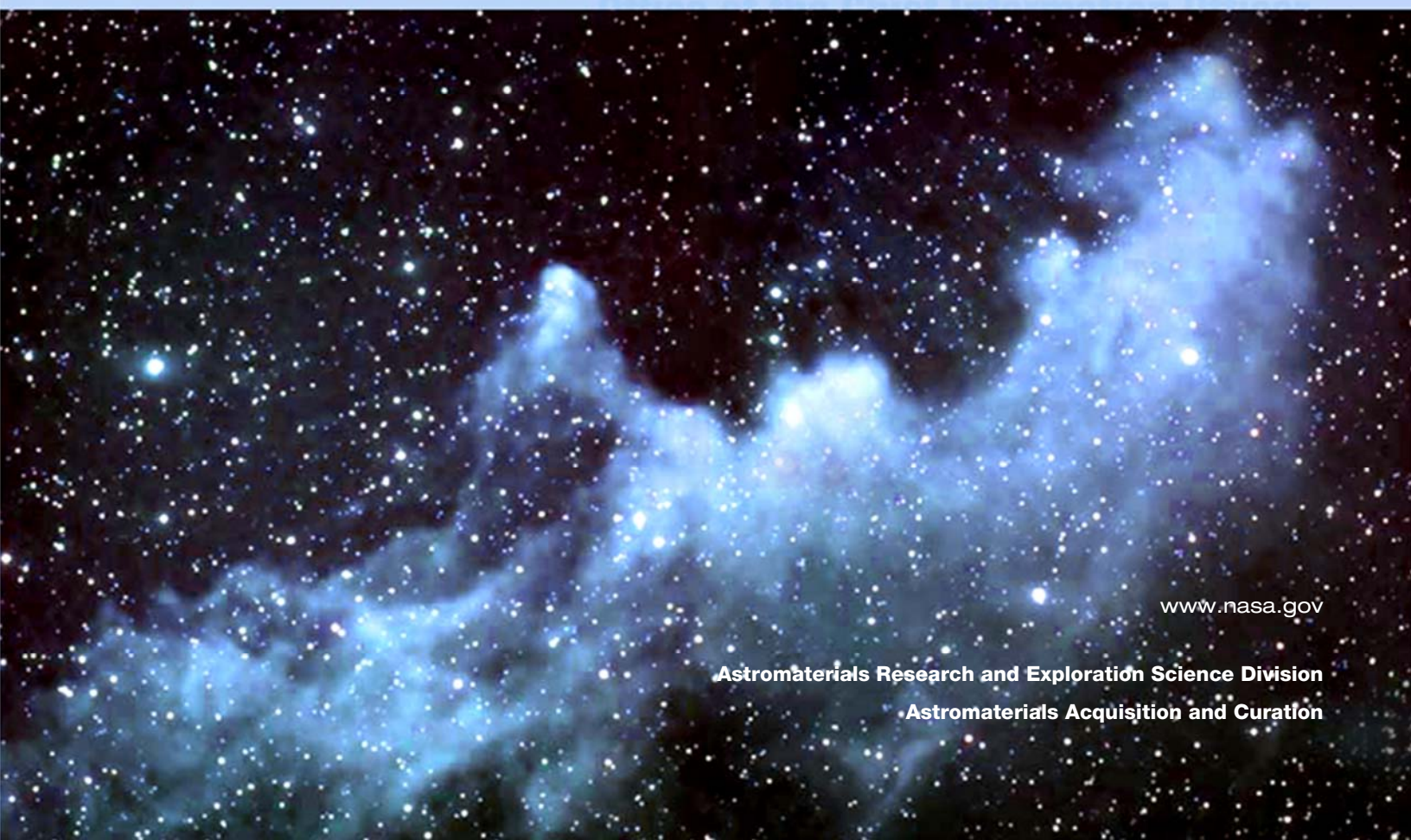




Cosmic Dust Catalog Volume 20

Particles from Collectors U2153, U2157, U2158,
U2159, U2162, and U2163



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Astromaterials Research and Exploration Science Division
Astromaterials Acquisition and Curation

Cosmic Dust Catalog

Volume 20

Particles from Collectors U2153, U2157, U2158,
U2159, U2162, and U2163

Compiled By:

Cosmic Dust Preliminary
Examination Team (CDPET)

K. McBride¹

N.S. Todd¹

R.K. Bastien¹

M. Rodriguez¹

E.L. Berger¹

D.K. Ross²

M.E. Zolensky³

¹ Jacobs JETS Contract

² University of Texas, El Paso/
Jacobs JETS Contract

³ NASA Johnson Space Center
Houston, TX 77058

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Introduction

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 U2153, U2157, U2158, U2159, U2162, and U2163. 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:

U2153	15.1 hours of flight time on October 15 and 17, 2012, during the Draconid Showers
U2157, U2158 and U2159	23.2 hours of flight time over California during October 15, 2012 to October 17, 2012
U2162 and U2163	40 hours of flight time during July 10, 2014 to August 1, 2014

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

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 μm 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

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

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 (μm) 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 ablatational 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

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

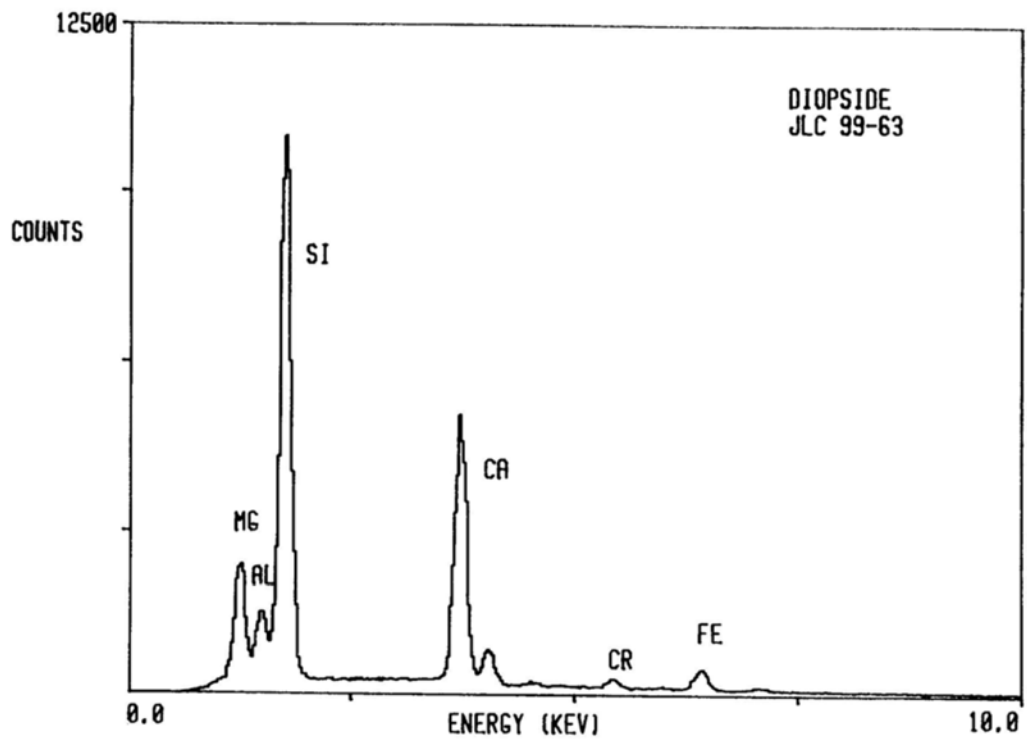
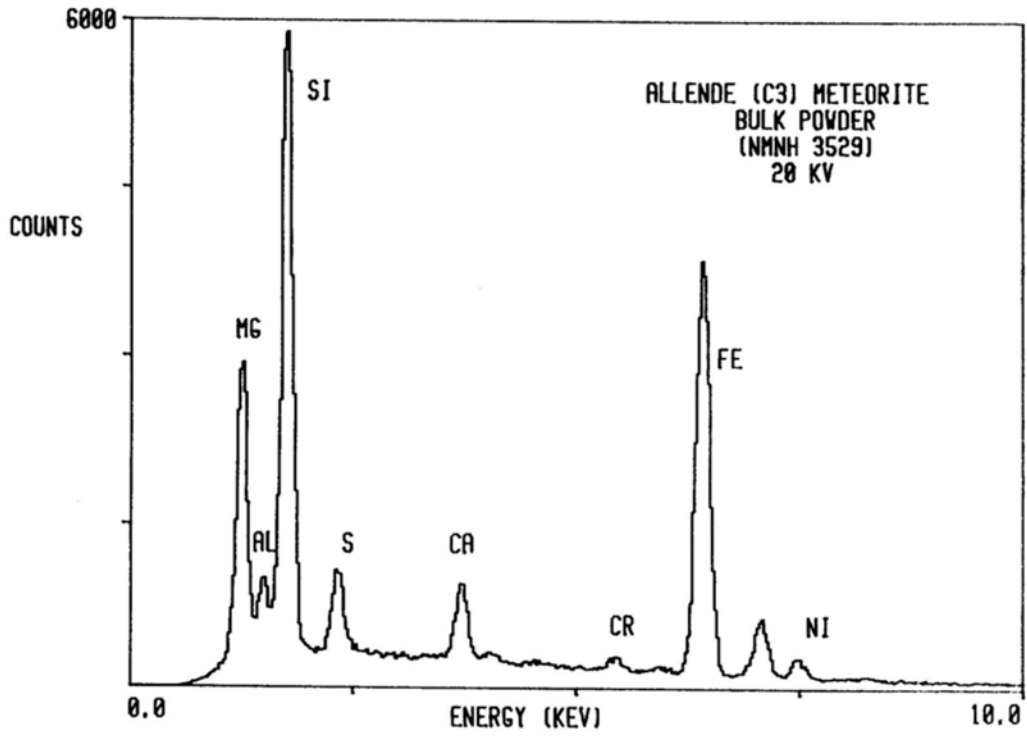
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Code SL
Washington, DC 20546 U.S.A.

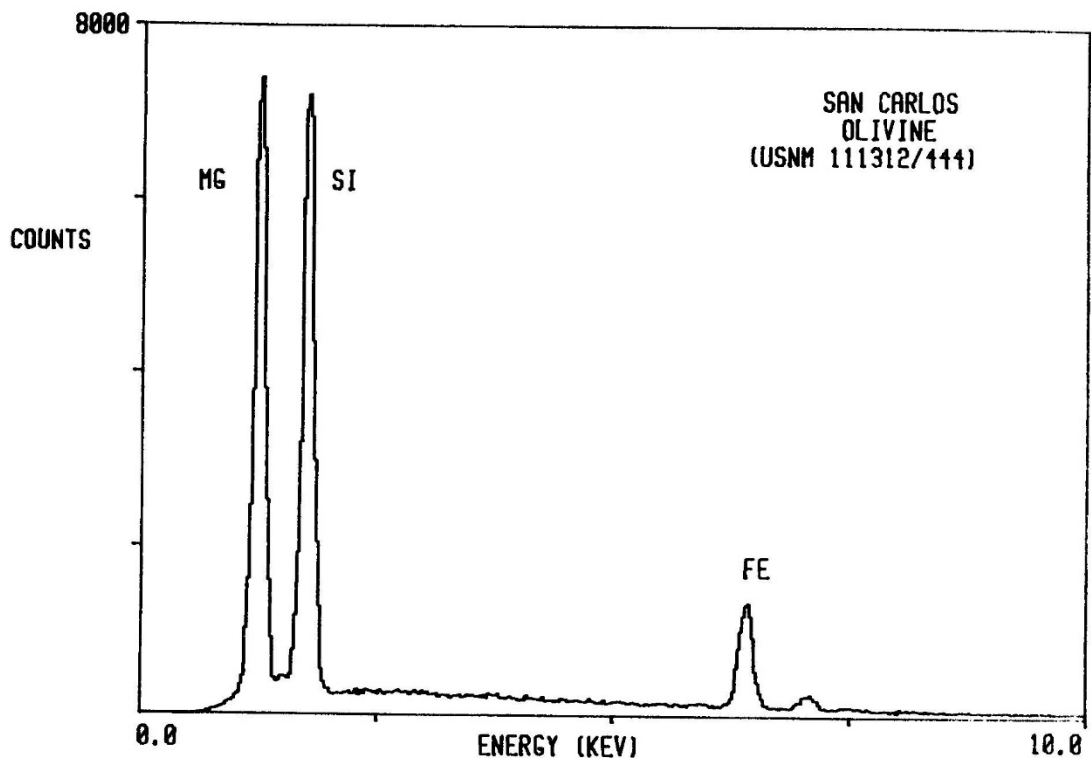
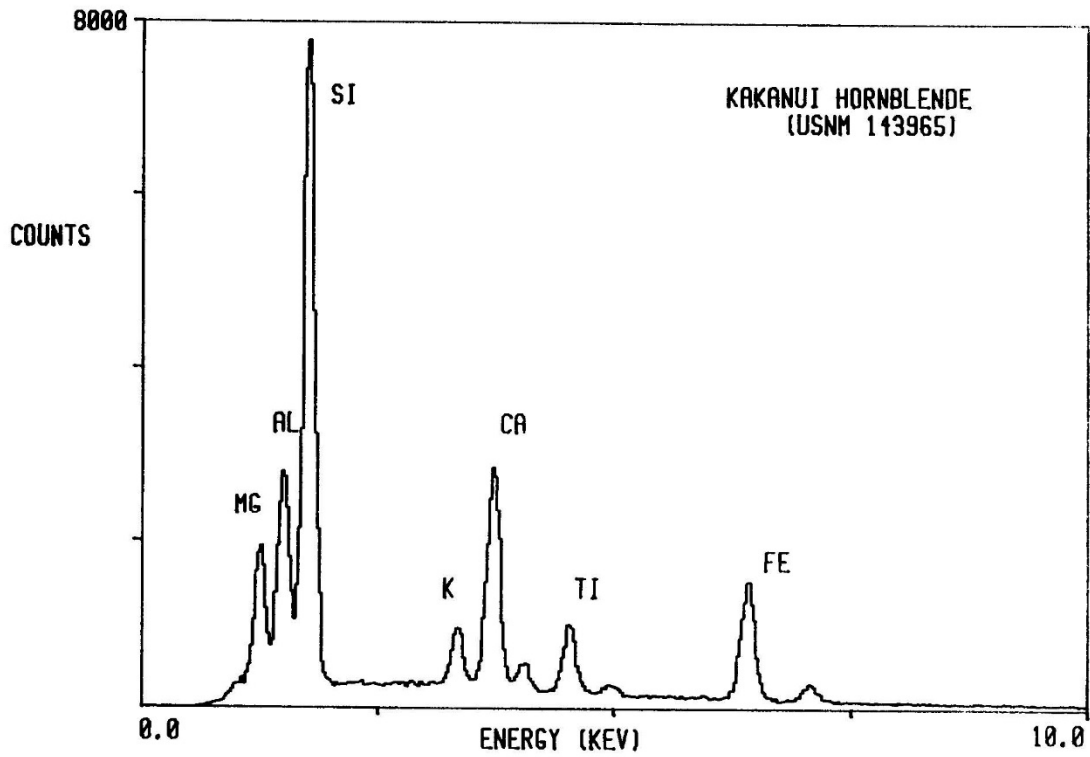
Although foreign scientists are welcome to request samples, NASA cannot provide funds to be spent outside the U.S.A. by citizens of other countries.

Acknowledgements

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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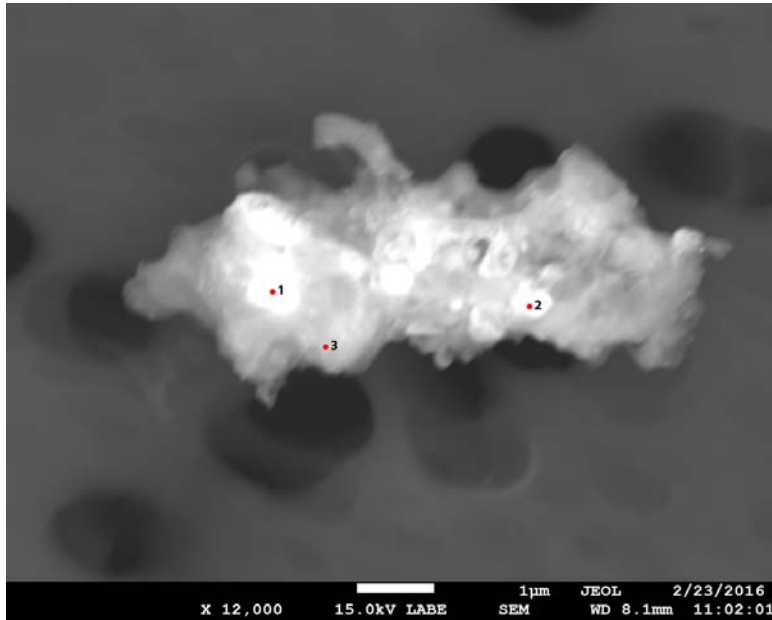
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Particle Descriptions

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

U2153 N2



Particle Size: 4x8 µm
Shape: Irregular
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Cosmic
Cluster No.: U2153 Cluster 4
Comments:

SEM Photo of sample U2153 N2 with labeled EDS testing locations.

Cluster of Origin: U2153 Cluster 4



Photo of cluster U2153 Cluster 4.

U2153 N2 - EDS Spectra

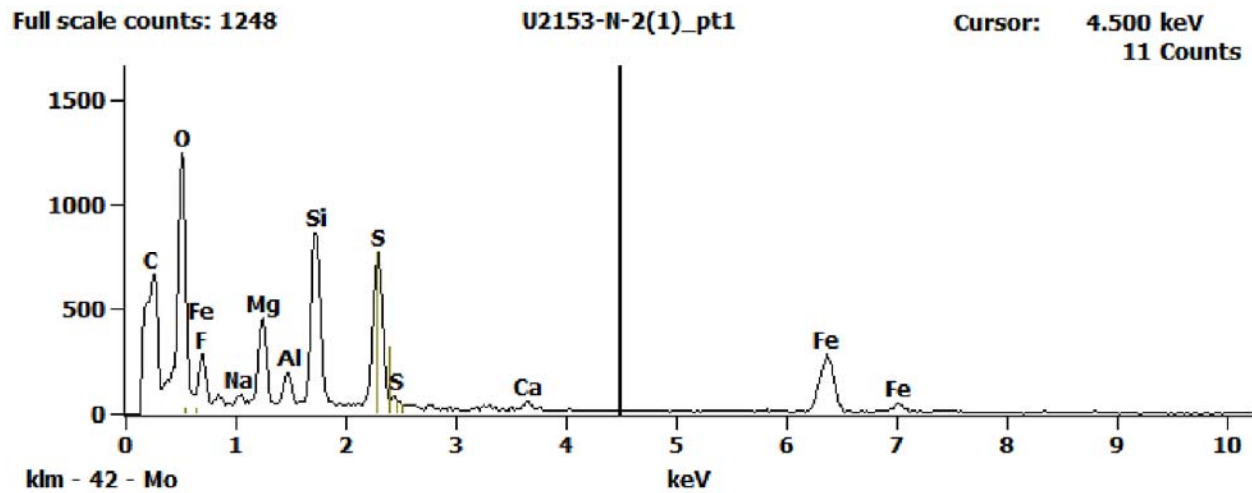


Figure 1. EDS Spectra for sample U2153-N-2 taken at test area 1. The test area is labeled in the particle SEM photo..

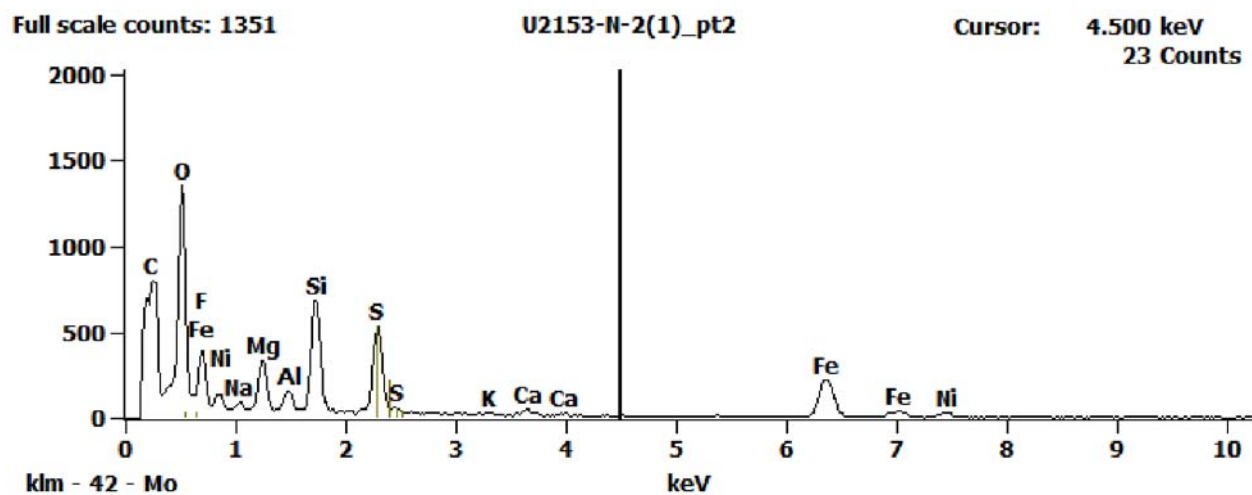


Figure 2. EDS Spectra for sample U2153-N-2 taken at test area 2. The test area is labeled in the particle SEM photo..

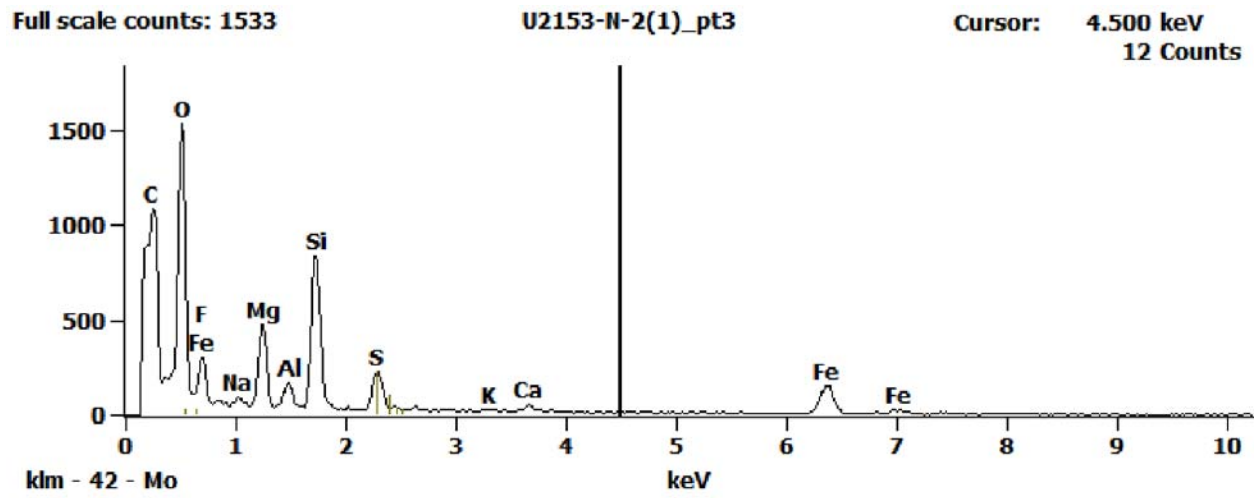
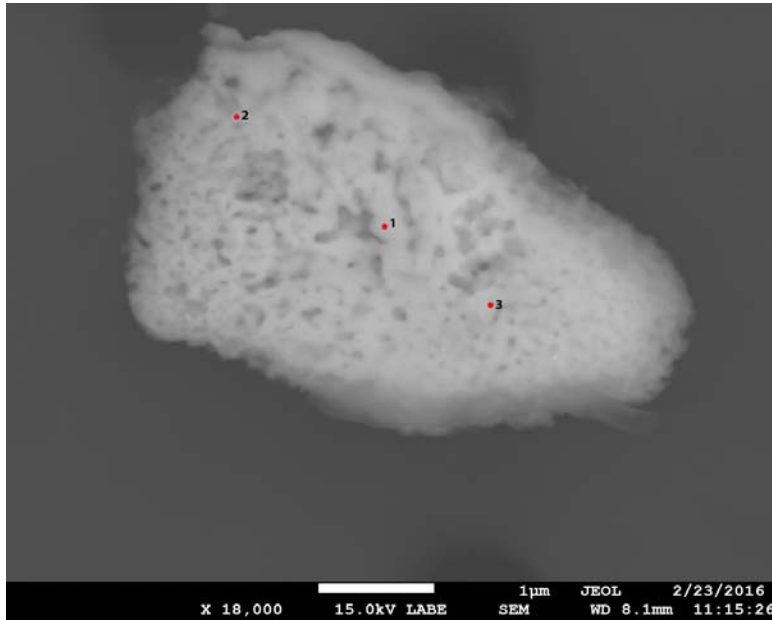


Figure 3. EDS Spectra for sample U2153-N-2 taken at test area 3. The test area is labeled in the particle SEM photo..

U2153 N3



Particle Size: 6.5x4 µm
Shape: Irregular
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Cosmic
Cluster No.: U2153 Cluster 1
Comments:

SEM Photo of sample U2153 N3 with labeled EDS testing locations.

Cluster of Origin: U2153 Cluster 1

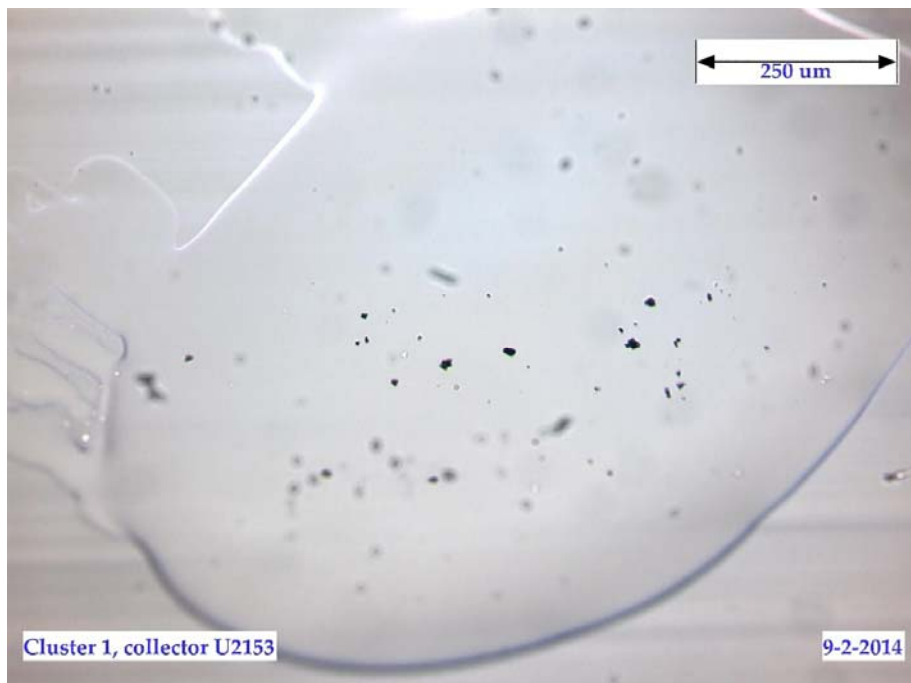


Photo of cluster U2153 Cluster 1.

U2153 N3 - EDS Spectra

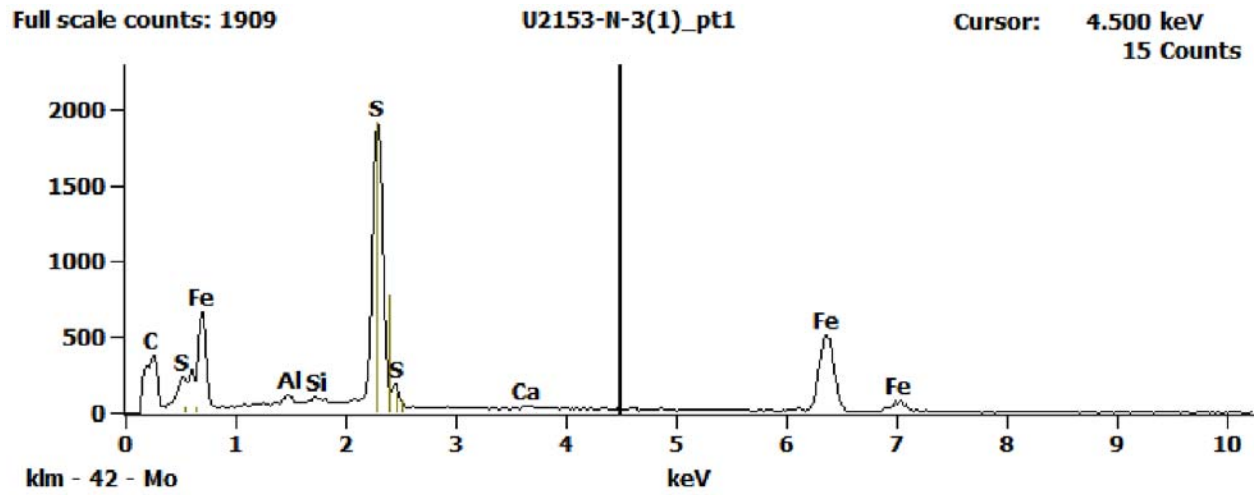


Figure 1. EDS Spectra for sample U2153-N-3 taken at test area 1. The test area is labeled in the particle SEM photo..

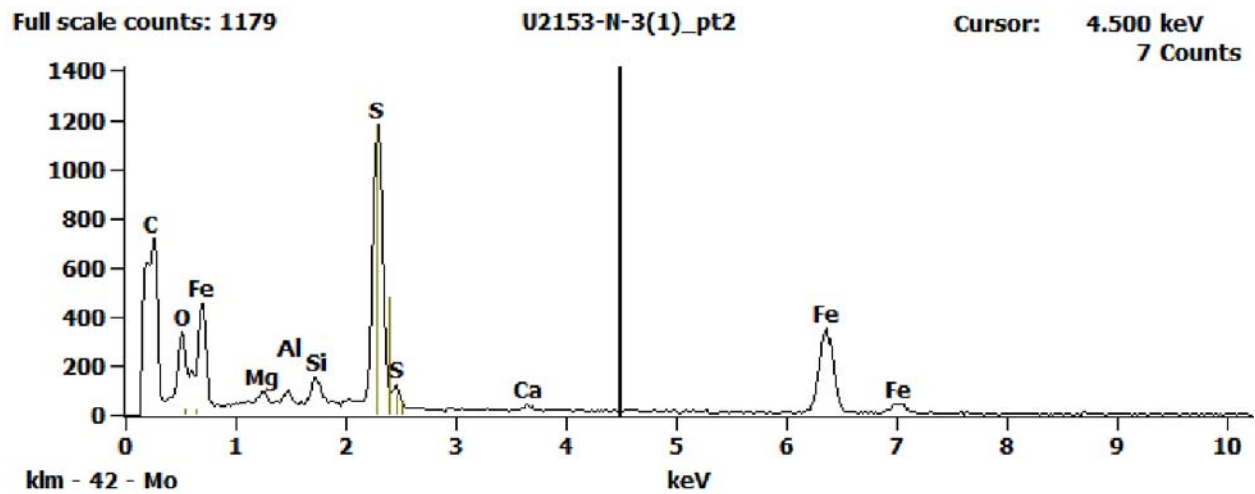


Figure 2. EDS Spectra for sample U2153-N-3 taken at test area 2. The test area is labeled in the particle SEM photo..

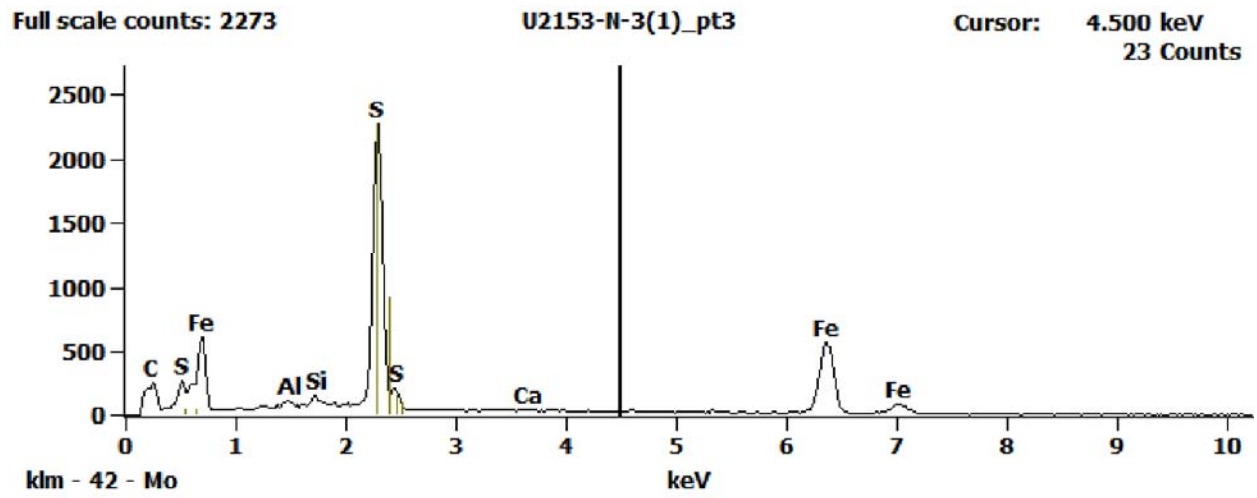
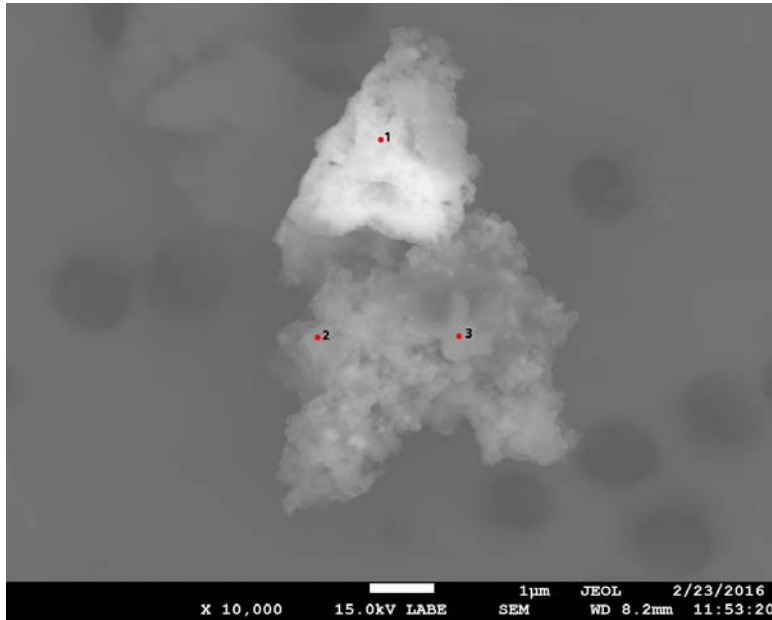


Figure 3. EDS Spectra for sample U2153-N-3 taken at test area 3. The test area is labeled in the particle SEM photo..

U2153 N5



Particle Size: 4x8 µm
Shape: Irregular
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Cosmic
Cluster No.: U2153 Cluster 2
Comments:

SEM Photo of sample U2153 N5 with labeled EDS testing locations.

Cluster of Origin: U2153 Cluster 2

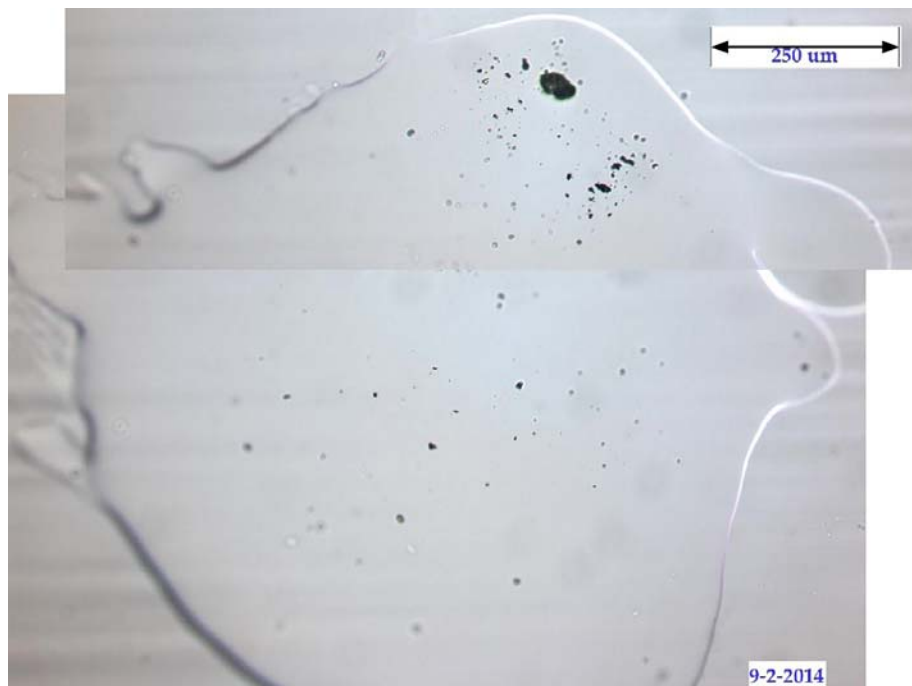


Photo of cluster U2153 Cluster 2.

U2153 N5 - EDS Spectra

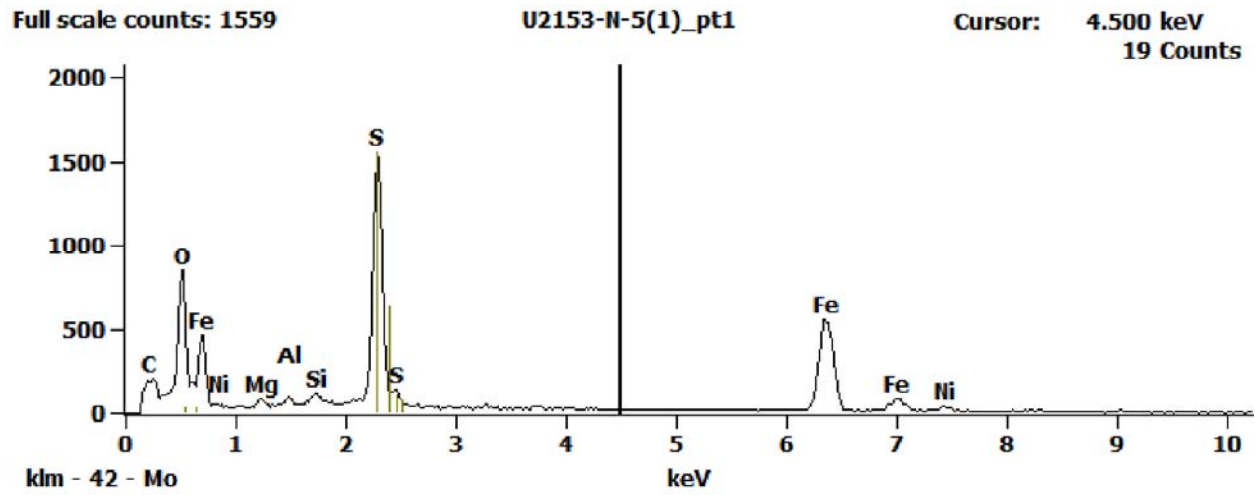


Figure 1. EDS Spectra for sample U2153-N-5 taken at test area 1. The test area is labeled in the particle SEM photo..

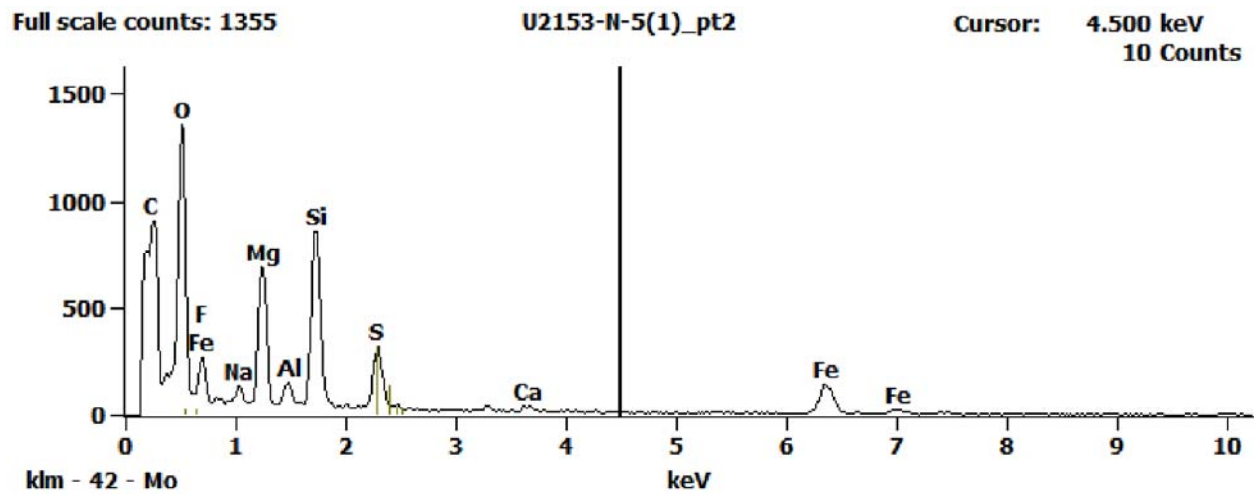


Figure 2. EDS Spectra for sample U2153-N-5 taken at test area 2. The test area is labeled in the particle SEM photo..

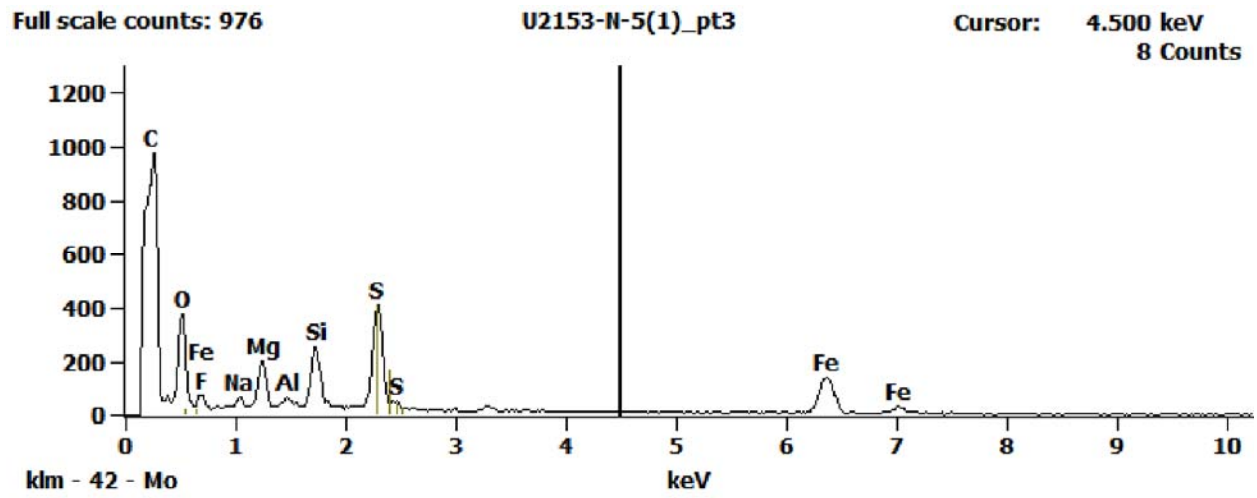
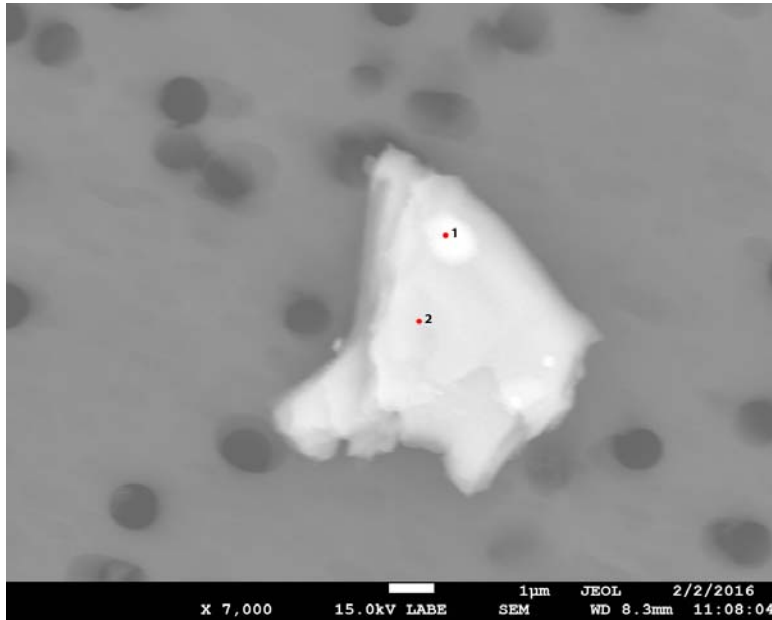


Figure 3. EDS Spectra for sample U2153-N-5 taken at test area 3. The test area is labeled in the particle SEM photo..

U2157 A2



Particle Size:	5 µm
Shape:	Equidimensional
Transparency:	Translucent to Opaque
Color:	Clear
Luster:	Pearly to Subvitreous
Particle Type:	Cosmic
Cluster No.:	U2157 Cluster 2
Comments:	

SEM Photo of sample U2157 A2 with labeled EDS testing locations.

Cluster of Origin: U2157 Cluster 2

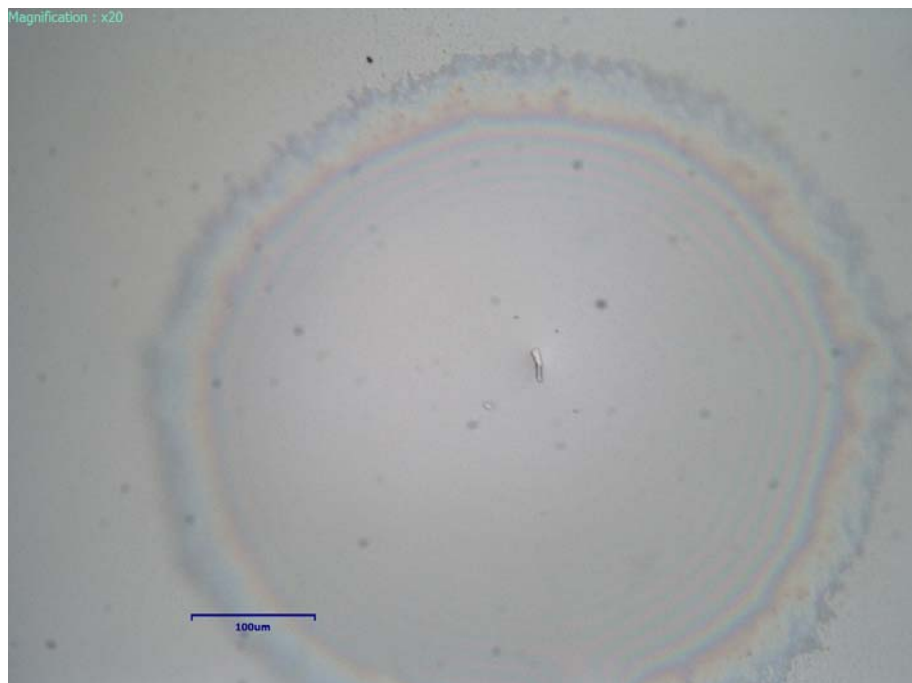


Photo of cluster U2157 Cluster 2.

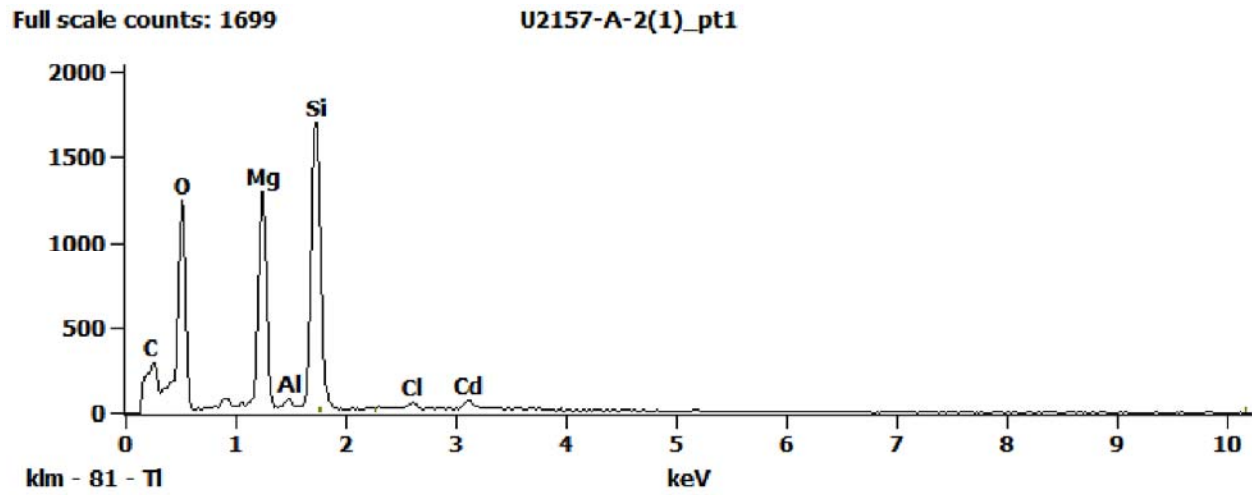
U2157 A2 - EDS Spectra

Figure 1. EDS Spectra for sample U2157-A-2 taken at test area 1. The test area is labeled in the particle SEM photo..

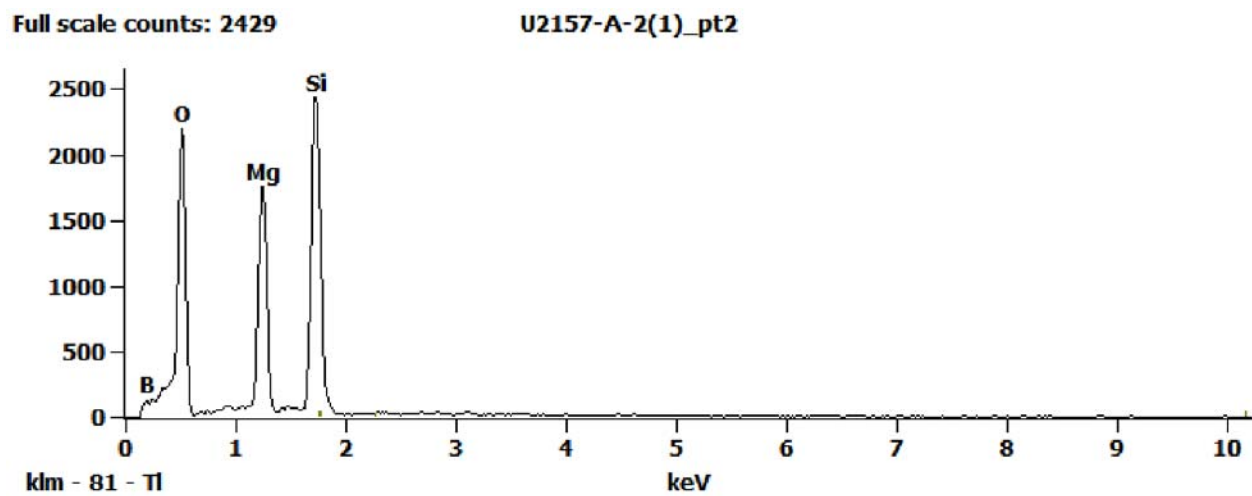
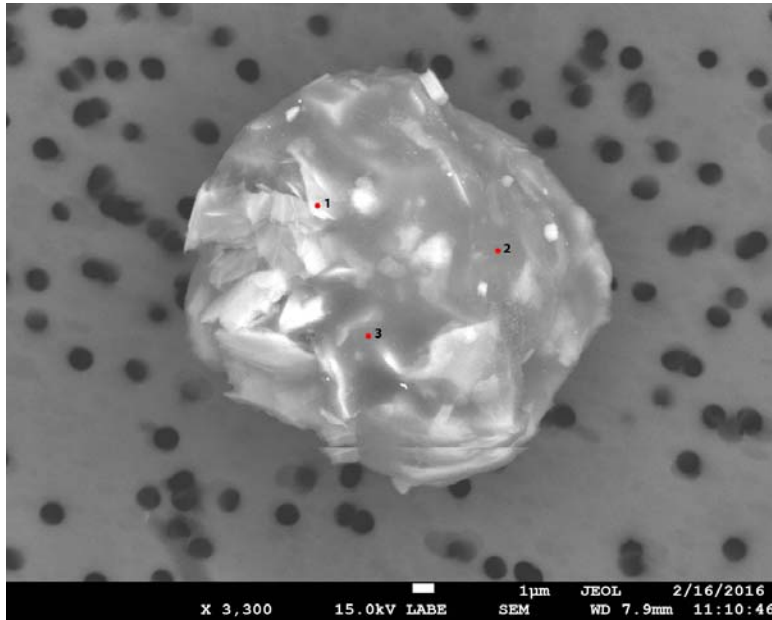


Figure 2. EDS Spectra for sample U2157-A-2 taken at test area 2. The test area is labeled in the particle SEM photo..

