\_pt3

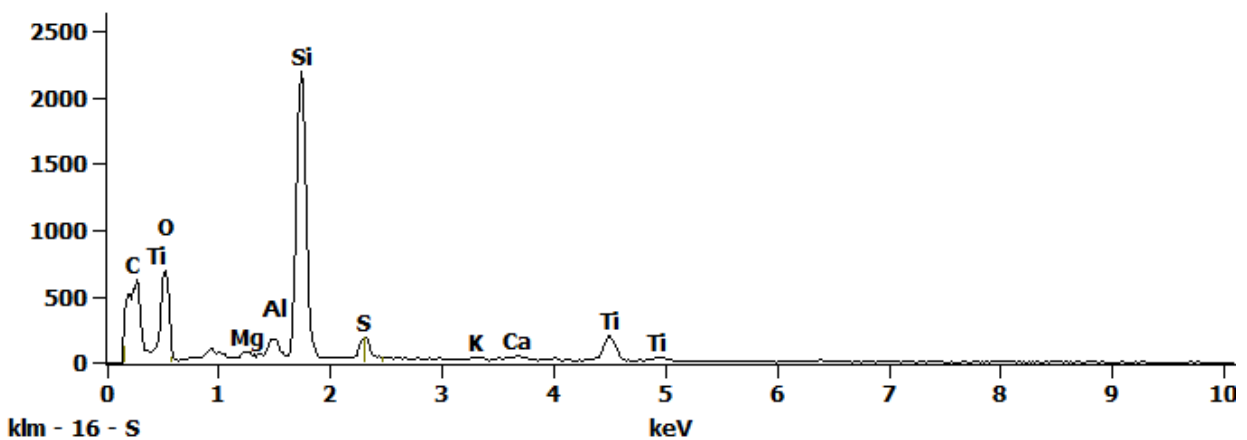


Figure 3. EDS Spectra for sample U2168-C-1 taken at test area 3. The test area is labeled in the particle SEM photo.

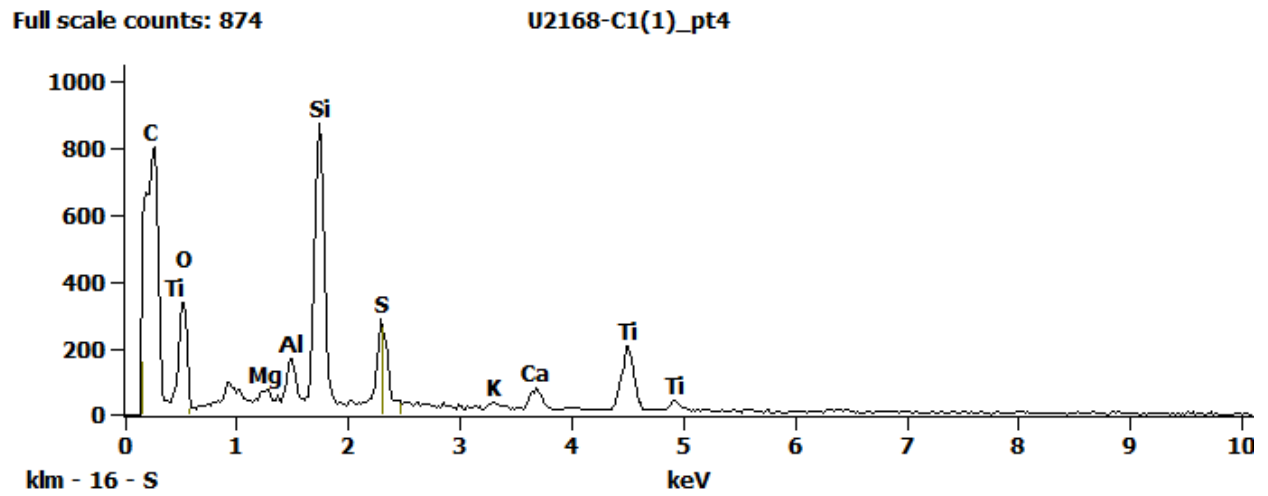
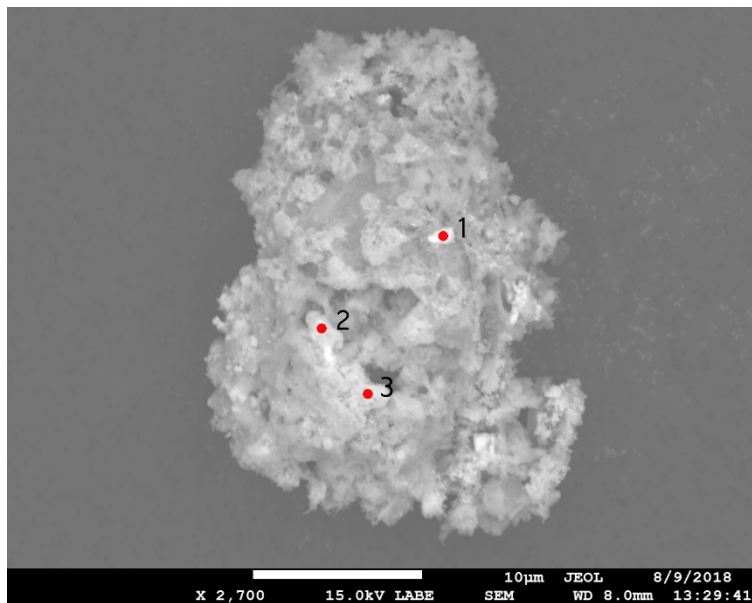


Figure 4. EDS Spectra for sample U2168-C-1 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 C2



<b>Particle Size:</b>	27 µm
<b>Shape:</b>	Irregular to Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BROWN
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C2 with labeled EDS testing locations.

### U2168 C2 - EDS Spectra

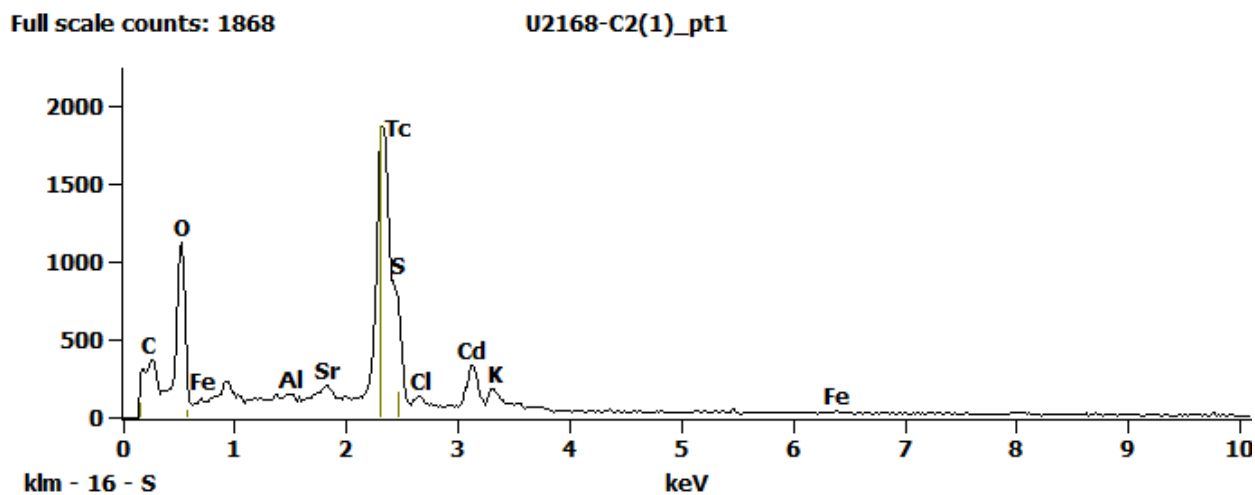


Figure 1. EDS Spectra for sample U2168-C-2 taken at test area 1. The test area is labeled in the particle SEM photo.

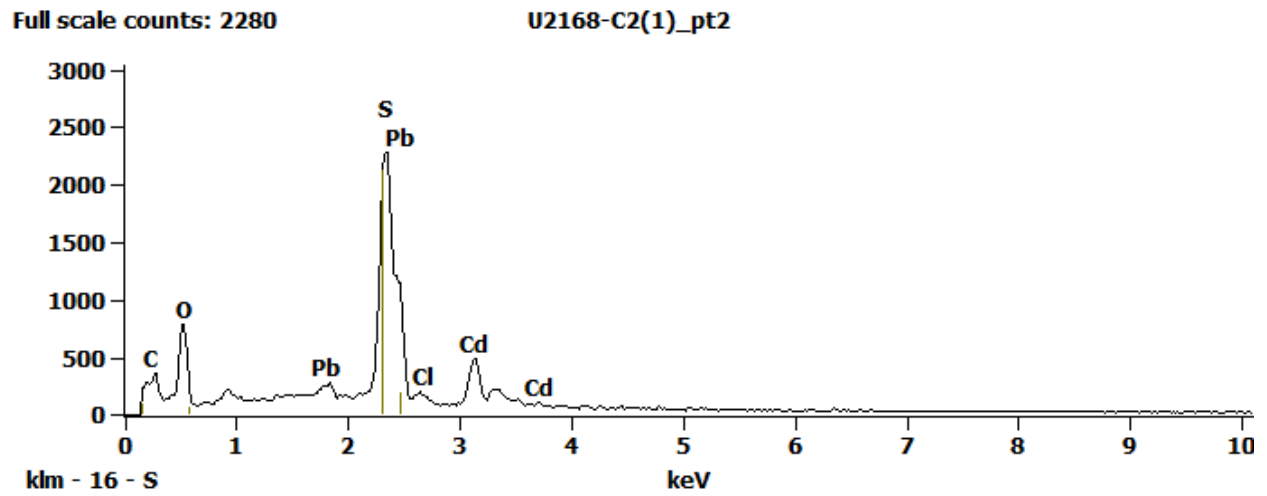


Figure 2. EDS Spectra for sample U2168-C-2 taken at test area 2. The test area is labeled in the particle SEM photo.

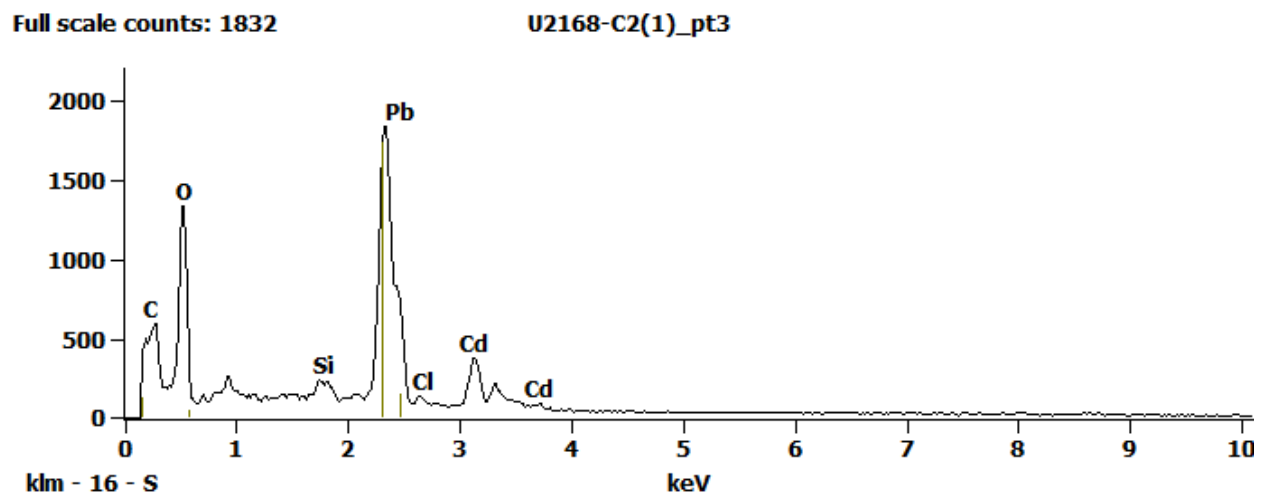
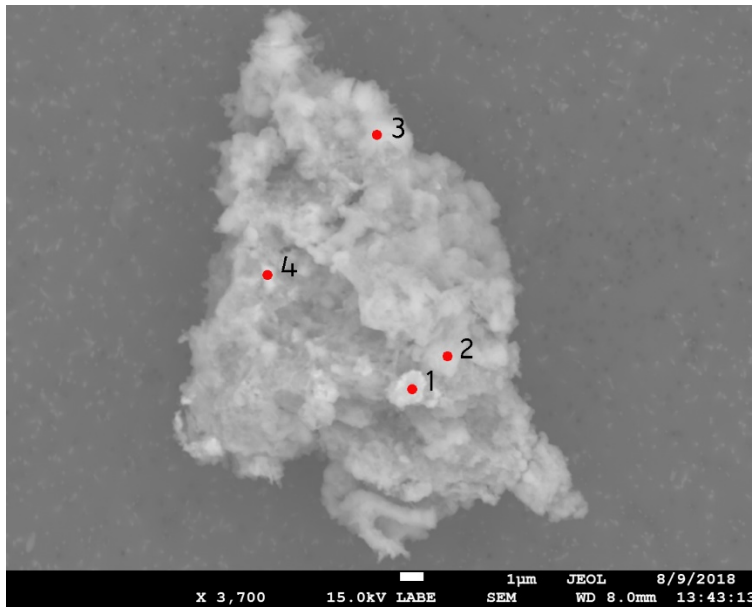


Figure 3. EDS Spectra for sample U2168-C-2 taken at test area 3. The test area is labeled in the particle SEM photo.



## U2168 C3



<b>Particle Size:</b>	23 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C3 with labeled EDS testing locations.

### U2168 C3 - EDS Spectra

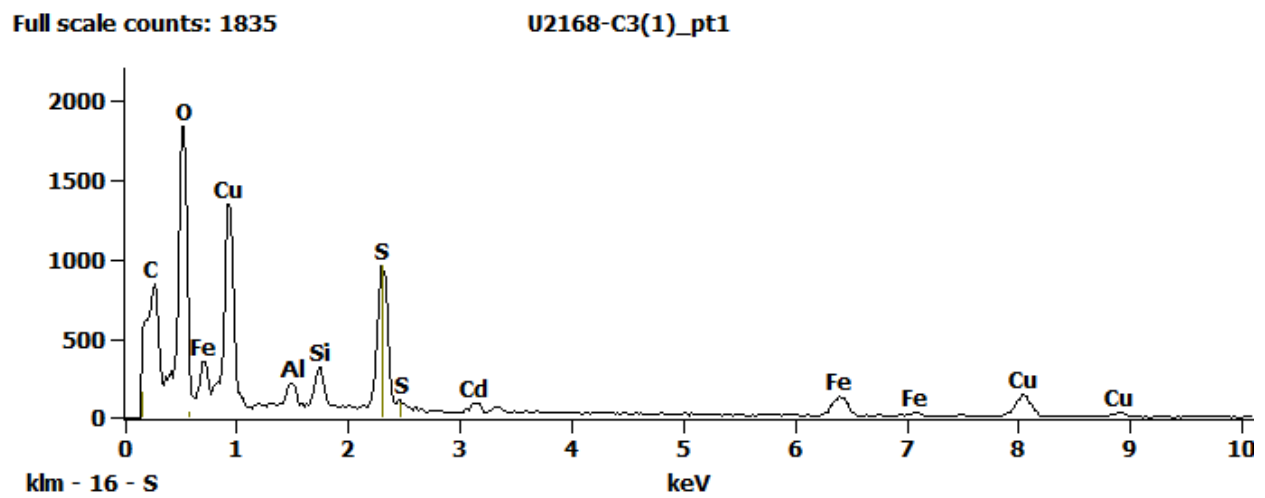


Figure 1. EDS Spectra for sample U2168-C-3 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2158

U2168-C3(1)\_pt2

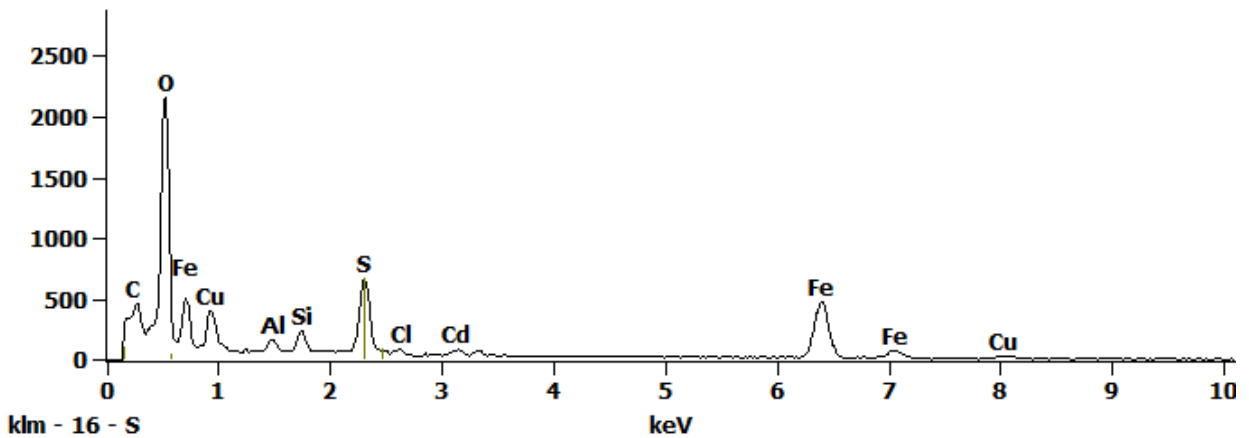


Figure 2. EDS Spectra for sample U2168-C-3 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1649

U2168-C3(1)\_pt3

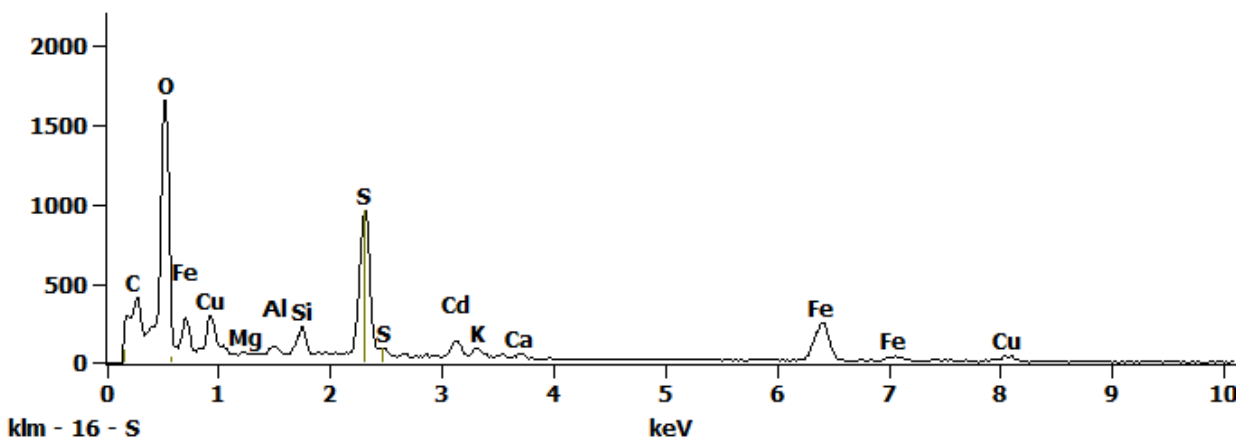


Figure 3. EDS Spectra for sample U2168-C-3 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1769

U2168-C3(1)\_pt4

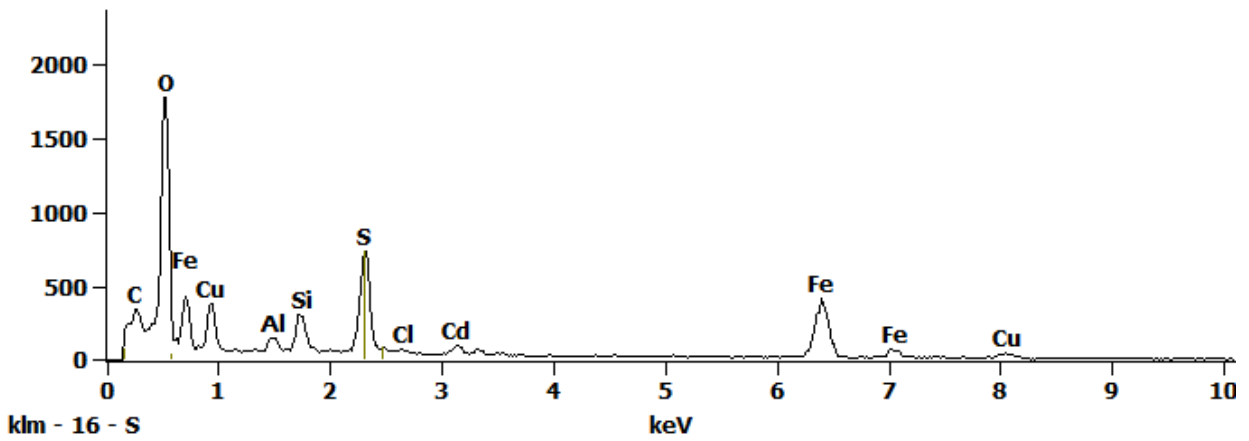
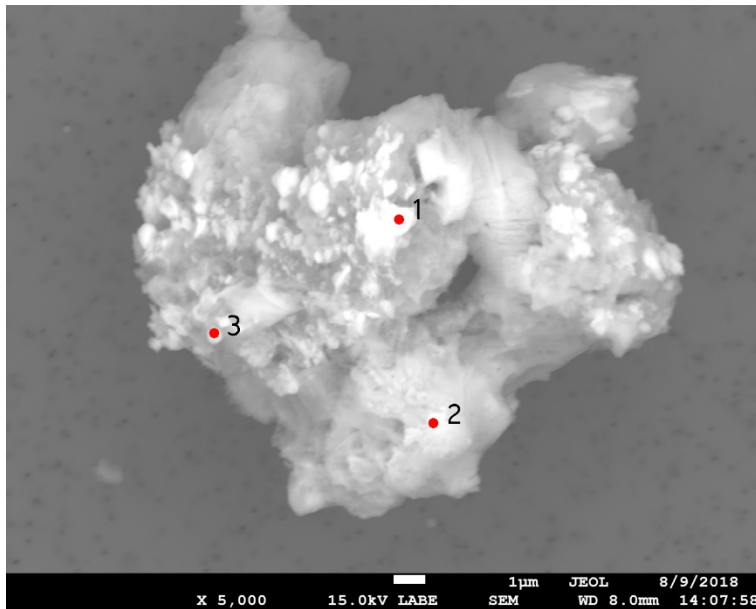


Figure 4. EDS Spectra for sample U2168-C-3 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 C6



SEM Photo of sample U2168 C6 with labeled EDS testing locations.

<b>Particle Size:</b>	15 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### U2168 C6 - EDS Spectra

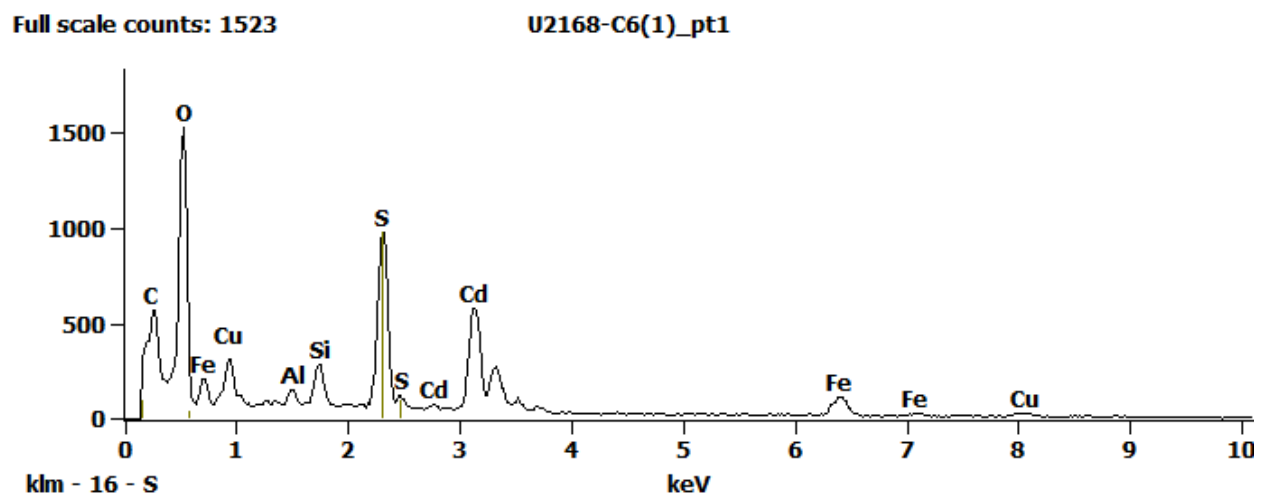


Figure 1. EDS Spectra for sample U2168-C-6 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1946

U2168-C6(1)\_pt2

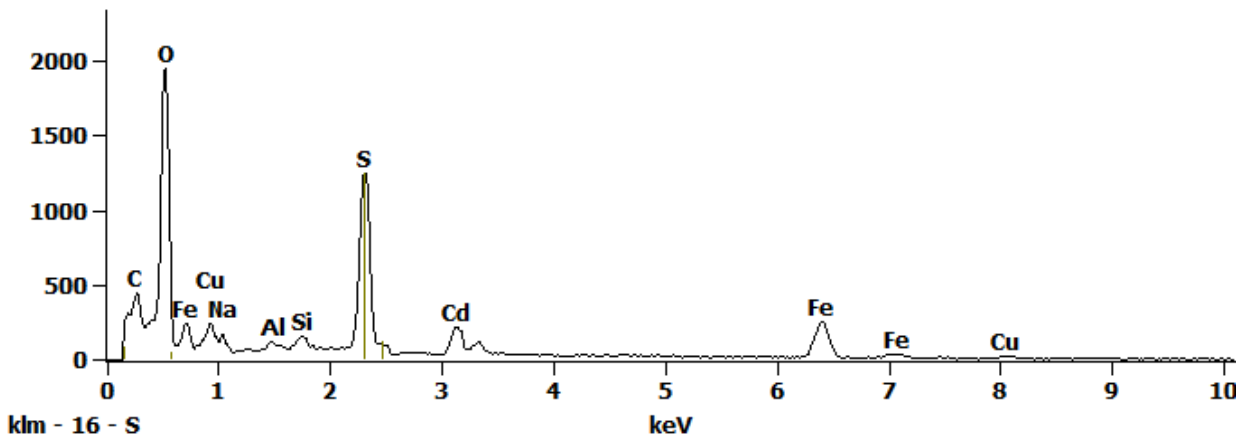


Figure 2. EDS Spectra for sample U2168-C-6 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2040

U2168-C6(1)\_pt3

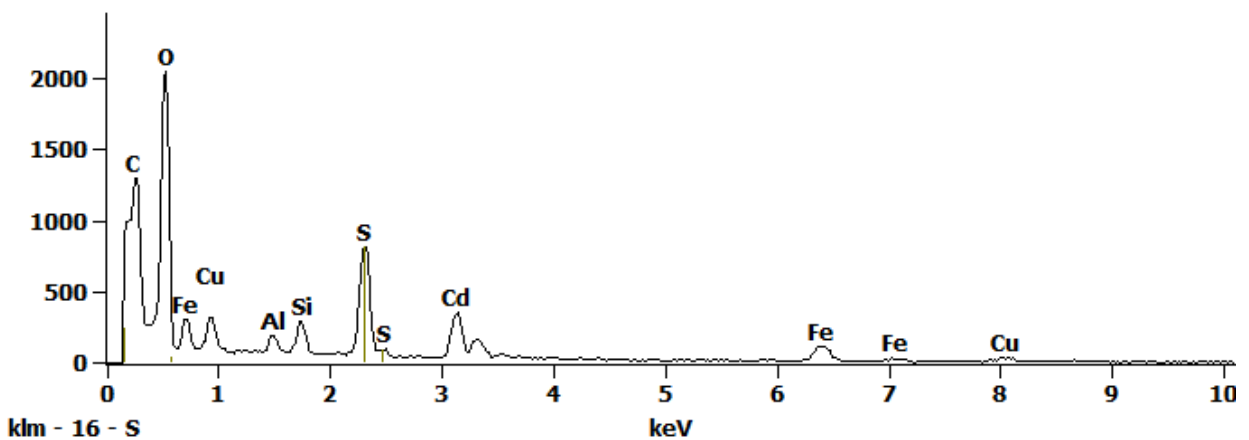
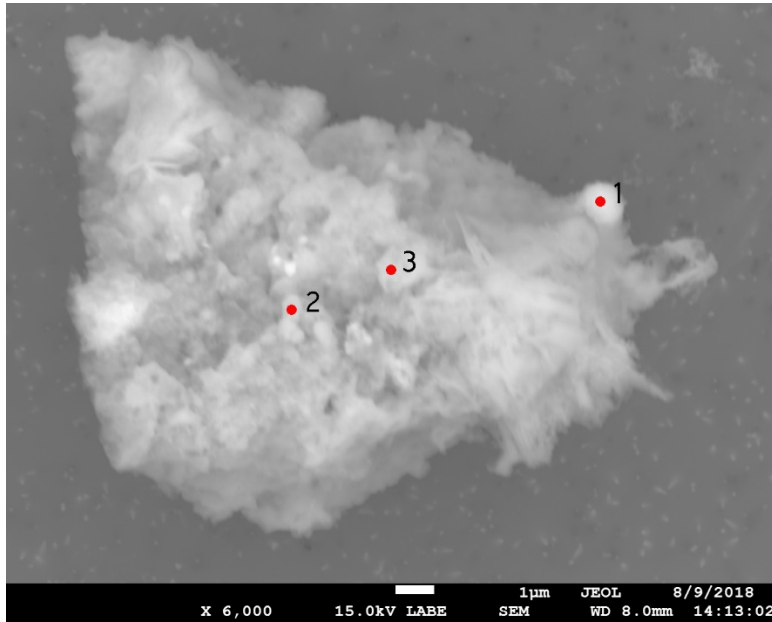


Figure 3. EDS Spectra for sample U2168-C-6 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 C7



<b>Particle Size:</b>	18 $\mu\text{m}$
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C7 with labeled EDS testing locations.

### U2168 C7 - EDS Spectra

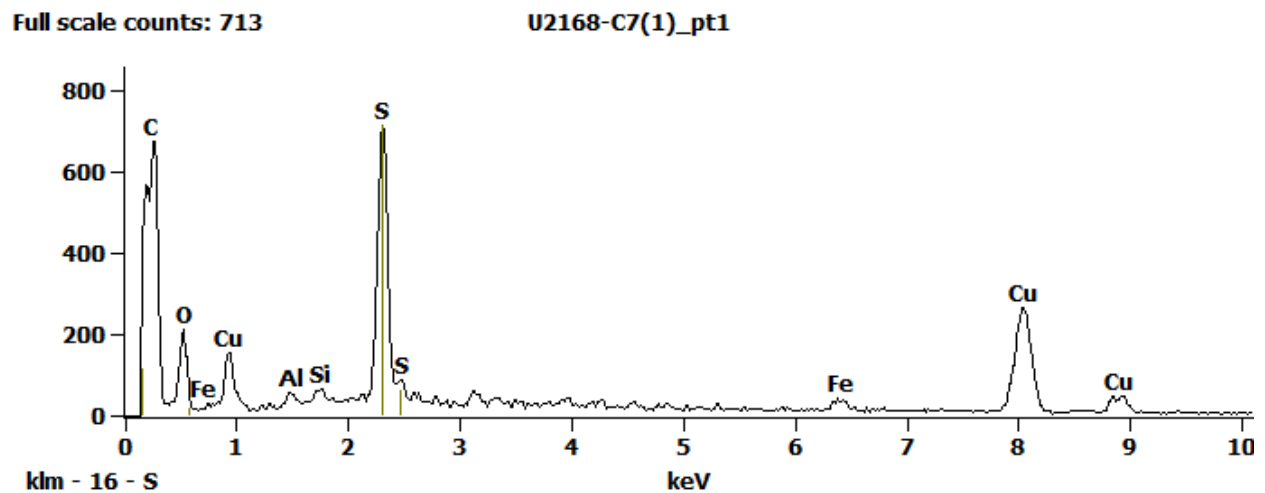


Figure 1. EDS Spectra for sample U2168-C-7 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1279

U2168-C7(1)\_pt2

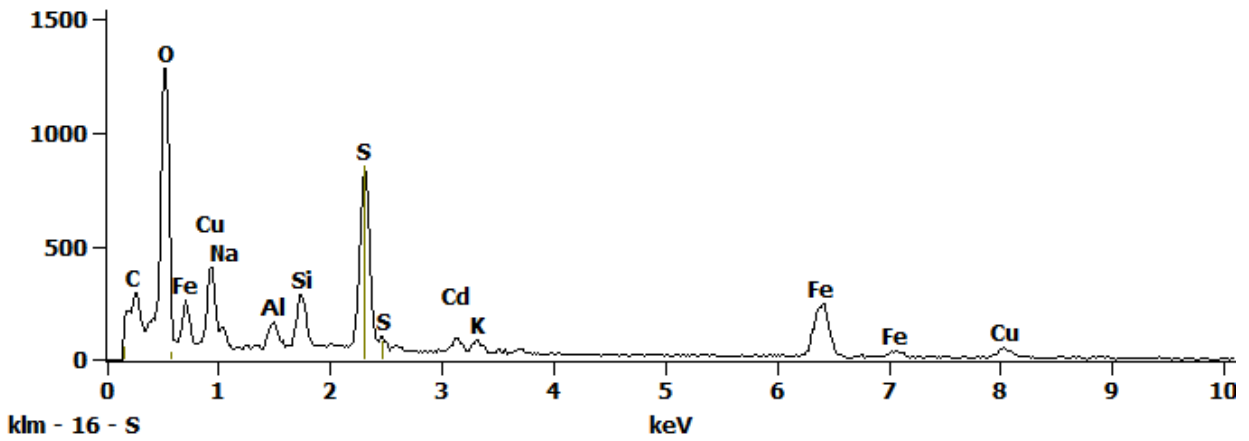


Figure 2. EDS Spectra for sample U2168-C-7 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2104

U2168-C7(1)\_pt3

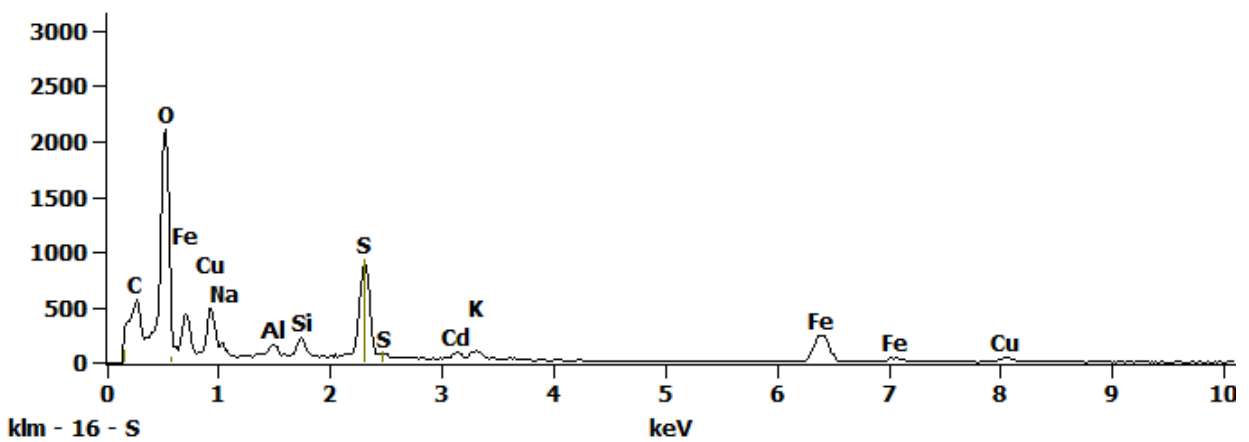
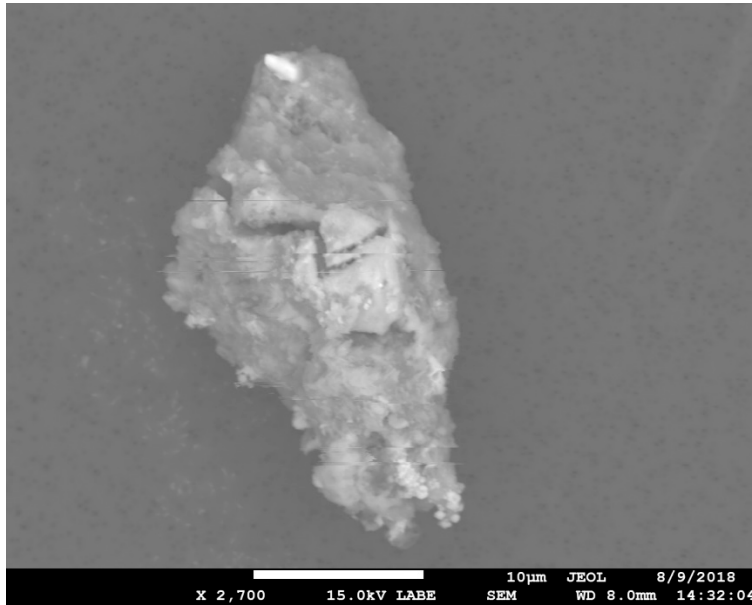


Figure 3. EDS Spectra for sample U2168-C-7 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 C11



SEM Photo of sample U2168 C11

<b>Particle Size:</b>	24 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### U2168 C11 - EDS Spectra

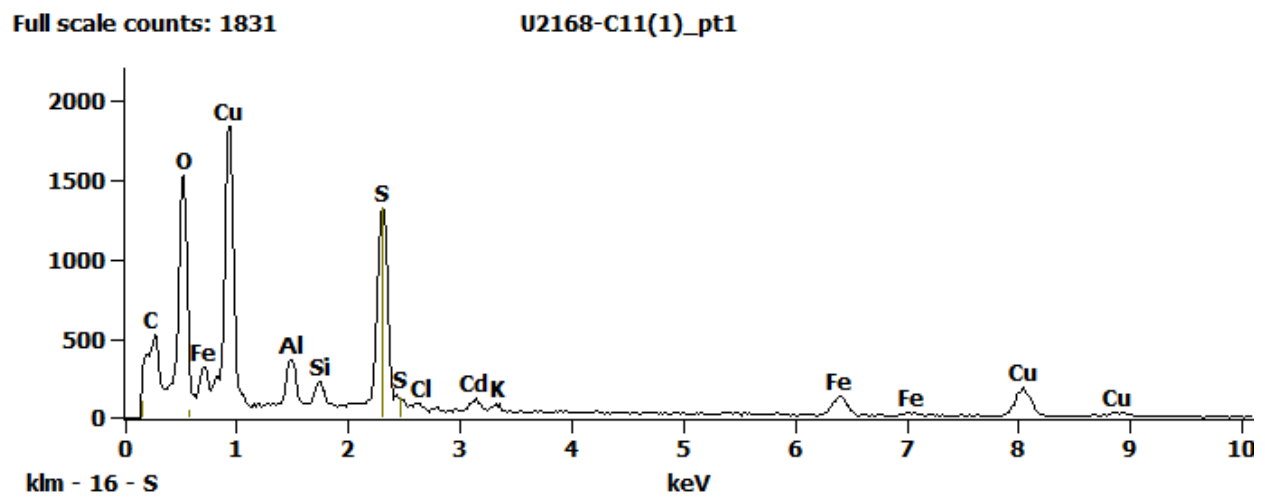
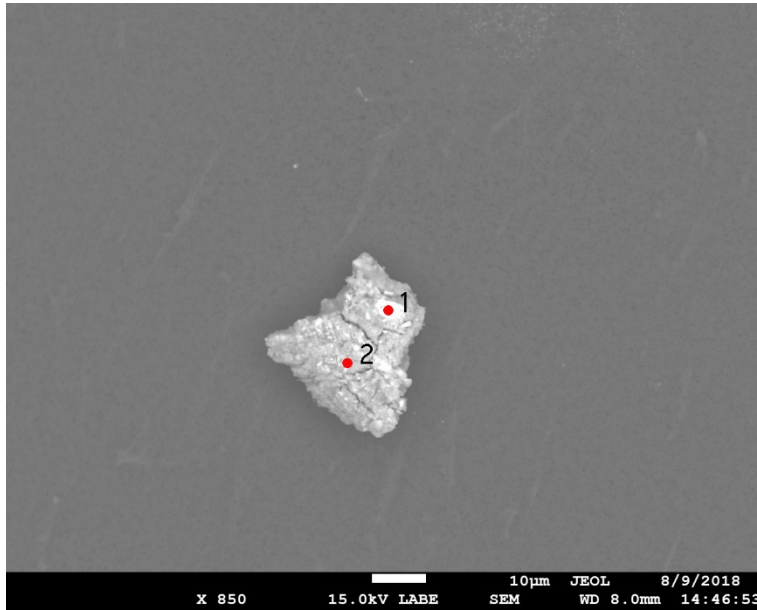


Figure 1. EDS Spectra for sample U2168-C-11 taken at test area 1. The test area is labeled in the particle SEM photo.



## U2168 C13



SEM Photo of sample U2168 C13 with labeled EDS testing locations.

<b>Particle Size:</b>	30 µm
<b>Shape:</b>	Irregular to Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### U2168 C13 - EDS Spectra

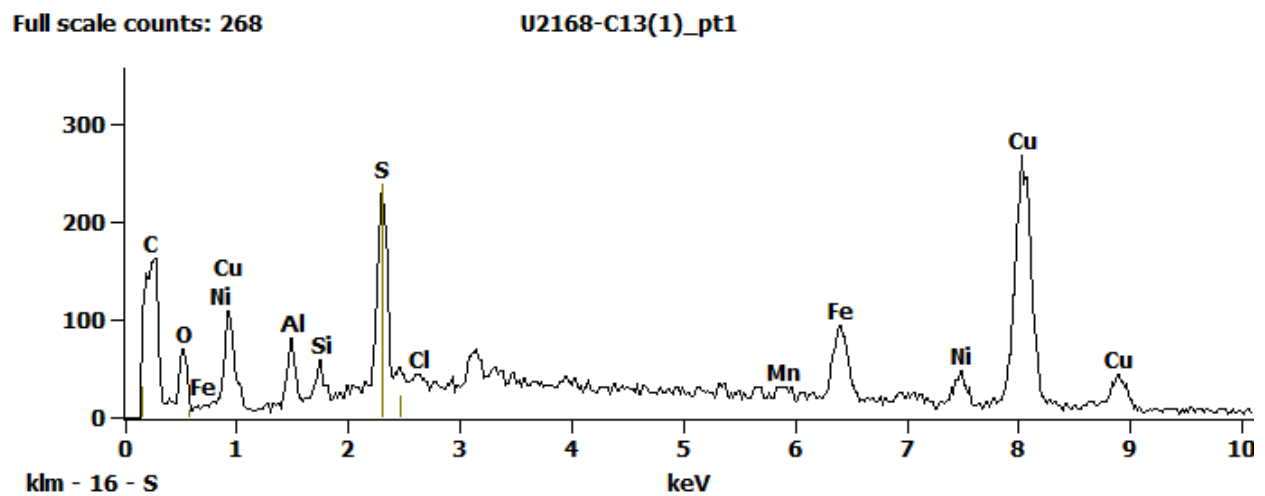


Figure 1. EDS Spectra for sample U2168-C-13 taken at test area 1. The test area is labeled in the particle SEM photo.

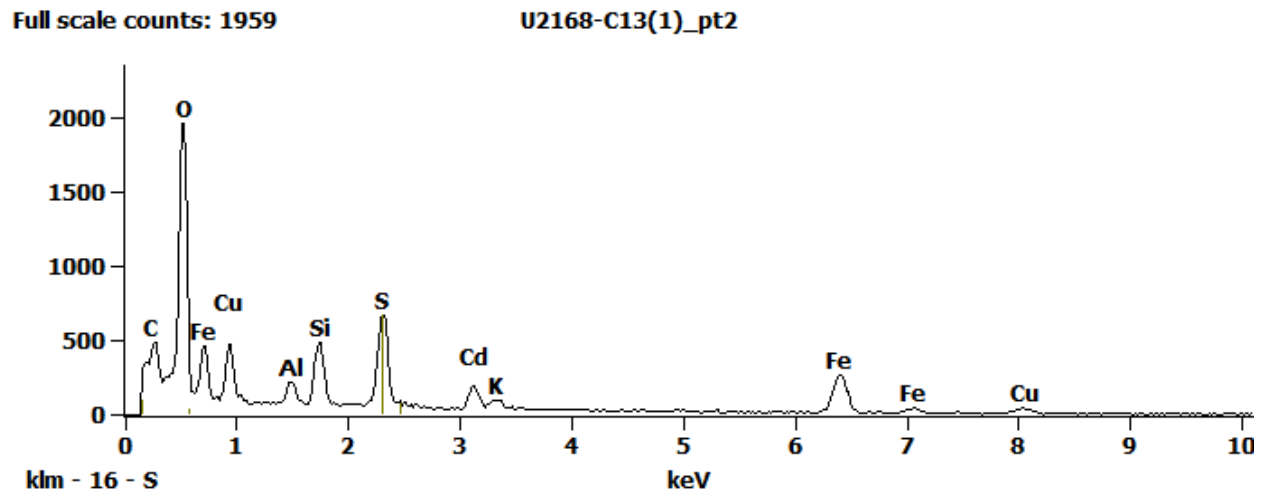
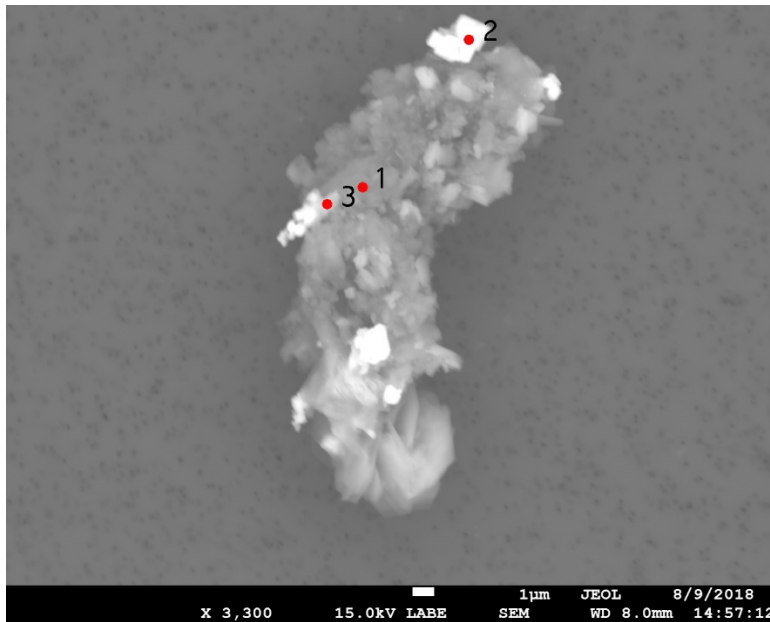


Figure 2. EDS Spectra for sample U2168-C-13 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 C15



<b>Particle Size:</b>	20 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C15 with labeled EDS testing locations.

### U2168 C15 - EDS Spectra

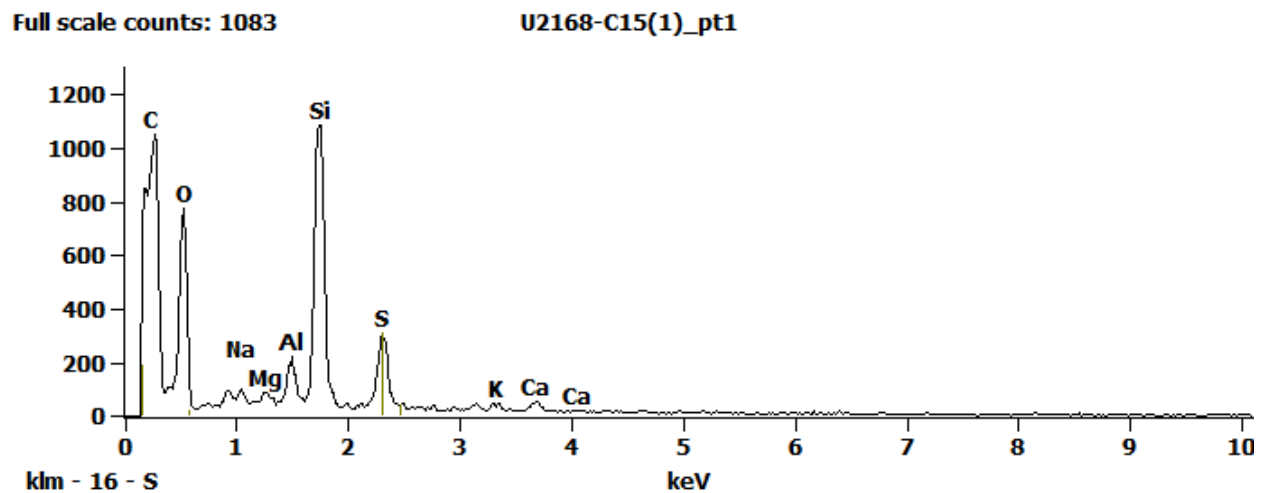


Figure 1. EDS Spectra for sample U2168-C-15 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 953

U2168-C15(1)\_pt2

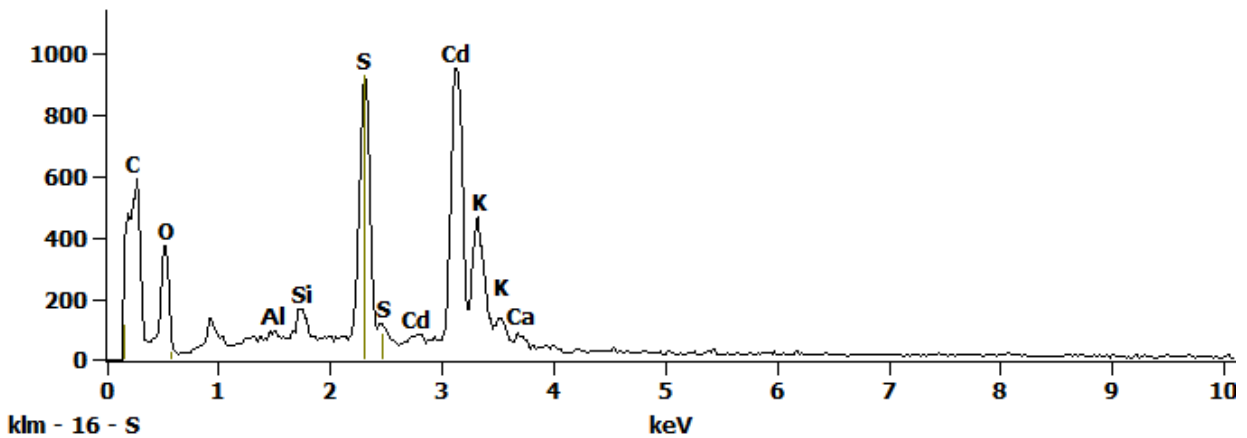


Figure 2. EDS Spectra for sample U2168-C-15 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1501

U2168-C15(1)\_pt3

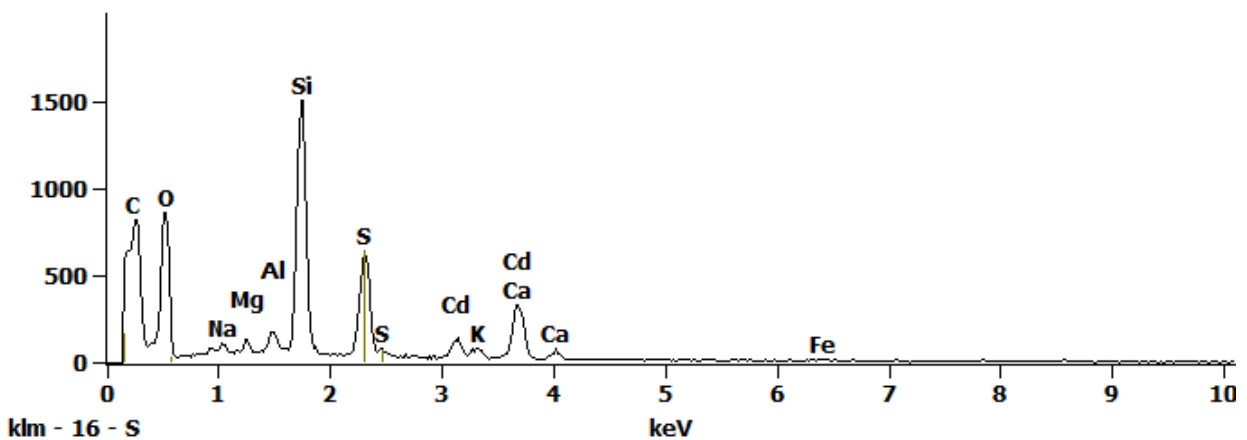
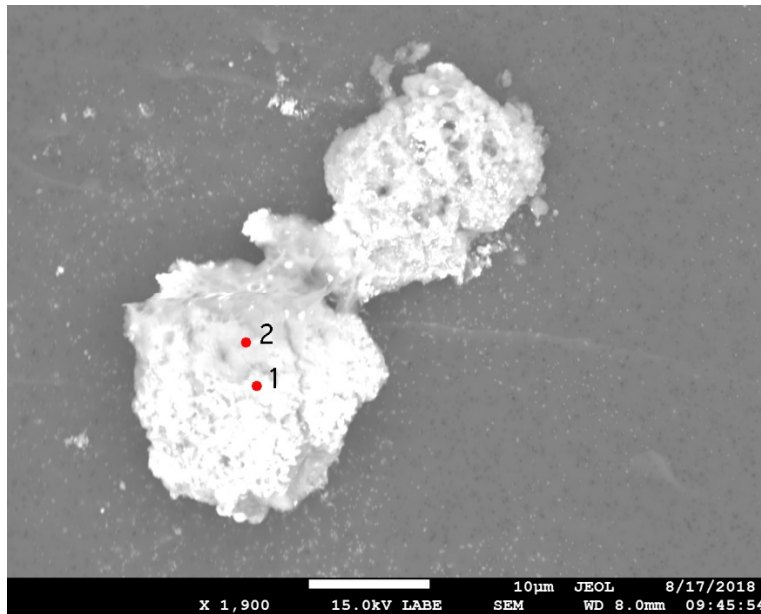


Figure 3. EDS Spectra for sample U2168-C-15 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 D3



<b>Particle Size:</b>	40 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D3 with labeled EDS testing locations.

### U2168 D3 - EDS Spectra

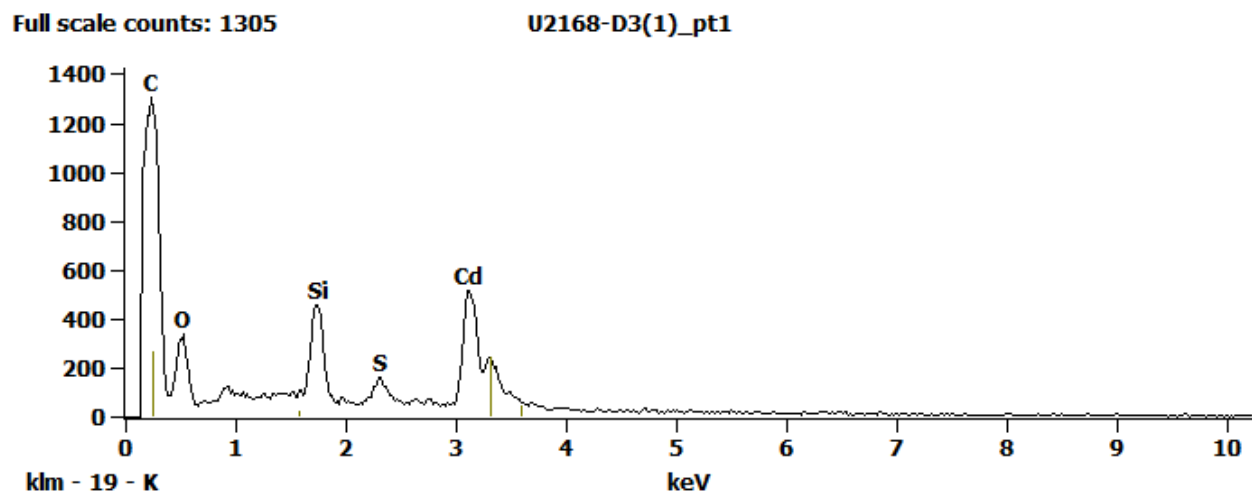


Figure 1. EDS Spectra for sample U2168-D-3 taken at test area 1. The test area is labeled in the particle SEM photo.

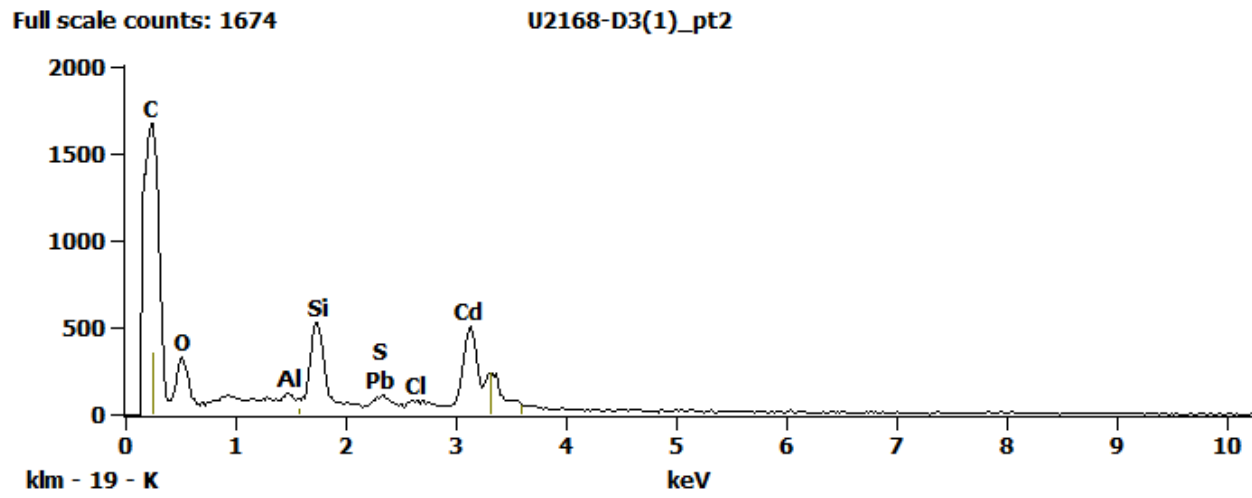
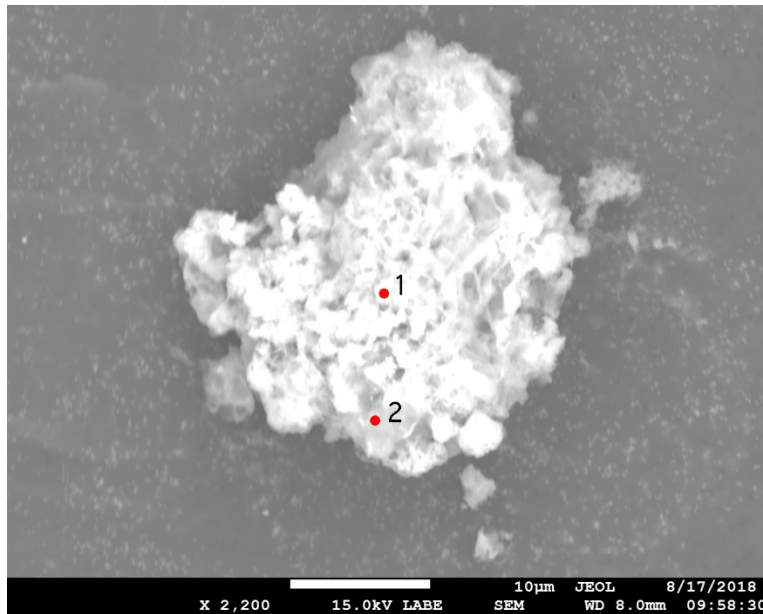


Figure 2. EDS Spectra for sample U2168-D-3 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 D6



<b>Particle Size:</b>	27 $\mu\text{m}$
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D6 with labeled EDS testing locations.