U2158 D16



Particle Size:	21 µm
Shape:	Spherical
Transparency:	Opaque
Color:	Black
Luster:	Pearly
Particle Type:	Possibly Cosmic
Cluster No.:	
Comments:	

SEM Photo of sample U2158 D16 with labeled EDS testing locations.

U2158 D16 - EDS Spectra

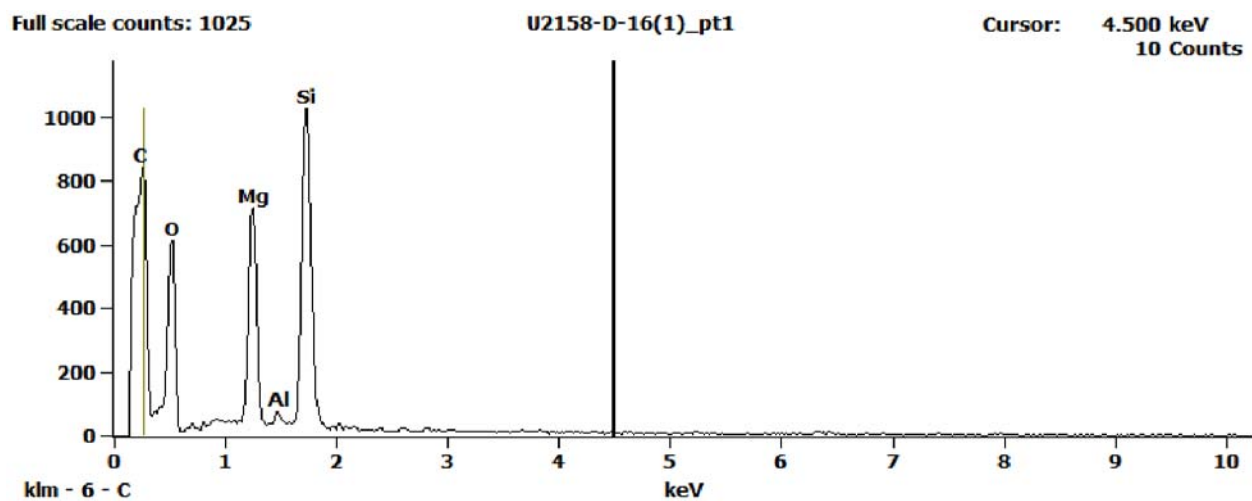


Figure 1. EDS Spectra for sample U2158-D-16 taken at test area 1. The test area is labeled in the particle SEM photo..

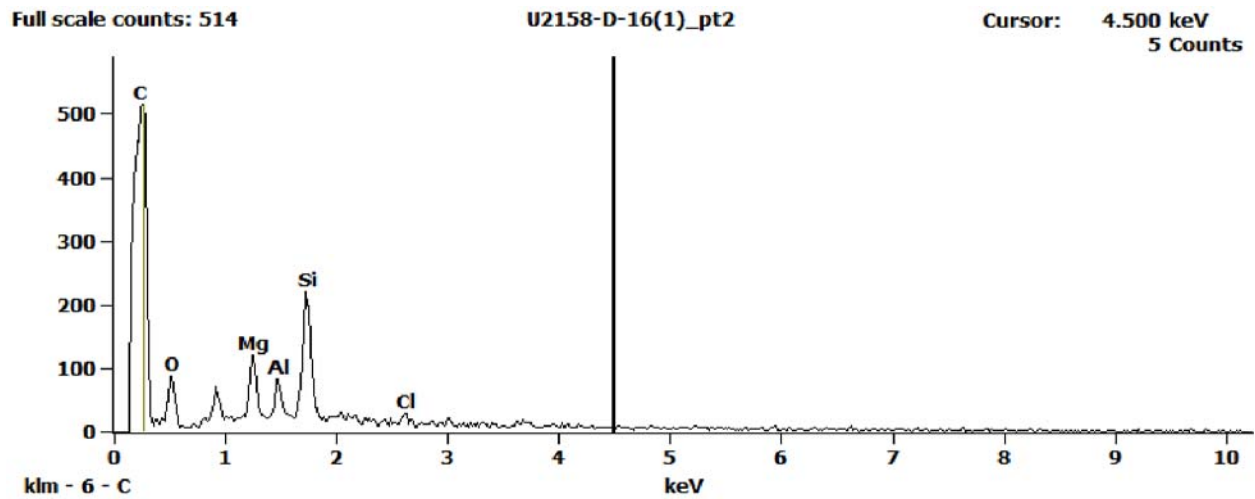


Figure 2. EDS Spectra for sample U2158-D-16 taken at test area 2. The test area is labeled in the particle SEM photo..

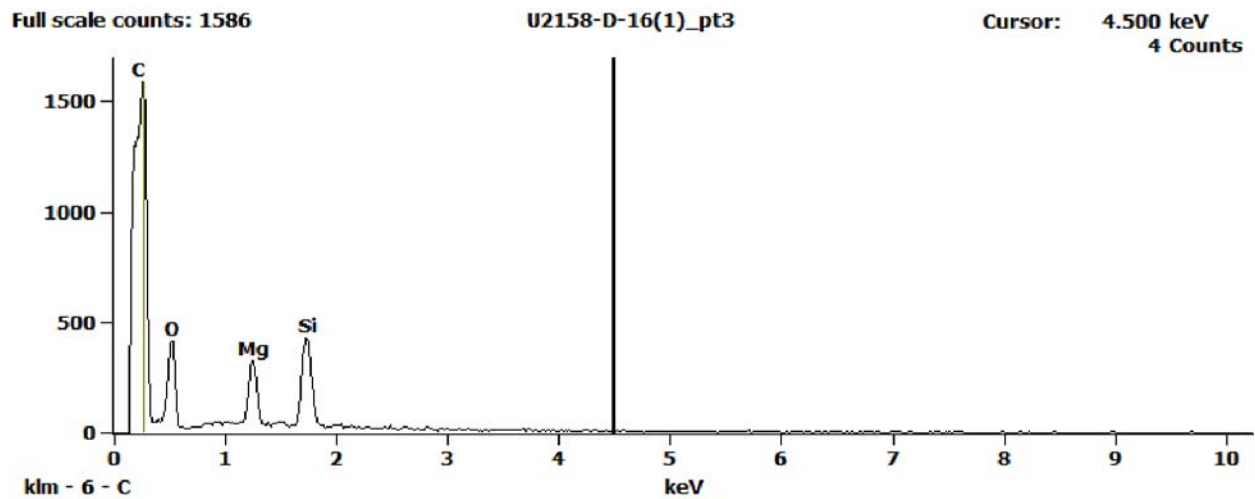
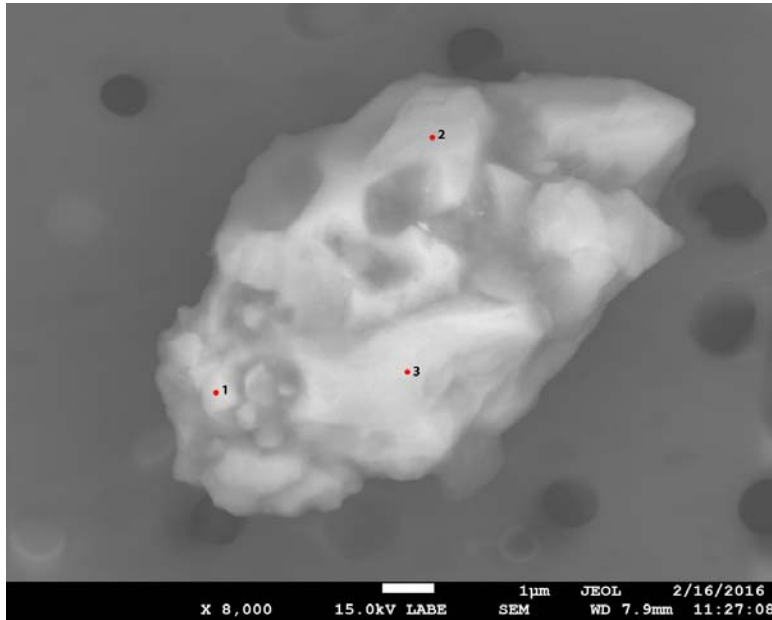


Figure 3. EDS Spectra for sample U2158-D-16 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A1



Particle Size:	7x11 µm
Shape:	Equidimensional
Transparency:	Translucent to Transparent
Color:	Clear
Luster:	Pearly to Subvitreous
Particle Type:	Possibly Cosmic
Cluster No.:	U2159 Cluster 1
Comments:	

SEM Photo of sample U2159 A1 with labeled EDS testing locations.

Cluster of Origin: U2159 Cluster 1

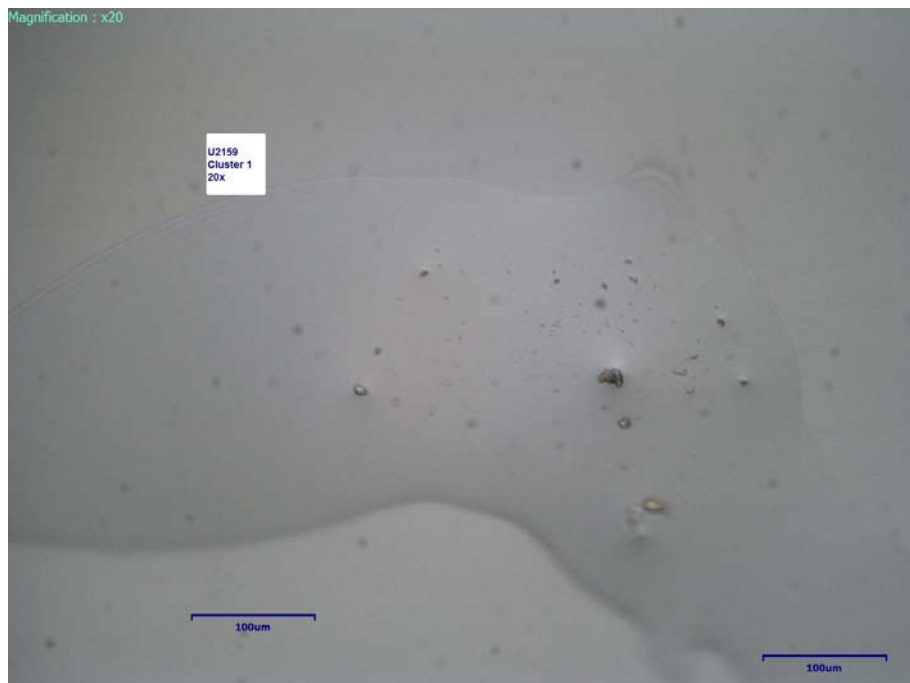


Photo of cluster U2159 Cluster 1.

U2159 A1 - EDS Spectra

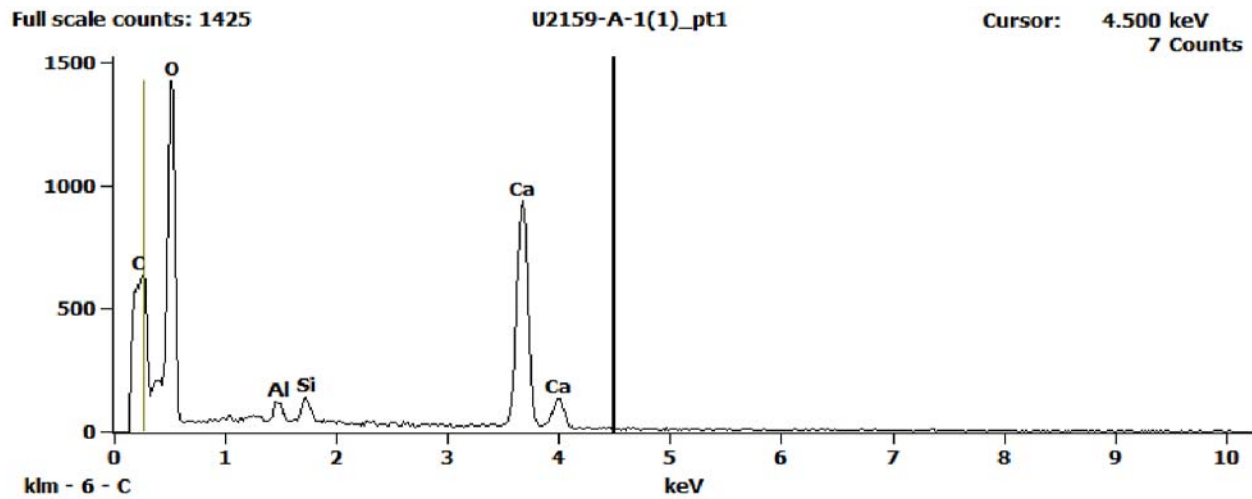


Figure 1. EDS Spectra for sample U2159-A-1 taken at test area 1. The test area is labeled in the particle SEM photo..

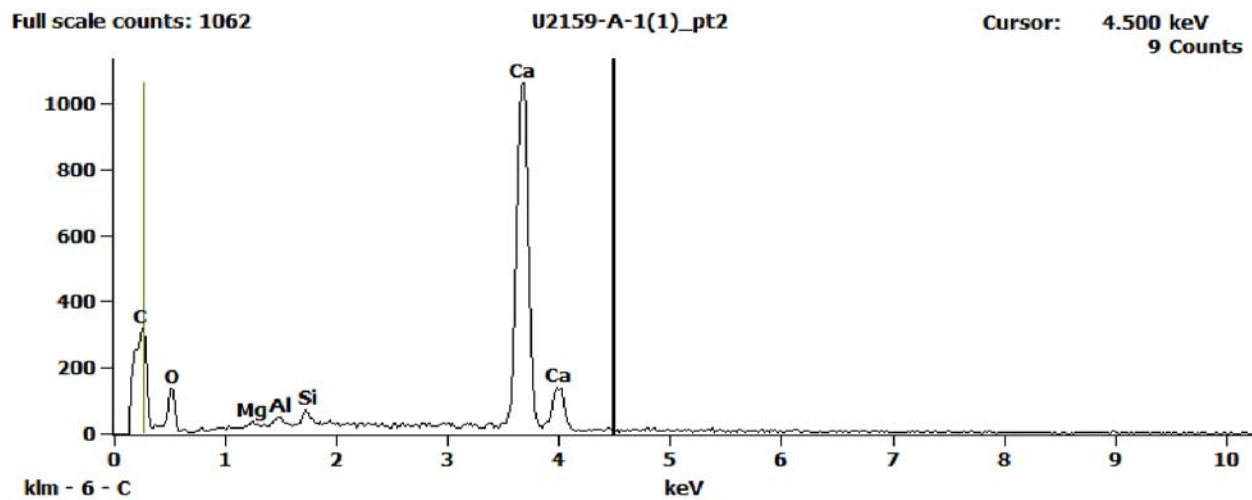


Figure 2. EDS Spectra for sample U2159-A-1 taken at test area 2. The test area is labeled in the particle SEM photo..

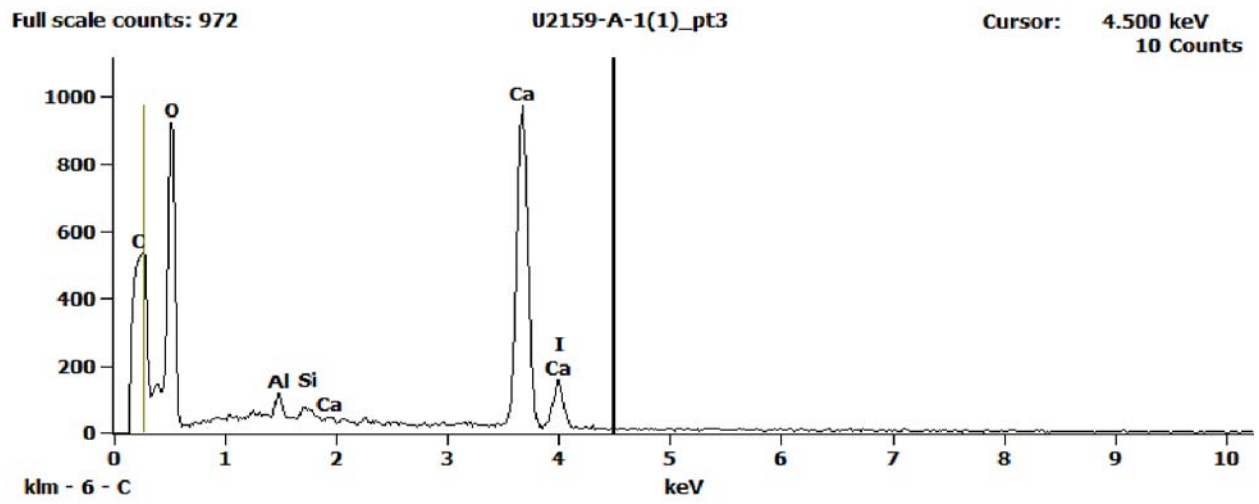
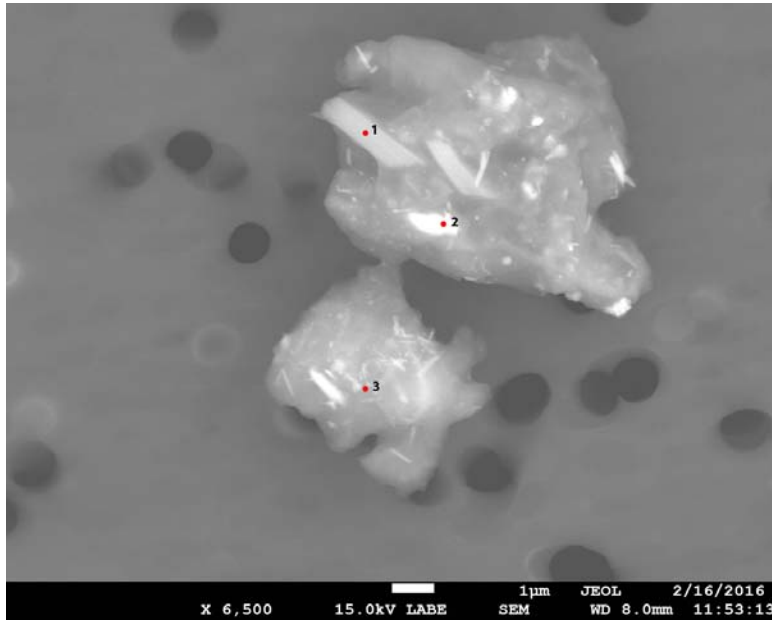


Figure 3. EDS Spectra for sample U2159-A-1 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A4



Particle Size:	7 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black
Luster:	Dull
Particle Type:	Possibly Cosmic
Cluster No.:	U2159 Cluster 4
Comments:	

SEM Photo of sample U2159 A4 with labeled EDS testing locations.

Cluster of Origin: U2159 Cluster 4

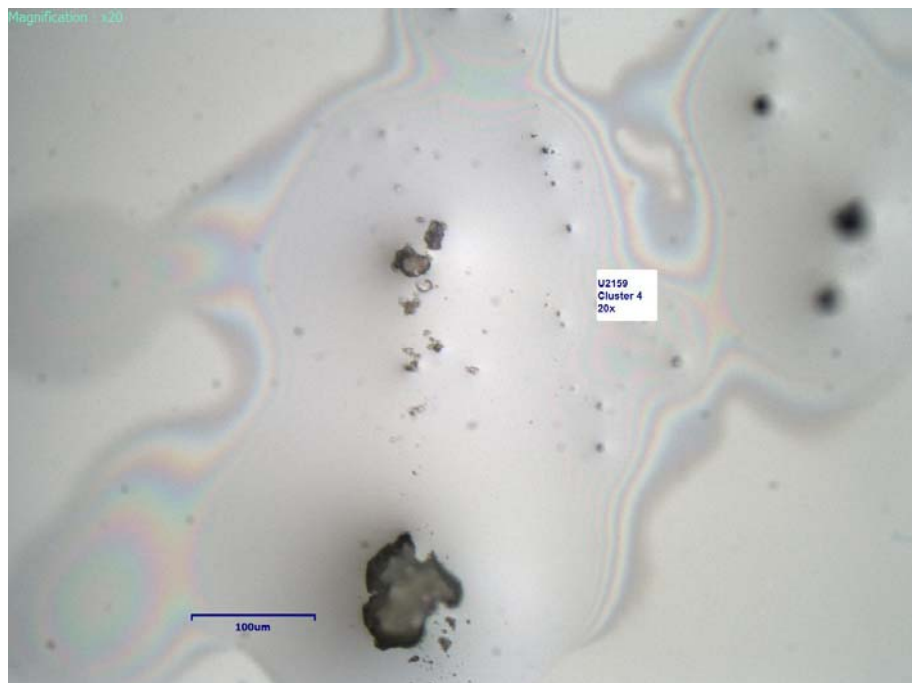


Photo of cluster U2159 Cluster 4.

U2159 A4 - EDS Spectra

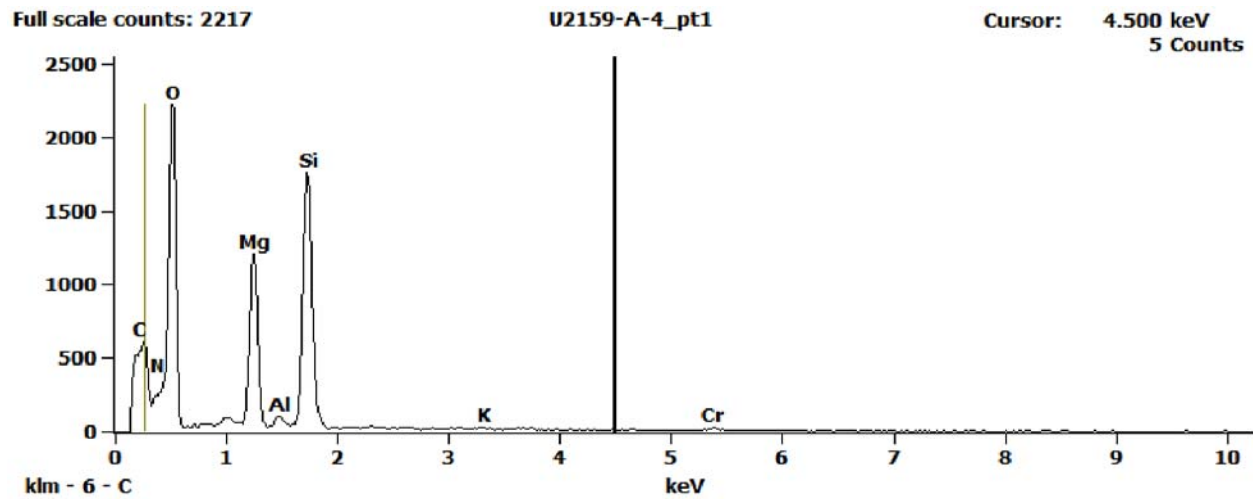


Figure 1. EDS Spectra for sample U2159-A-4 taken at test area 1. The test area is labeled in the particle SEM photo..

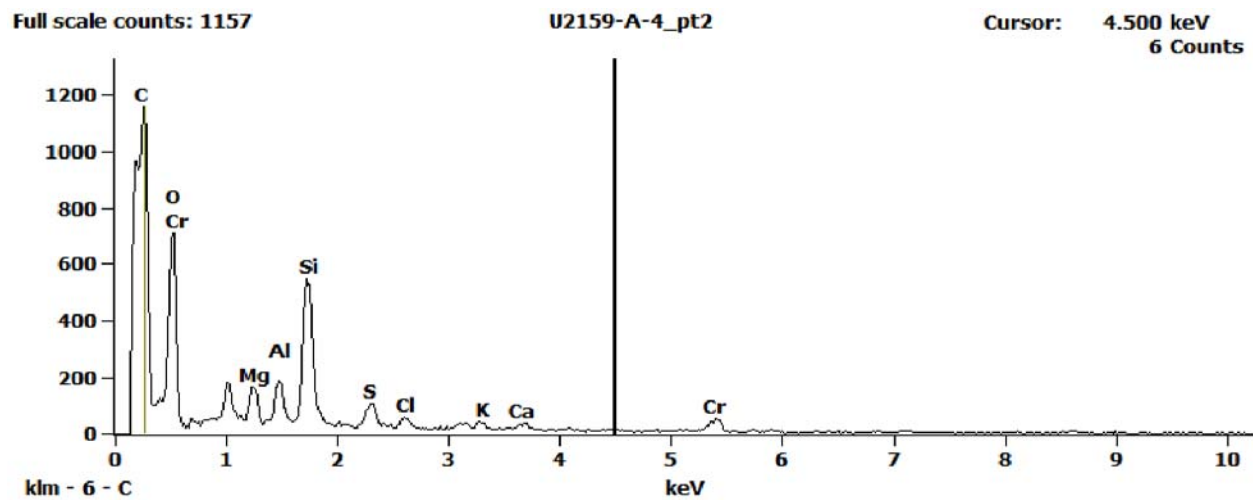


Figure 2. EDS Spectra for sample U2159-A-4 taken at test area 2. The test area is labeled in the particle SEM photo..

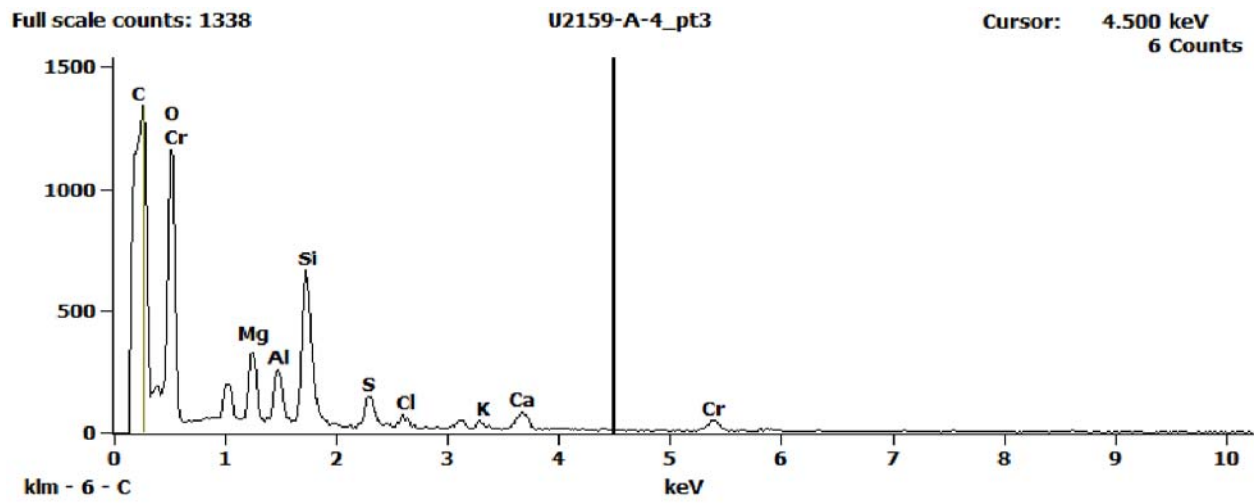
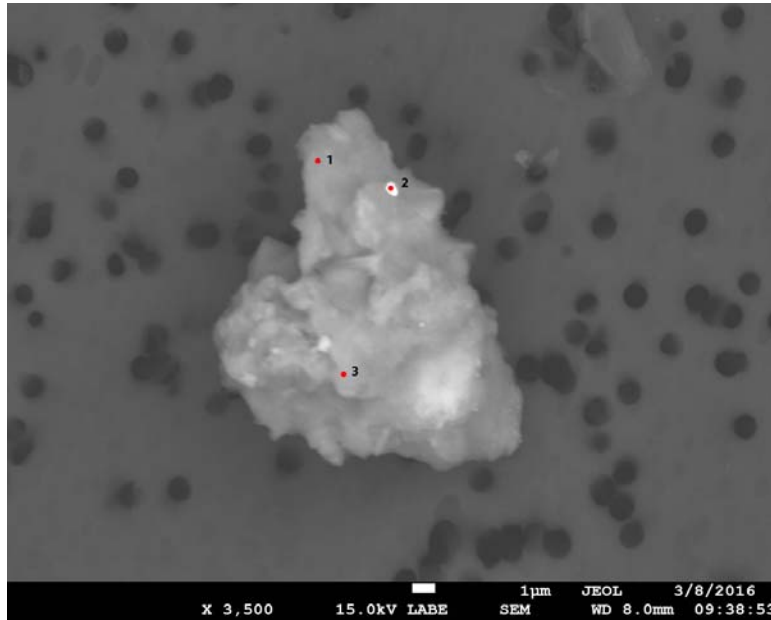


Figure 3. EDS Spectra for sample U2159-A-4 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A9



Particle Size:	15 µm
Shape:	Irregular
Transparency:	Opaque to Translucent
Color:	Brown, Red
Luster:	Pearly to Dull
Particle Type:	Possibly Cosmic
Cluster No.:	U2162 Cluster 9
Comments:	

SEM Photo of sample U2162 A9 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 9

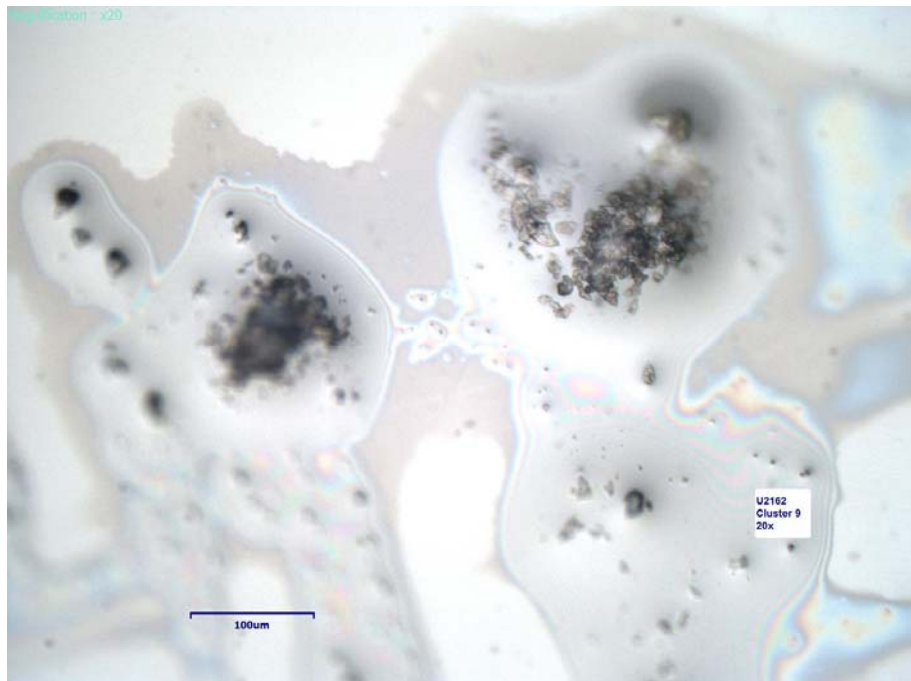


Photo of cluster U2162 Cluster 9.

U2162 A9 - EDS Spectra

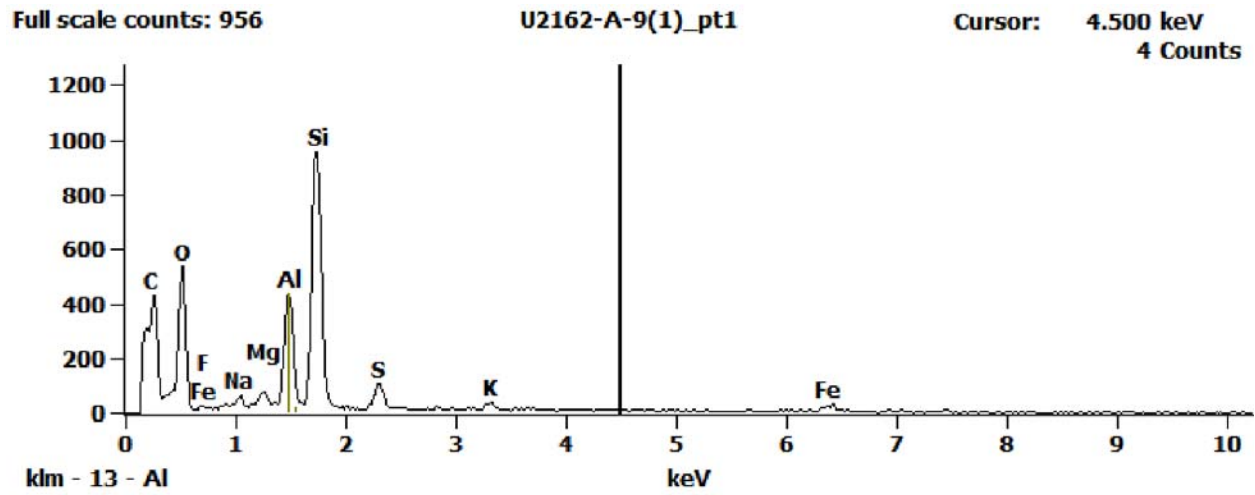


Figure 1. EDS Spectra for sample U2162-A-9 taken at test area 1. The test area is labeled in the particle SEM photo..

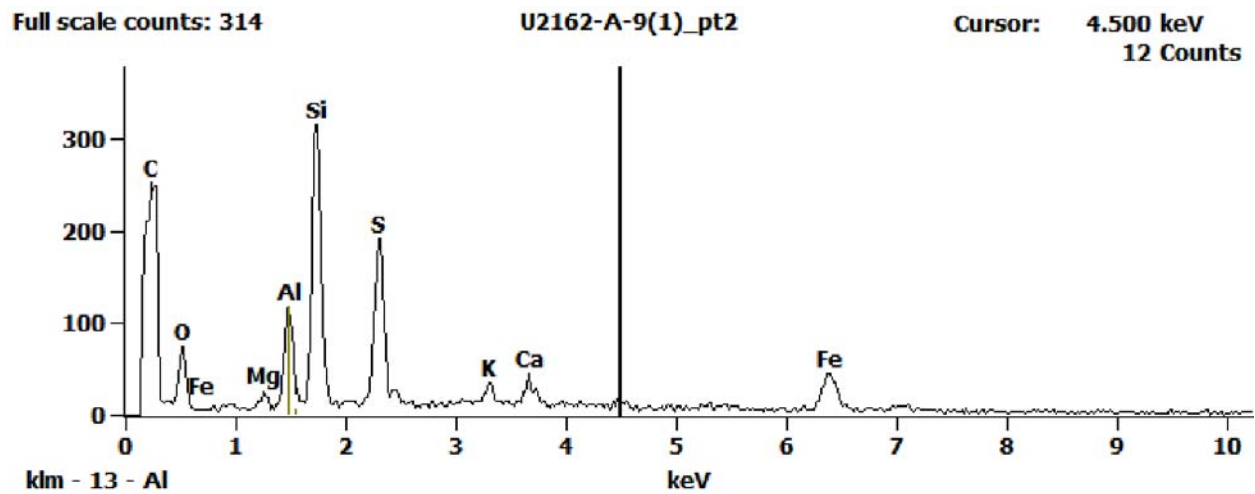


Figure 2. EDS Spectra for sample U2162-A-9 taken at test area 2. The test area is labeled in the particle SEM photo..

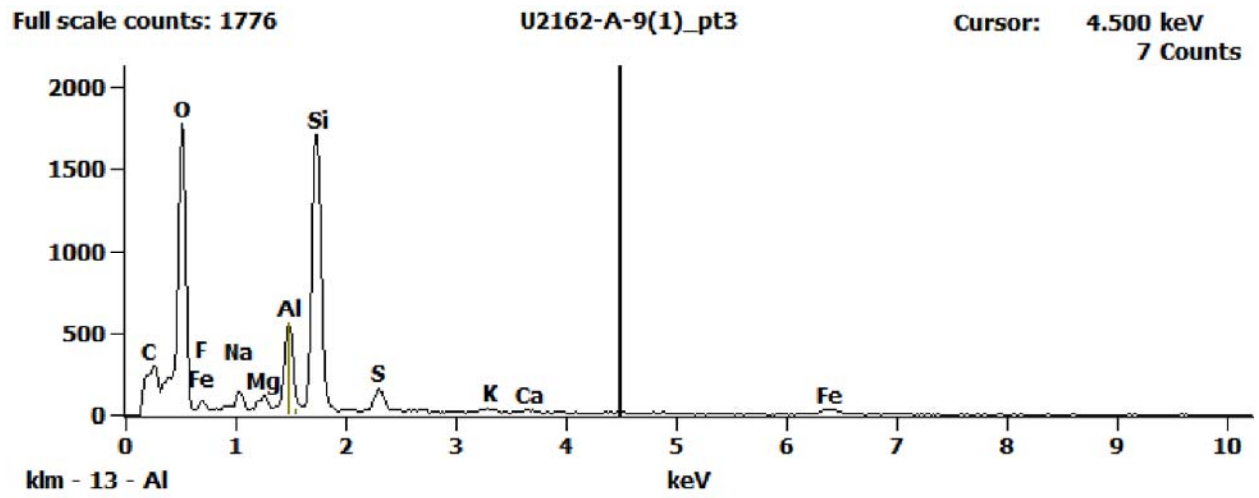
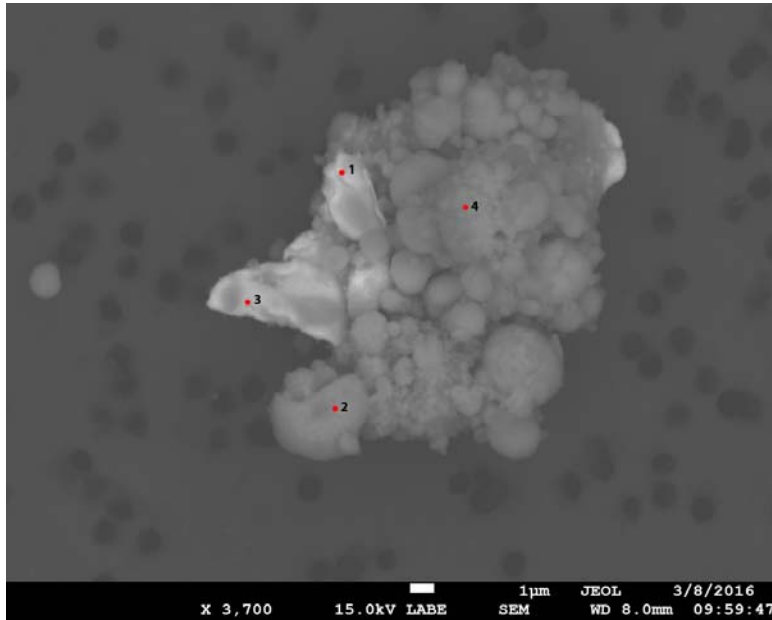


Figure 3. EDS Spectra for sample U2162-A-9 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A11



Particle Size:	18x22 µm
Shape:	Equidimensional to Spherical
Transparency:	Opaque to Subvitreous
Color:	Brown, Red
Luster:	Pearly to Subvitreous
Particle Type:	Cosmic
Cluster No.:	U2162 Cluster 11
Comments:	

SEM Photo of sample U2162 A11 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 11

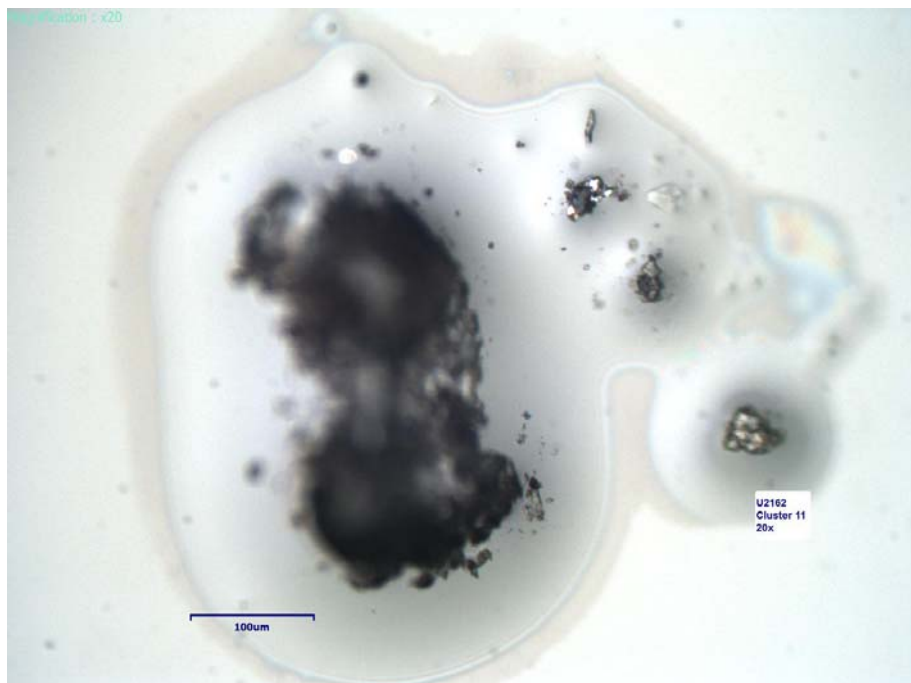


Photo of cluster U2162 Cluster 11.

U2162 A11 - EDS Spectra

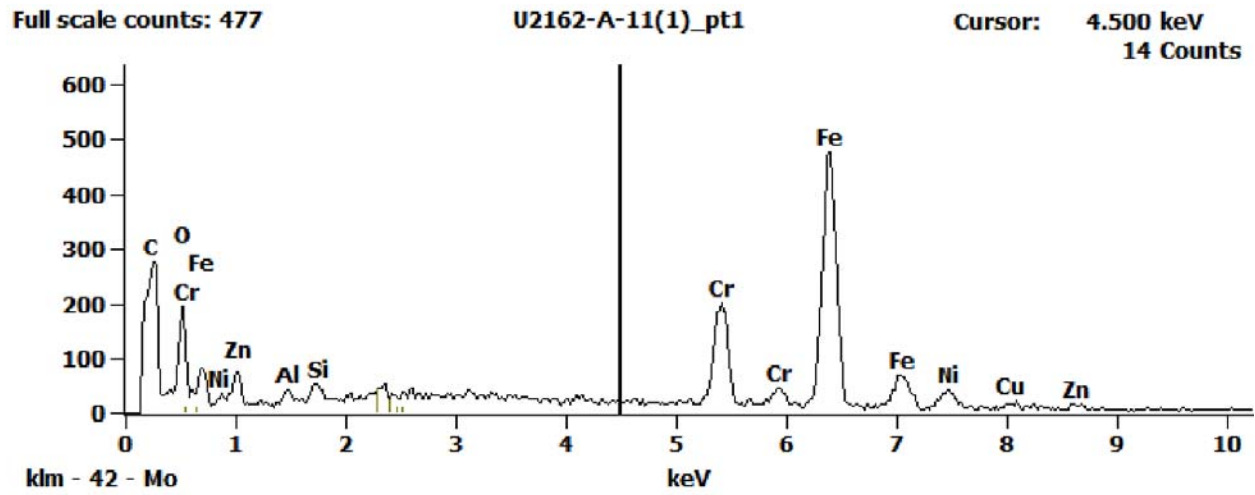


Figure 1. EDS Spectra for sample U2162-A-11 taken at test area 1. The test area is labeled in the particle SEM photo..

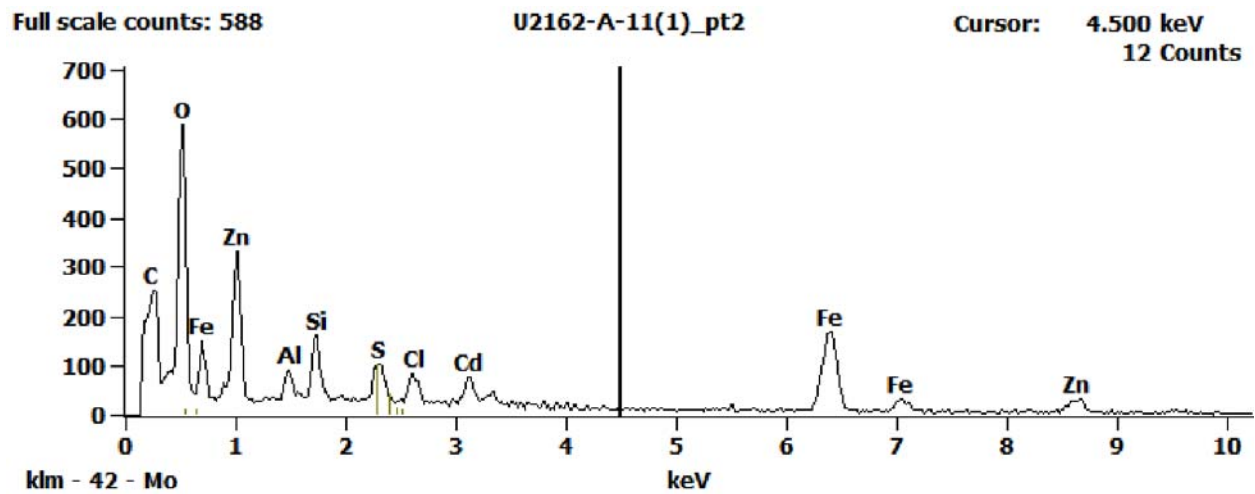


Figure 2. EDS Spectra for sample U2162-A-11 taken at test area 2. The test area is labeled in the particle SEM photo..

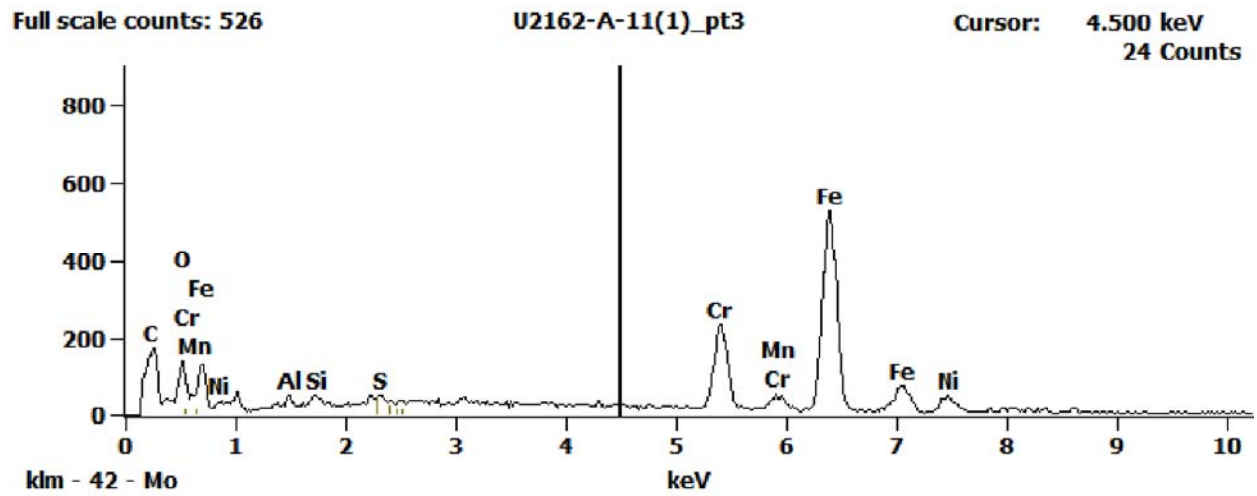


Figure 3. EDS Spectra for sample U2162-A-11 taken at test area 3. The test area is labeled in the particle SEM photo..

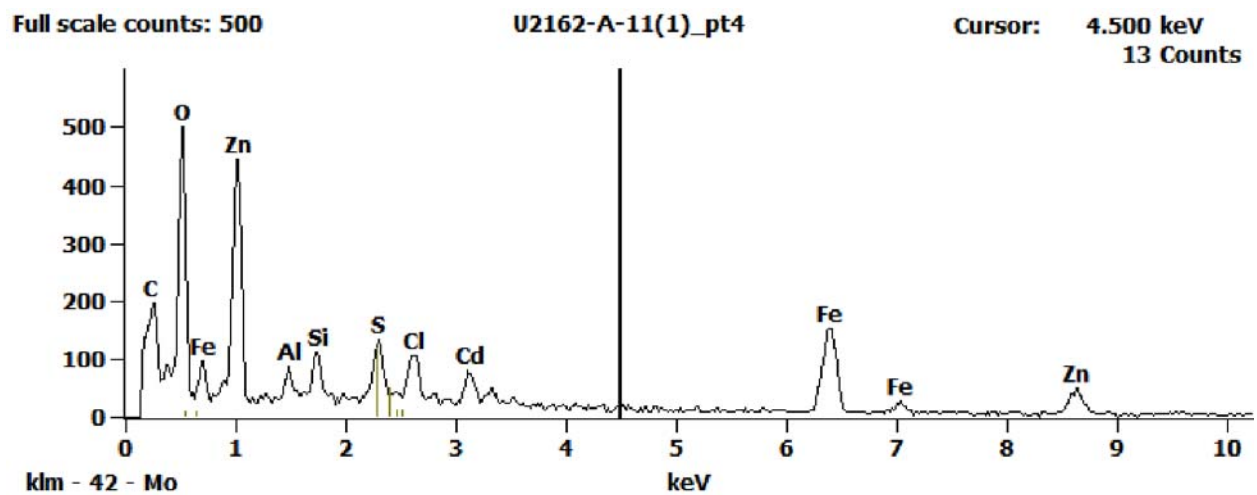
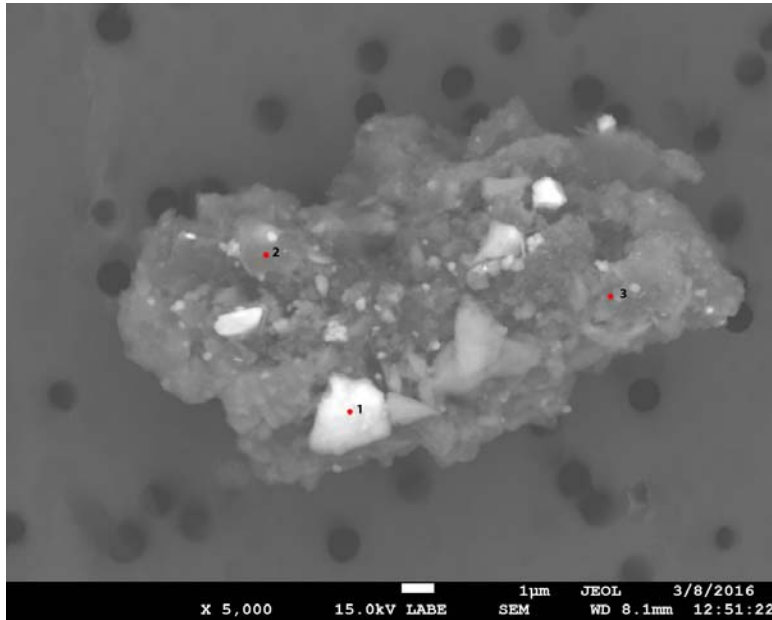


Figure 4. EDS Spectra for sample U2162-A-11 taken at test area 4. The test area is labeled in the particle SEM photo..

U2162 B4



Particle Size: 17x9 µm
Shape: Equidimensional
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Cosmic
Cluster No.: U2162 Cluster 21
Comments:

SEM Photo of sample U2162 B4 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 21

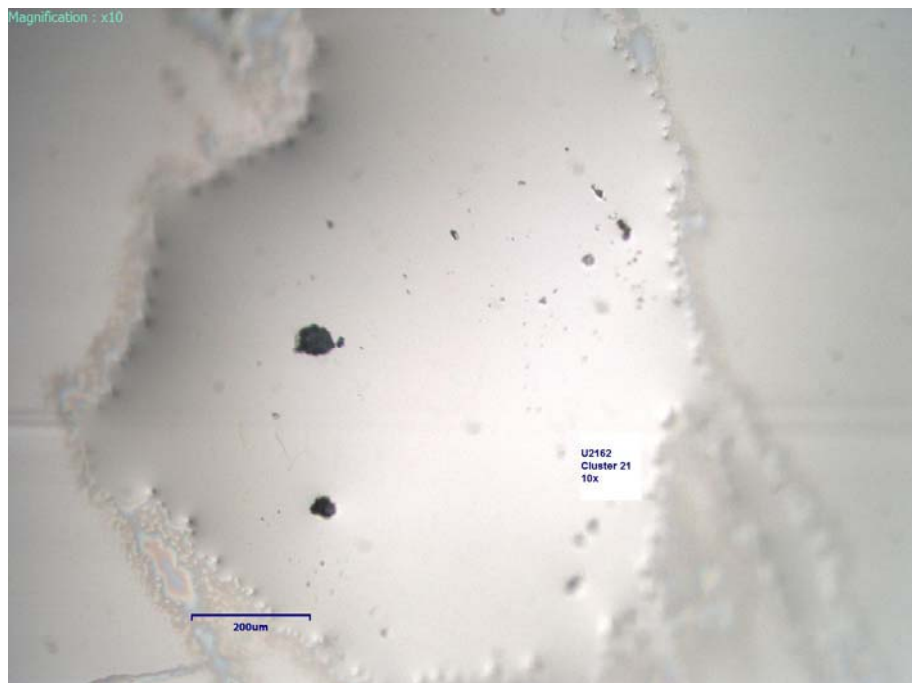


Photo of cluster U2162 Cluster 21.

U2162 B4 - EDS Spectra

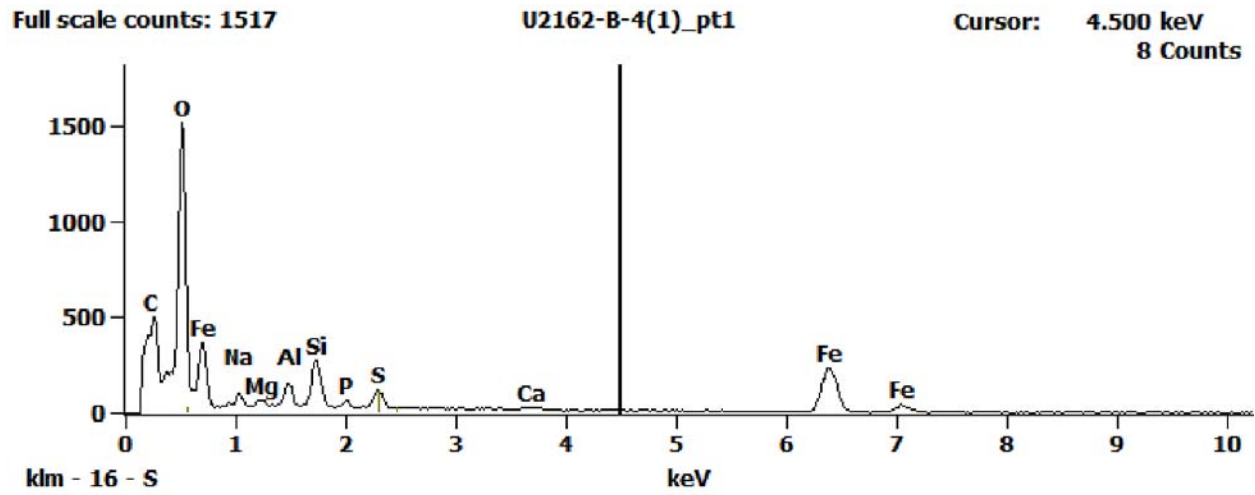


Figure 1. EDS Spectra for sample U2162-B-4 taken at test area 1. The test area is labeled in the particle SEM photo..

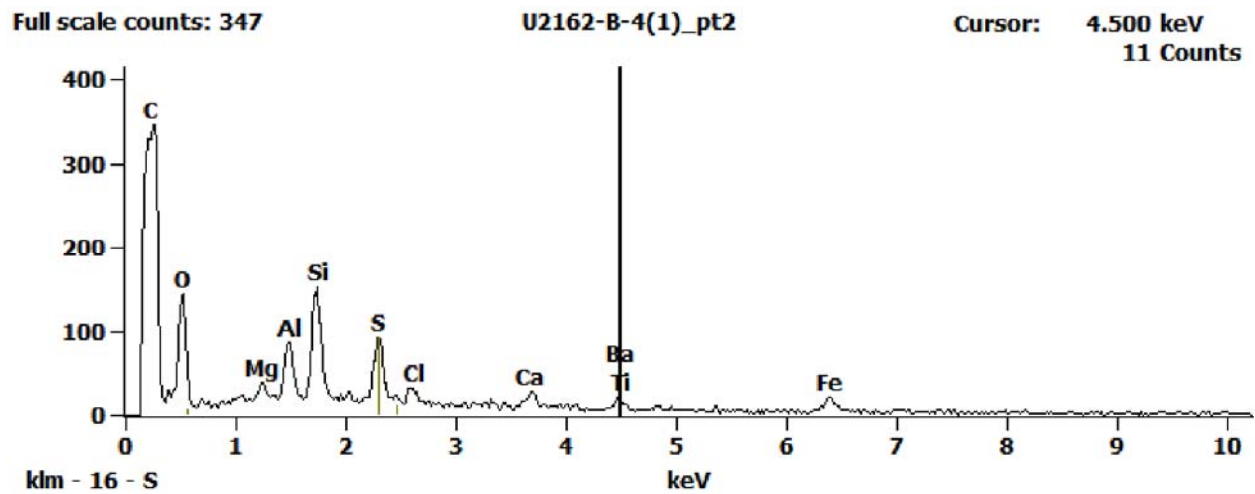


Figure 2. EDS Spectra for sample U2162-B-4 taken at test area 2. The test area is labeled in the particle SEM photo..

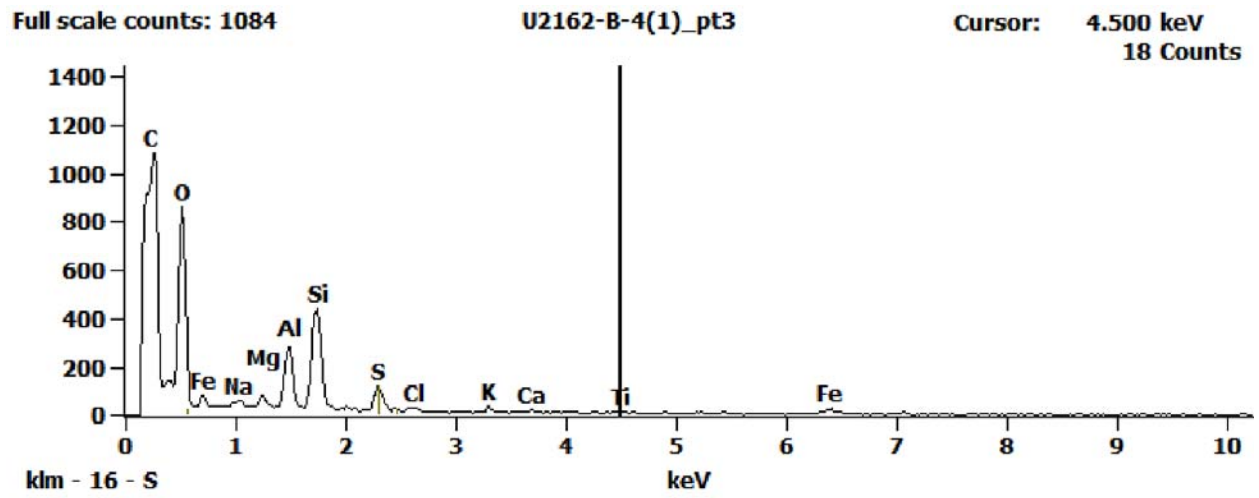
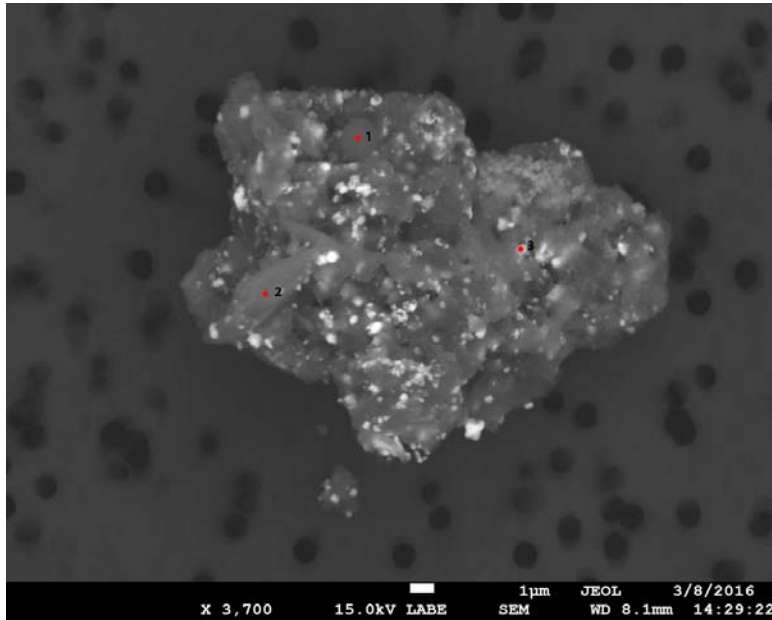


Figure 3. EDS Spectra for sample U2162-B-4 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B17



Particle Size:	11x18 µm
Shape:	Irregular
Transparency:	Opaque to Subvitreous
Color:	Black, Gray
Luster:	Pearly to Dull
Particle Type:	Possibly Cosmic
Cluster No.:	U2162 Cluster 36
Comments:	

SEM Photo of sample U2162 B17 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 36

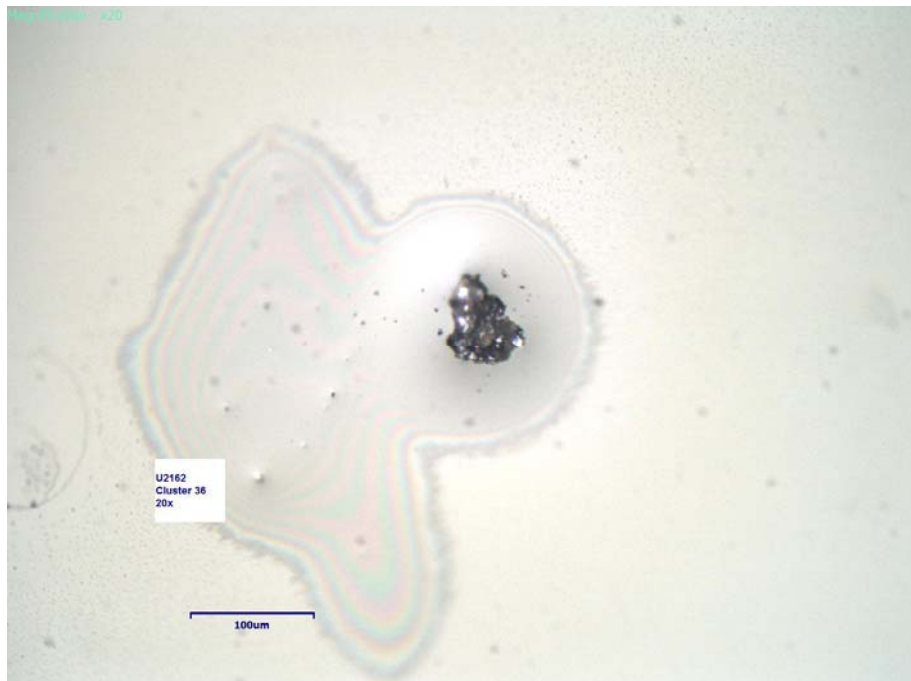


Photo of cluster U2162 Cluster 36.

U2162 B17 - EDS Spectra

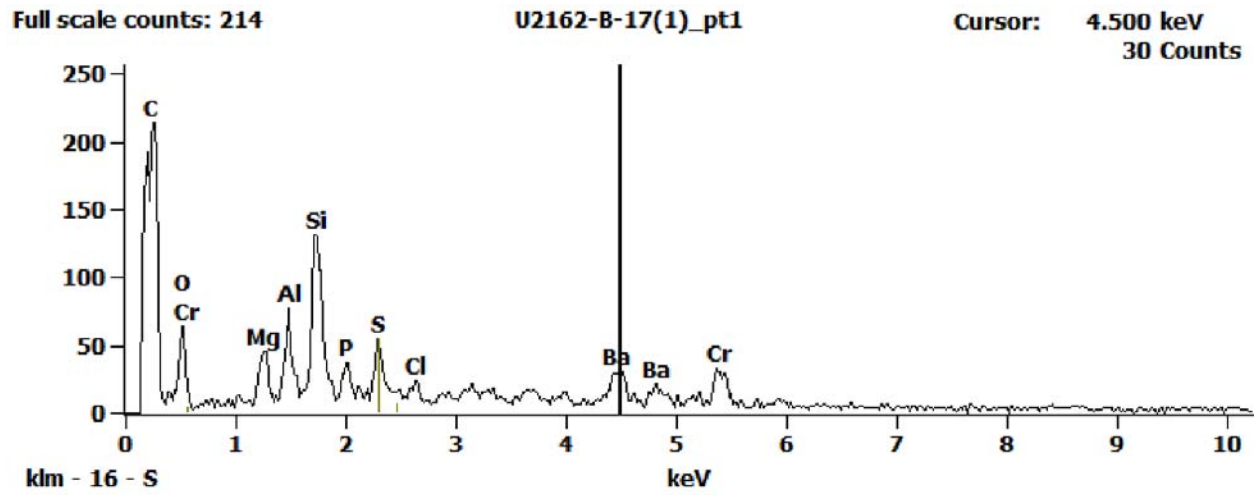


Figure 1. EDS Spectra for sample U2162-B-17 taken at test area 1. The test area is labeled in the particle SEM photo..

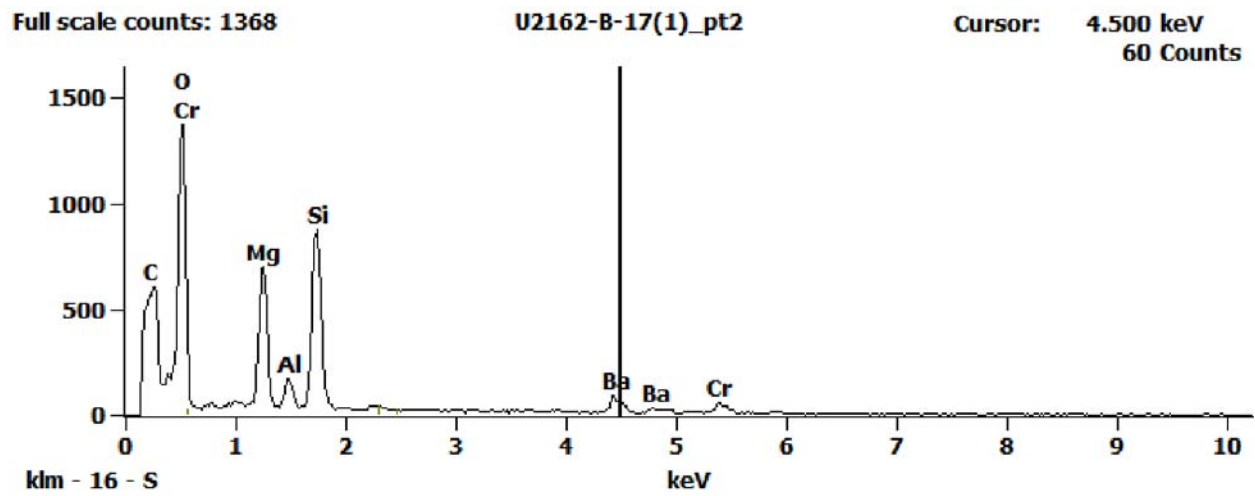


Figure 2. EDS Spectra for sample U2162-B-17 taken at test area 2. The test area is labeled in the particle SEM photo..

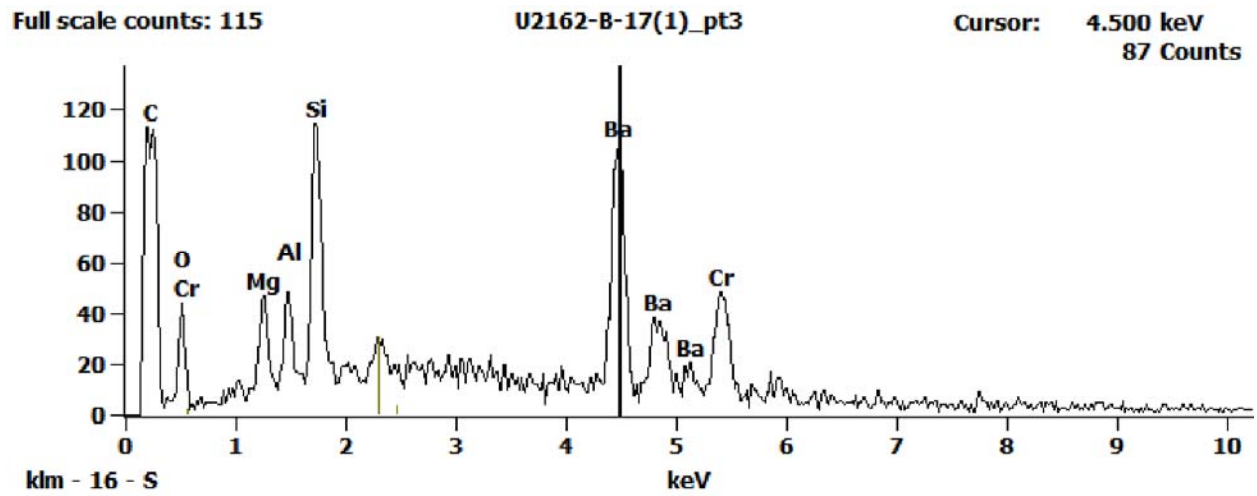
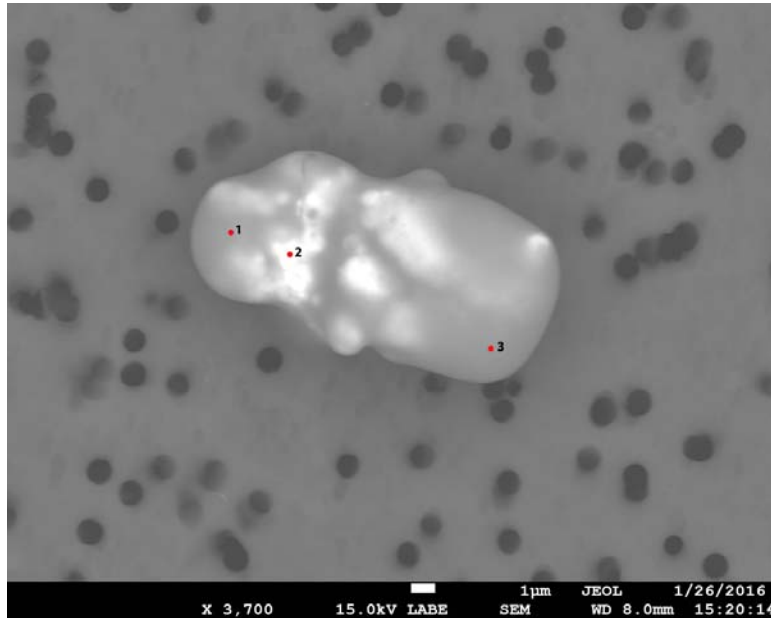


Figure 3. EDS Spectra for sample U2162-B-17 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 B7



Particle Size:	9x15 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque to Subvitreous
Color:	Brown, Orange
Luster:	Pearly to Subvitreous
Particle Type:	Possibly Cosmic
Cluster No.:	U2163 Cluster 21
Comments:	

SEM Photo of sample U2163 B7 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 21

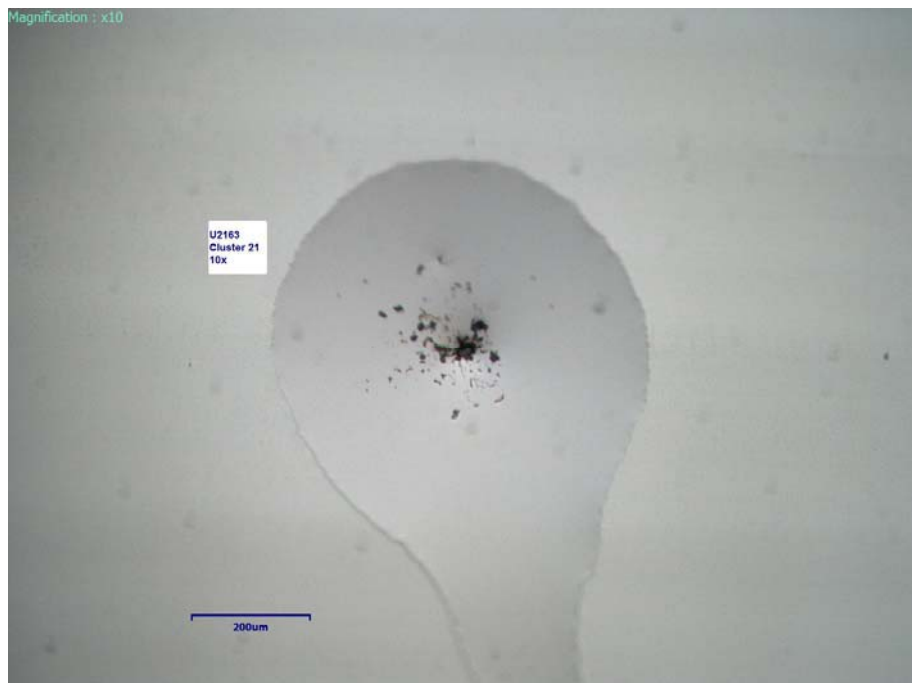


Photo of cluster U2163 Cluster 21.

U2163 B7 - EDS Spectra

Full scale counts: 1698

U2163-B7(1)_pt1

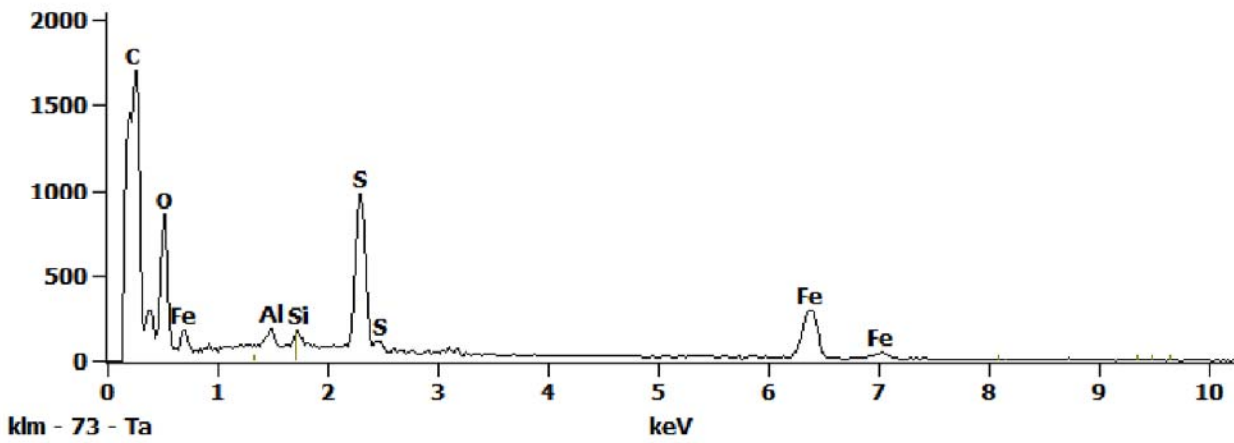


Figure 1. EDS Spectra for sample U2163-B-7 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 2490

U2163-B7(1)_pt2

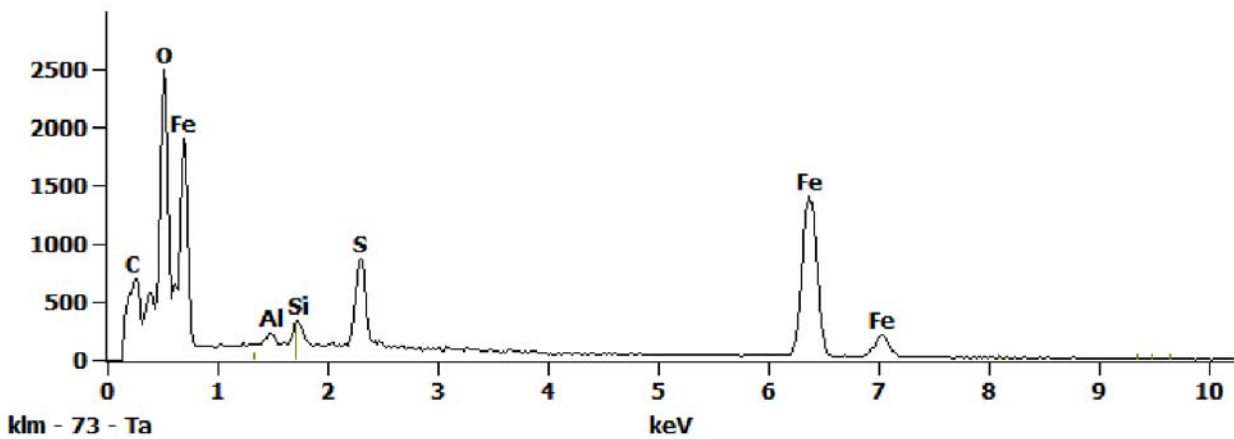


Figure 2. EDS Spectra for sample U2163-B-7 taken at test area 2. The test area is labeled in the particle SEM photo..

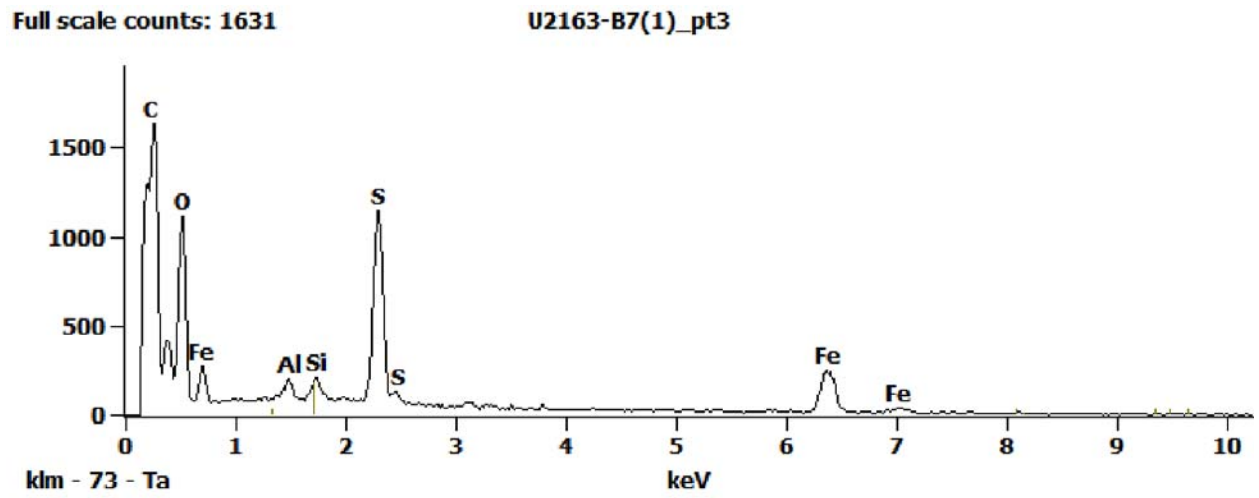
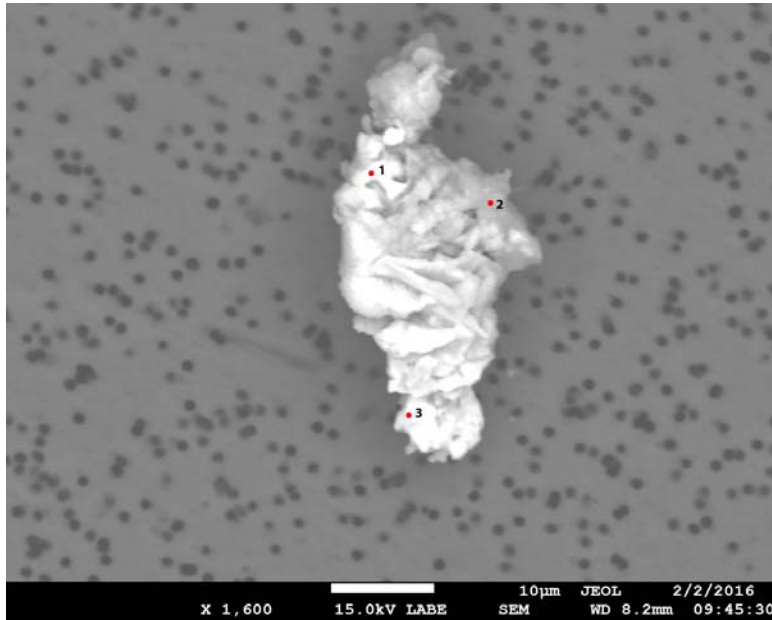


Figure 3. EDS Spectra for sample U2163-B-7 taken at test area 3. The test area is labeled in the particle SEM photo..

Particle Descriptions

Artificial Terrestrial Contamination (TCA Type)

U2157 A3



Particle Size:	15x30 µm
Shape:	Irregular
Transparency:	Translucent to Opaque
Color:	Clear, Gray
Luster:	Subvitreous to Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2157 Cluster 3
Comments:	

SEM Photo of sample U2157 A3 with labeled EDS testing locations.

Cluster of Origin: U2157 Cluster 3

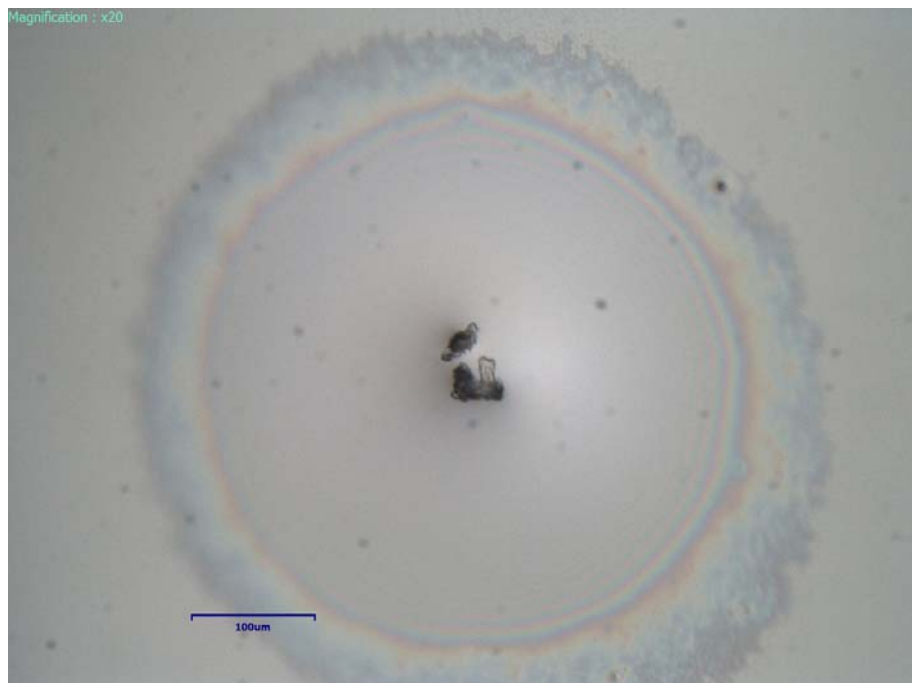


Photo of cluster U2157 Cluster 3.

U2157 A3 - EDS Spectra

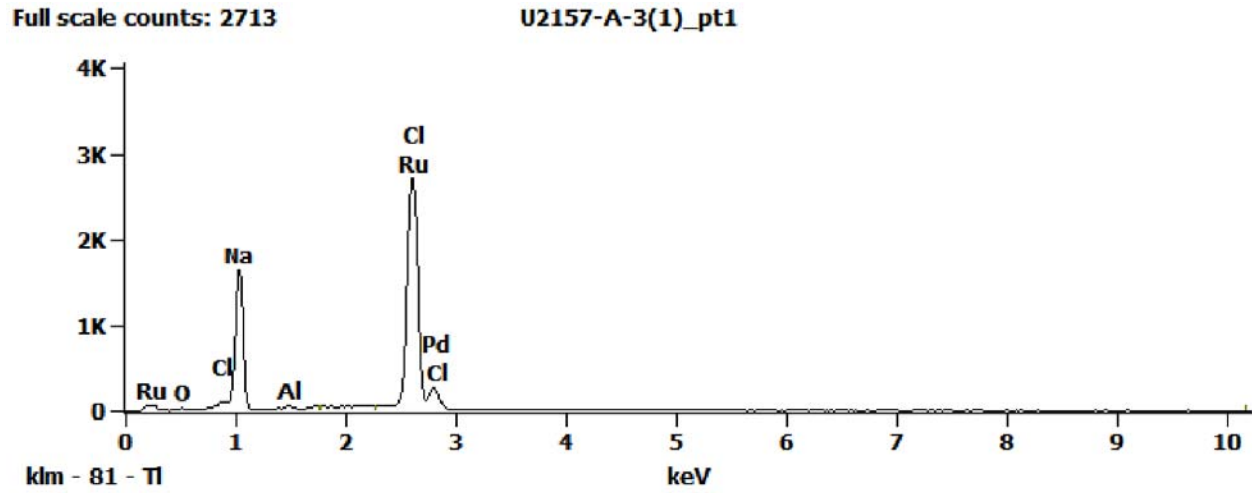


Figure 1. EDS Spectra for sample U2157-A-3 taken at test area 1. The test area is labeled in the particle SEM photo..

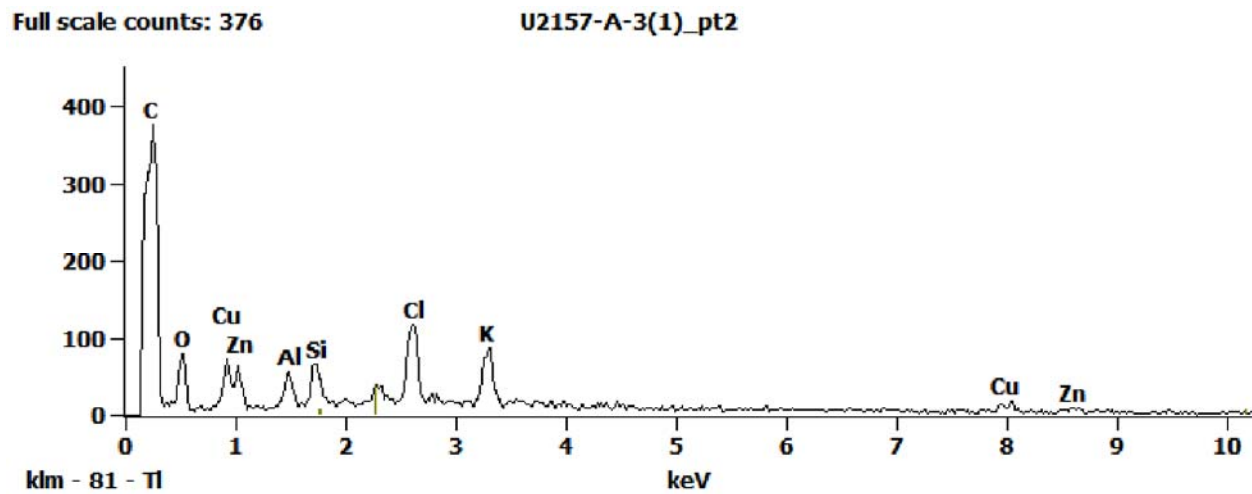


Figure 2. EDS Spectra for sample U2157-A-3 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 357

U2157-A-3(1)_pt3

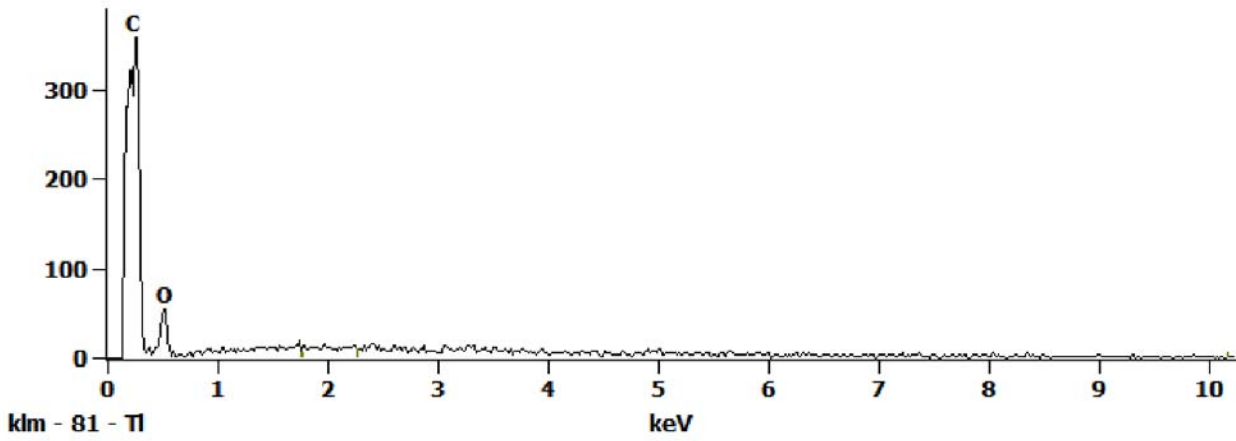
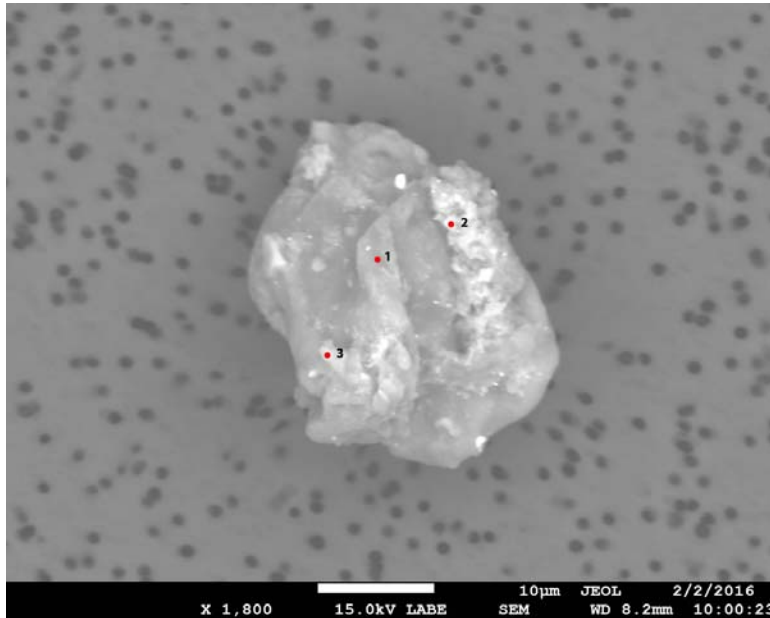


Figure 3. EDS Spectra for sample U2157-A-3 taken at test area 3. The test area is labeled in the particle SEM photo..

U2157 A4



Particle Size:	20x25 µm
Shape:	Equidimensional
Transparency:	Translucent to Transparent
Color:	Black, Gray
Luster:	Subvitreous to Vitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2157 A4 with labeled EDS testing locations.

U2157 A4 - EDS Spectra

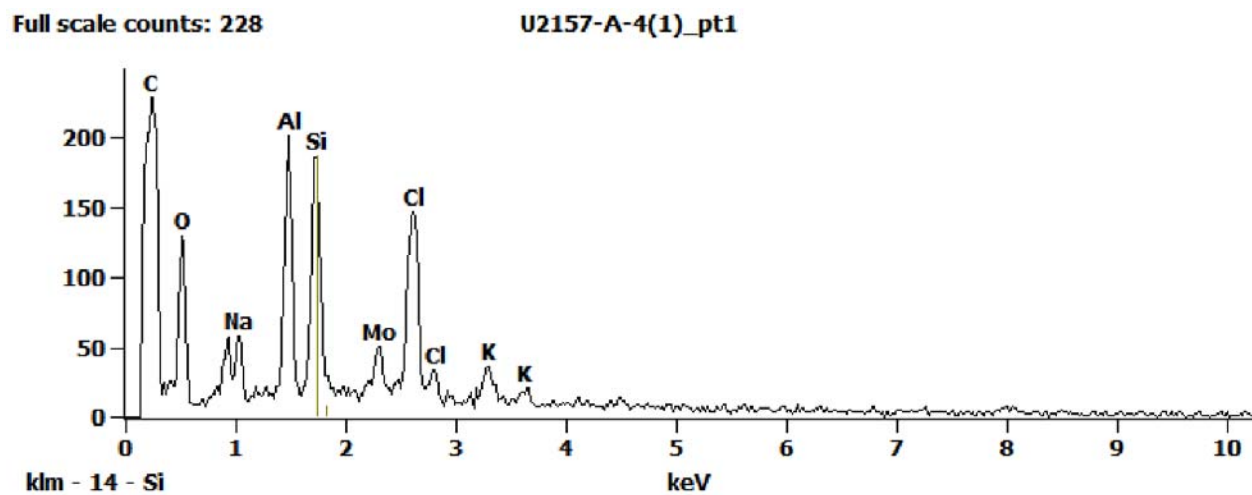


Figure 1. EDS Spectra for sample U2157-A-4 taken at test area 1. The test area is labeled in the particle SEM photo..

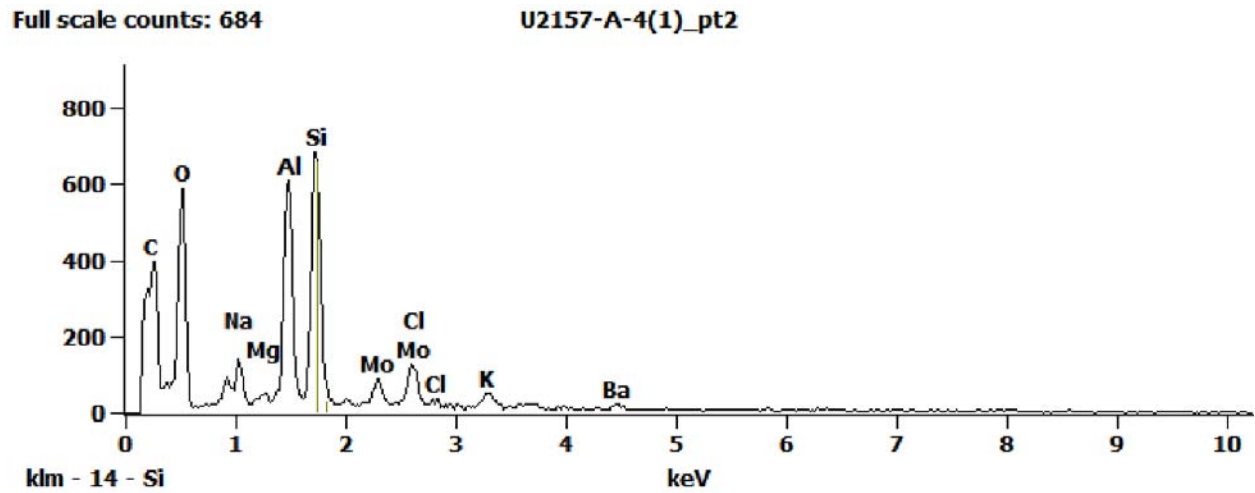


Figure 2. EDS Spectra for sample U2157-A-4 taken at test area 2. The test area is labeled in the particle SEM photo..

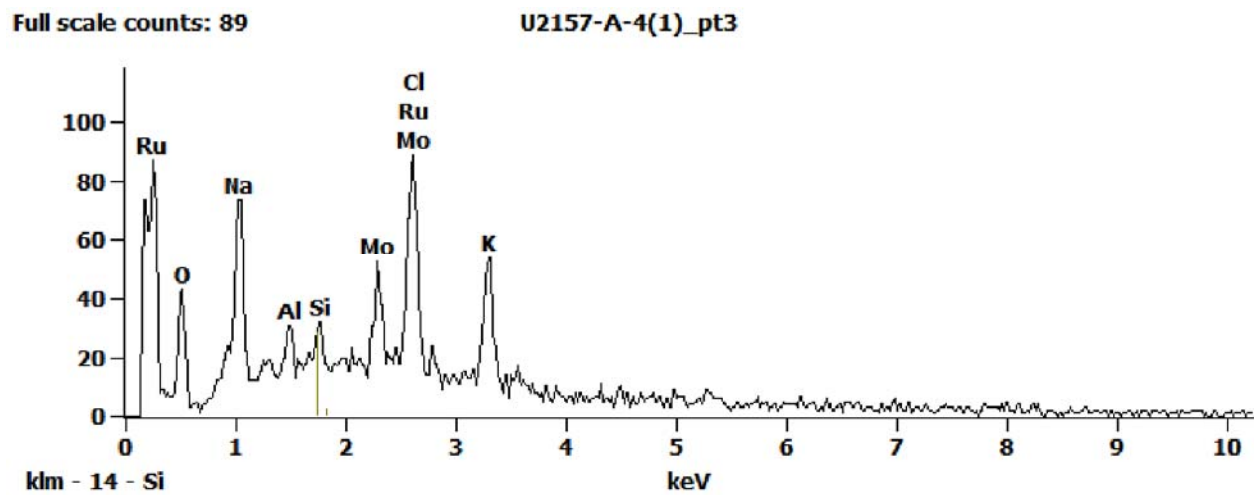
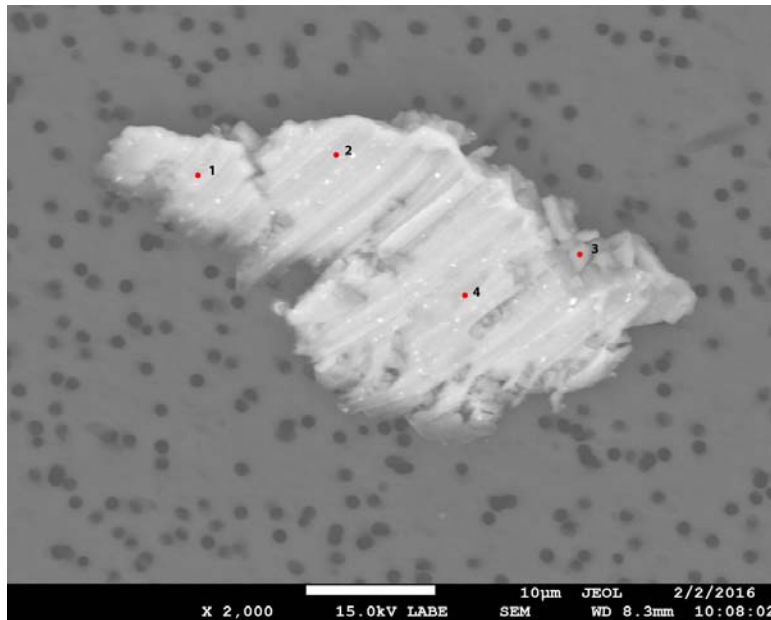


Figure 3. EDS Spectra for sample U2157-A-4 taken at test area 3. The test area is labeled in the particle SEM photo..

U2157 A5



Particle Size:	20x40 µm
Shape:	Irregular
Transparency:	Opaque
Color:	Gray
Luster:	Metallic to Subvitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2157 A5 with labeled EDS testing locations.

U2157 A5 - EDS Spectra

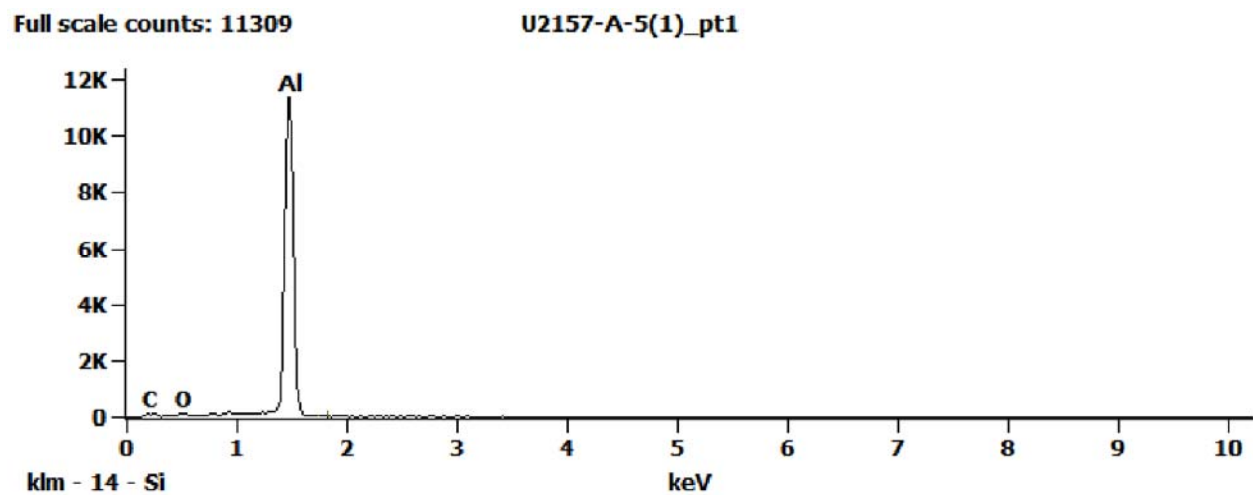


Figure 1. EDS Spectra for sample U2157-A-5 taken at test area 1. The test area is labeled in the particle SEM photo..

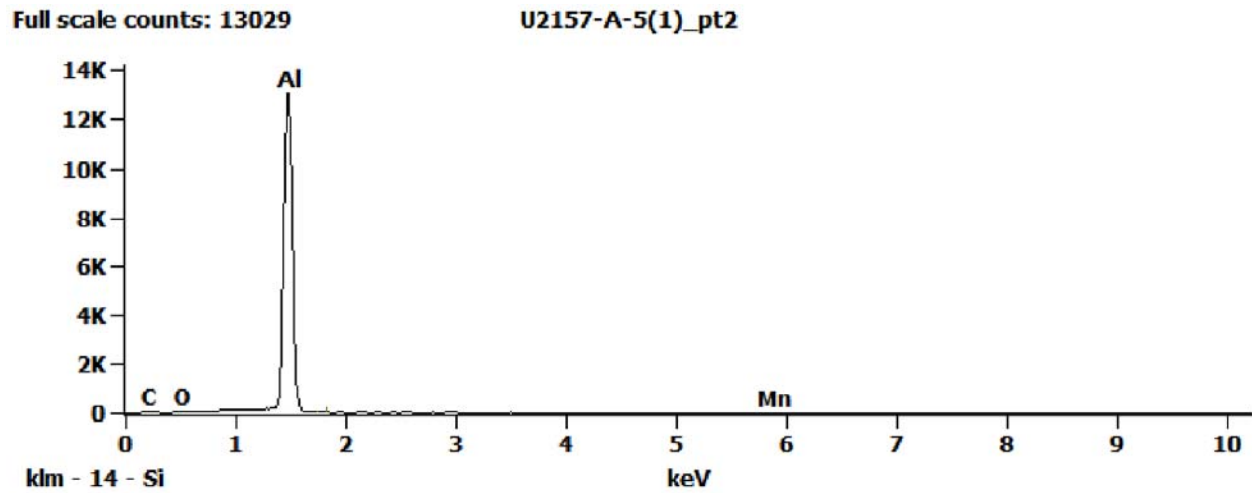


Figure 2. EDS Spectra for sample U2157-A-5 taken at test area 2. The test area is labeled in the particle SEM photo..

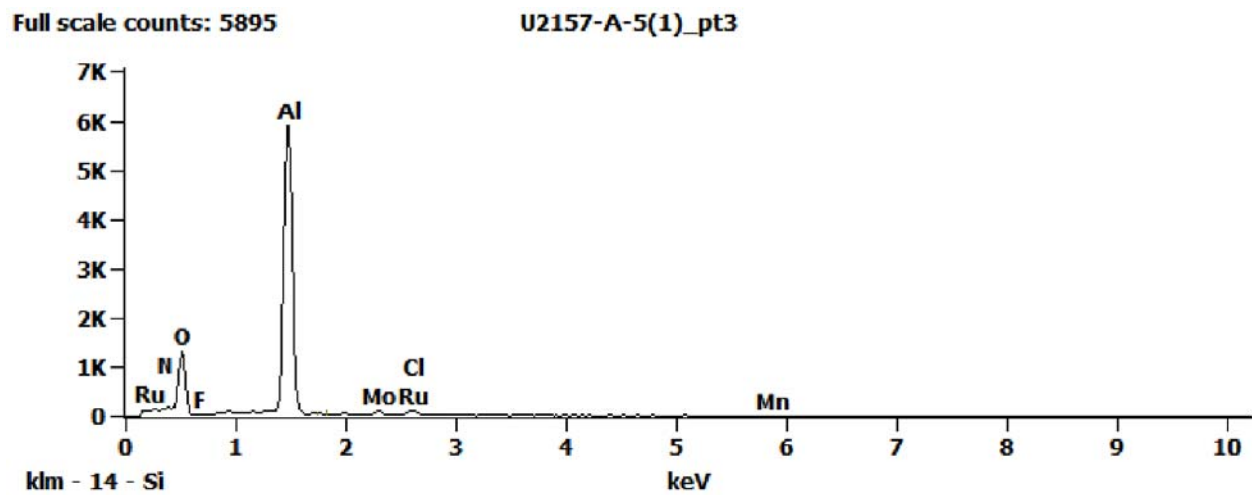


Figure 3. EDS Spectra for sample U2157-A-5 taken at test area 3. The test area is labeled in the particle SEM photo..