### U2168 D6 - EDS Spectra

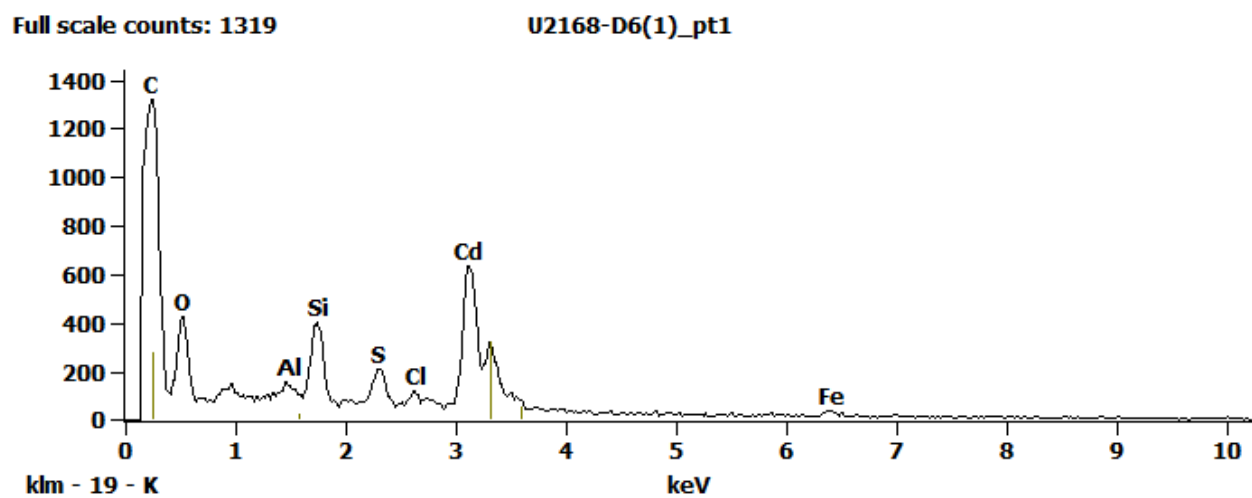


Figure 1. EDS Spectra for sample U2168-D-6 taken at test area 1. The test area is labeled in the particle SEM photo.

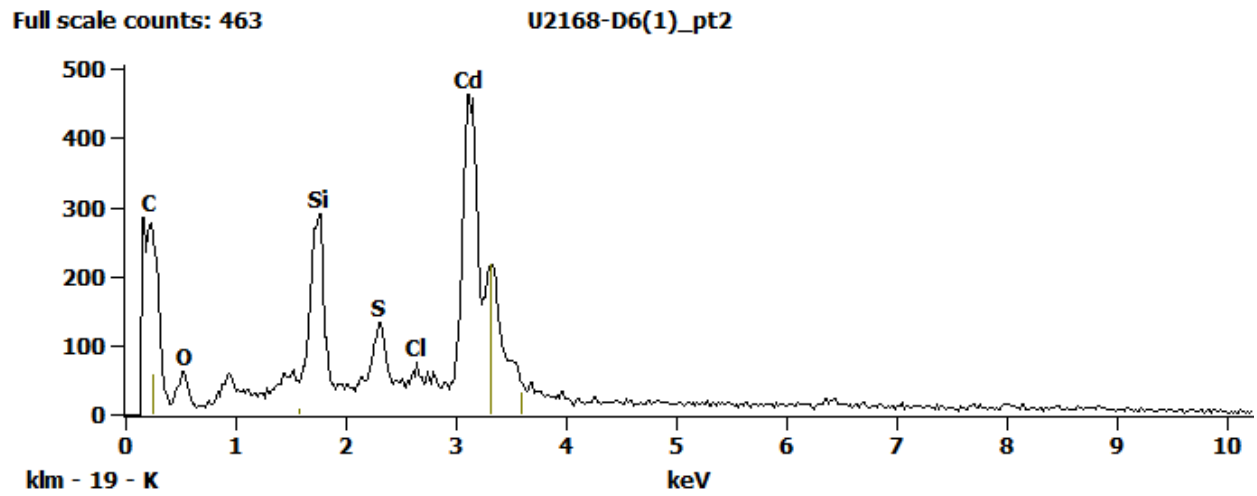
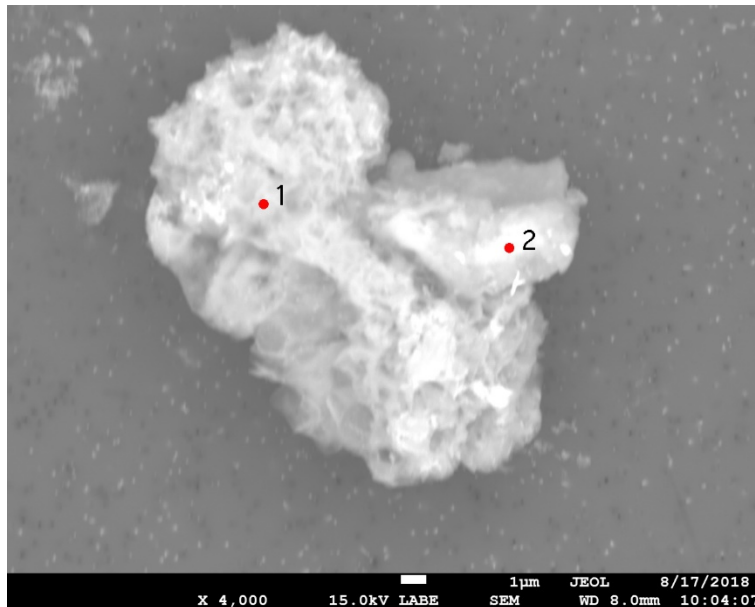


Figure 2. EDS Spectra for sample U2168-D-6 taken at test area 2. The test area is labeled in the particle SEM photo.



## U2168 D7



<b>Particle Size:</b>	19 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D7 with labeled EDS testing locations.

### U2168 D7 - EDS Spectra

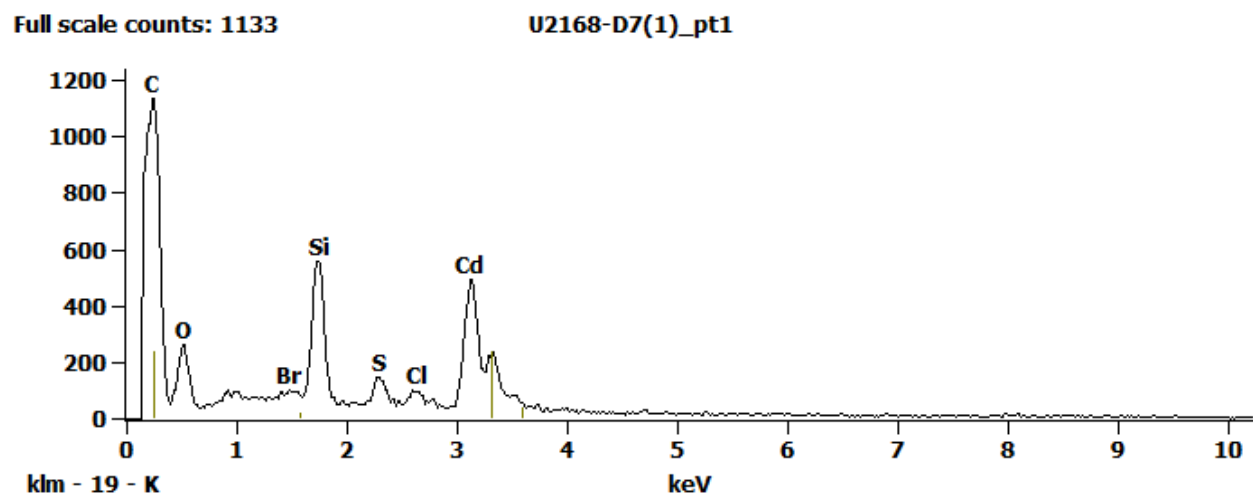


Figure 1. EDS Spectra for sample U2168-D-7 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2034

U2168-D7(1)\_pt2

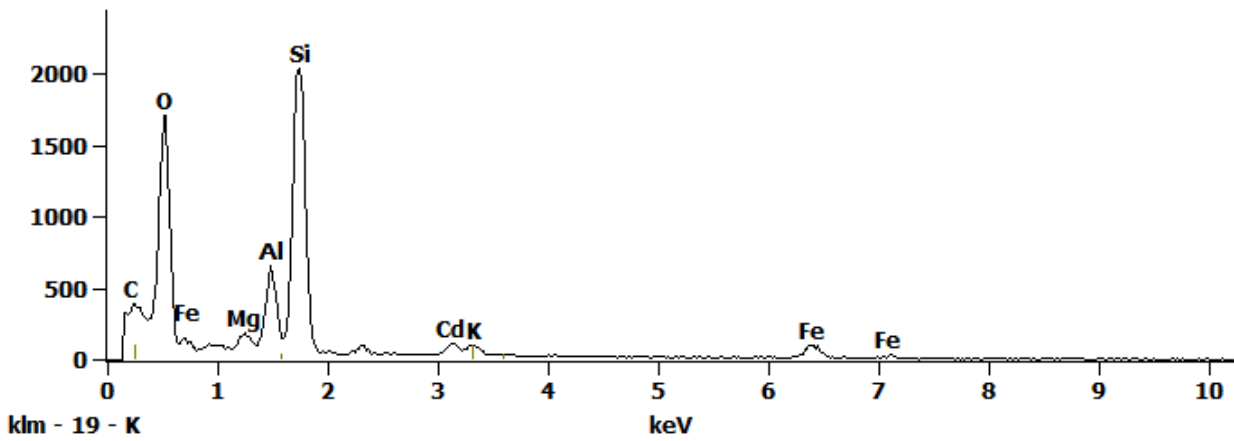
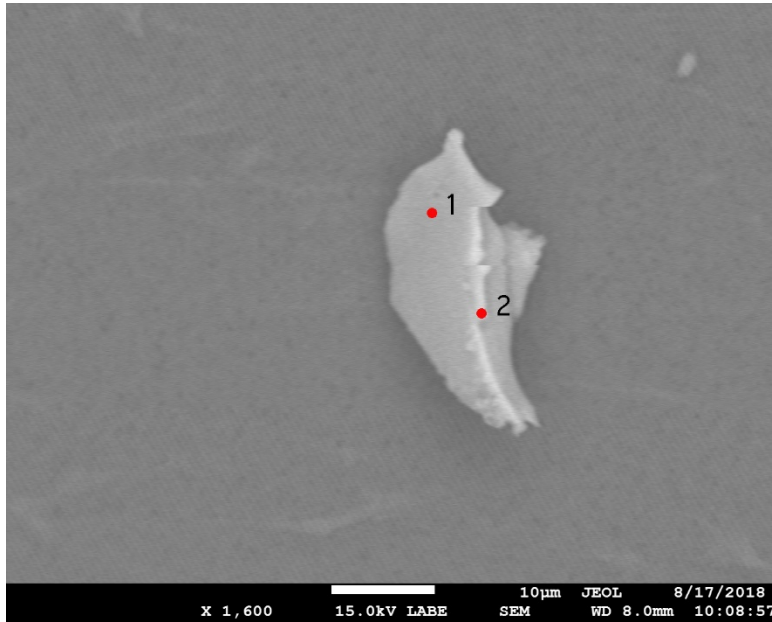


Figure 2. EDS Spectra for sample U2168-D-7 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 D8



SEM Photo of sample U2168 D8 with labeled EDS testing locations.

<b>Particle Size:</b>	30x15 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### U2168 D8 - EDS Spectra

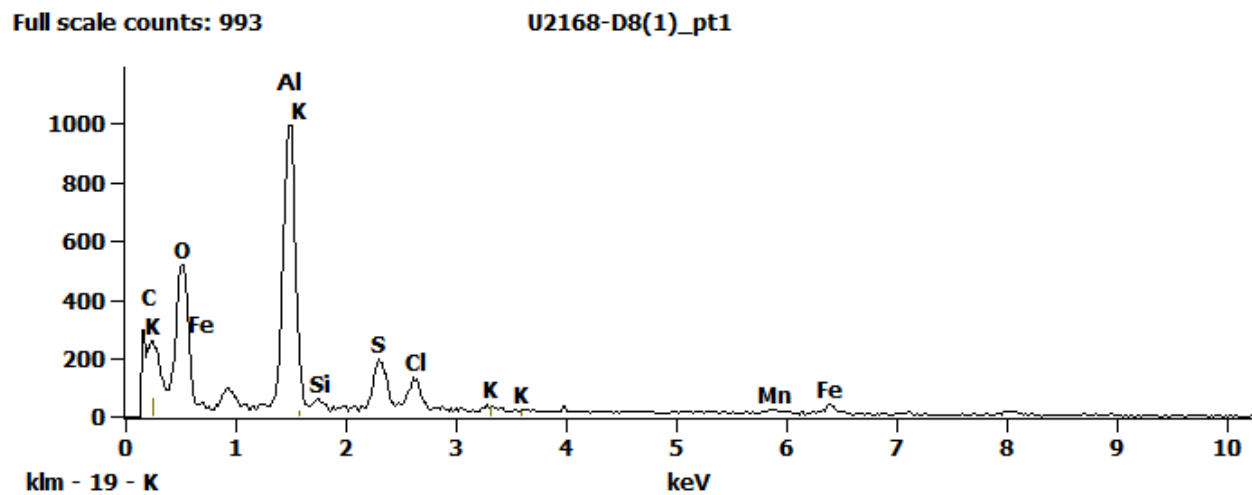


Figure 1. EDS Spectra for sample U2168-D-8 taken at test area 1. The test area is labeled in the particle SEM photo.

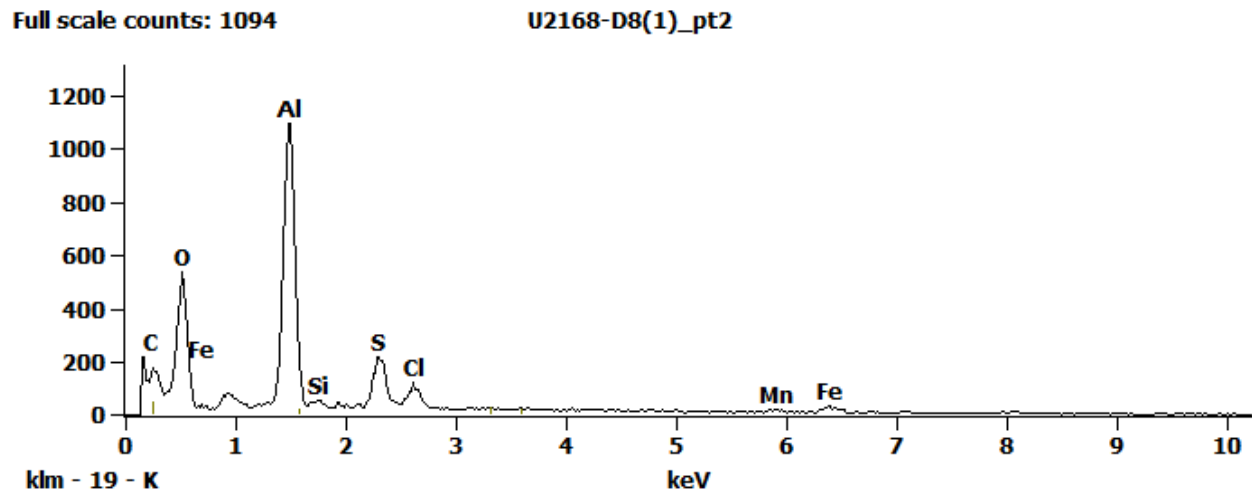
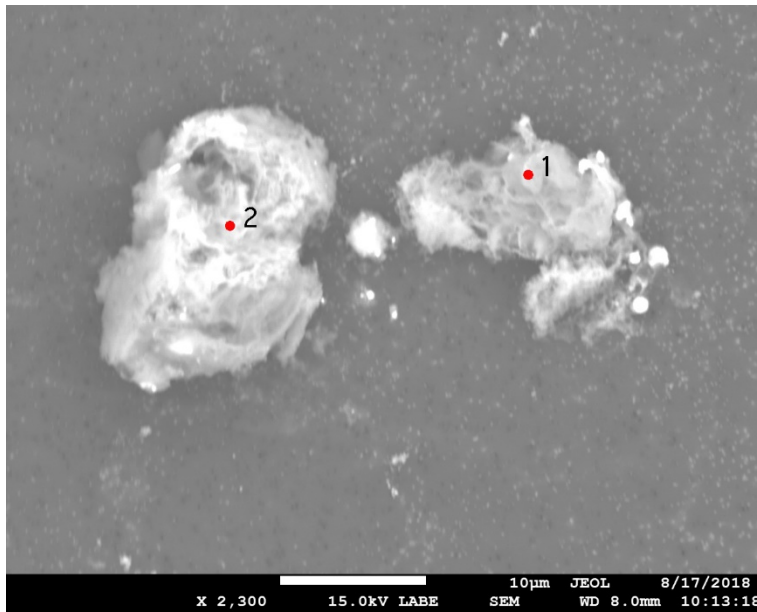


Figure 2. EDS Spectra for sample U2168-D-8 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 D9



<b>Particle Size:</b>	20 μm
<b>Shape:</b>	Spherical to Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D9 with labeled EDS testing locations.

### U2168 D9 - EDS Spectra

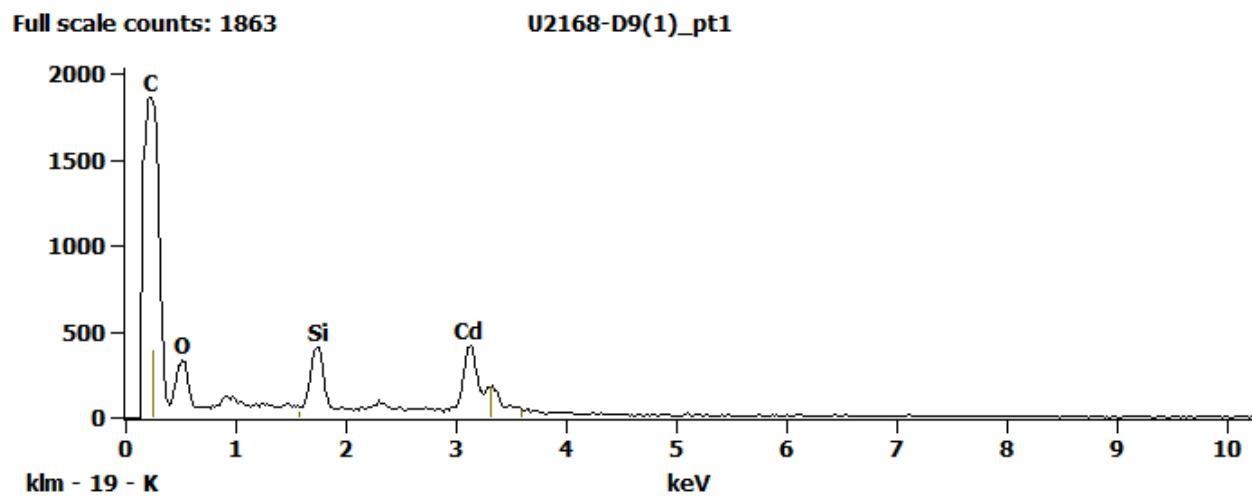


Figure 1. EDS Spectra for sample U2168-D-9 taken at test area 1. The test area is labeled in the particle SEM photo.

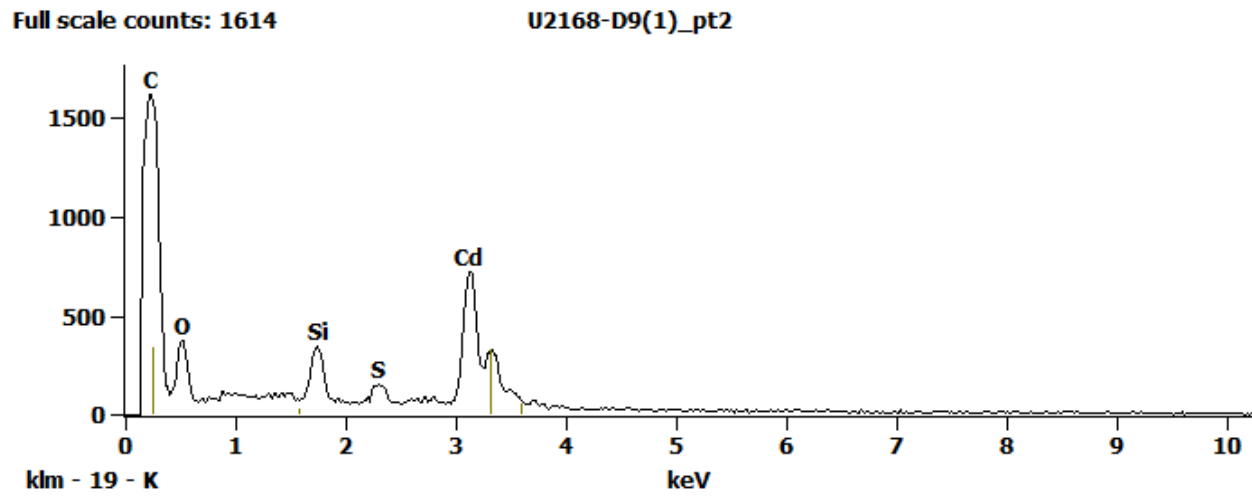
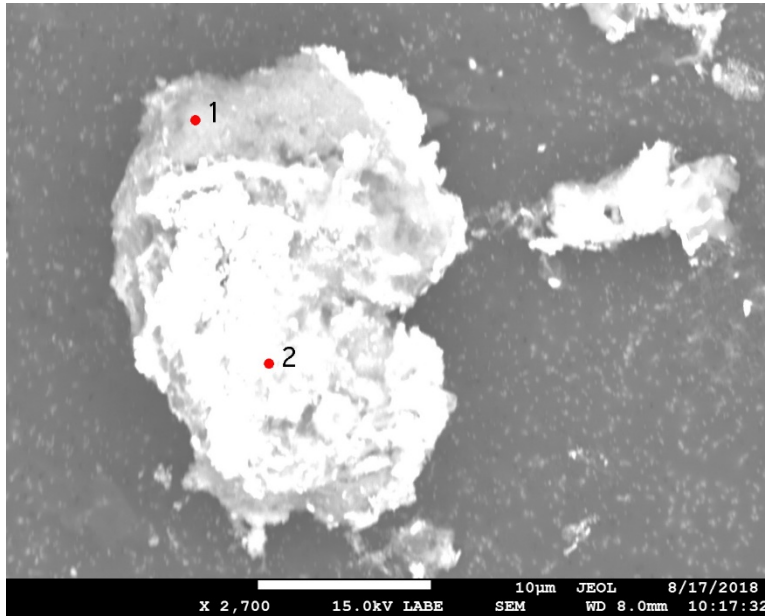


Figure 2. EDS Spectra for sample U2168-D-9 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 D11



<b>Particle Size:</b>	22 $\mu\text{m}$
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D11 with labeled EDS testing locations.

### U2168 D11 - EDS Spectra

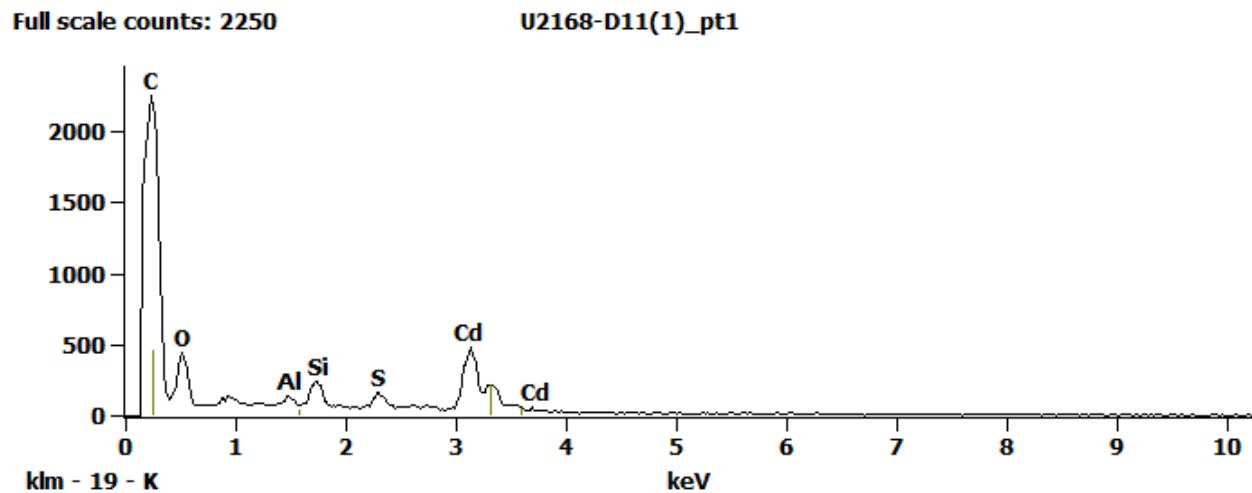


Figure 1. EDS Spectra for sample U2168-D-11 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 967

U2168-D11(1)\_pt2

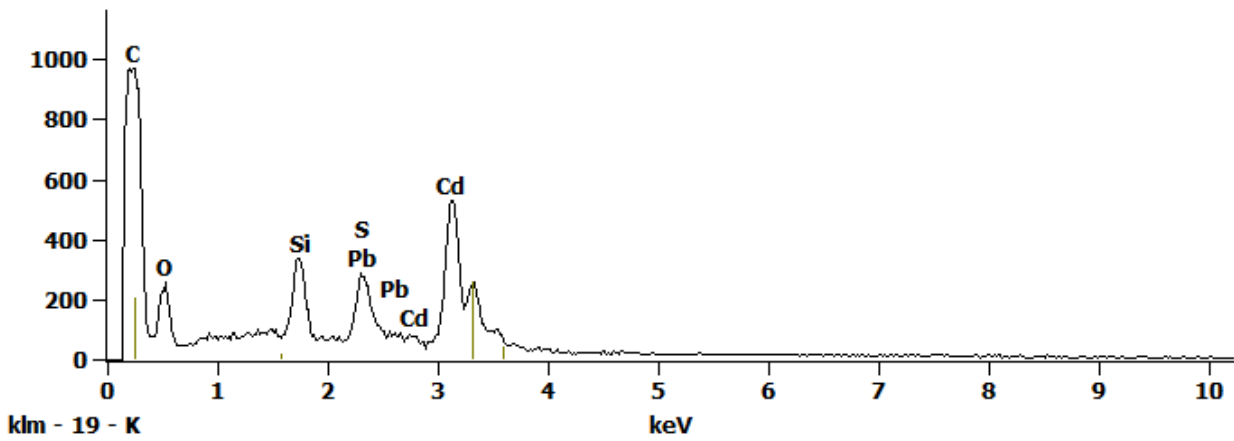
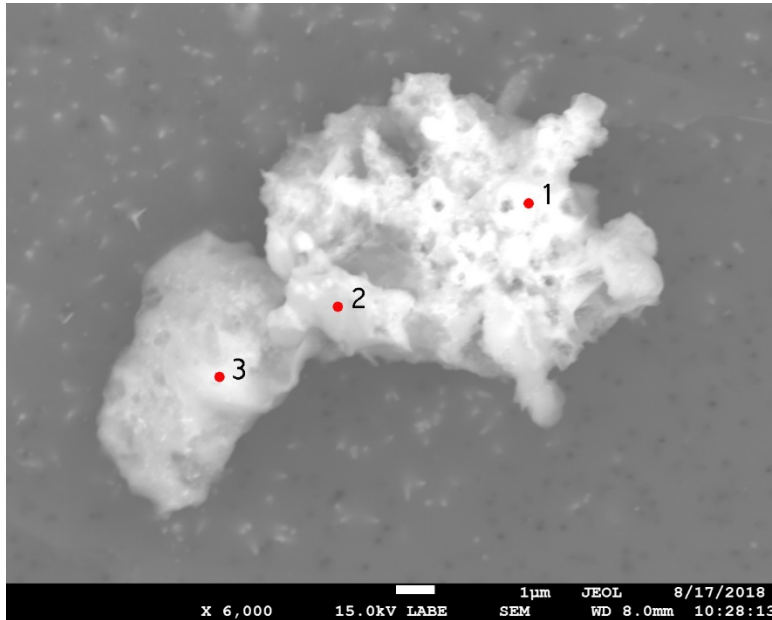


Figure 2. EDS Spectra for sample U2168-D-11 taken at test area 2. The test area is labeled in the particle SEM photo.



## U2168 D13



<b>Particle Size:</b>	15 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D13 with labeled EDS testing locations.

### U2168 D13 - EDS Spectra

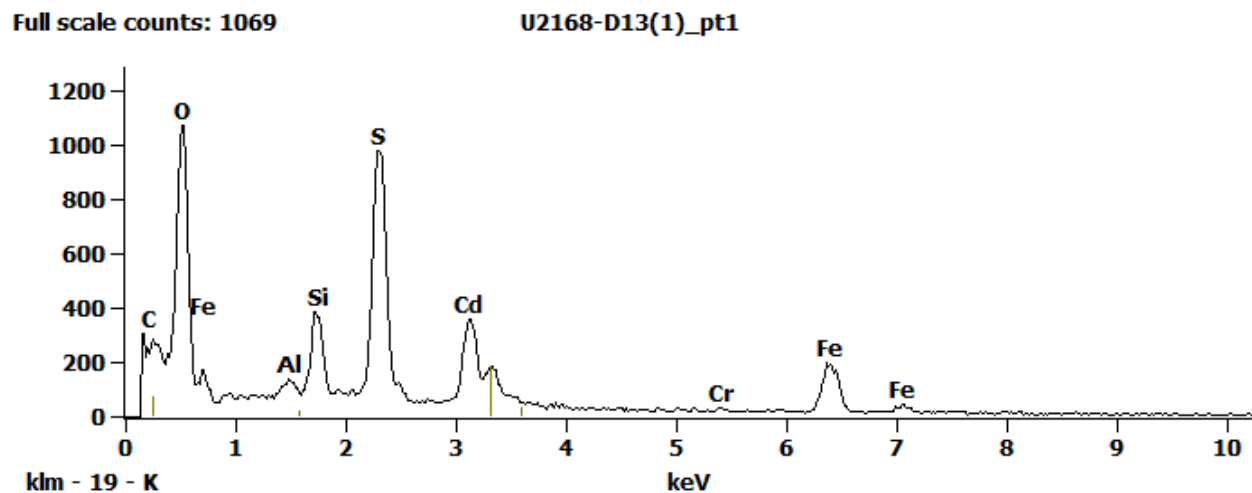


Figure 1. EDS Spectra for sample U2168-D-13 taken at test area 1. The test area is labeled in the particle SEM photo.

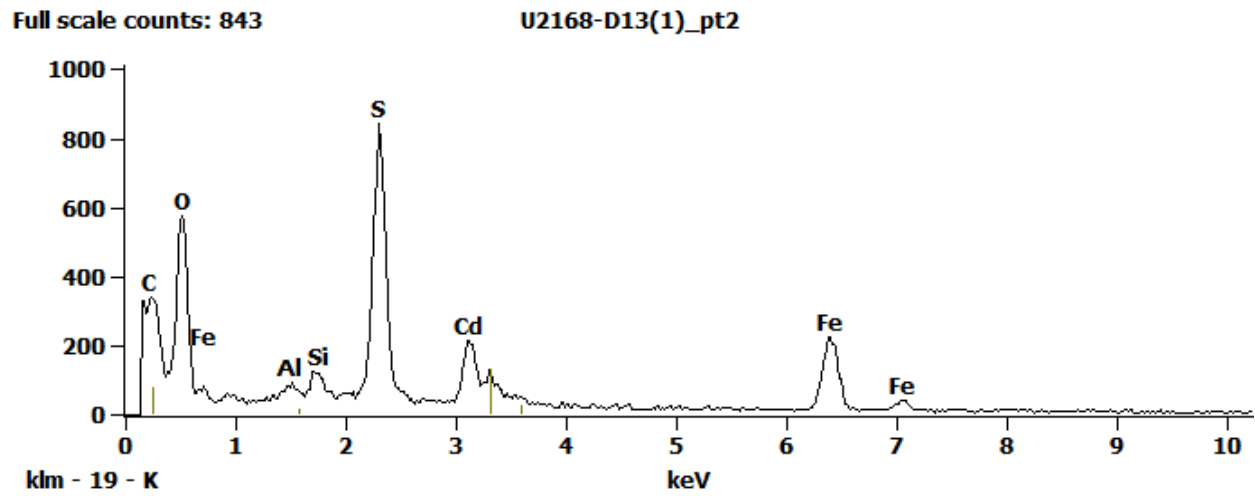


Figure 2. EDS Spectra for sample U2168-D-13 taken at test area 2. The test area is labeled in the particle SEM photo.

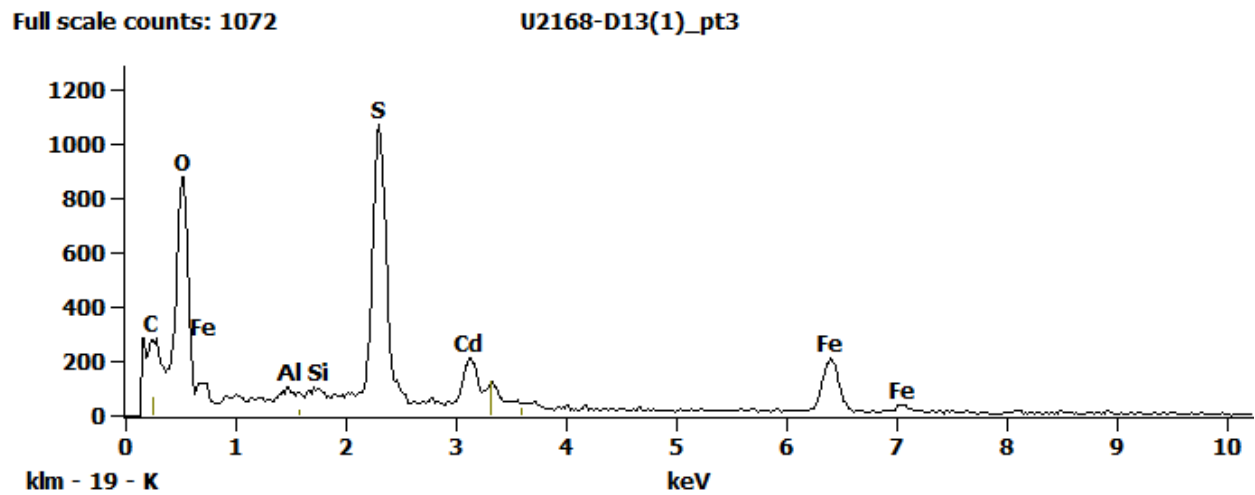
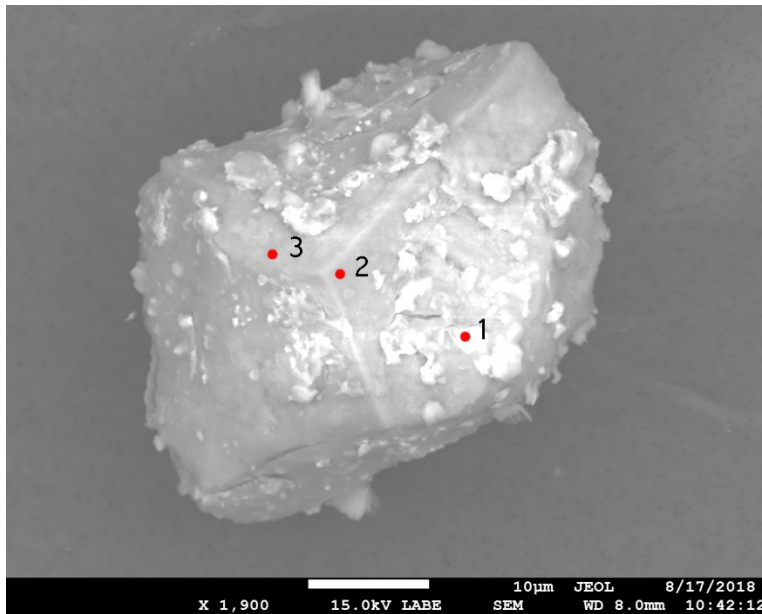


Figure 3. EDS Spectra for sample U2168-D-13 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 D16



<b>Particle Size:</b>	40x27 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D16 with labeled EDS testing locations.

### U2168 D16 - EDS Spectra

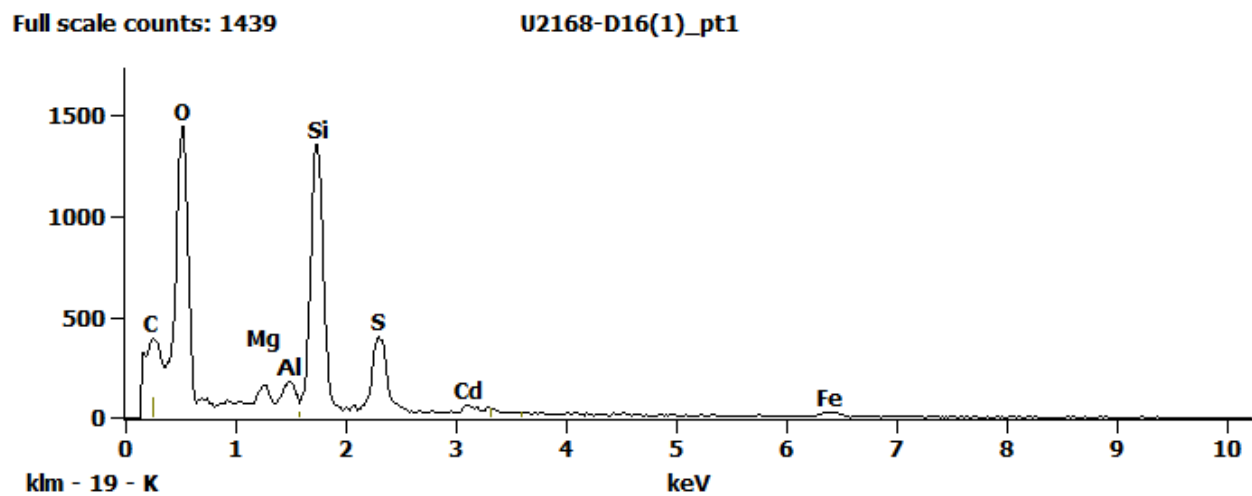


Figure 1. EDS Spectra for sample U2168-D-16 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2147

U2168-D16(1)\_pt2

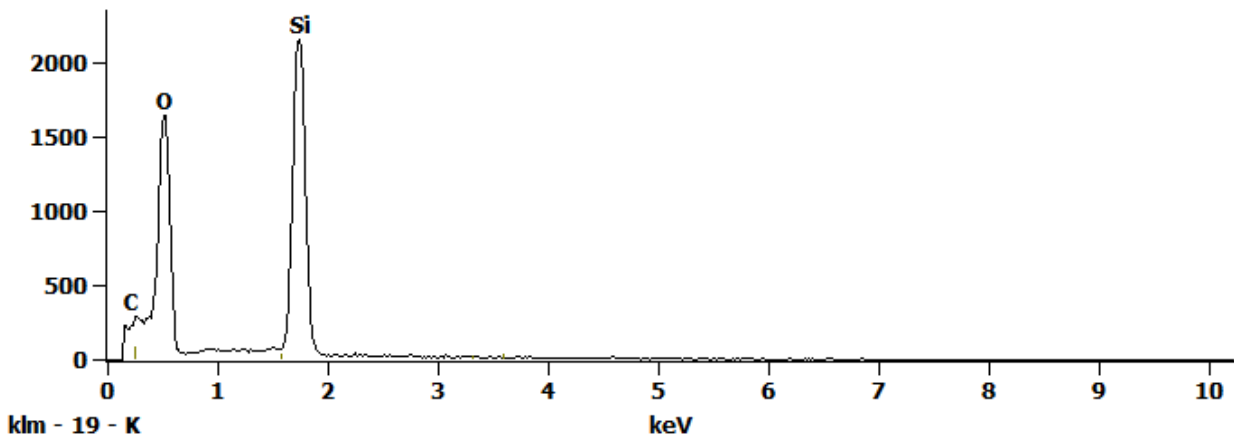


Figure 2. EDS Spectra for sample U2168-D-16 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2182

U2168-D16(1)\_pt3

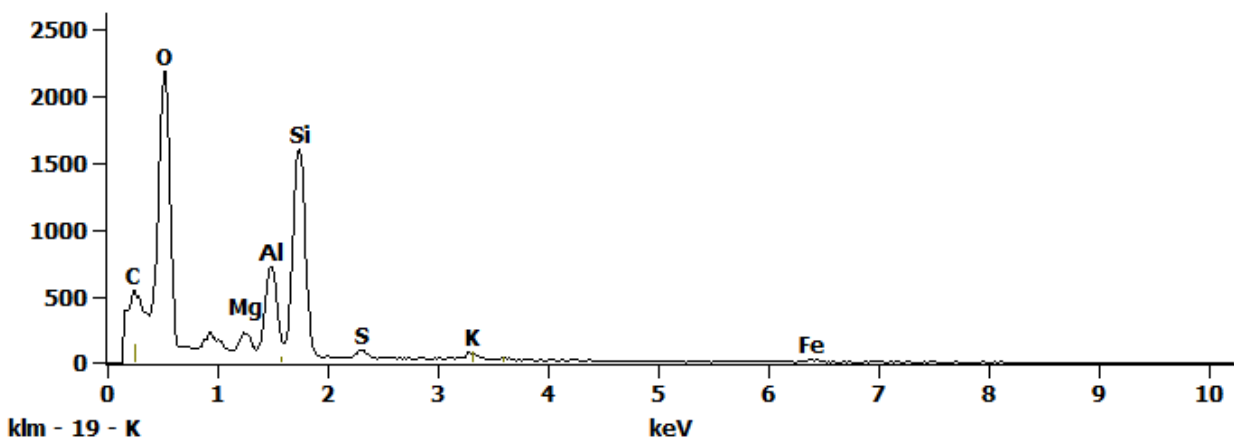
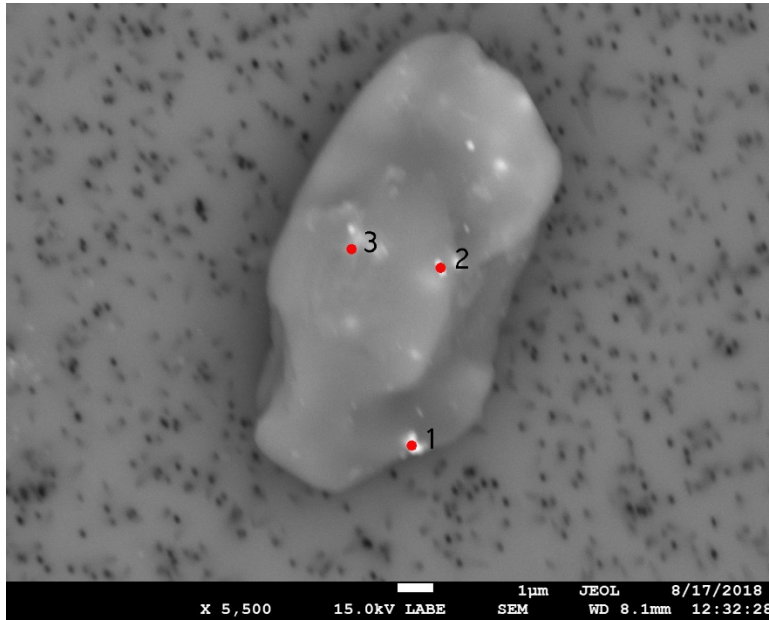


Figure 3. EDS Spectra for sample U2168-D-16 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 E1



SEM Photo of sample U2168 E1 with labeled EDS testing locations.

<b>Particle Size:</b>	12 $\mu\text{m}$
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Transparent to Translucent
<b>Color:</b>	CLEAR
<b>Luster:</b>	Vitreous to Subvitreous
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 13
<b>Comments:</b>	

### Cluster of Origin: U2168 Cluster 13



Photo of cluster U2168 Cluster 13.

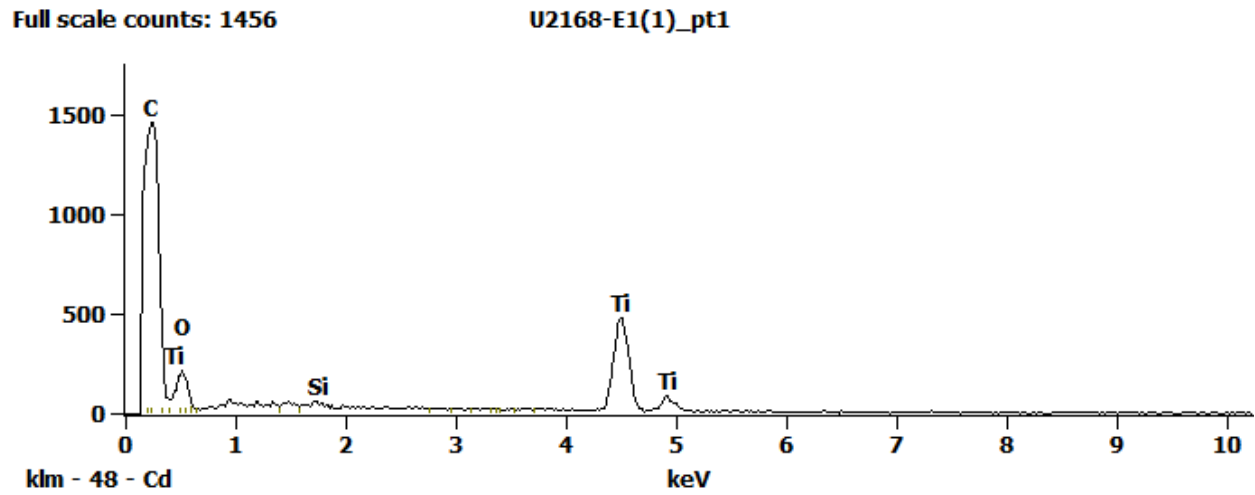
*U2168 E1 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-E-1 taken at test area 1. The test area is labeled in the particle SEM photo.

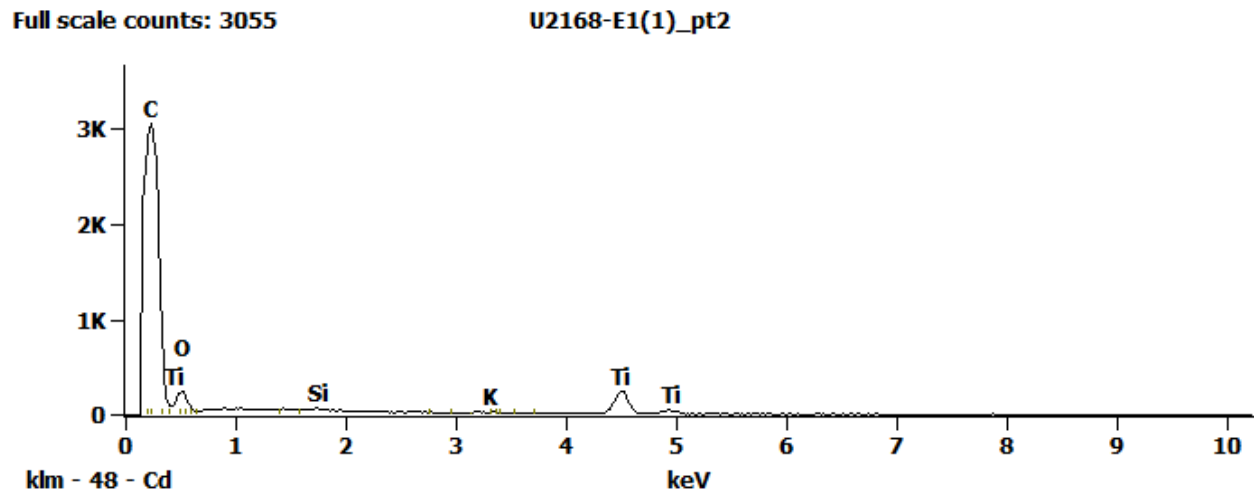


Figure 2. EDS Spectra for sample U2168-E-1 taken at test area 2. The test area is labeled in the particle SEM photo.

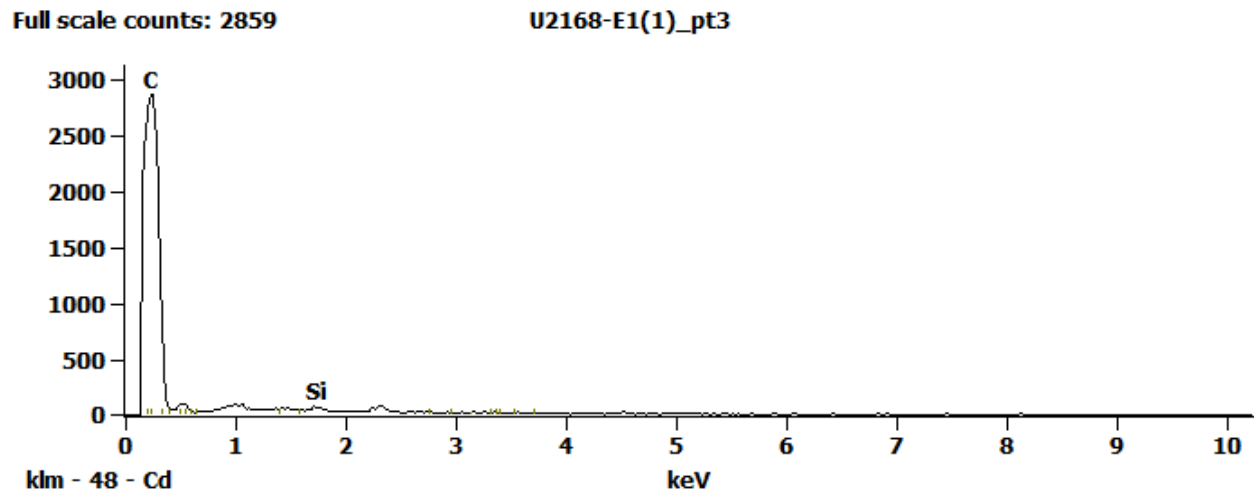
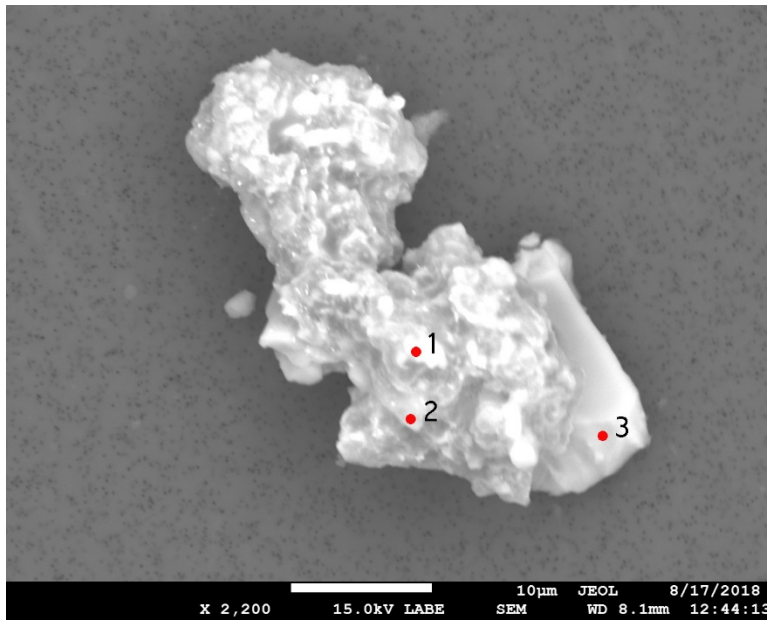


Figure 3. EDS Spectra for sample U2168-E-1 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 E3



**Particle Size:** 13x30 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Dull  
**Particle Type:** ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** U2168 Cluster 14  
**Comments:**

*SEM Photo of sample U2168 E3 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 14*



*Photo of cluster U2168 Cluster 14.*



## U2168 E3 - EDS Spectra

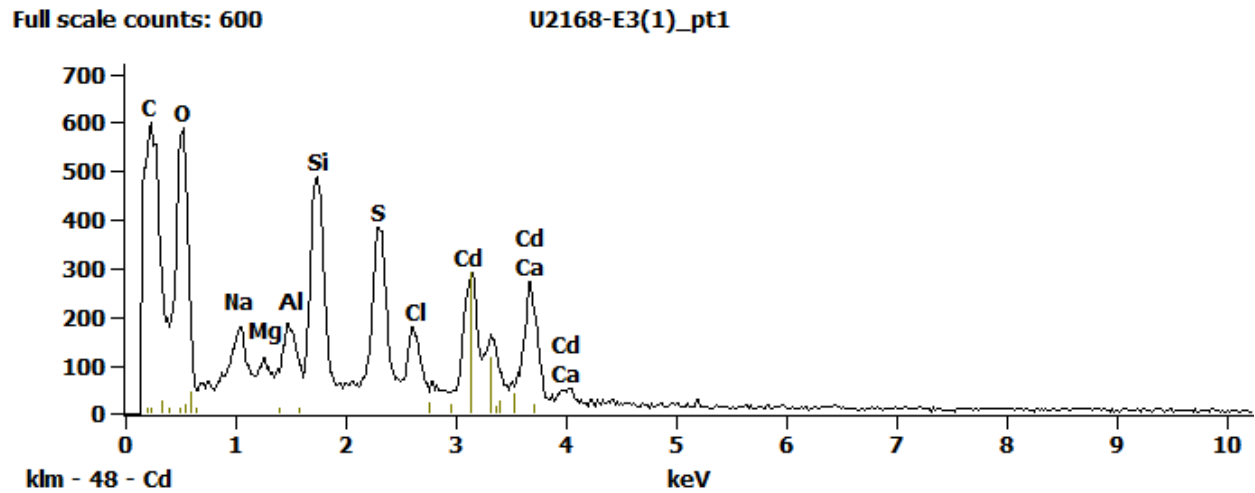


Figure 1. EDS Spectra for sample U2168-E-3 taken at test area 1. The test area is labeled in the particle SEM photo.

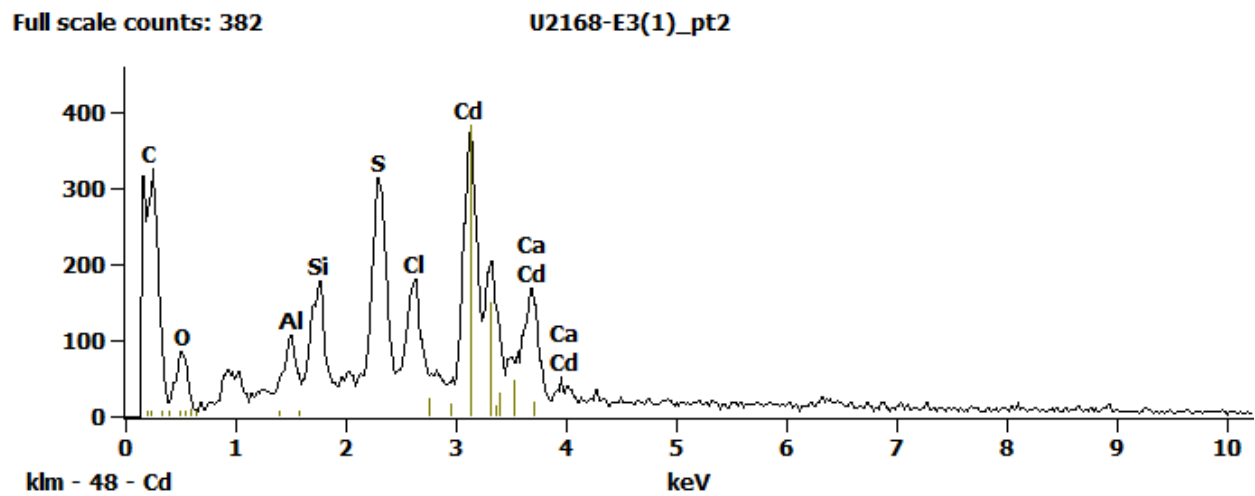


Figure 2. EDS Spectra for sample U2168-E-3 taken at test area 2. The test area is labeled in the particle SEM photo.

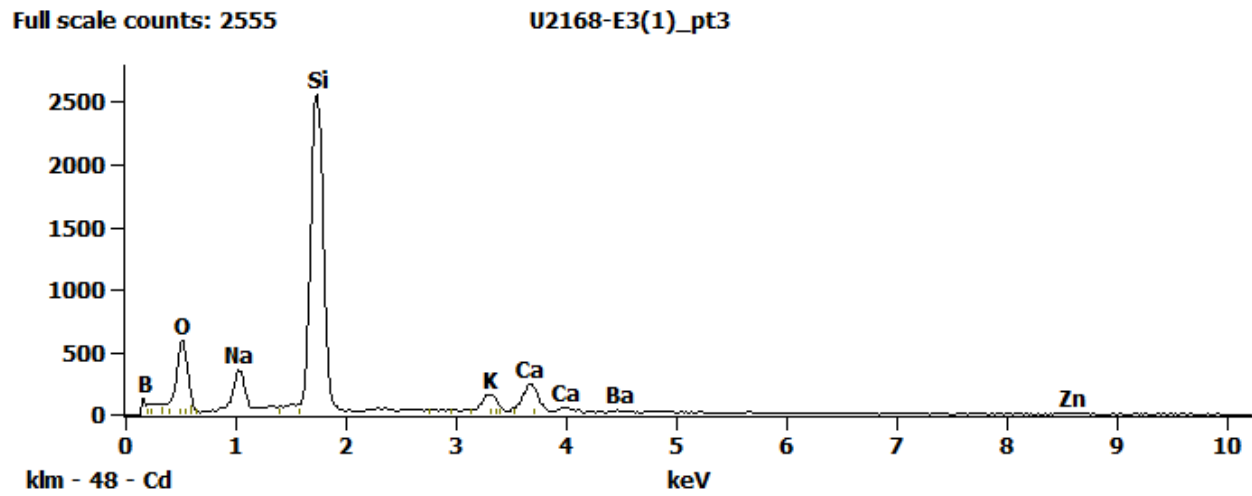
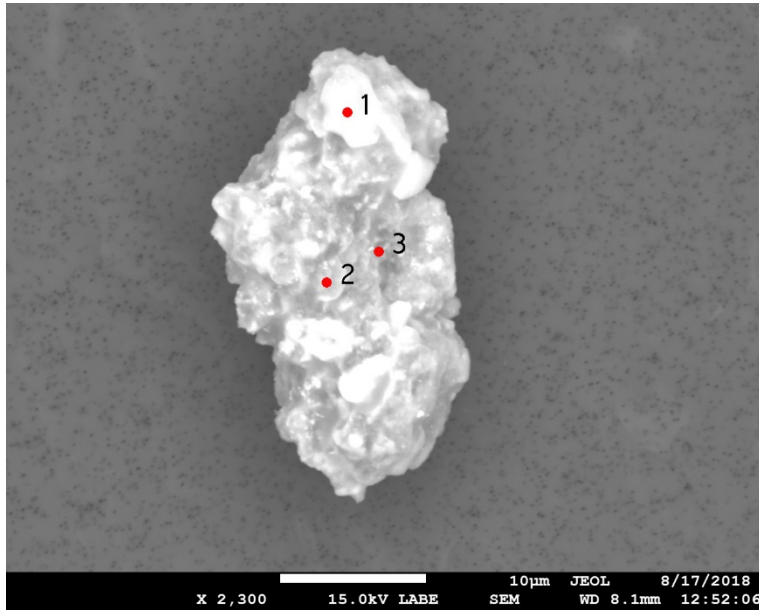


Figure 3. EDS Spectra for sample U2168-E-3 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 E4



<b>Particle Size:</b>	20x10 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 14
<b>Comments:</b>	

SEM Photo of sample U2168 E4 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 14



Photo of cluster U2168 Cluster 14.