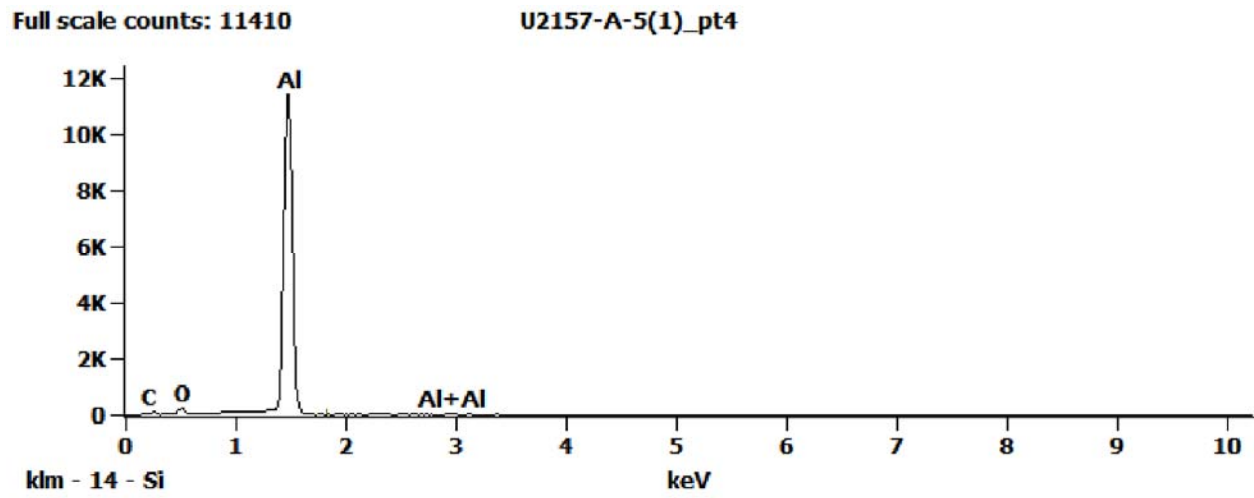
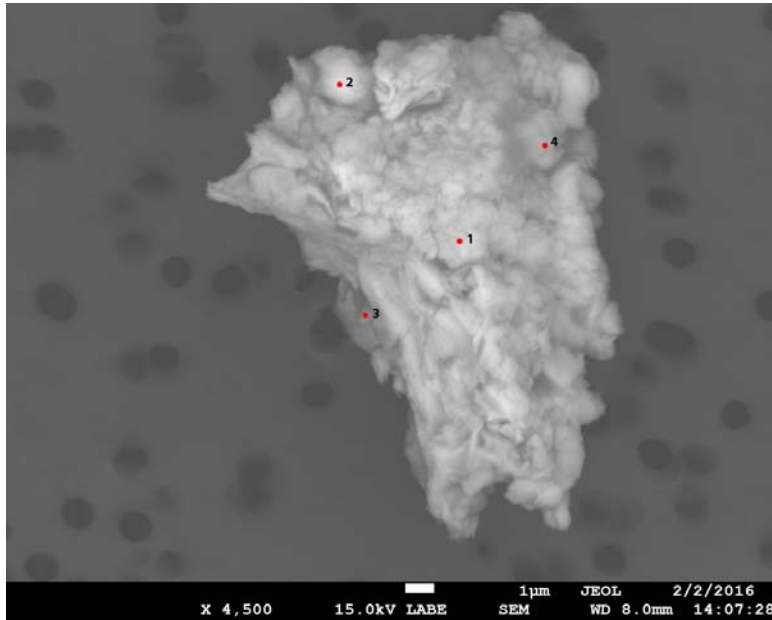


Figure 4. EDS Spectra for sample U2157-A-5 taken at test area 4. The test area is labeled in the particle SEM photo..

U2158 D4



Particle Size: 10 µm
Shape: Irregular
Transparency: Opaque
Color: Blue, Brown, Clear
Luster: Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2158 Cluster 55
Comments:

SEM Photo of sample U2158 D4 with labeled EDS testing locations.

Cluster of Origin: U2158 Cluster 55

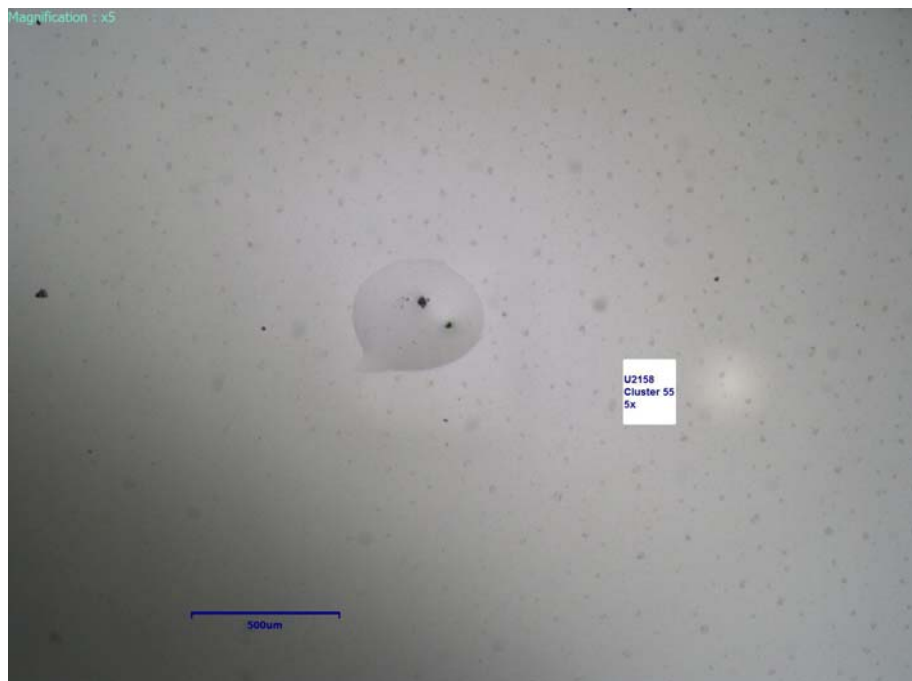


Photo of cluster U2158 Cluster 55.

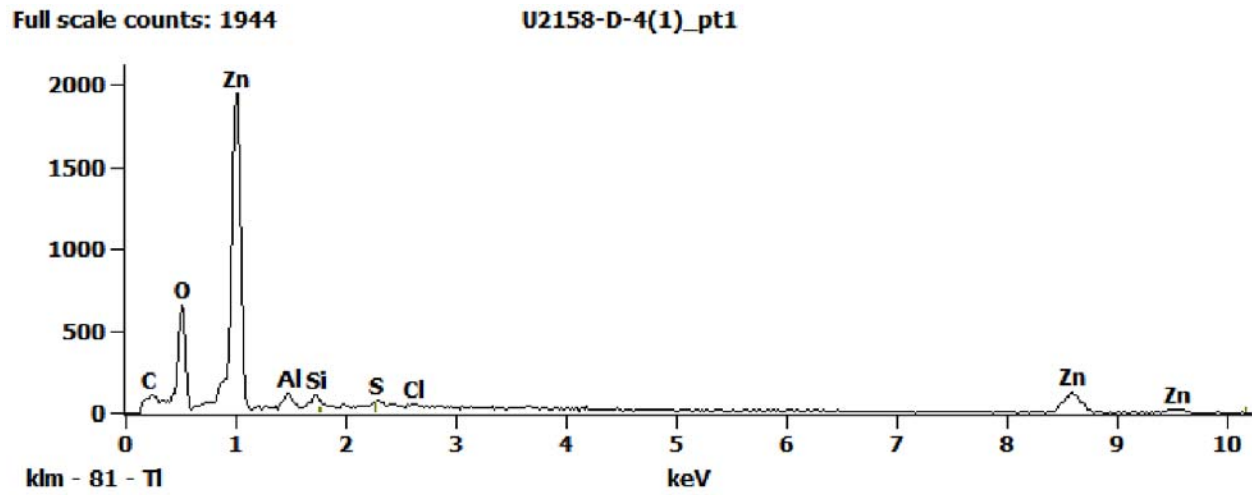
U2158 D4 - EDS Spectra

Figure 1. EDS Spectra for sample U2158-D-4 taken at test area 1. The test area is labeled in the particle SEM photo..

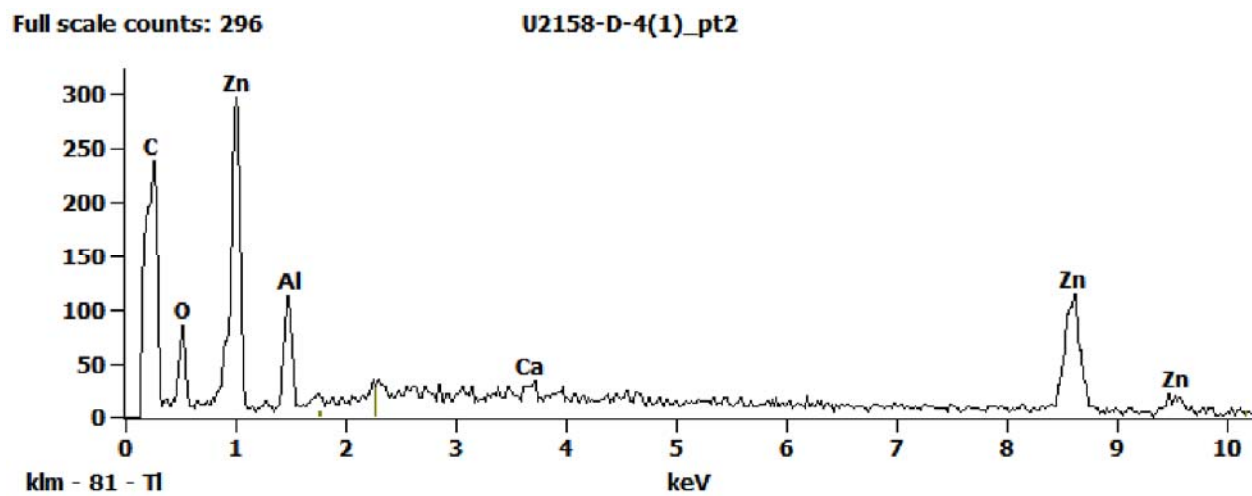


Figure 2. EDS Spectra for sample U2158-D-4 taken at test area 2. The test area is labeled in the particle SEM photo..

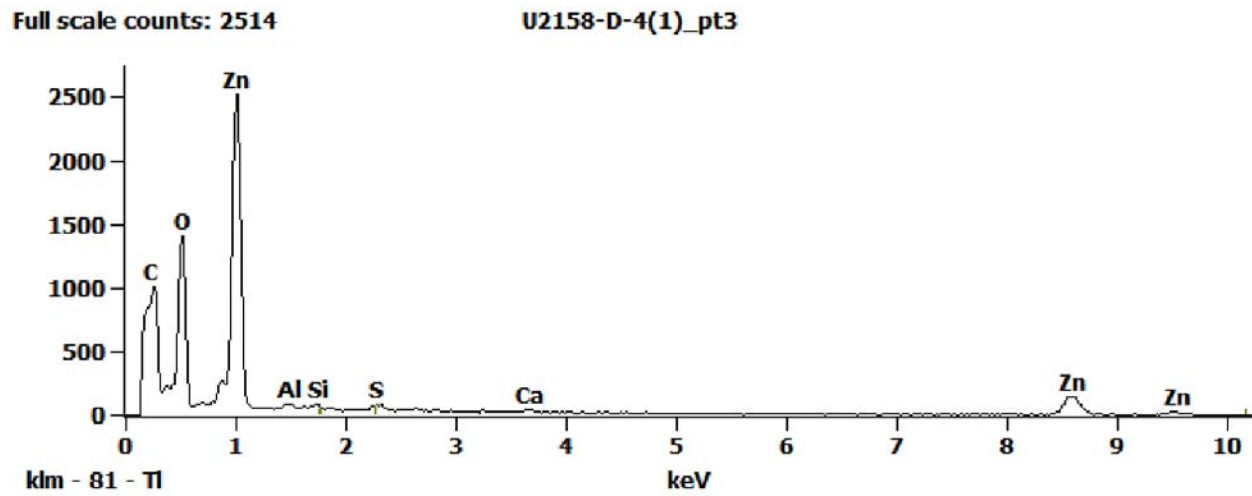


Figure 3. EDS Spectra for sample U2158-D-4 taken at test area 3. The test area is labeled in the particle SEM photo..

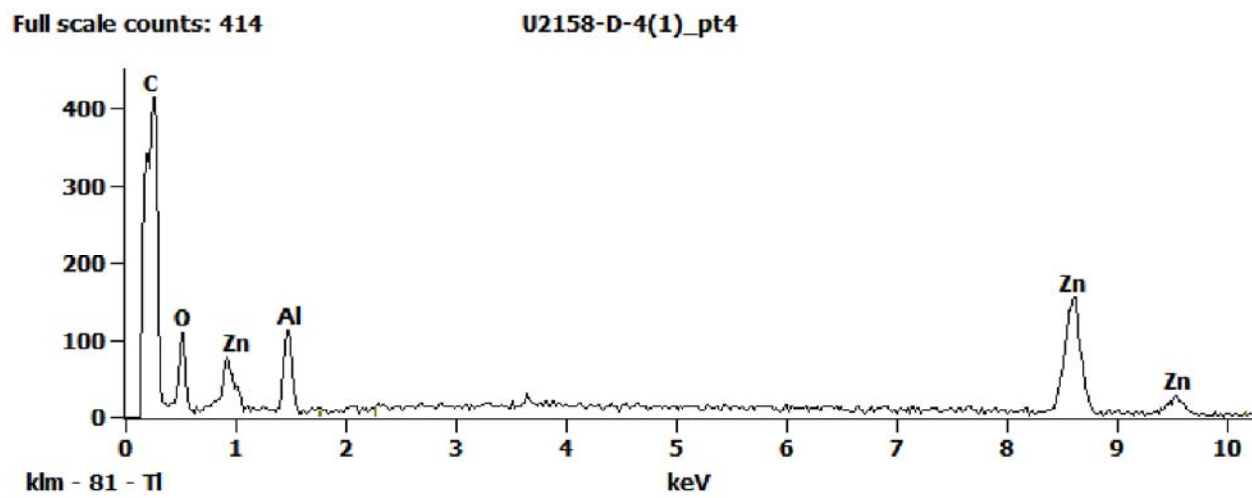
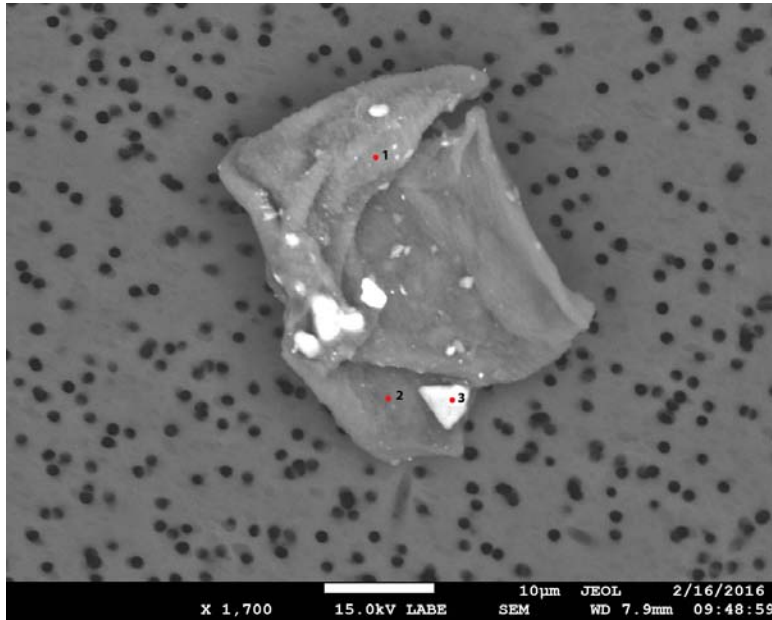


Figure 4. EDS Spectra for sample U2158-D-4 taken at test area 4. The test area is labeled in the particle SEM photo..

U2158 D7



Particle Size:	13 µm
Shape:	Equidimensional
Transparency:	Translucent to Transparent
Color:	Clear
Luster:	Pearly to Vitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2158 Cluster 58
Comments:	

SEM Photo of sample U2158 D7 with labeled EDS testing locations.

Cluster of Origin: U2158 Cluster 58



Photo of cluster U2158 Cluster 58.

U2158 D7 - EDS Spectra

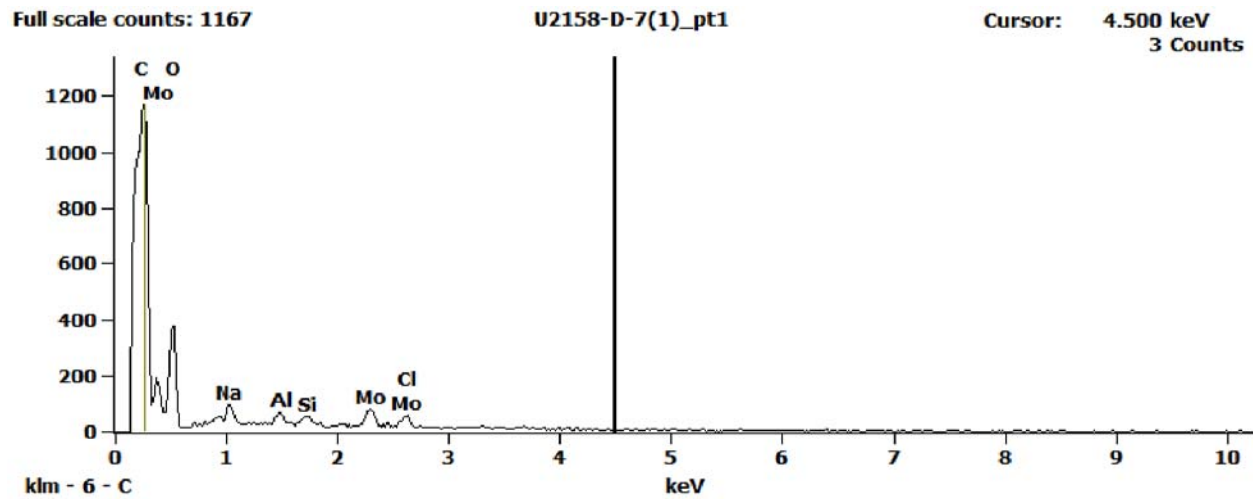


Figure 1. EDS Spectra for sample U2158-D-7 taken at test area 1. The test area is labeled in the particle SEM photo..

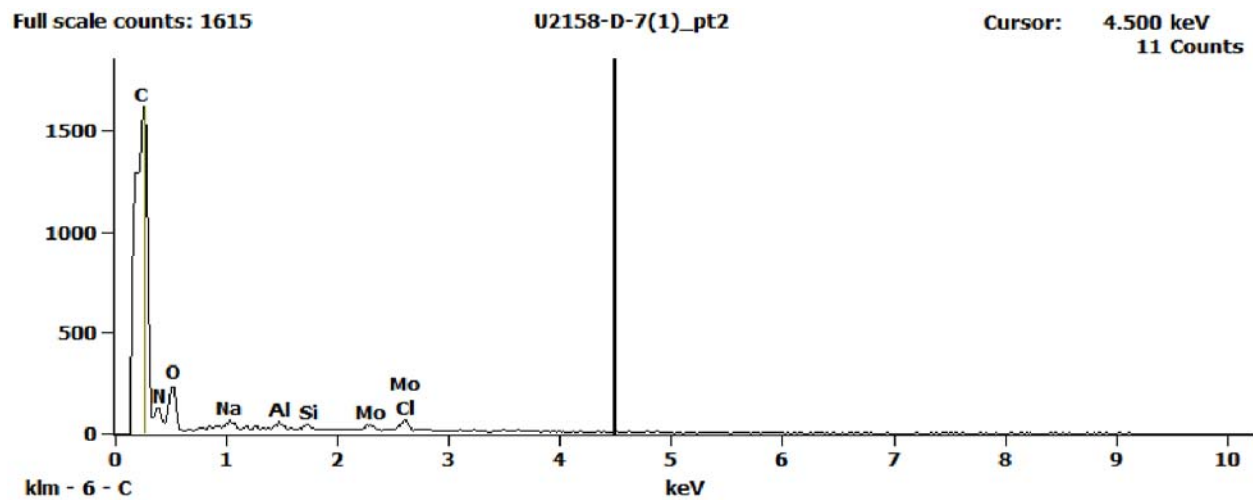


Figure 2. EDS Spectra for sample U2158-D-7 taken at test area 2. The test area is labeled in the particle SEM photo..

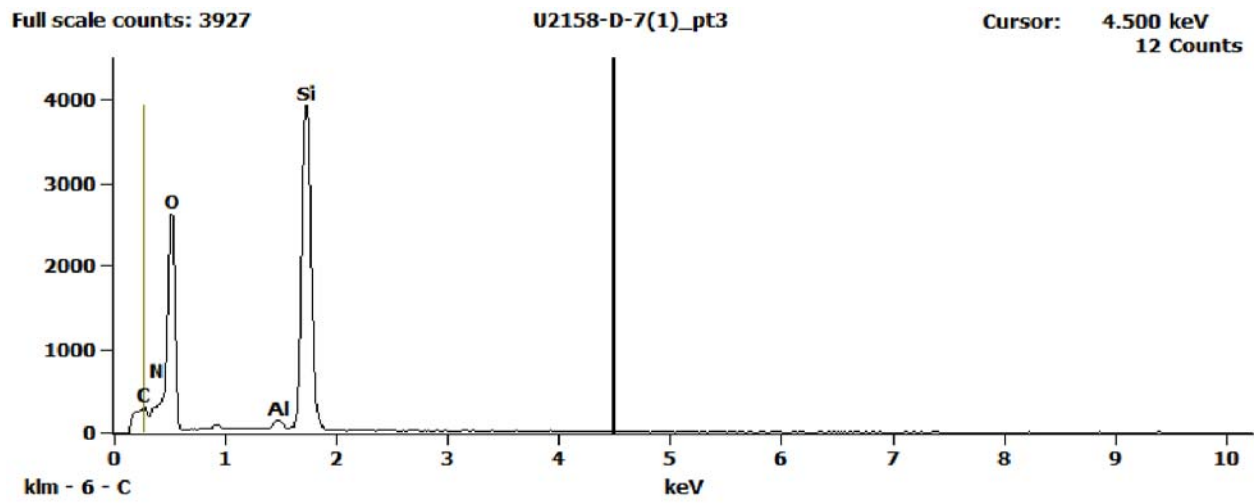
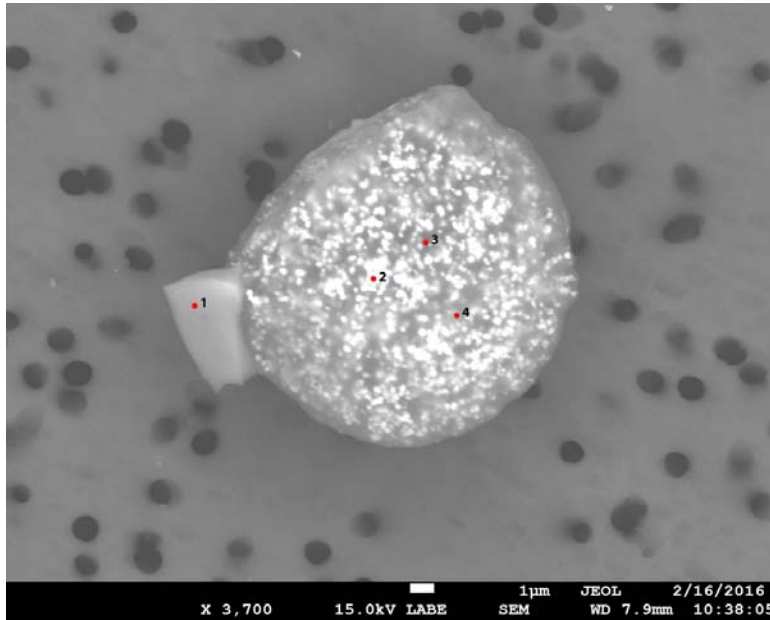


Figure 3. EDS Spectra for sample U2158-D-7 taken at test area 3. The test area is labeled in the particle SEM photo..

U2158 D12



SEM Photo of sample U2158 D12 with labeled EDS testing locations.

Particle Size:	15 µm
Shape:	Spherical
Transparency:	Opaque to Translucent
Color:	Gray
Luster:	Pearly
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	
Comments:	

U2158 D12 - EDS Spectra

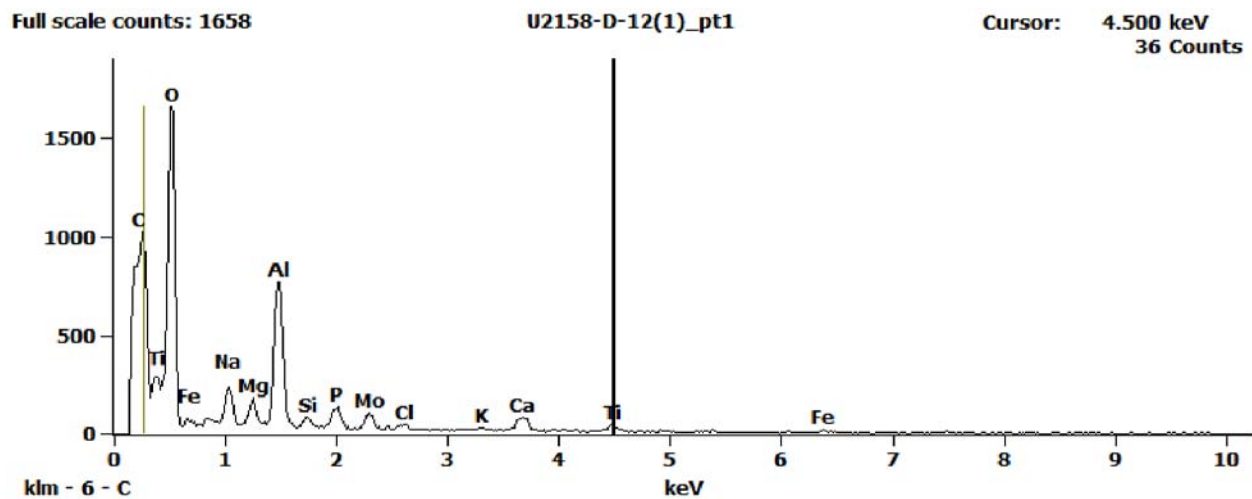


Figure 1. EDS Spectra for sample U2158-D-12 taken at test area 1. The test area is labeled in the particle SEM photo..

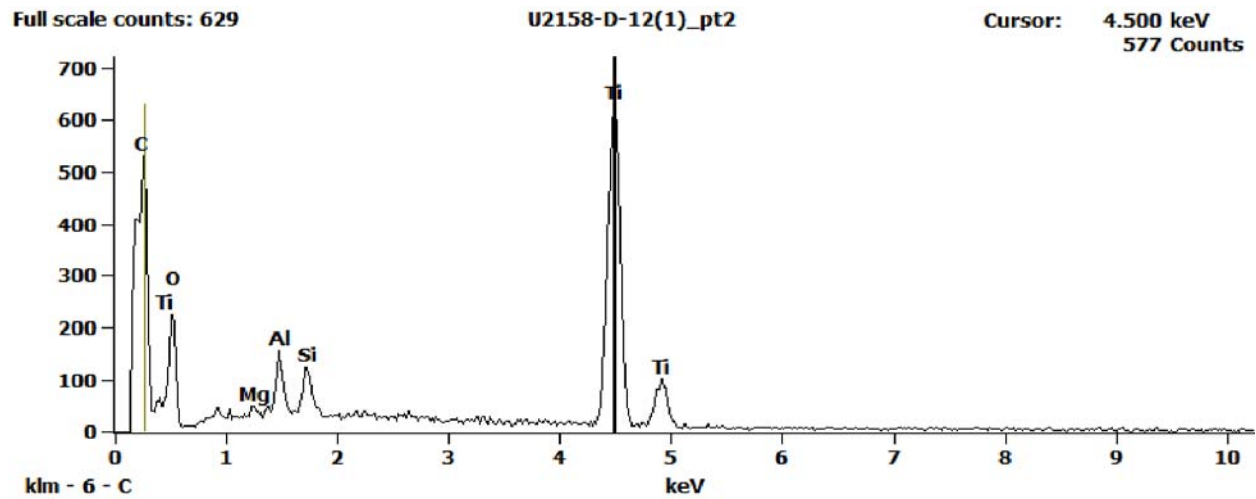


Figure 2. EDS Spectra for sample U2158-D-12 taken at test area 2. The test area is labeled in the particle SEM photo..

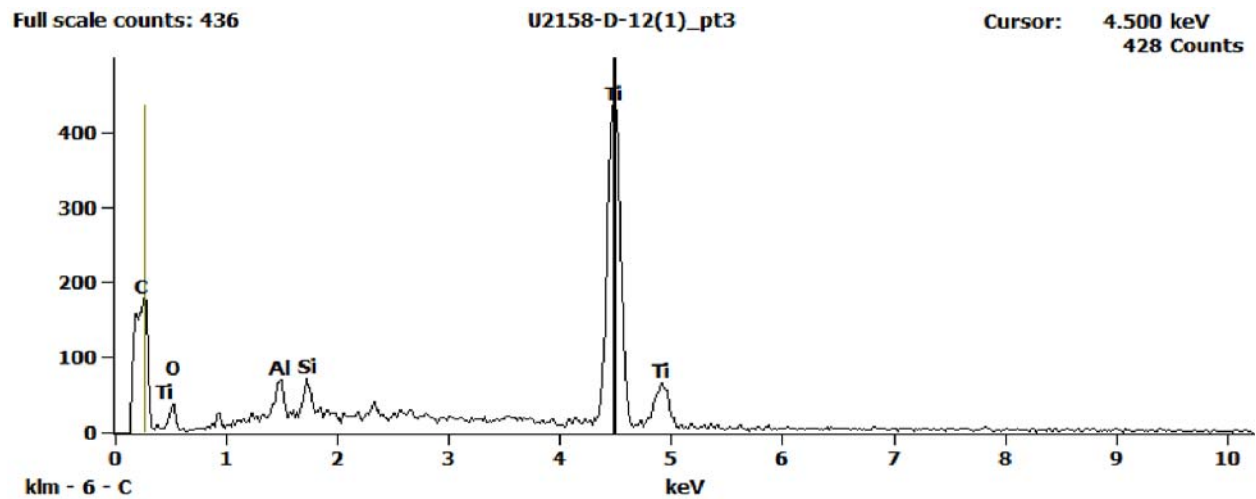


Figure 3. EDS Spectra for sample U2158-D-12 taken at test area 3. The test area is labeled in the particle SEM photo..

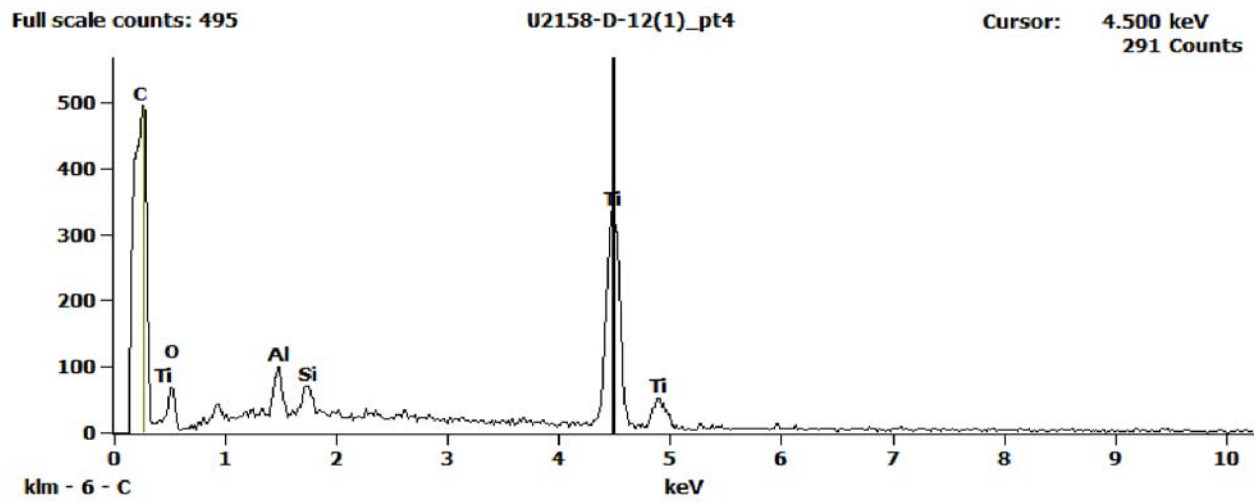
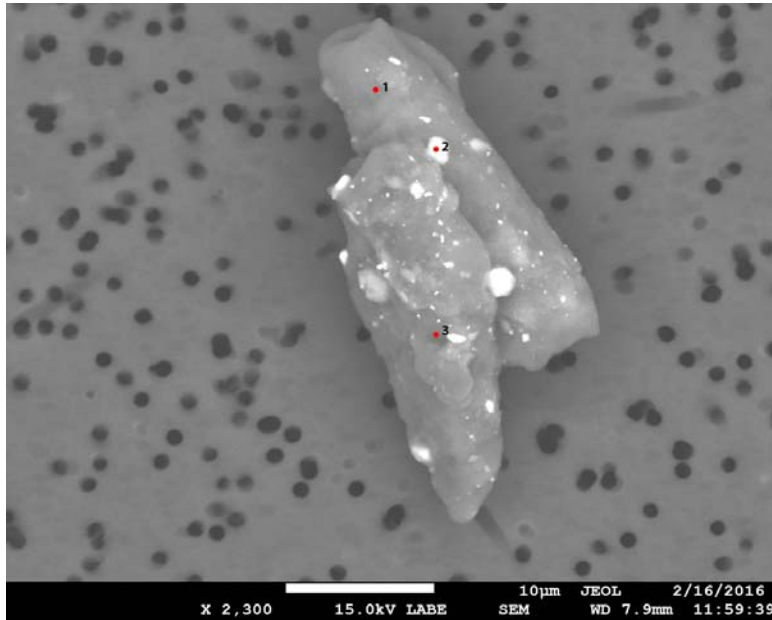


Figure 4. EDS Spectra for sample U2158-D-12 taken at test area 4. The test area is labeled in the particle SEM photo..

U2159 A5



Particle Size: 15 μm
Shape: Irregular
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2159 Cluster 5
Comments:

SEM Photo of sample U2159 A5 with labeled EDS testing locations.

Cluster of Origin: U2159 Cluster 5

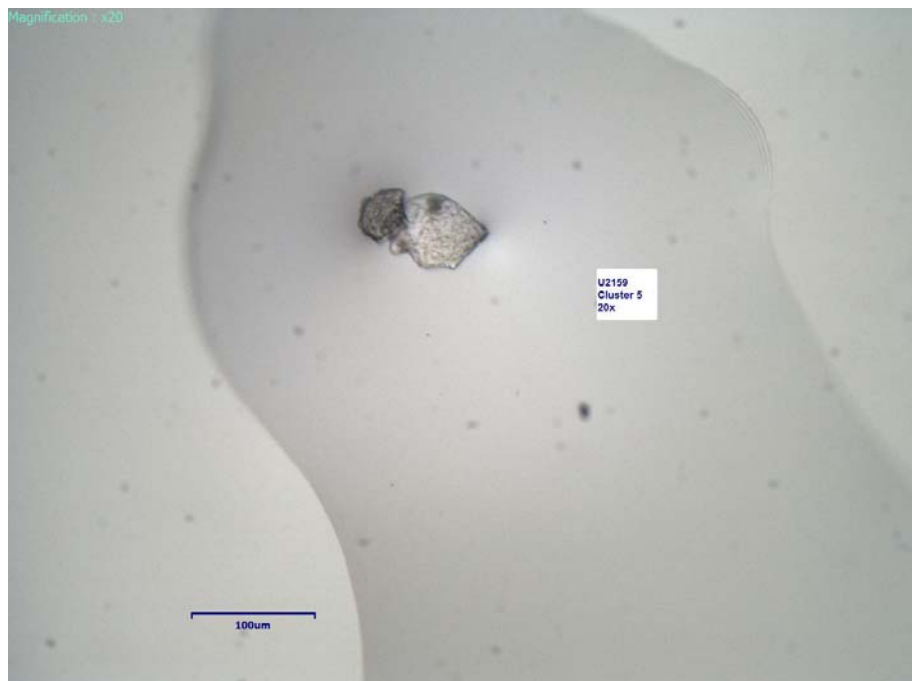


Photo of cluster U2159 Cluster 5.

U2159 A5 - EDS Spectra

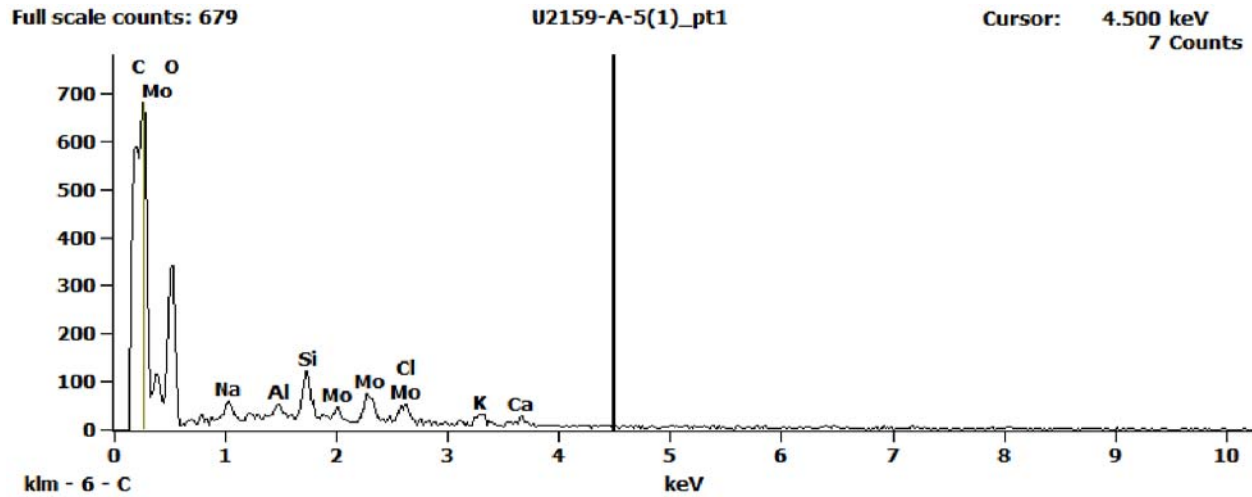


Figure 1. EDS Spectra for sample U2159-A-5 taken at test area 1. The test area is labeled in the particle SEM photo..

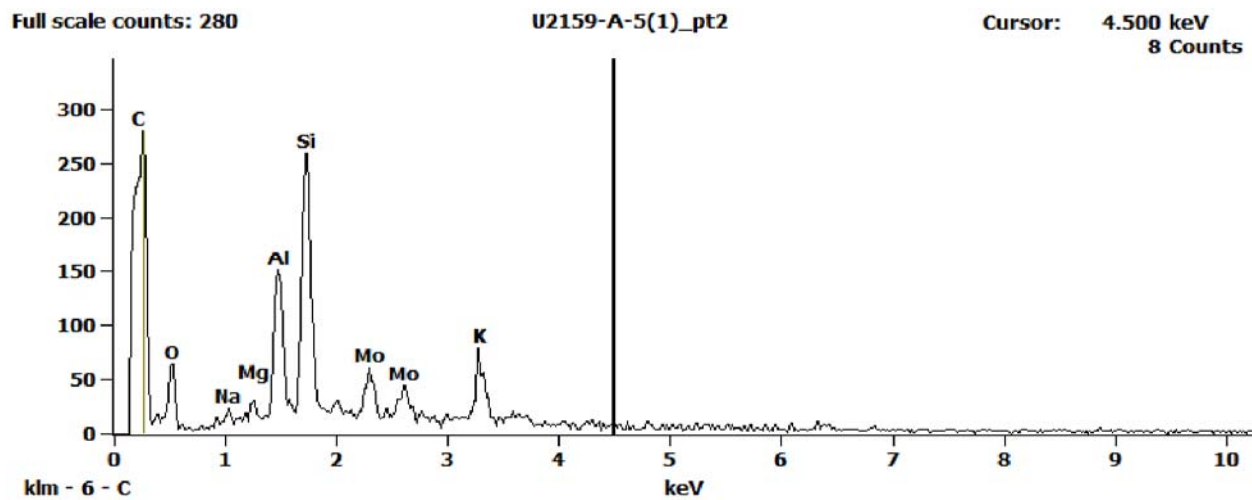


Figure 2. EDS Spectra for sample U2159-A-5 taken at test area 2. The test area is labeled in the particle SEM photo..

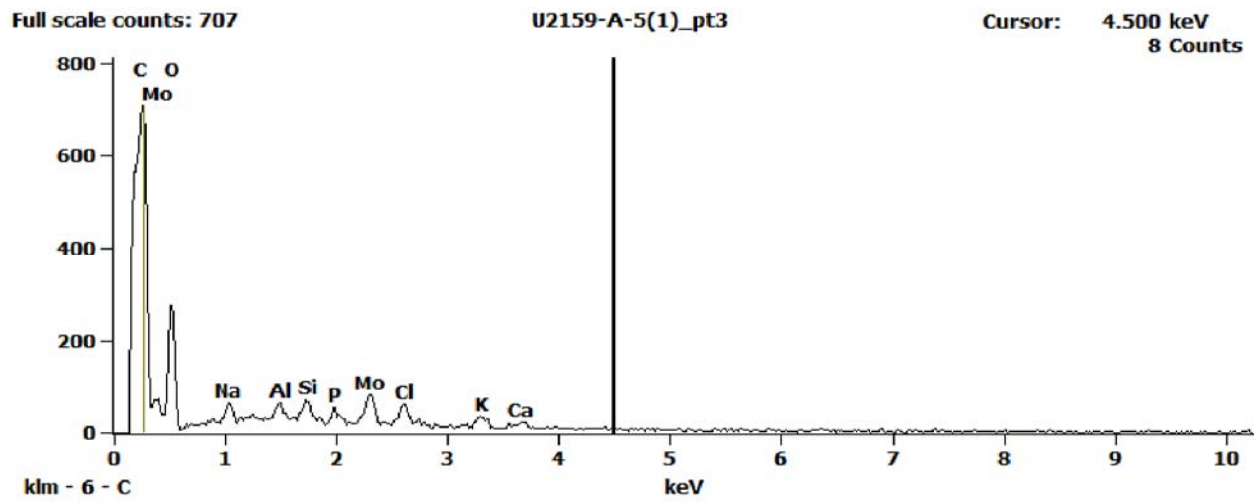
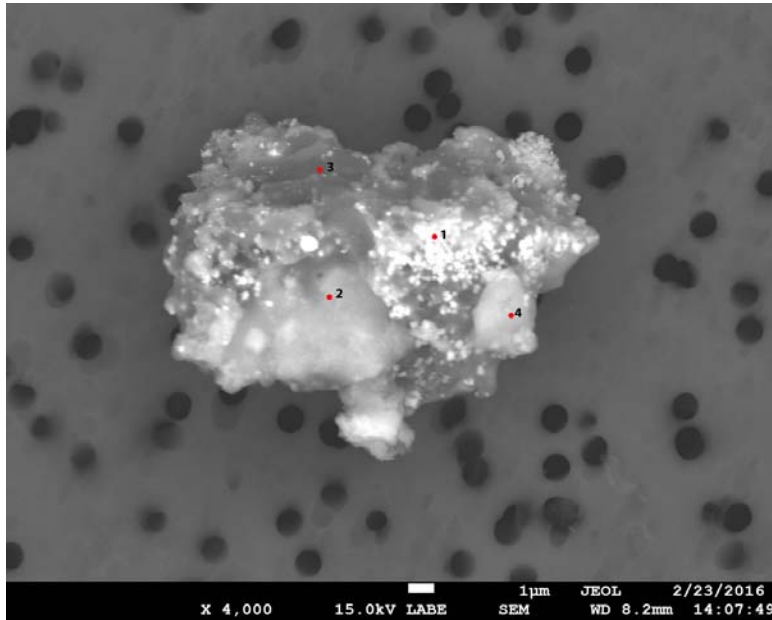


Figure 3. EDS Spectra for sample U2159-A-5 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A2



SEM Photo of sample U2162 A2 with labeled EDS testing locations.

Particle Size:	20x15 µm
Shape:	Equidimensional to Irregular
Transparency:	Translucent to Opaque
Color:	Black
Luster:	Pearly to Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2162 Cluster 2
Comments:	

Cluster of Origin: U2162 Cluster 2

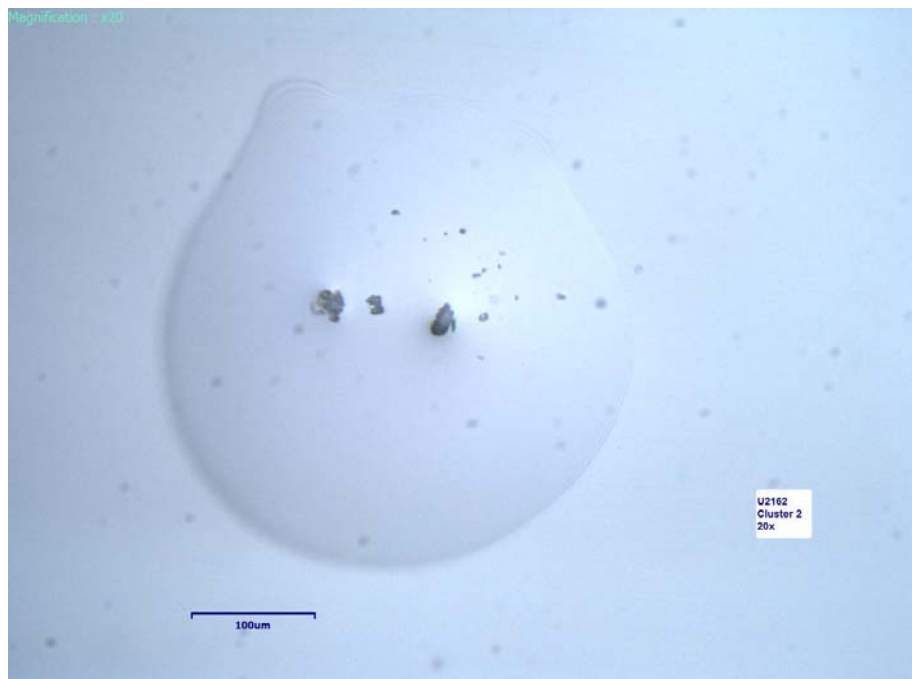


Photo of cluster U2162 Cluster 2.

U2162 A2 - EDS Spectra

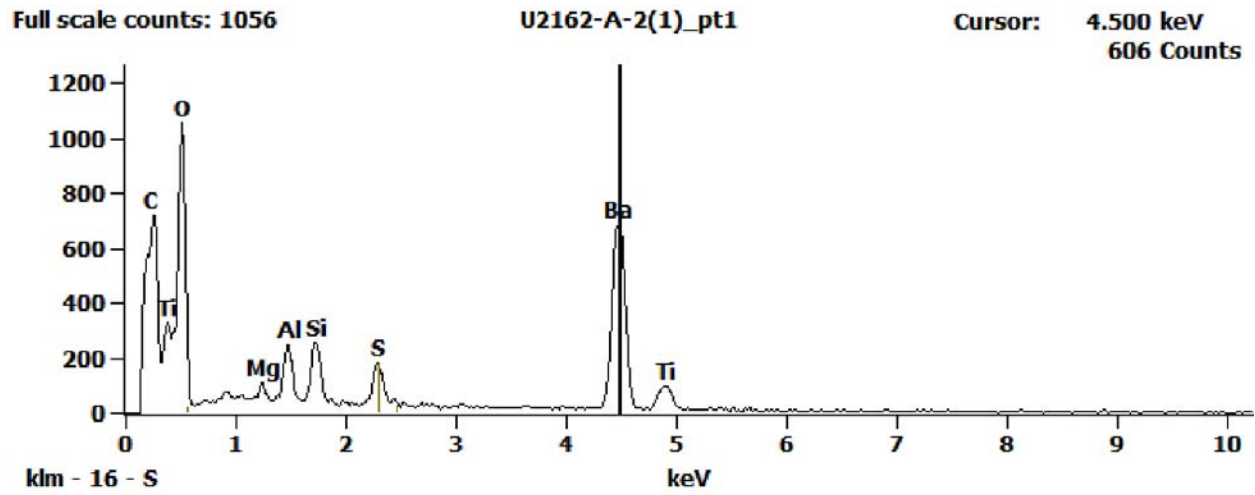


Figure 1. EDS Spectra for sample U2162-A-2 taken at test area 1. The test area is labeled in the particle SEM photo..

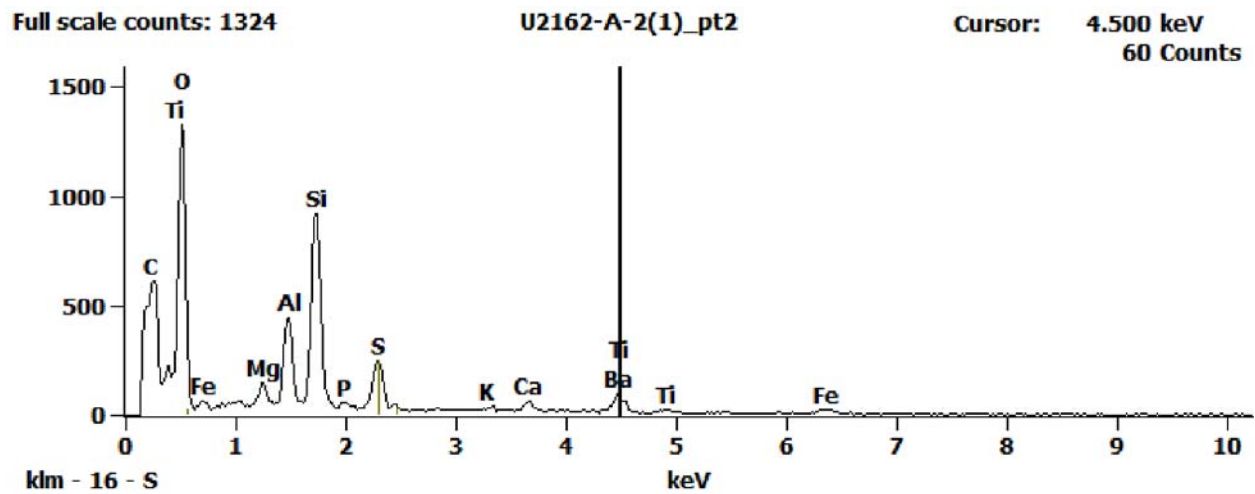


Figure 2. EDS Spectra for sample U2162-A-2 taken at test area 2. The test area is labeled in the particle SEM photo..

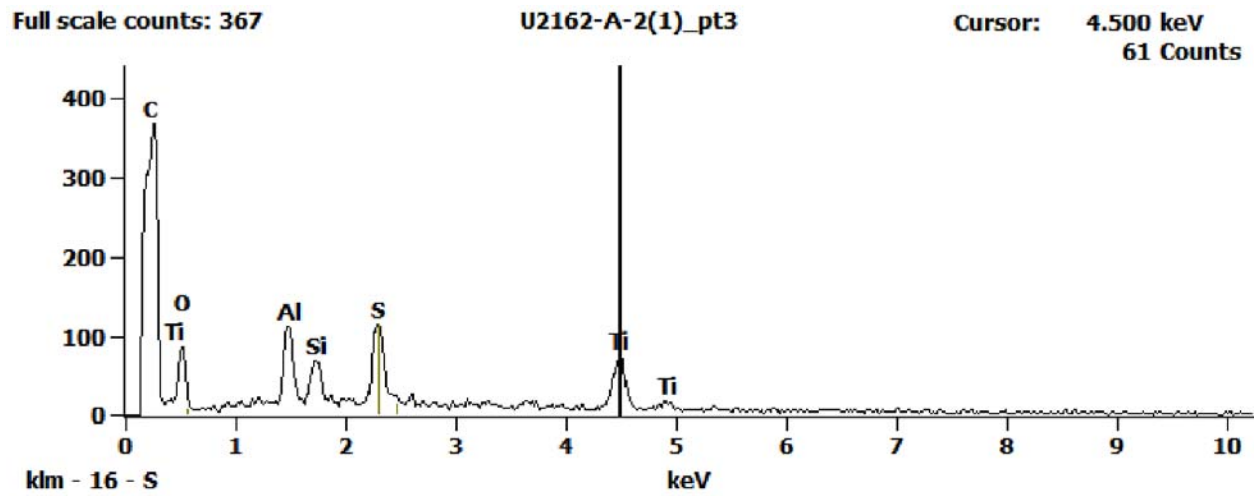


Figure 3. EDS Spectra for sample U2162-A-2 taken at test area 3. The test area is labeled in the particle SEM photo..

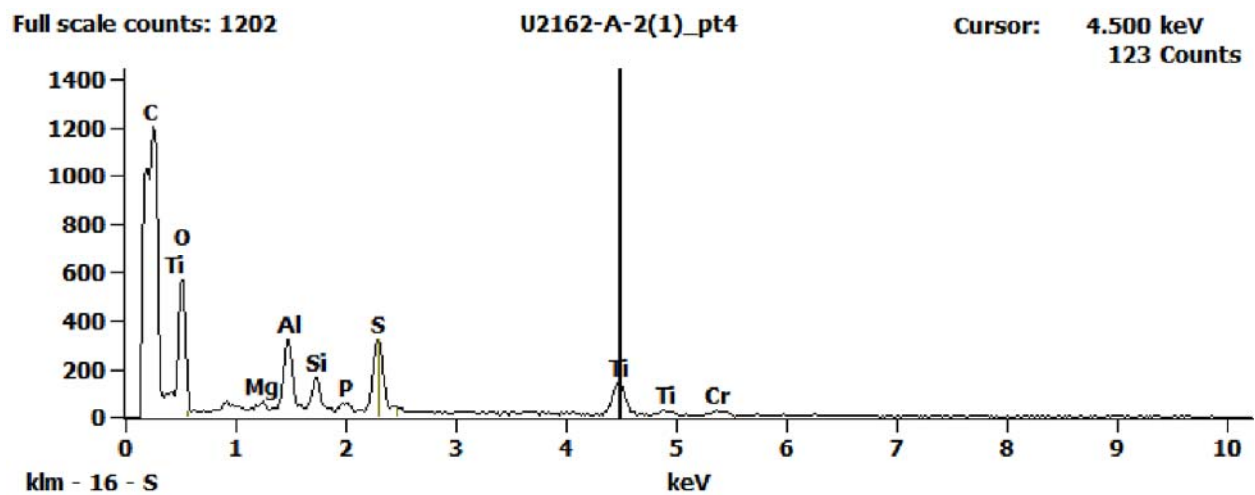
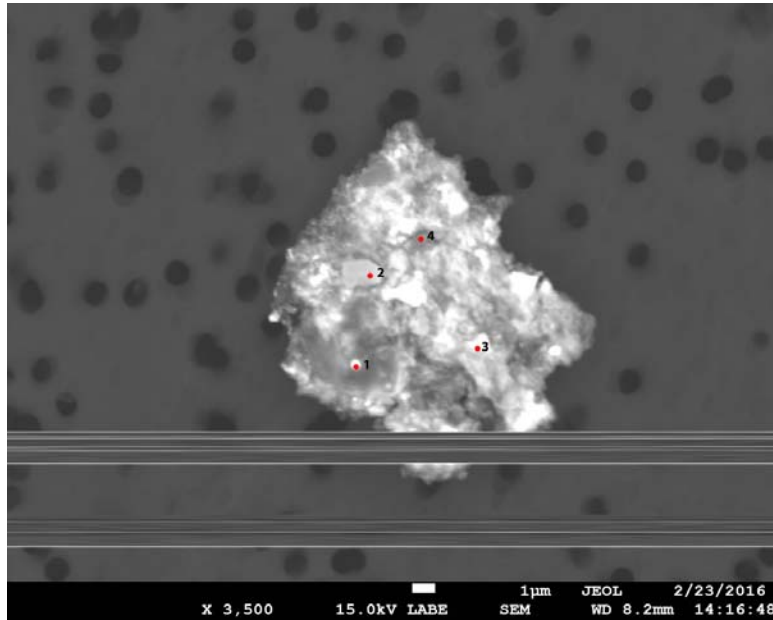


Figure 4. EDS Spectra for sample U2162-A-2 taken at test area 4. The test area is labeled in the particle SEM photo..

U2162 A3



SEM Photo of sample U2162 A3 with labeled EDS testing locations.

Particle Size:	16 µm
Shape:	Equidimensional to Spherical
Transparency:	Opaque to Subvitreous
Color:	Black
Luster:	Pearly to Subvitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2162 Cluster 3
Comments:	

Cluster of Origin: U2162 Cluster 3

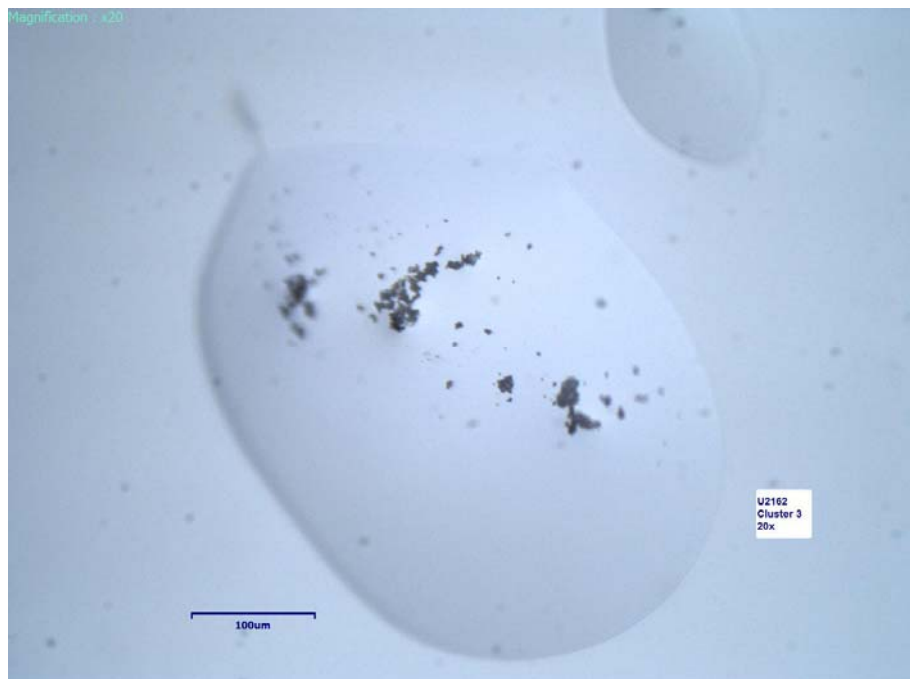


Photo of cluster U2162 Cluster 3.

U2162 A3 - EDS Spectra

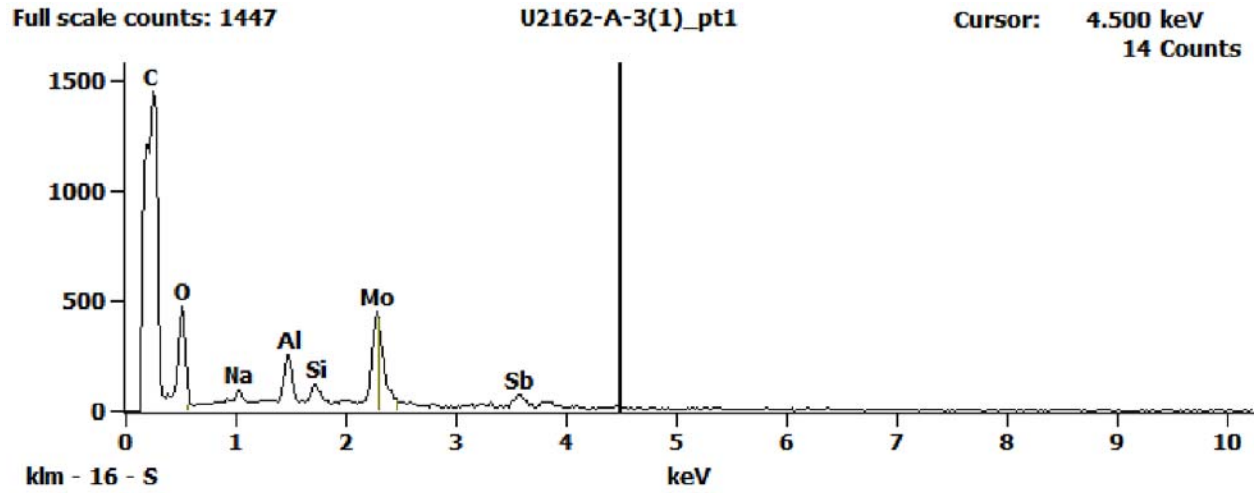


Figure 1. EDS Spectra for sample U2162-A-3 taken at test area 1. The test area is labeled in the particle SEM photo..

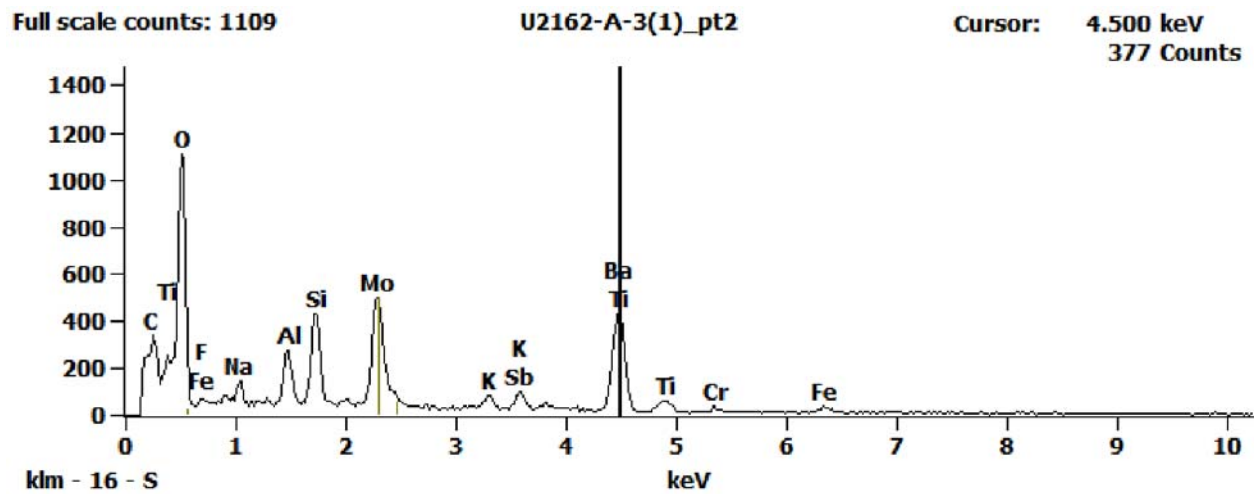


Figure 2. EDS Spectra for sample U2162-A-3 taken at test area 2. The test area is labeled in the particle SEM photo..

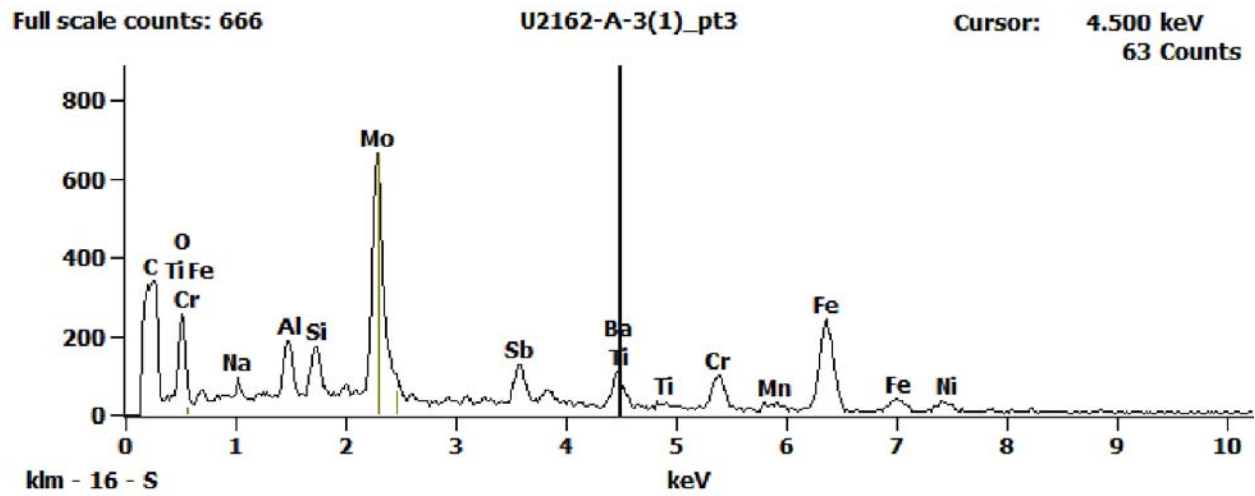


Figure 3. EDS Spectra for sample U2162-A-3 taken at test area 3. The test area is labeled in the particle SEM photo..

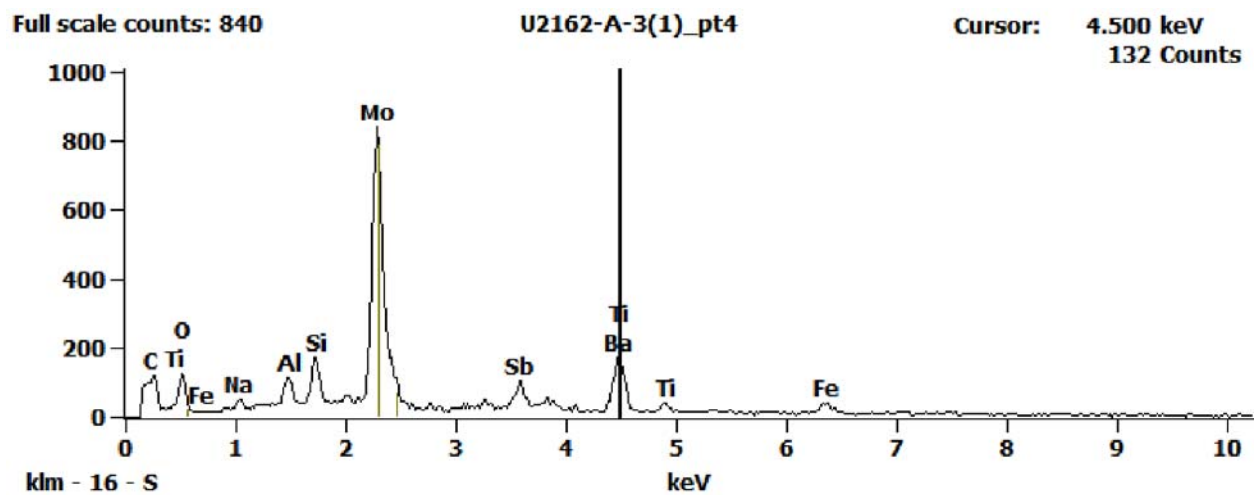
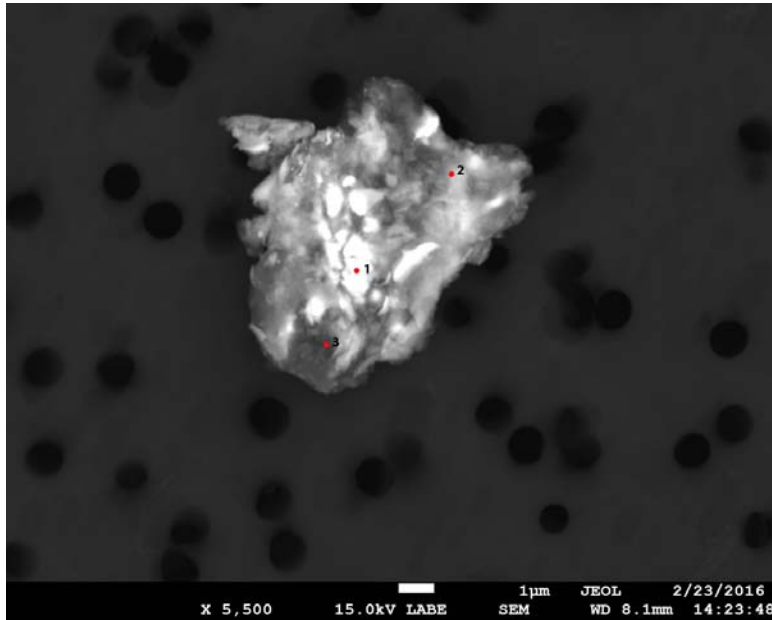


Figure 4. EDS Spectra for sample U2162-A-3 taken at test area 4. The test area is labeled in the particle SEM photo..

U2162 A4



SEM Photo of sample U2162 A4 with labeled EDS testing locations.

Particle Size:	15 µm
Shape:	Equidimensional
Transparency:	Opaque to Subvitreous
Color:	Black
Luster:	Pearly to Subvitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2162 Cluster 4
Comments:	

Cluster of Origin: U2162 Cluster 4

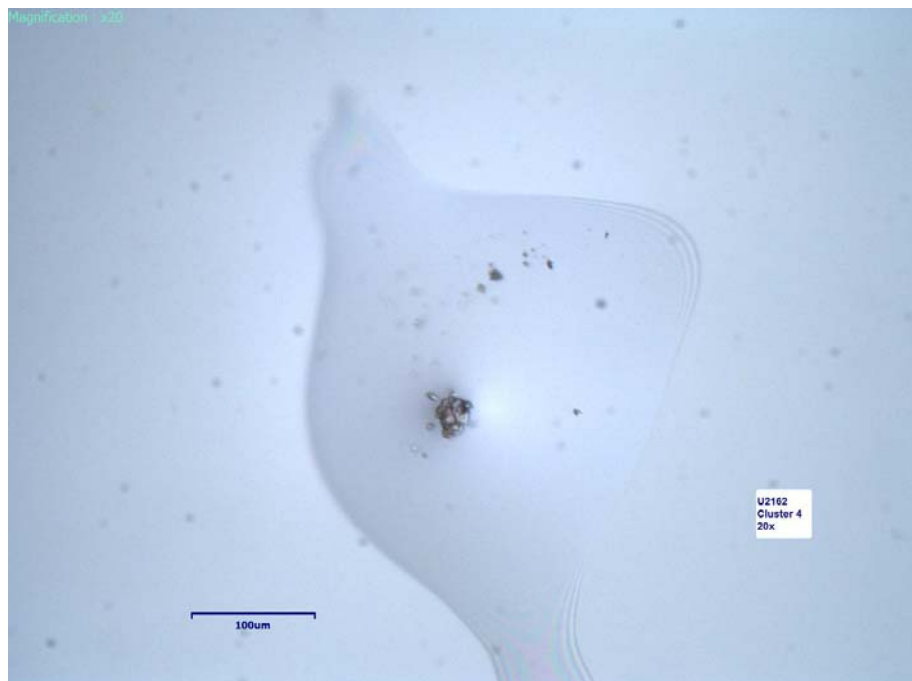


Photo of cluster U2162 Cluster 4.

U2162 A4 - EDS Spectra

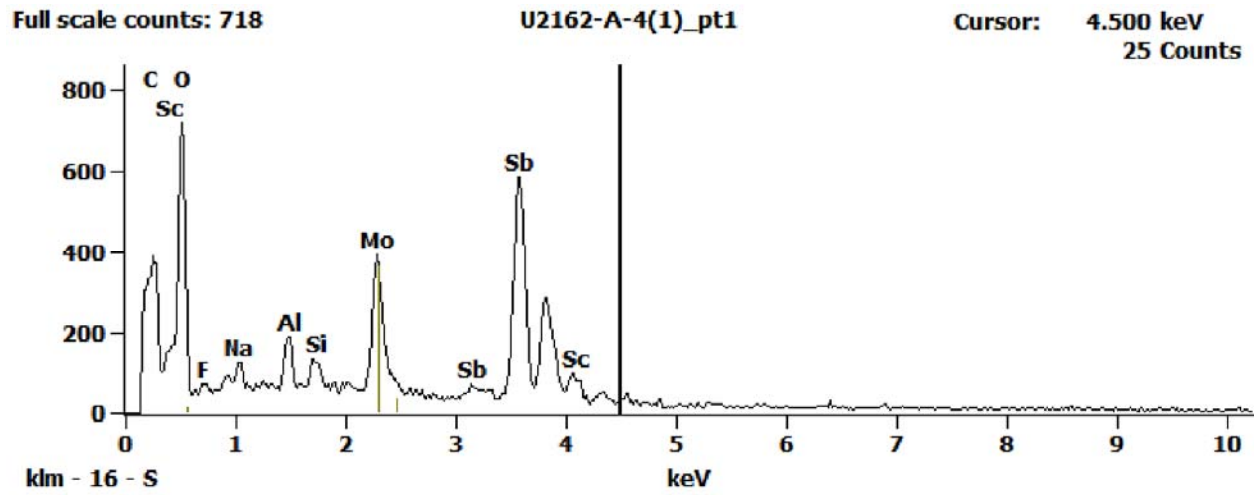


Figure 1. EDS Spectra for sample U2162-A-4 taken at test area 1. The test area is labeled in the particle SEM photo..

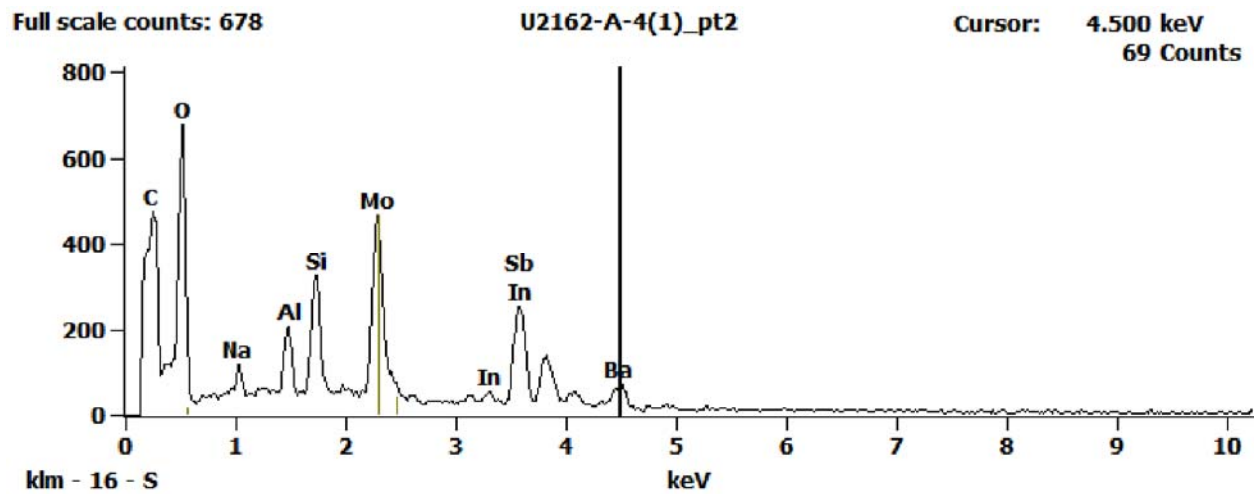


Figure 2. EDS Spectra for sample U2162-A-4 taken at test area 2. The test area is labeled in the particle SEM photo..

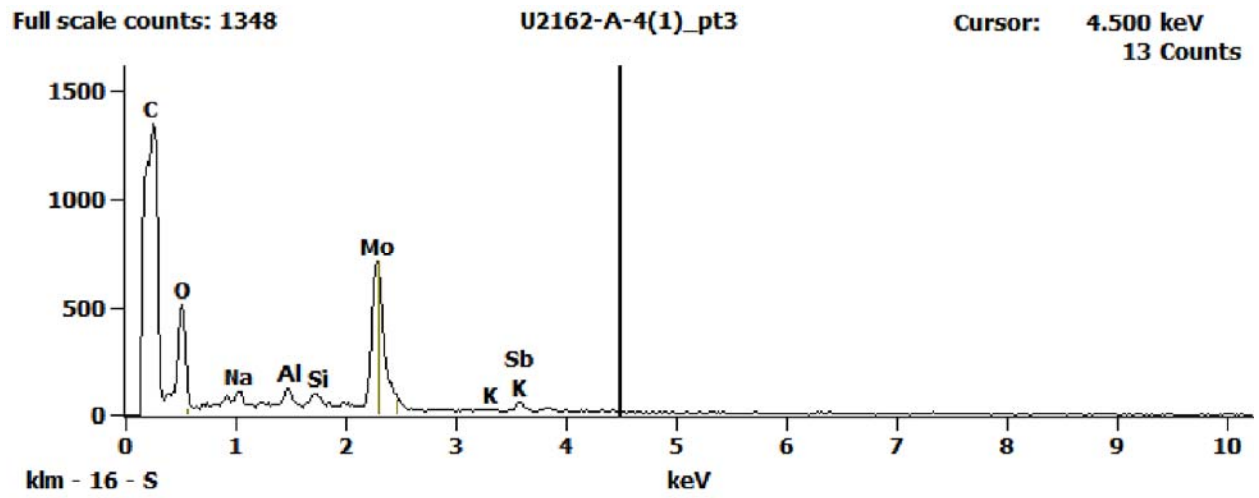
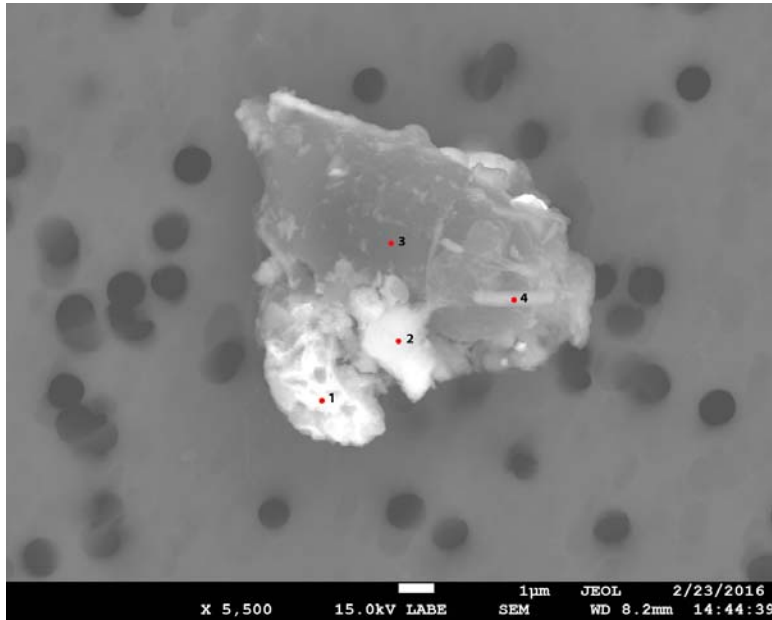


Figure 3. EDS Spectra for sample U2162-A-4 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A8



Particle Size:	11 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black
Luster:	Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2162 Cluster 8
Comments:	

SEM Photo of sample U2162 A8 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 8



Photo of cluster U2162 Cluster 8.

U2162 A8 - EDS Spectra

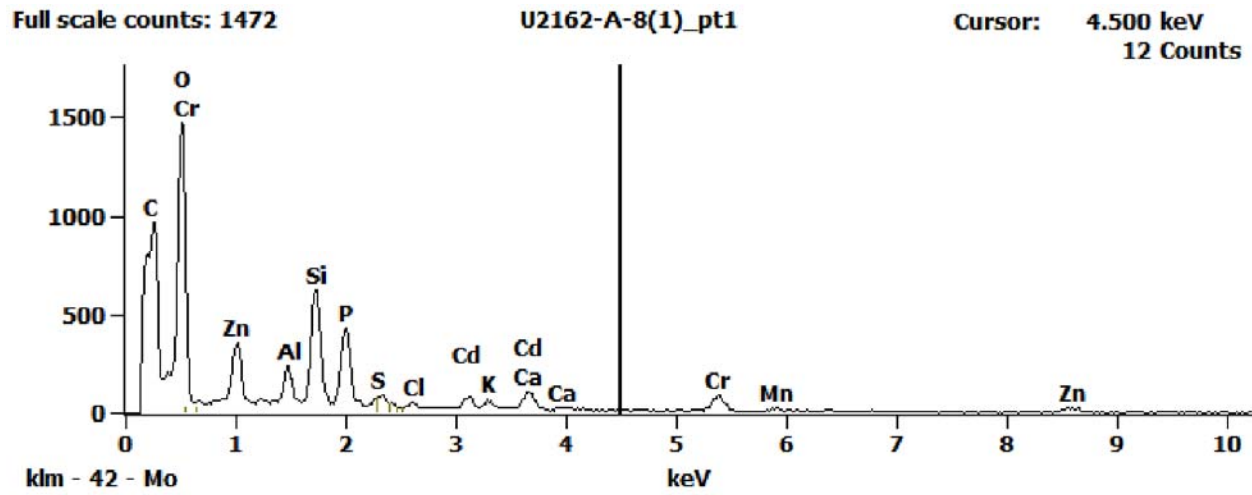


Figure 1. EDS Spectra for sample U2162-A-8 taken at test area 1. The test area is labeled in the particle SEM photo..

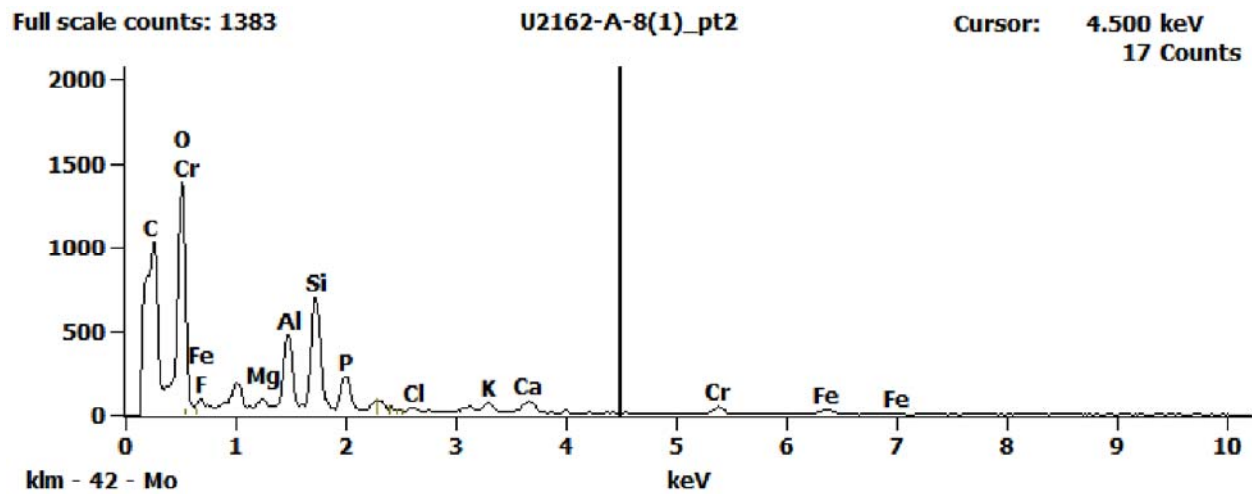


Figure 2. EDS Spectra for sample U2162-A-8 taken at test area 2. The test area is labeled in the particle SEM photo..

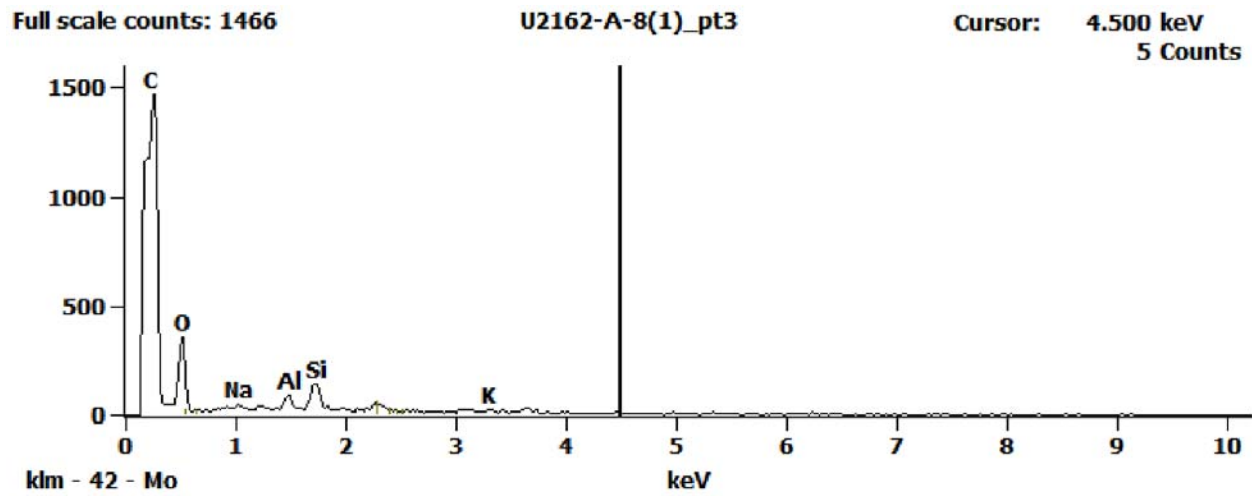


Figure 3. EDS Spectra for sample U2162-A-8 taken at test area 3. The test area is labeled in the particle SEM photo..

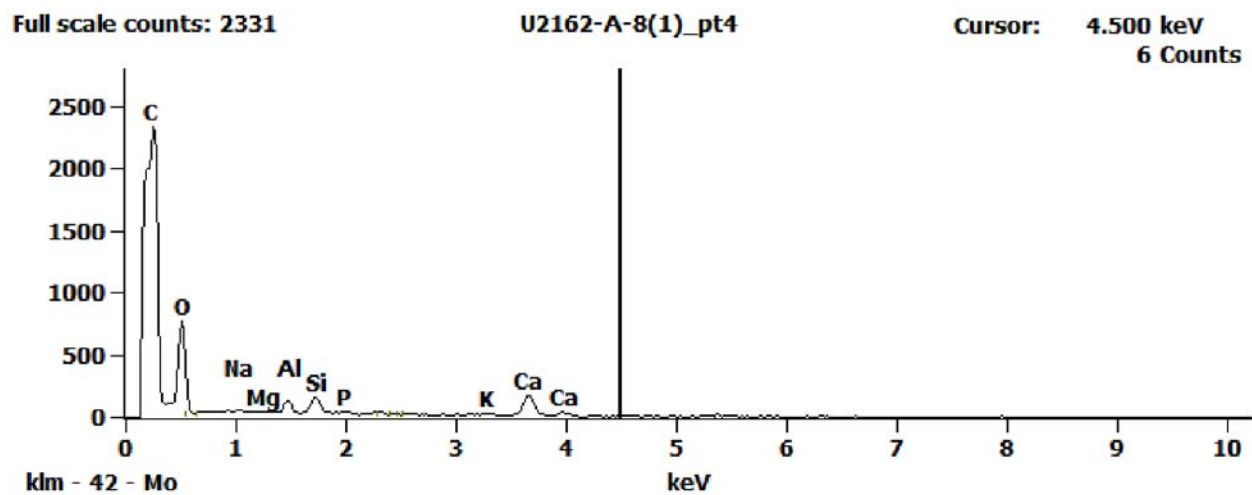
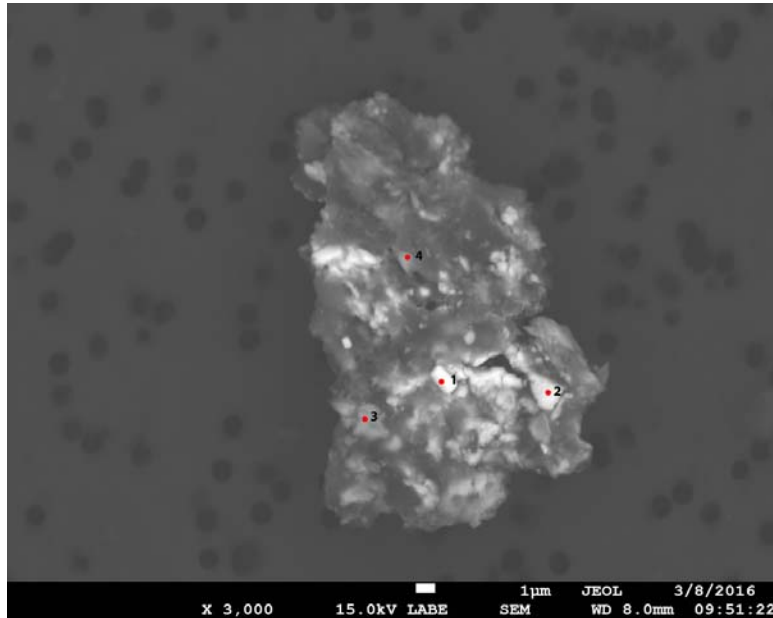


Figure 4. EDS Spectra for sample U2162-A-8 taken at test area 4. The test area is labeled in the particle SEM photo..

U2162 A10



Particle Size: 15x20 µm
Shape: Irregular
Transparency: Opaque to Subvitreous
Color: Black
Luster: Pearly to Subvitreous
Particle Type: Artificial Terrestrial Contamination
Cluster No.: U2162 Cluster 10
Comments:

SEM Photo of sample U2162 A10 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 10



Photo of cluster U2162 Cluster 10.

U2162 A10 - EDS Spectra

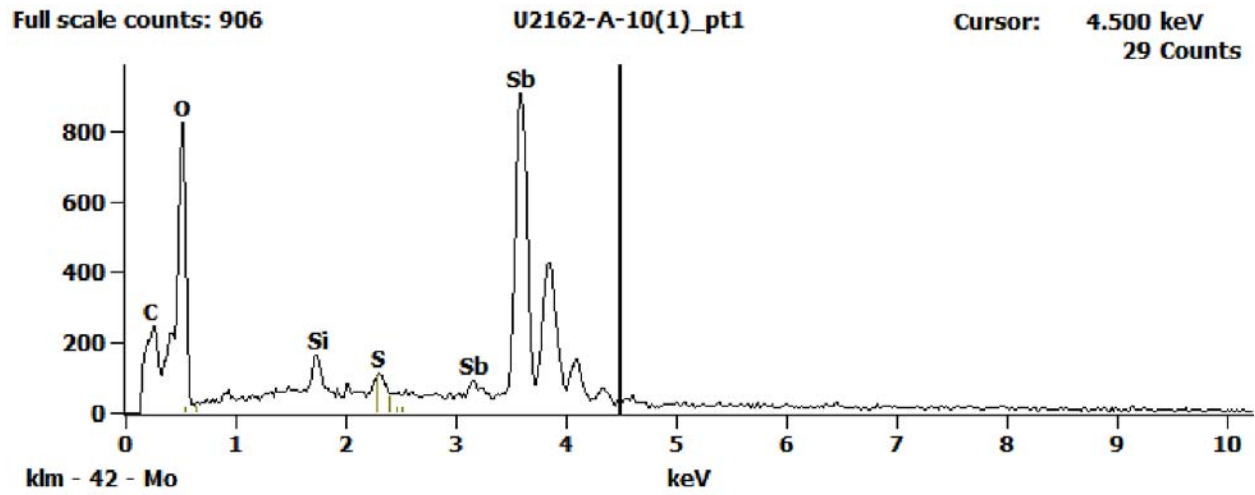


Figure 1. EDS Spectra for sample U2162-A-10 taken at test area 1. The test area is labeled in the particle SEM photo..

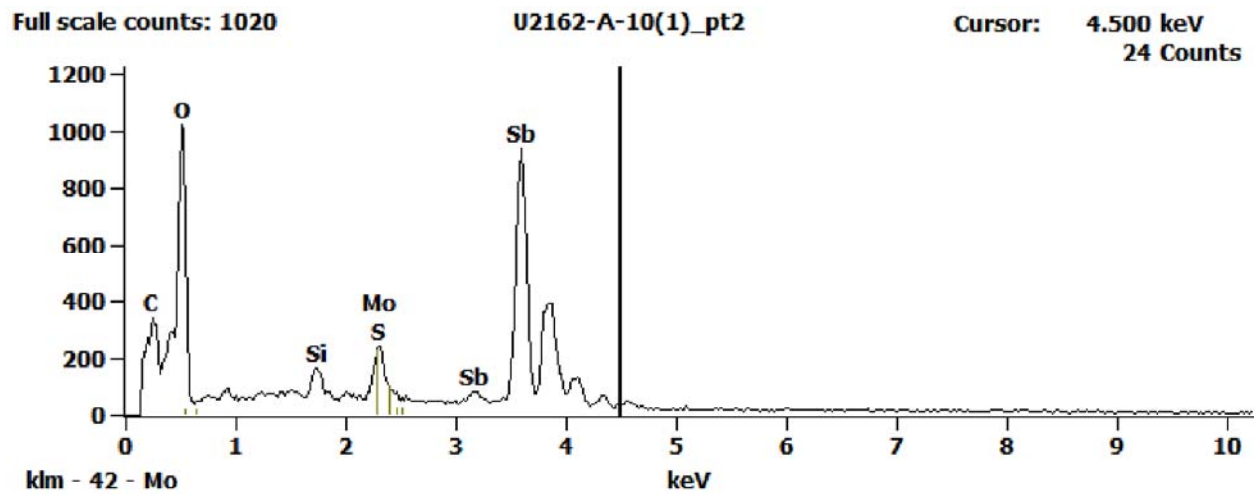


Figure 2. EDS Spectra for sample U2162-A-10 taken at test area 2. The test area is labeled in the particle SEM photo..

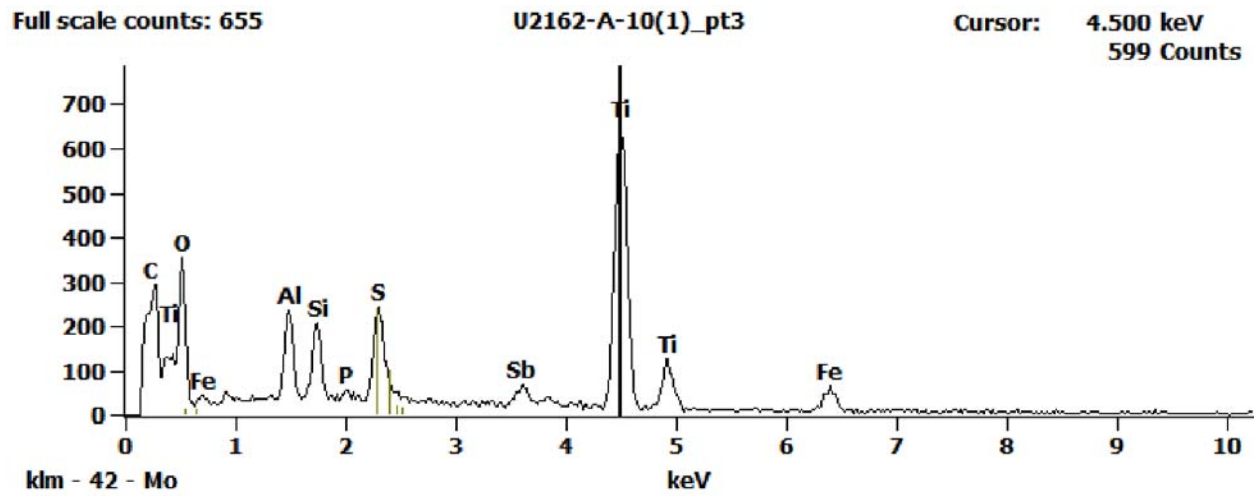


Figure 3. EDS Spectra for sample U2162-A-10 taken at test area 3. The test area is labeled in the particle SEM photo..

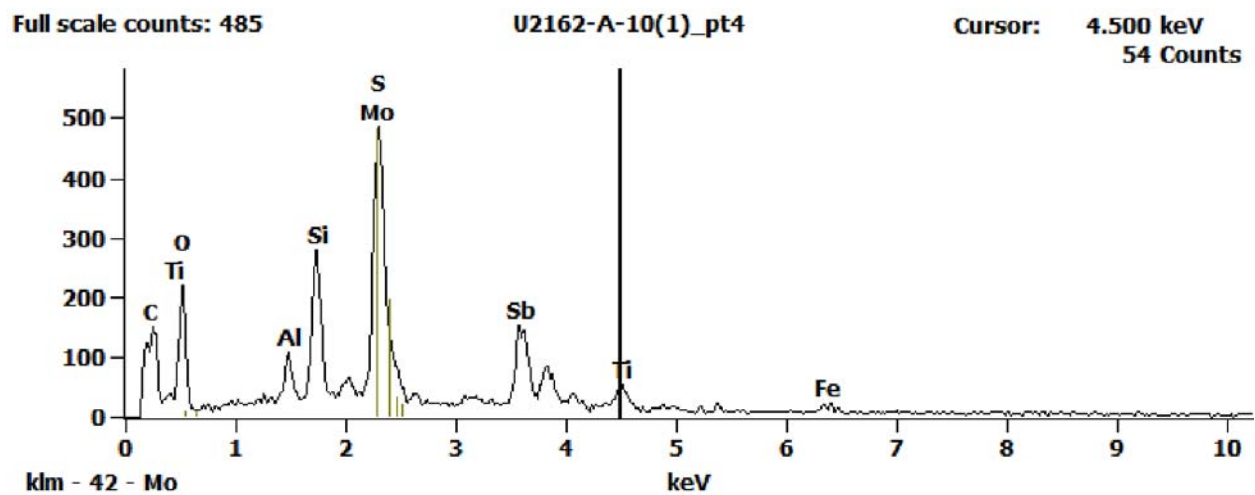
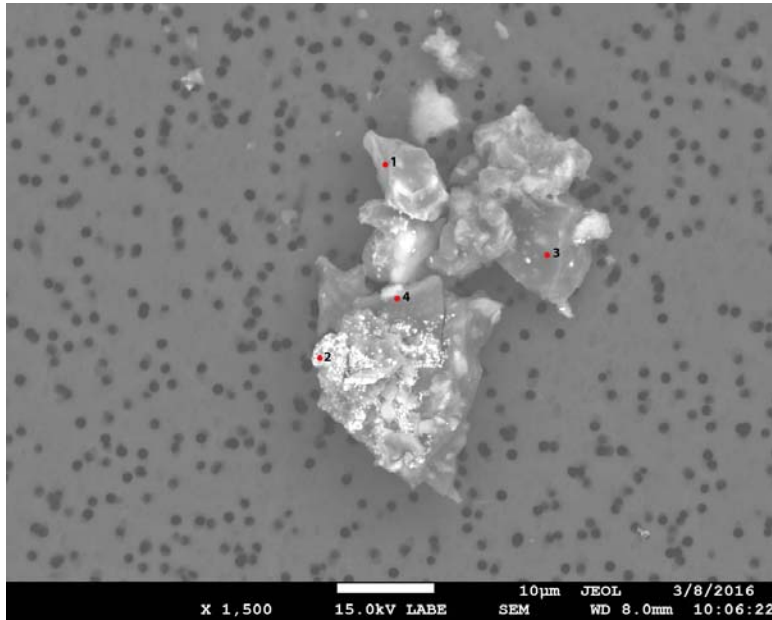


Figure 4. EDS Spectra for sample U2162-A-10 taken at test area 4. The test area is labeled in the particle SEM photo..

U2162 A12



Particle Size: 40 µm
Shape: Irregular
Transparency: Opaque
Color: Black
Luster: Pearly to Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2162 Cluster 12
Comments:

SEM Photo of sample U2162 A12 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 12

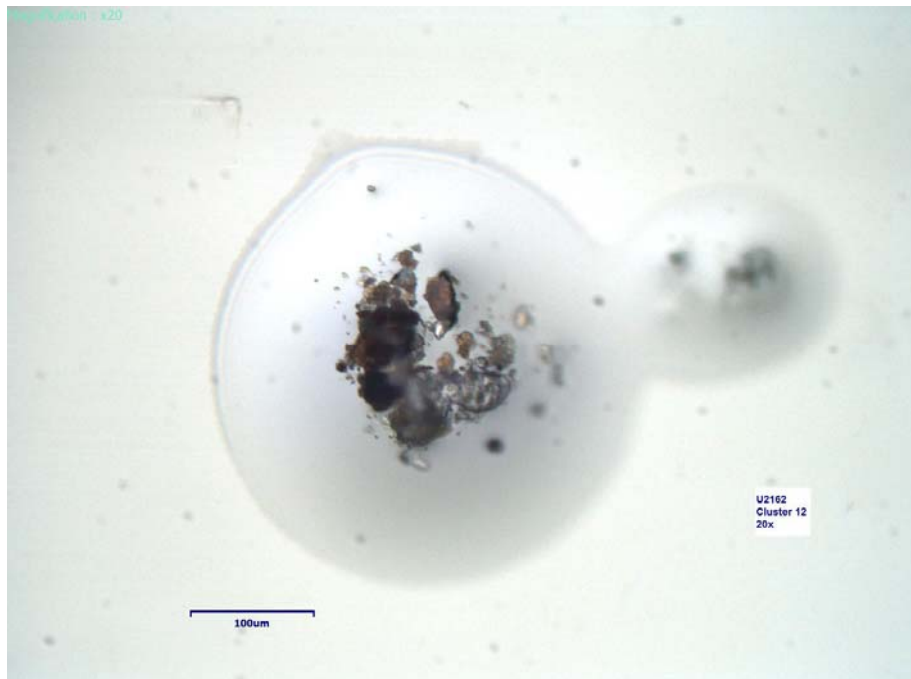


Photo of cluster U2162 Cluster 12.

U2162 A12 - EDS Spectra

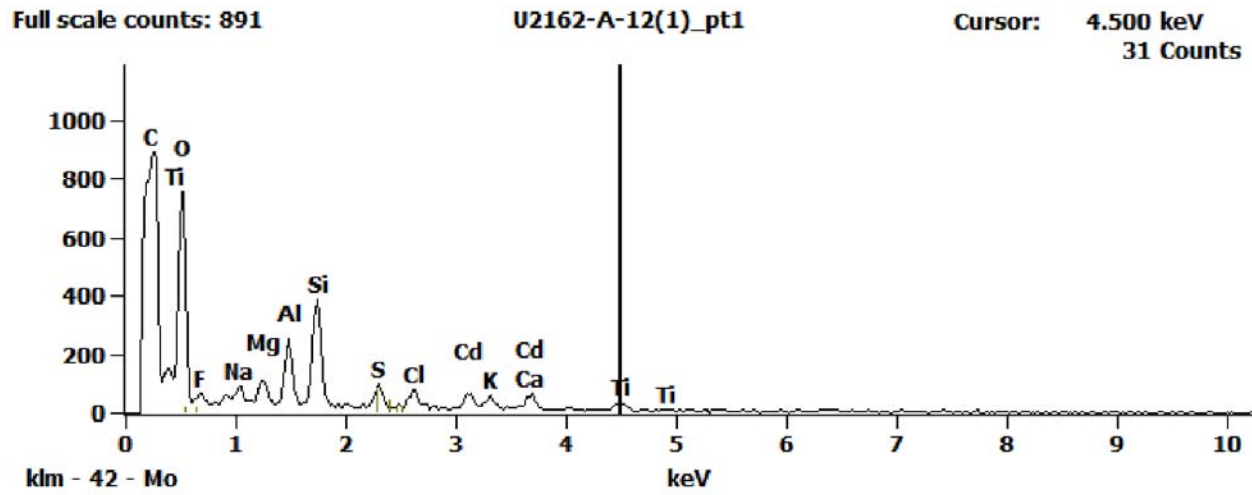


Figure 1. EDS Spectra for sample U2162-A-12 taken at test area 1. The test area is labeled in the particle SEM photo..

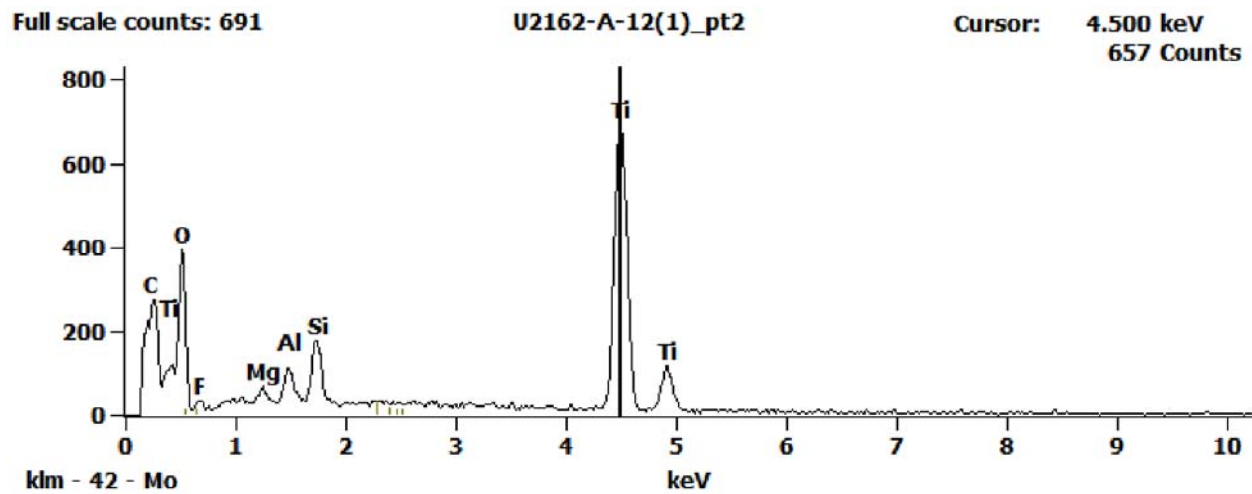


Figure 2. EDS Spectra for sample U2162-A-12 taken at test area 2. The test area is labeled in the particle SEM photo..