## U2168 E4 - EDS Spectra

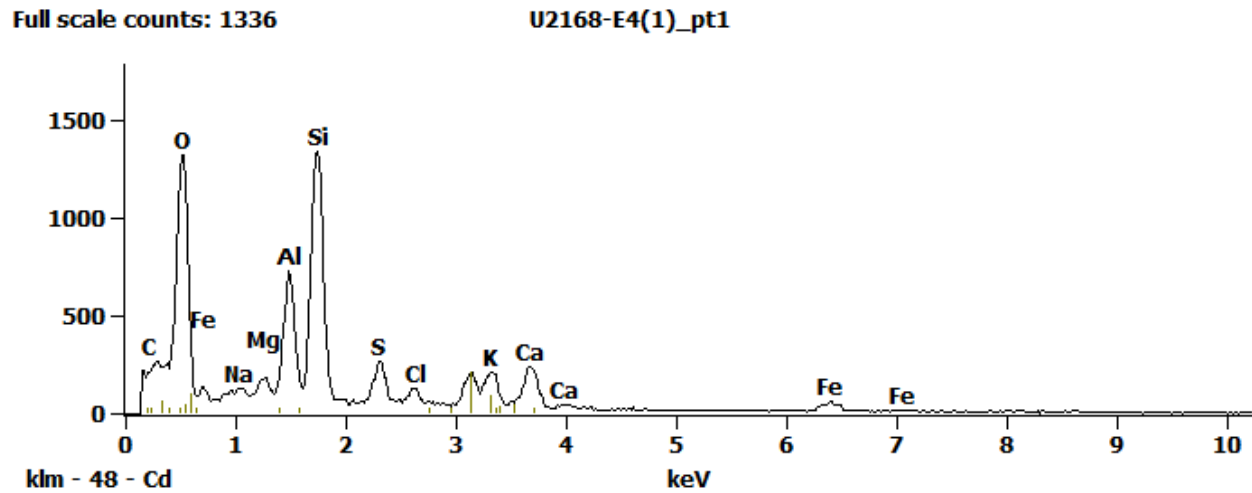


Figure 1. EDS Spectra for sample U2168-E-4 taken at test area 1. The test area is labeled in the particle SEM photo.

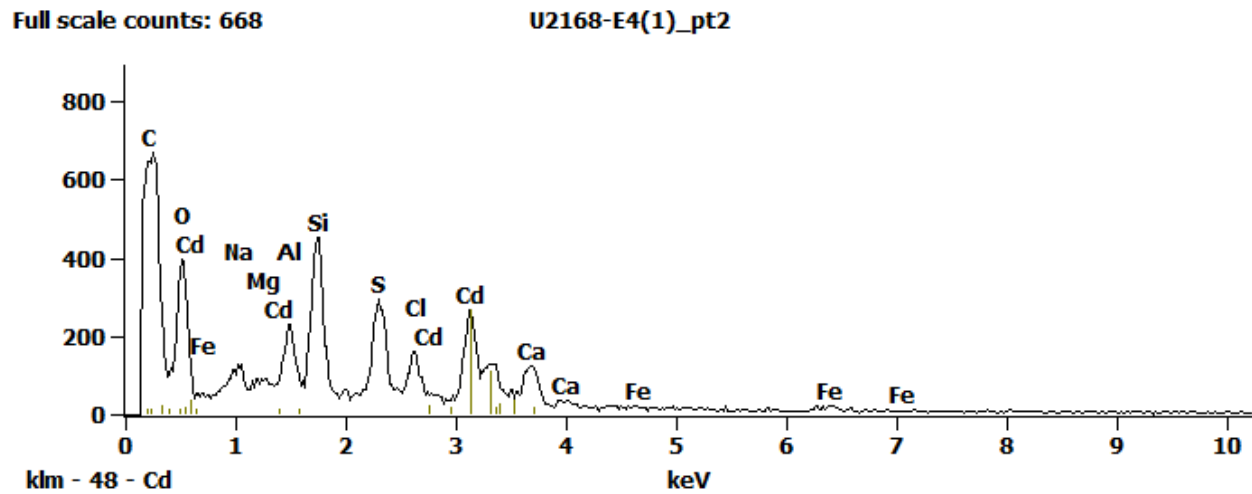


Figure 2. EDS Spectra for sample U2168-E-4 taken at test area 2. The test area is labeled in the particle SEM photo.

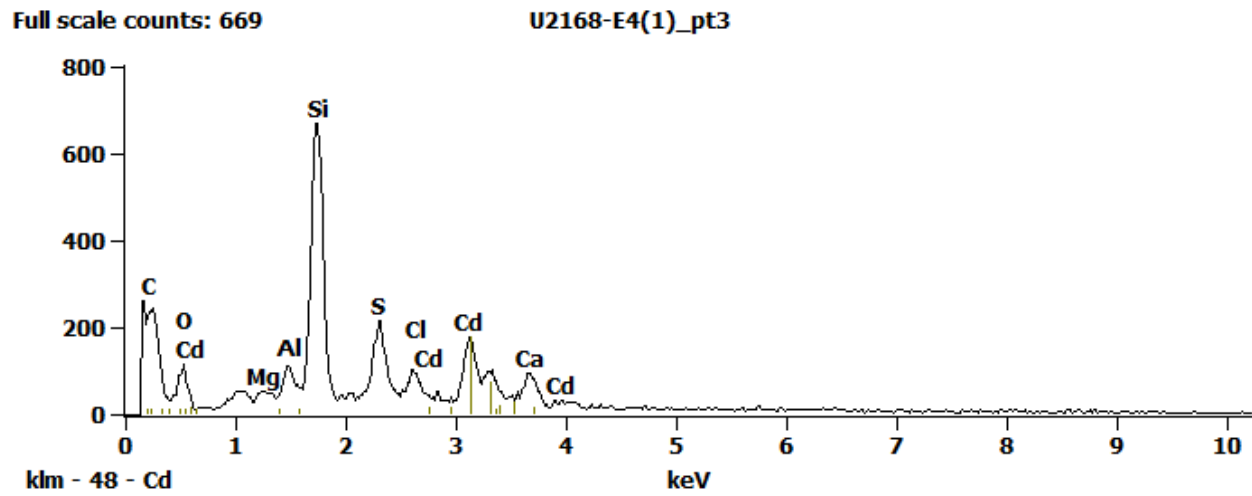
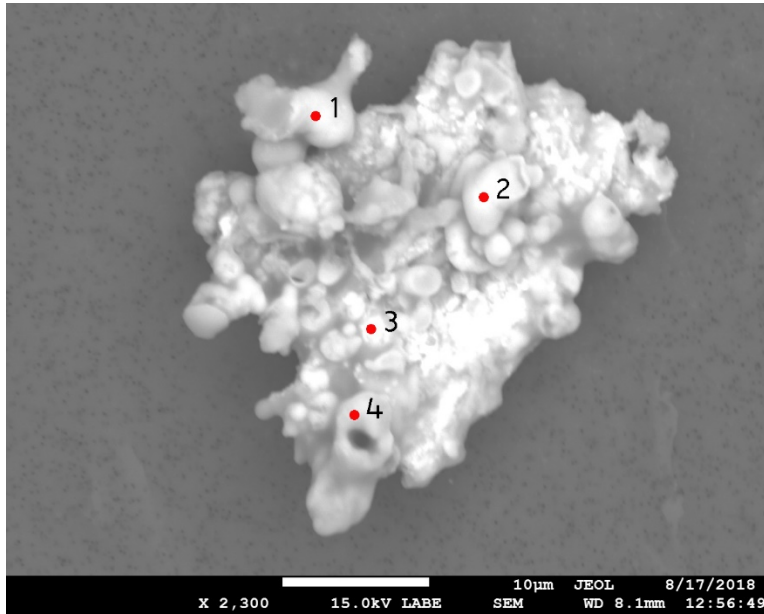


Figure 3. EDS Spectra for sample U2168-E-4 taken at test area 3. The test area is labeled in the particle SEM photo.

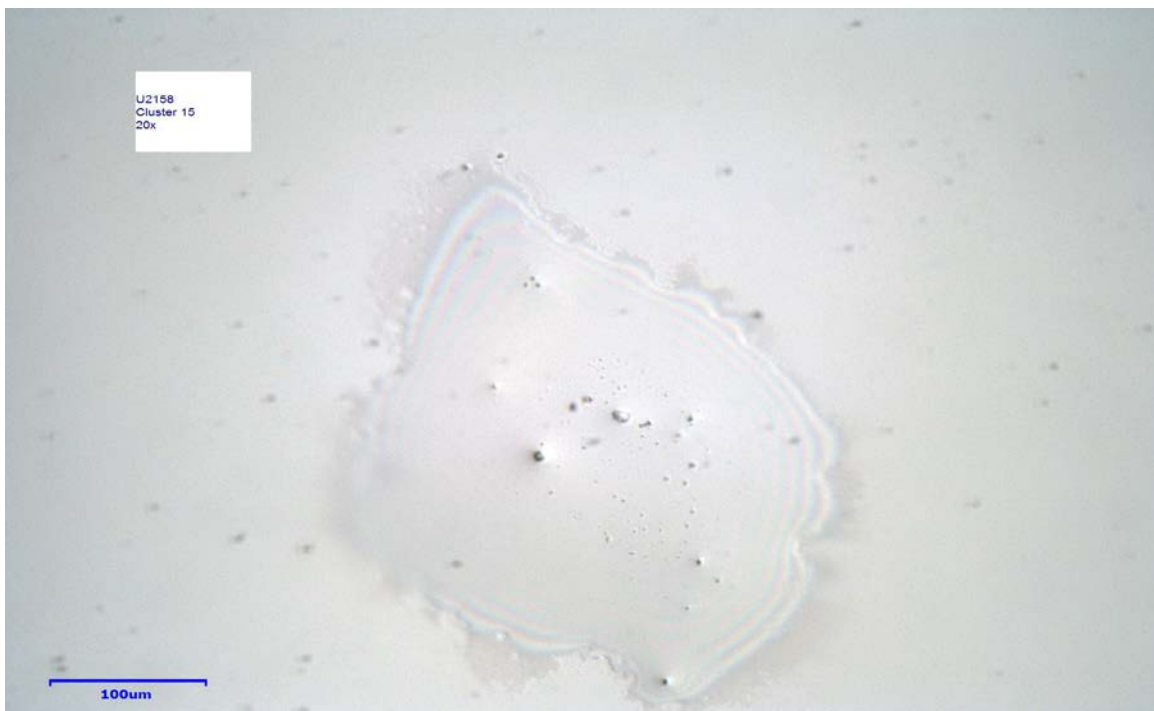
## U2168 E5



**Particle Size:** 27  $\mu\text{m}$   
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Dull  
**Particle Type:** POSSIBLY  
ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** U2168 Cluster 15  
**Comments:**

*SEM Photo of sample U2168 E5 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 15*



*Photo of cluster U2168 Cluster 15.*

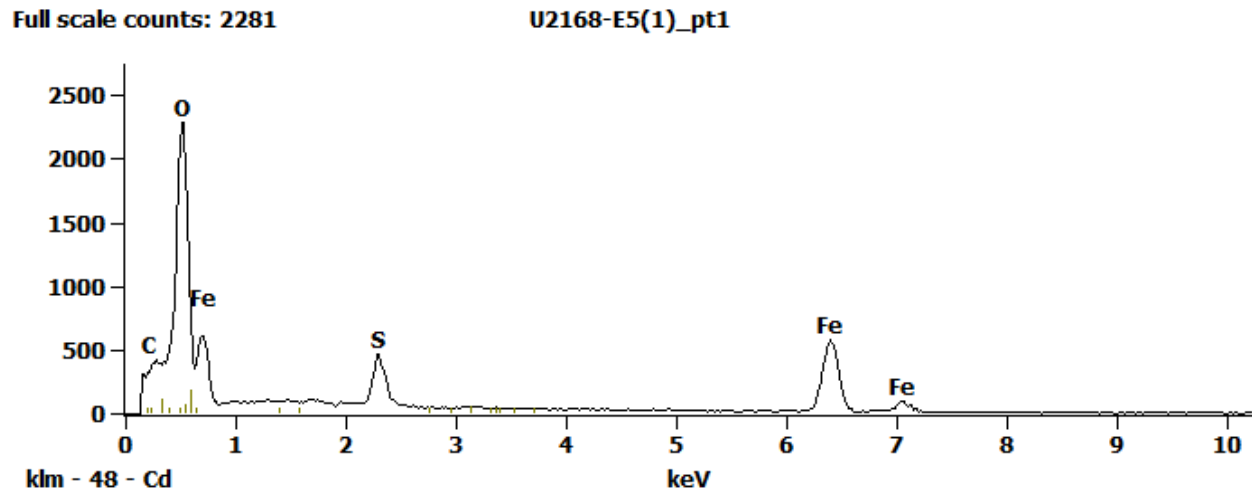
*U2168 E5 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-E-5 taken at test area 1. The test area is labeled in the particle SEM photo.

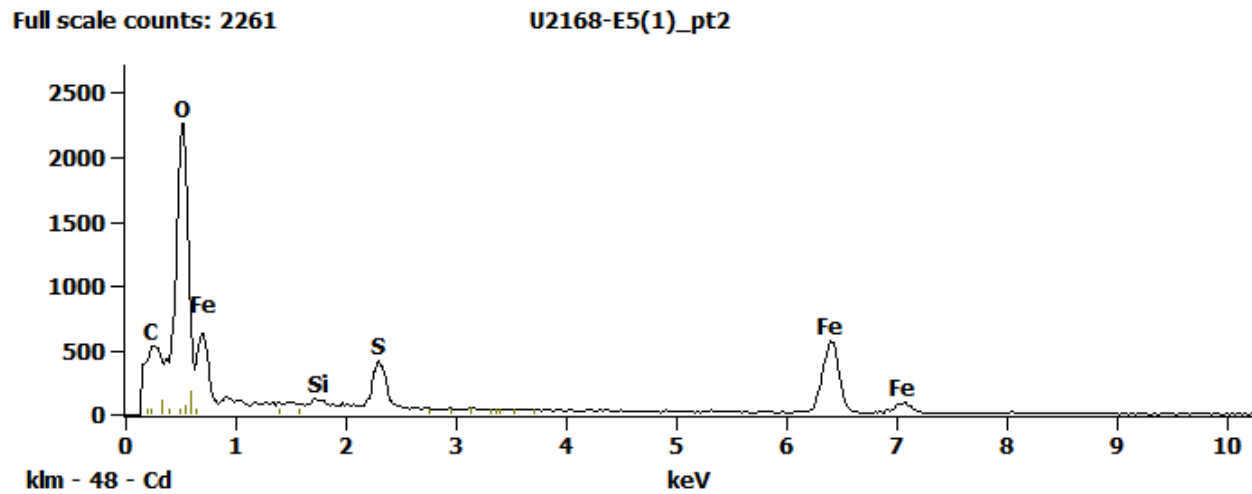


Figure 2. EDS Spectra for sample U2168-E-5 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1043

U2168-E5(1)\_pt3

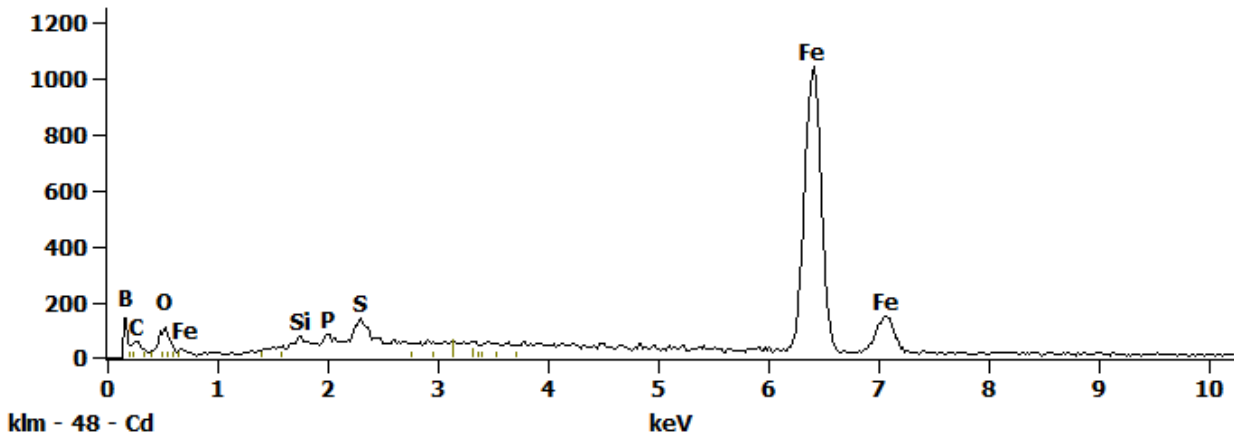


Figure 3. EDS Spectra for sample U2168-E-5 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1177

U2168-E5(1)\_pt4

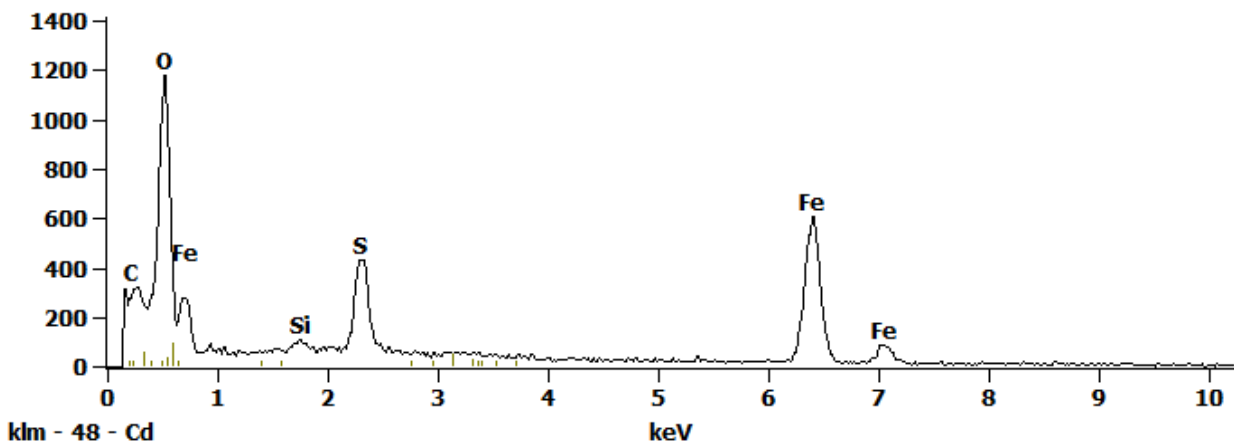
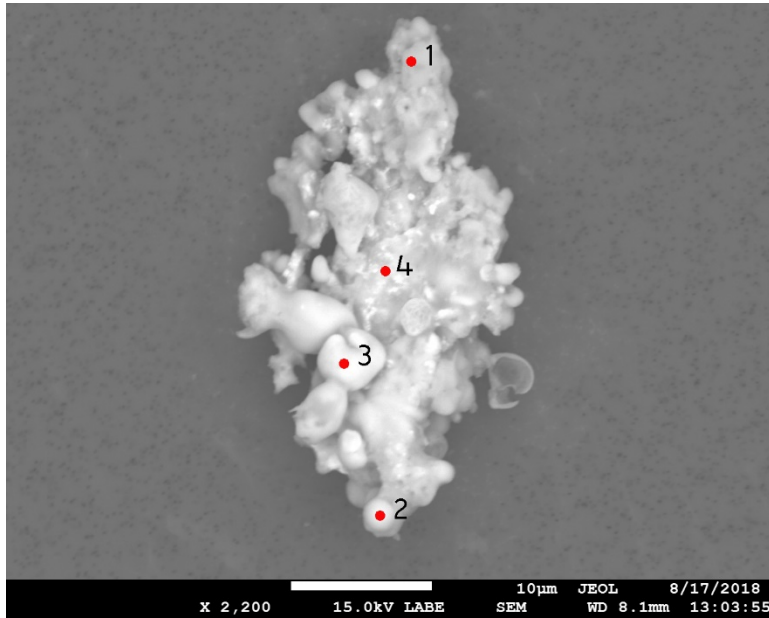


Figure 4. EDS Spectra for sample U2168-E-5 taken at test area 4. The test area is labeled in the particle SEM photo.



## U2168 E6



**Particle Size:** 30x15 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Dull  
**Particle Type:** POSSIBLY  
ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** U2168 Cluster 15  
**Comments:**

SEM Photo of sample U2168 E6 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 15

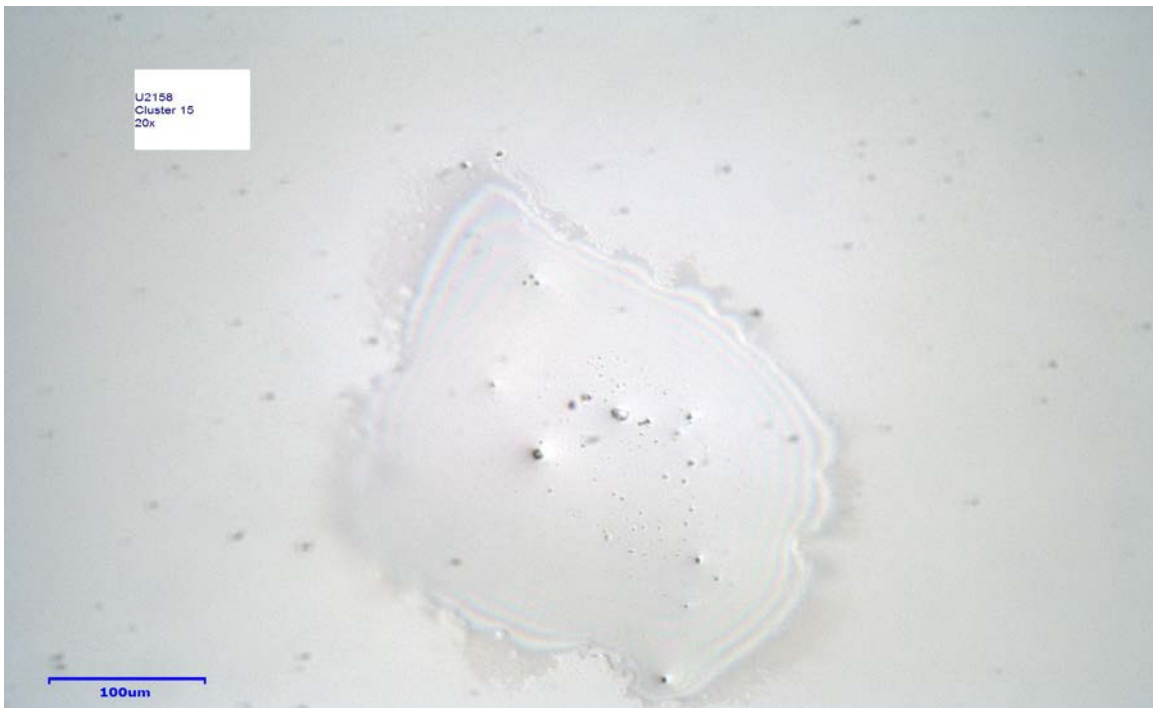


Photo of cluster U2168 Cluster 15.

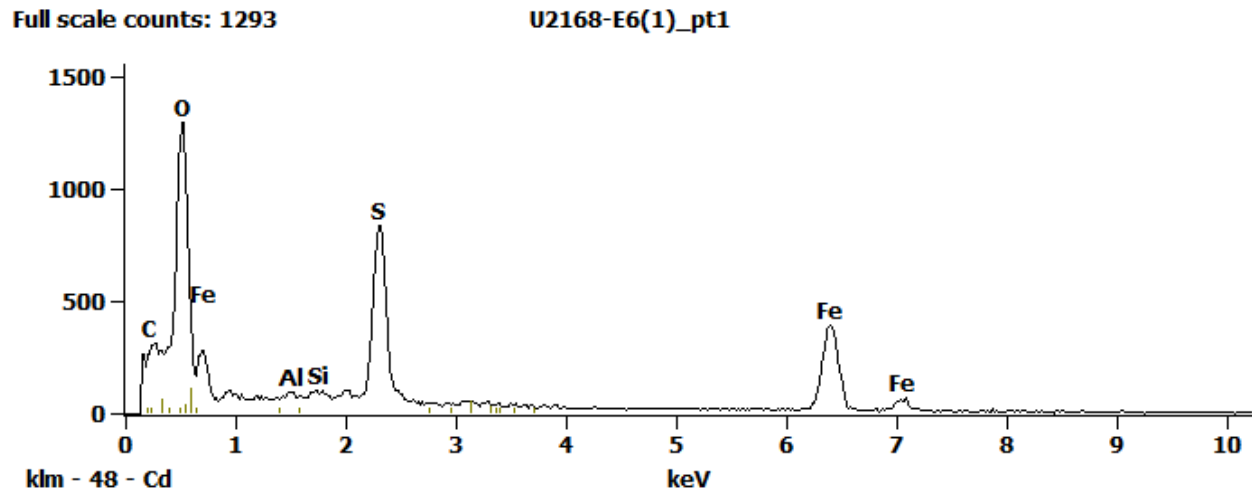
*U2168 E6 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-E-6 taken at test area 1. The test area is labeled in the particle SEM photo.

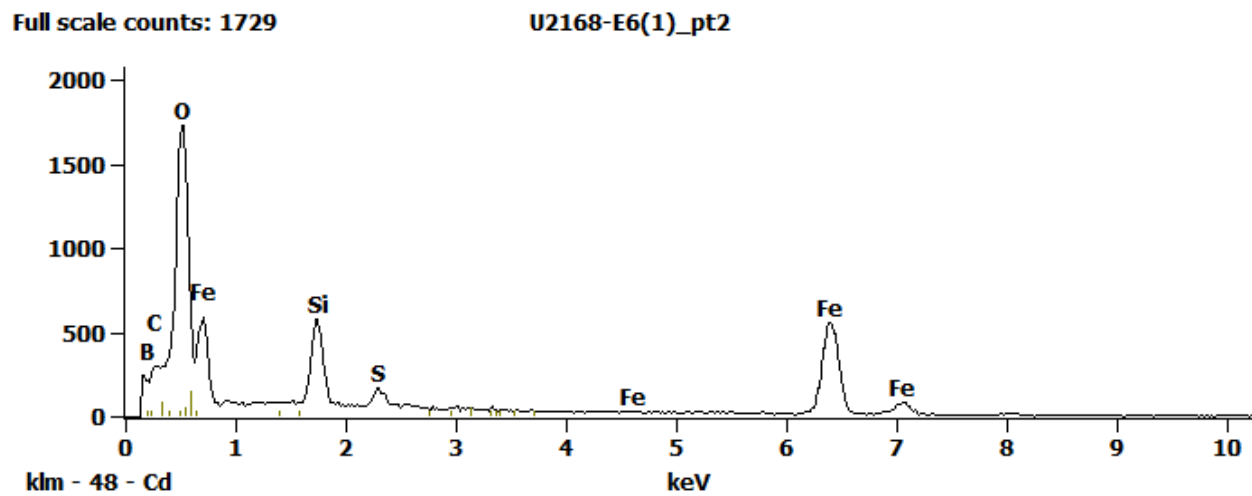


Figure 2. EDS Spectra for sample U2168-E-6 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1568

U2168-E6(1)\_pt3

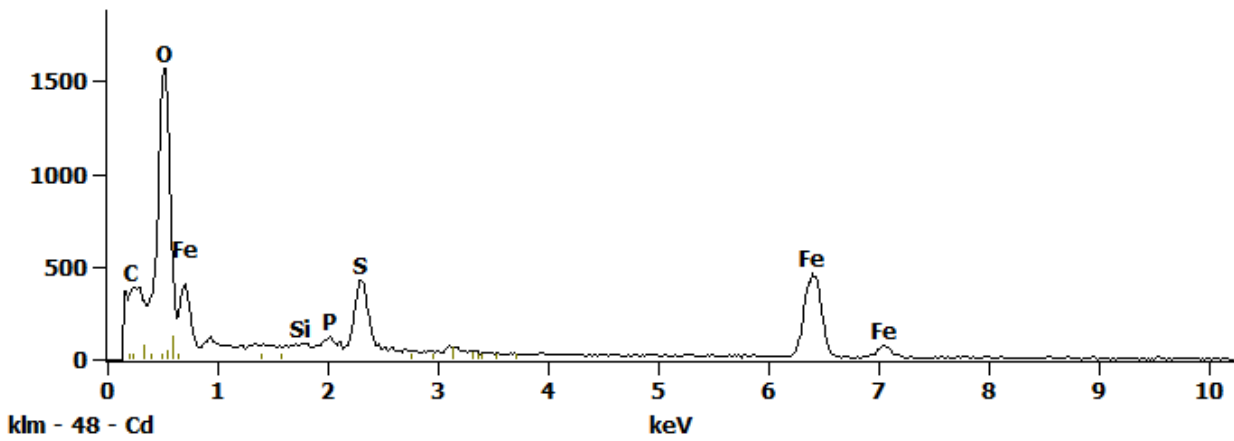


Figure 3. EDS Spectra for sample U2168-E-6 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 706

U2168-E6(1)\_pt4

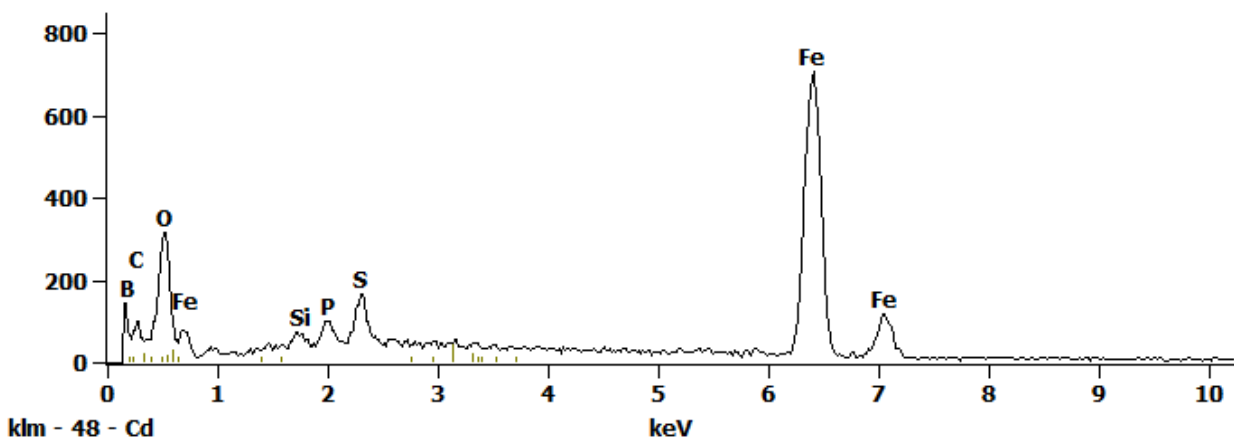
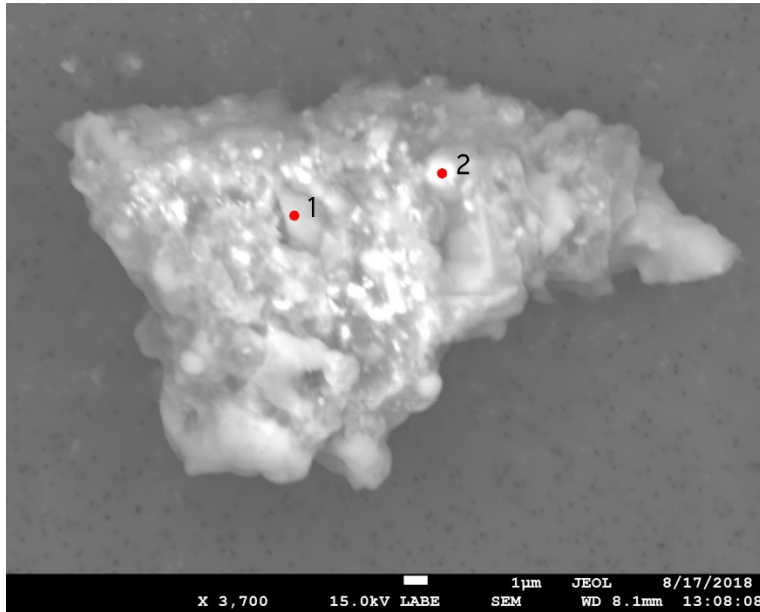


Figure 4. EDS Spectra for sample U2168-E-6 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 E7



<b>Particle Size:</b>	25 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 16
<b>Comments:</b>	

SEM Photo of sample U2168 E7 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 16



Photo of cluster U2168 Cluster 16.

## U2168 E7 - EDS Spectra

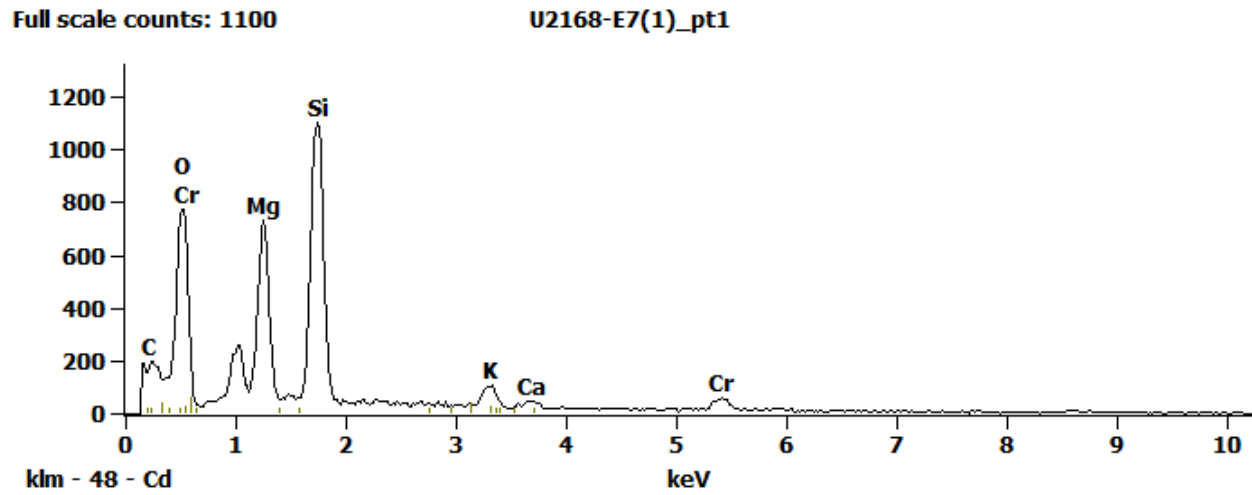


Figure 1. EDS Spectra for sample U2168-E-7 taken at test area 1. The test area is labeled in the particle SEM photo.

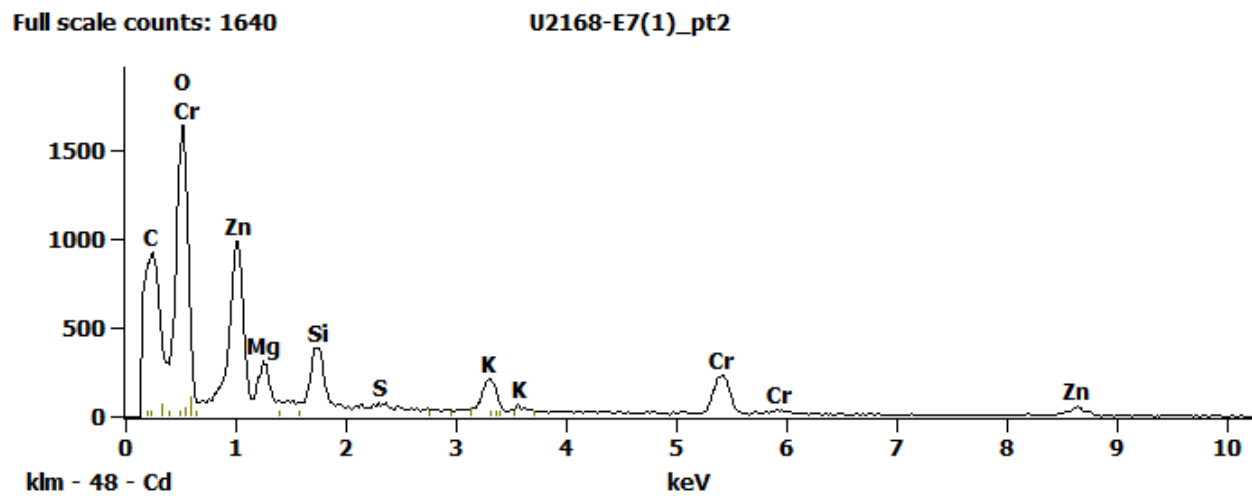
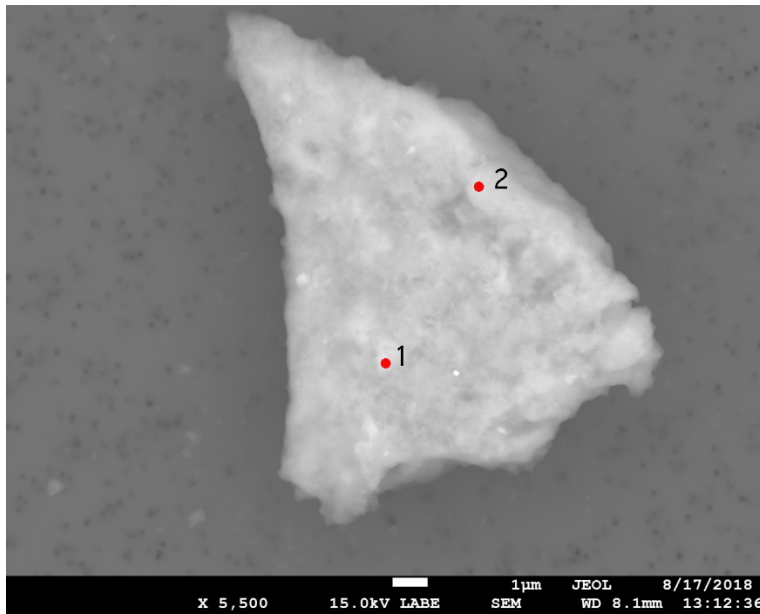


Figure 2. EDS Spectra for sample U2168-E-7 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 E8



<b>Particle Size:</b>	13 μm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 16
<b>Comments:</b>	

SEM Photo of sample U2168 E8 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 16



Photo of cluster U2168 Cluster 16.

## U2168 E8 - EDS Spectra

Full scale counts: 437

U2168-E8(1)\_pt1

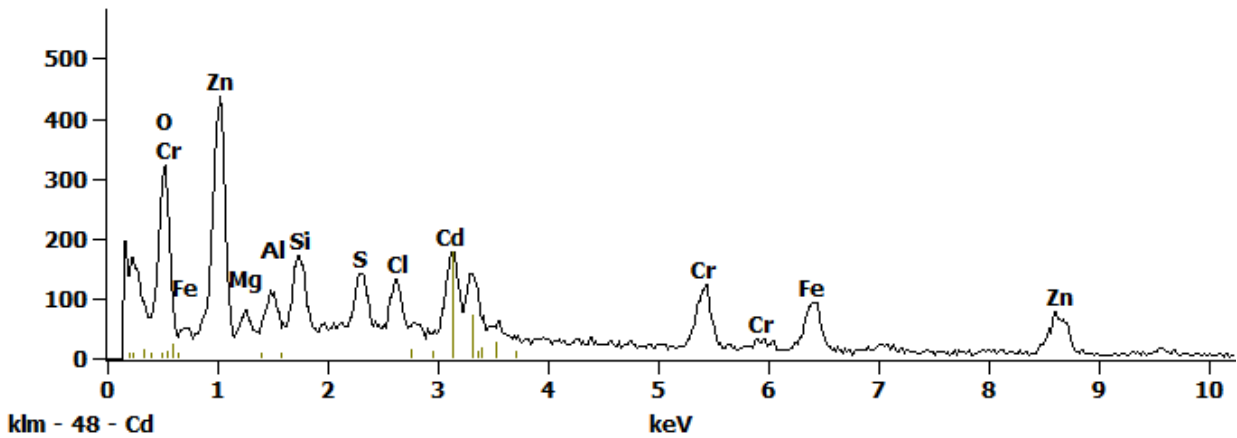


Figure 1. EDS Spectra for sample U2168-E-8 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1073

U2168-E8(1)\_pt2

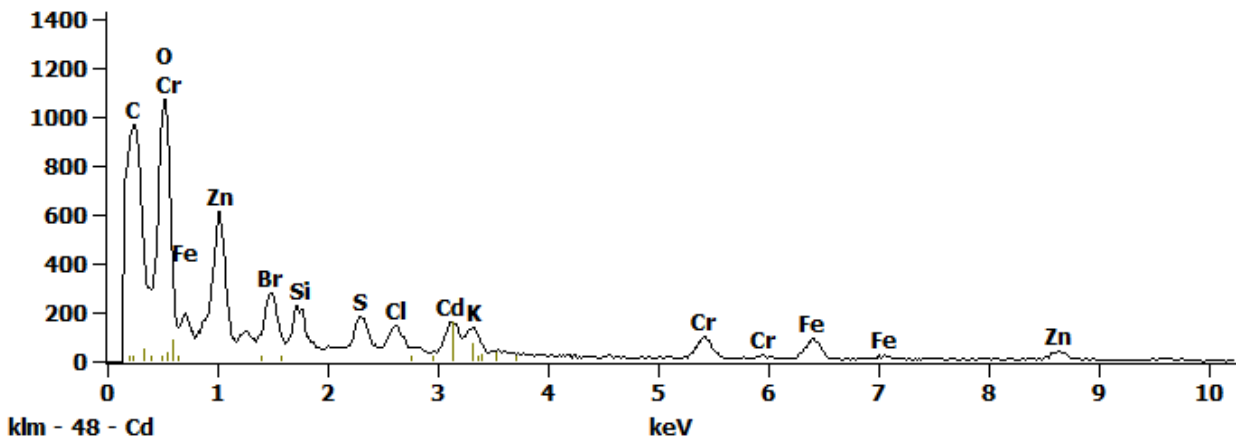
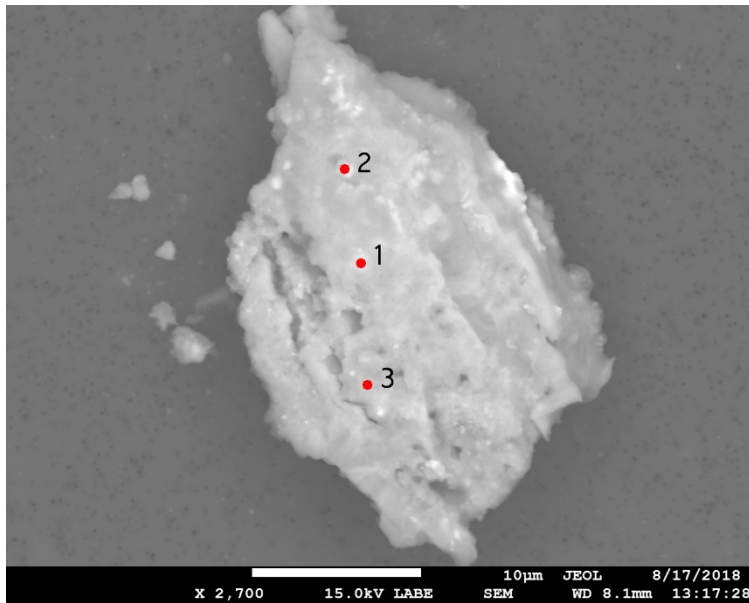


Figure 2. EDS Spectra for sample U2168-E-8 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 E9



SEM Photo of sample U2168 E9 with labeled EDS testing locations.

<b>Particle Size:</b>	30 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 17
<b>Comments:</b>	

### Cluster of Origin: U2168 Cluster 17



Photo of cluster U2168 Cluster 17.



## U2168 E9 - EDS Spectra

Full scale counts: 586

U2168-E9(1)\_pt1

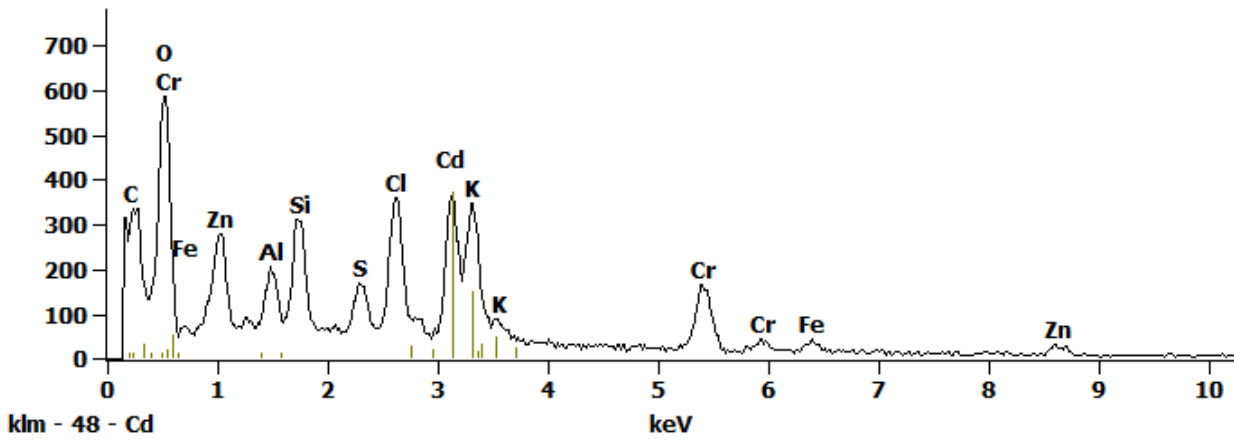


Figure 1. EDS Spectra for sample U2168-E-9 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 626

U2168-E9(1)\_pt2

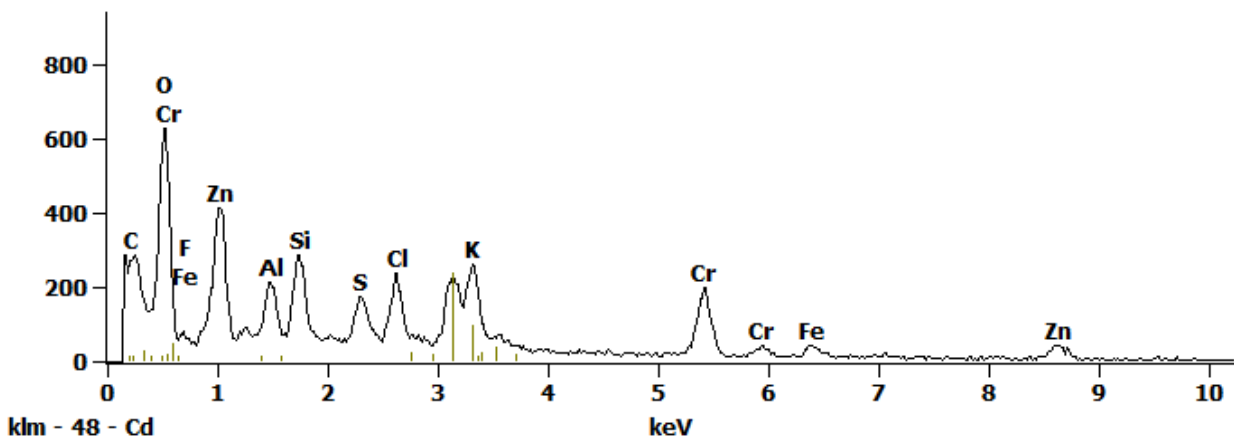


Figure 2. EDS Spectra for sample U2168-E-9 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 936

U2168-E9(1)\_pt3

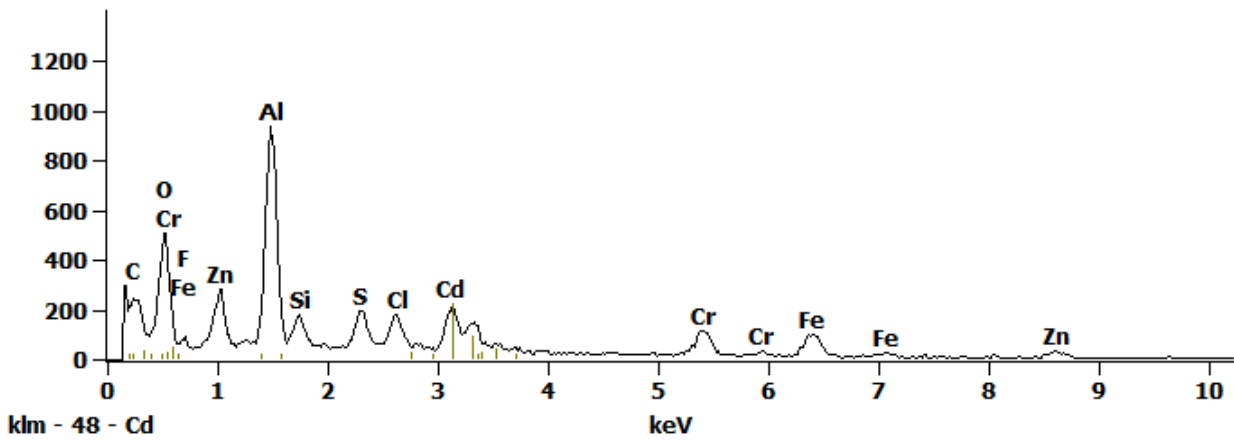
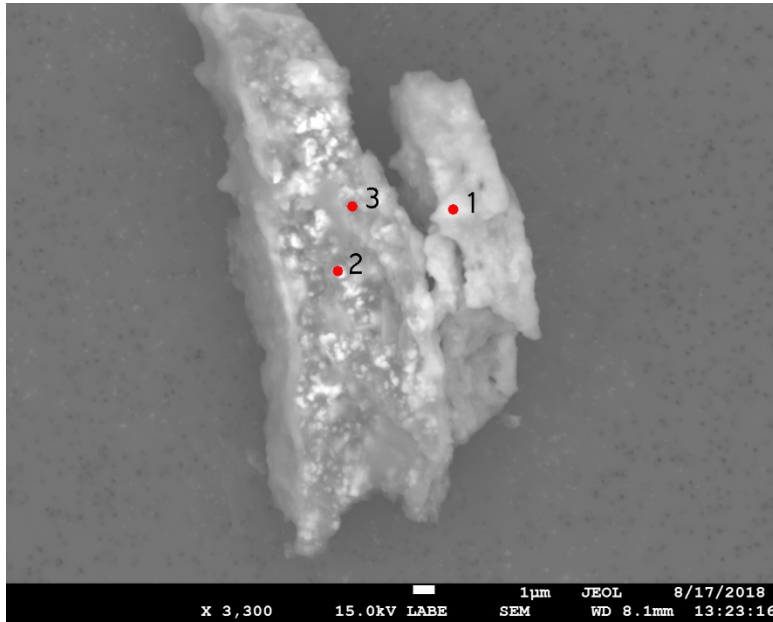


Figure 3. EDS Spectra for sample U2168-E-9 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 E10



<b>Particle Size:</b>	20 $\mu\text{m}$
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 17
<b>Comments:</b>	

SEM Photo of sample U2168 E10 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 17



Photo of cluster U2168 Cluster 17.

## U2168 E10 - EDS Spectra

Full scale counts: 789

U2168-E10(1)\_pt1

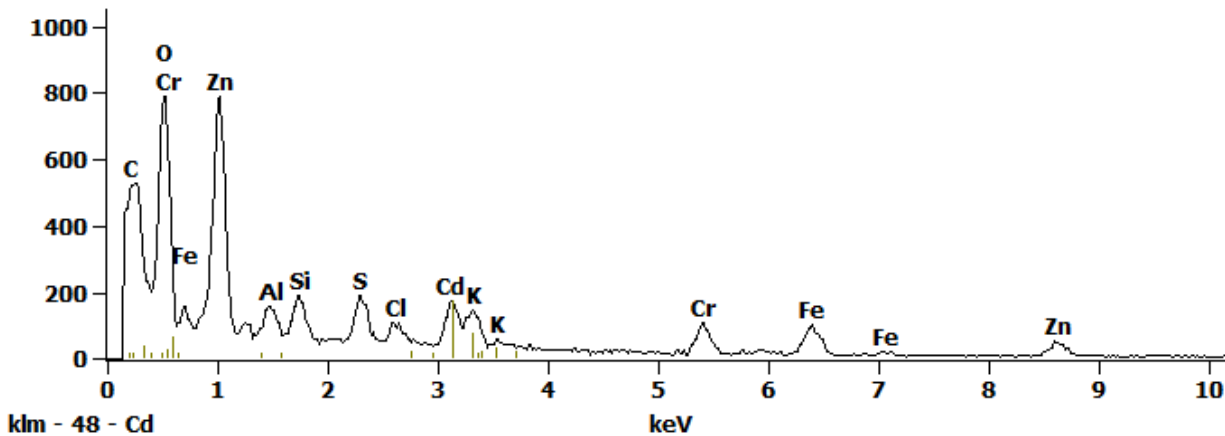


Figure 1. EDS Spectra for sample U2168-E-10 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 220

U2168-E10(1)\_pt2

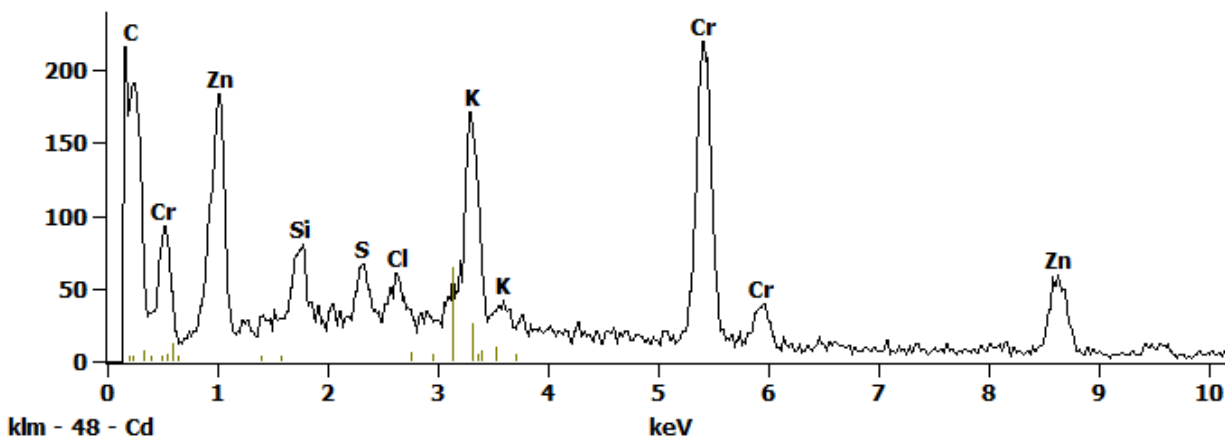


Figure 2. EDS Spectra for sample U2168-E-10 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 267

U2168-E10(1)\_pt3

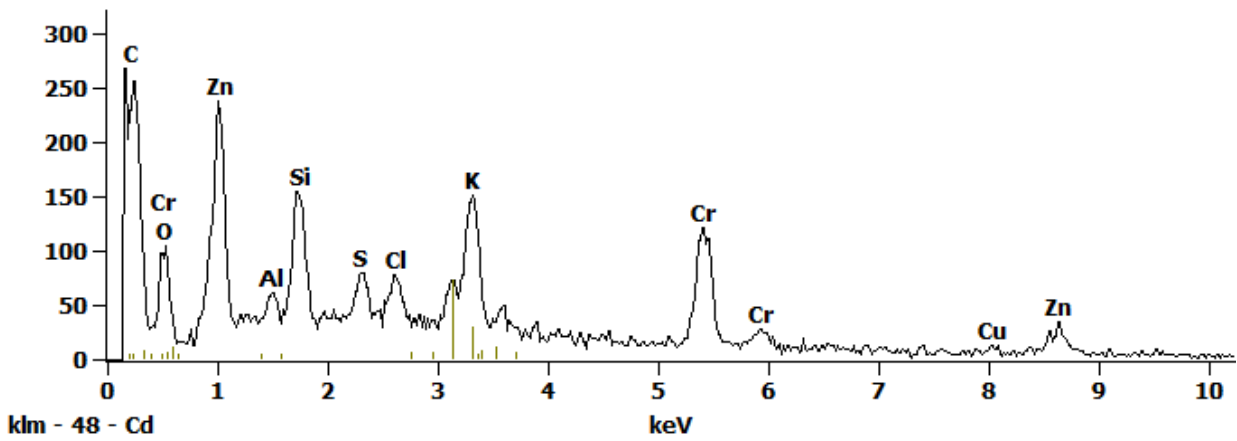
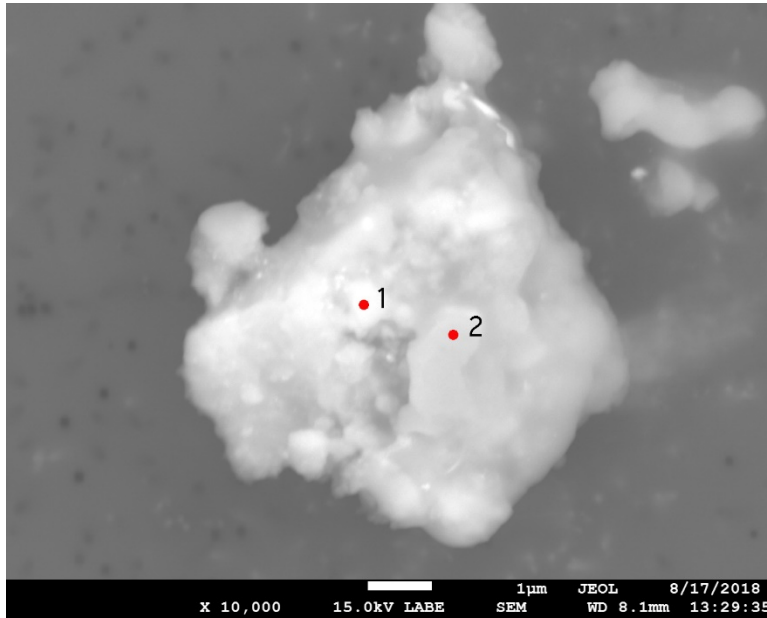


Figure 3. EDS Spectra for sample U2168-E-10 taken at test area 3. The test area is labeled in the particle SEM photo.