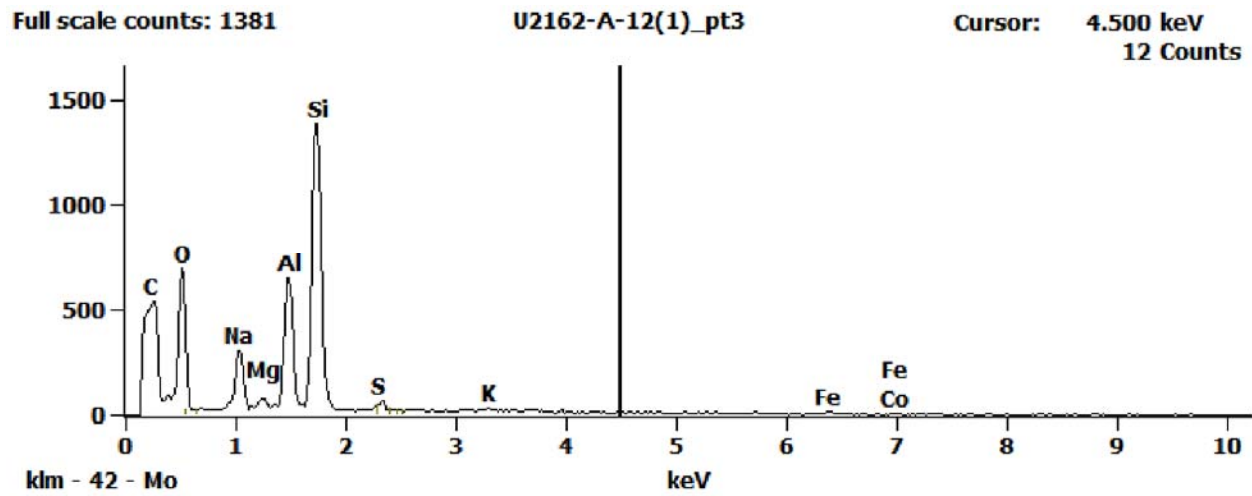


Figure 3. EDS Spectra for sample U2162-A-12 taken at test area 3. The test area is labeled in the particle SEM photo..

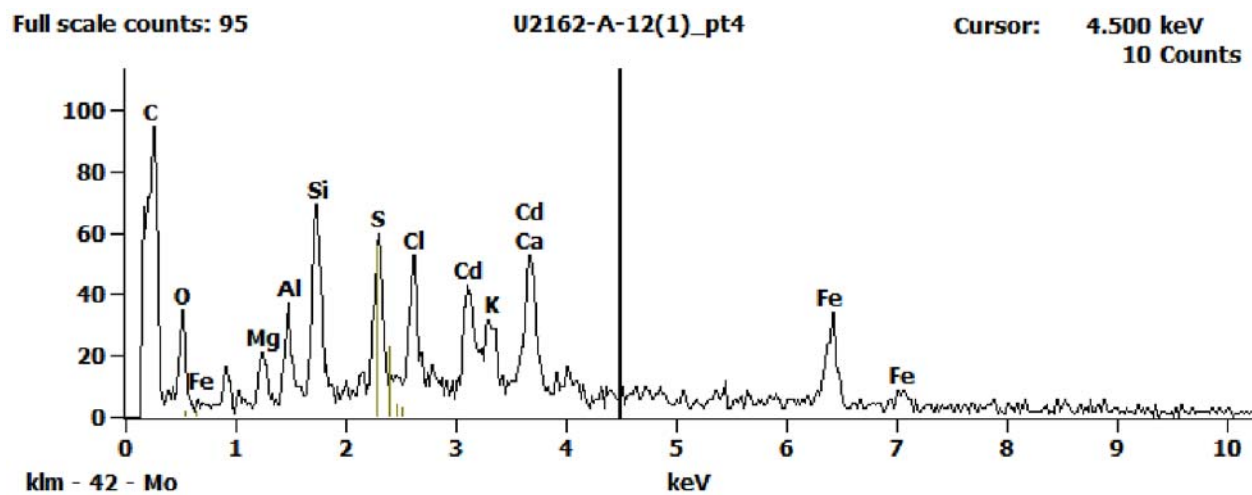
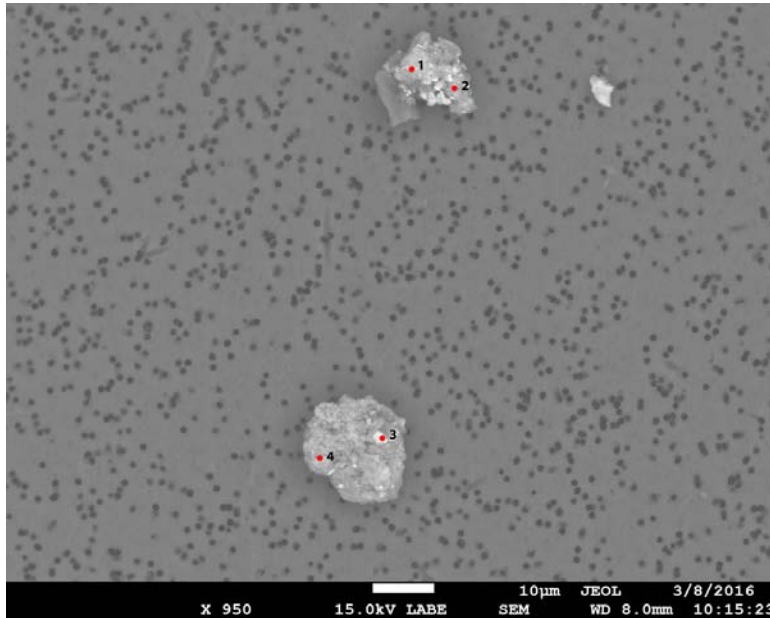


Figure 4. EDS Spectra for sample U2162-A-12 taken at test area 4. The test area is labeled in the particle SEM photo..

U2162 A13



Particle Size: 23 µm
Shape: Irregular to Spherical
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2162 Cluster 13
Comments:

SEM Photo of sample U2162 A13 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 13

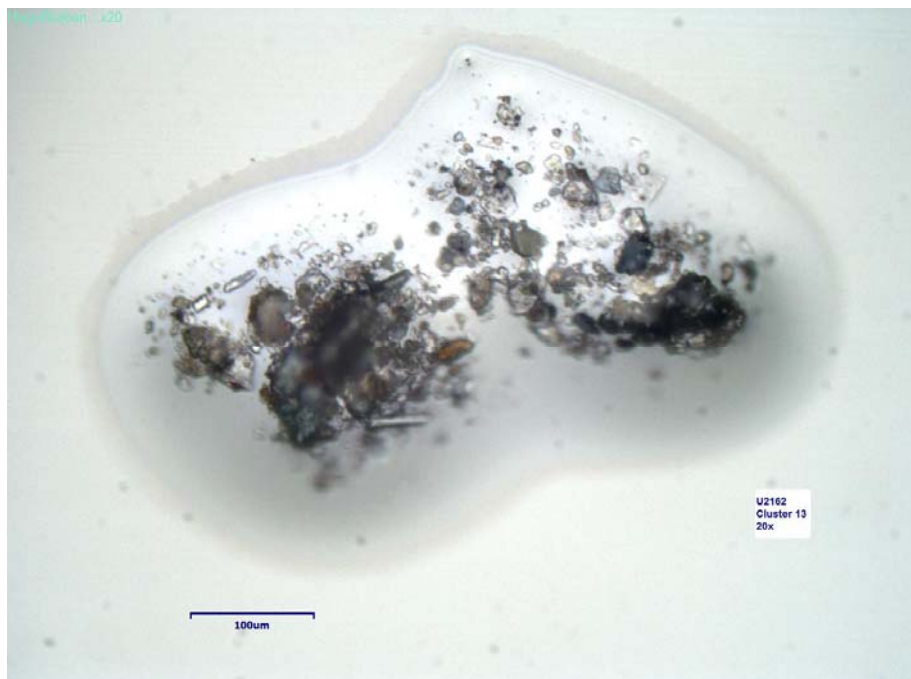


Photo of cluster U2162 Cluster 13.

U2162 A13 - EDS Spectra

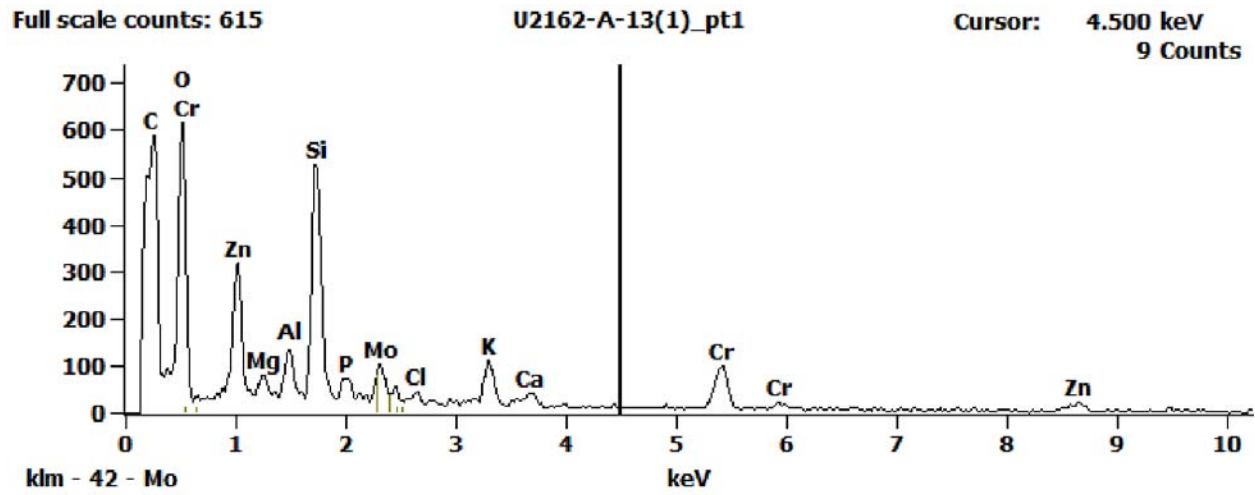


Figure 1. EDS Spectra for sample U2162-A-13 taken at test area 1. The test area is labeled in the particle SEM photo..

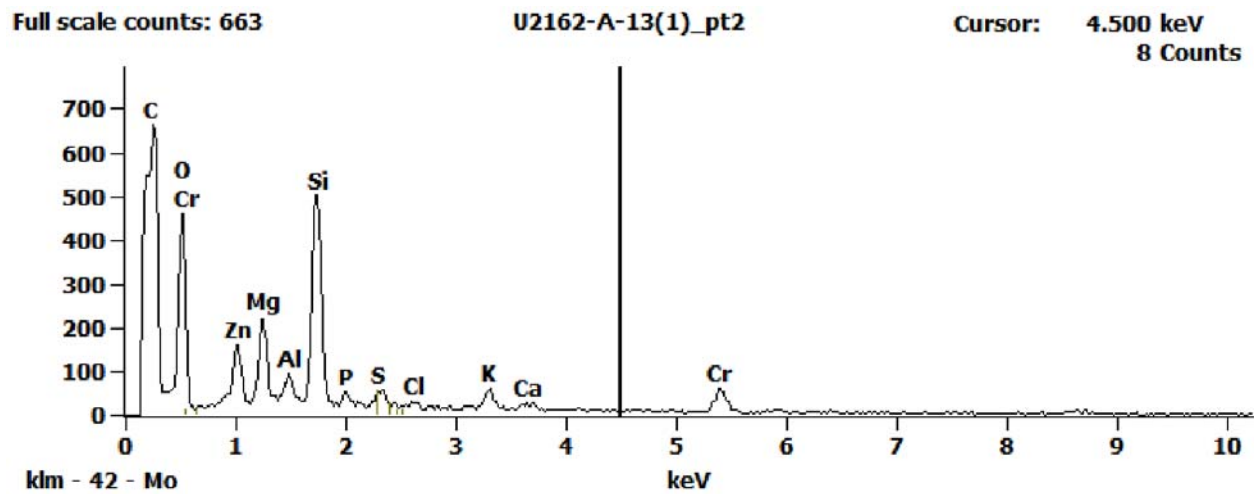


Figure 2. EDS Spectra for sample U2162-A-13 taken at test area 2. The test area is labeled in the particle SEM photo..

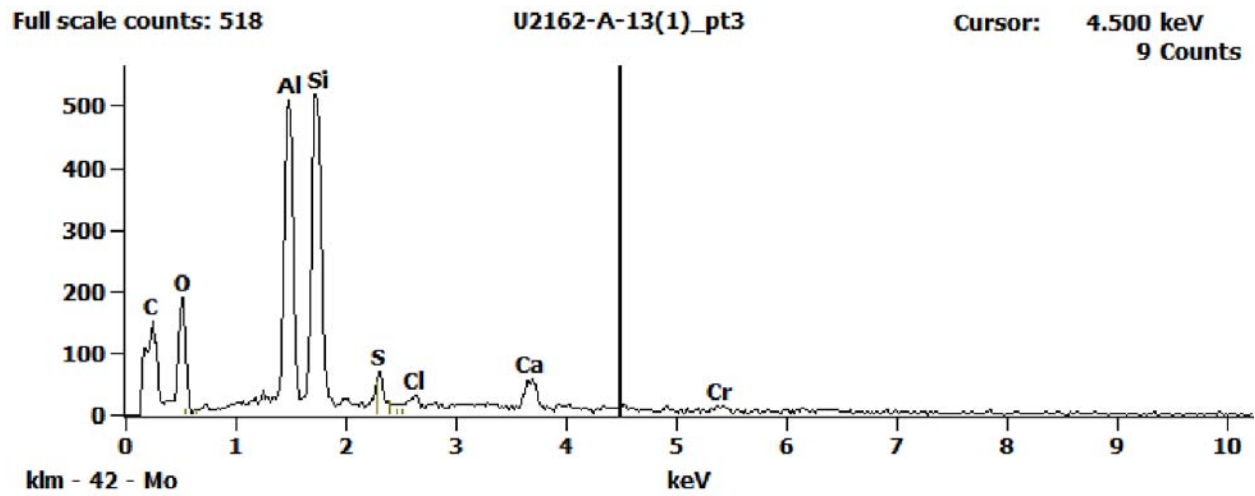


Figure 3. EDS Spectra for sample U2162-A-13 taken at test area 3. The test area is labeled in the particle SEM photo..

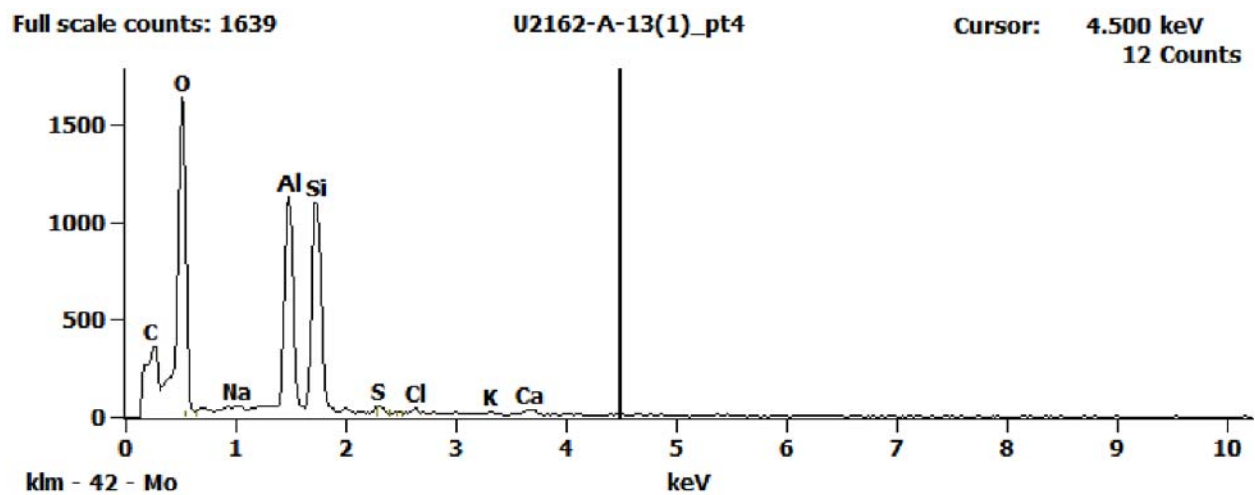
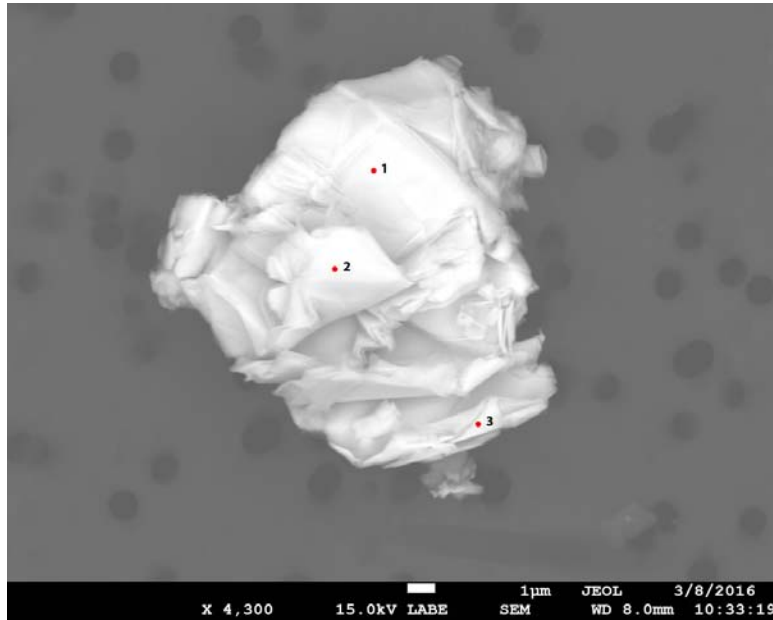


Figure 4. EDS Spectra for sample U2162-A-13 taken at test area 4. The test area is labeled in the particle SEM photo..

U2162 A14



Particle Size: 12 µm
Shape: Irregular
Transparency: Opaque to Subvitreous
Color: Black
Luster: Subvitreous to Dull
Particle Type: Artificial Terrestrial Contamination
Cluster No.: U2162 Cluster 14
Comments:

SEM Photo of sample U2162 A14 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 14

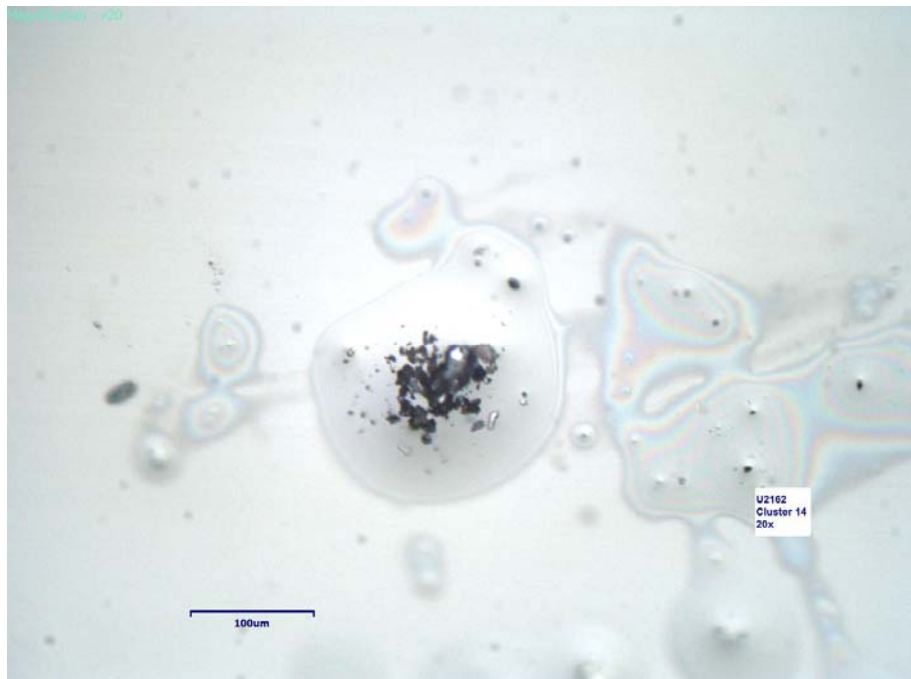


Photo of cluster U2162 Cluster 14.

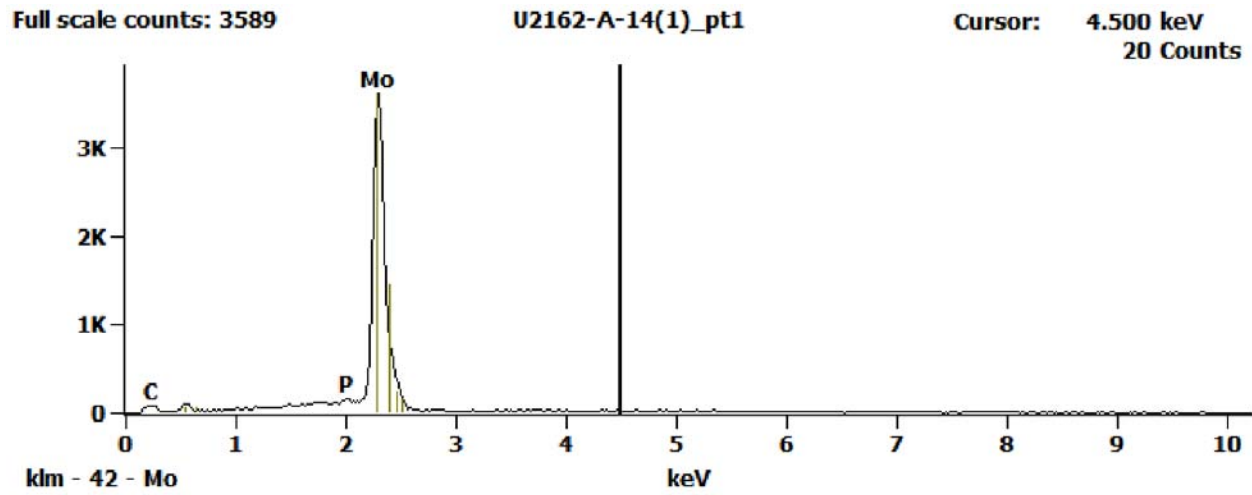
U2162 A14 - EDS Spectra

Figure 1. EDS Spectra for sample U2162-A-14 taken at test area 1. The test area is labeled in the particle SEM photo..

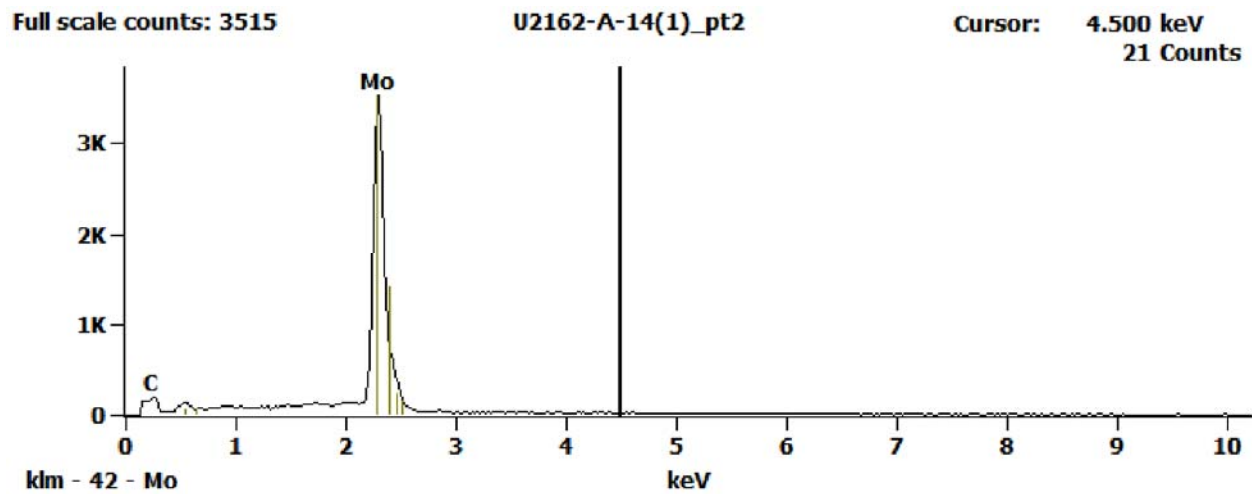


Figure 2. EDS Spectra for sample U2162-A-14 taken at test area 2. The test area is labeled in the particle SEM photo..

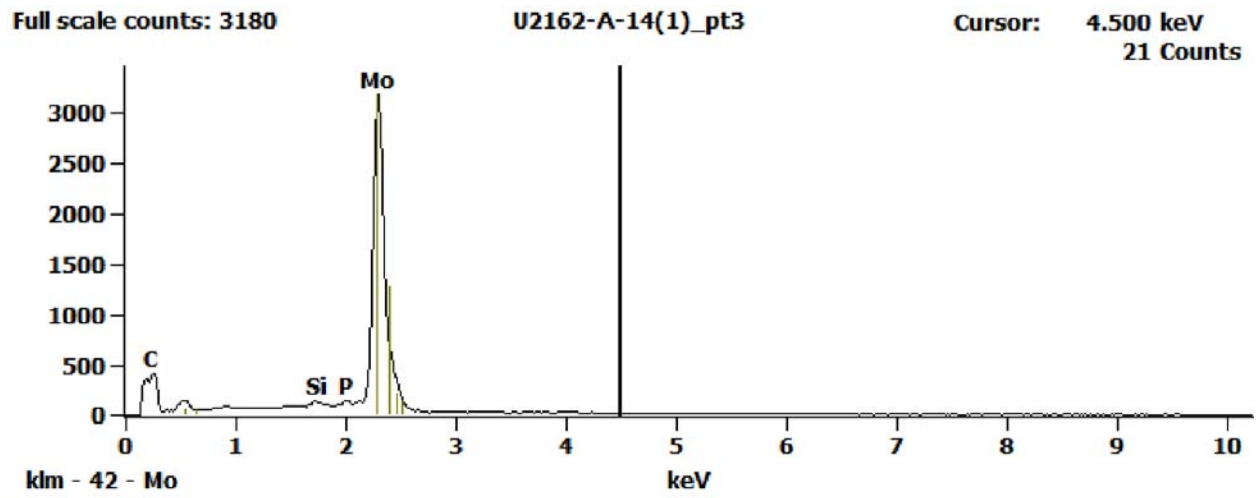
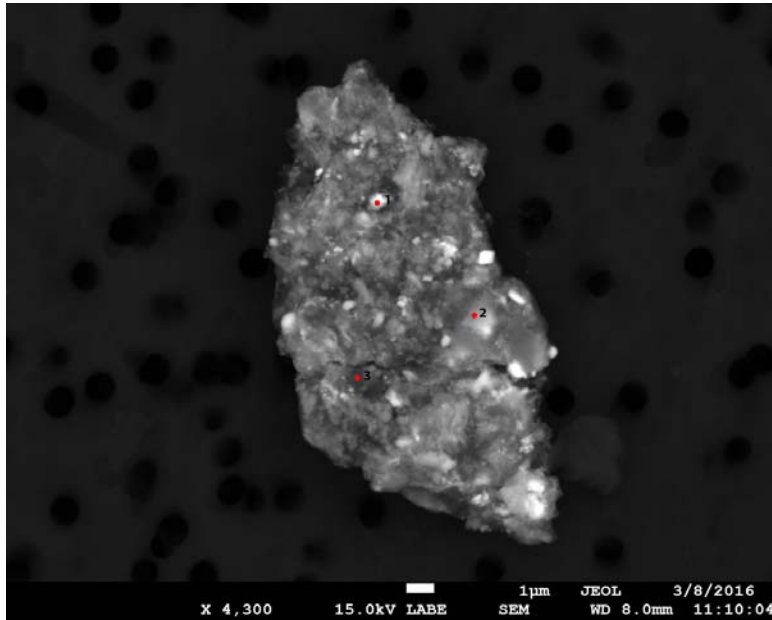


Figure 3. EDS Spectra for sample U2162-A-14 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A18



Particle Size: 26x11 µm
Shape: Irregular
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2162 Cluster 16
Comments:

SEM Photo of sample U2162 A18 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 16

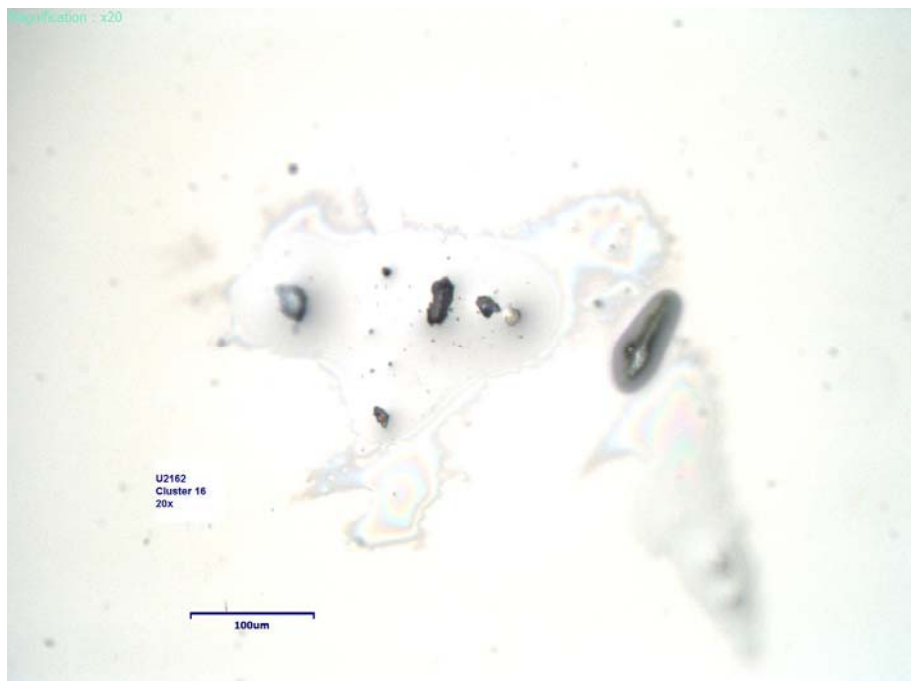


Photo of cluster U2162 Cluster 16.

U2162 A18 - EDS Spectra

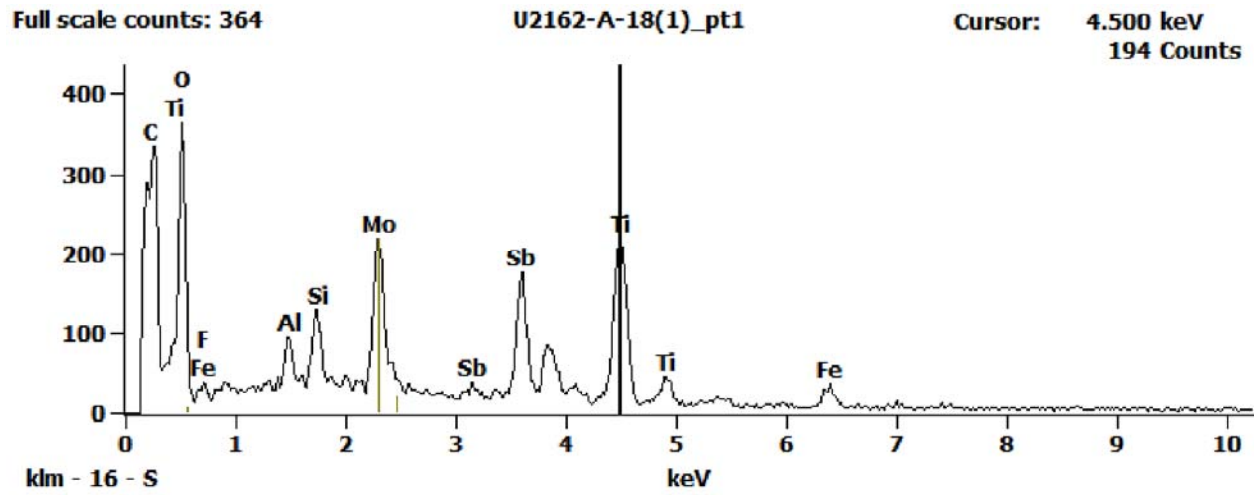


Figure 1. EDS Spectra for sample U2162-A-18 taken at test area 1. The test area is labeled in the particle SEM photo..

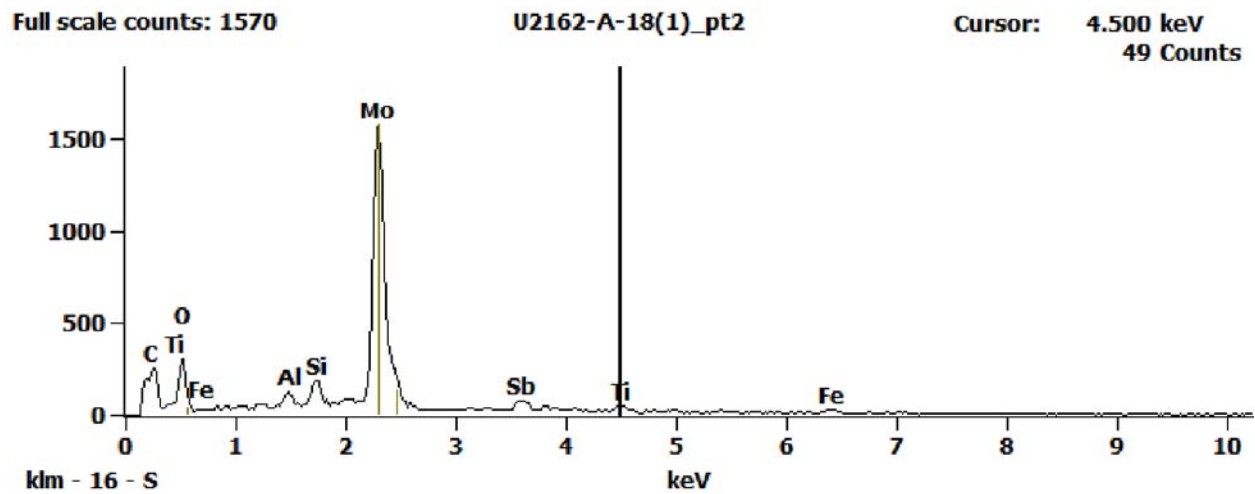


Figure 2. EDS Spectra for sample U2162-A-18 taken at test area 2. The test area is labeled in the particle SEM photo..

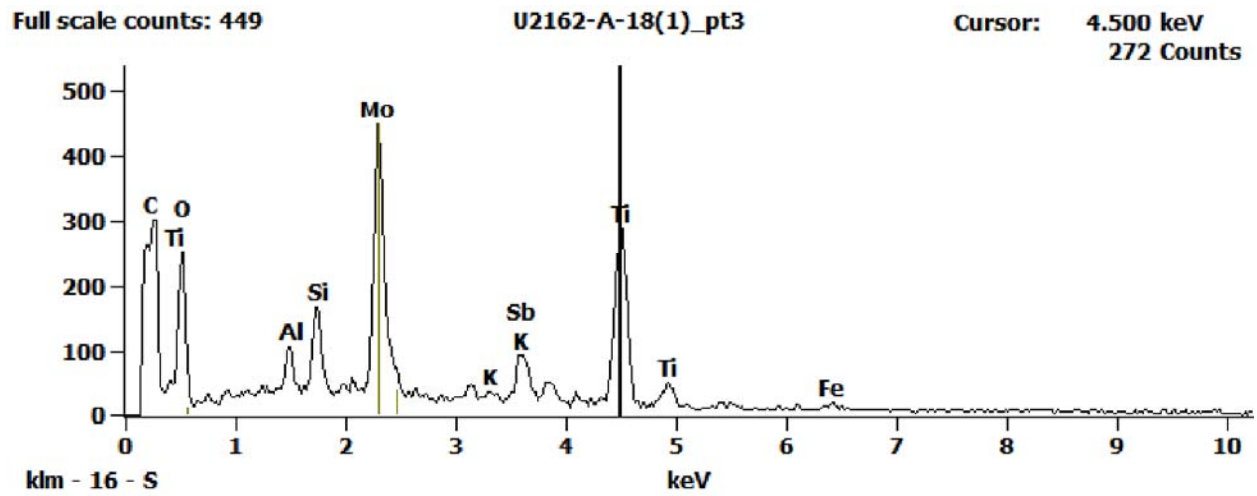
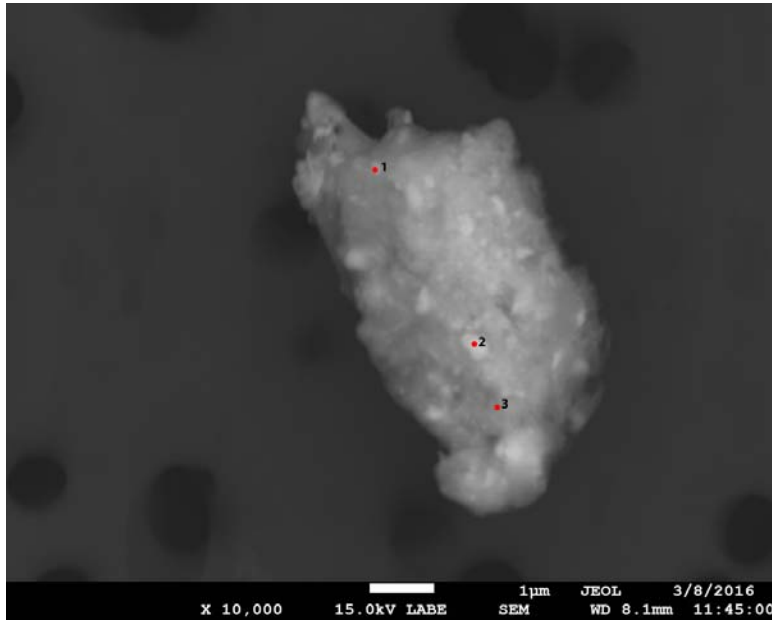


Figure 3. EDS Spectra for sample U2162-A-18 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B2



Particle Size: 7 µm
Shape: Irregular
Transparency: Opaque
Color: Black, Brown
Luster: Pearly to Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2162 Cluster 19
Comments:

SEM Photo of sample U2162 B2 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 19

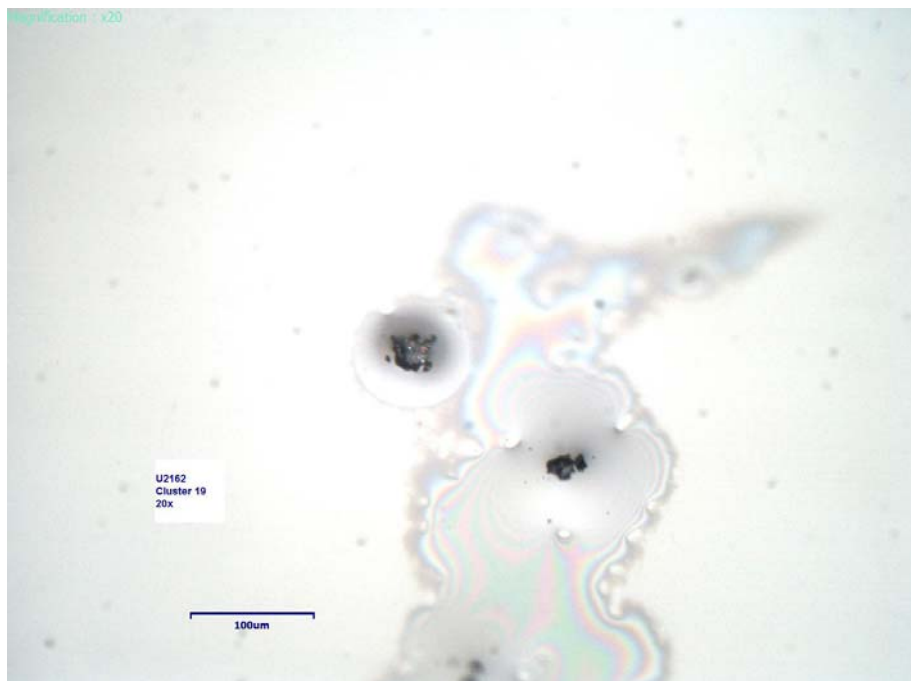


Photo of cluster U2162 Cluster 19.

U2162 B2 - EDS Spectra

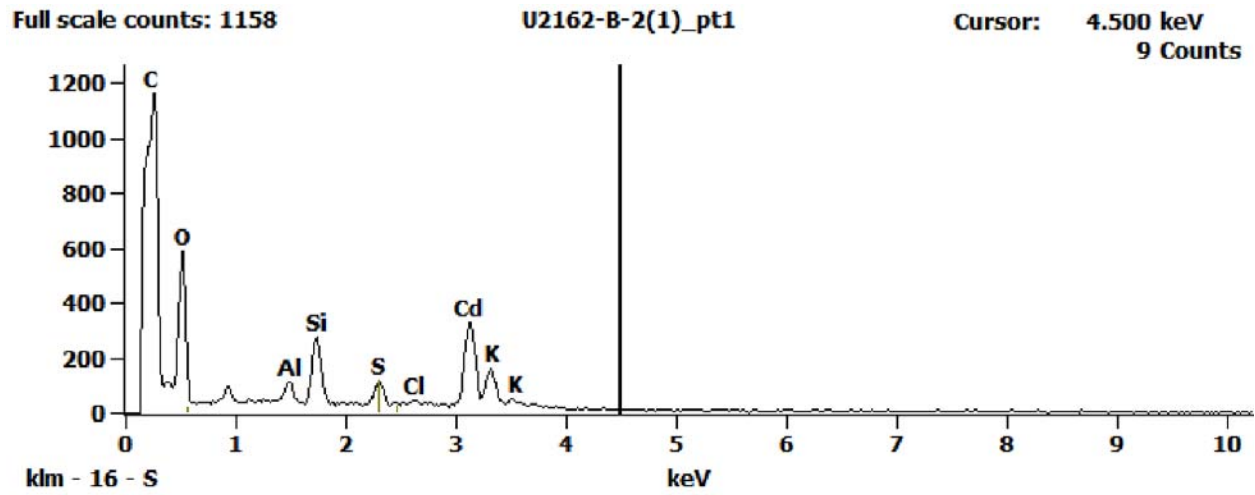


Figure 1. EDS Spectra for sample U2162-B-2 taken at test area 1. The test area is labeled in the particle SEM photo..

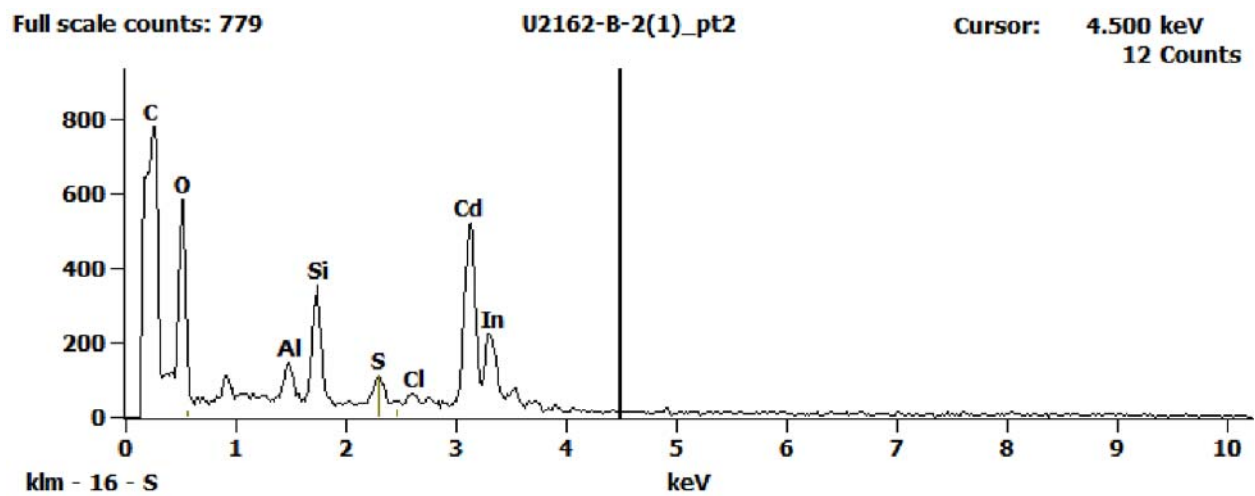


Figure 2. EDS Spectra for sample U2162-B-2 taken at test area 2. The test area is labeled in the particle SEM photo..

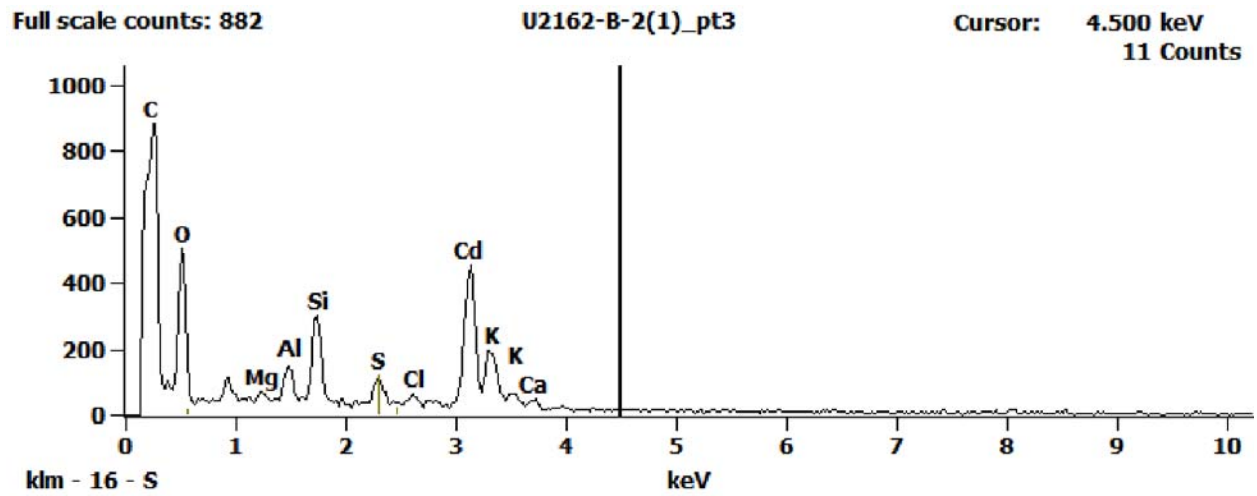
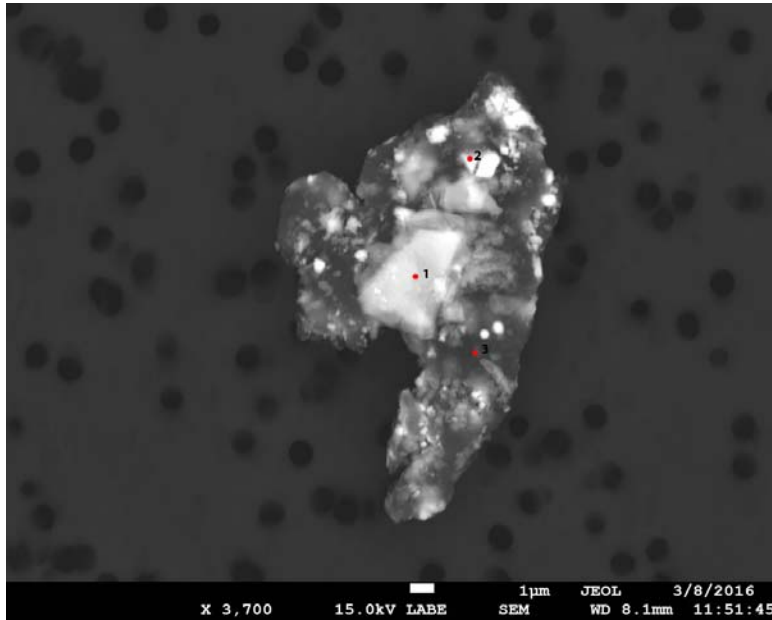


Figure 3. EDS Spectra for sample U2162-B-2 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B3



Particle Size: 18x13 µm
Shape: Irregular to Equidimensional
Transparency: Opaque to Subvitreous
Color: Gray
Luster: Pearly to Vitreous
Particle Type: Artificial Terrestrial Contamination
Cluster No.: U2162 Cluster 20
Comments:

SEM Photo of sample U2162 B3 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 20

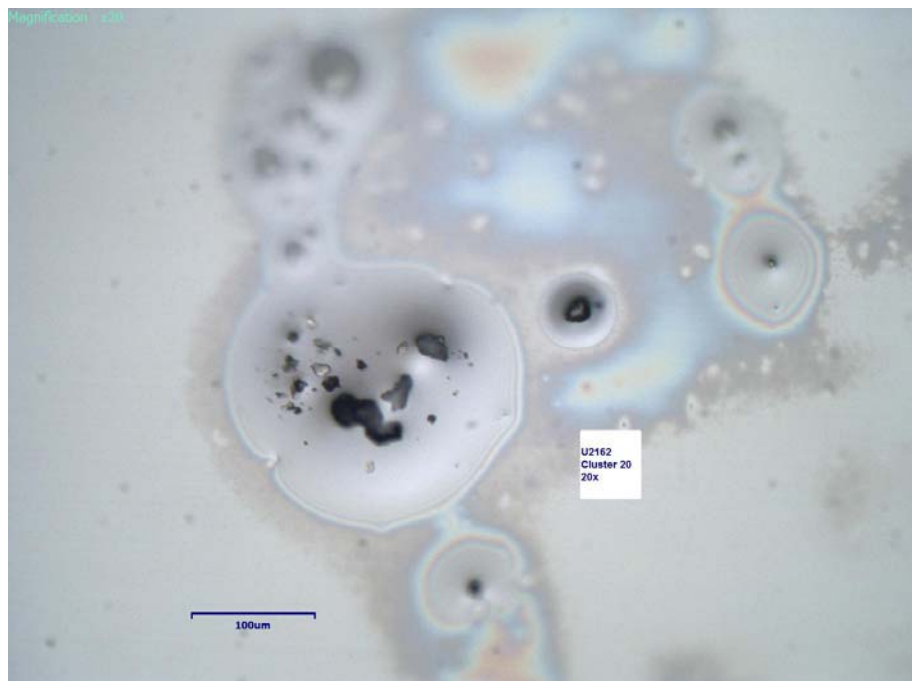


Photo of cluster U2162 Cluster 20.

U2162 B3 - EDS Spectra

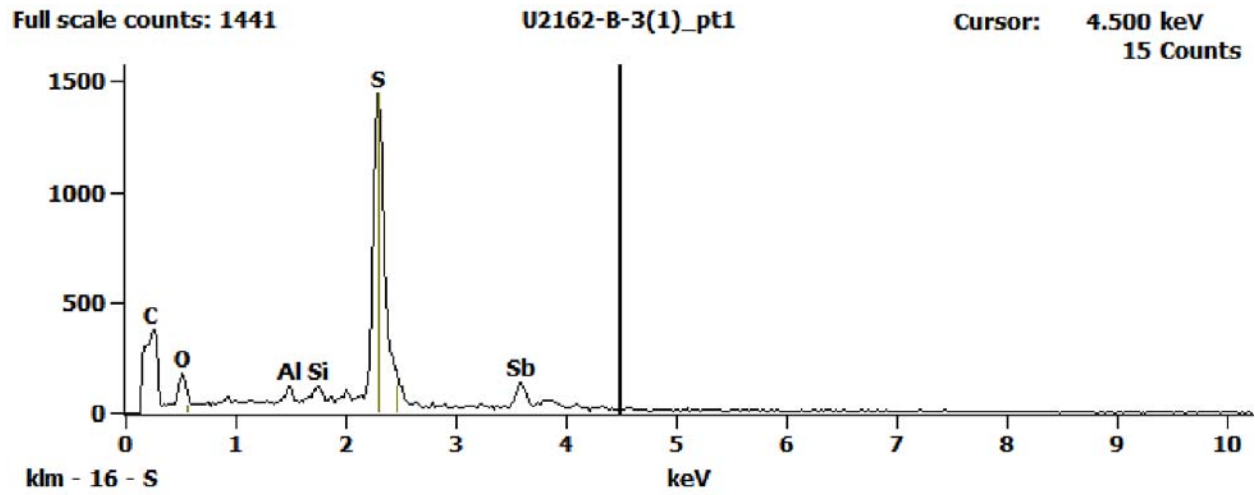


Figure 1. EDS Spectra for sample U2162-B-3 taken at test area 1. The test area is labeled in the particle SEM photo..