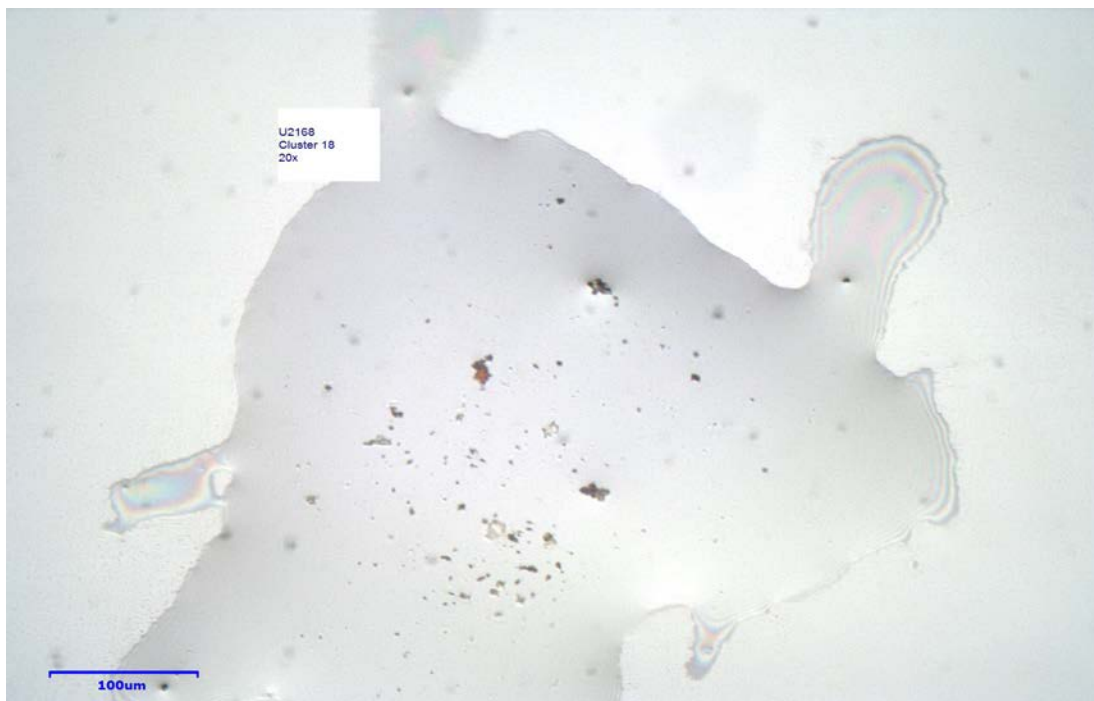
## U2168 E11



**Particle Size:** 10 µm  
**Shape:** Equidimensional  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Dull  
**Particle Type:** ARTIFICIAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** U2168 Cluster 18  
**Comments:**

*SEM Photo of sample U2168 E11 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 18*



*Photo of cluster U2168 Cluster 18.*

## U2168 E11 - EDS Spectra

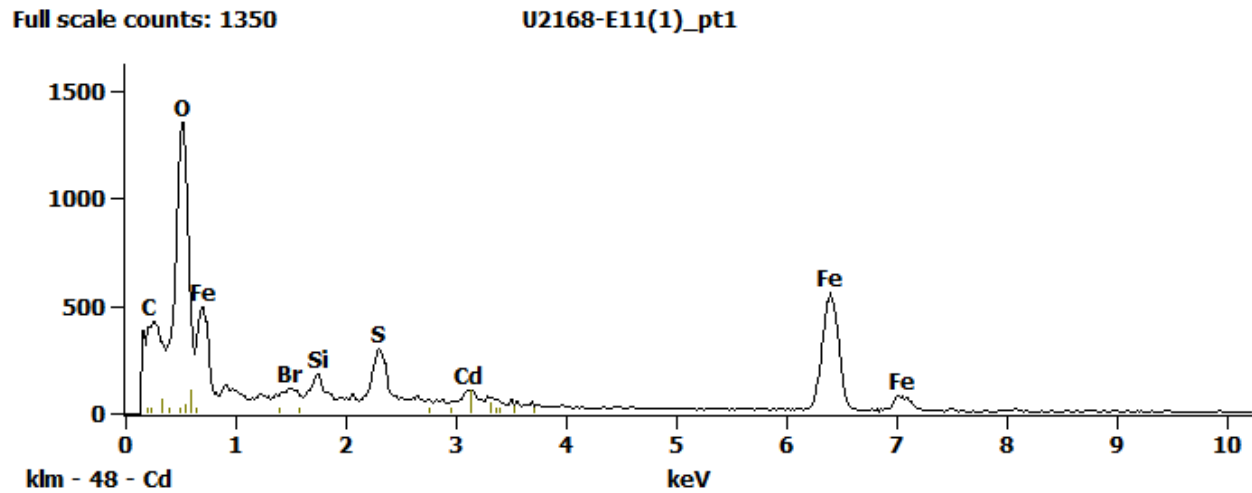


Figure 1. EDS Spectra for sample U2168-E-11 taken at test area 1. The test area is labeled in the particle SEM photo.

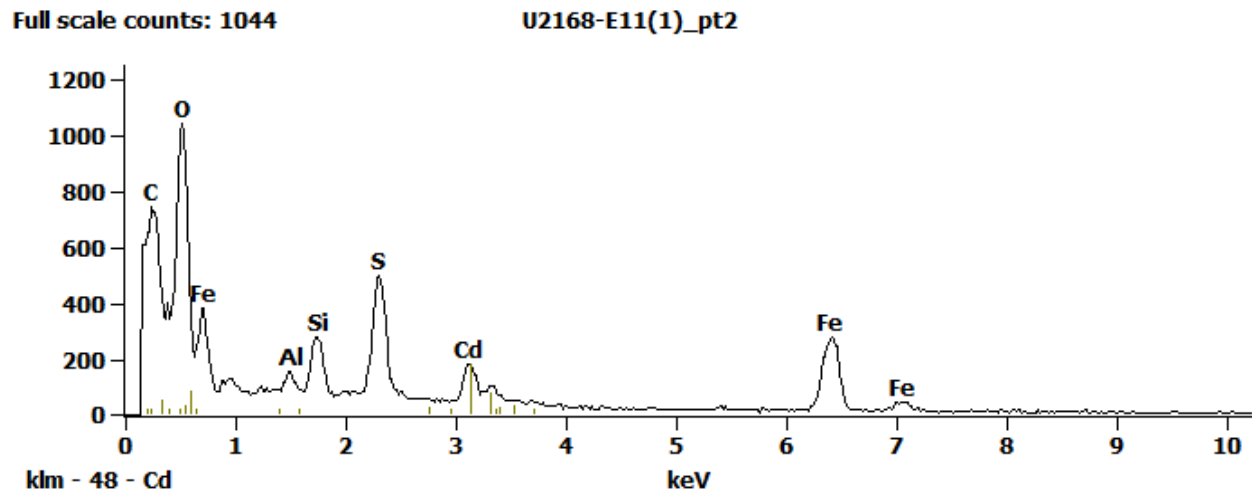
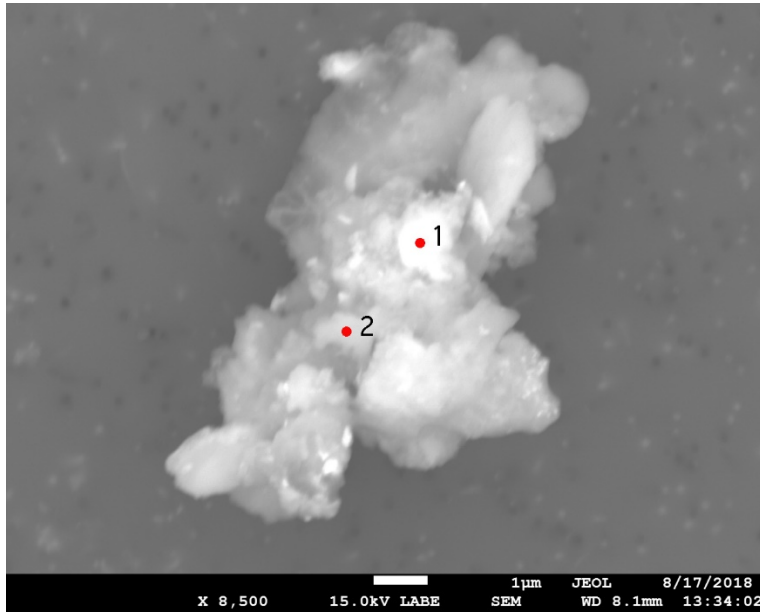


Figure 2. EDS Spectra for sample U2168-E-11 taken at test area 2. The test area is labeled in the particle SEM photo.

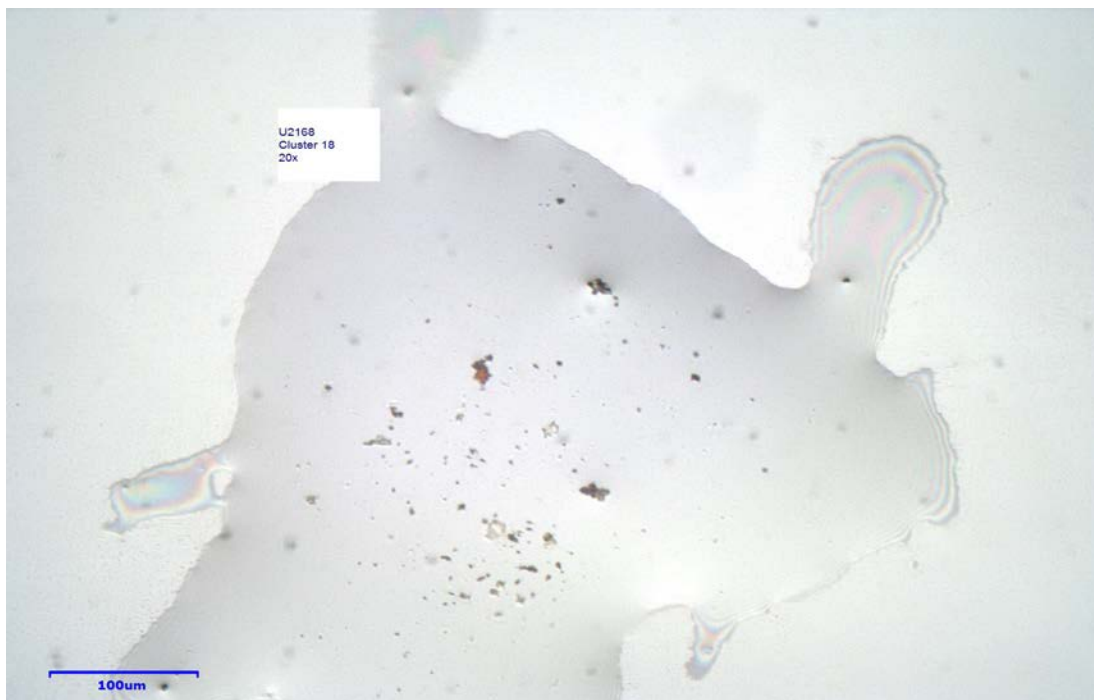
## U2168 E12



<b>Particle Size:</b>	12 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 18
<b>Comments:</b>	

*SEM Photo of sample U2168 E12 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 18*



*Photo of cluster U2168 Cluster 18.*



## U2168 E12 - EDS Spectra

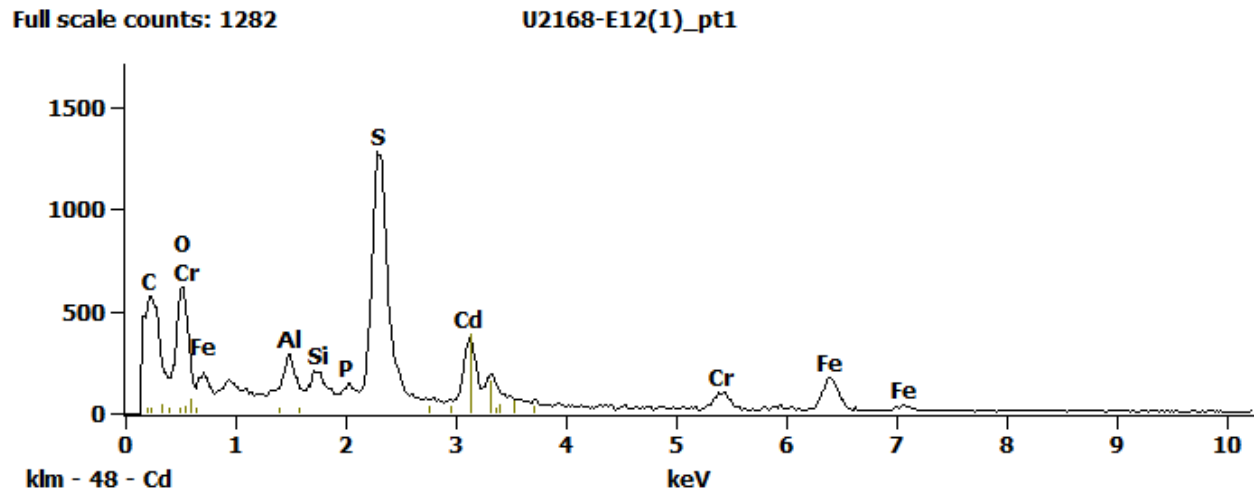


Figure 1. EDS Spectra for sample U2168-E-12 taken at test area 1. The test area is labeled in the particle SEM photo.

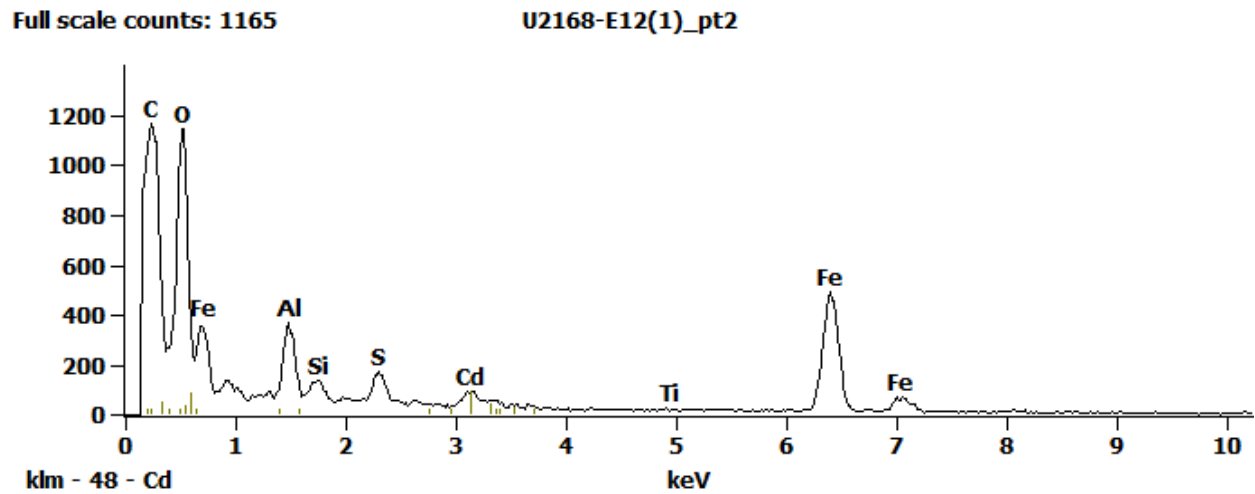
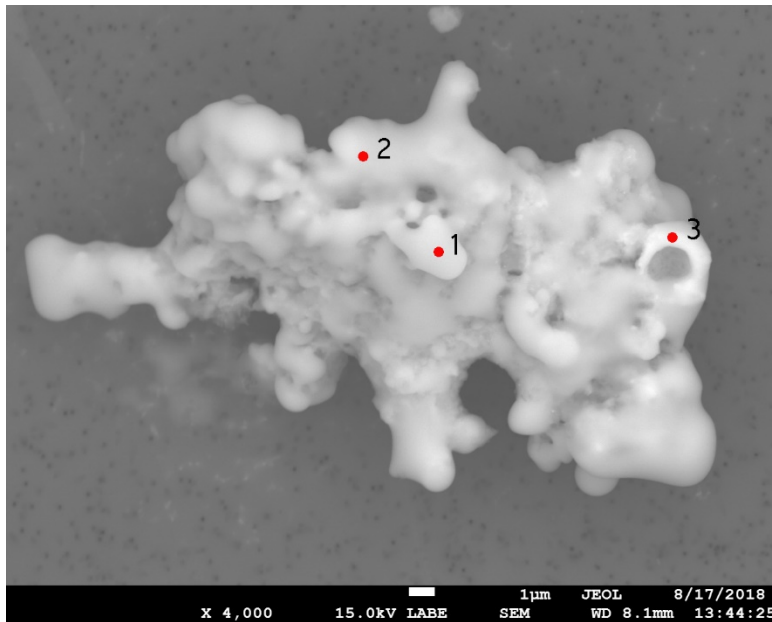


Figure 2. EDS Spectra for sample U2168-E-12 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 E14



<b>Particle Size:</b>	20x10 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 E14 with labeled EDS testing locations.

### U2168 E14 - EDS Spectra

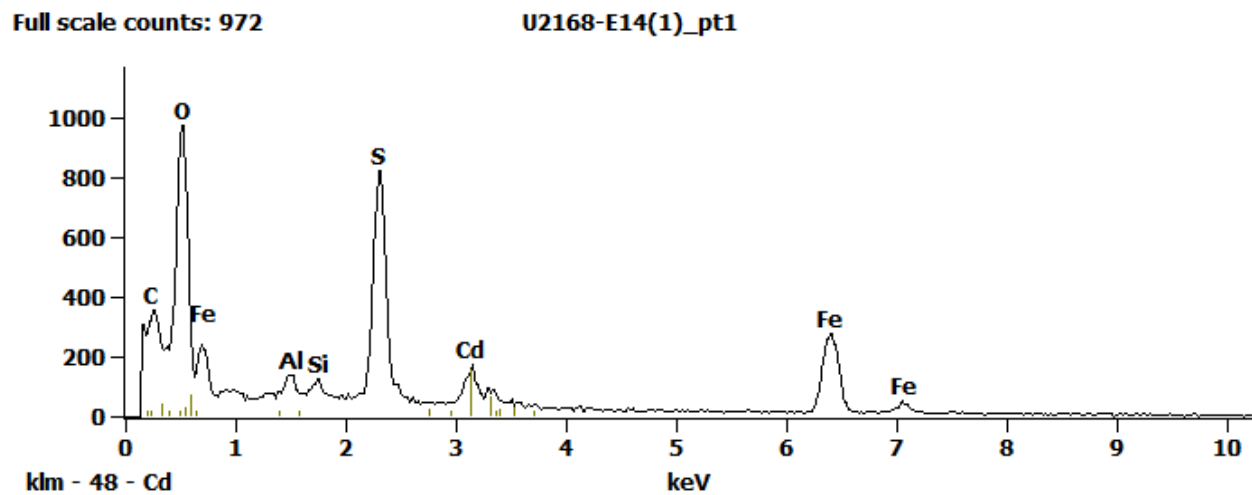


Figure 1. EDS Spectra for sample U2168-E-14 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 928

U2168-E14(1)\_pt2

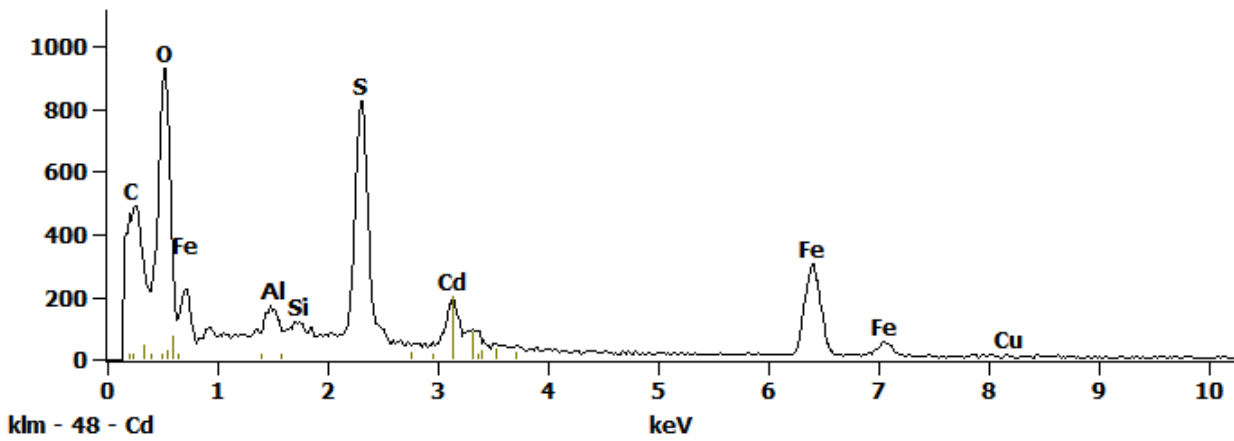


Figure 2. EDS Spectra for sample U2168-E-14 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1533

U2168-E14(1)\_pt3

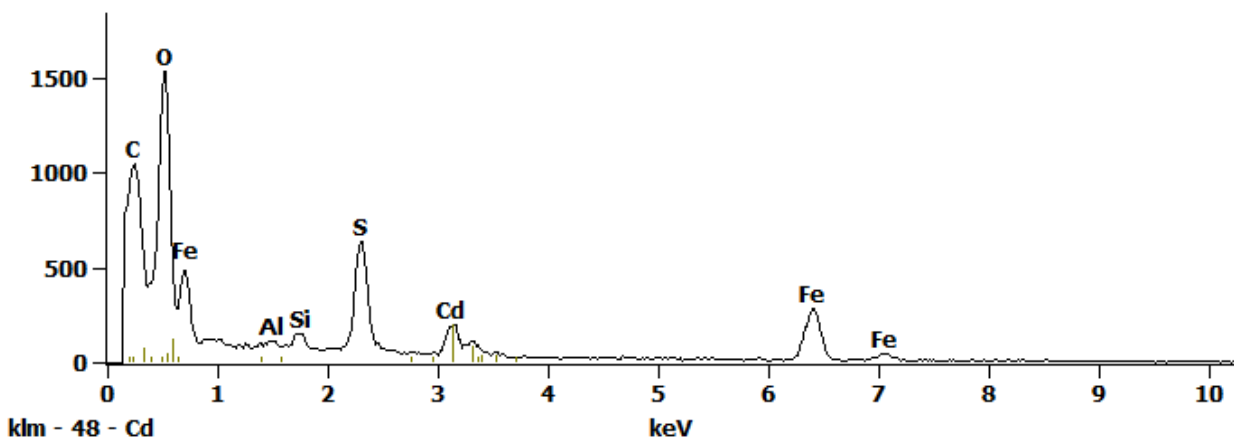
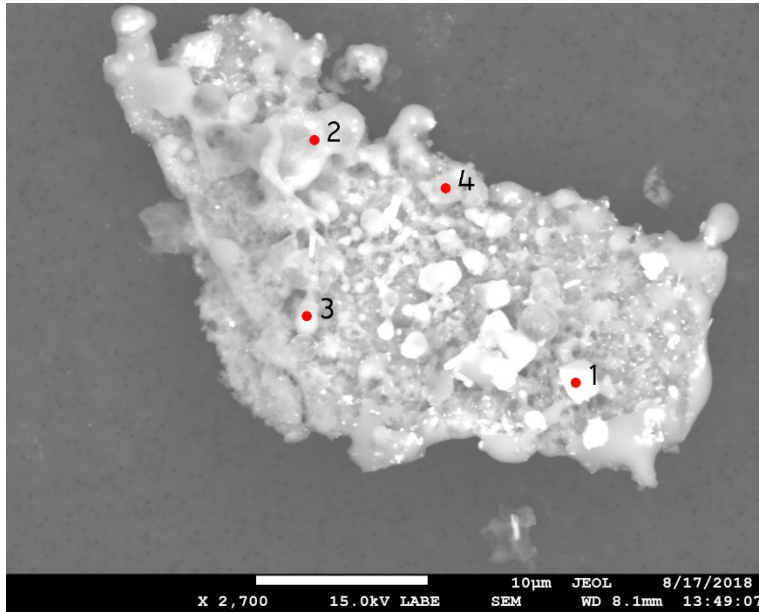


Figure 3. EDS Spectra for sample U2168-E-14 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 E15



<b>Particle Size:</b>	44x21 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 E15 with labeled EDS testing locations.

### U2168 E15 - EDS Spectra

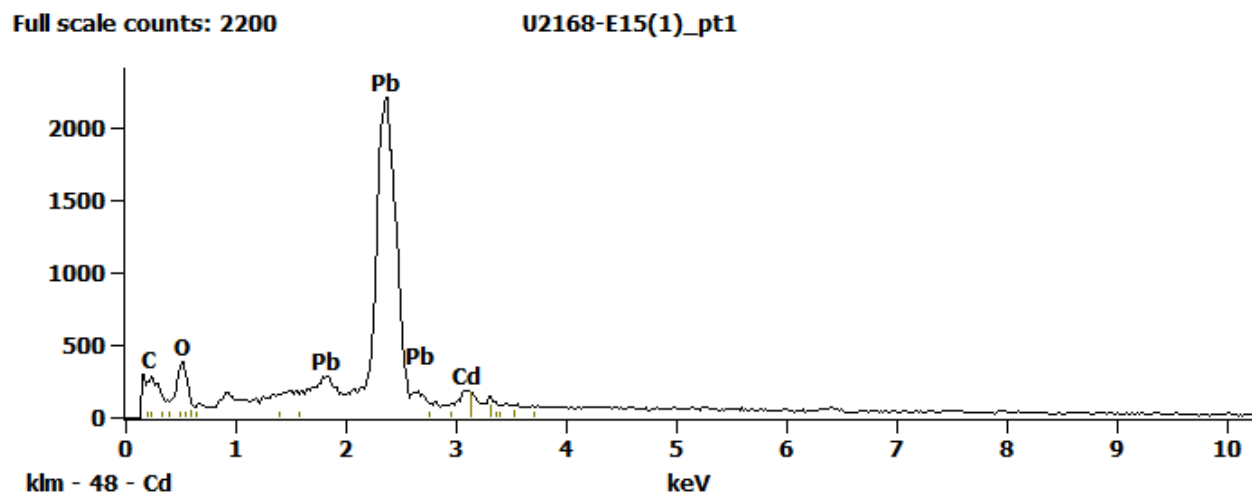


Figure 1. EDS Spectra for sample U2168-E-15 taken at test area 1. The test area is labeled in the particle SEM photo.

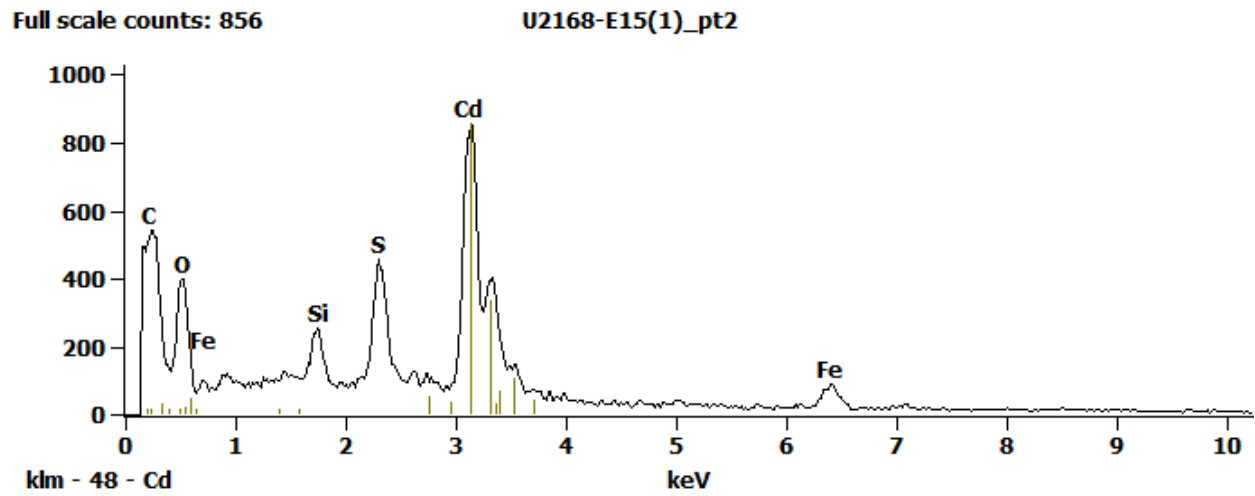


Figure 2. EDS Spectra for sample U2168-E-15 taken at test area 2. The test area is labeled in the particle SEM photo.

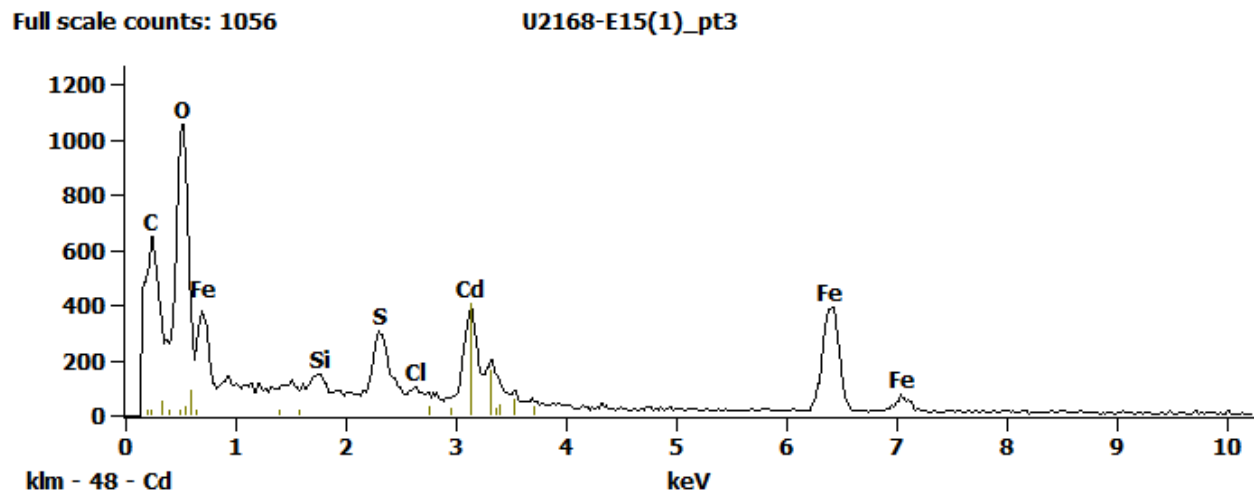


Figure 3. EDS Spectra for sample U2168-E-15 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 964

U2168-E15(1)\_pt4

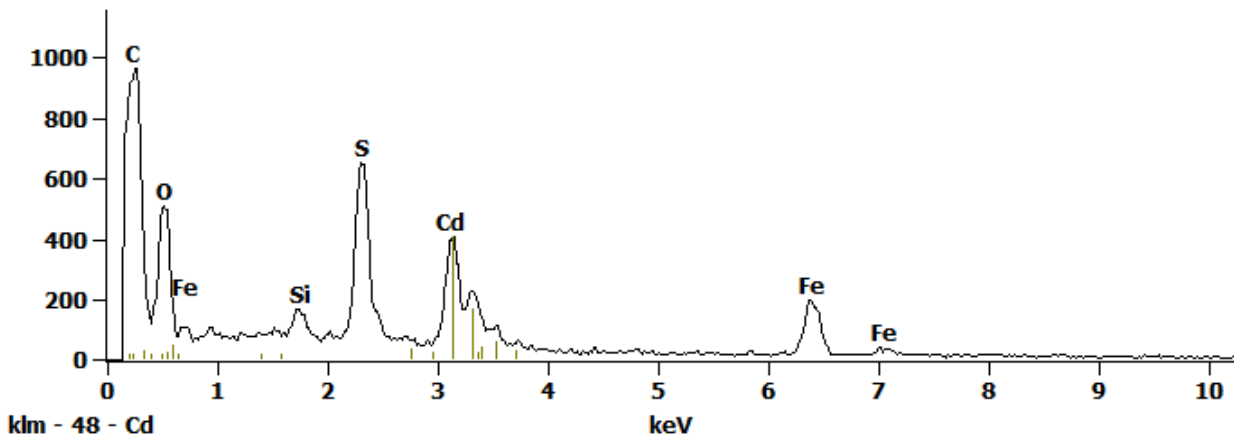
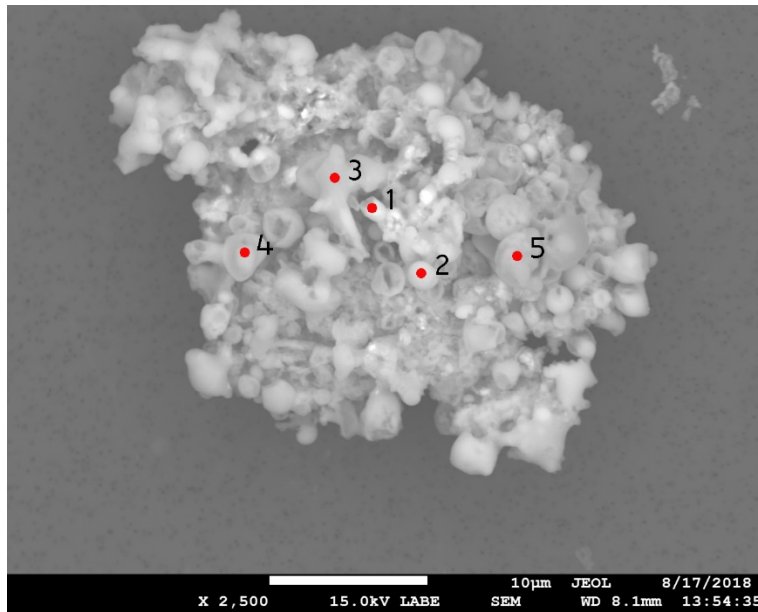


Figure 4. EDS Spectra for sample U2168-E-15 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 E16



<b>Particle Size:</b>	25 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	ARTIFICIAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 E16 with labeled EDS testing locations.

### U2168 E16 - EDS Spectra

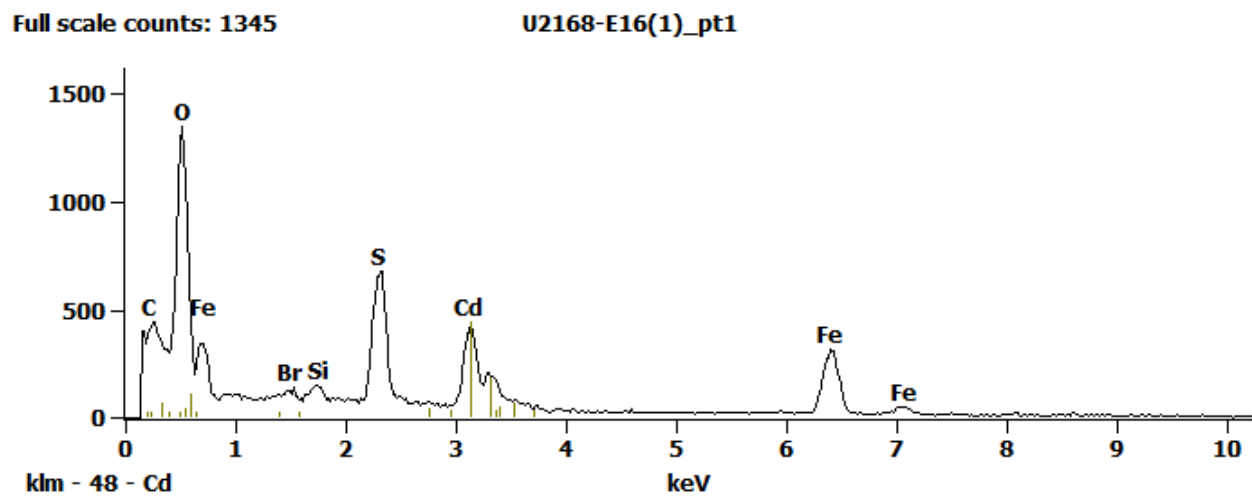


Figure 1. EDS Spectra for sample U2168-E-16 taken at test area 1. The test area is labeled in the particle SEM photo.

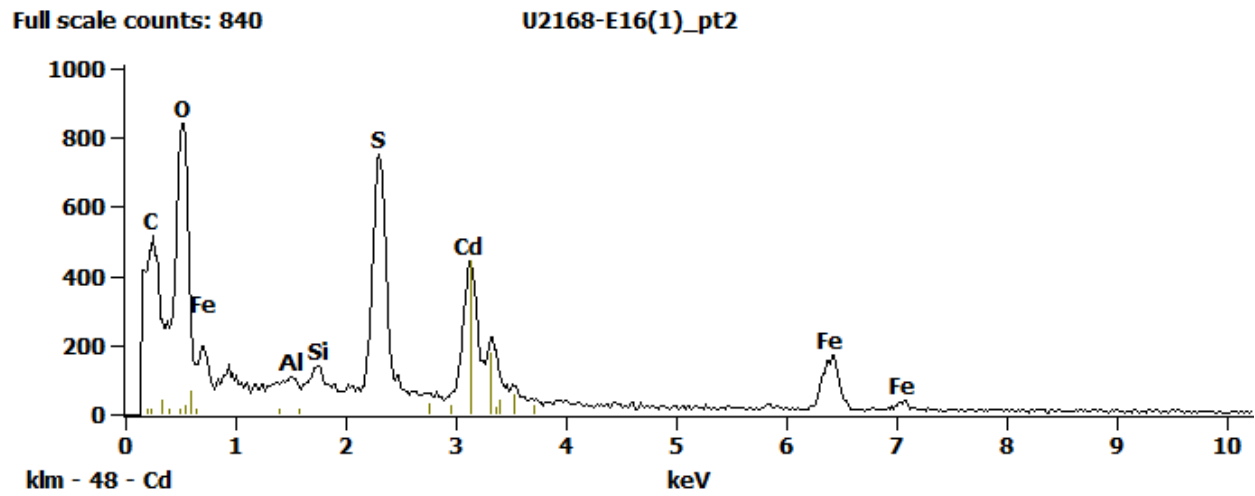


Figure 2. EDS Spectra for sample U2168-E-16 taken at test area 2. The test area is labeled in the particle SEM photo.

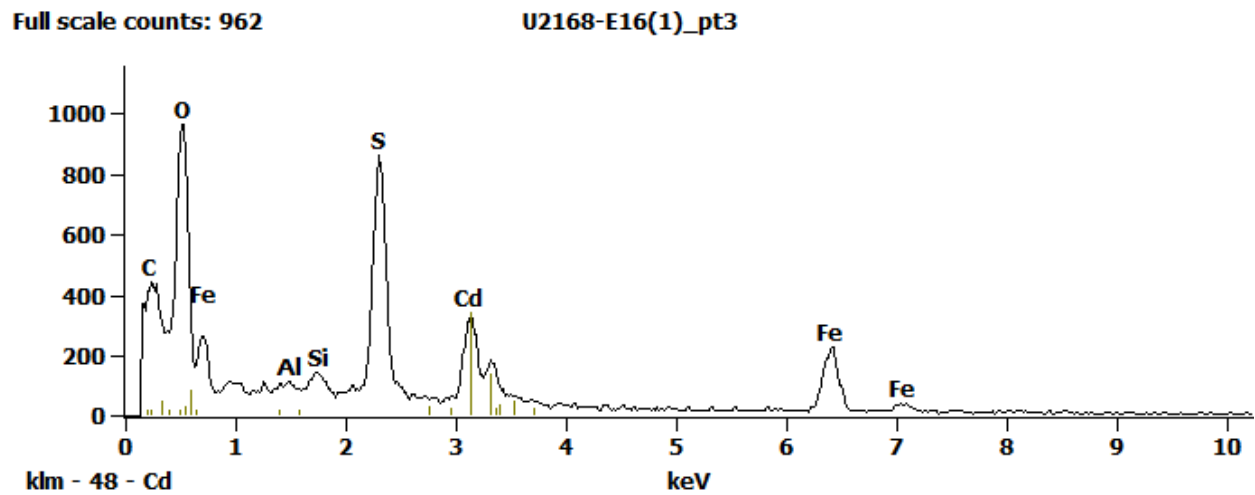


Figure 3. EDS Spectra for sample U2168-E-16 taken at test area 3. The test area is labeled in the particle SEM photo.



Full scale counts: 1773

U2168-E16(1)\_pt4

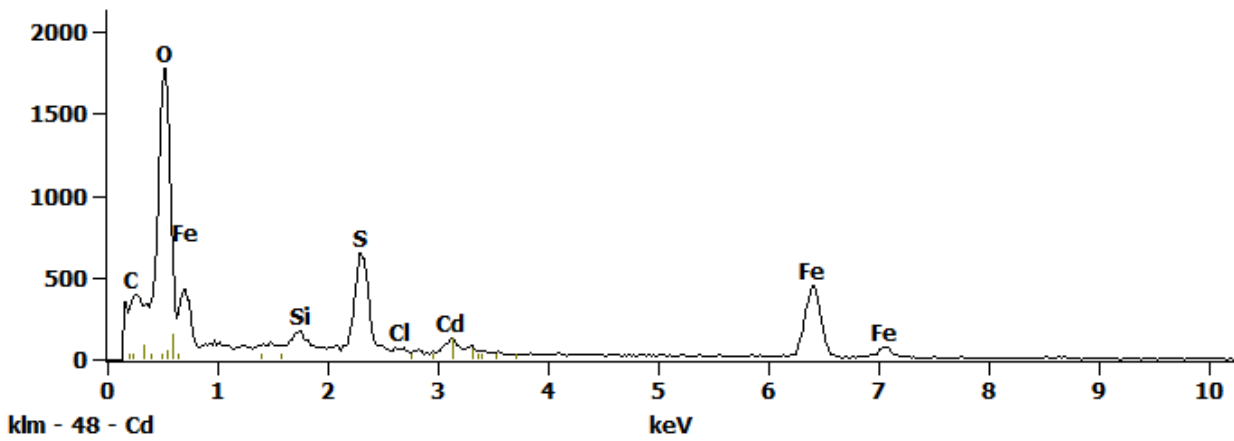


Figure 4. EDS Spectra for sample U2168-E-16 taken at test area 4. The test area is labeled in the particle SEM photo.

Full scale counts: 1246

U2168-E16(1)\_pt5

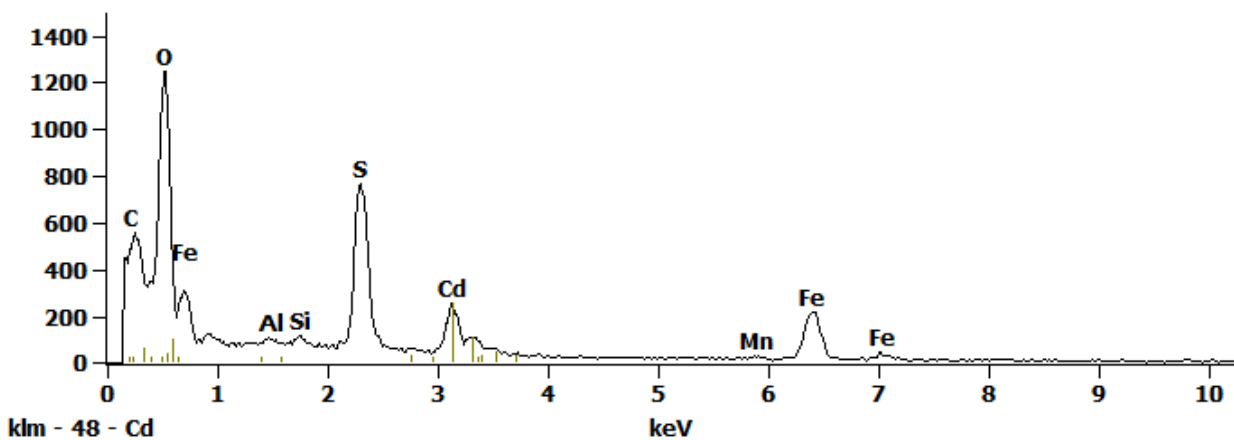


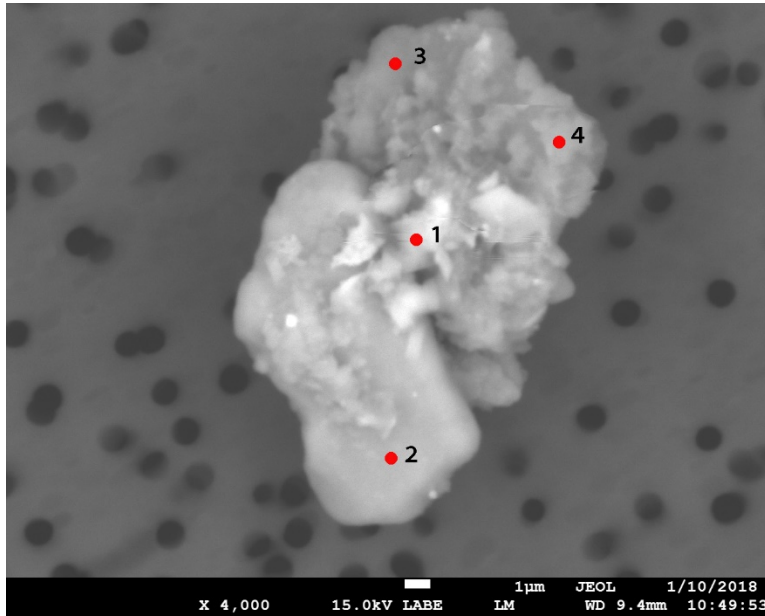
Figure 5. EDS Spectra for sample U2168-E-16 taken at test area 5. The test area is labeled in the particle SEM photo.

# Particle Descriptions

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## Natural Terrestrial Contamination and Possibly Natural Terrestrial Contamination (TCN and TCN ? Types)

## W7317 A1



<b>Particle Size:</b>	20x10 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, BROWN
<b>Luster:</b>	Vitreous
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7317 Cluster 1
<b>Comments:</b>	

SEM Photo of sample W7317 A1 with labeled EDS testing locations.

### Cluster of Origin: W7317 Cluster 1

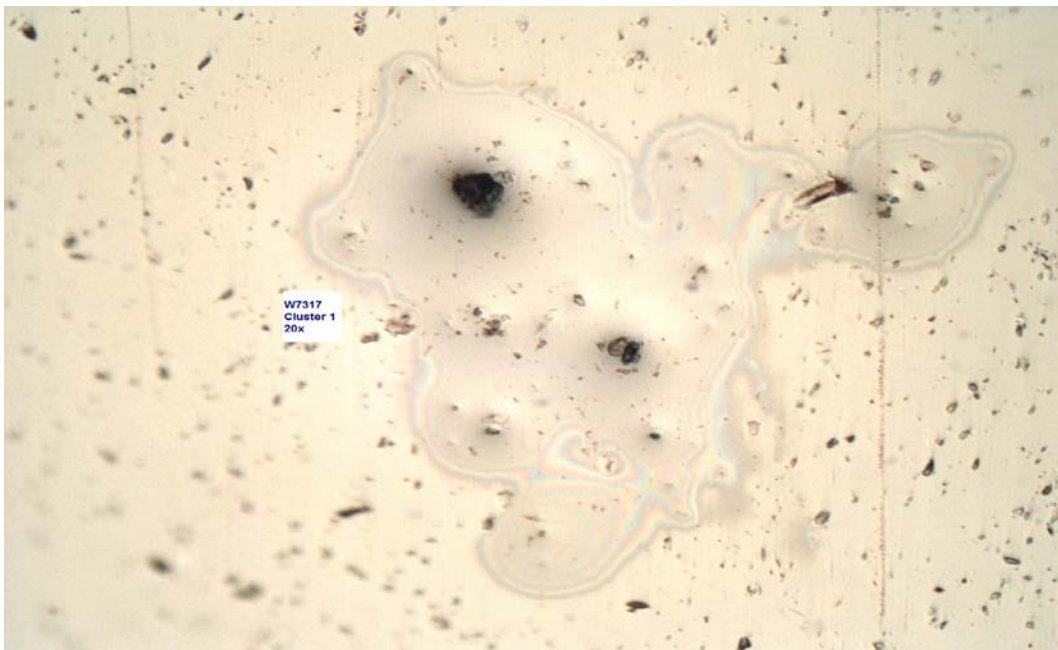


Photo of cluster W7317 Cluster 1.

## W7317 A1 - EDS Spectra

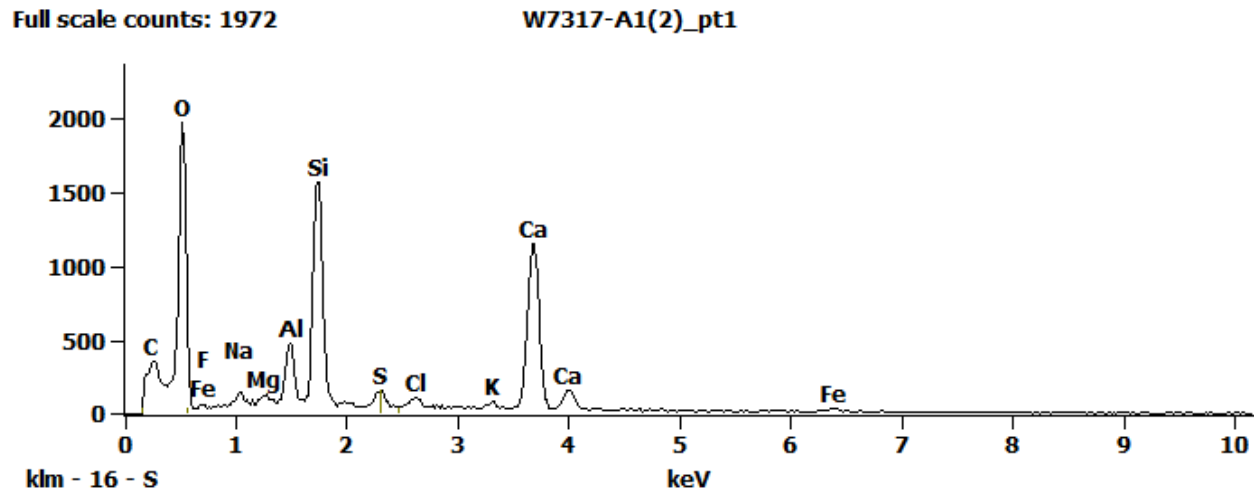


Figure 1. EDS Spectra for sample W7317-A-1 taken at test area 1. The test area is labeled in the particle SEM photo.

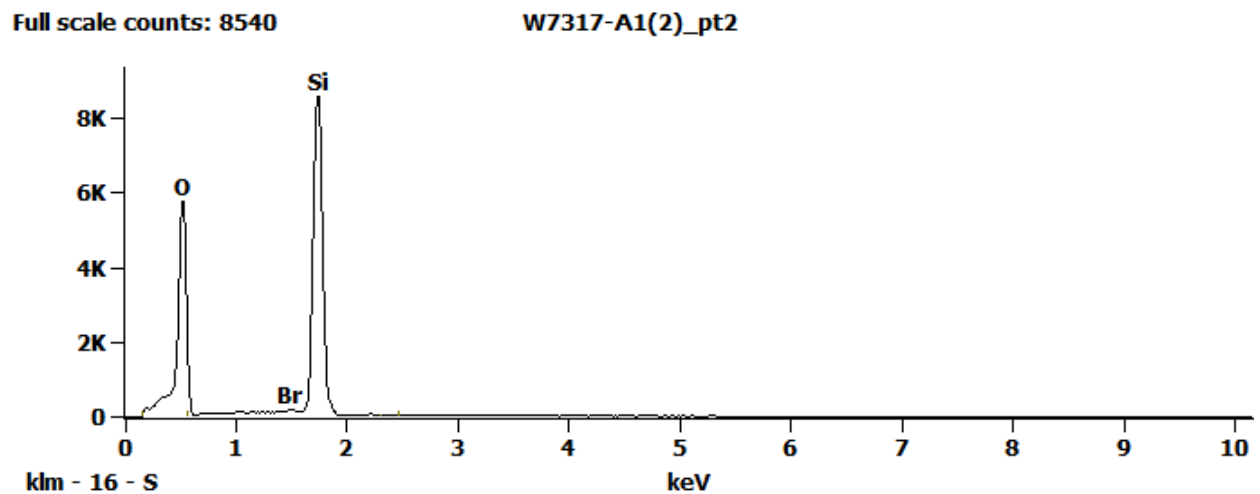


Figure 2. EDS Spectra for sample W7317-A-1 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1409

W7317-A1(2)\_pt3

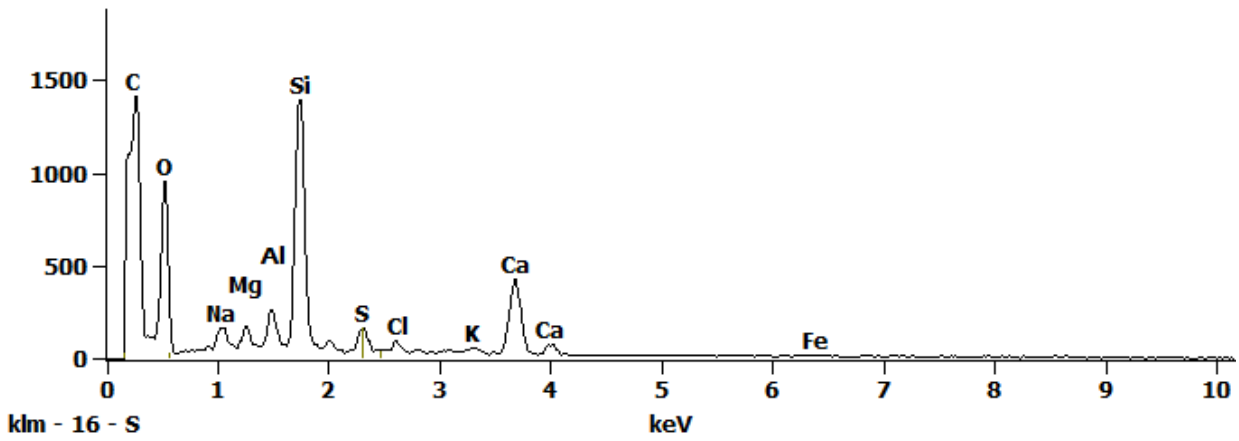


Figure 3. EDS Spectra for sample W7317-A-1 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1700

W7317-A1(2)\_pt4

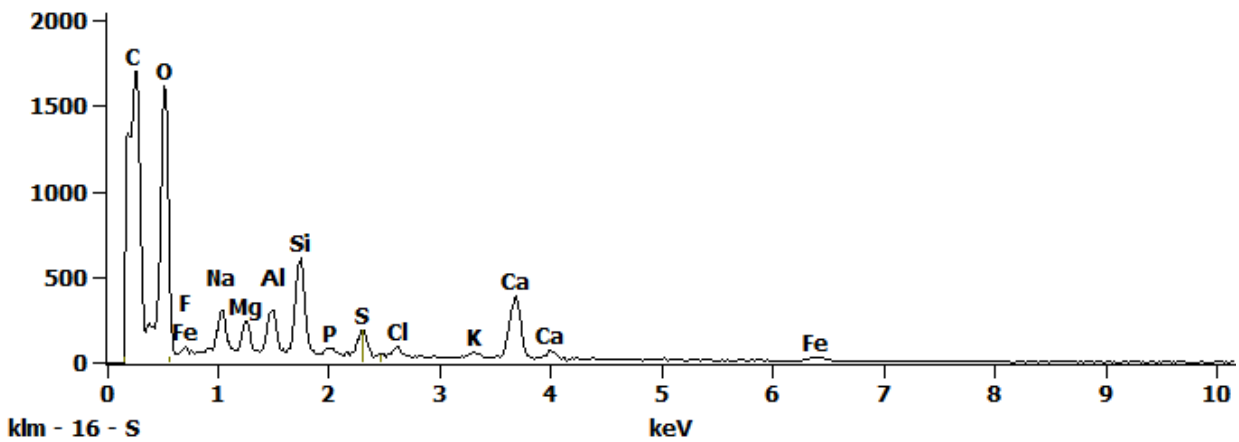
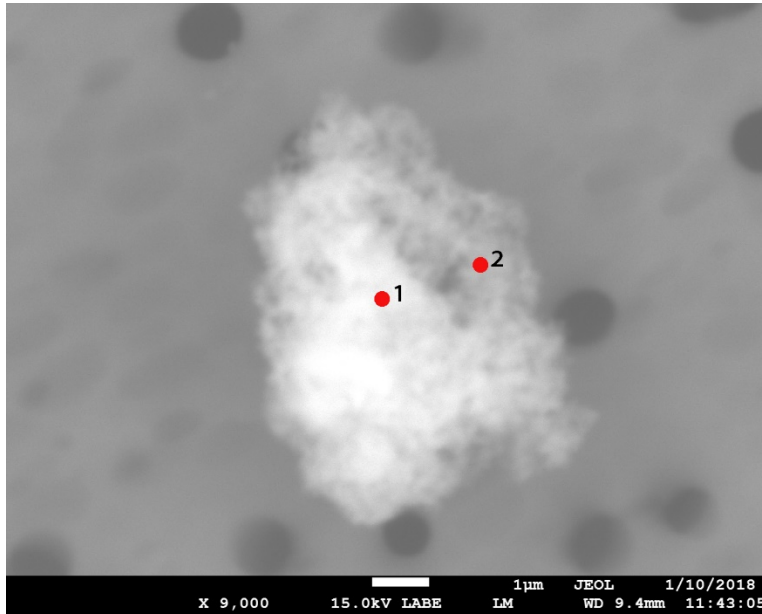


Figure 4. EDS Spectra for sample W7317-A-1 taken at test area 4. The test area is labeled in the particle SEM photo.