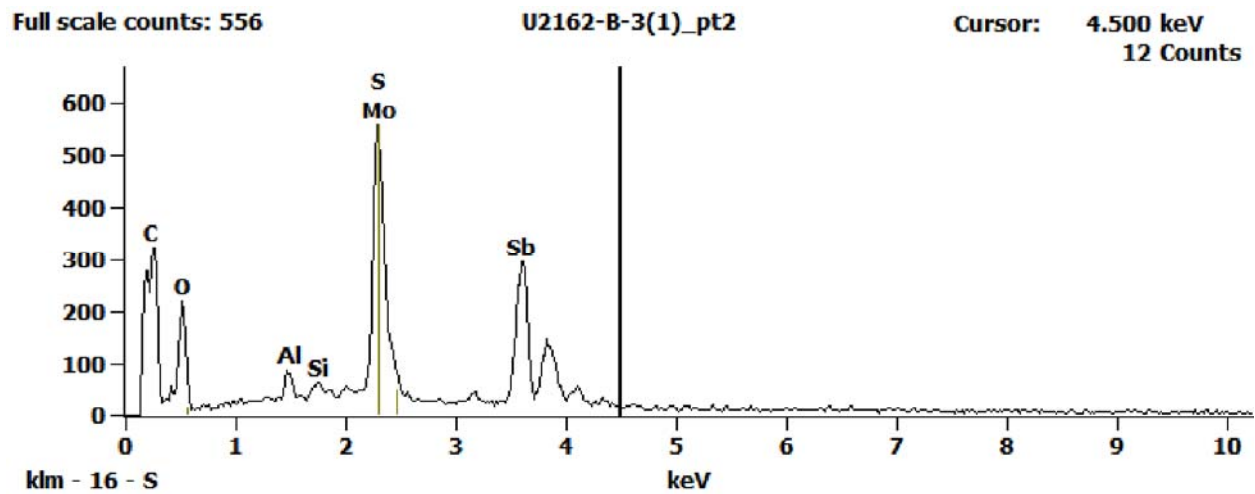


Figure 2. EDS Spectra for sample U2162-B-3 taken at test area 2. The test area is labeled in the particle SEM photo..

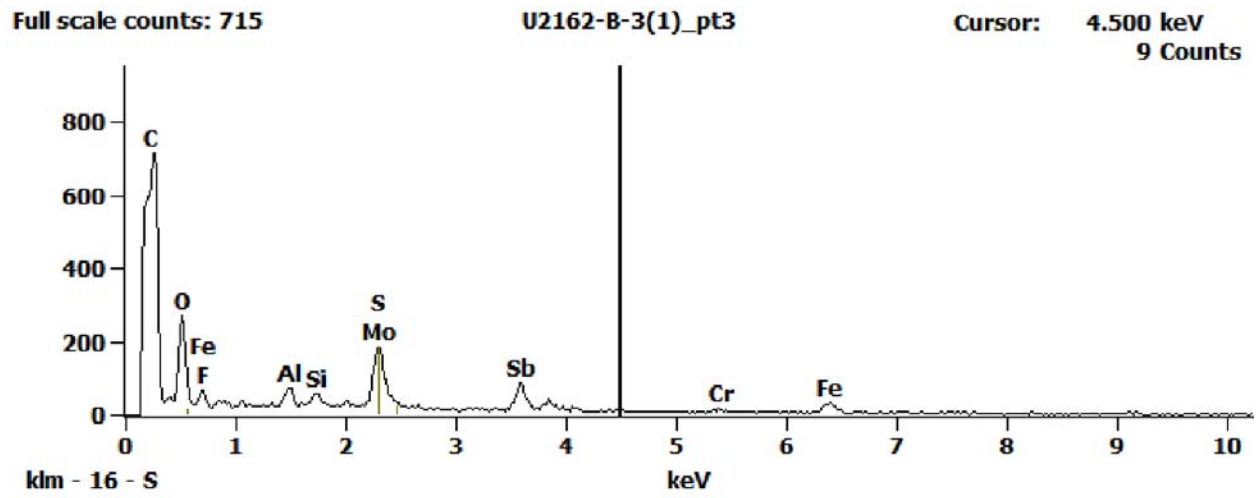
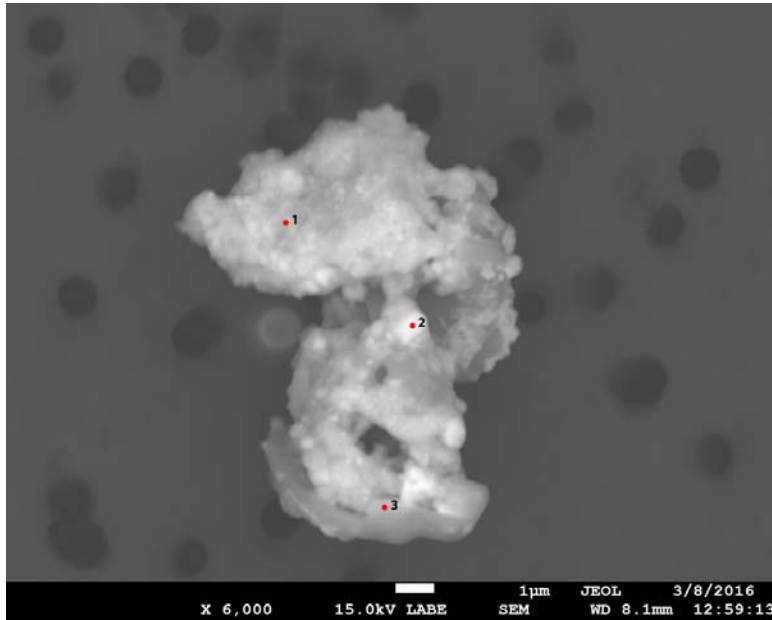


Figure 3. EDS Spectra for sample U2162-B-3 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B5



Particle Size: 13x7 µm
Shape: Equidimensional
Transparency: Opaque
Color: Green, Gray
Luster: Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2162 Cluster 22
Comments:

SEM Photo of sample U2162 B5 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 22

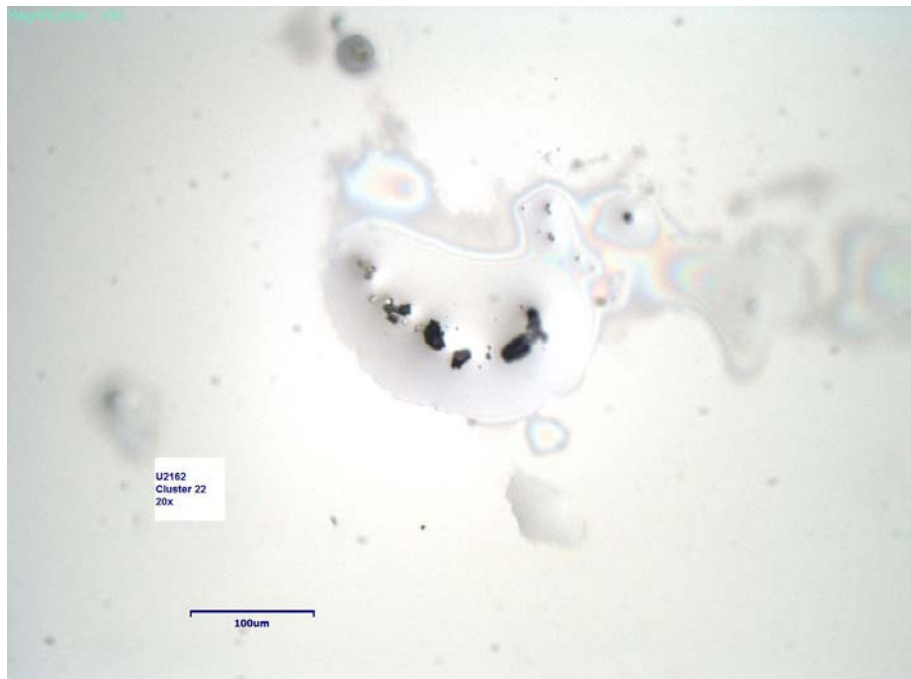


Photo of cluster U2162 Cluster 22.

U2162 B5 - EDS Spectra

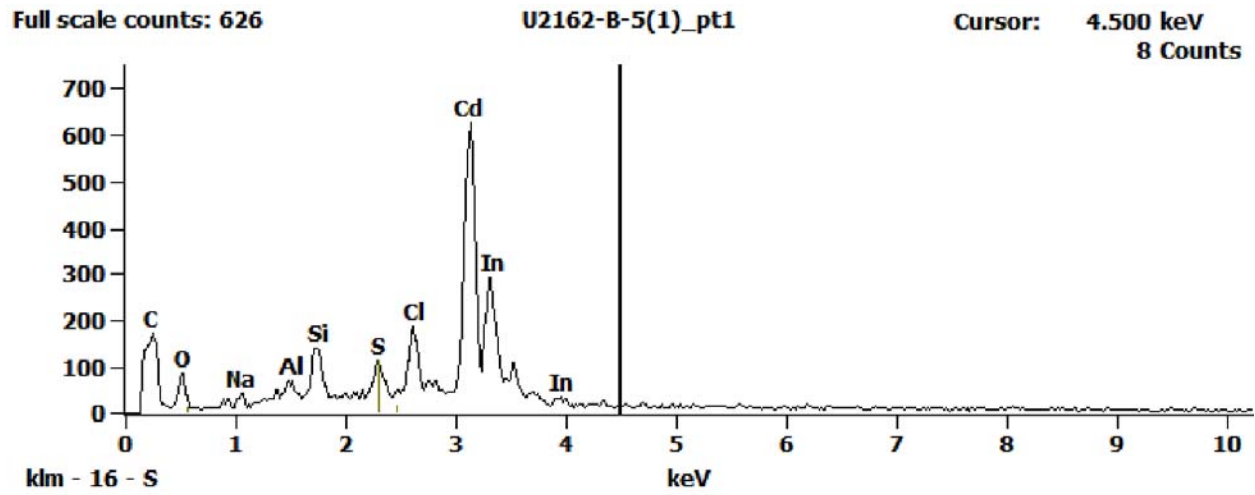


Figure 1. EDS Spectra for sample U2162-B-5 taken at test area 1. The test area is labeled in the particle SEM photo..

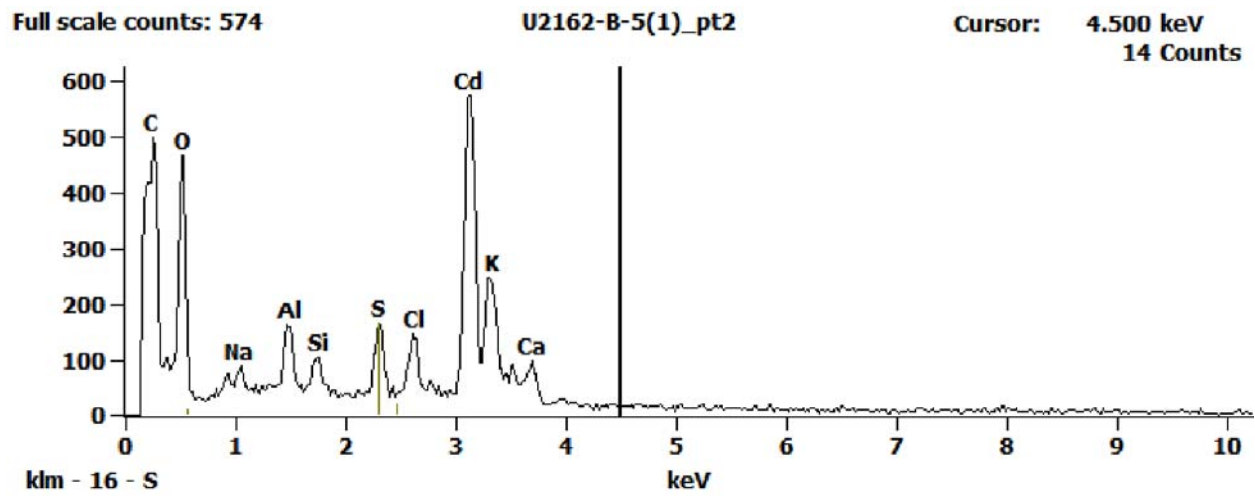


Figure 2. EDS Spectra for sample U2162-B-5 taken at test area 2. The test area is labeled in the particle SEM photo..

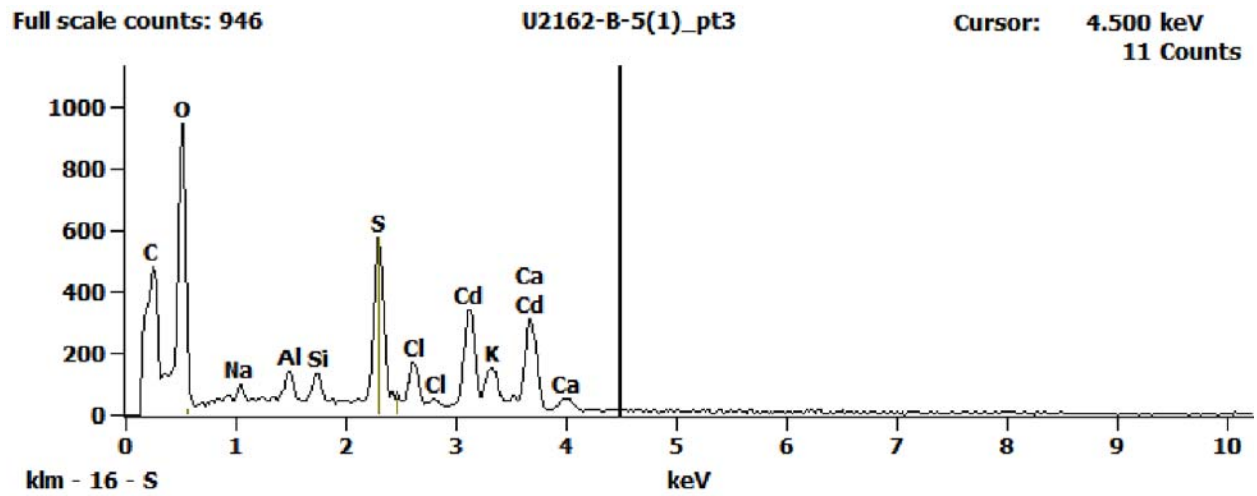
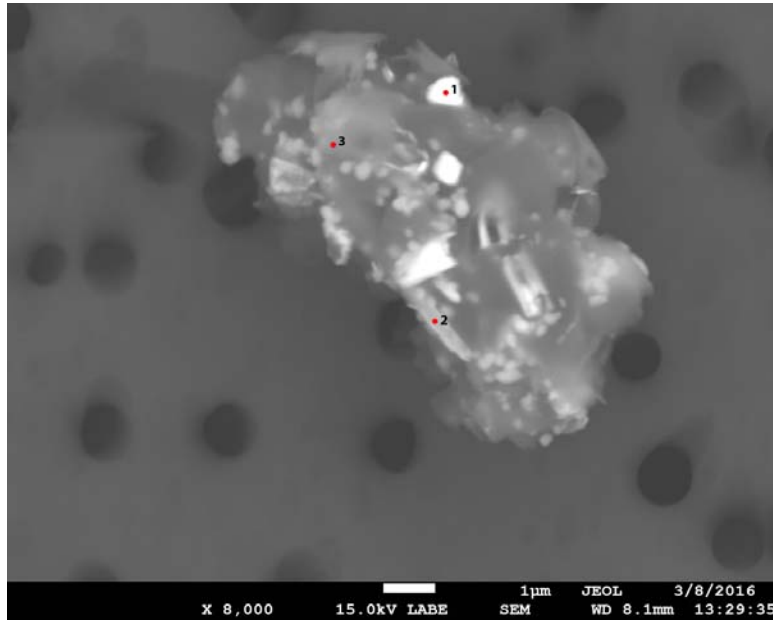


Figure 3. EDS Spectra for sample U2162-B-5 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B7



Particle Size: 10 µm
Shape: Equidimensional to Spherical
Transparency: Translucent to Opaque
Color: Gray, Yellow
Luster: Pearly
Particle Type: Artificial Terrestrial Contamination
Cluster No.: U2162 Cluster 24
Comments:

SEM Photo of sample U2162 B7 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 24

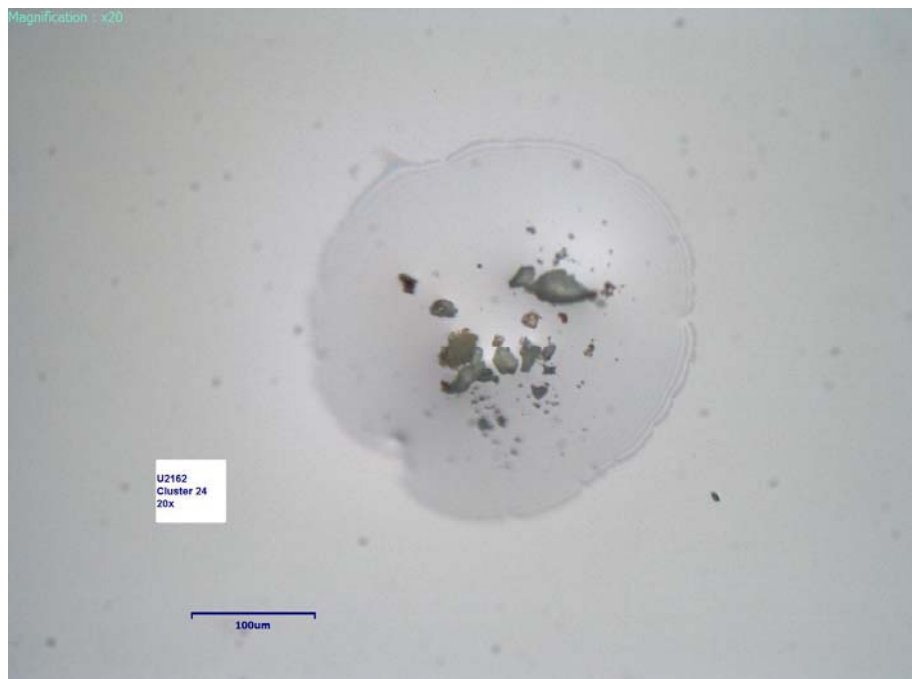


Photo of cluster U2162 Cluster 24.

U2162 B7 - EDS Spectra

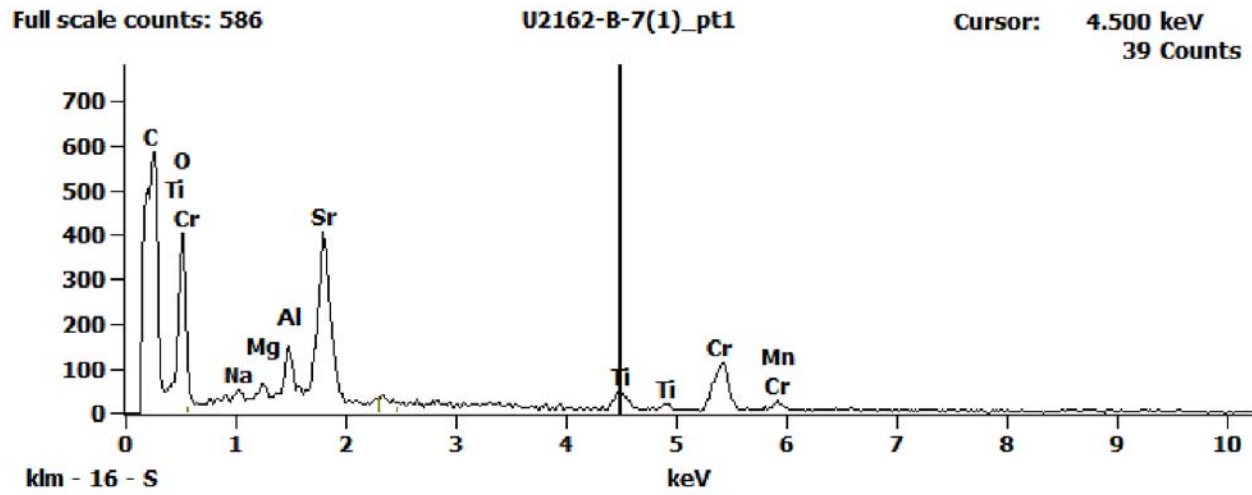


Figure 1. EDS Spectra for sample U2162-B-7 taken at test area 1. The test area is labeled in the particle SEM photo..

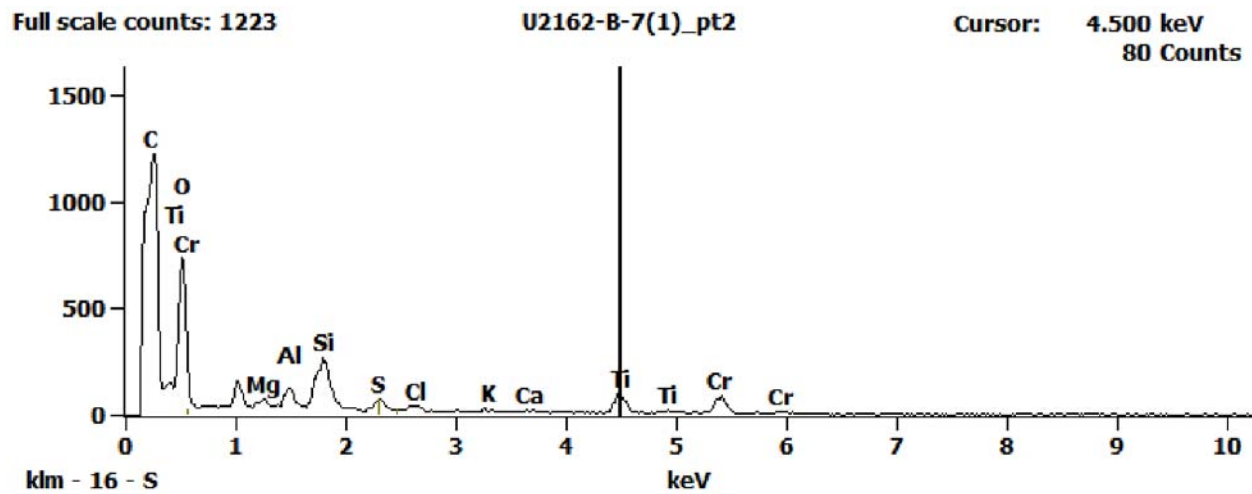


Figure 2. EDS Spectra for sample U2162-B-7 taken at test area 2. The test area is labeled in the particle SEM photo..

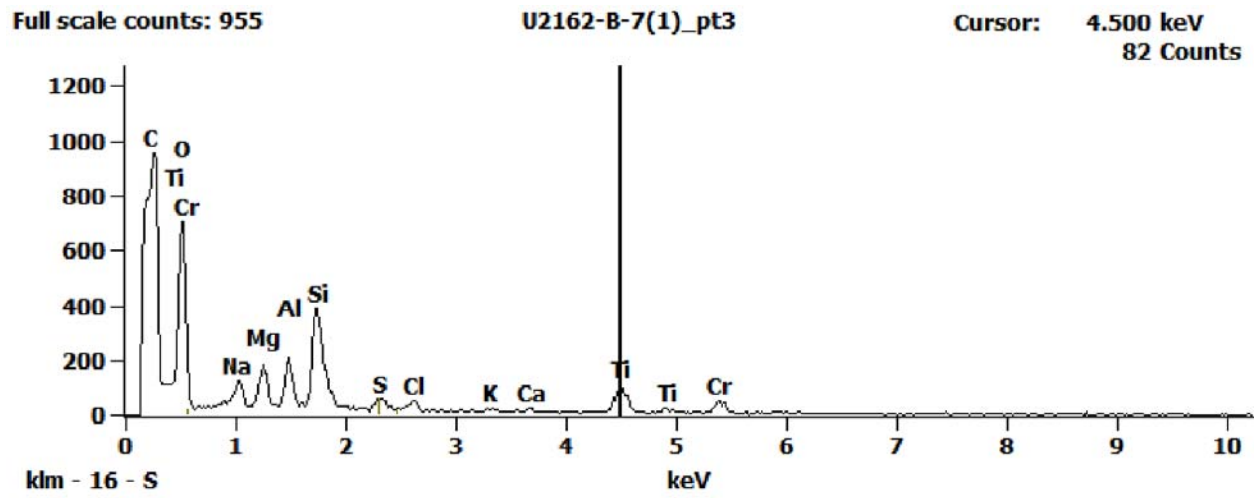
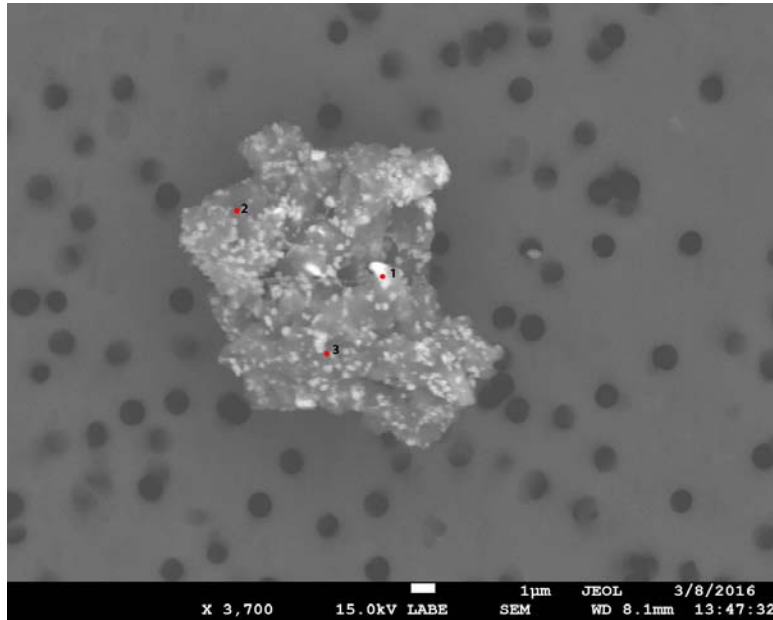


Figure 3. EDS Spectra for sample U2162-B-7 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B10



Particle Size:	16 µm
Shape:	Equidimensional to Spherical
Transparency:	Opaque
Color:	Gray
Luster:	Pearly
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2162 Cluster 29
Comments:	

SEM Photo of sample U2162 B10 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 29



Photo of cluster U2162 Cluster 29.

U2162 B10 - EDS Spectra

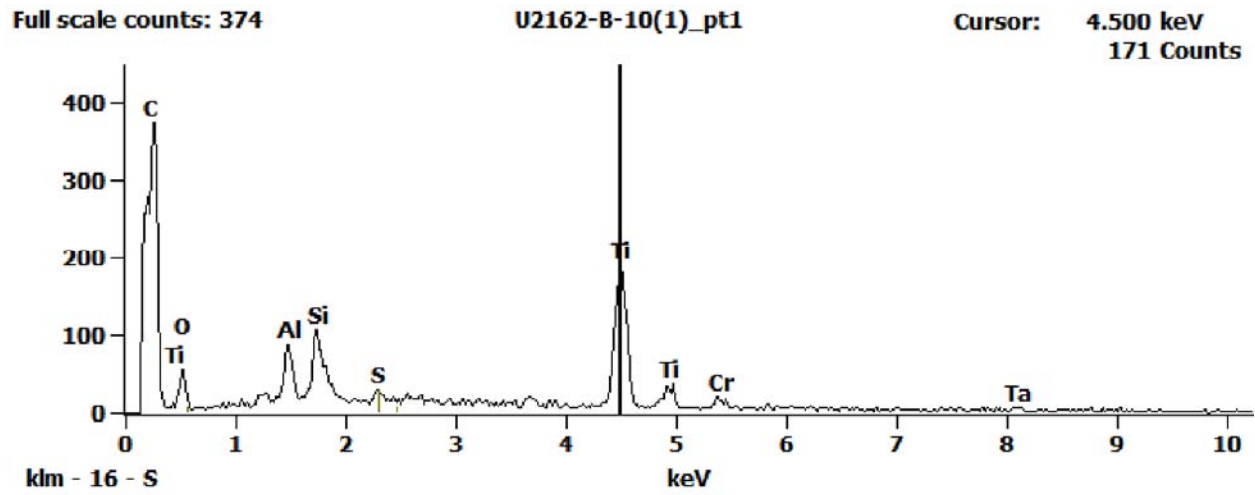


Figure 1. EDS Spectra for sample U2162-B-10 taken at test area 1. The test area is labeled in the particle SEM photo..

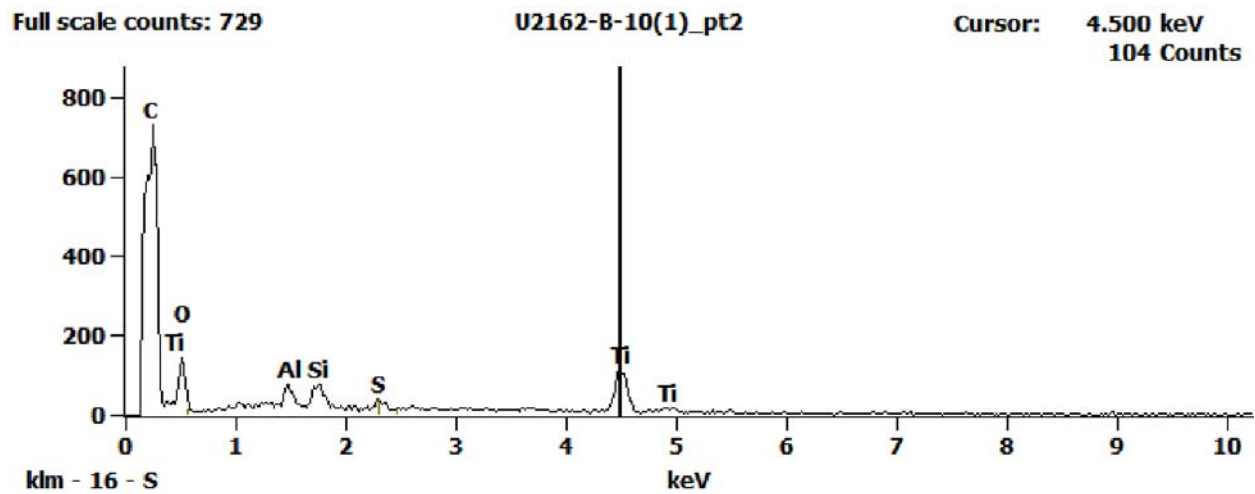


Figure 2. EDS Spectra for sample U2162-B-10 taken at test area 2. The test area is labeled in the particle SEM photo..

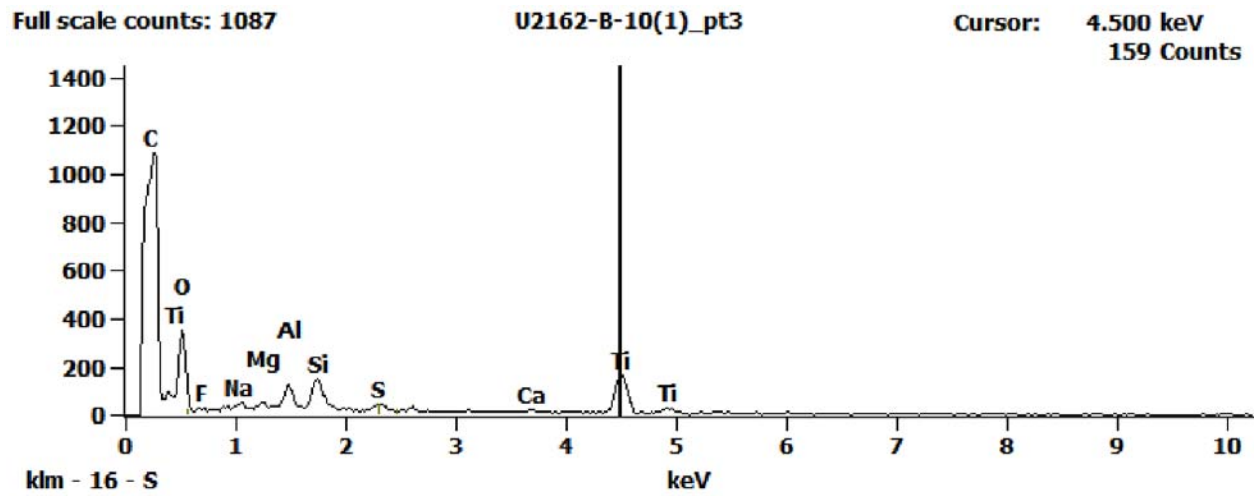
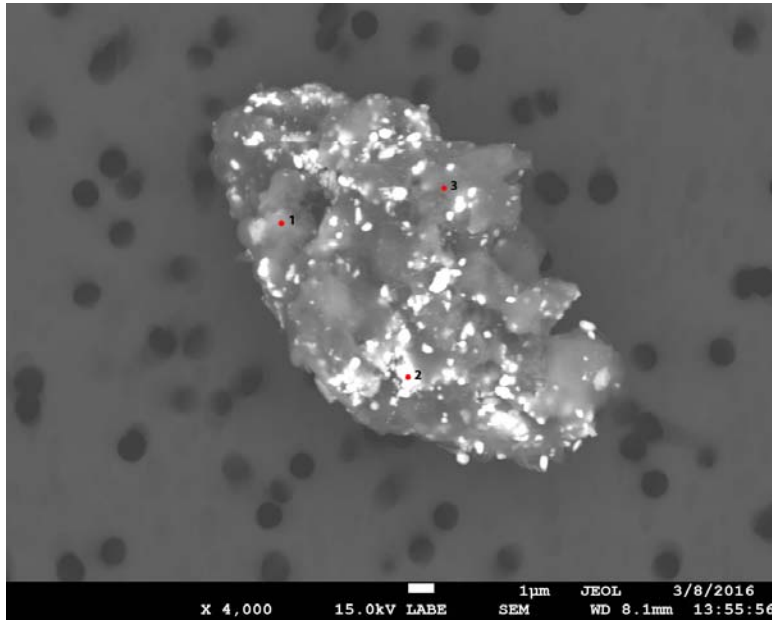


Figure 3. EDS Spectra for sample U2162-B-10 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B11



Particle Size: 18x11 µm
Shape: Equidimensional
Transparency: Opaque
Color: Gray
Luster: Pearly
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2162 Cluster 30
Comments:

SEM Photo of sample U2162 B11 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 30



Photo of cluster U2162 Cluster 30.

U2162 B11 - EDS Spectra

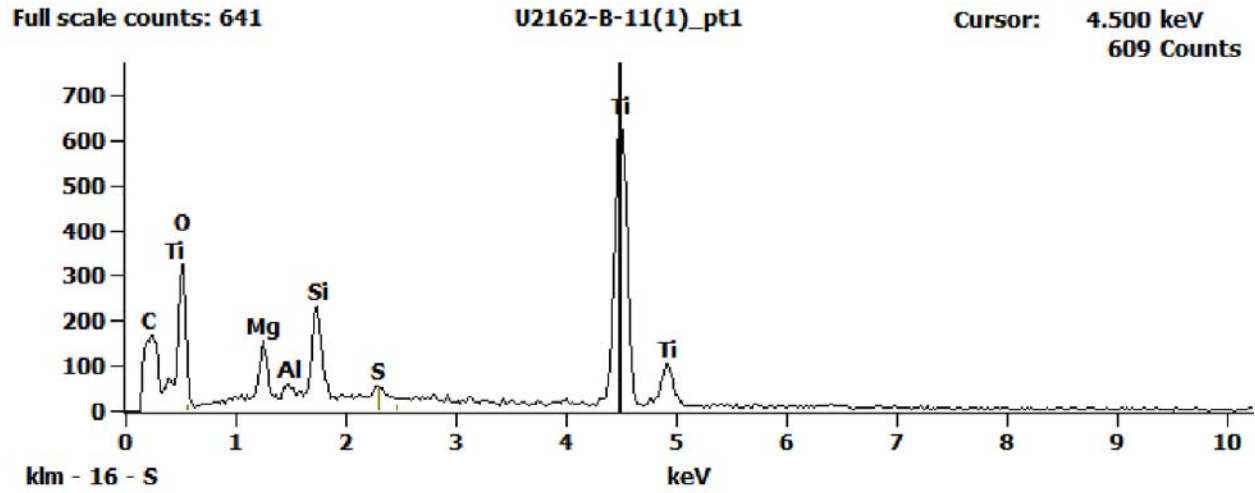


Figure 1. EDS Spectra for sample U2162-B-11 taken at test area 1. The test area is labeled in the particle SEM photo..

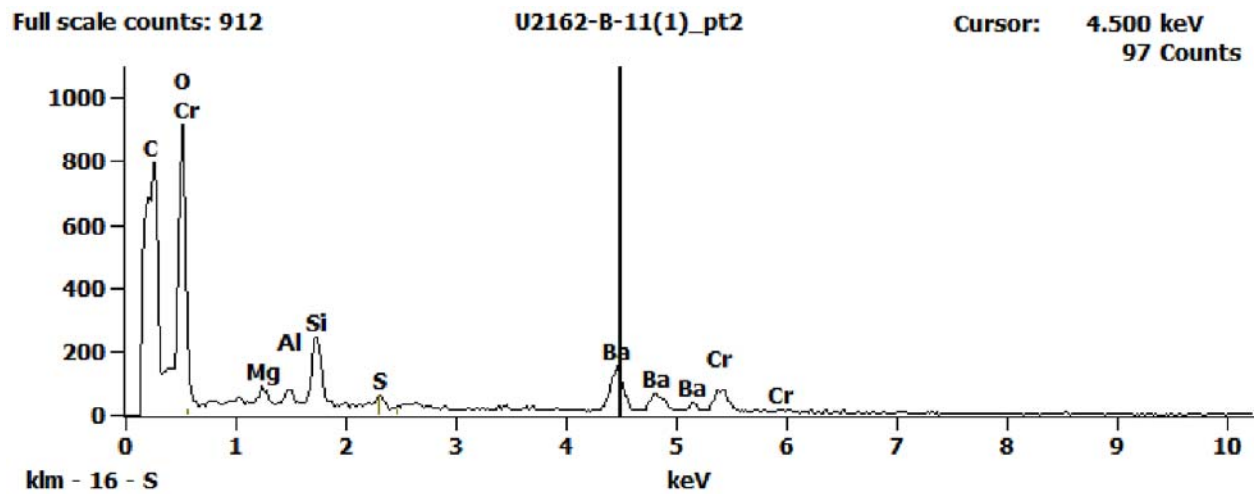


Figure 2. EDS Spectra for sample U2162-B-11 taken at test area 2. The test area is labeled in the particle SEM photo..

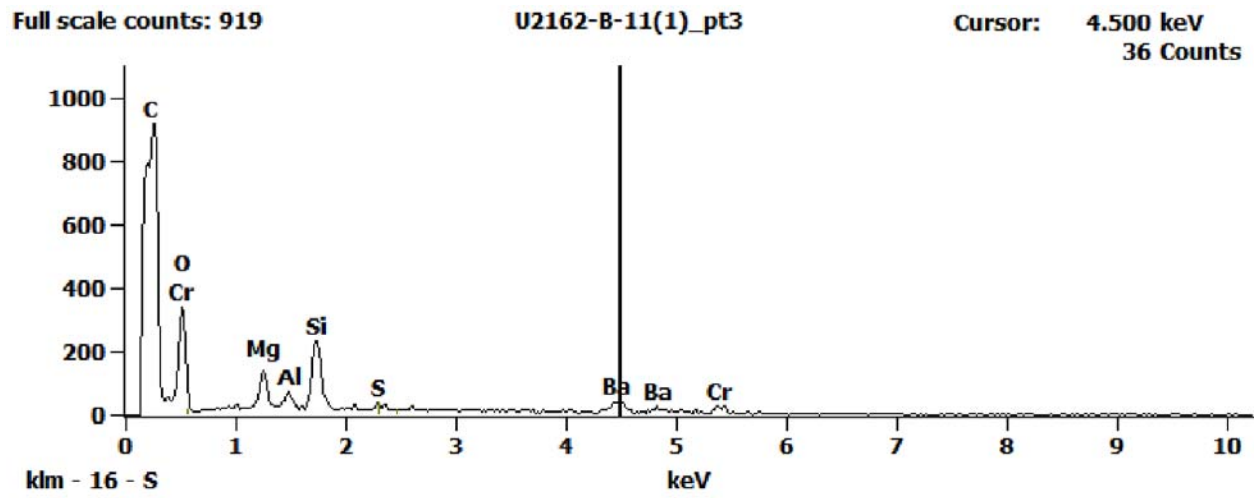
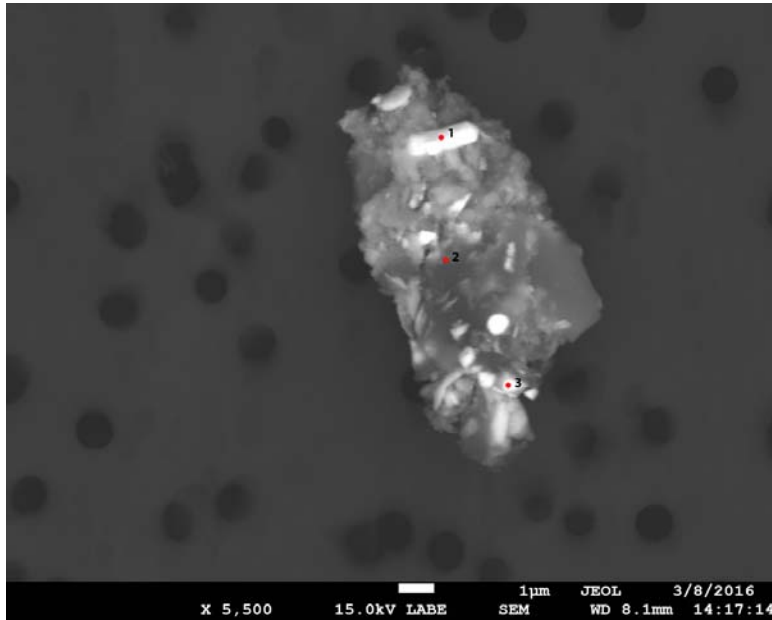


Figure 3. EDS Spectra for sample U2162-B-11 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B14



Particle Size: 16 µm
Shape: Irregular
Transparency: Opaque
Color: Black, Gray
Luster: Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2162 Cluster 33
Comments:

SEM Photo of sample U2162 B14 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 33



Photo of cluster U2162 Cluster 33.

U2162 B14 - EDS Spectra

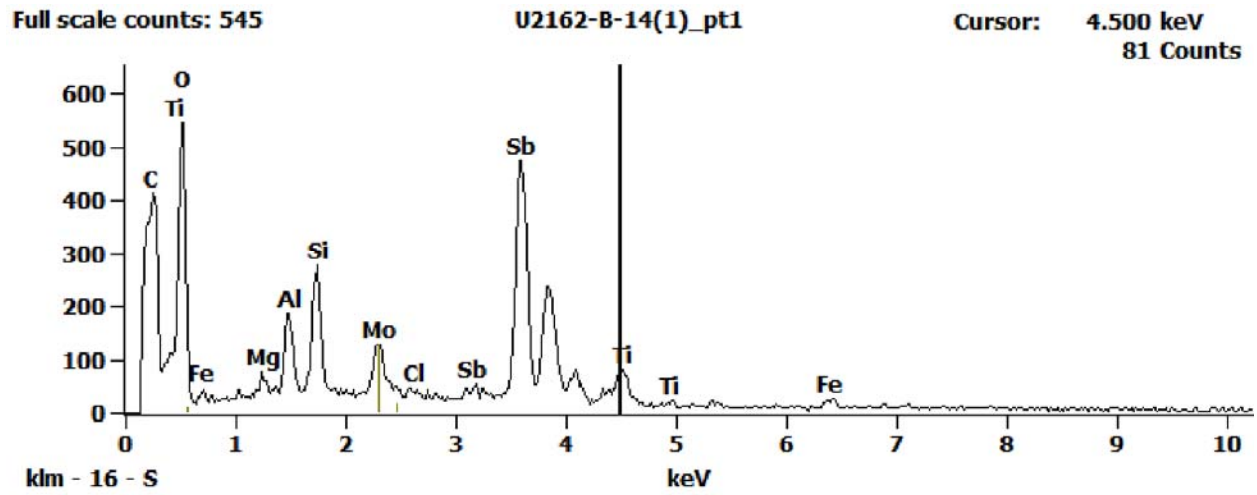


Figure 1. EDS Spectra for sample U2162-B-14 taken at test area 1. The test area is labeled in the particle SEM photo..

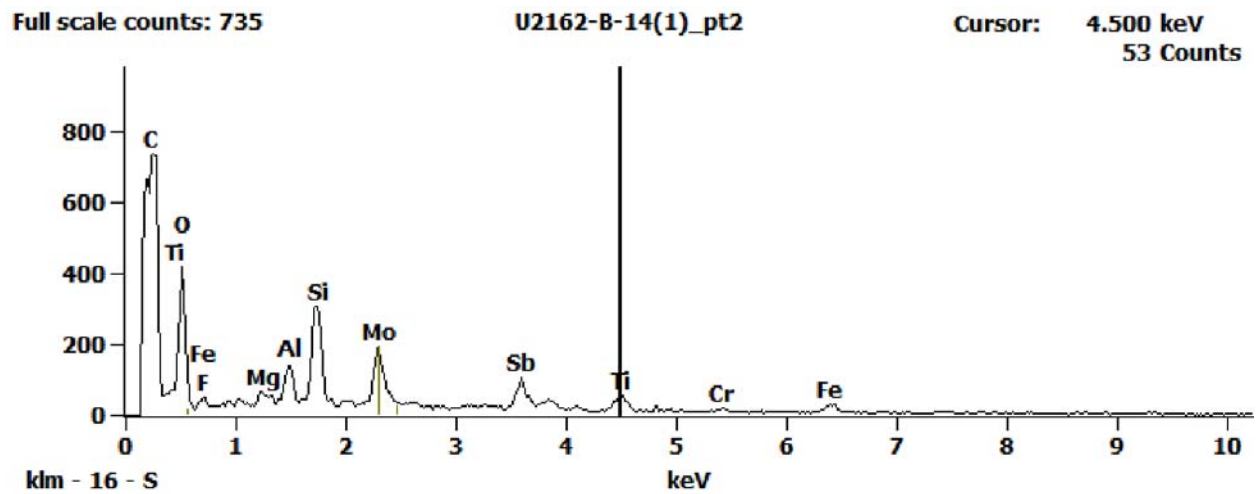


Figure 2. EDS Spectra for sample U2162-B-14 taken at test area 2. The test area is labeled in the particle SEM photo..

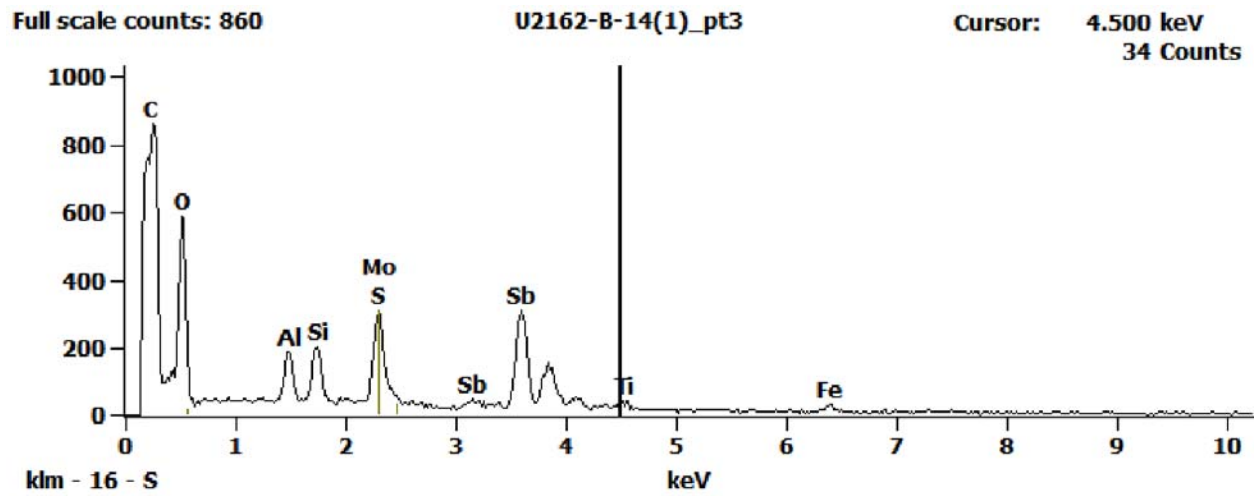
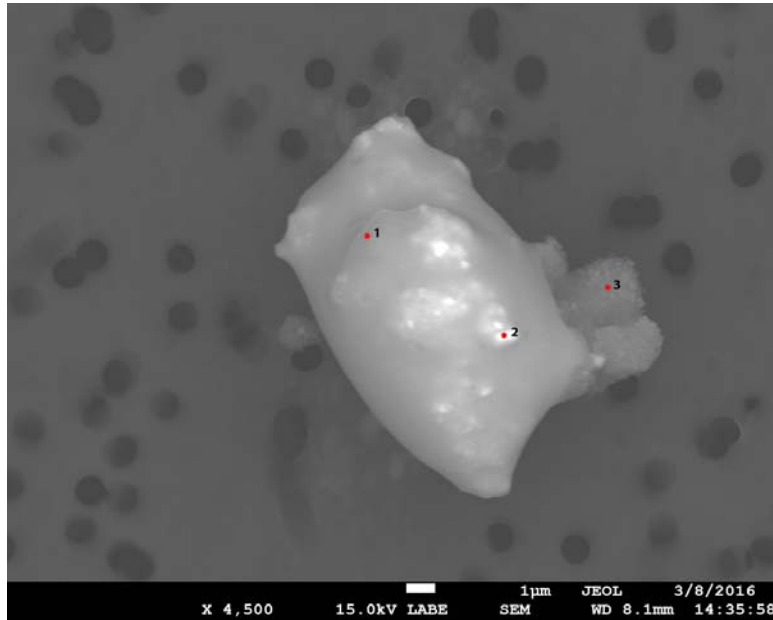


Figure 3. EDS Spectra for sample U2162-B-14 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B16



SEM Photo of sample U2162 B16 with labeled EDS testing locations.

Particle Size:	15 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque to Translucent
Color:	Black, Brown, Green
Luster:	Pearly to Subvitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2162 Cluster 35
Comments:	

Cluster of Origin: U2162 Cluster 35



Photo of cluster U2162 Cluster 35.

U2162 B16 - EDS Spectra

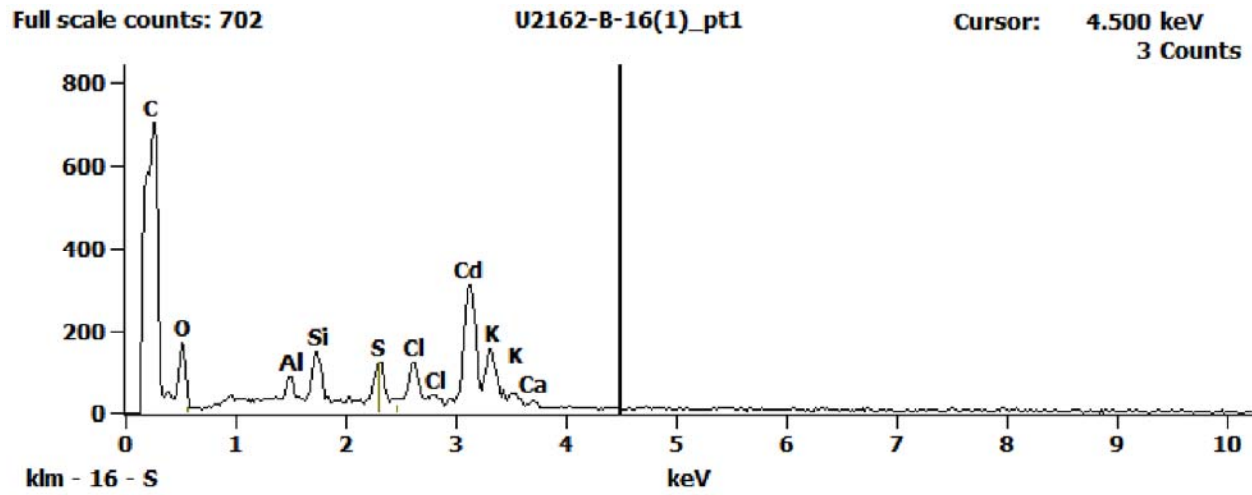


Figure 1. EDS Spectra for sample U2162-B-16 taken at test area 1. The test area is labeled in the particle SEM photo..

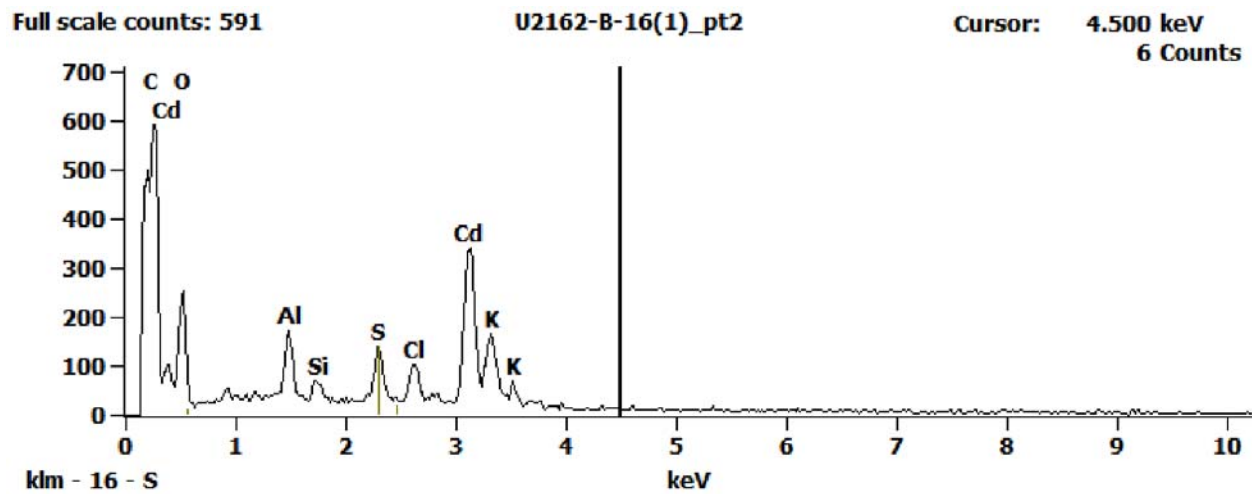


Figure 2. EDS Spectra for sample U2162-B-16 taken at test area 2. The test area is labeled in the particle SEM photo..