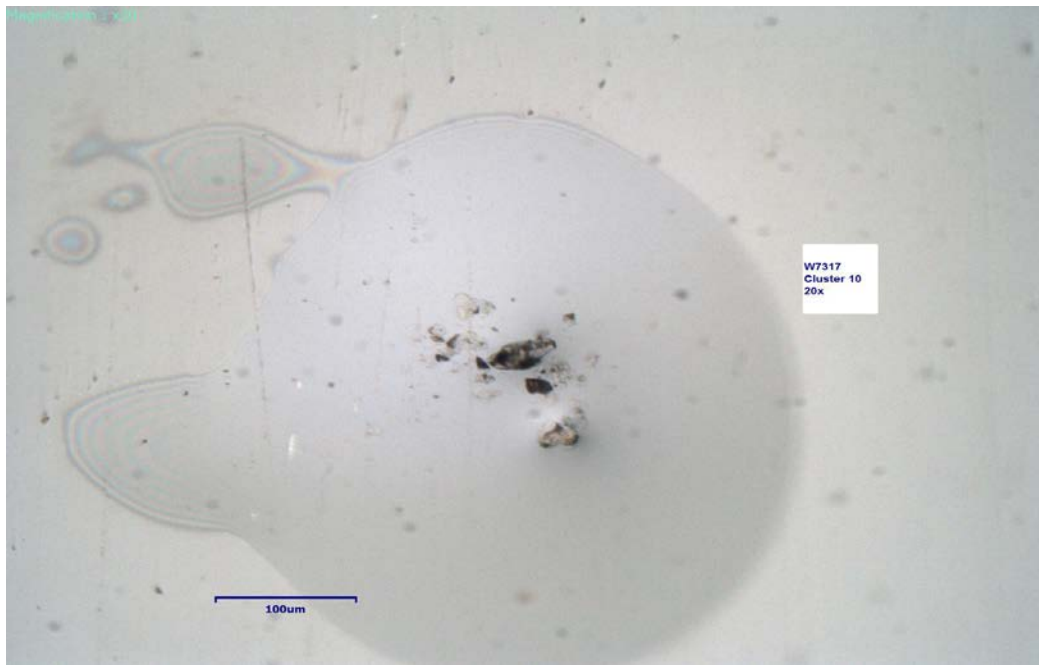
## W7317 A10



<b>Particle Size:</b>	22 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7317 Cluster 10
<b>Comments:</b>	

*SEM Photo of sample W7317 A10 with labeled EDS testing locations.*

### *Cluster of Origin: W7317 Cluster 10*



*Photo of cluster W7317 Cluster 10.*

## W7317 A10 - EDS Spectra

Full scale counts: 3339

W7317-A10(1)\_pt1

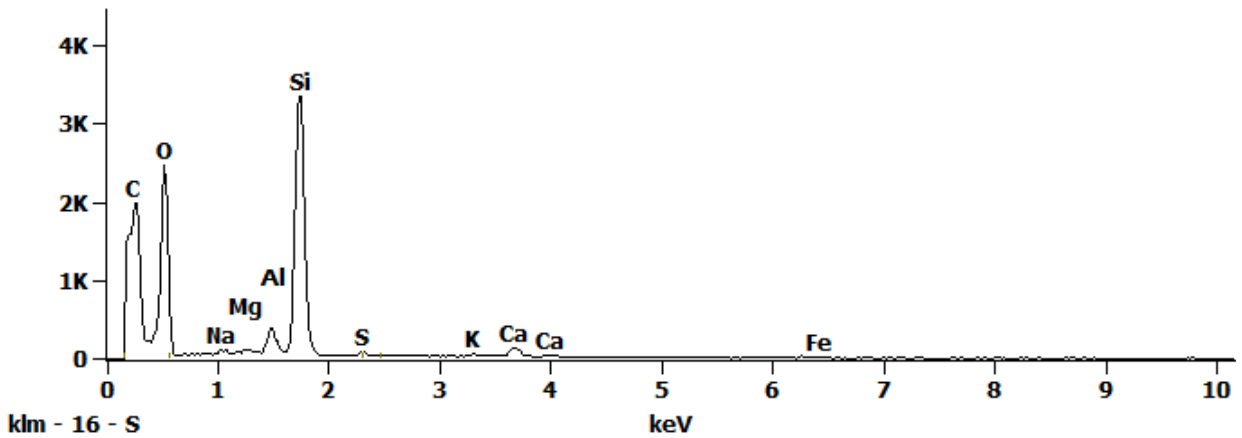


Figure 1. EDS Spectra for sample W7317-A-10 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1339

W7317-A10(1)\_pt2

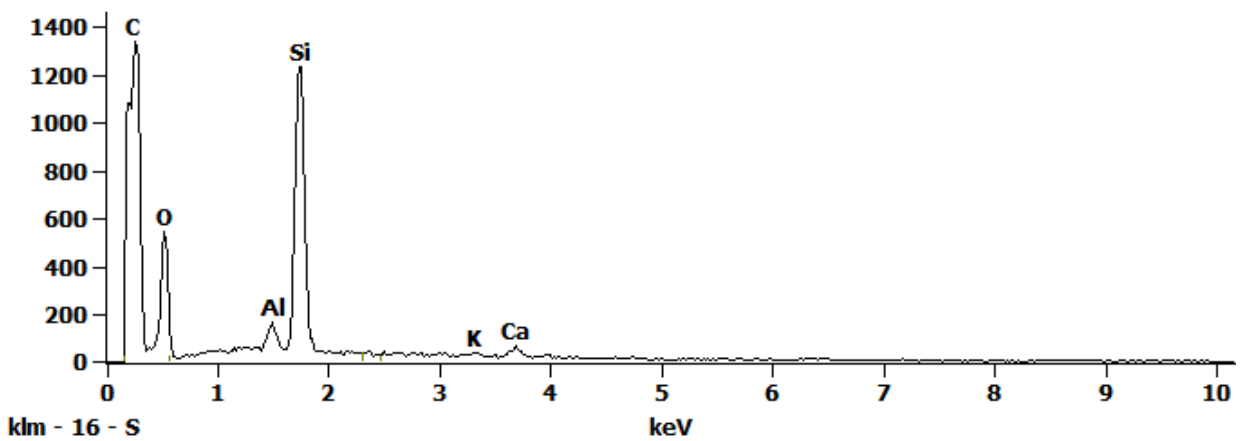
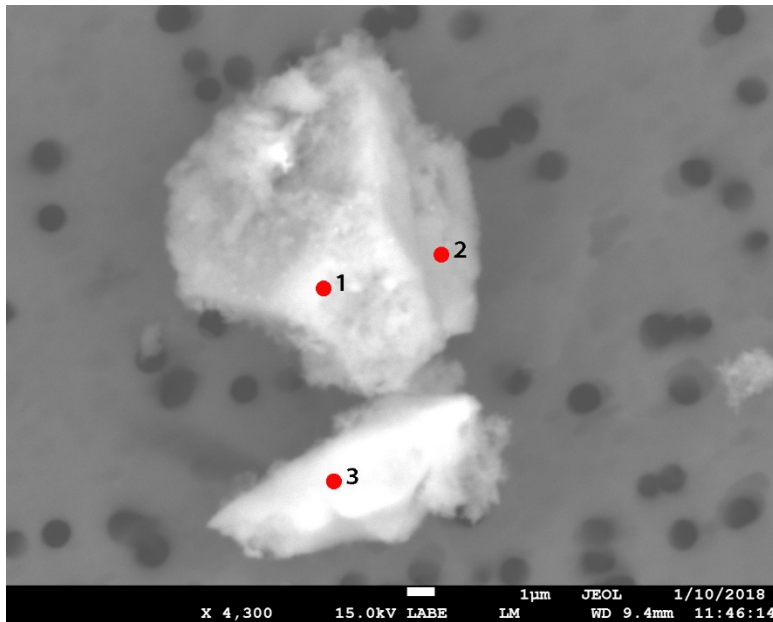


Figure 2. EDS Spectra for sample W7317-A-10 taken at test area 2. The test area is labeled in the particle SEM photo.

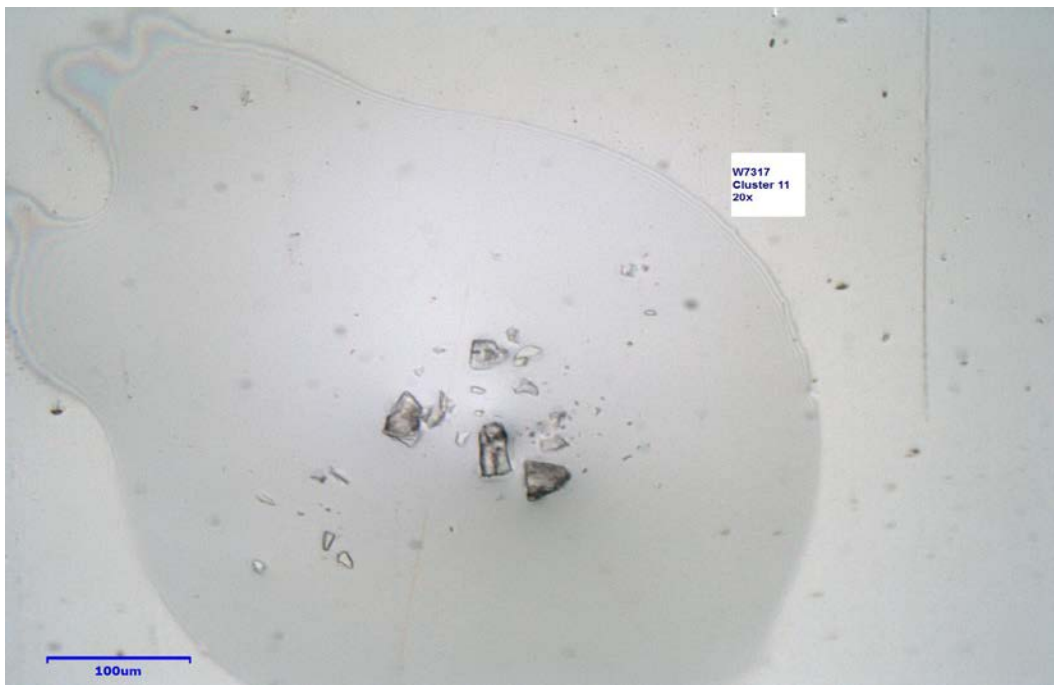
## W7317 A11



**Particle Size:** 20 µm  
**Shape:** Equidimensional  
**Transparency:** Translucent  
**Color:** GRAY  
**Luster:** Pearly  
**Particle Type:** NATURAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** W7317 Cluster 11  
**Comments:**

*SEM Photo of sample W7317 A11 with labeled EDS testing locations.*

### *Cluster of Origin: W7317 Cluster 11*



*Photo of cluster W7317 Cluster 11.*



## W7317 A11 - EDS Spectra

Full scale counts: 4520

W7317-A11(1)\_pt1

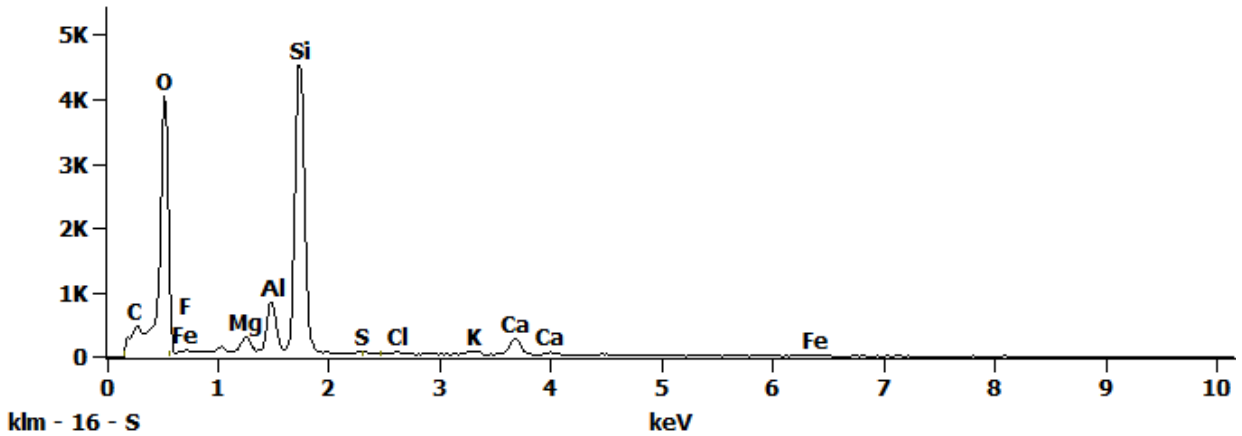


Figure 1. EDS Spectra for sample W7317-A-11 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2630

W7317-A11(1)\_pt2

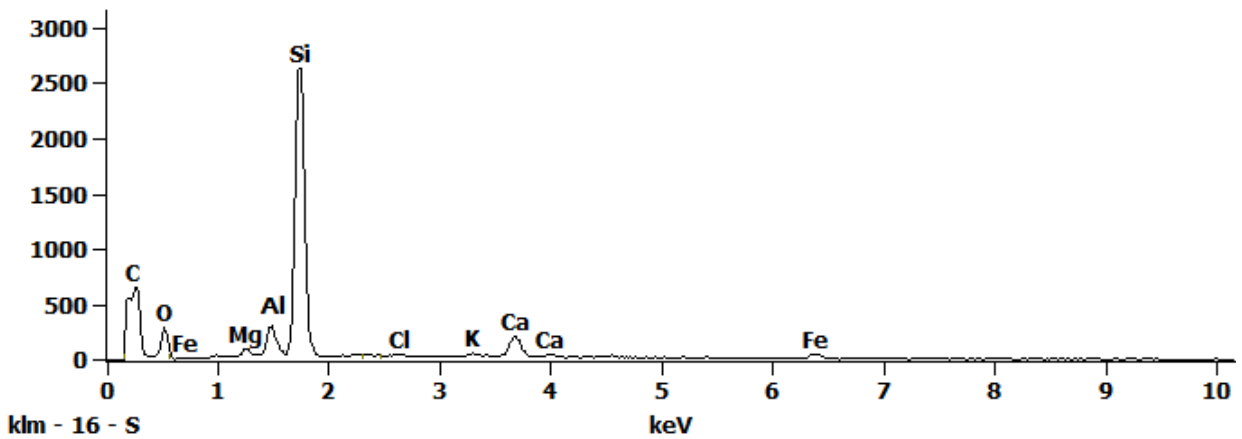


Figure 2. EDS Spectra for sample W7317-A-11 taken at test area 2. The test area is labeled in the particle SEM photo.

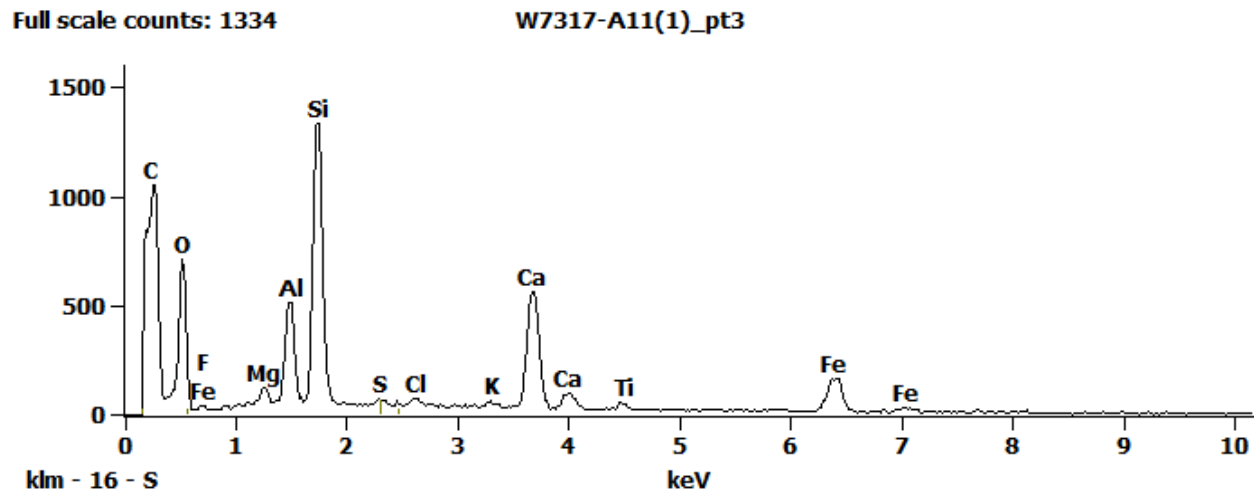
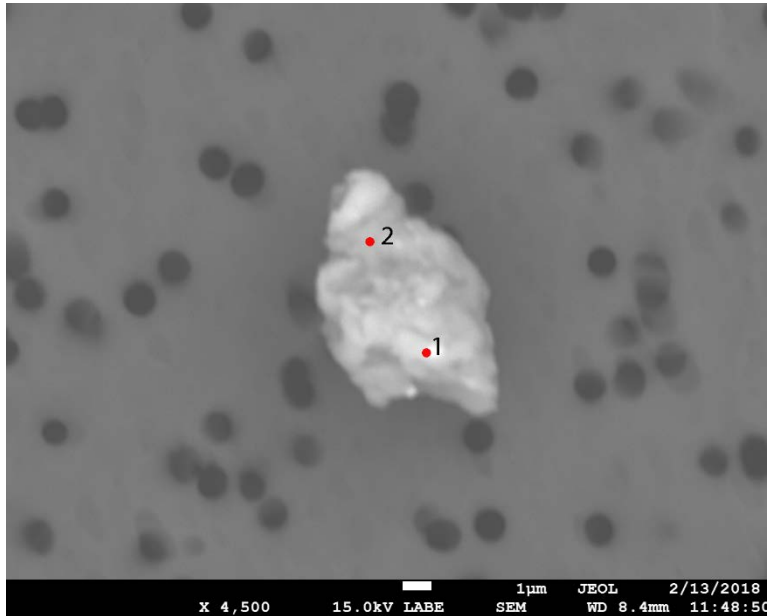


Figure 3. EDS Spectra for sample W7317-A-11 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7317 C10



SEM Photo of sample W7317 C10 with labeled EDS testing locations.

<b>Particle Size:</b>	6 µm
<b>Shape:</b>	Equidimensional to Spherical
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	GRAY, YELLOW
<b>Luster:</b>	Resinous
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7317 C10 - EDS Spectra

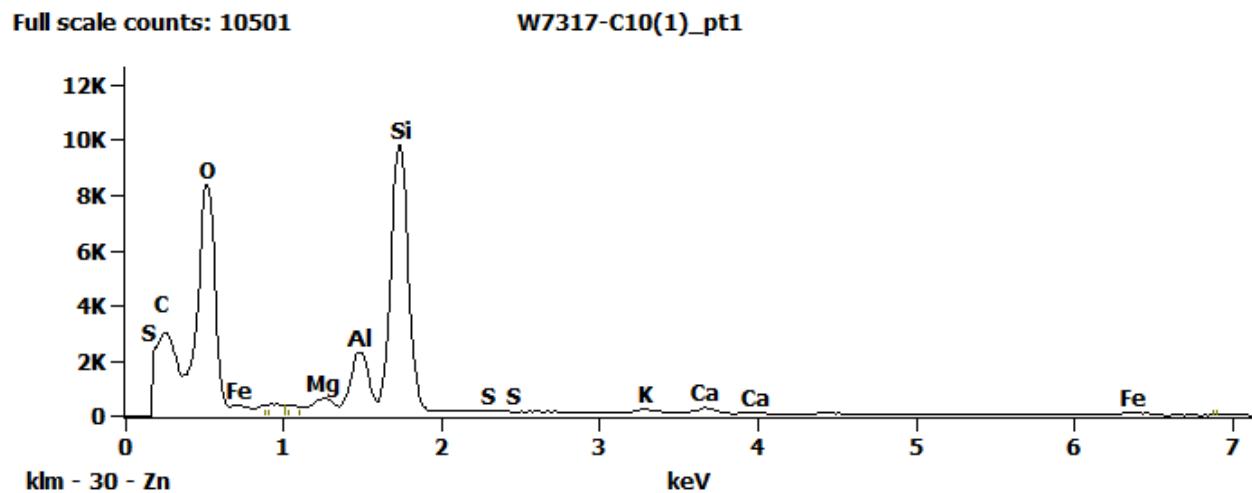


Figure 1. EDS Spectra for sample W7317-C-10 taken at test area 1. The test area is labeled in the particle SEM photo.

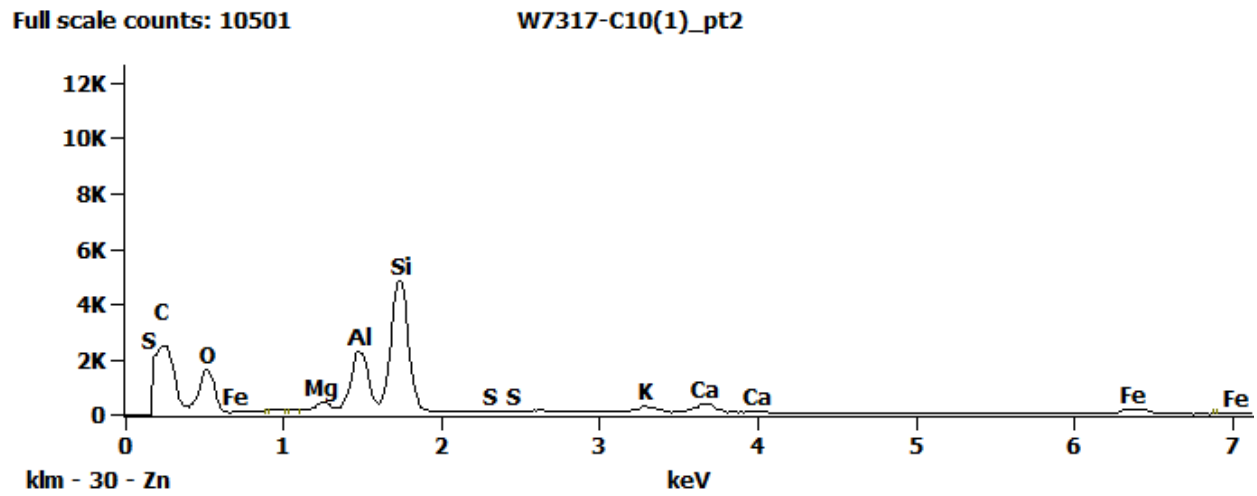
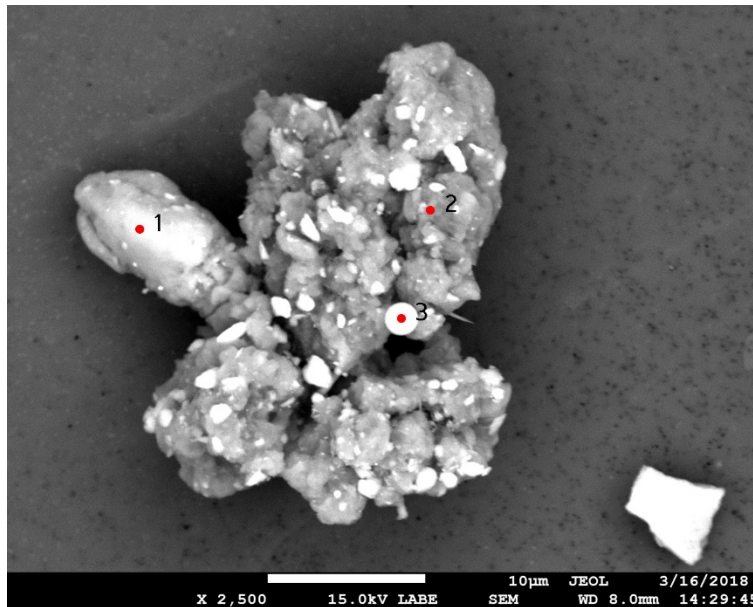


Figure 2. EDS Spectra for sample W7317-C-10 taken at test area 2. The test area is labeled in the particle SEM photo.

## W7318 A14



<b>Particle Size:</b>	27 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 A14 with labeled EDS testing locations.

### W7318 A14 - EDS Spectra

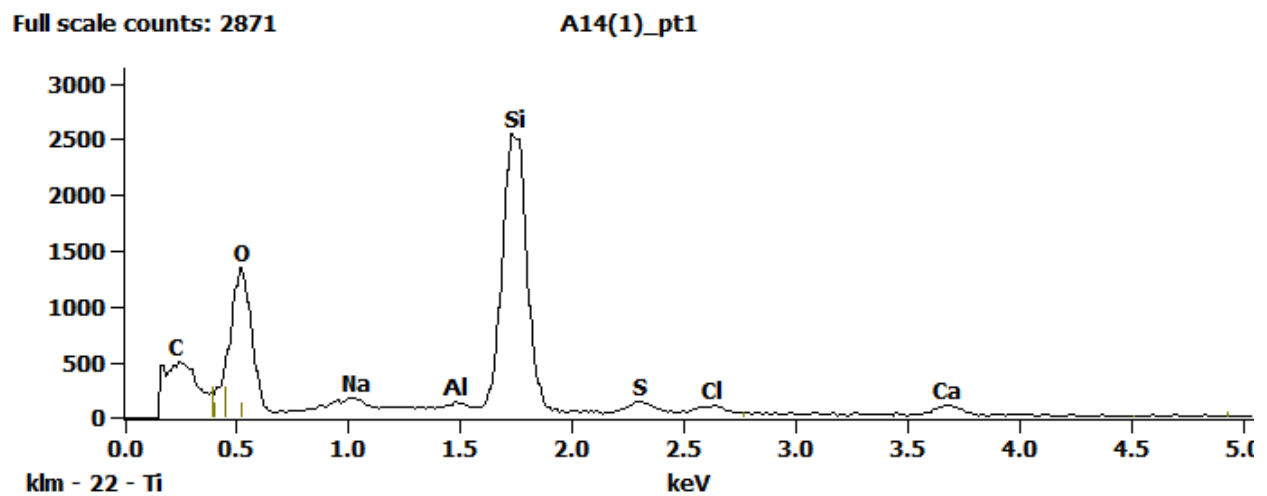


Figure 1. EDS Spectra for sample W7318-A-14 taken at test area 1. The test area is labeled in the particle SEM photo.

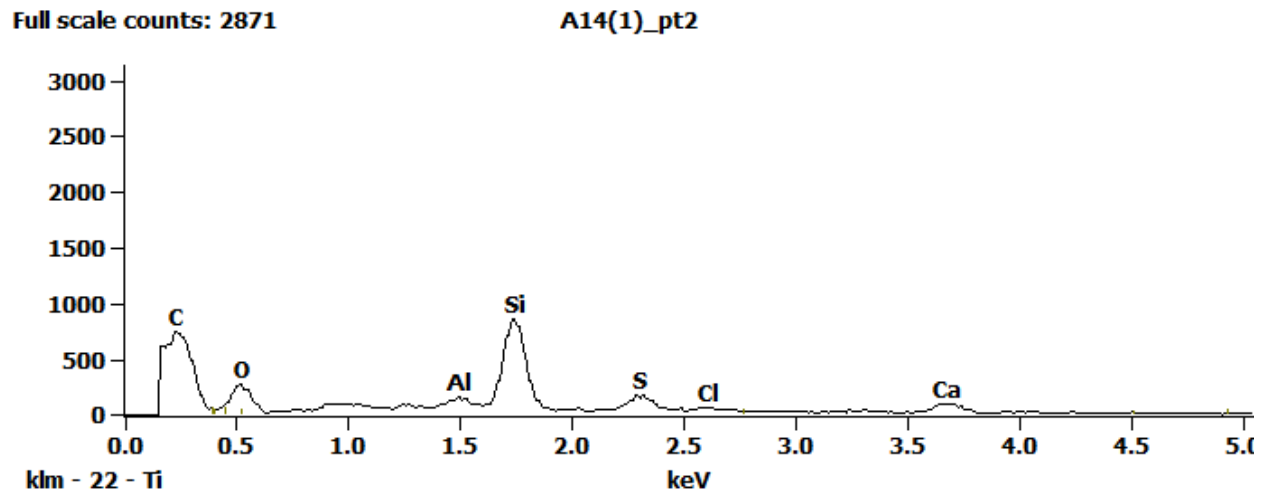


Figure 2. EDS Spectra for sample W7318-A-14 taken at test area 2. The test area is labeled in the particle SEM photo.

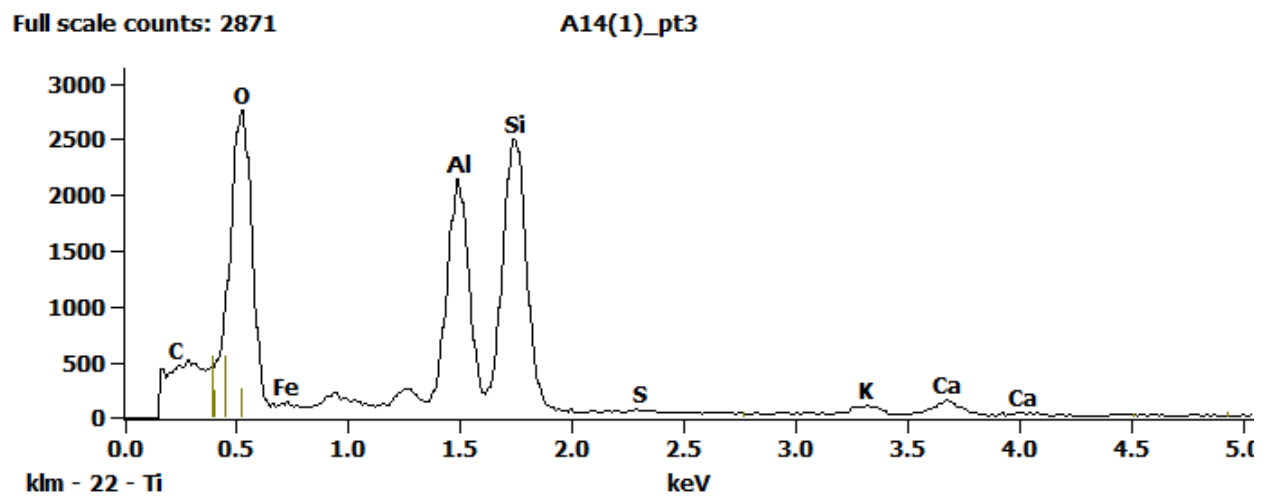
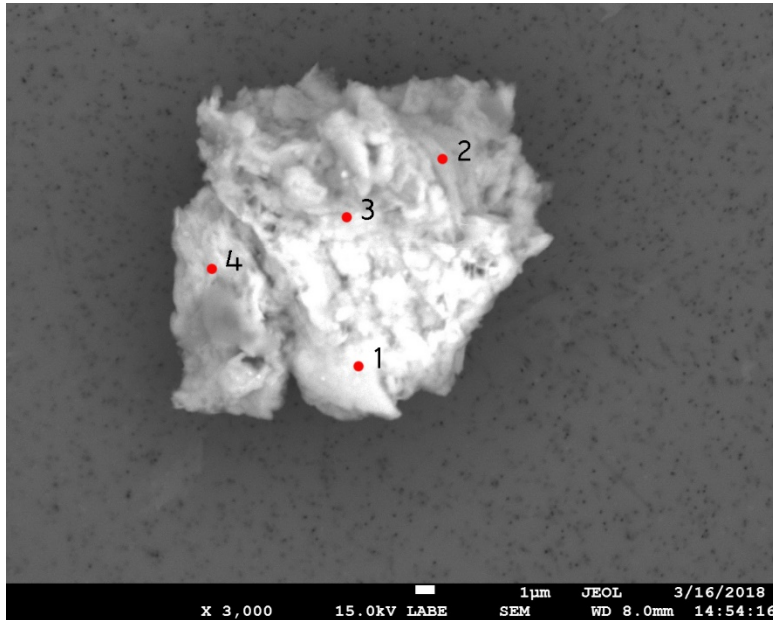


Figure 3. EDS Spectra for sample W7318-A-14 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7318 A15



<b>Particle Size:</b>	20 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BROWN
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 A15 with labeled EDS testing locations.

### W7318 A15 - EDS Spectra

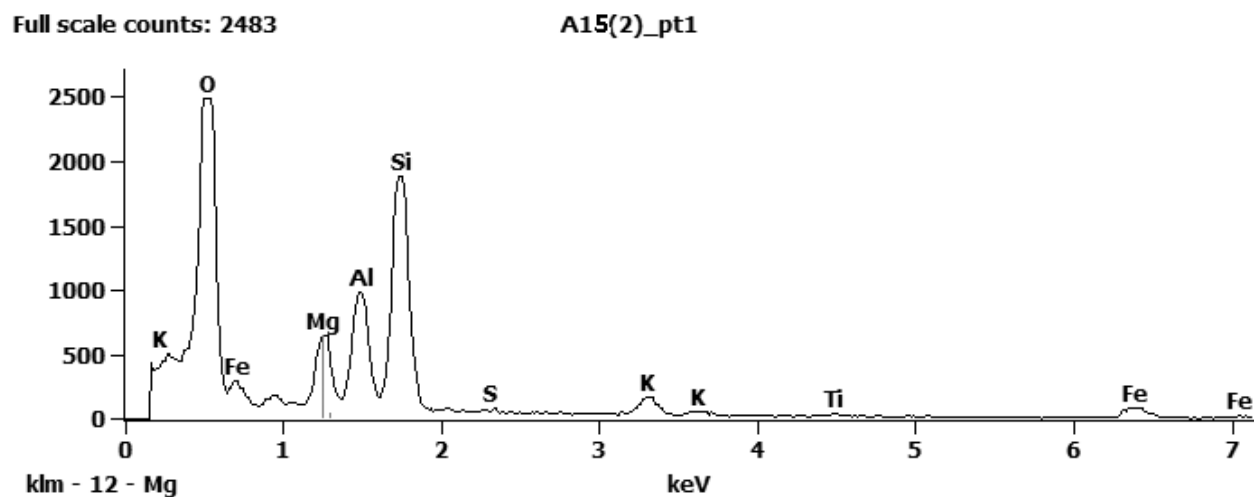


Figure 1. EDS Spectra for sample W7318-A-15 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2483

A15(1)\_pt2

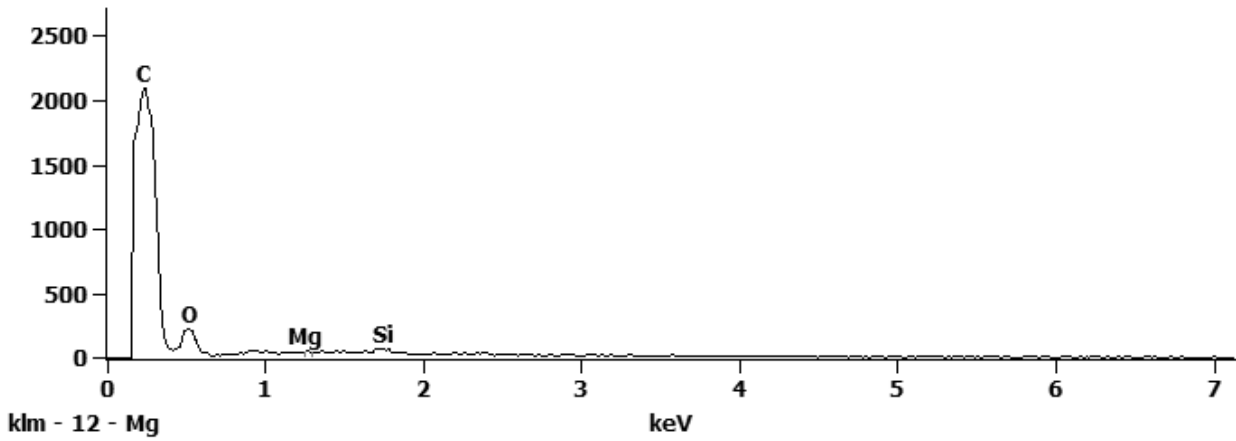


Figure 2. EDS Spectra for sample W7318-A-15 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2483

A15(1)\_pt3

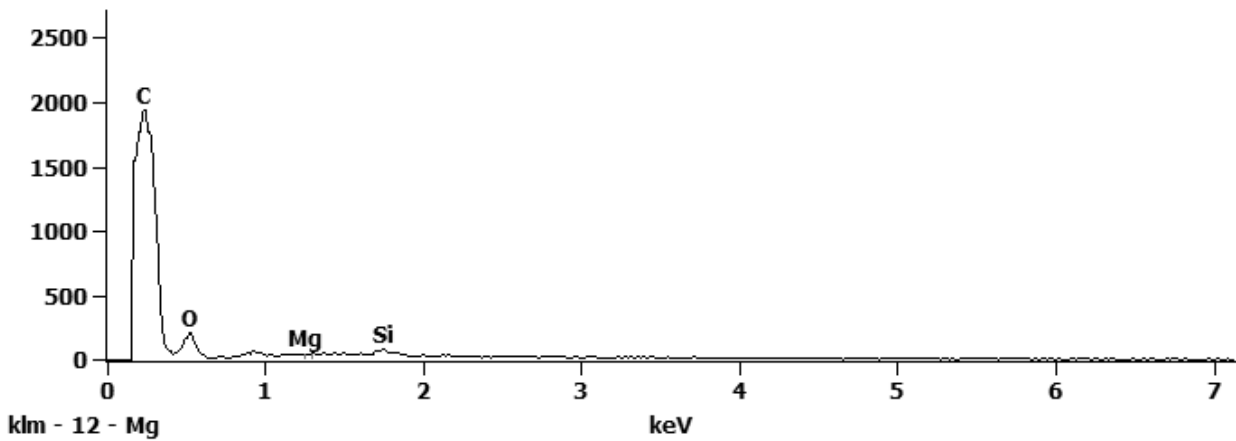


Figure 3. EDS Spectra for sample W7318-A-15 taken at test area 3. The test area is labeled in the particle SEM photo.



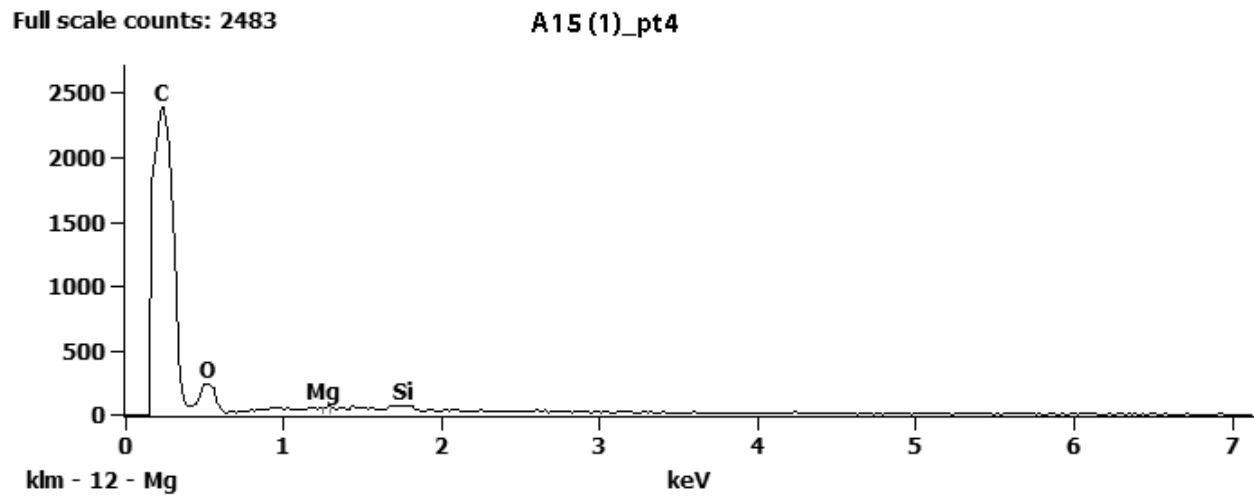
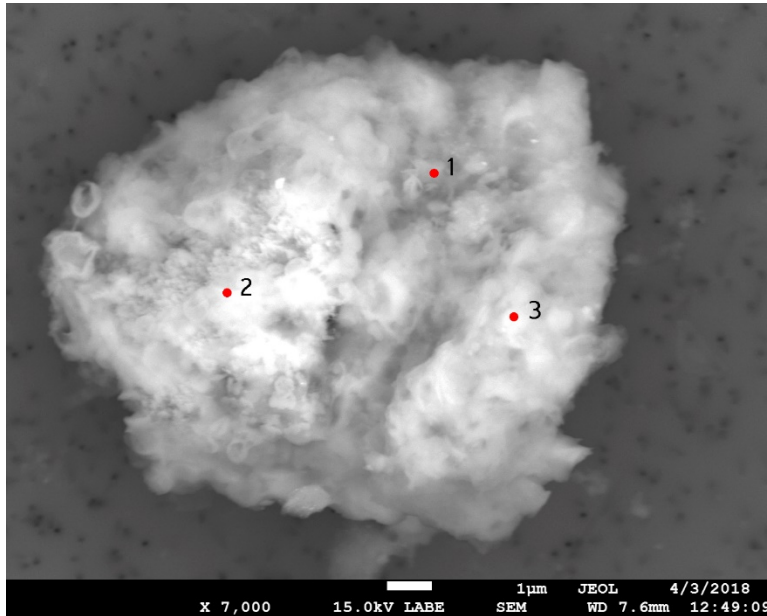


Figure 4. EDS Spectra for sample W7318-A-15 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7318 B1



<b>Particle Size:</b>	16 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Translucent
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly to Vitreous
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7318 B1 with labeled EDS testing locations.

### W7318 B1 - EDS Spectra

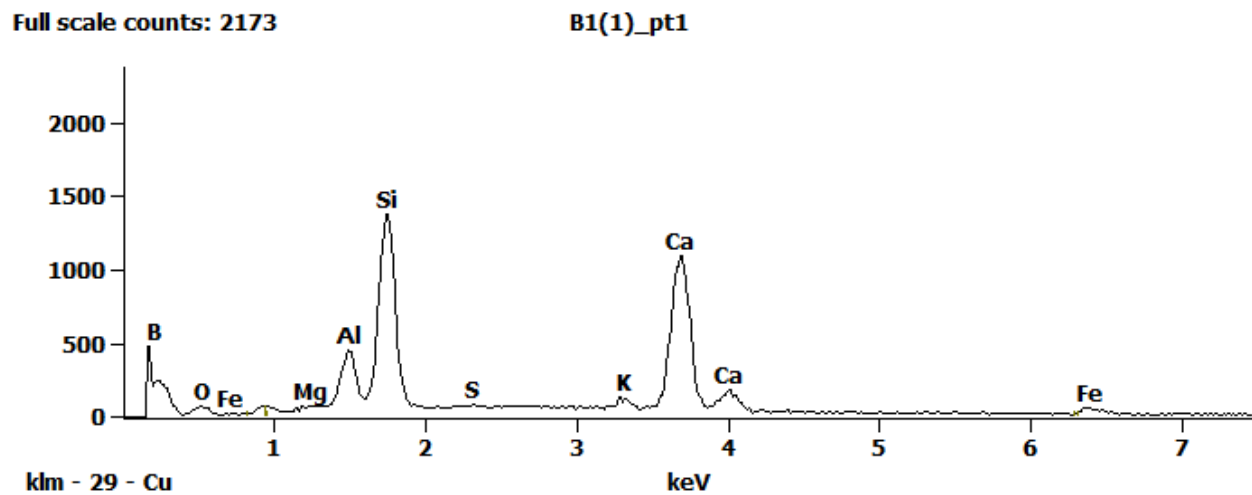


Figure 1. EDS Spectra for sample W7318-B-1 taken at test area 1. The test area is labeled in the particle SEM photo.

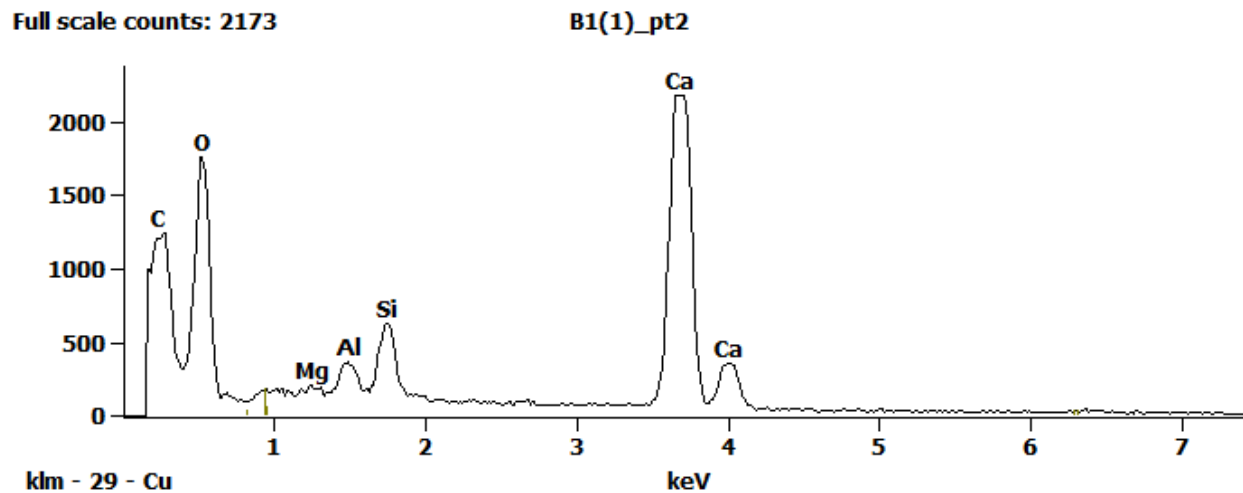


Figure 2. EDS Spectra for sample W7318-B-1 taken at test area 2. The test area is labeled in the particle SEM photo.

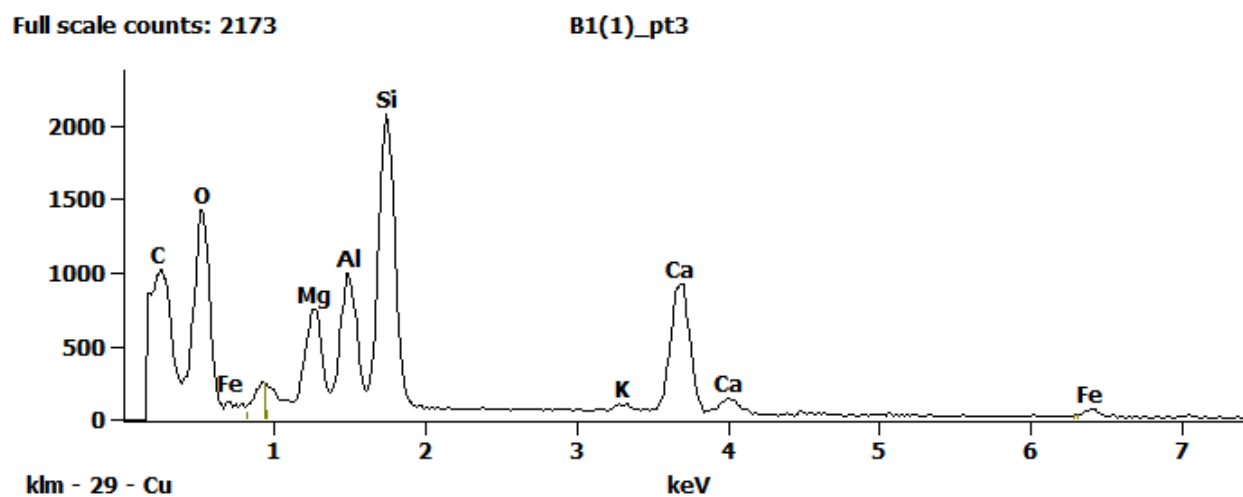
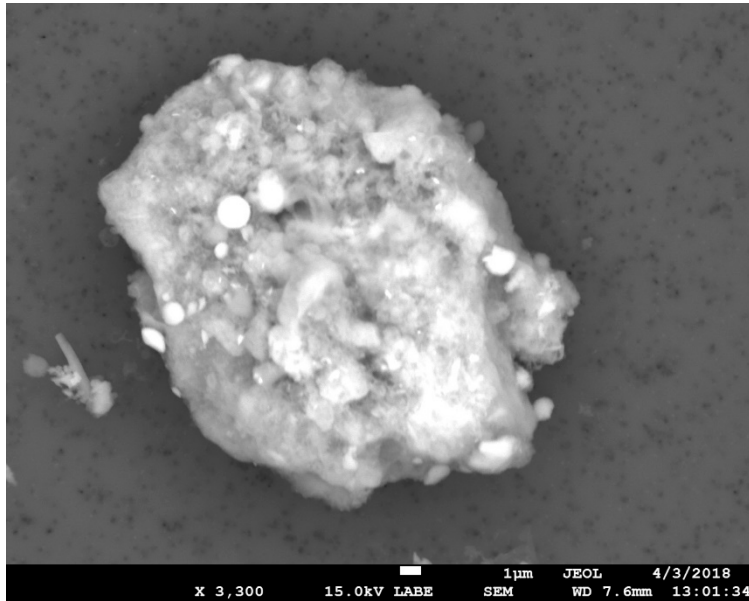


Figure 3. EDS Spectra for sample W7318-B-1 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7318 B3



SEM Photo of sample W7318 B3.

<b>Particle Size:</b>	24 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly to Subvitreous
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7318 B3 - EDS Spectra

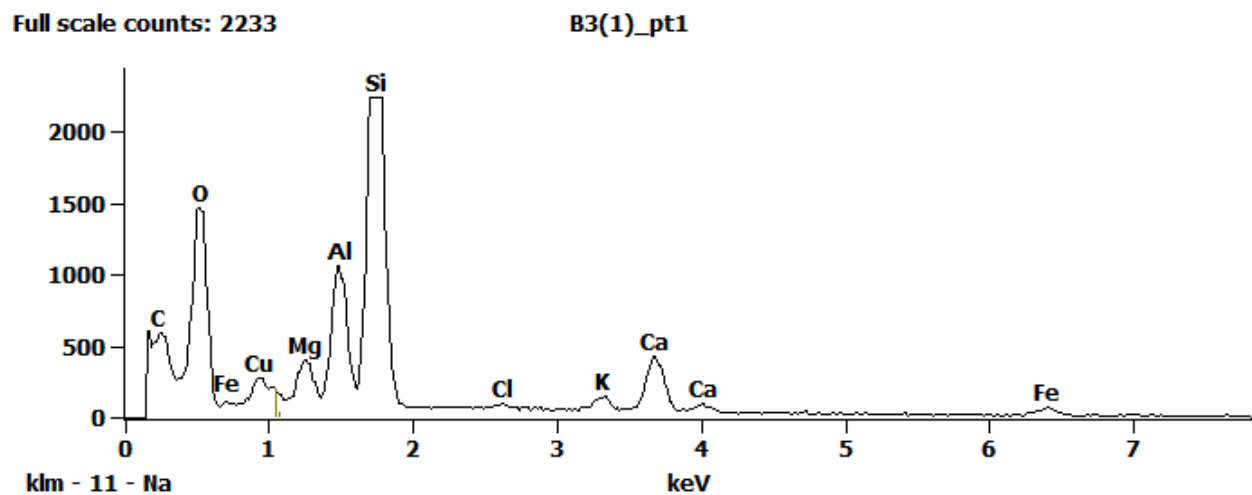


Figure 1. EDS Spectra for sample W7318-B-3 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2233

B3(1)\_pt2

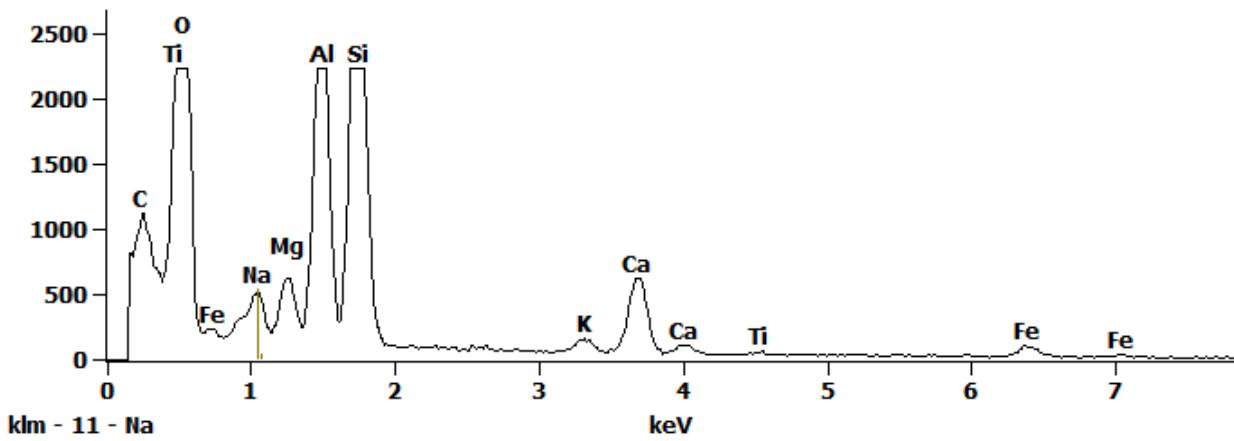


Figure 2. EDS Spectra for sample W7318-B-3 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2233

B3(1)\_pt3

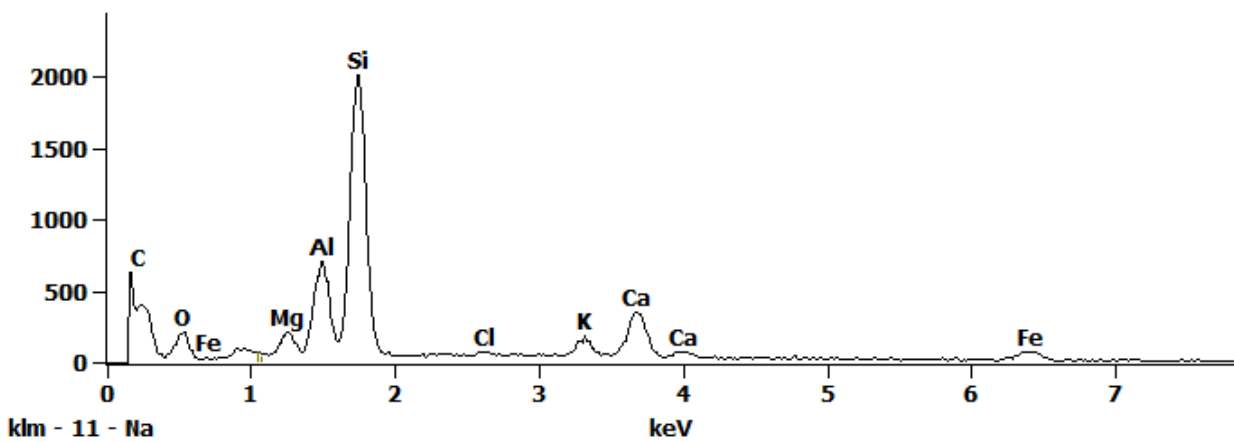


Figure 3. EDS Spectra for sample W7318-B-3 taken at test area 3. The test area is labeled in the particle SEM photo.

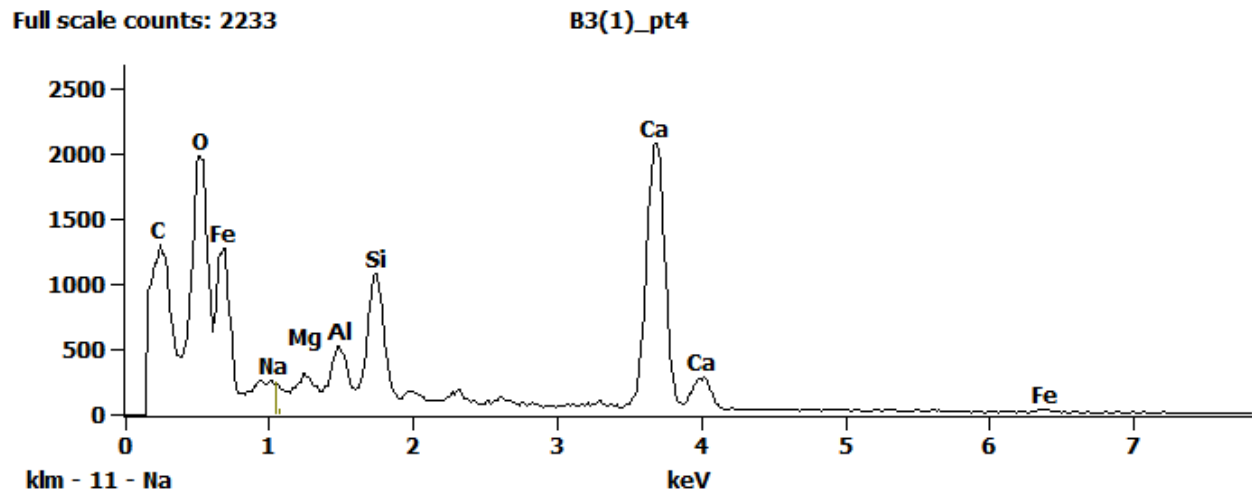
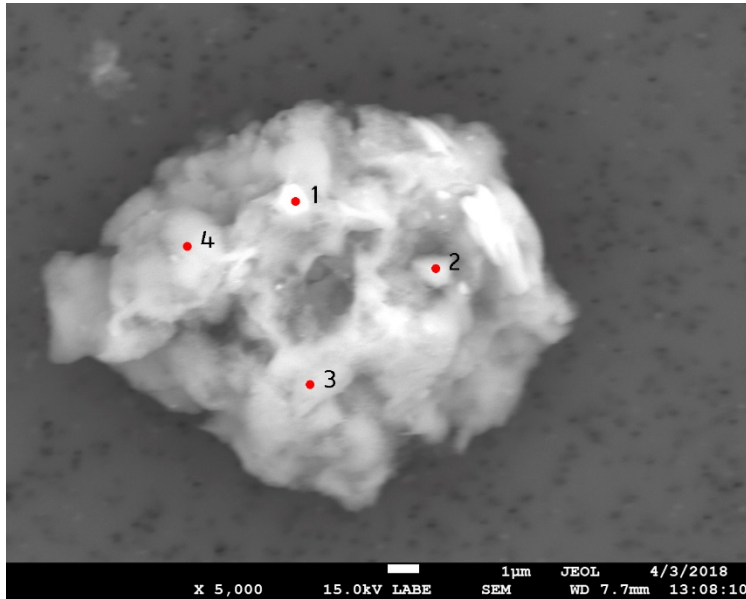


Figure 4. EDS Spectra for sample W7318-B-3 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7318 B4



SEM Photo of sample W7318 B4 with labeled EDS testing locations.

<b>Particle Size:</b>	15 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7318 B4 - EDS Spectra

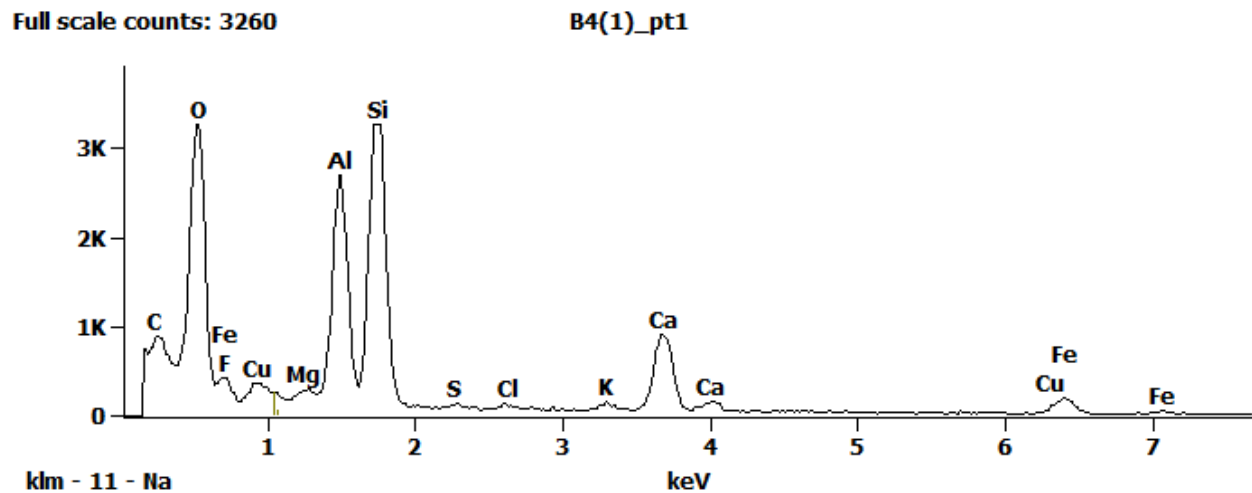


Figure 1. EDS Spectra for sample W7318-B-4 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 3260

B4(1)\_pt2

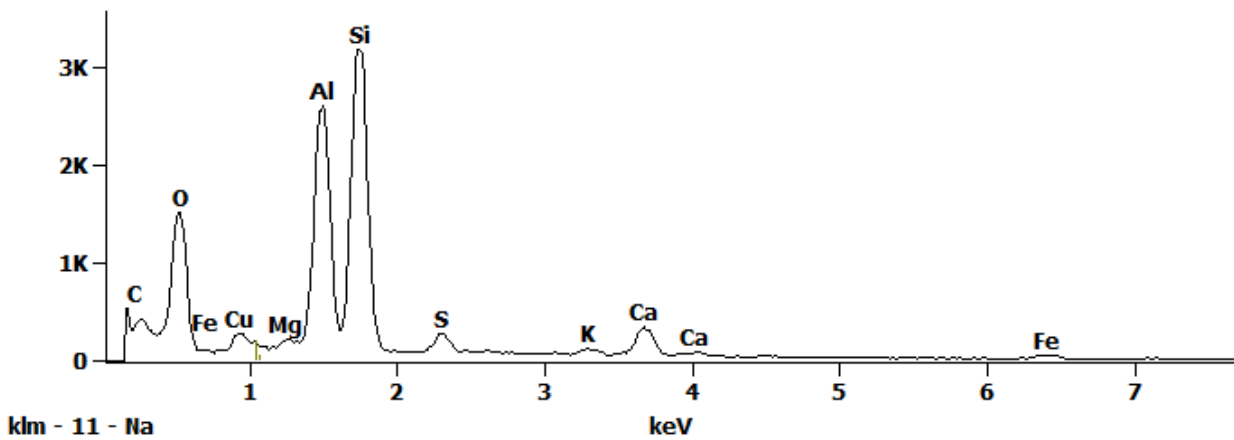


Figure 2. EDS Spectra for sample W7318-B-4 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 3260

B4(1)\_pt3

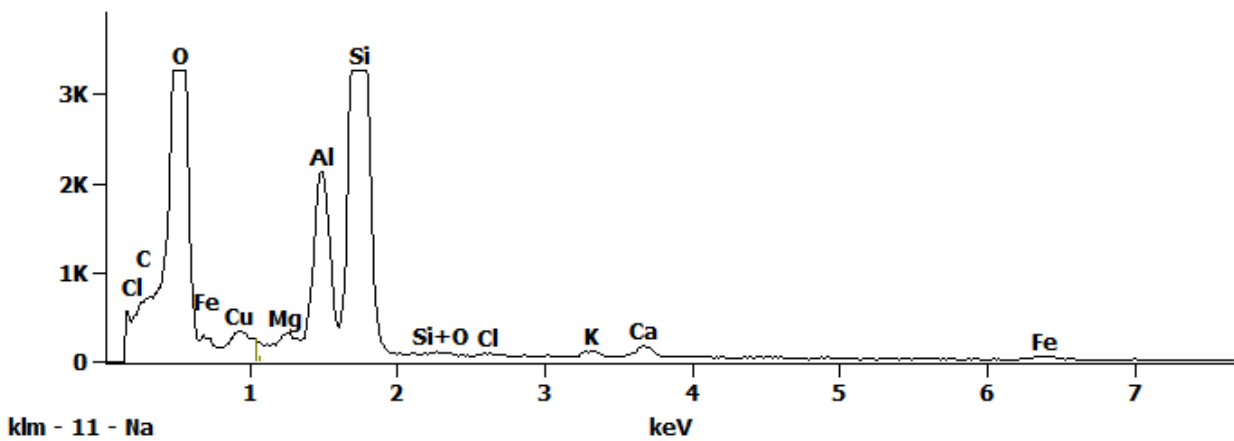


Figure 3. EDS Spectra for sample W7318-B-4 taken at test area 3. The test area is labeled in the particle SEM photo.



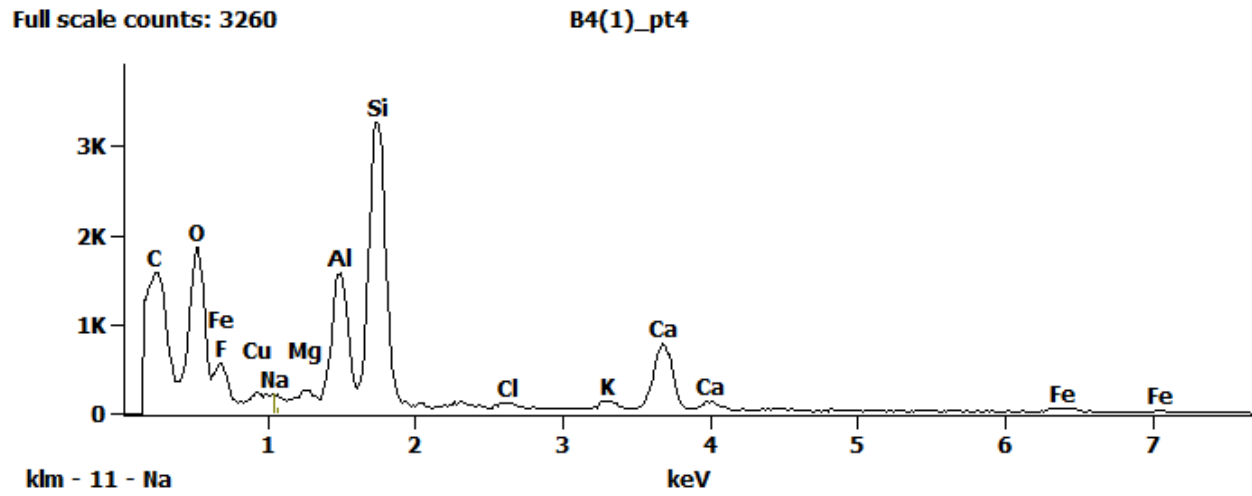
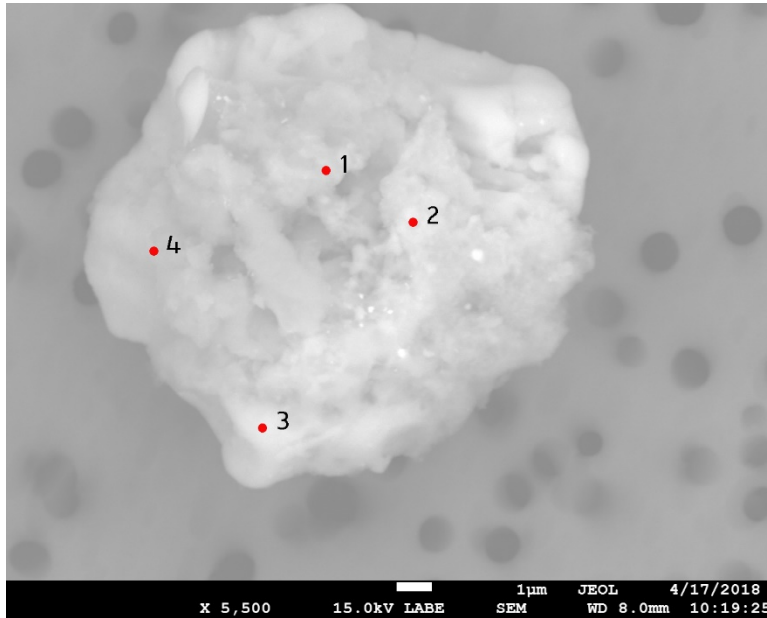


Figure 4. EDS Spectra for sample W7318-B-4 taken at test area 4. The test area is labeled in the particle SEM photo.

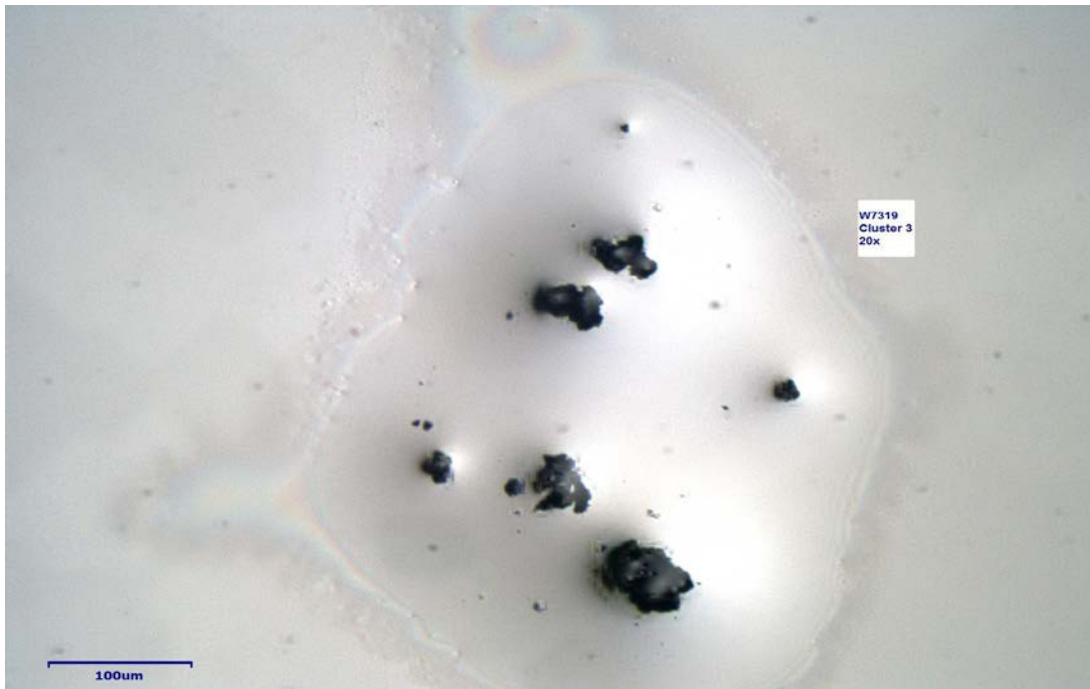
## W7319 A5



<b>Particle Size:</b>	13 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 3
<b>Comments:</b>	

*SEM Photo of sample W7319 A5 with labeled EDS testing locations.*

### *Cluster of Origin: W7319 Cluster 3*



*Photo of cluster W7319 Cluster 3.*

## W7319 A5 - EDS Spectra

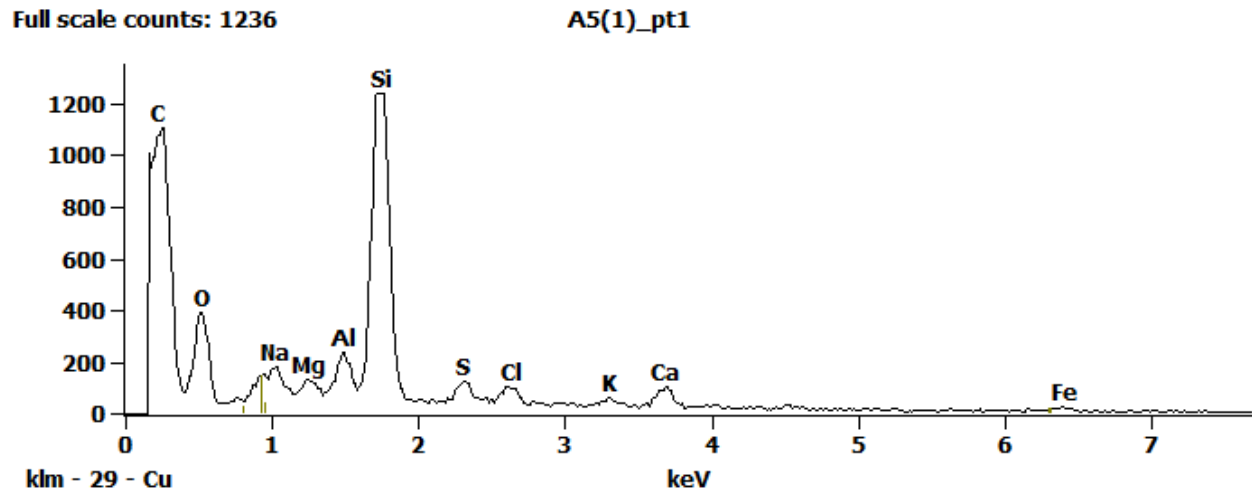


Figure 1. EDS Spectra for sample W7319-A-5 taken at test area 1. The test area is labeled in the particle SEM photo.

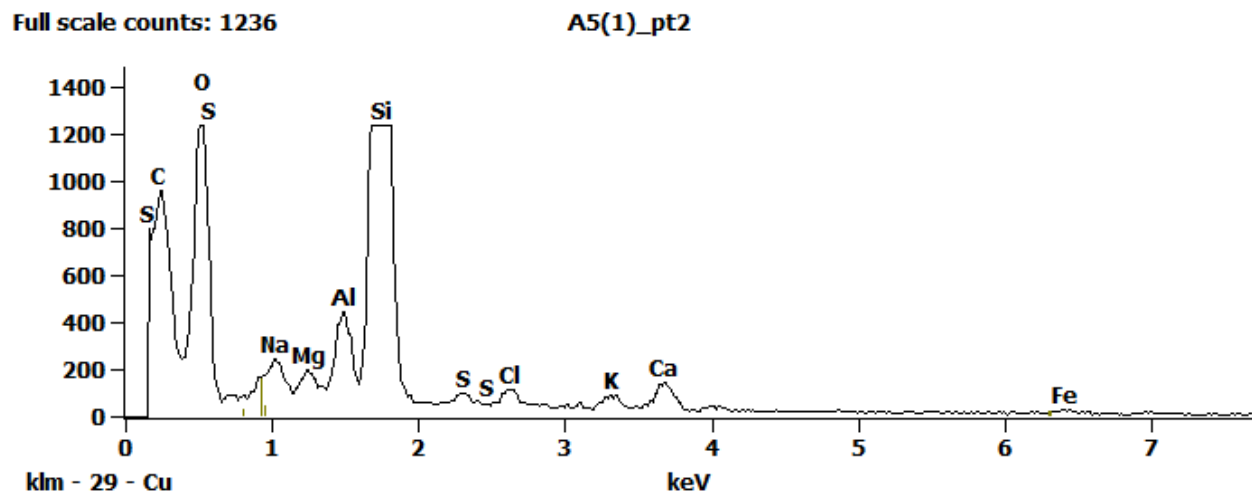


Figure 2. EDS Spectra for sample W7319-A-5 taken at test area 2. The test area is labeled in the particle SEM photo.

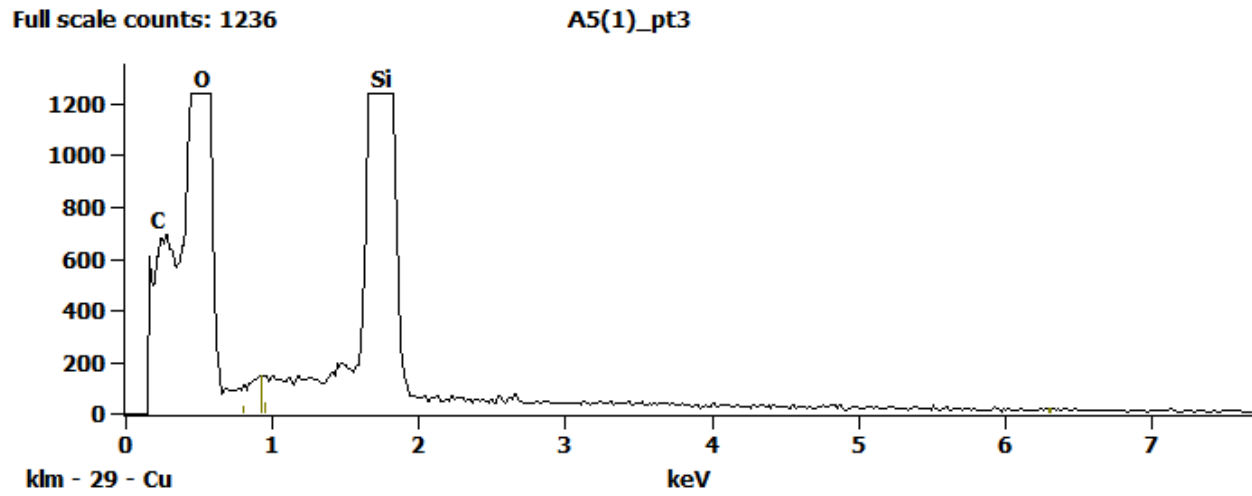


Figure 3. EDS Spectra for sample W7319-A-5 taken at test area 3. The test area is labeled in the particle SEM photo.

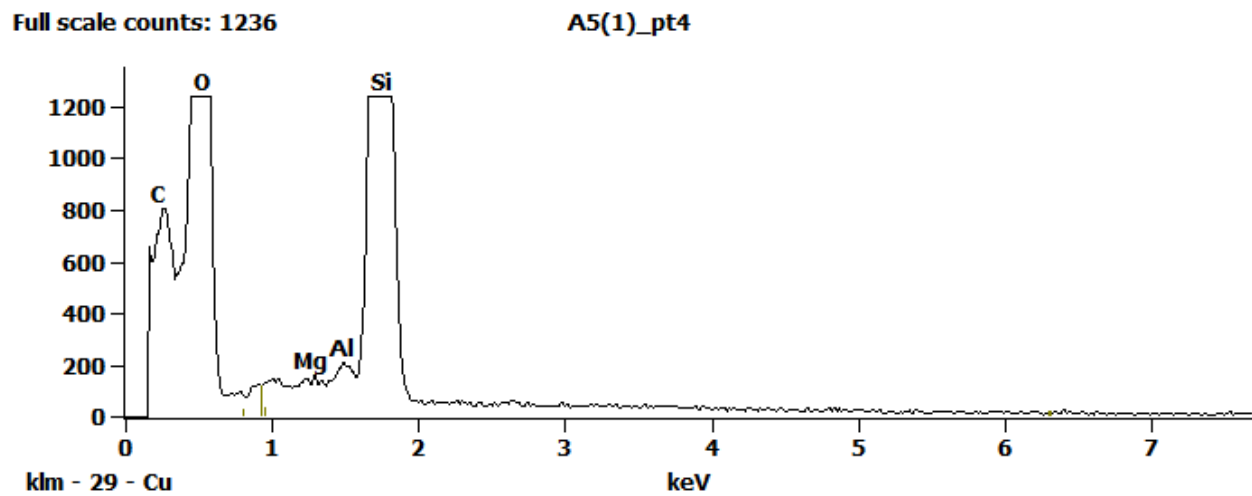
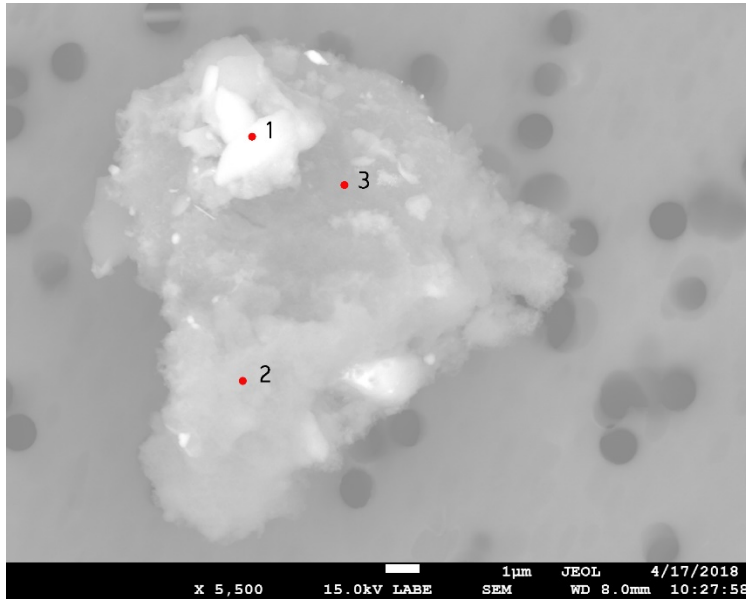


Figure 4. EDS Spectra for sample W7319-A-5 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7319 A6



<b>Particle Size:</b>	14 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	CLEAR
<b>Luster:</b>	Subvitreous
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	W7319 Cluster 3
<b>Comments:</b>	

SEM Photo of sample W7319 A6 with labeled EDS testing locations.

### Cluster of Origin: W7319 Cluster 3



Photo of cluster W7319 Cluster 3.

*W7319 A6 - EDS Spectra*

Full scale counts: 1236

A6(1)\_pt1

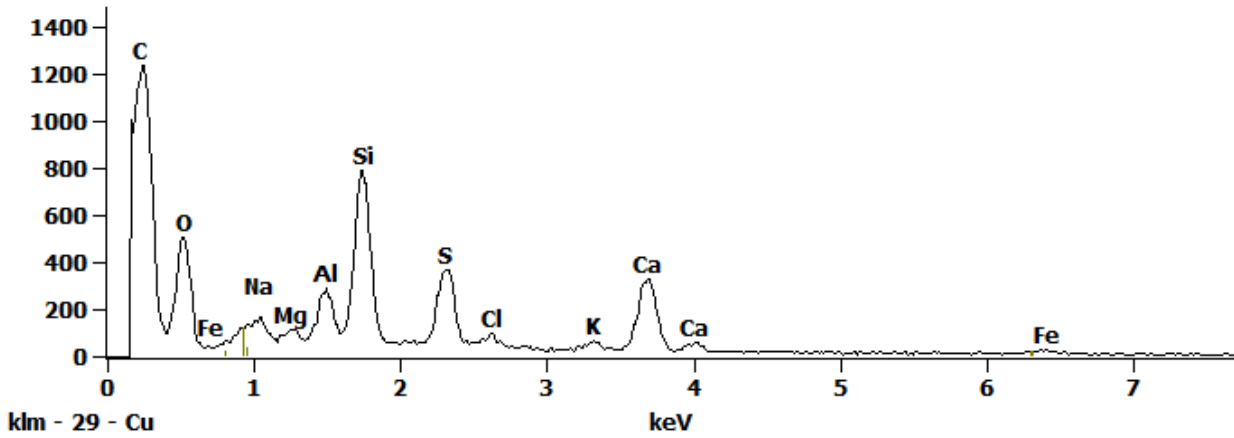


Figure 1. EDS Spectra for sample W7319-A-6 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1236

A6(1)\_pt2

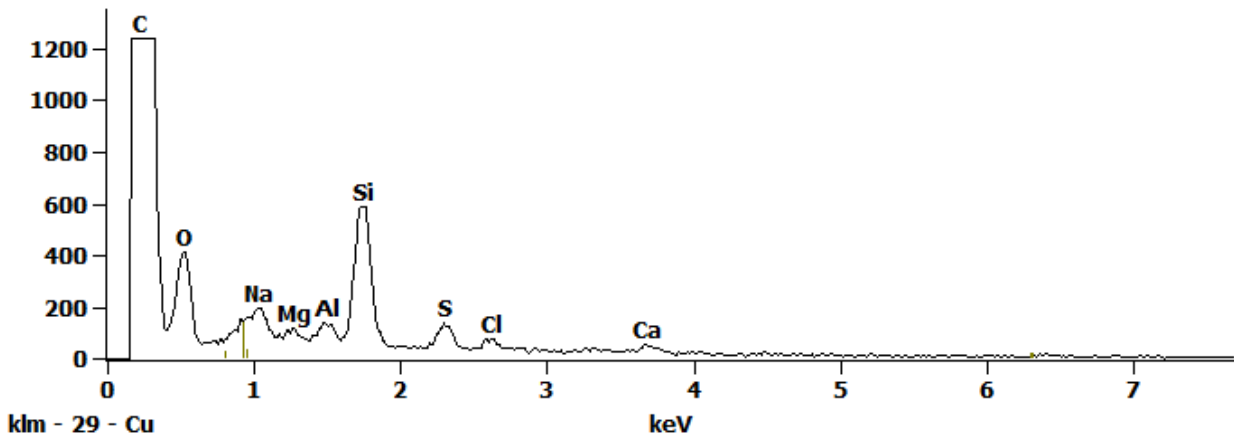


Figure 2. EDS Spectra for sample W7319-A-6 taken at test area 2. The test area is labeled in the particle SEM photo.

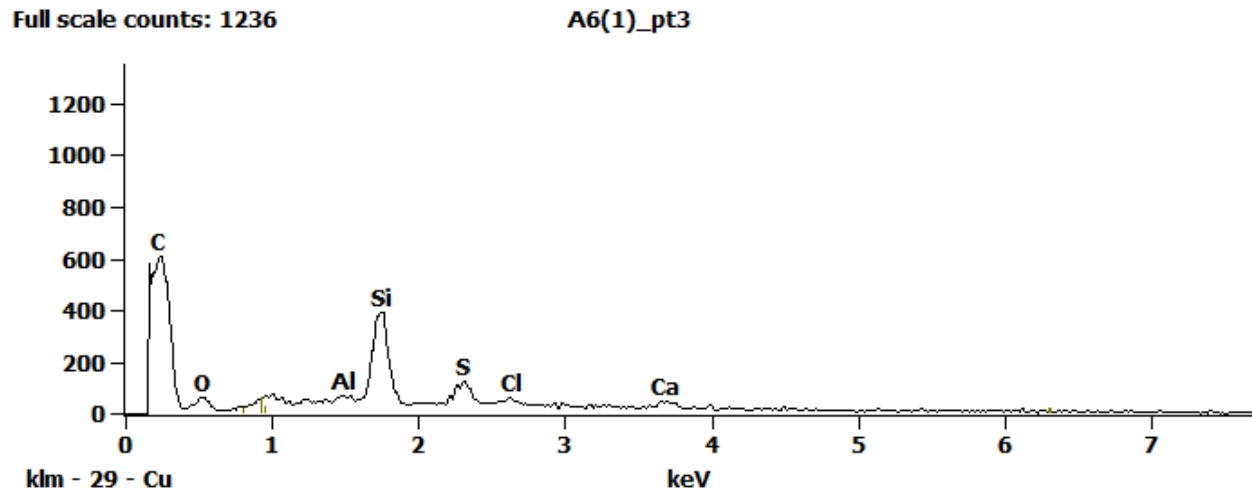
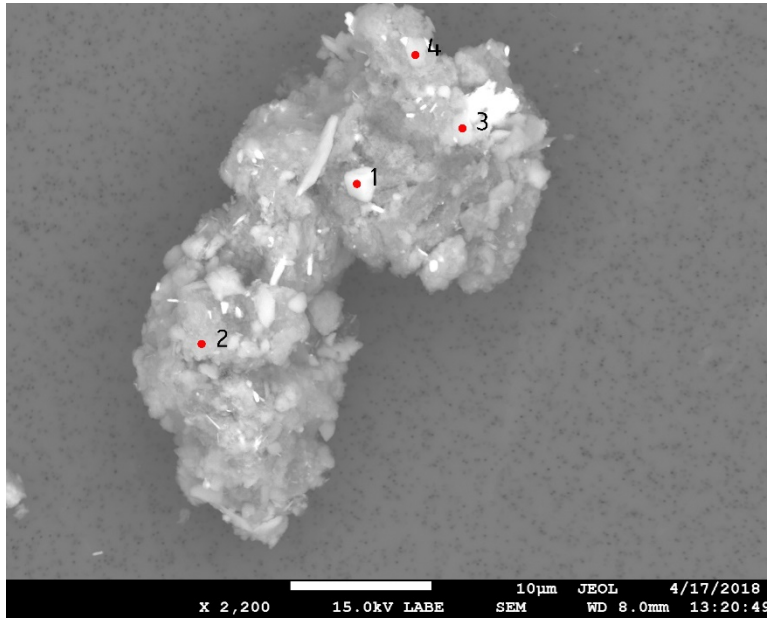


Figure 3. EDS Spectra for sample W7319-A-6 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 B2



<b>Particle Size:</b>	48 $\mu\text{m}$
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7319 B2 with labeled EDS testing locations.

### W7319 B2 - EDS Spectra

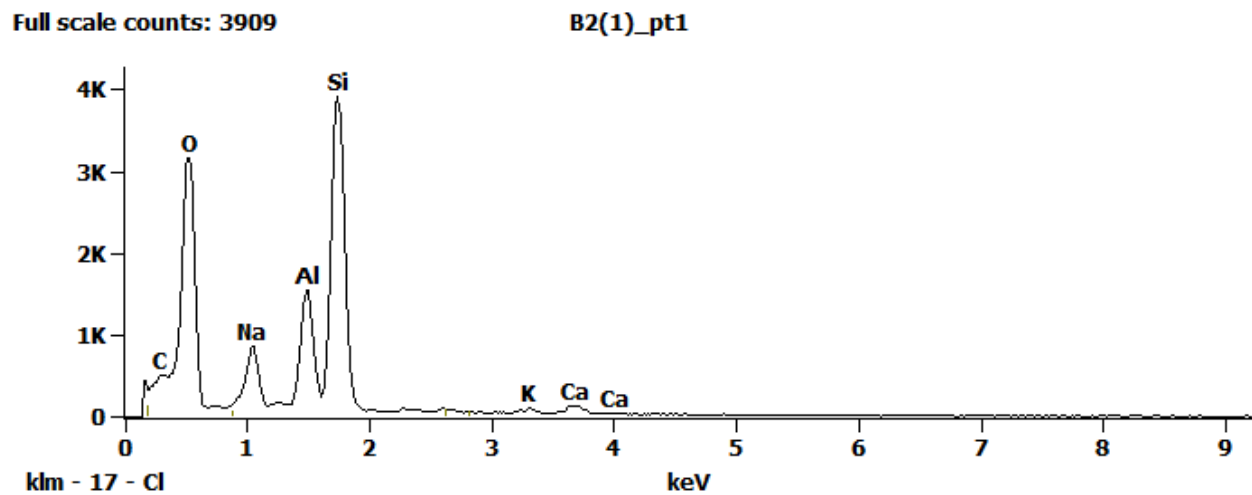


Figure 1. EDS Spectra for sample W7319-B-2 taken at test area 1. The test area is labeled in the particle SEM photo.



Full scale counts: 3909

B2(1)\_pt2

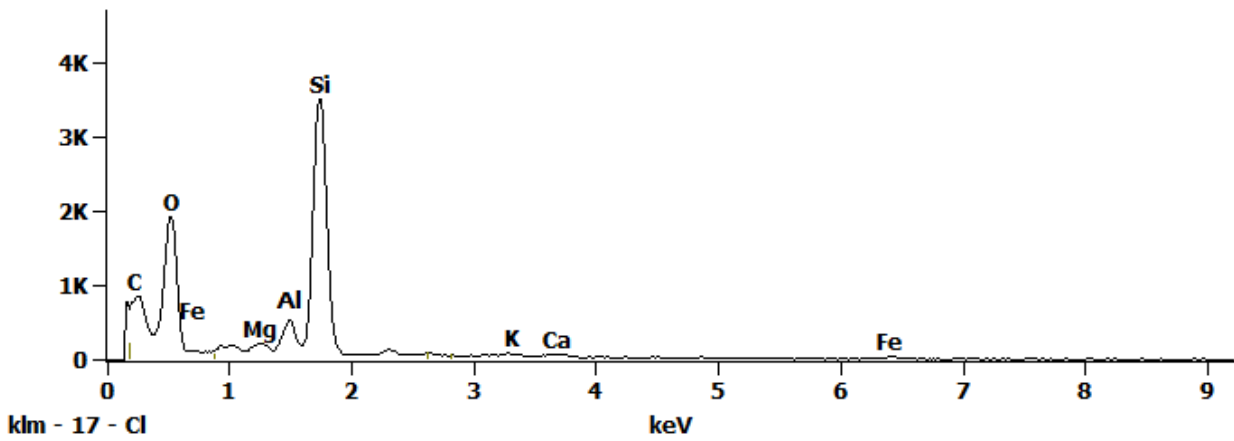


Figure 2. EDS Spectra for sample W7319-B-2 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 3909

B2(1)\_pt3

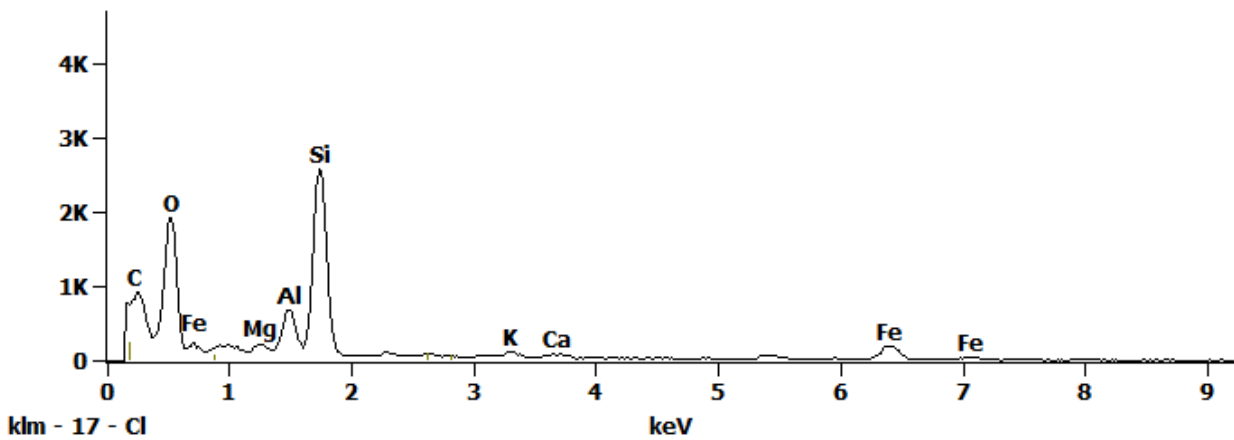


Figure 3. EDS Spectra for sample W7319-B-2 taken at test area 3. The test area is labeled in the particle SEM photo.

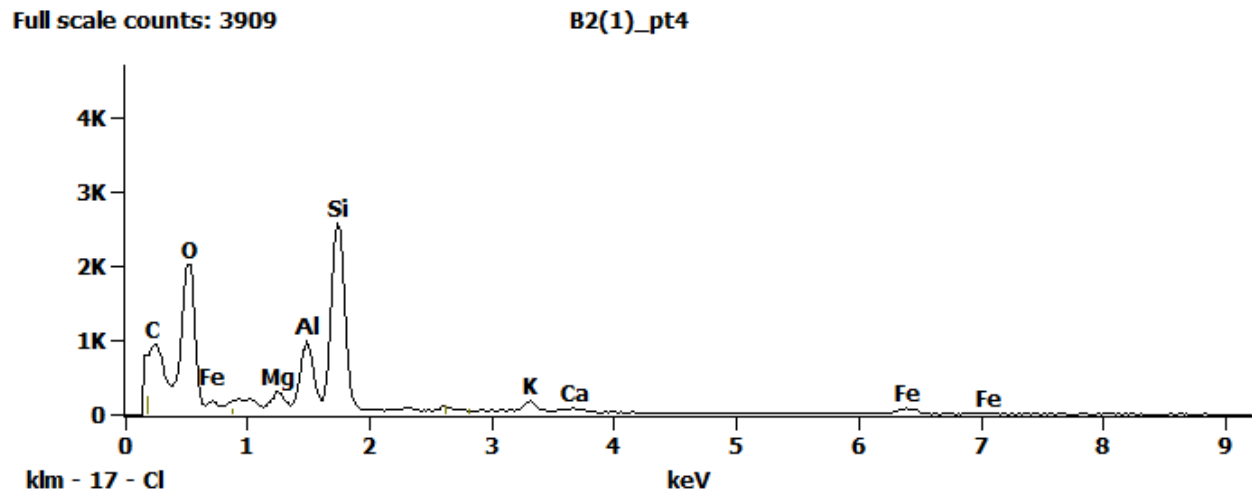
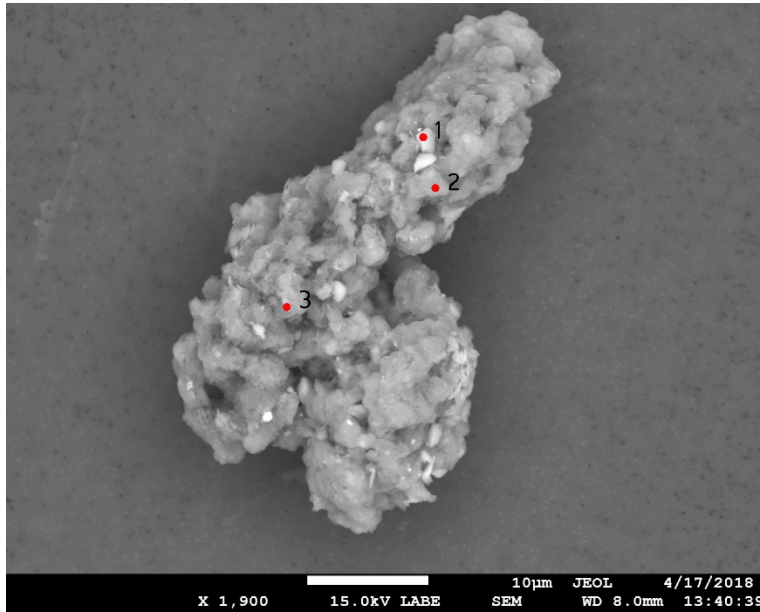


Figure 4. EDS Spectra for sample W7319-B-2 taken at test area 4. The test area is labeled in the particle SEM photo.

## W7319 B5



<b>Particle Size:</b>	35 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample W7319 B5 with labeled EDS testing locations.

### W7319 B5 - EDS Spectra

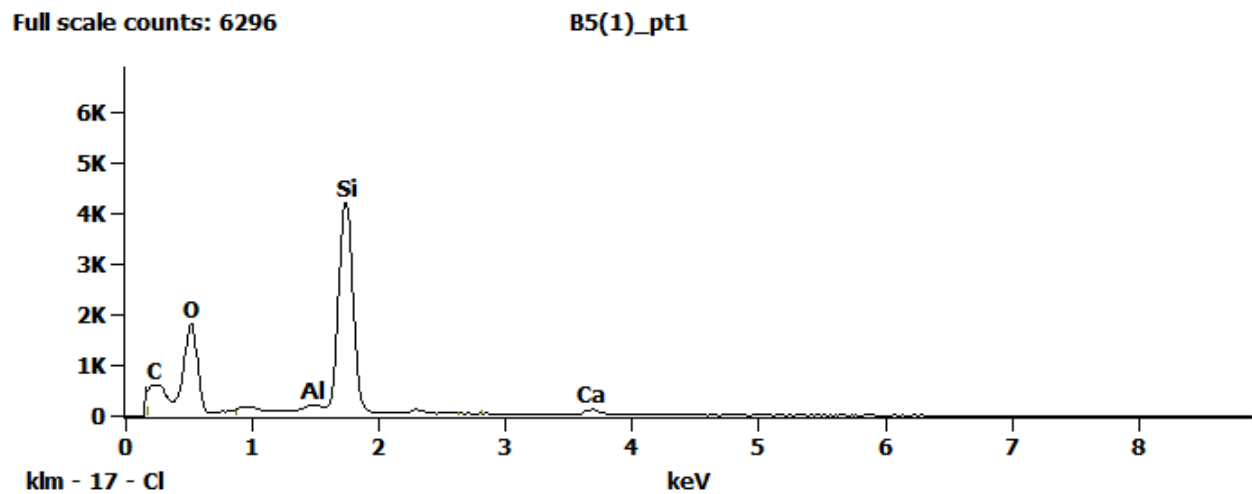


Figure 1. EDS Spectra for sample W7319-B-5 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 6296

B5(1)\_pt2

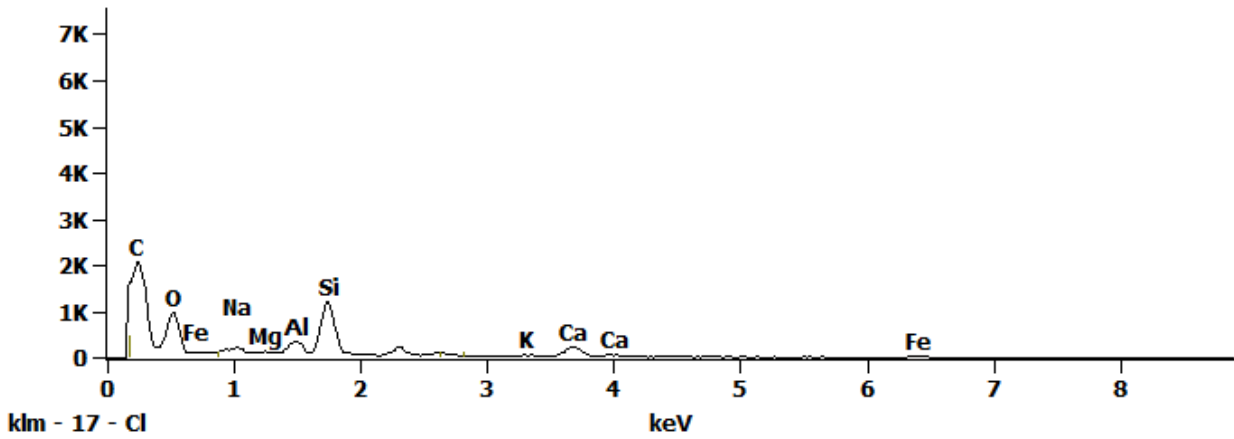


Figure 2. EDS Spectra for sample W7319-B-5 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 6296

B5(1)\_pt3

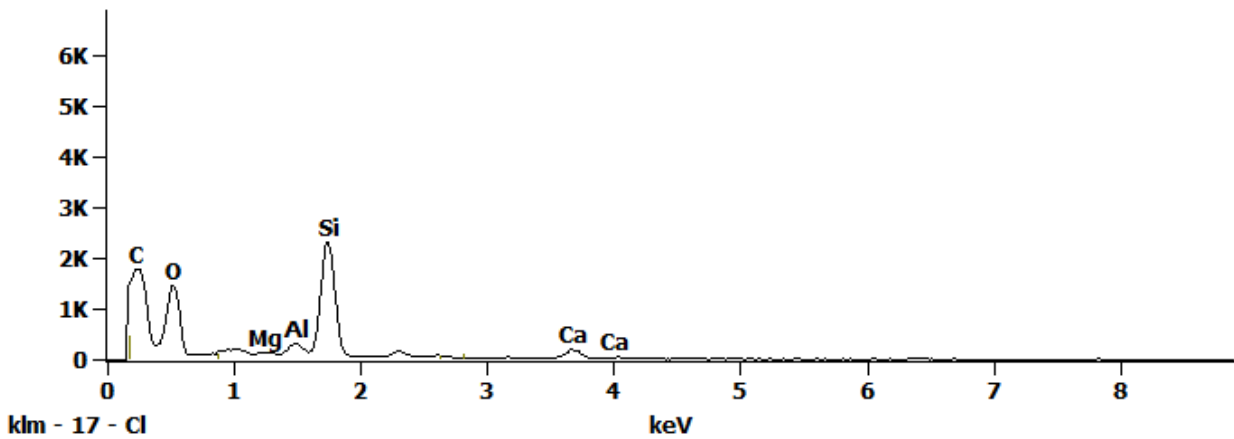
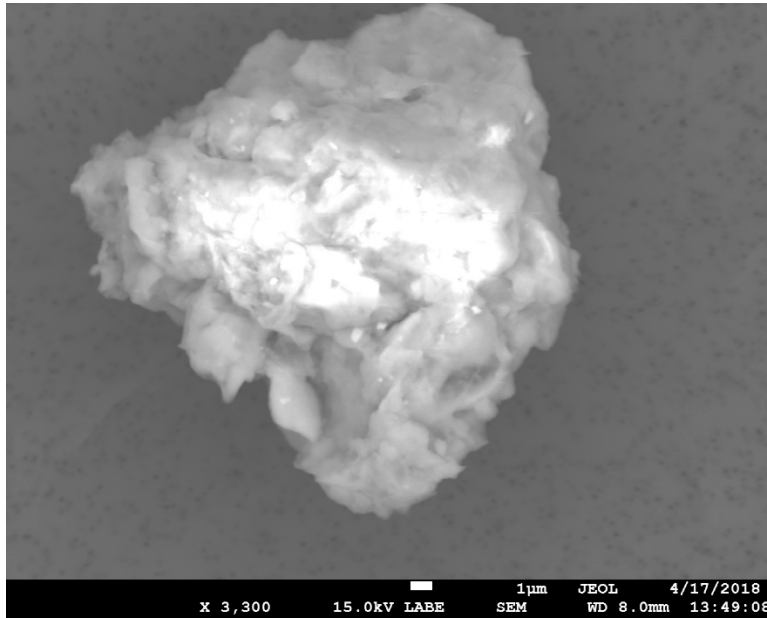


Figure 3. EDS Spectra for sample W7319-B-5 taken at test area 3. The test area is labeled in the particle SEM photo.

## W7319 B7



SEM Photo of sample W7319 B7

<b>Particle Size:</b>	27 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque to Subvitreous
<b>Color:</b>	AMBER, CLEAR
<b>Luster:</b>	Pearly to Vitreous
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### W7319 B7 - EDS Spectra

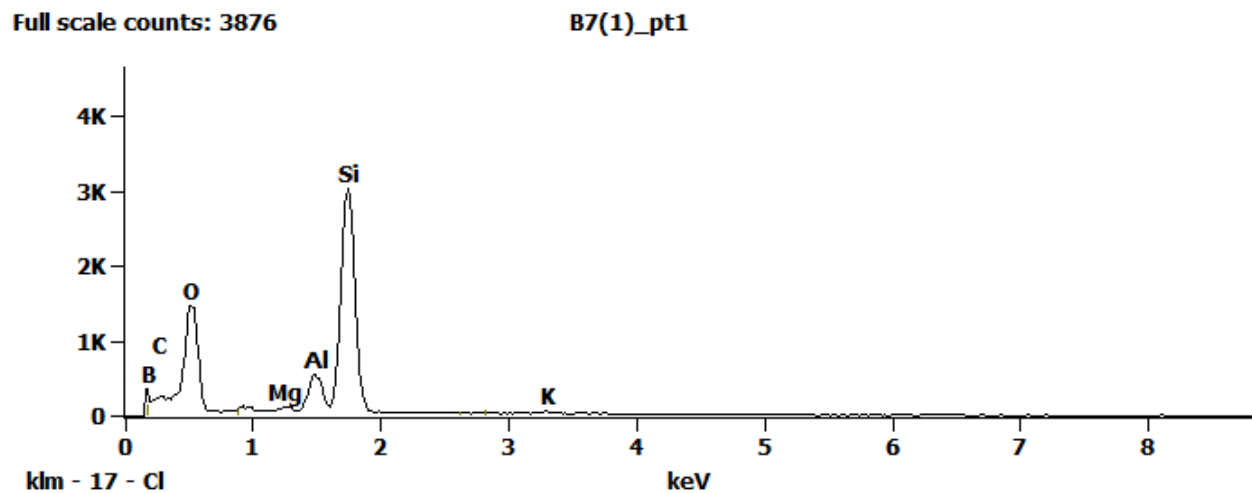


Figure 1. EDS Spectra for sample W7319-B-7 taken at test area 1. The test area is labeled in the particle SEM photo.

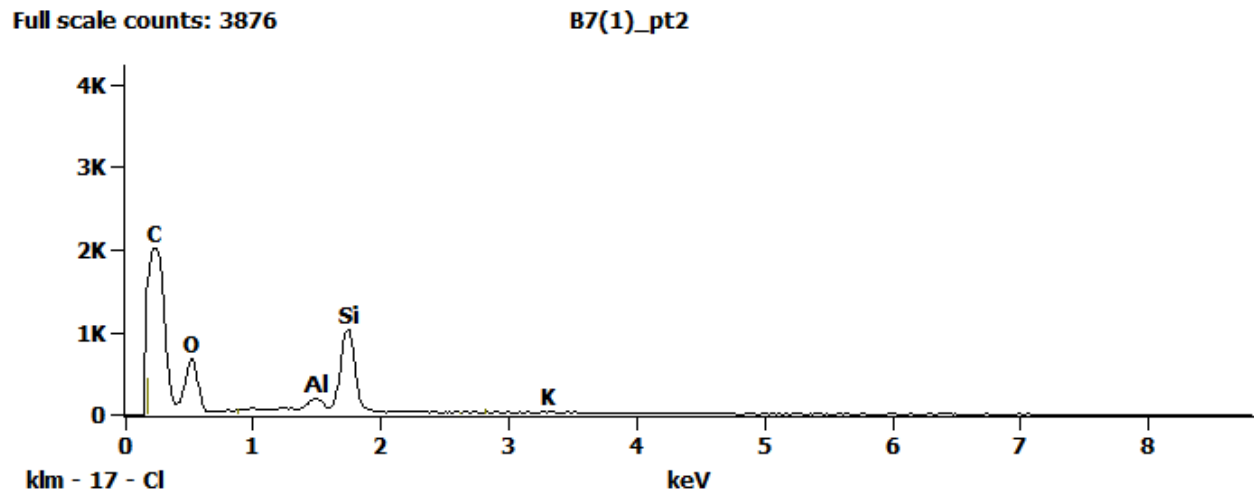
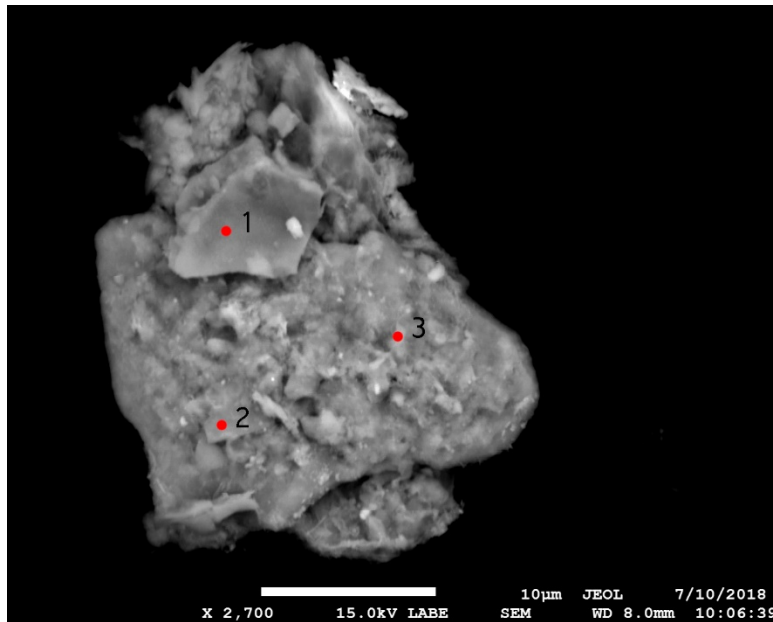


Figure 2. EDS Spectra for sample W7319-B-7 taken at test area 2. The test area is labeled in the particle SEM photo.

## U2168 A3



<b>Particle Size:</b>	30 $\mu\text{m}$
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque to Translucent
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 2
<b>Comments:</b>	

SEM Photo of sample U2168 A3 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 2



Photo of cluster U2168 Cluster 2.

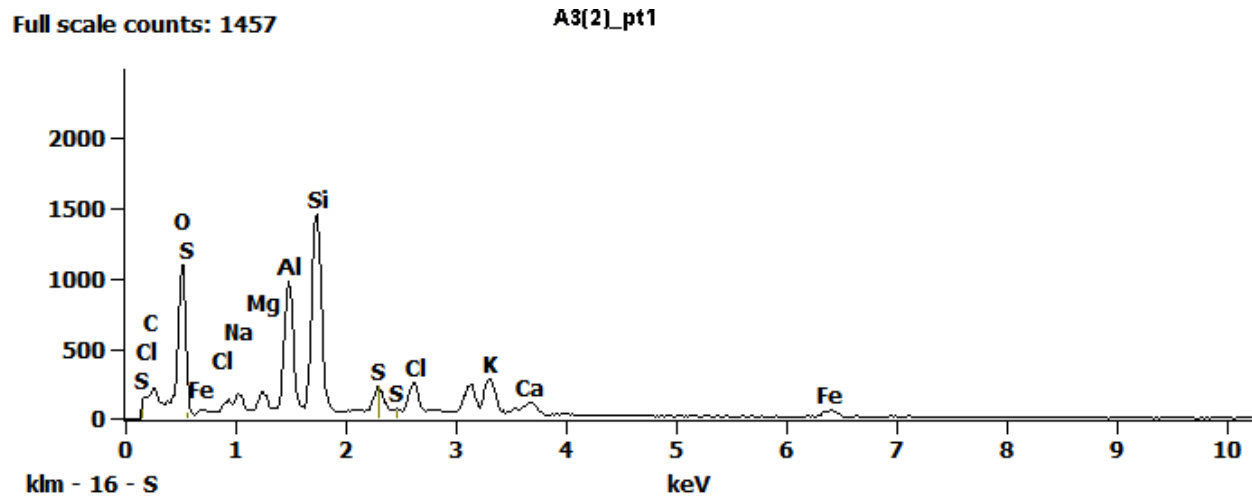
*U2168 A3 - EDS Spectra*

Figure 1. EDS Spectra for sample U2168-A-3 taken at test area 1. The test area is labeled in the particle SEM photo.

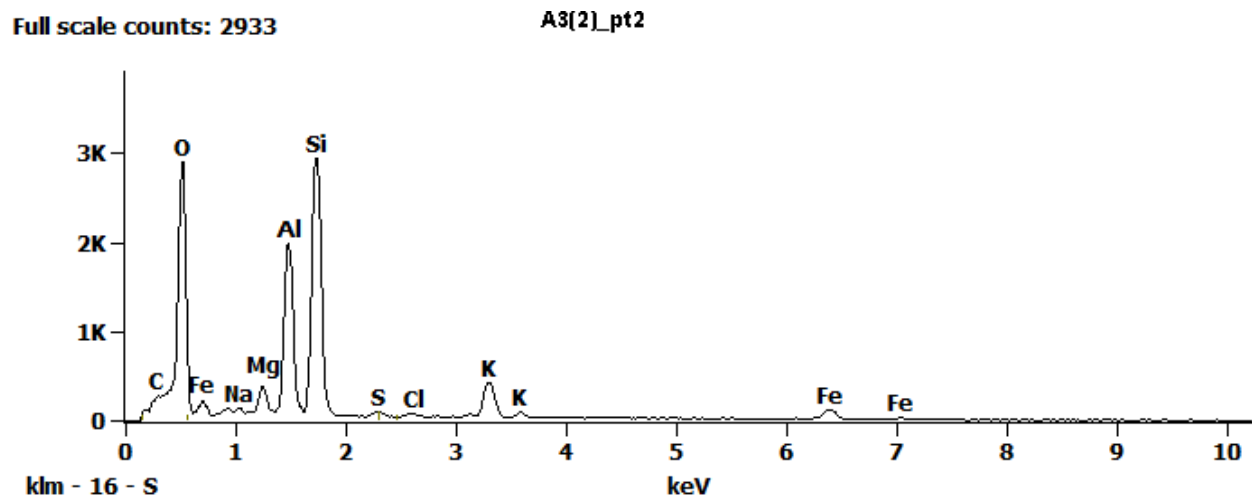


Figure 2. EDS Spectra for sample U2168-A-3 taken at test area 2. The test area is labeled in the particle SEM photo.



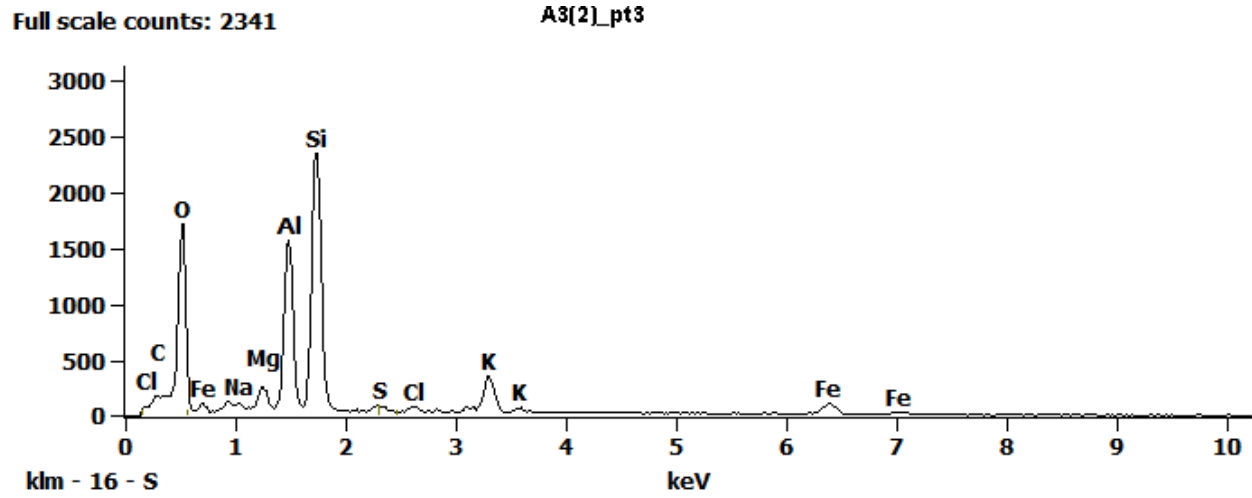
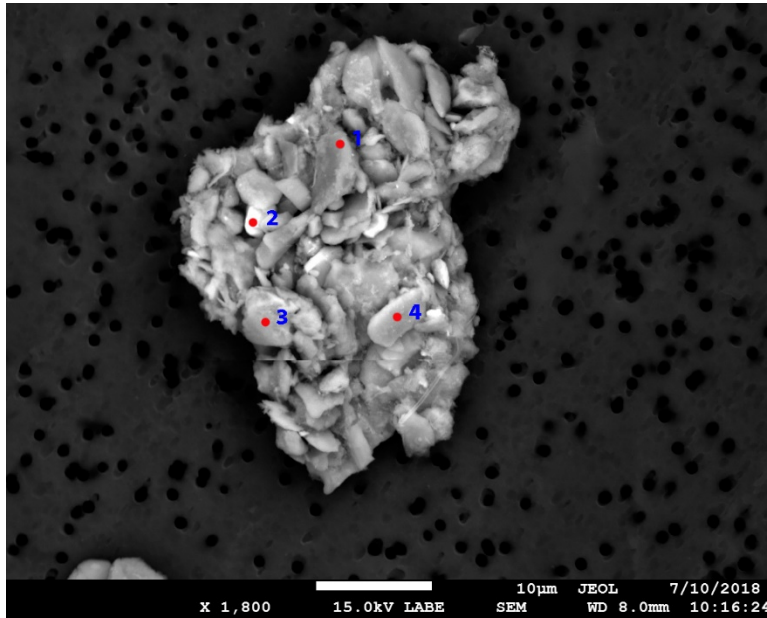


Figure 3. EDS Spectra for sample U2168-A-3 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 A4



<b>Particle Size:</b>	36 μm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BROWN, GRAY
<b>Luster:</b>	Pearly to Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 2
<b>Comments:</b>	

SEM Photo of sample U2168 A4 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 2



Photo of cluster U2168 Cluster 2.

## U2168 A4 - EDS Spectra

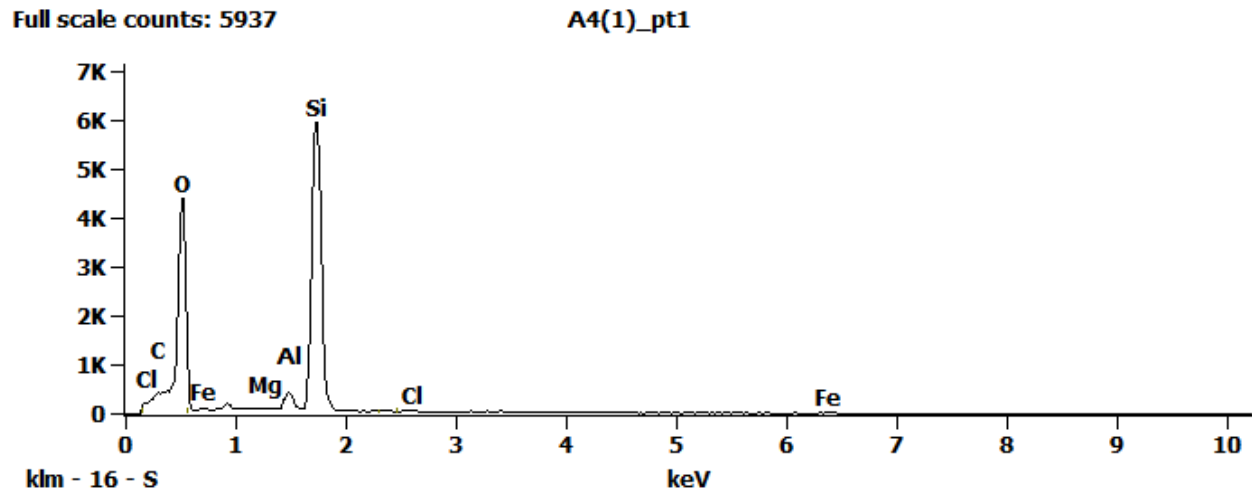


Figure 1. EDS Spectra for sample U2168-A-4 taken at test area 1. The test area is labeled in the particle SEM photo.

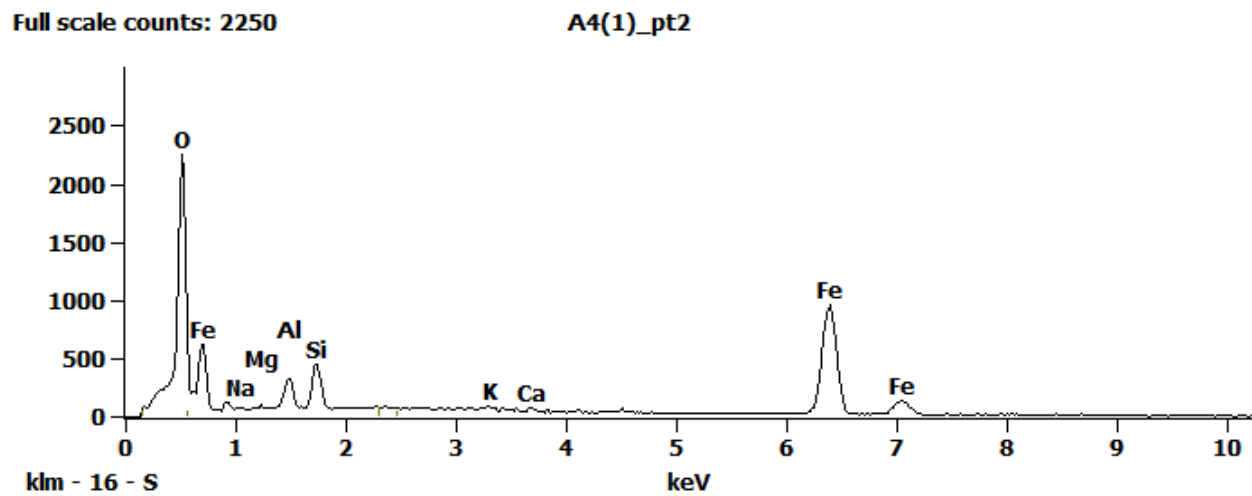


Figure 2. EDS Spectra for sample U2168-A-4 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 3257

A4(1)\_pt3

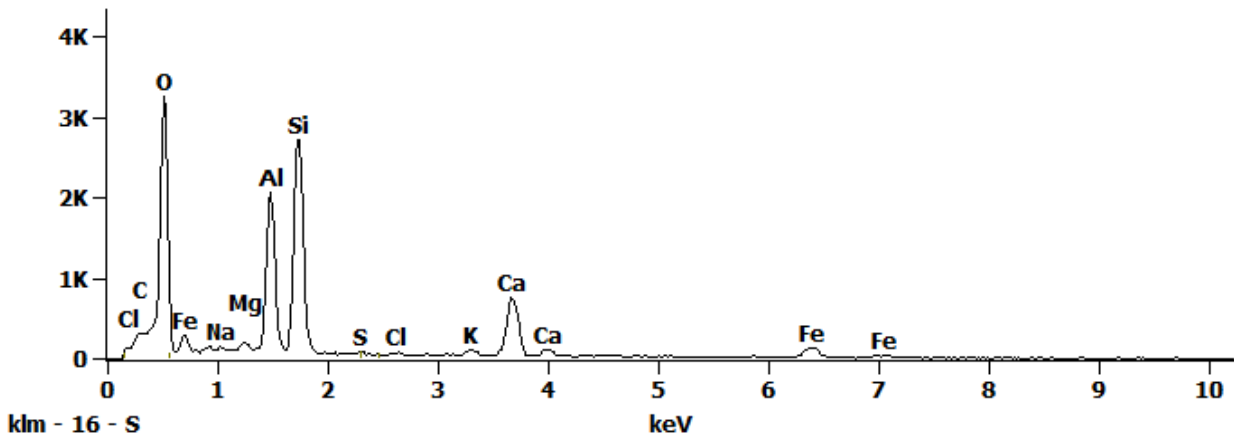


Figure 3. EDS Spectra for sample U2168-A-4 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 2984

A4(1)\_pt4

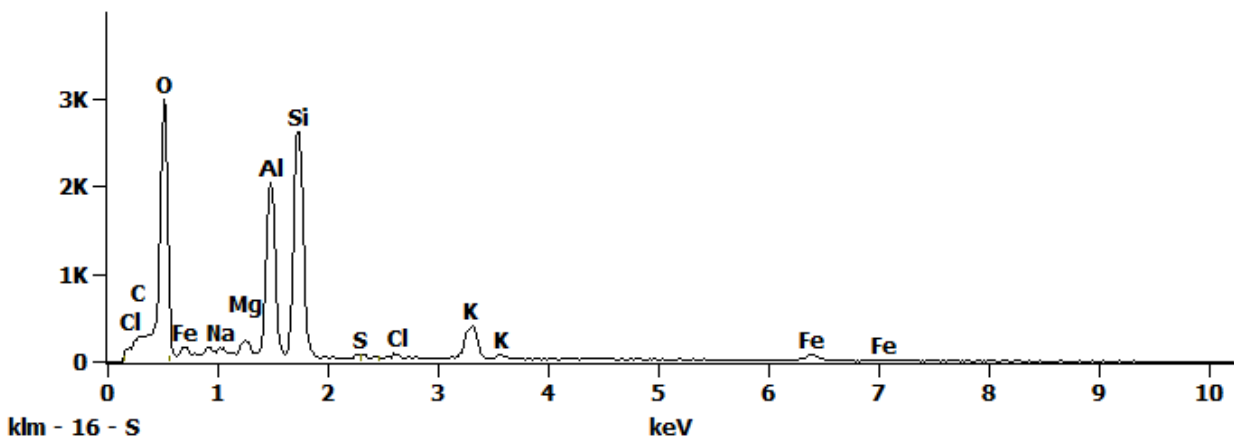
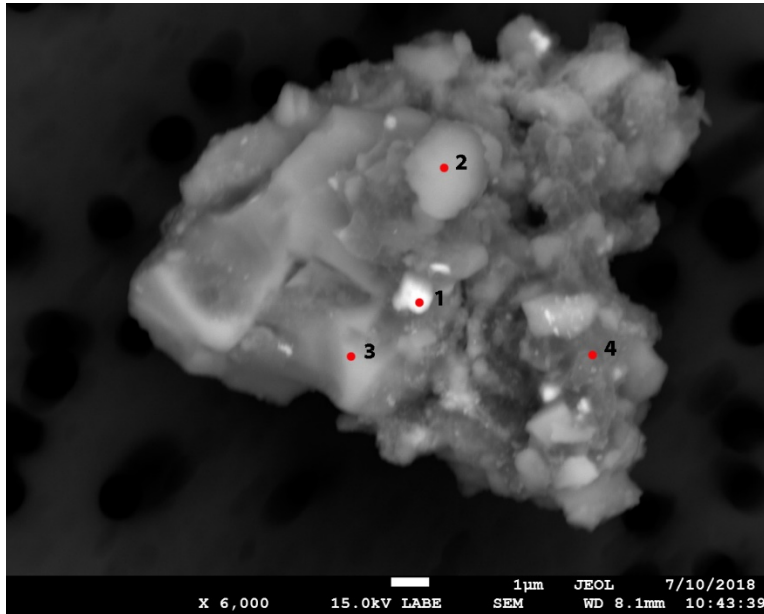


Figure 4. EDS Spectra for sample U2168-A-4 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 A7



<b>Particle Size:</b>	12 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 4
<b>Comments:</b>	

SEM Photo of sample U2168 A7 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 4

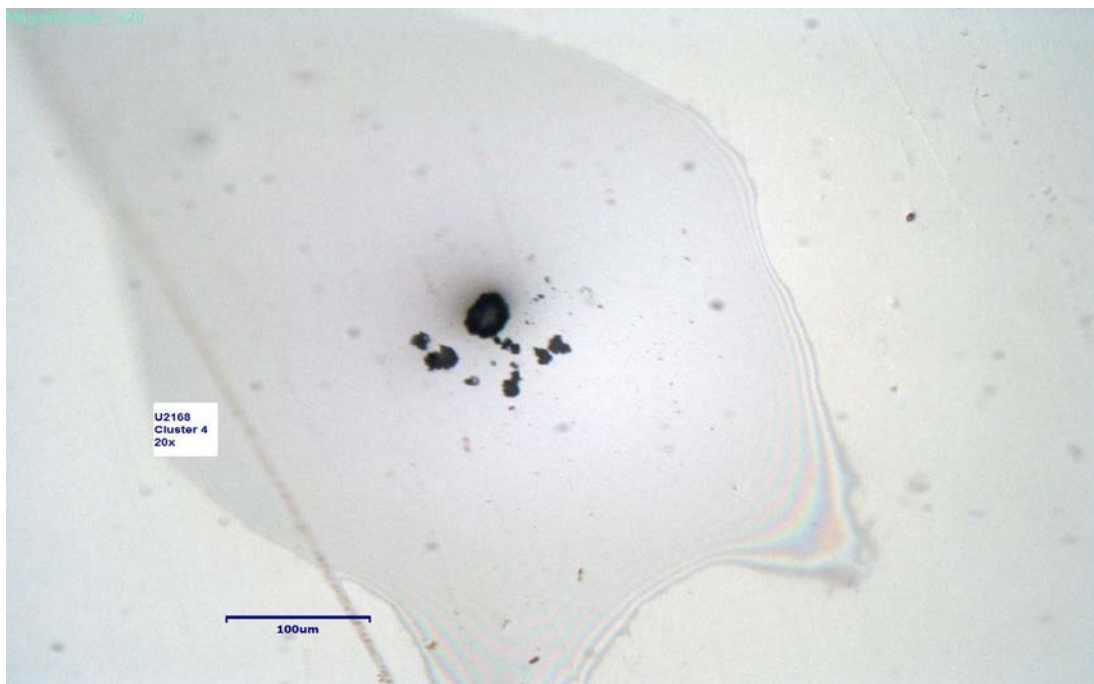


Photo of cluster U2168 Cluster 4.

## U2168 A7 - EDS Spectra

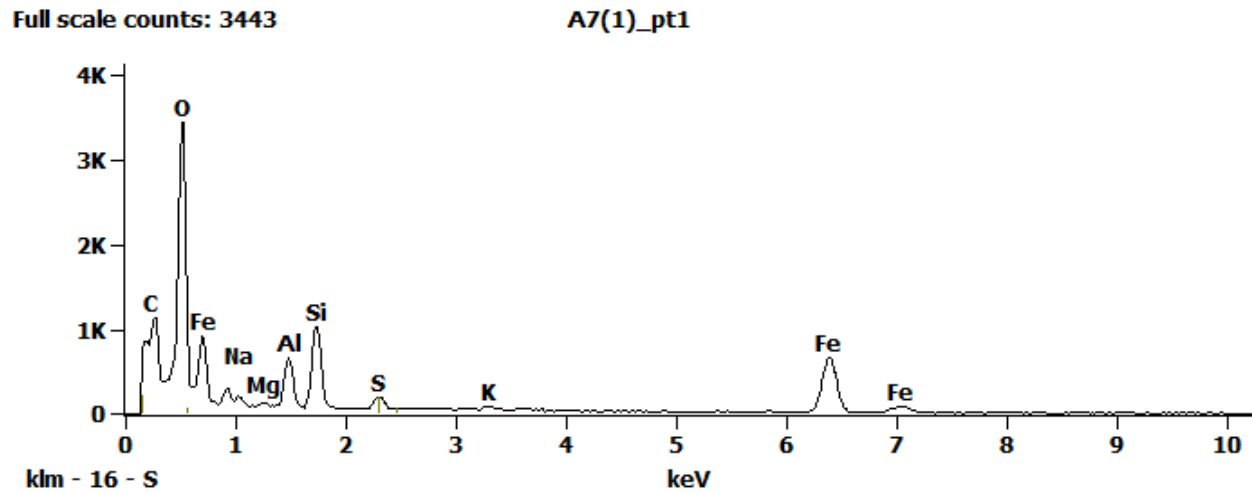


Figure 1. EDS Spectra for sample U2168-A-7 taken at test area 1. The test area is labeled in the particle SEM photo.

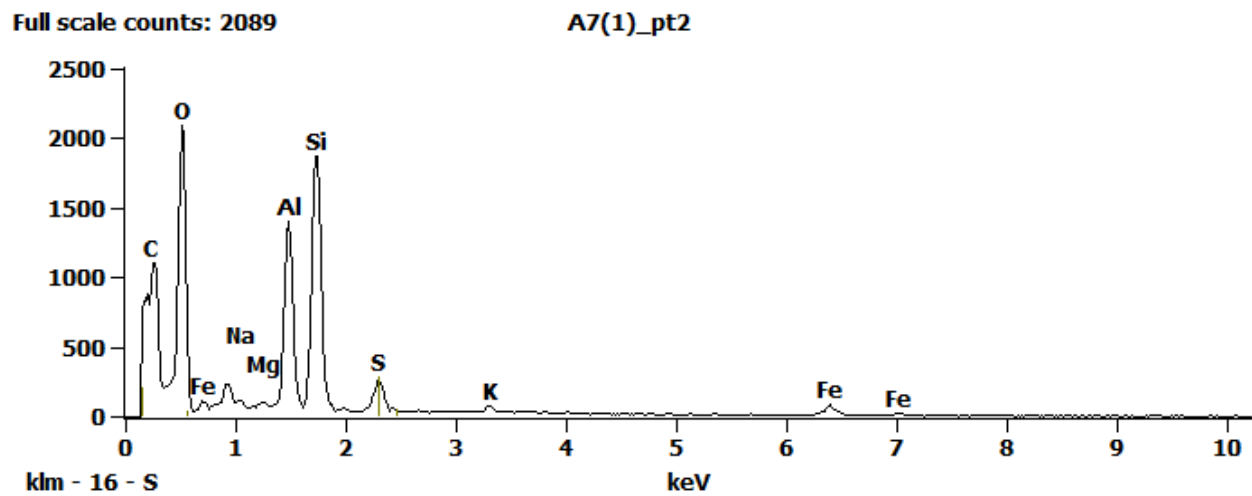


Figure 2. EDS Spectra for sample U2168-A-7 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 4880

A7(1)\_pt3

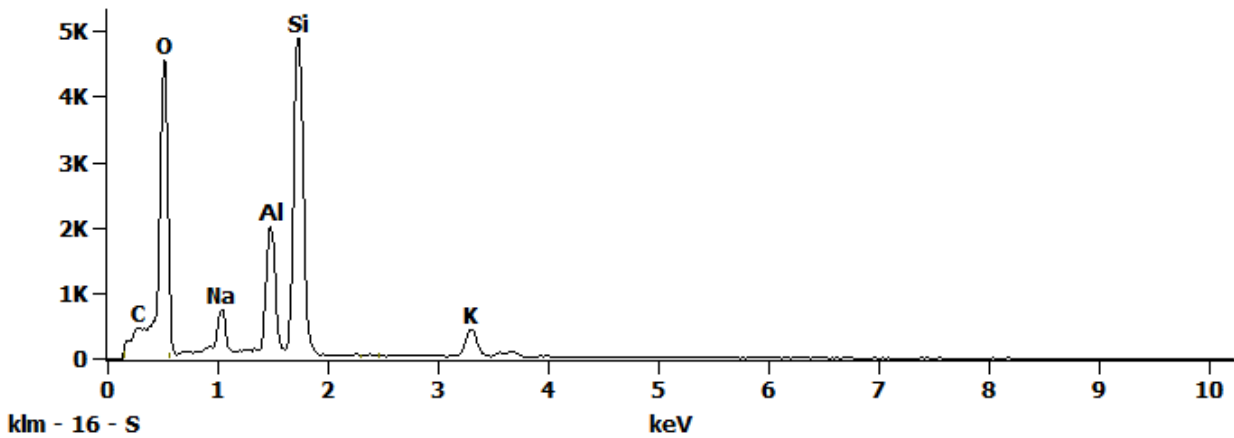


Figure 3. EDS Spectra for sample U2168-A-7 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 1417

A7(1)\_pt4

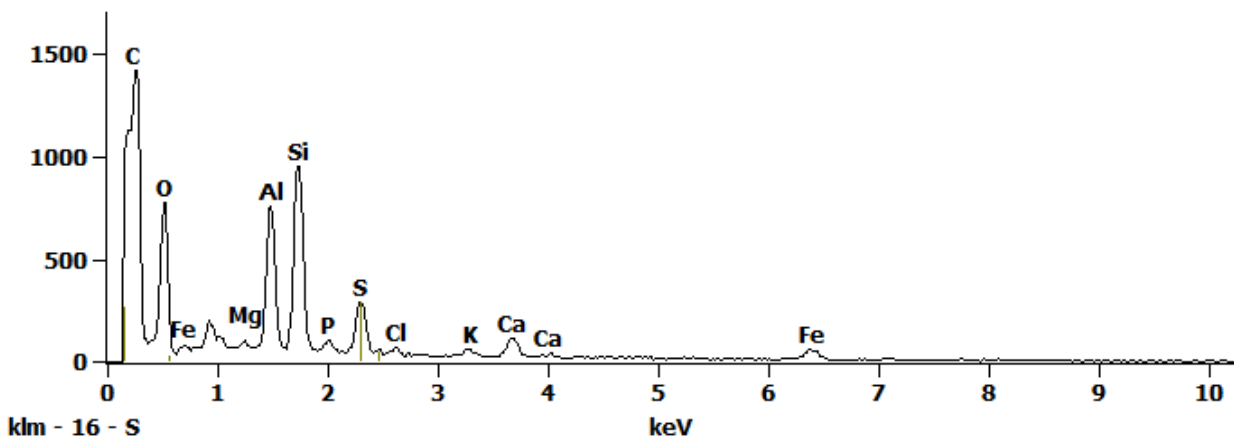
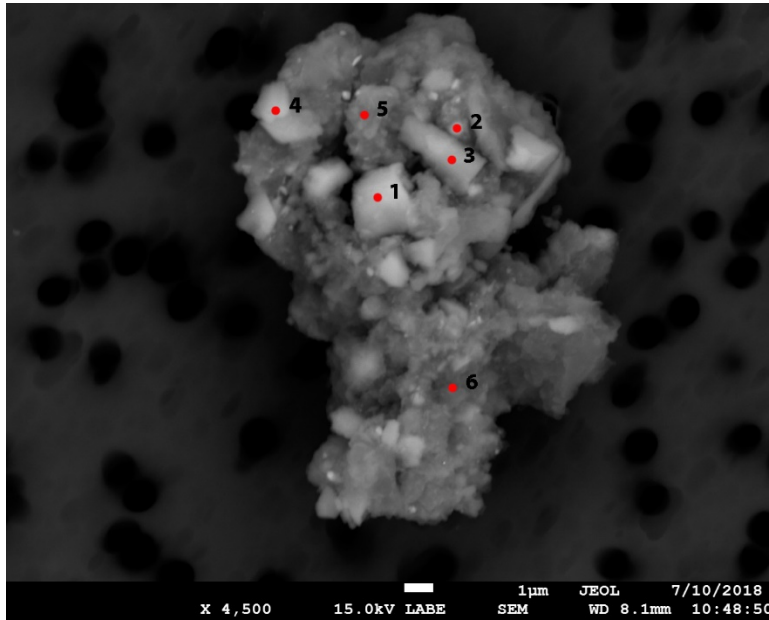


Figure 4. EDS Spectra for sample U2168-A-7 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 A8



<b>Particle Size:</b>	16 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 4
<b>Comments:</b>	

SEM Photo of sample U2168 A8 with labeled EDS testing locations.

### Cluster of Origin: U2168 Cluster 4

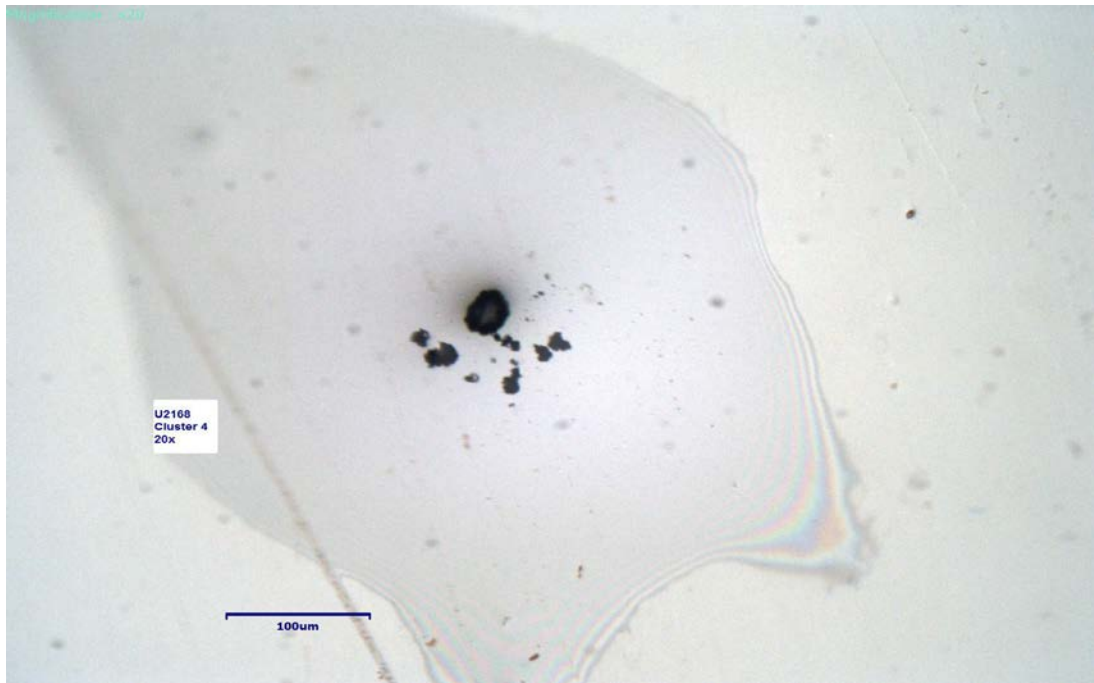


Photo of cluster U2168 Cluster 4.



## U2168 A8 - EDS Spectra

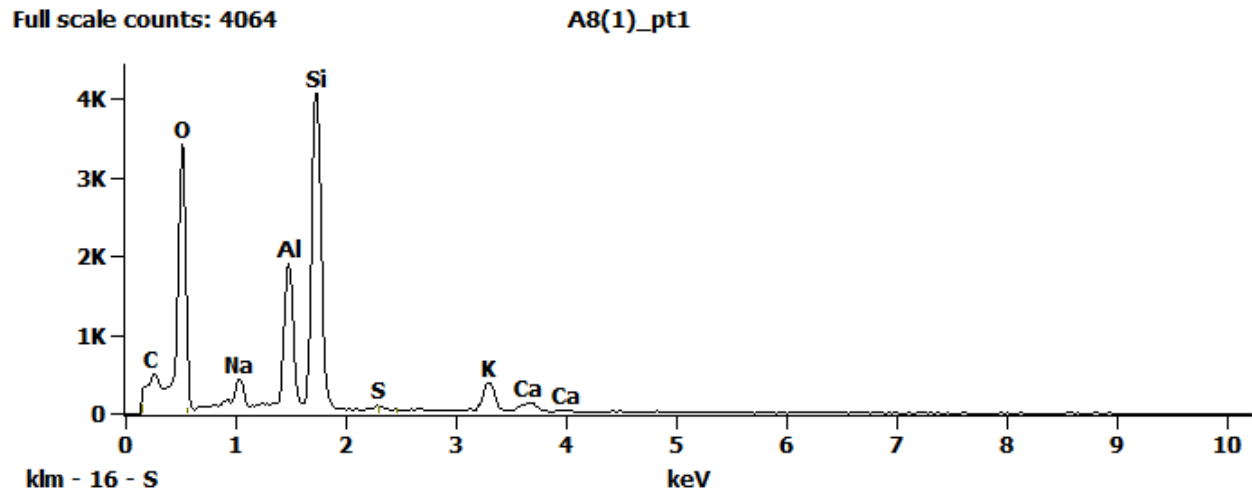


Figure 1. EDS Spectra for sample U2168-A-8 taken at test area 1. The test area is labeled in the particle SEM photo.

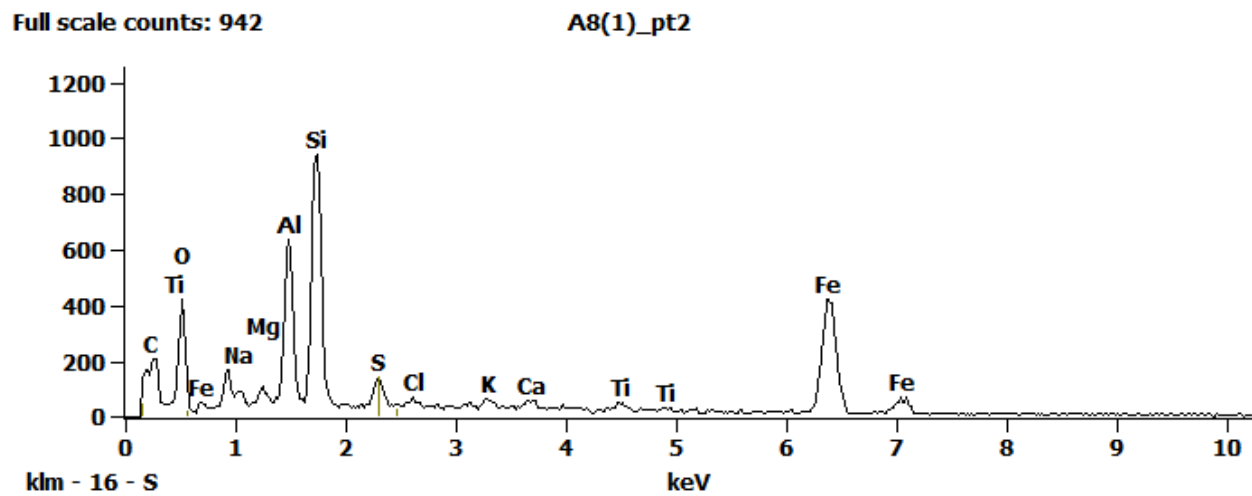


Figure 2. EDS Spectra for sample U2168-A-8 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2271

A8(1)\_pt3

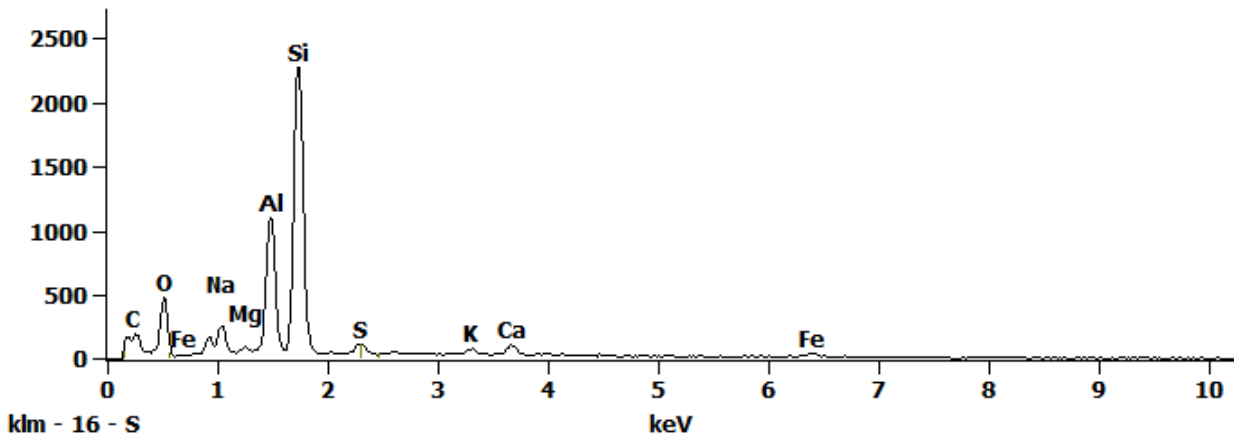


Figure 3. EDS Spectra for sample U2168-A-8 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 3040

A8(1)\_pt4

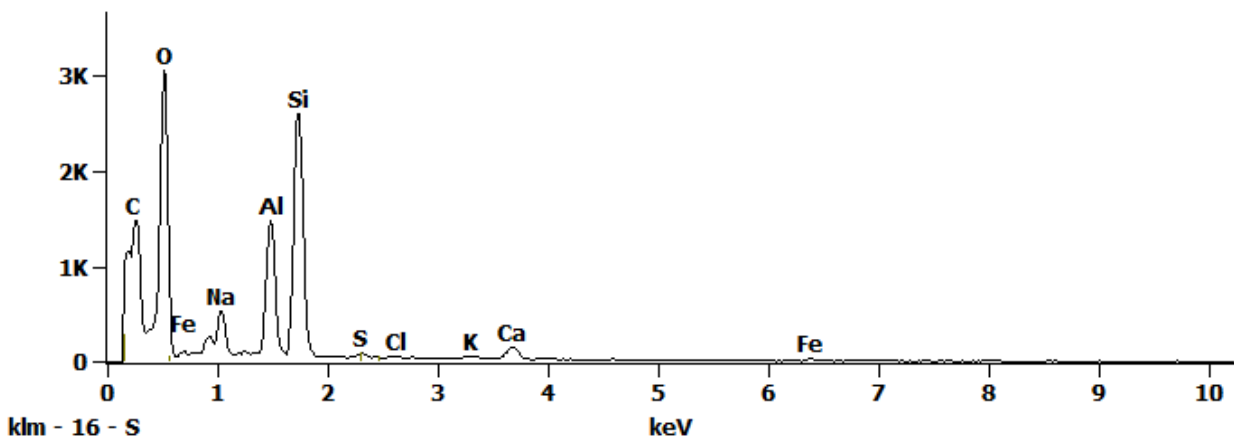


Figure 4. EDS Spectra for sample U2168-A-8 taken at test area 4. The test area is labeled in the particle SEM photo.

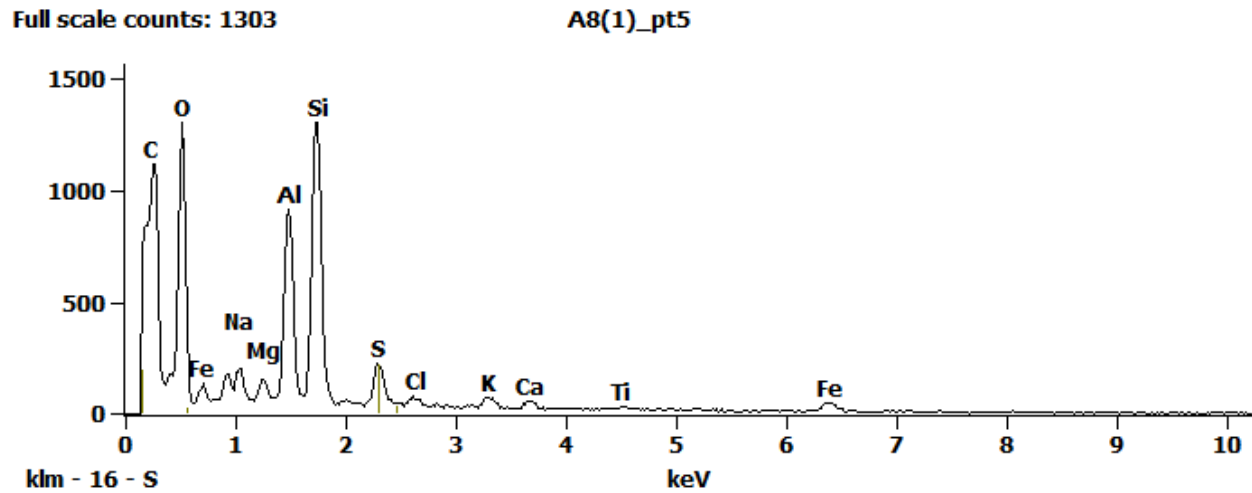


Figure 5. EDS Spectra for sample U2168-A-8 taken at test area 5. The test area is labeled in the particle SEM photo.

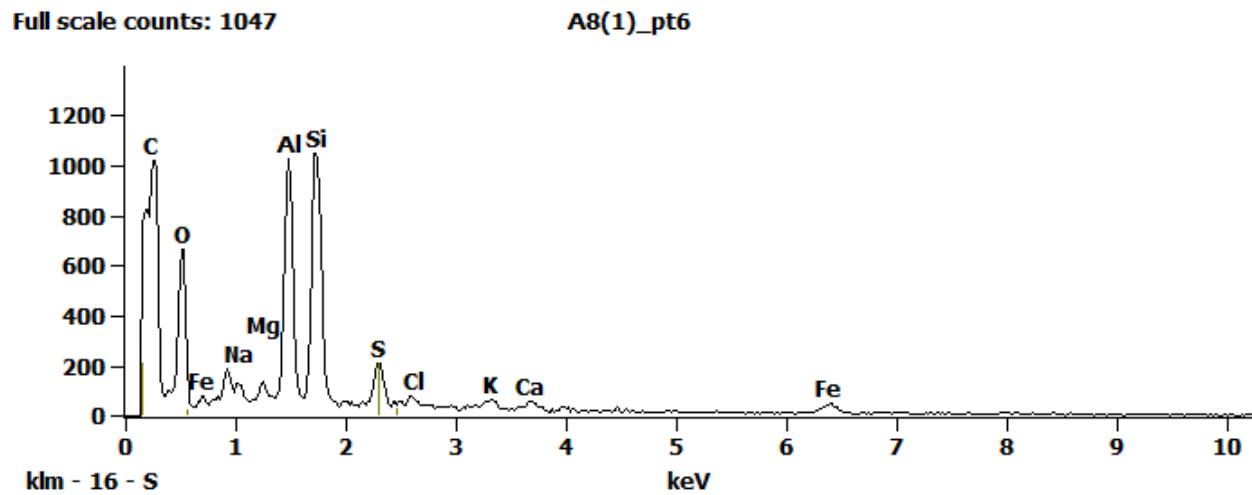
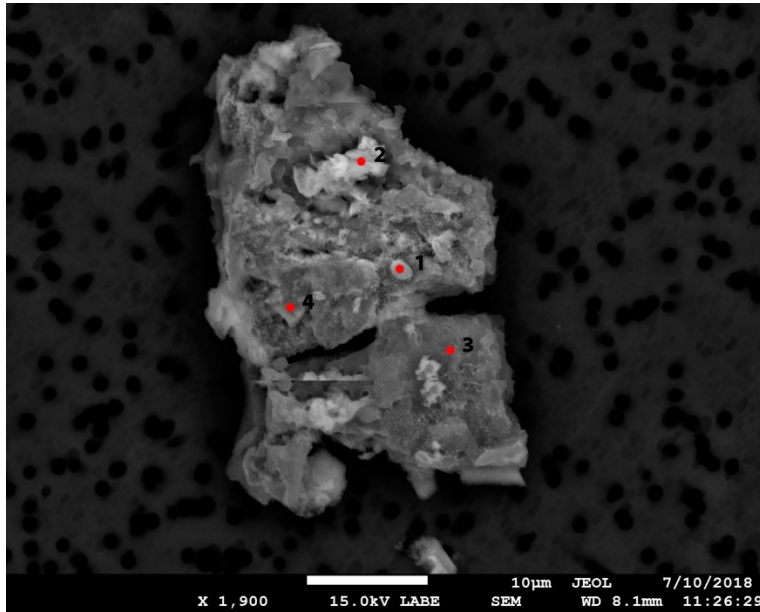


Figure 6. EDS Spectra for sample U2168-A-8 taken at test area 6. The test area is labeled in the particle SEM photo.

## U2168 A13



**Particle Size:** 40x21 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** BLACK  
**Luster:** Pearly to Dull  
**Particle Type:** NATURAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** U2168 Cluster 7  
**Comments:**

*SEM Photo of sample U2168 A13 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 7*



*Photo of cluster U2168 Cluster 7.*

## U2168 A13 - EDS Spectra

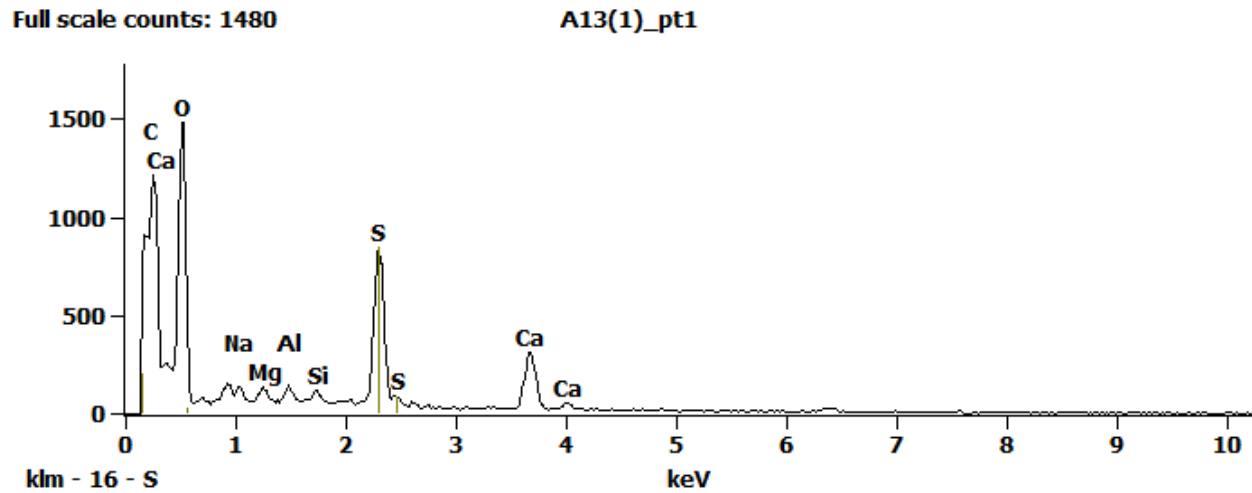


Figure 1. EDS Spectra for sample U2168-A-13 taken at test area 1. The test area is labeled in the particle SEM photo.

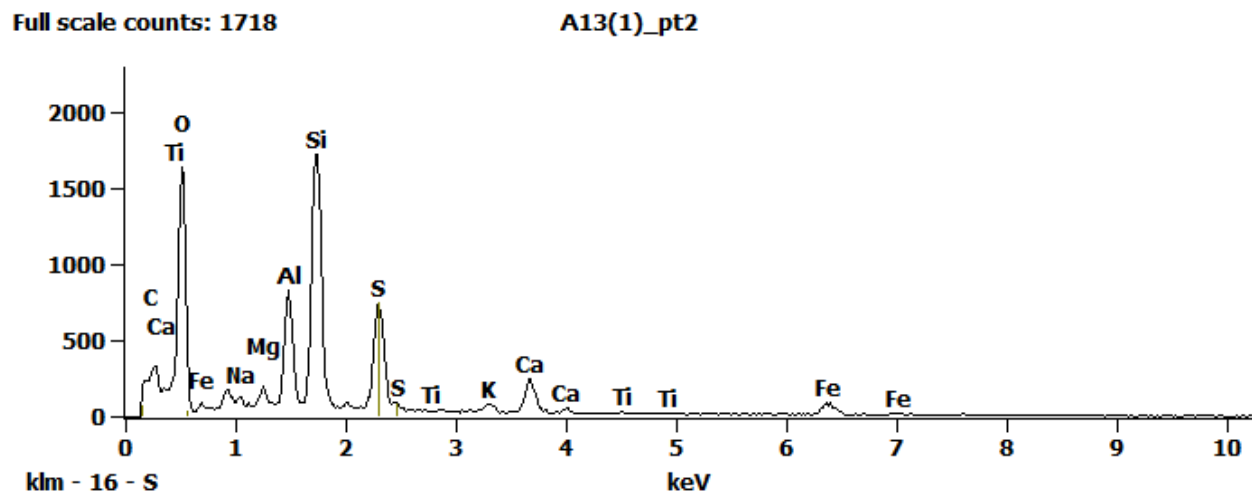


Figure 2. EDS Spectra for sample U2168-A-13 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 900

A13(1)\_pt3

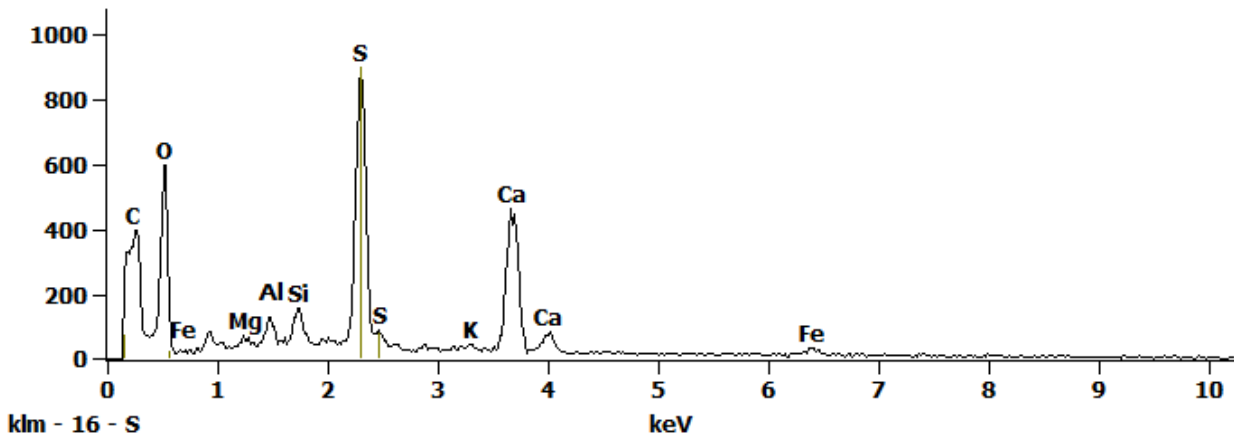


Figure 3. EDS Spectra for sample U2168-A-13 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 849

A13(1)\_pt4

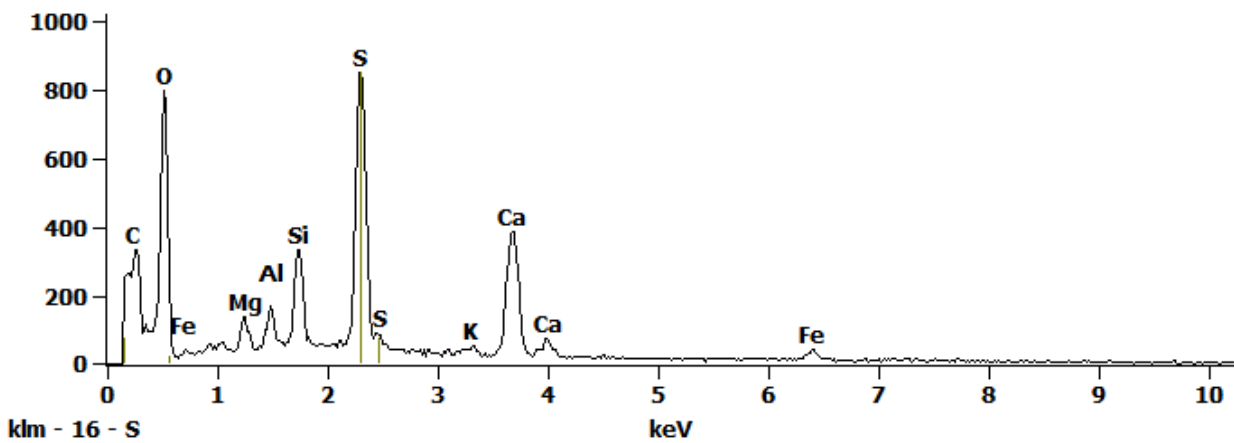
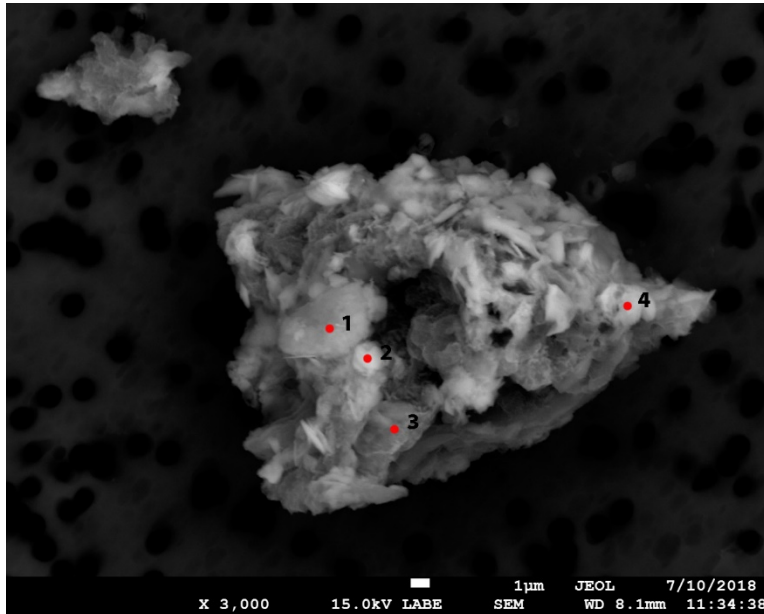


Figure 4. EDS Spectra for sample U2168-A-13 taken at test area 4. The test area is labeled in the particle SEM photo.

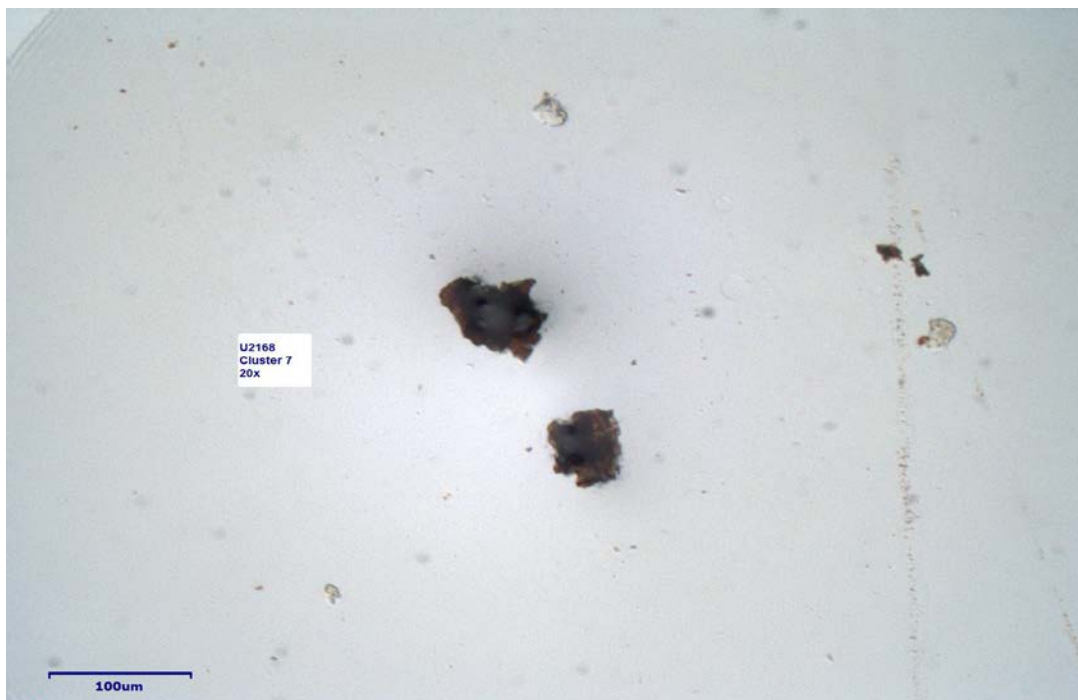
## U2168 A14



**Particle Size:** 23 µm  
**Shape:** Irregular  
**Transparency:** Opaque  
**Color:** BLACK, GRAY  
**Luster:** Dull  
**Particle Type:** NATURAL  
TERRESTRIAL  
CONTAMINATION  
**Cluster No.:** U2168 Cluster 7  
**Comments:**

*SEM Photo of sample U2168 A14 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 7*



*Photo of cluster U2168 Cluster 7.*

## U2168 A14 - EDS Spectra

Full scale counts: 2817

A14(1)\_pt1

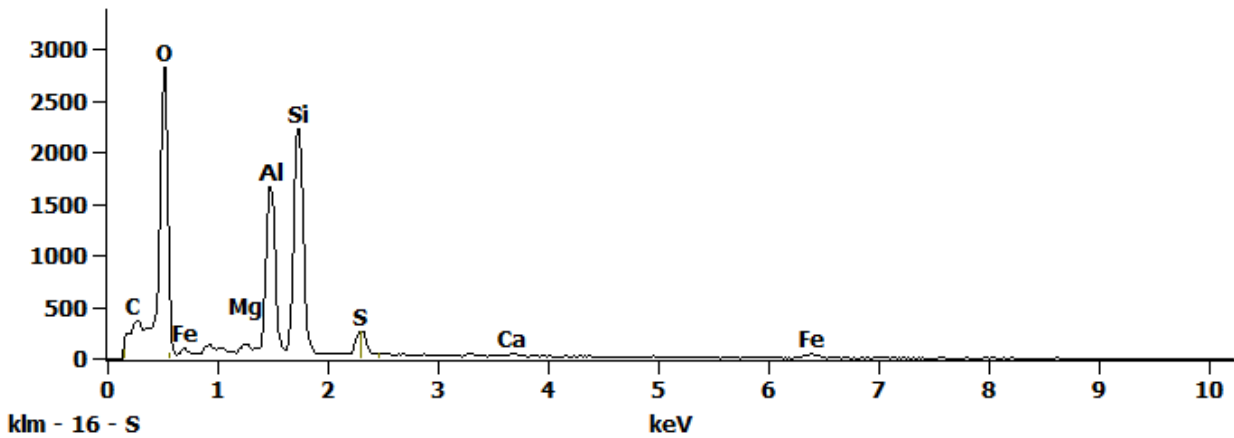


Figure 1. EDS Spectra for sample U2168-A-14 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2428

A14(1)\_pt2

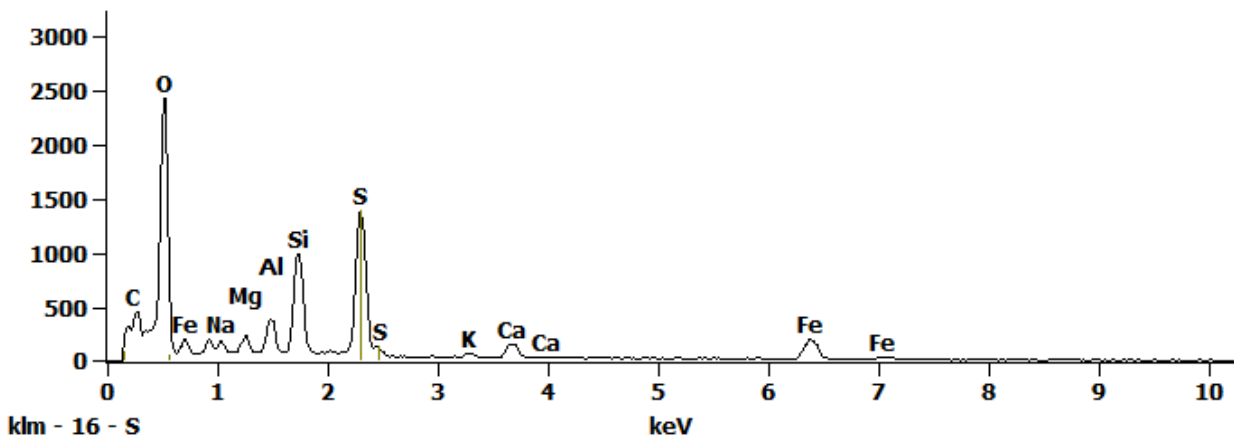


Figure 2. EDS Spectra for sample U2168-A-14 taken at test area 2. The test area is labeled in the particle SEM photo.



Full scale counts: 1108

A14(1)\_pt3

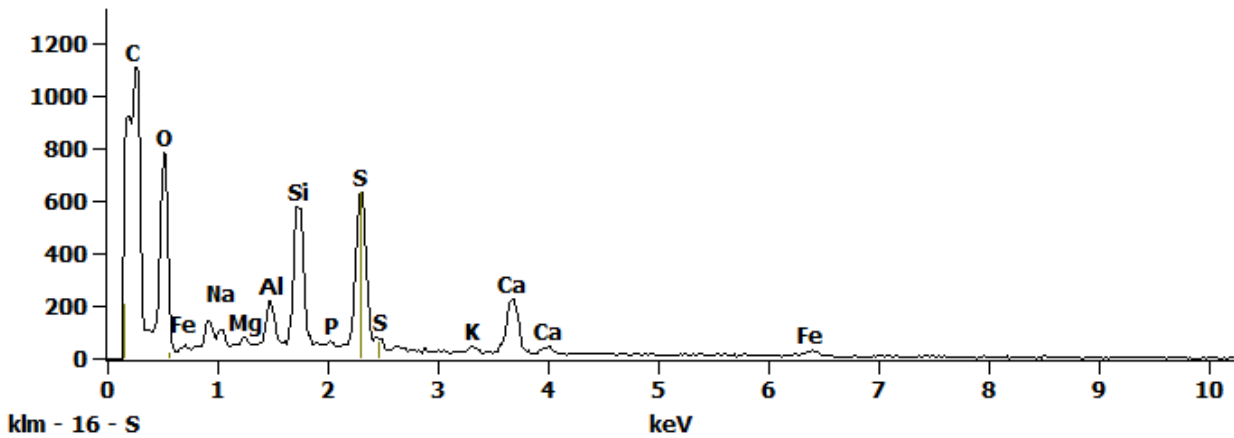


Figure 3. EDS Spectra for sample U2168-A-14 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 2579

A14(1)\_pt4

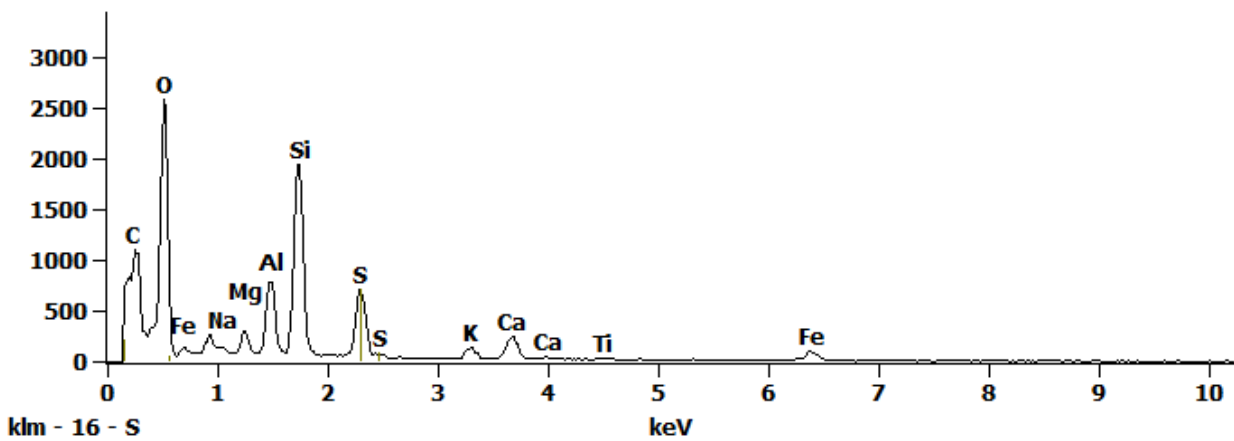
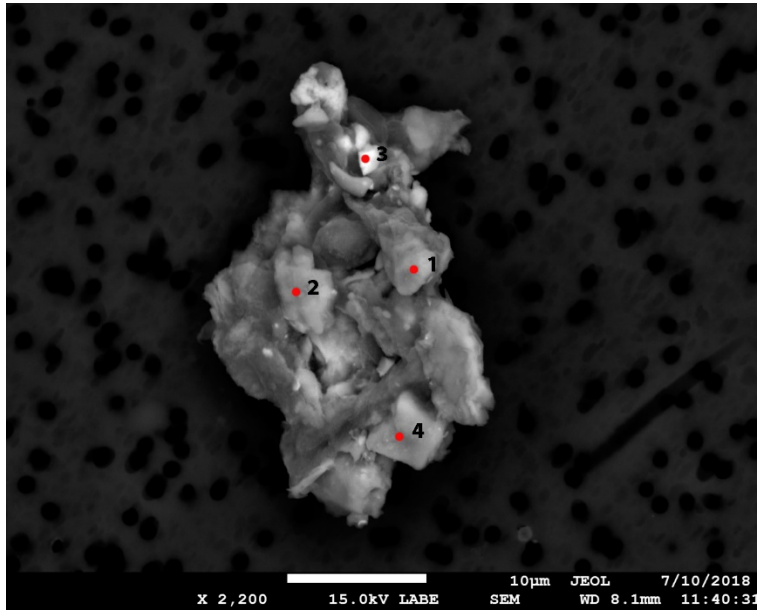


Figure 4. EDS Spectra for sample U2168-A-14 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 A15



<b>Particle Size:</b>	32 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	U2168 Cluster 8
<b>Comments:</b>	

*SEM Photo of sample U2168 A15 with labeled EDS testing locations.*

### *Cluster of Origin: U2168 Cluster 8*



*Photo of cluster U2168 Cluster 8.*

## U2168 A15 - EDS Spectra

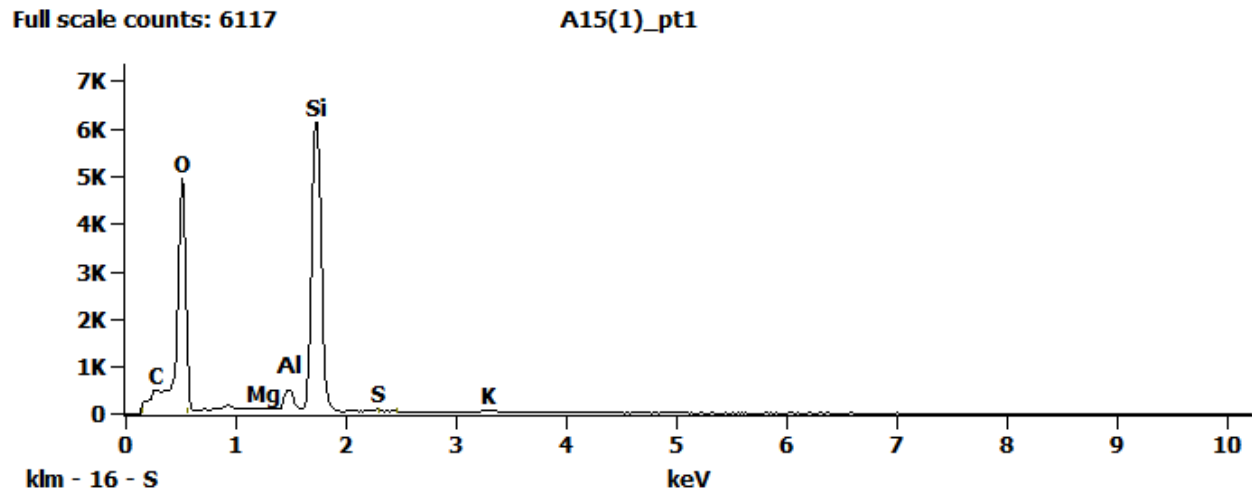


Figure 1. EDS Spectra for sample U2168-A-15 taken at test area 1. The test area is labeled in the particle SEM photo.

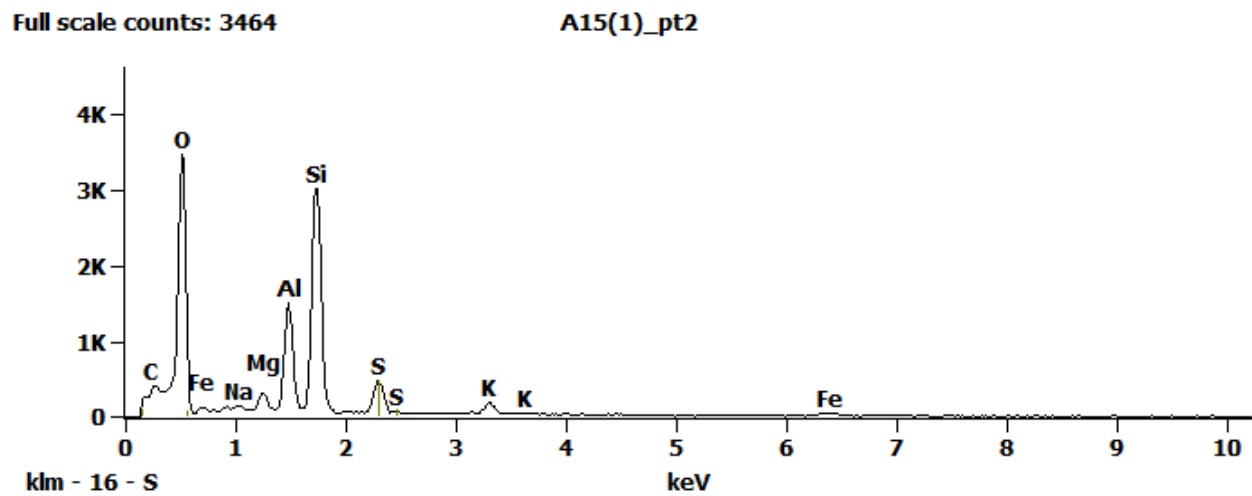


Figure 2. EDS Spectra for sample U2168-A-15 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1964

A15(1)\_pt3

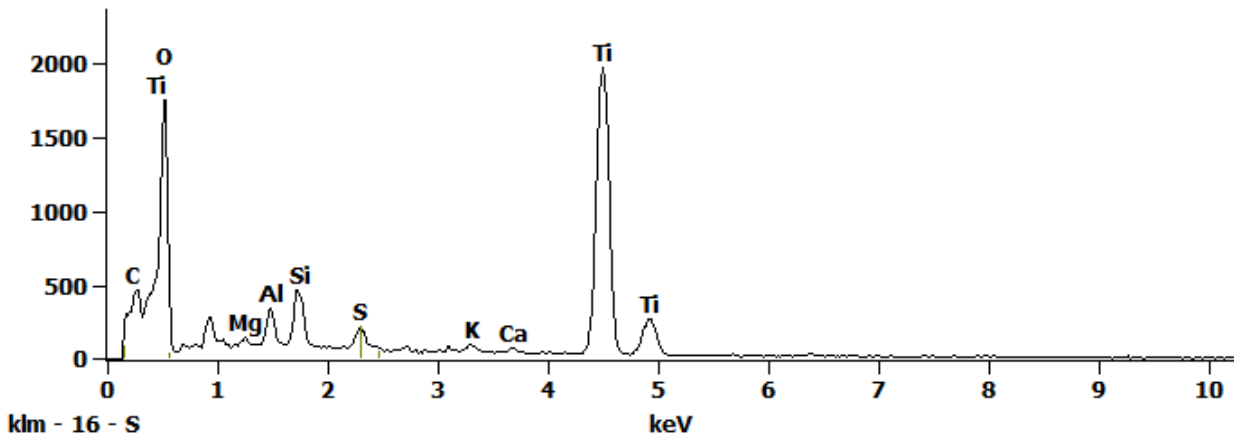


Figure 3. EDS Spectra for sample U2168-A-15 taken at test area 3. The test area is labeled in the particle SEM photo.

Full scale counts: 5844

A15(1)\_pt4

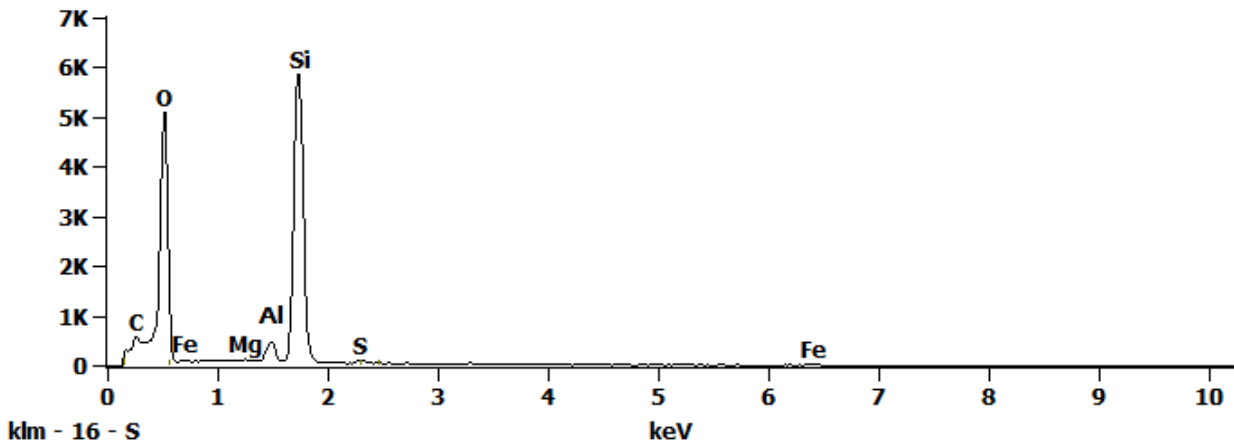
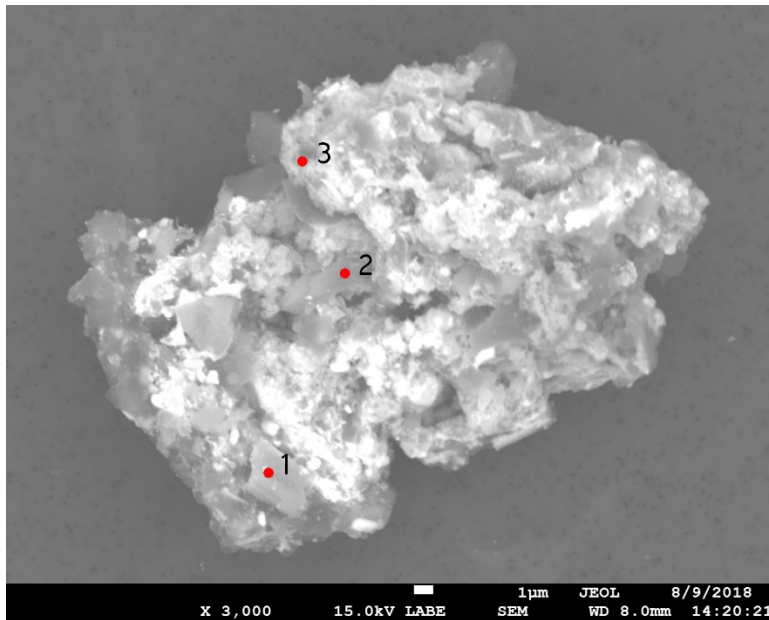


Figure 4. EDS Spectra for sample U2168-A-15 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 C9



<b>Particle Size:</b>	30 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C9 with labeled EDS testing locations.

### U2168 C9 - EDS Spectra

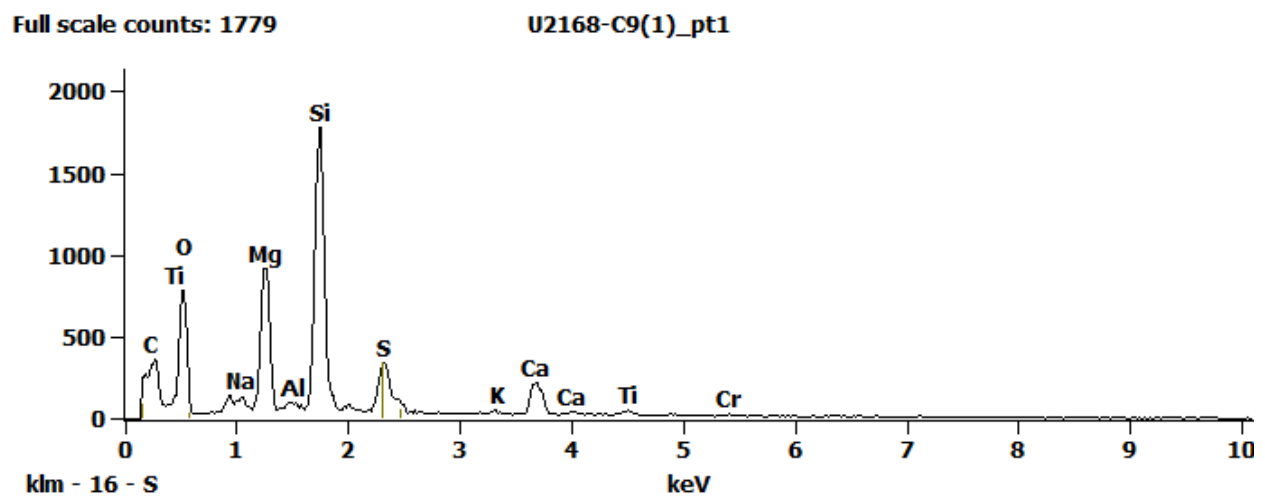


Figure 1. EDS Spectra for sample U2168-C-9 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2180

U2168-C9(1)\_pt2

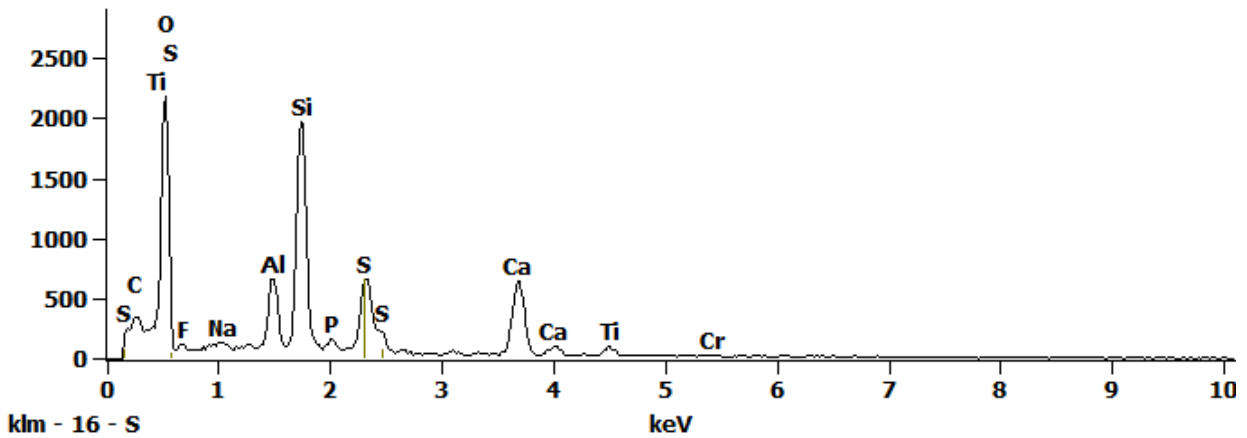


Figure 2. EDS Spectra for sample U2168-C-9 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1503

U2168-C9(1)\_pt3

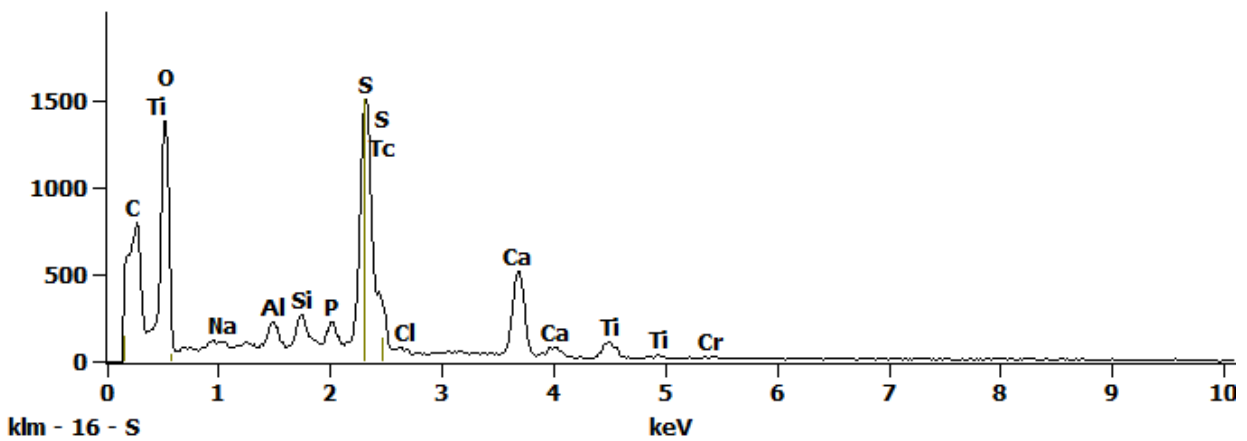
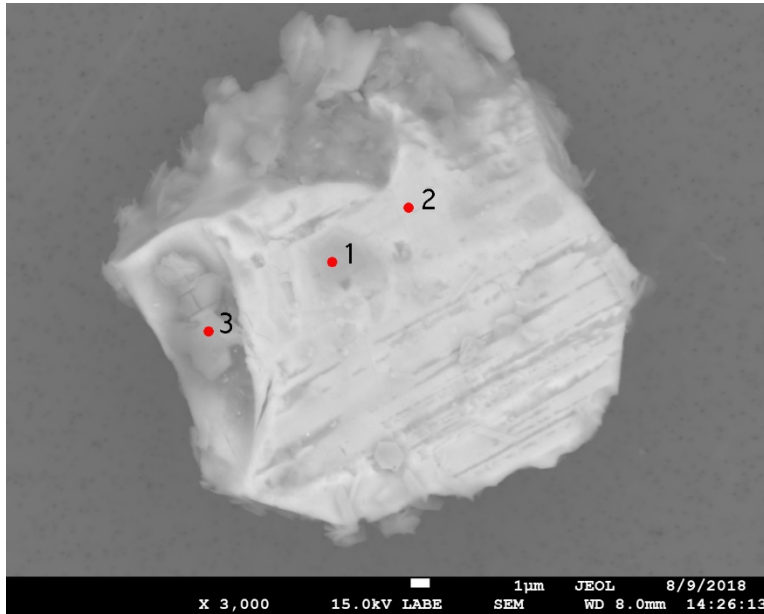


Figure 3. EDS Spectra for sample U2168-C-9 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 C10



<b>Particle Size:</b>	24 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 C10 with labeled EDS testing locations.

### U2168 C10 - EDS Spectra

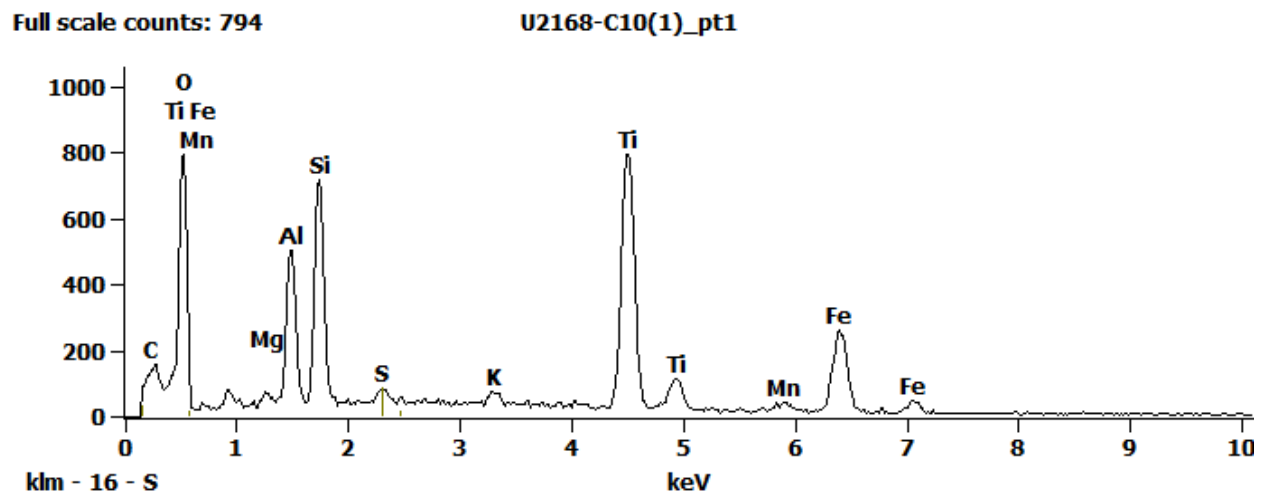


Figure 1. EDS Spectra for sample U2168-C-10 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1010

U2168-C10(1)\_pt2

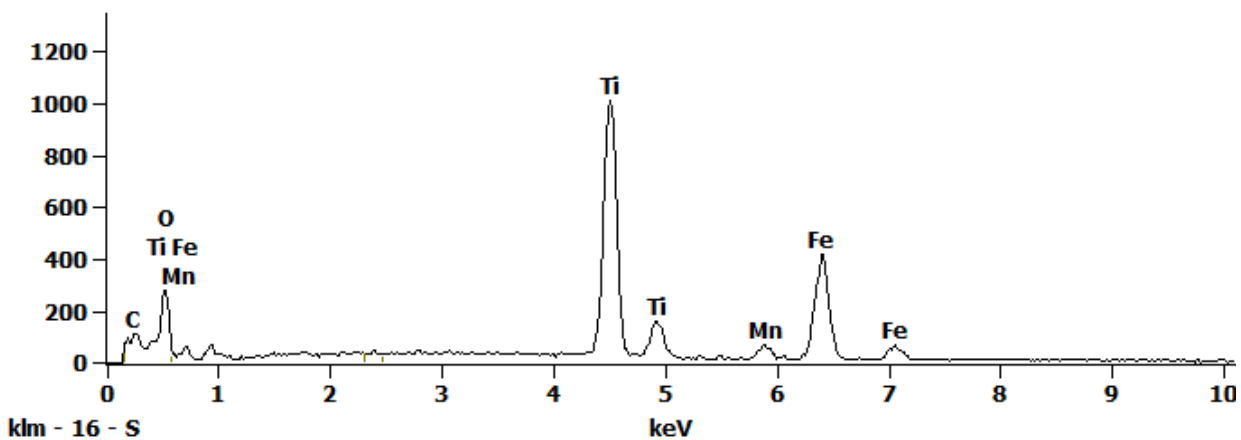


Figure 2. EDS Spectra for sample U2168-C-10 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2018

U2168-C10(1)\_pt3

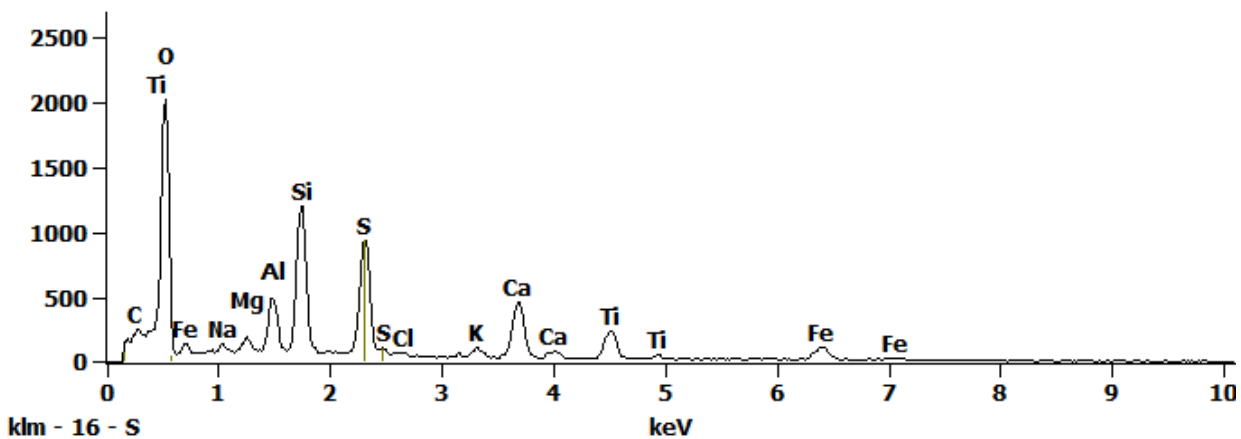
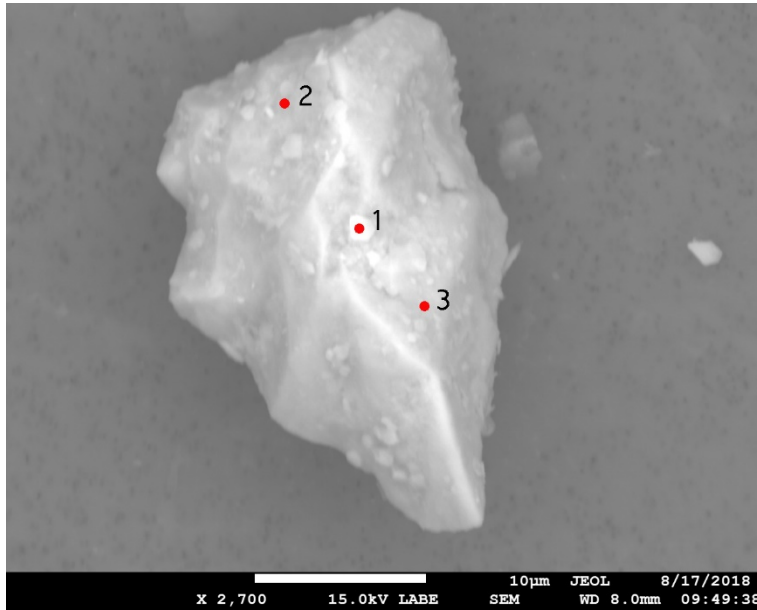


Figure 3. EDS Spectra for sample U2168-C-10 taken at test area 3. The test area is labeled in the particle SEM photo.



## U2168 D4



SEM Photo of sample U2168 D4 with labeled EDS testing locations.

<b>Particle Size:</b>	30 µm
<b>Shape:</b>	Equidimensional to Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK, GRAY
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### U2168 D4 - EDS Spectra

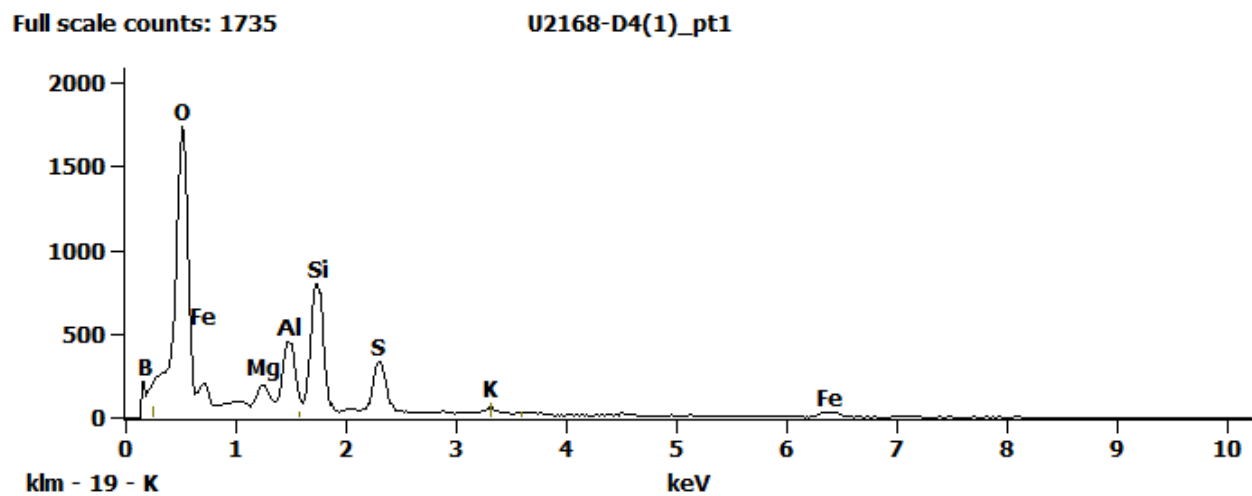


Figure 1. EDS Spectra for sample U2168-D-4 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 1430

U2168-D4(1)\_pt2

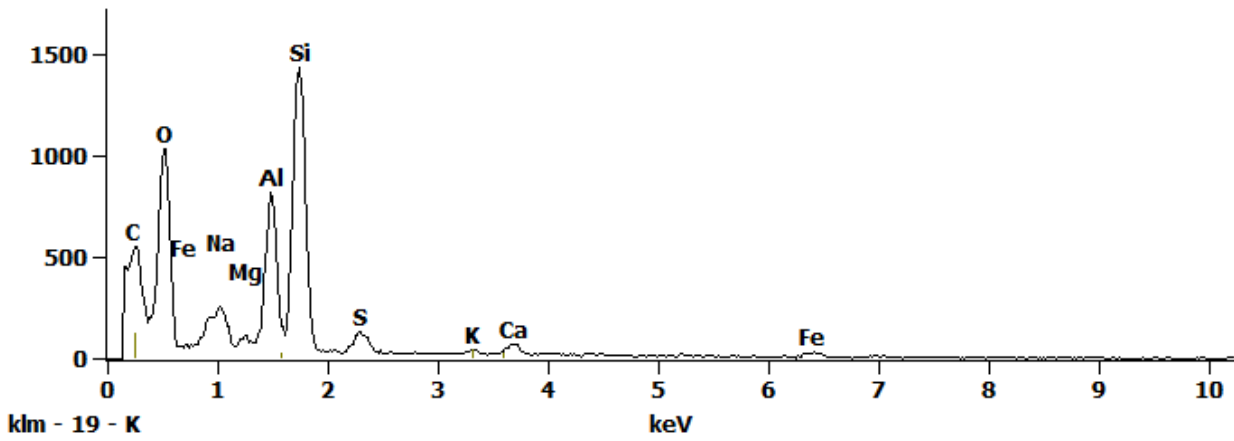


Figure 2. EDS Spectra for sample U2168-D-4 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2078

U2168-D4(1)\_pt3

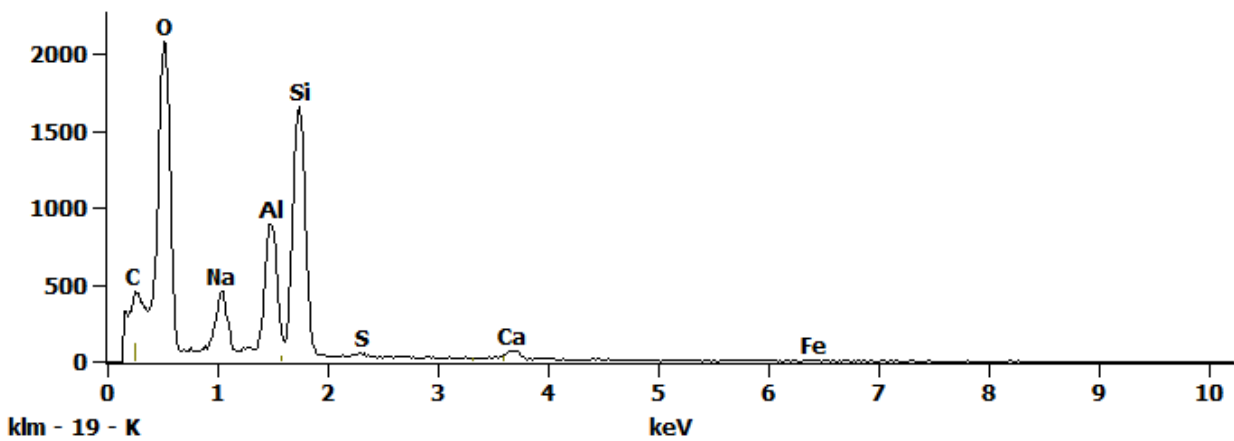
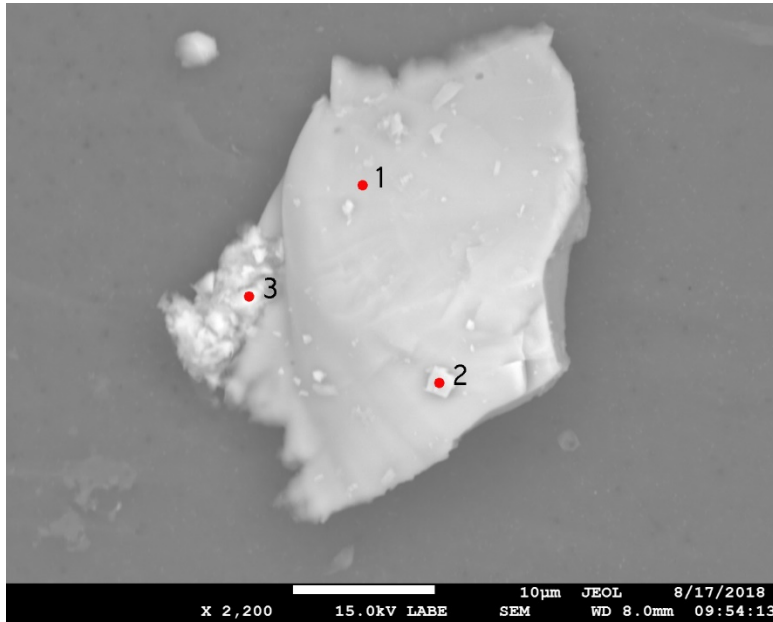


Figure 3. EDS Spectra for sample U2168-D-4 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 D5



<b>Particle Size:</b>	30 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Translucent
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Pearly to Subvitreous
<b>Particle Type:</b>	NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D5 with labeled EDS testing locations.

### U2168 D5 - EDS Spectra

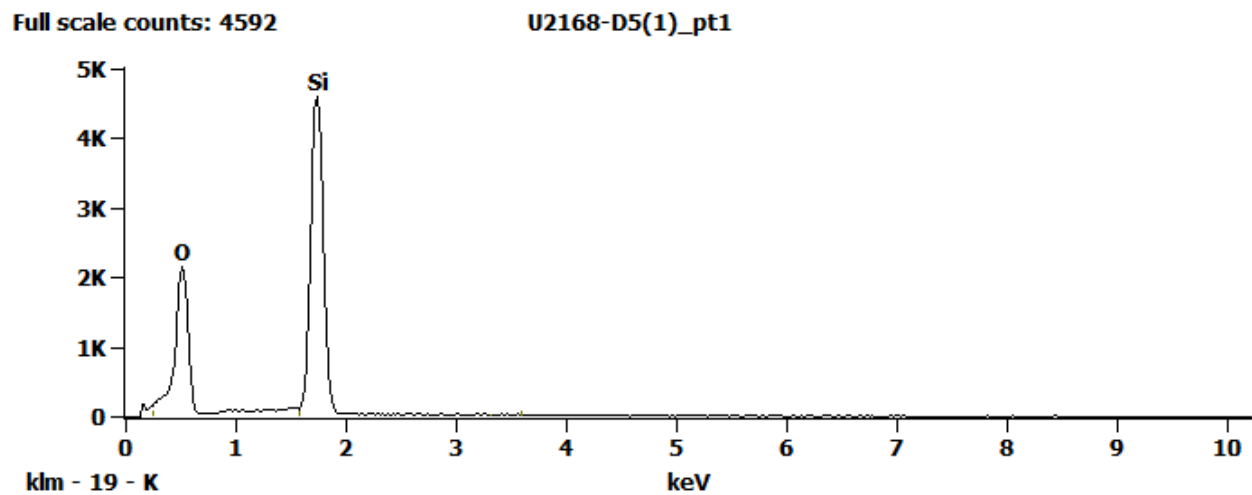


Figure 1. EDS Spectra for sample U2168-D-5 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 3035

U2168-D5(1)\_pt2

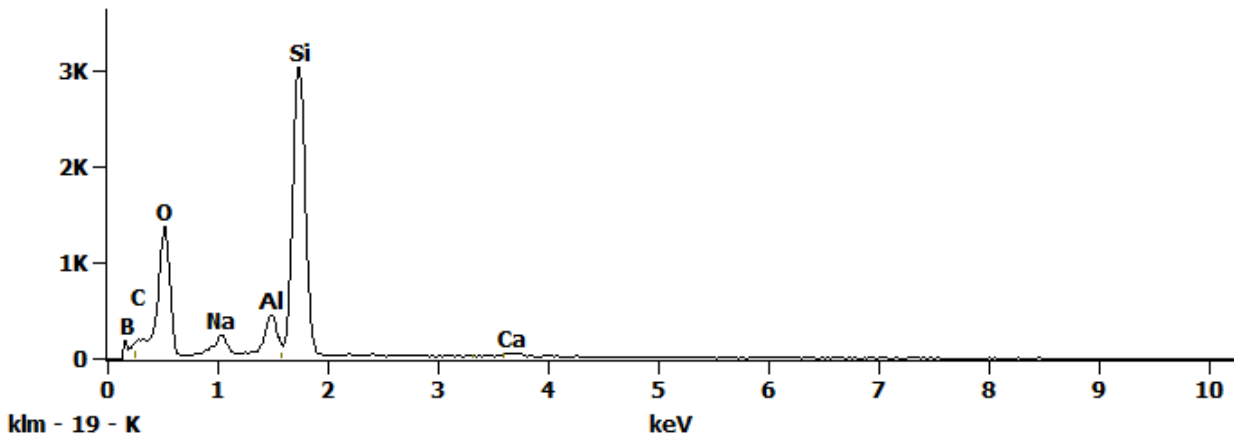


Figure 2. EDS Spectra for sample U2168-D-5 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1737

U2168-D5(1)\_pt3

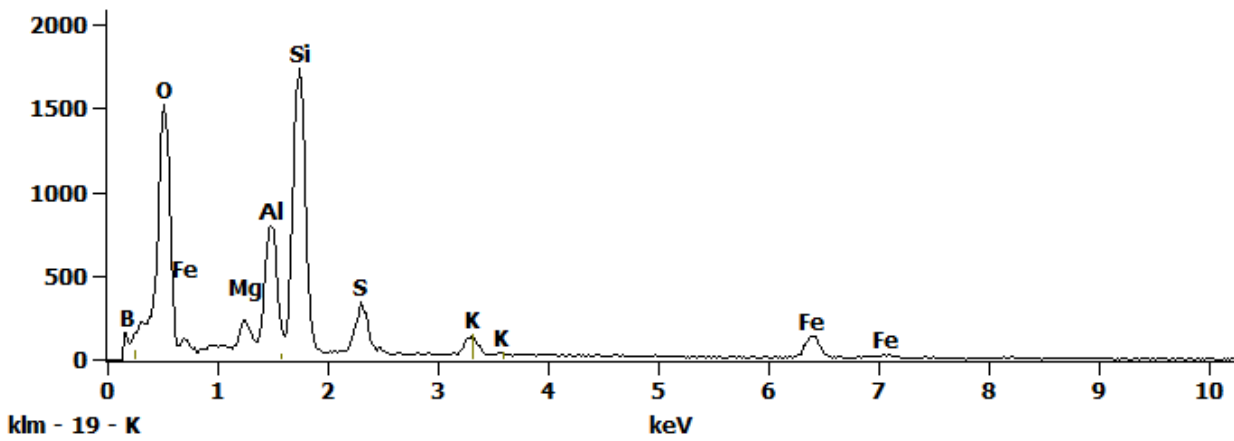
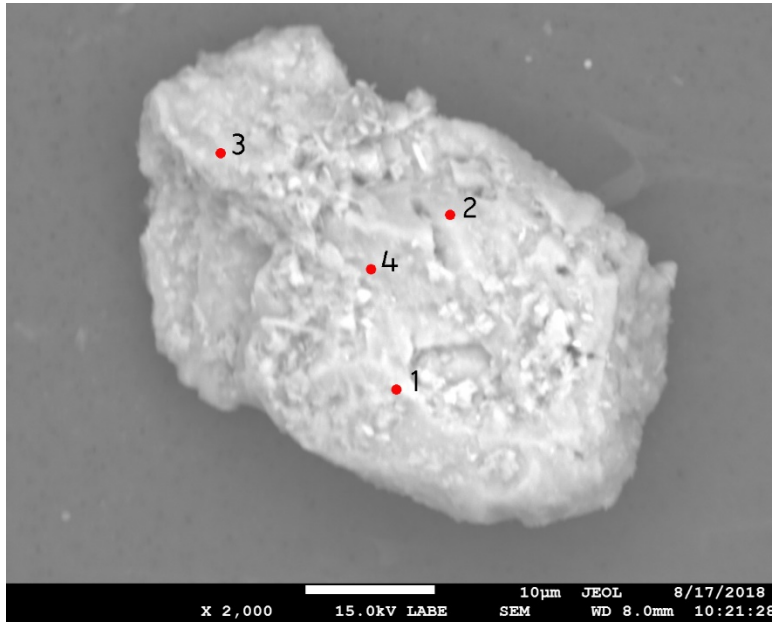


Figure 3. EDS Spectra for sample U2168-D-5 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 D12



SEM Photo of sample U2168 D12 with labeled EDS testing locations.

<b>Particle Size:</b>	43x24 μm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Translucent to Opaque
<b>Color:</b>	CLEAR, GRAY
<b>Luster:</b>	Subvitreous to Vitreous
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

### U2168 D12 - EDS Spectra

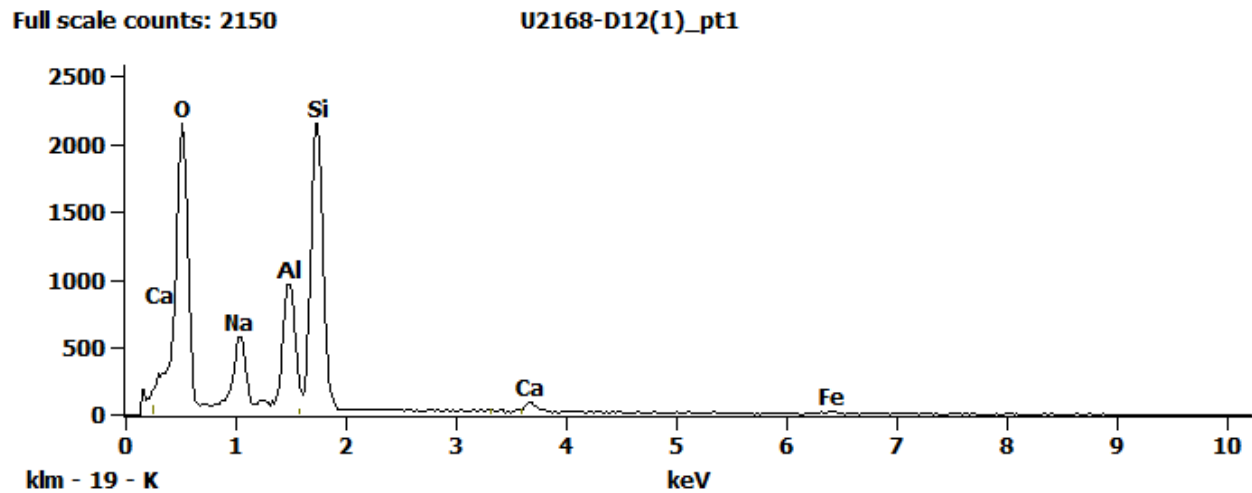


Figure 1. EDS Spectra for sample U2168-D-12 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2519

U2168-D12(1)\_pt2

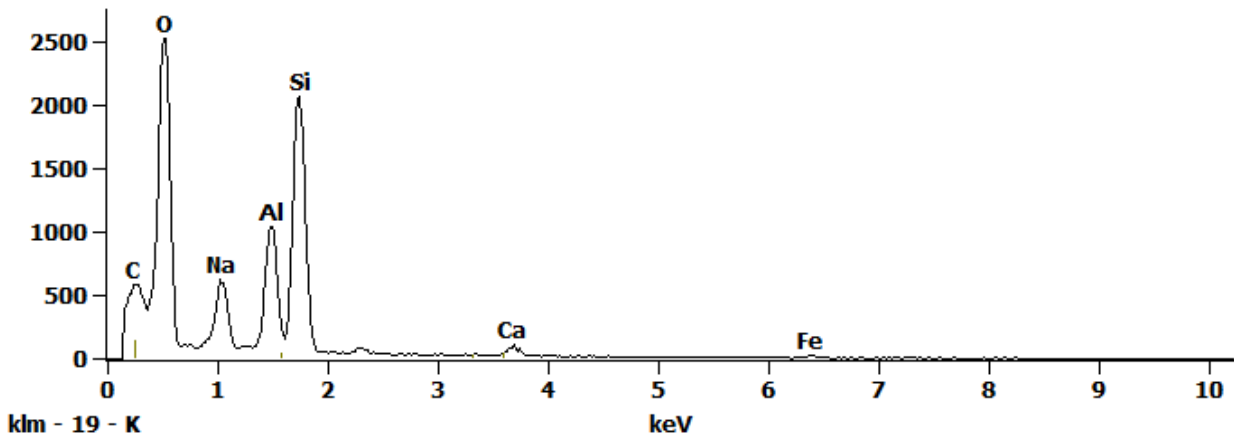


Figure 2. EDS Spectra for sample U2168-D-12 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2506

U2168-D12(1)\_pt3

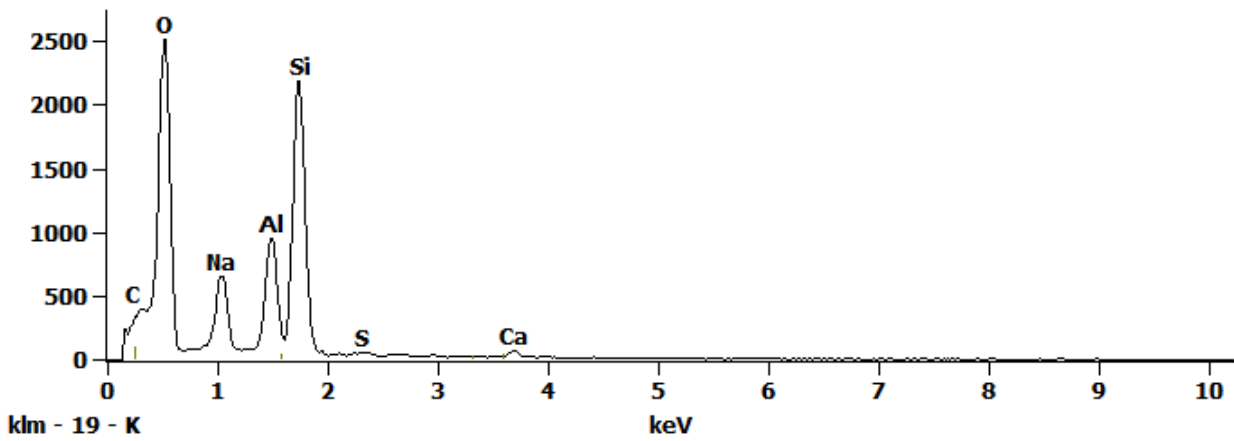


Figure 3. EDS Spectra for sample U2168-D-12 taken at test area 3. The test area is labeled in the particle SEM photo.

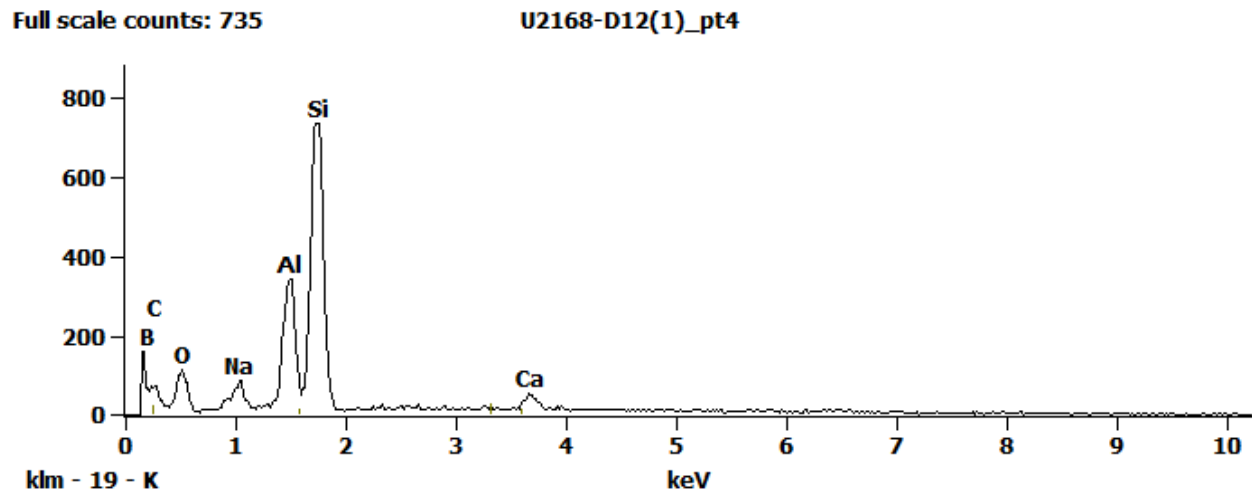
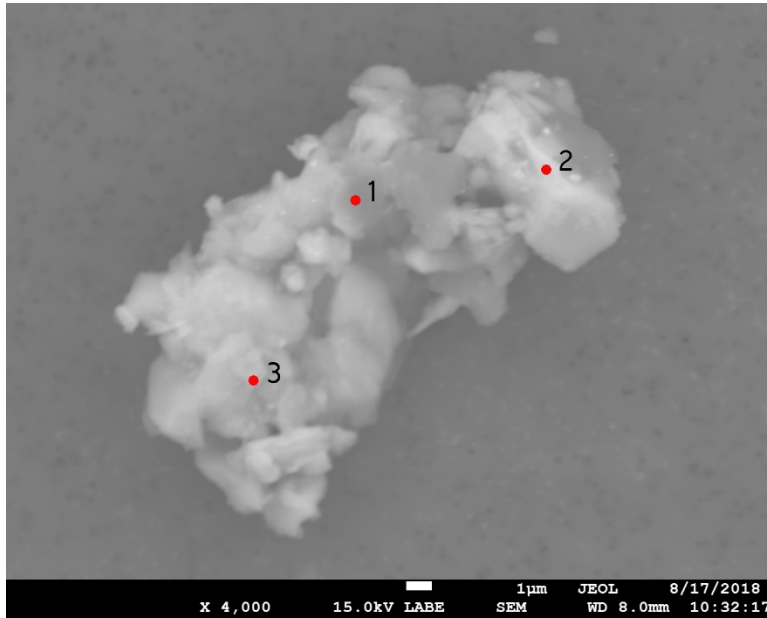


Figure 4. EDS Spectra for sample U2168-D-12 taken at test area 4. The test area is labeled in the particle SEM photo.

## U2168 D14



<b>Particle Size:</b>	15 µm
<b>Shape:</b>	Irregular
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 D14 with labeled EDS testing locations.

### U2168 D14 - EDS Spectra

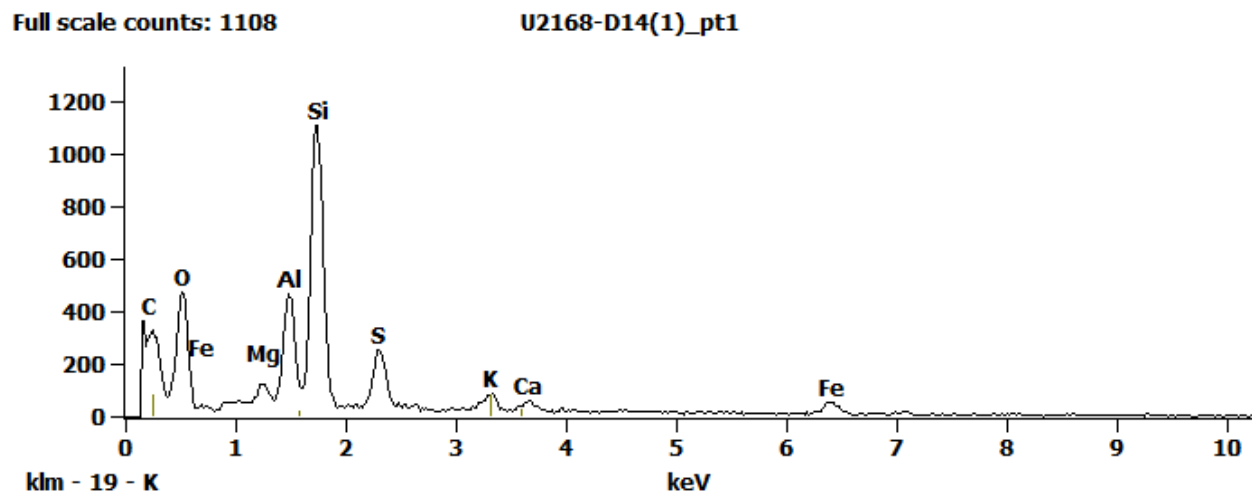


Figure 1. EDS Spectra for sample U2168-D-14 taken at test area 1. The test area is labeled in the particle SEM photo.



Full scale counts: 2475

U2168-D14(1)\_pt2

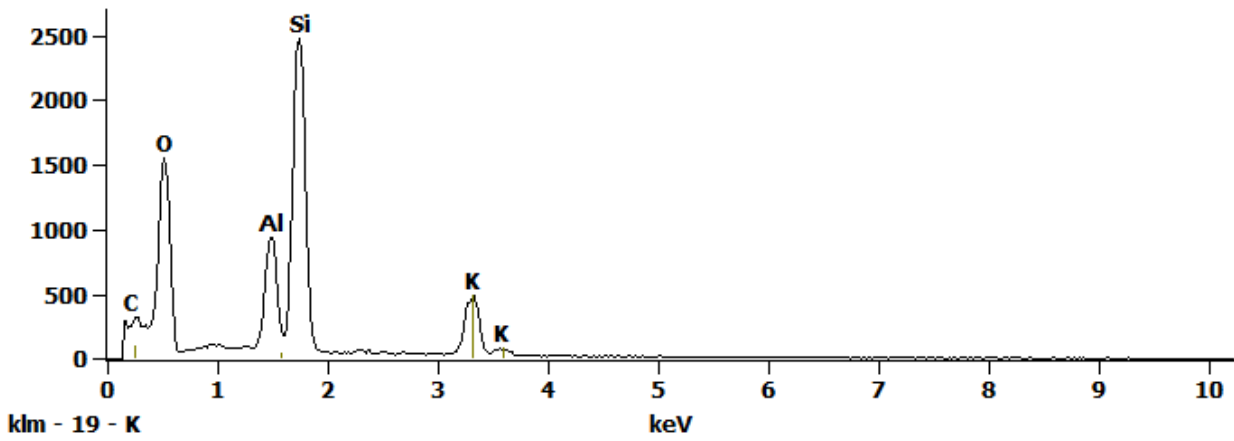


Figure 2. EDS Spectra for sample U2168-D-14 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 2114

U2168-D14(1)\_pt3

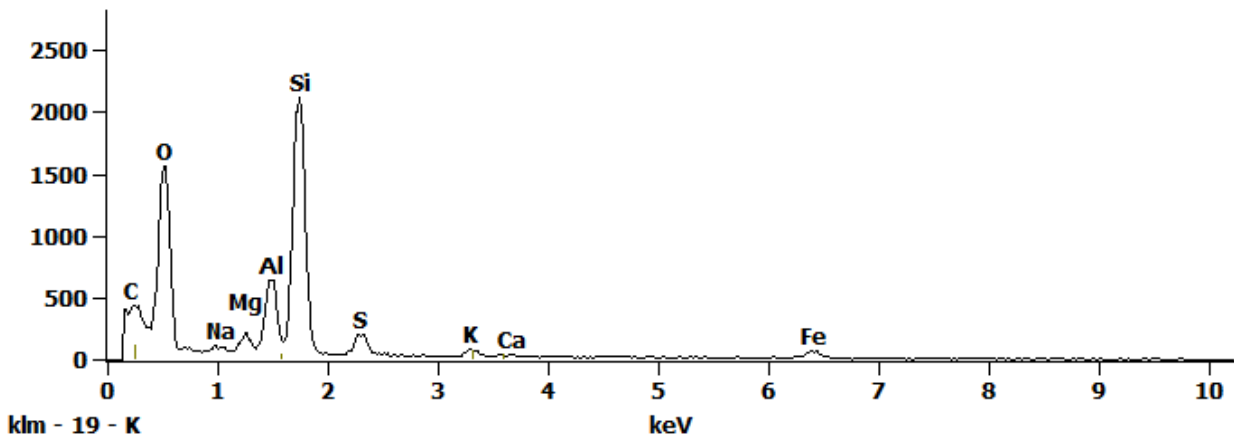
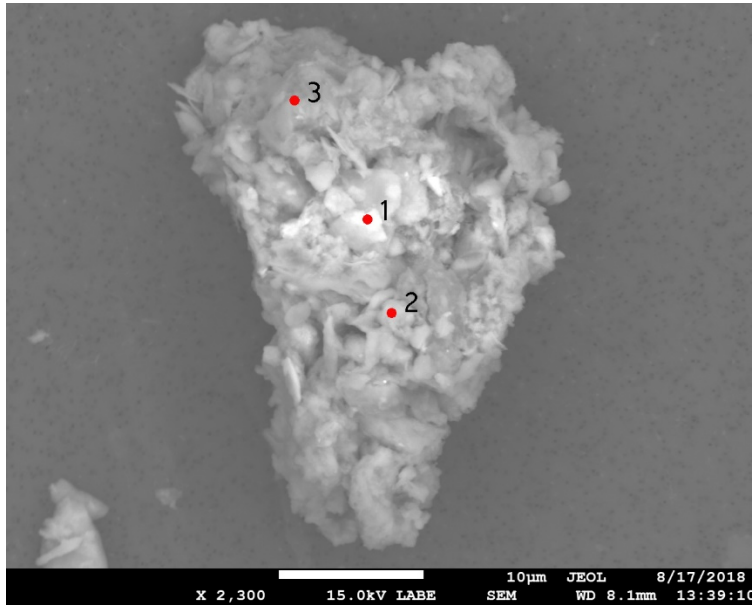


Figure 3. EDS Spectra for sample U2168-D-14 taken at test area 3. The test area is labeled in the particle SEM photo.

## U2168 E13



<b>Particle Size:</b>	33 µm
<b>Shape:</b>	Equidimensional
<b>Transparency:</b>	Opaque
<b>Color:</b>	BLACK
<b>Luster:</b>	Dull
<b>Particle Type:</b>	POSSIBLY NATURAL TERRESTRIAL CONTAMINATION
<b>Cluster No.:</b>	
<b>Comments:</b>	

SEM Photo of sample U2168 E13 with labeled EDS testing locations.

### U2168 E13 - EDS Spectra

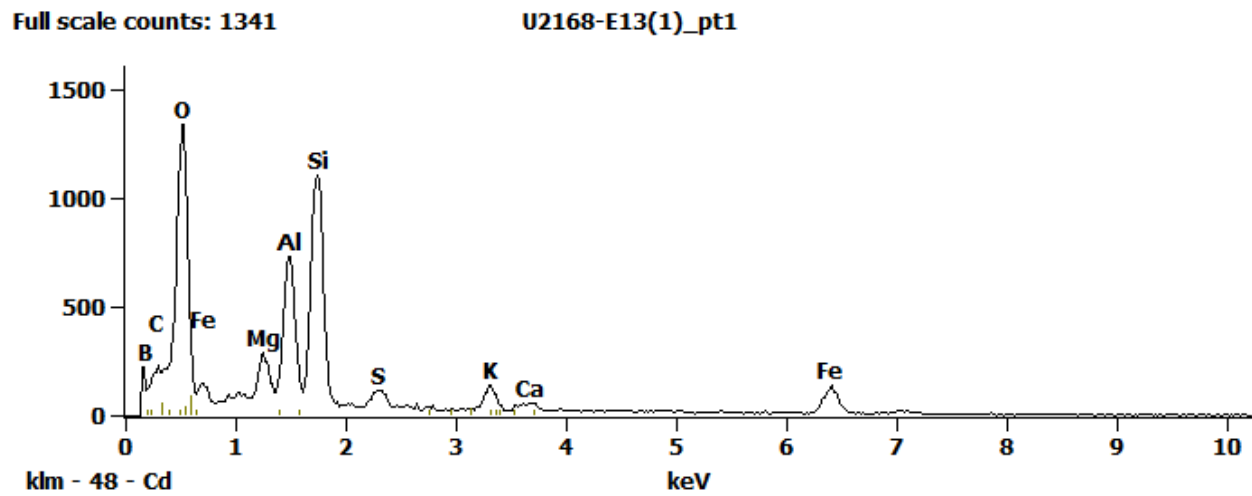


Figure 1. EDS Spectra for sample U2168-E-13 taken at test area 1. The test area is labeled in the particle SEM photo.

Full scale counts: 2473

U2168-E13(1)\_pt2

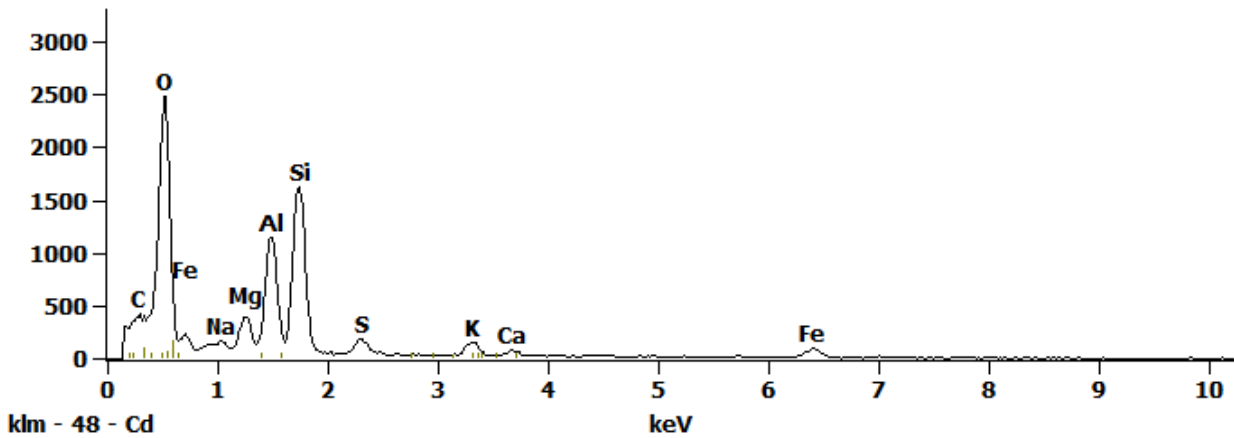


Figure 2. EDS Spectra for sample U2168-E-13 taken at test area 2. The test area is labeled in the particle SEM photo.

Full scale counts: 1389

U2168-E13(1)\_pt3

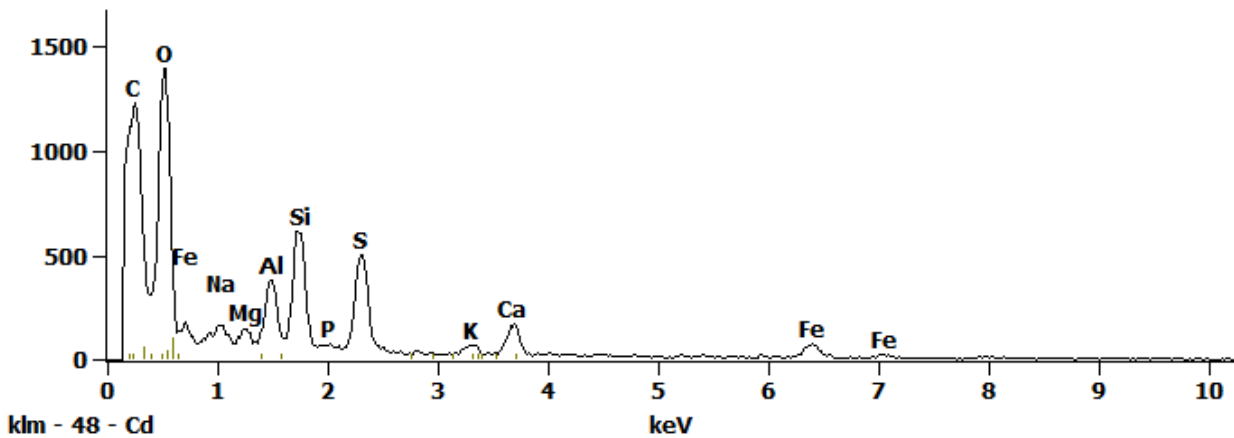


Figure 3. EDS Spectra for sample U2168-E-13 taken at test area 3. The test area is labeled in the particle SEM photo.