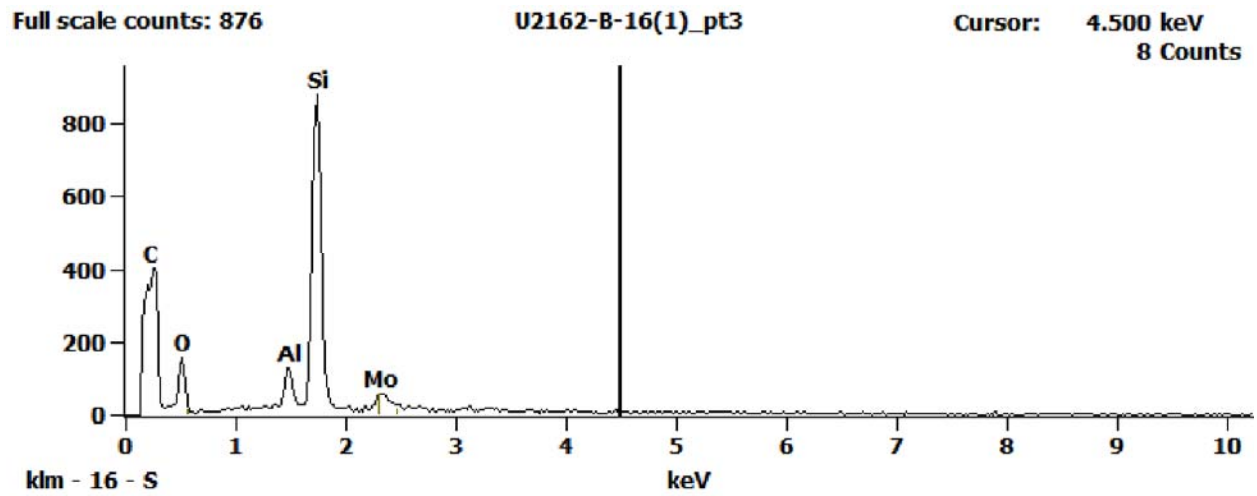
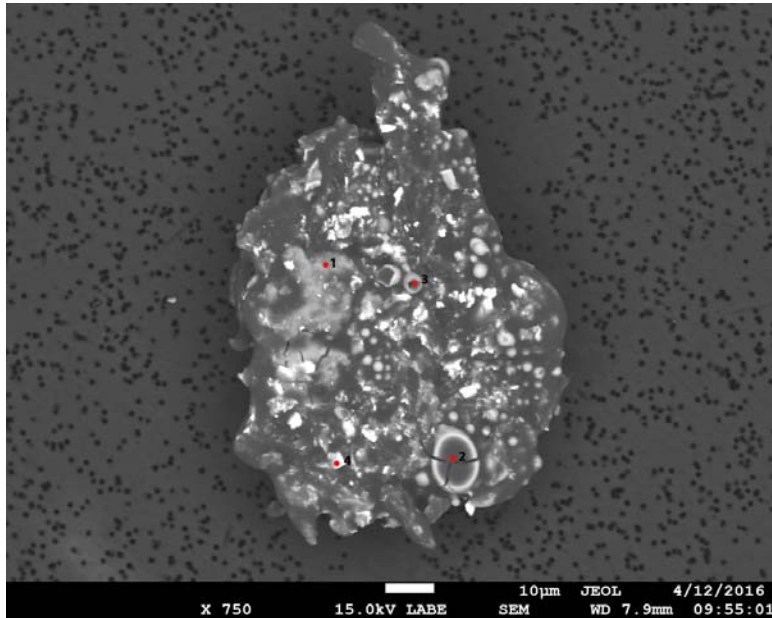


Figure 3. EDS Spectra for sample U2162-B-16 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 C3



Particle Size:	100 μm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Black
Luster:	Pearly to Subvitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2162 C3 with labeled EDS testing locations.

U2162 C3 - EDS Spectra

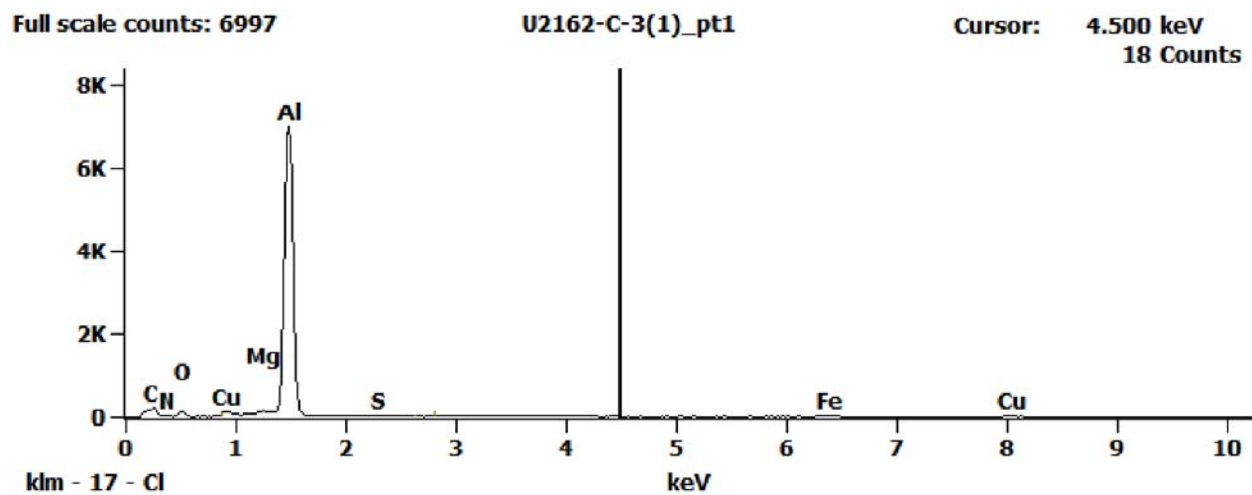


Figure 1. EDS Spectra for sample U2162-C-3 taken at test area 1. The test area is labeled in the particle SEM photo..

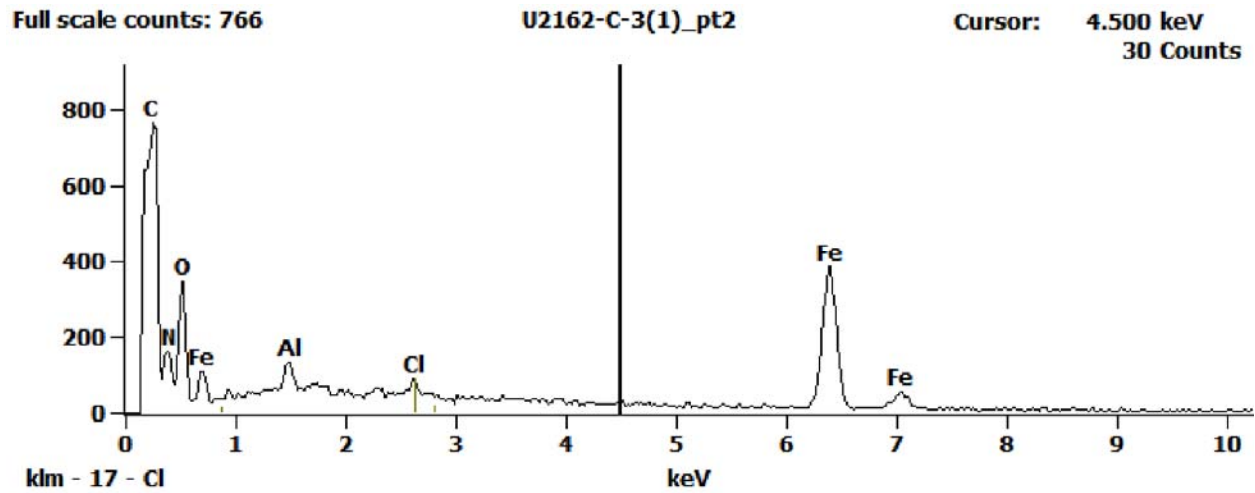


Figure 2. EDS Spectra for sample U2162-C-3 taken at test area 2. The test area is labeled in the particle SEM photo..

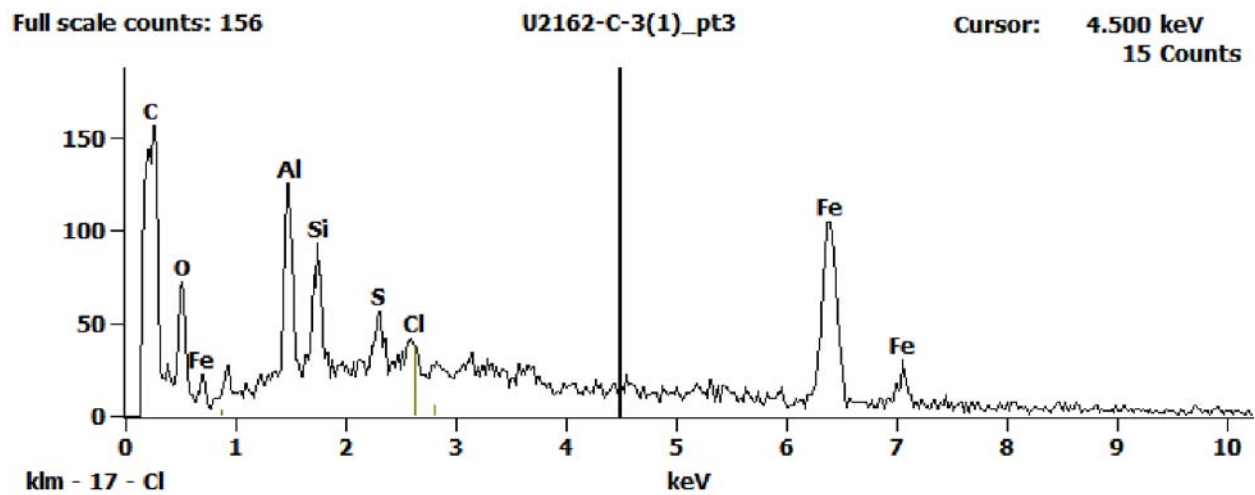


Figure 3. EDS Spectra for sample U2162-C-3 taken at test area 3. The test area is labeled in the particle SEM photo..

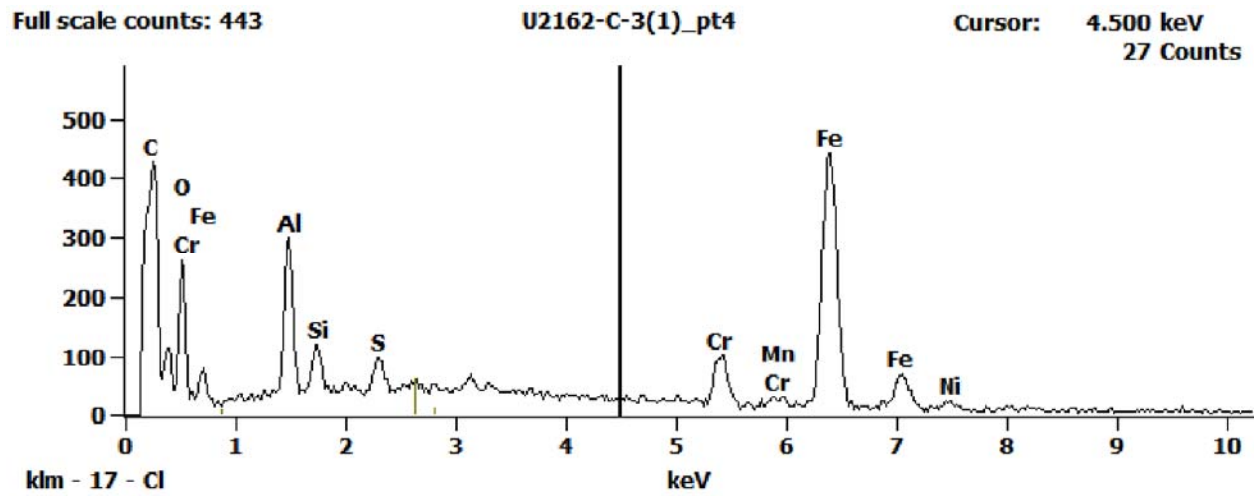
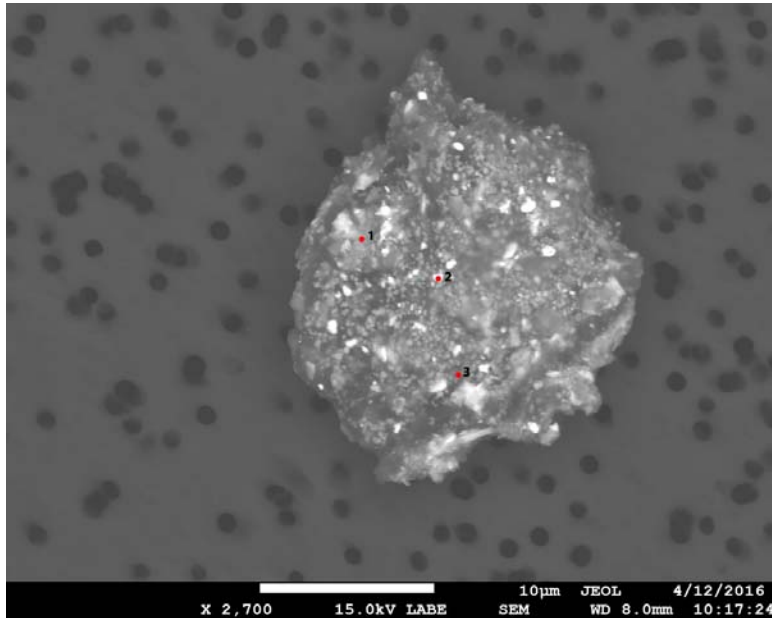


Figure 4. EDS Spectra for sample U2162-C-3 taken at test area 4. The test area is labeled in the particle SEM photo..

U2162 C6



Particle Size:	18 μm
Shape:	Spherical
Transparency:	Translucent
Color:	Blue, Green, Gray
Luster:	Pearly
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2162 C6 with labeled EDS testing locations.

U2162 C6 - EDS Spectra

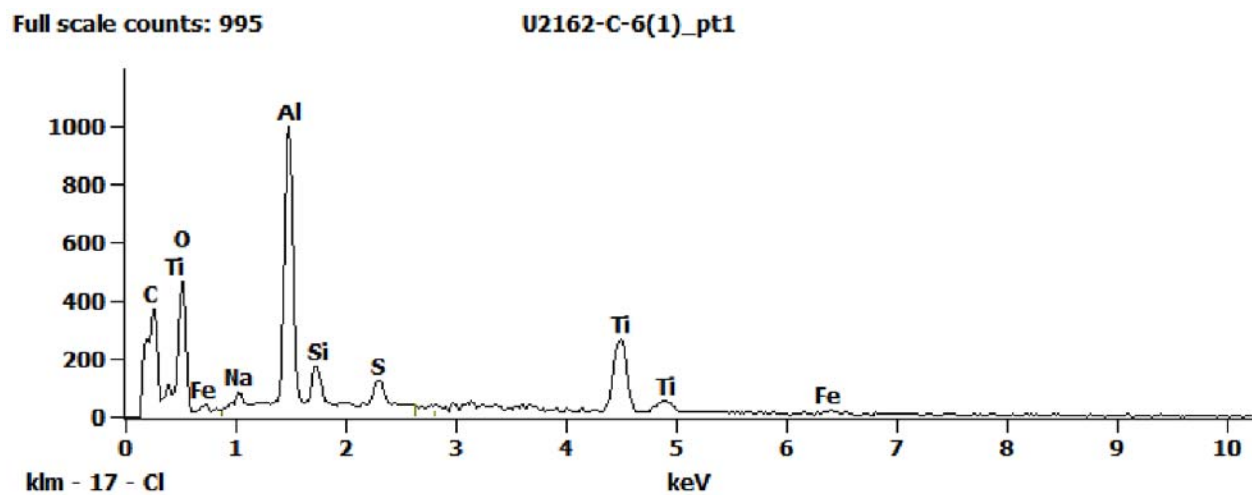


Figure 1. EDS Spectra for sample U2162-C-6 taken at test area 1. The test area is labeled in the particle SEM photo..

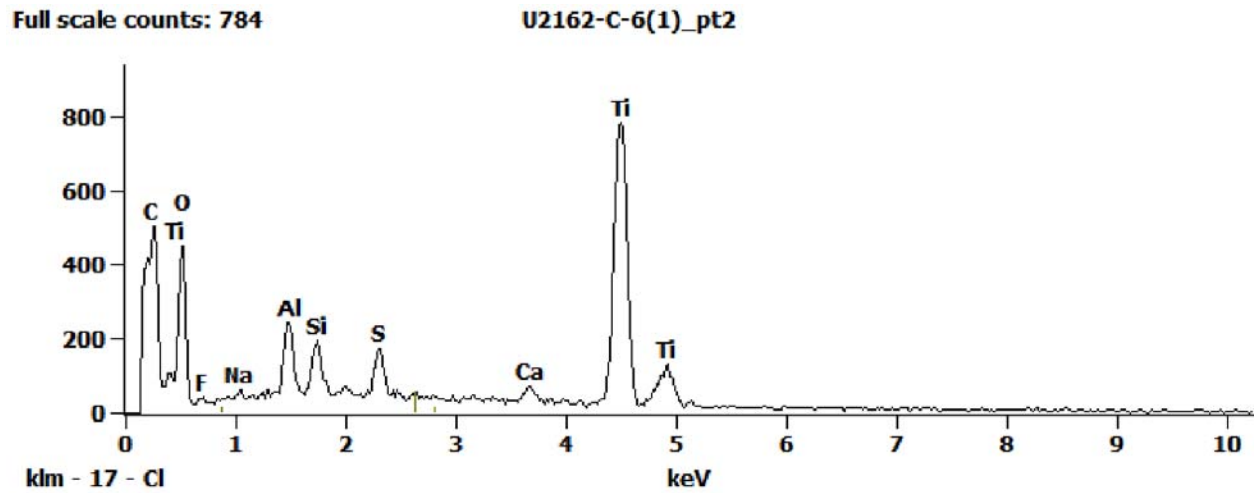


Figure 2. EDS Spectra for sample U2162-C-6 taken at test area 2. The test area is labeled in the particle SEM photo..

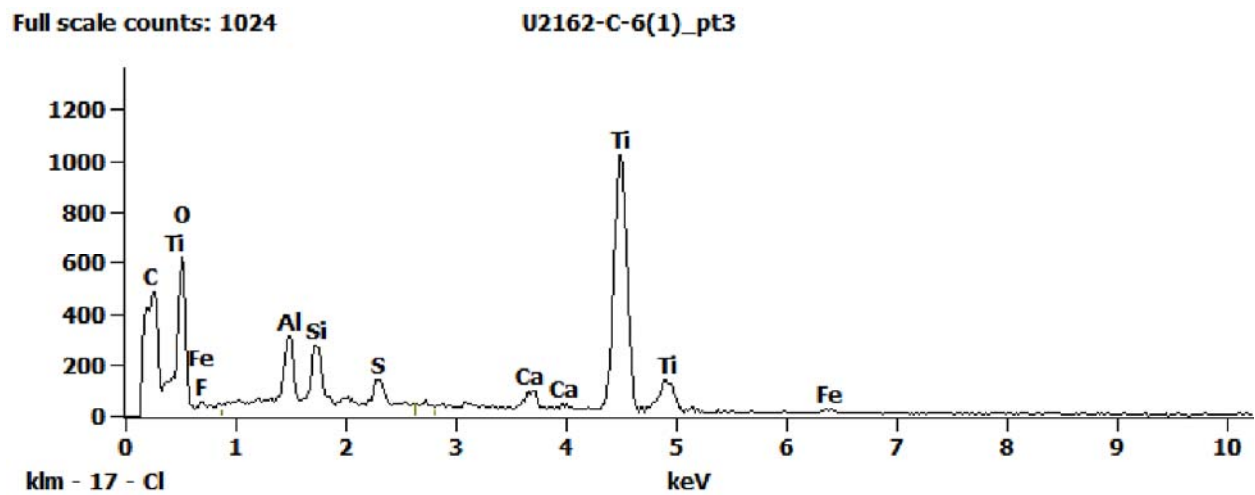
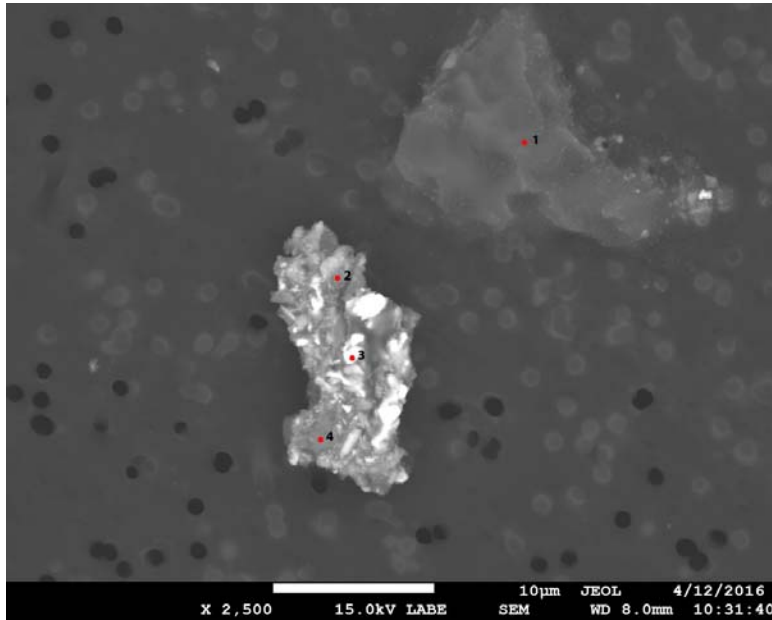


Figure 3. EDS Spectra for sample U2162-C-6 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 C8



Particle Size:	26 µm
Shape:	Irregular
Transparency:	Opaque
Color:	Black, Clear, Gray
Luster:	Pearly
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2162 C8 with labeled EDS testing locations.

U2162 C8 - EDS Spectra

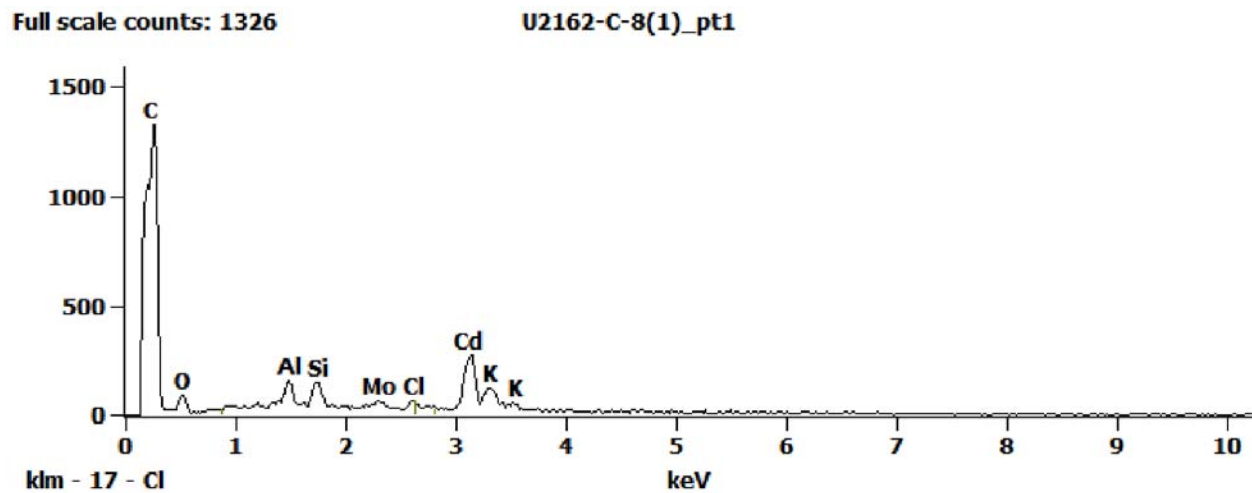


Figure 1. EDS Spectra for sample U2162-C-8 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 720

U2162-C-8(1)_pt2

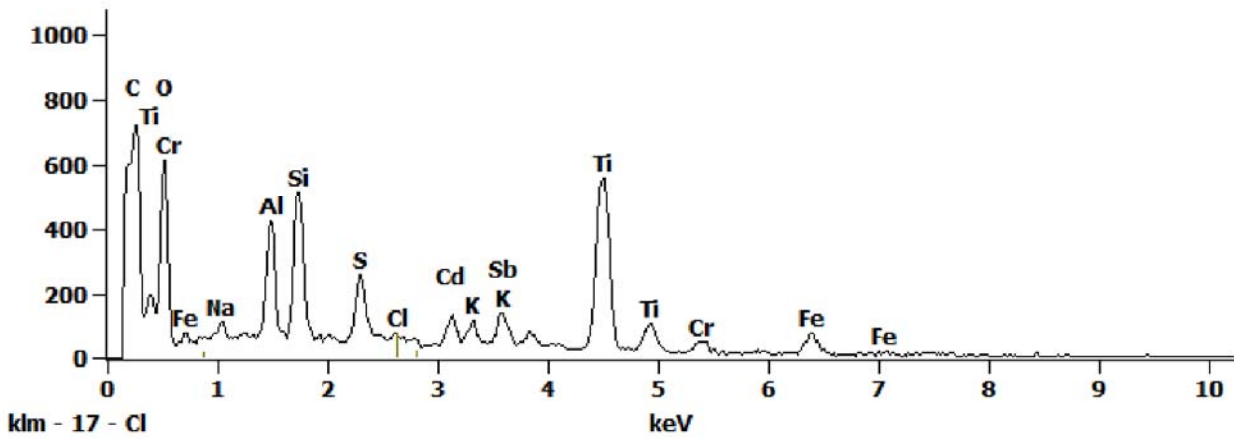


Figure 2. EDS Spectra for sample U2162-C-8 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 708

U2162-C-8(1)_pt3

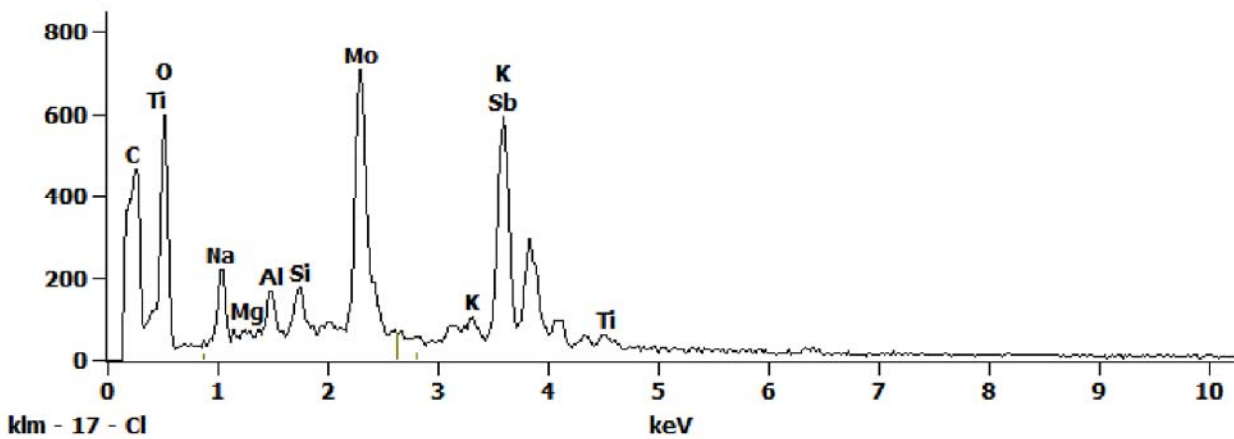


Figure 3. EDS Spectra for sample U2162-C-8 taken at test area 3. The test area is labeled in the particle SEM photo..

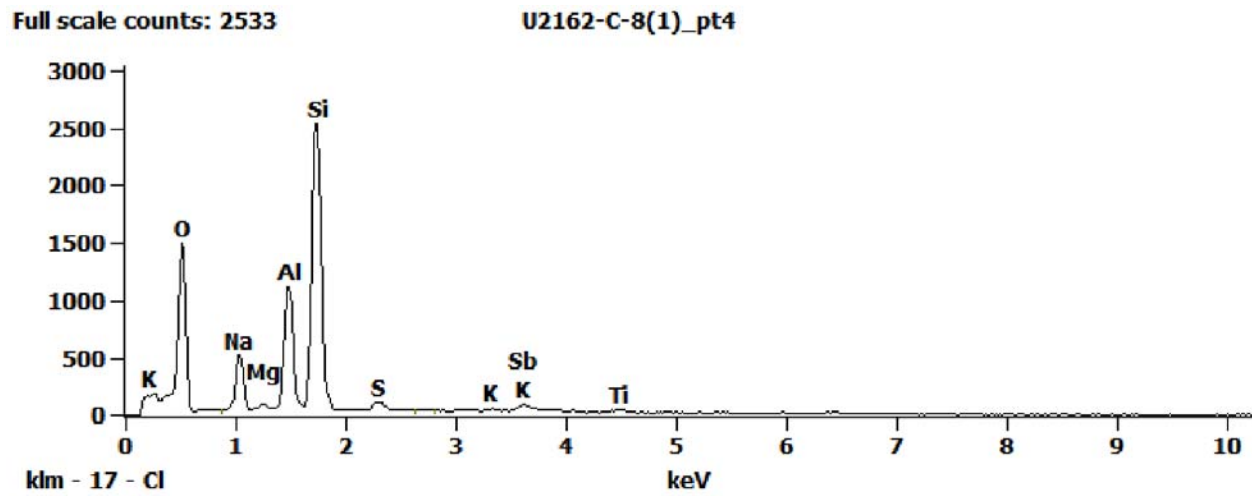
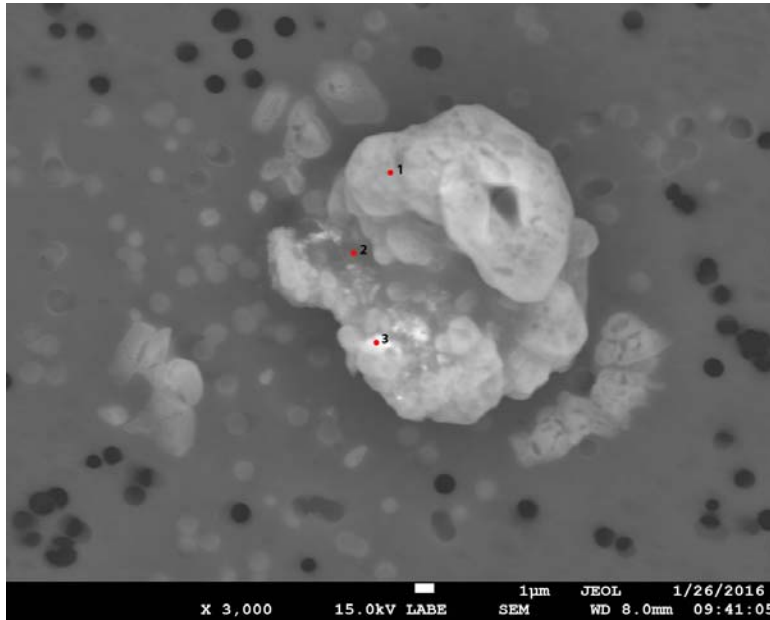


Figure 4. EDS Spectra for sample U2162-C-8 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 A1



Particle Size:	18 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Brown, Red
Luster:	Pearly to Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 1
Comments:	

SEM Photo of sample U2163 A1 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 1



Photo of cluster U2163 Cluster 1.

U2163 A1 - EDS Spectra

Full scale counts: 2318

U2163-A1(1)_pt1

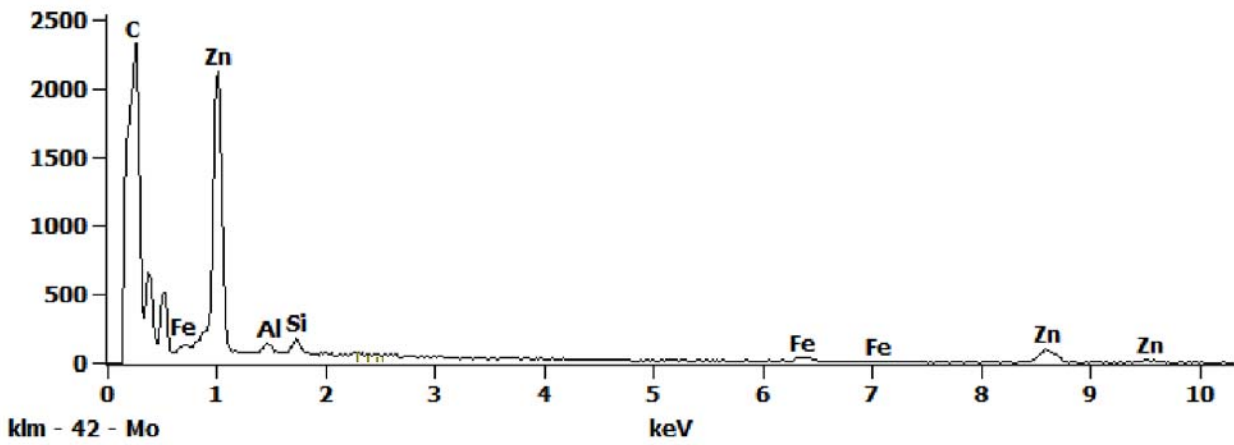


Figure 1. EDS Spectra for sample U2163-A-1 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1436

U2163-A1(1)_pt2

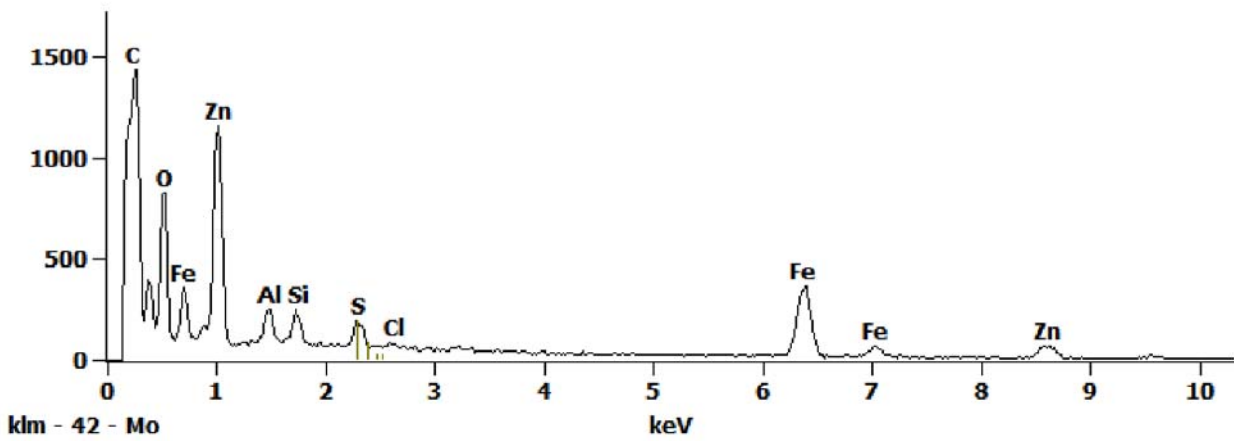


Figure 2. EDS Spectra for sample U2163-A-1 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 993

U2163-A1(1)_pt3

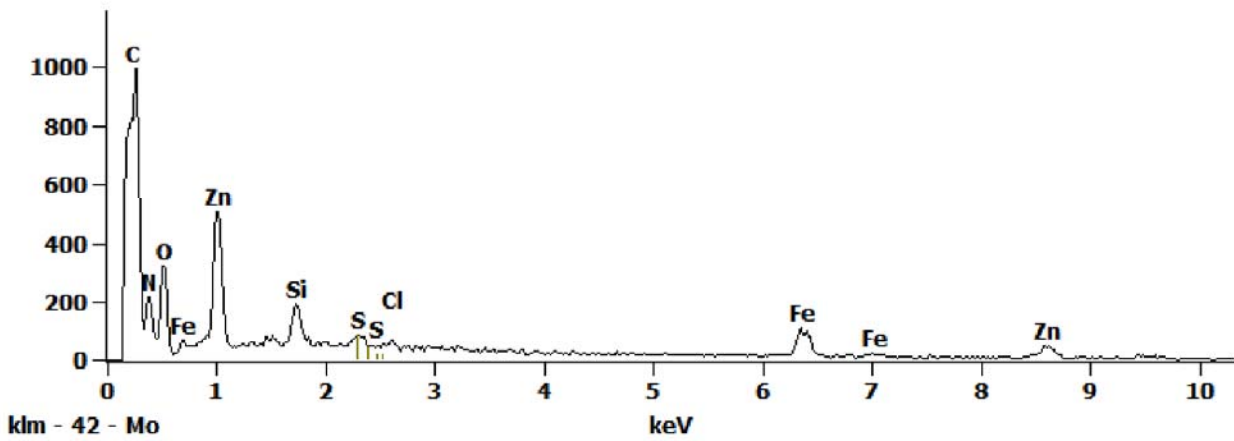
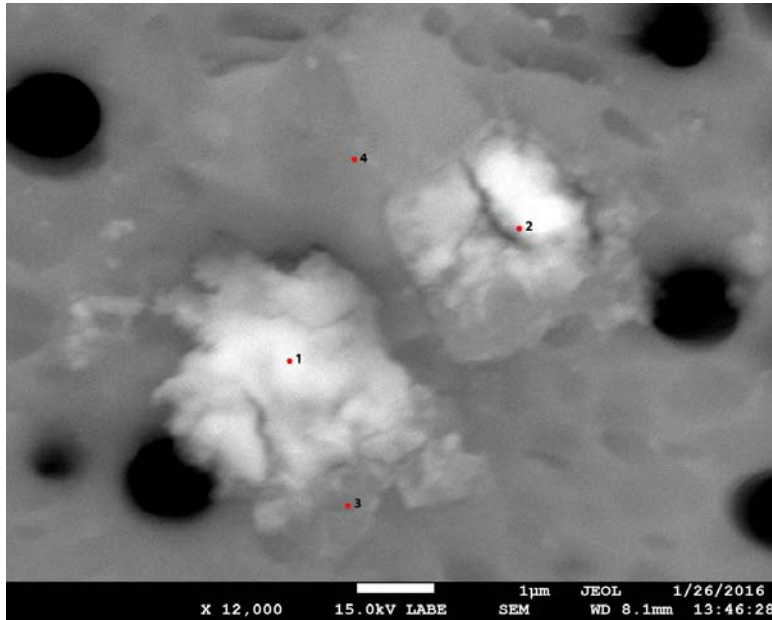


Figure 3. EDS Spectra for sample U2163-A-1 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 A2



Particle Size:	18x22 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Brown, Red
Luster:	Pearly to Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 2
Comments:	

SEM Photo of sample U2163 A2 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 2

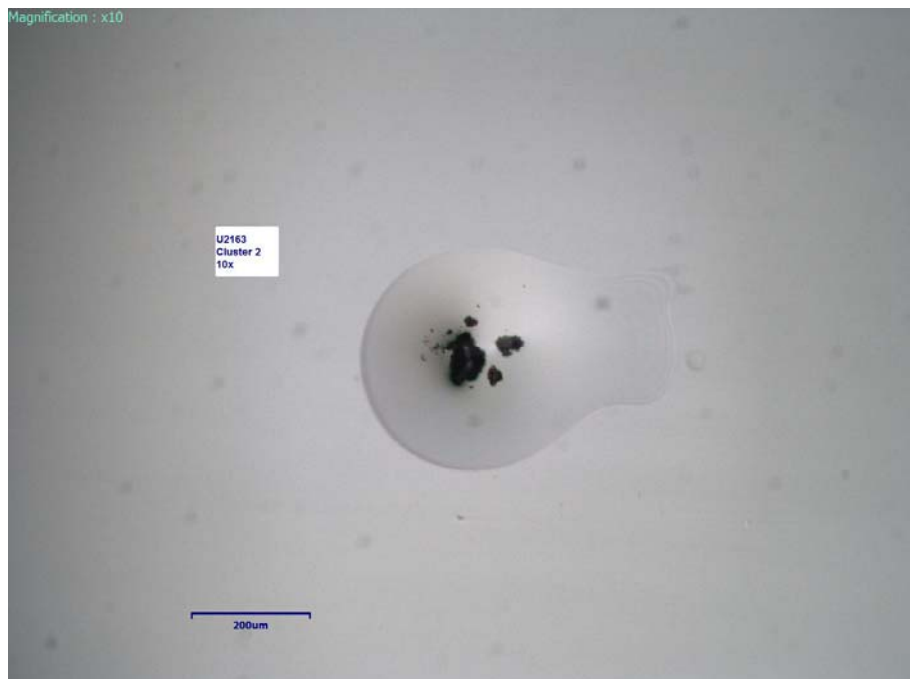


Photo of cluster U2163 Cluster 2.

U2163 A2 - EDS Spectra

Full scale counts: 2244

U2163-A2(2)_pt1

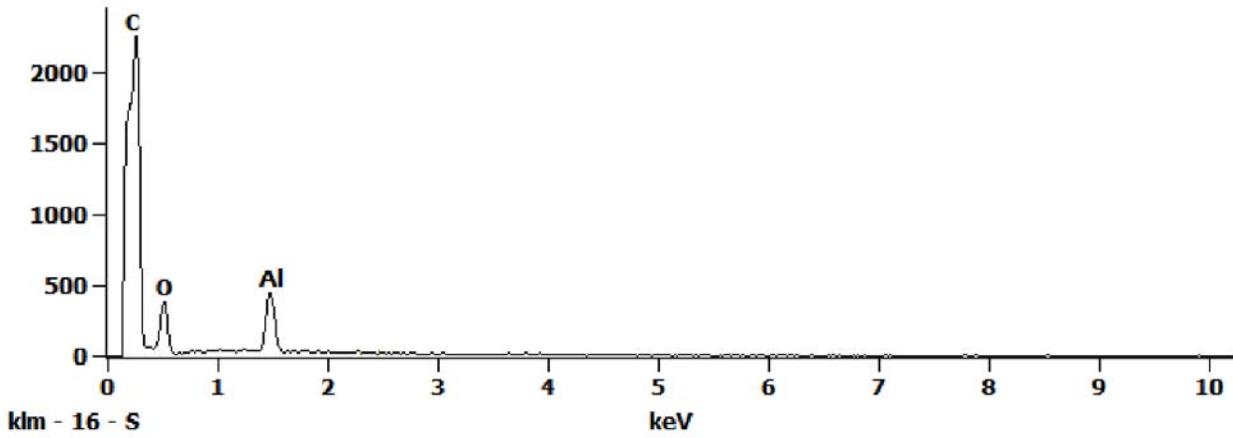


Figure 1. EDS Spectra for sample U2163-A-2 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1150

U2163-A2(2)_pt2

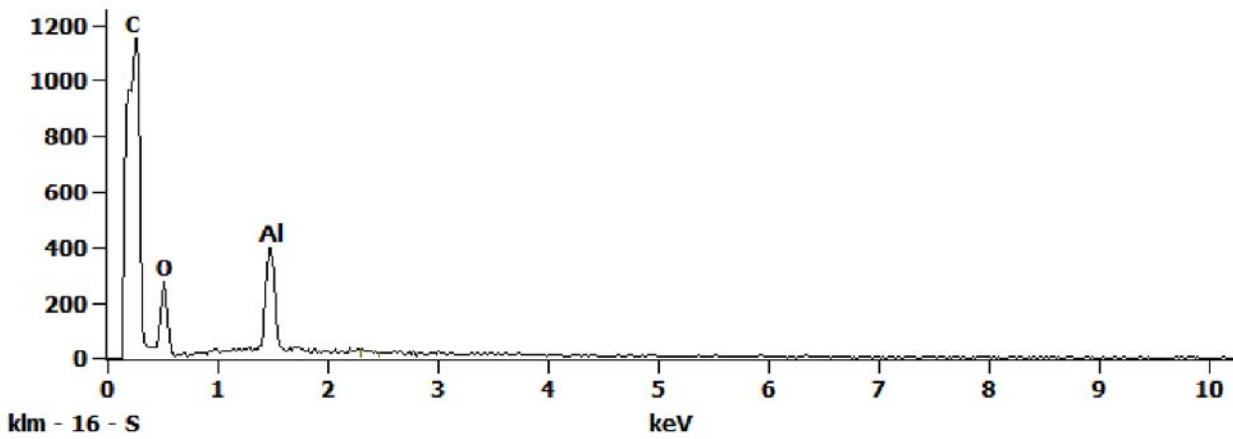


Figure 2. EDS Spectra for sample U2163-A-2 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 2536

U2163-A2(2)_pt3

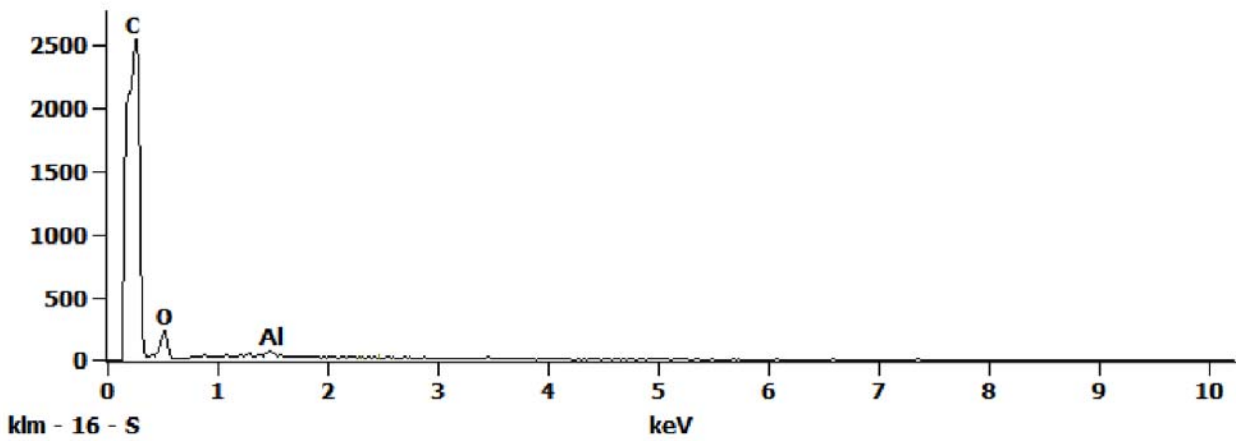


Figure 3. EDS Spectra for sample U2163-A-2 taken at test area 3. The test area is labeled in the particle SEM photo..

Full scale counts: 2341

U2163-A2(2)_pt4

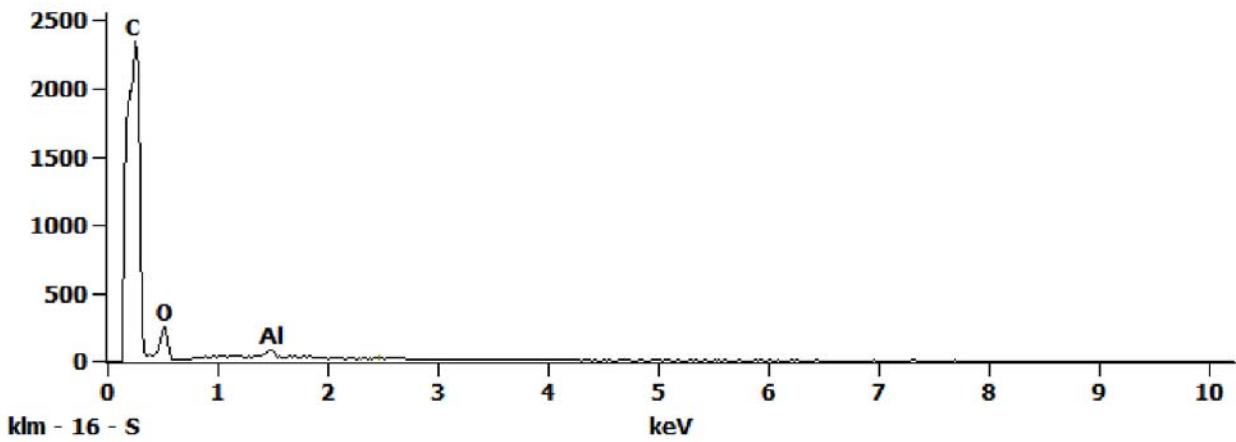
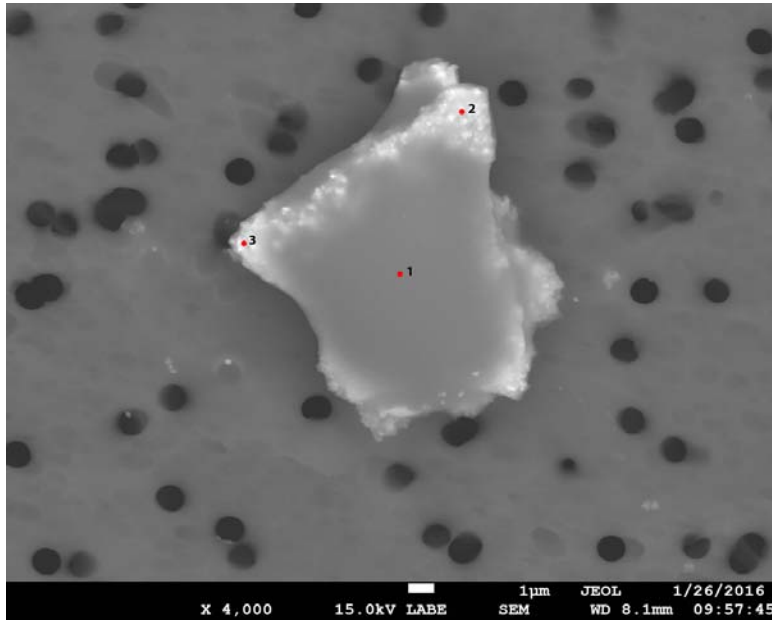


Figure 4. EDS Spectra for sample U2163-A-2 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 A4



Particle Size:	11 µm
Shape:	Irregular
Transparency:	Opaque
Color:	Black
Luster:	Pearly to Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 4
Comments:	

SEM Photo of sample U2163 A4 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 4

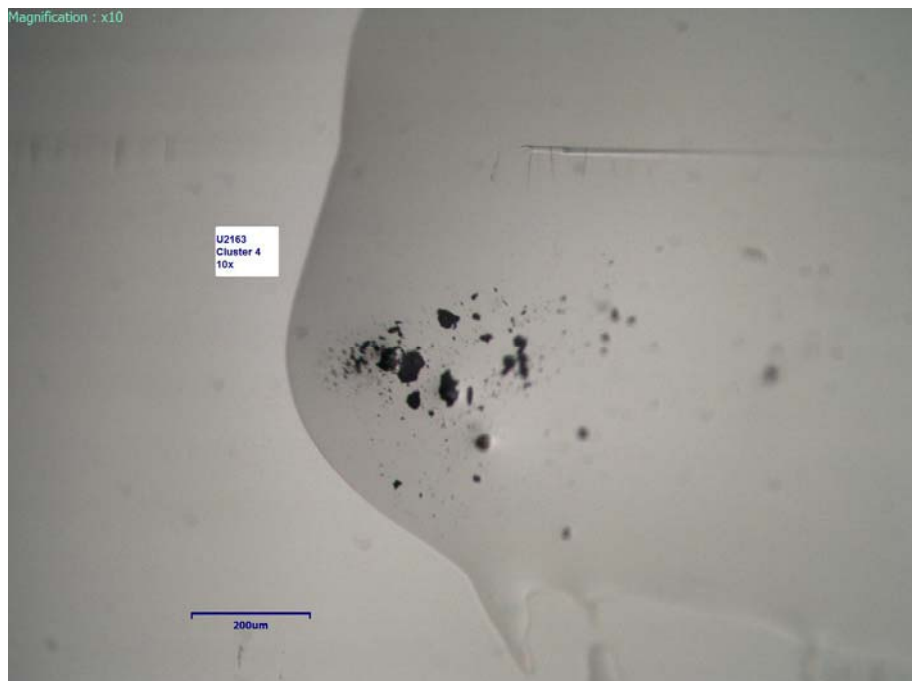


Photo of cluster U2163 Cluster 4.

U2163 A4 - EDS Spectra

Full scale counts: 2472

U2163-A4(1)_pt1

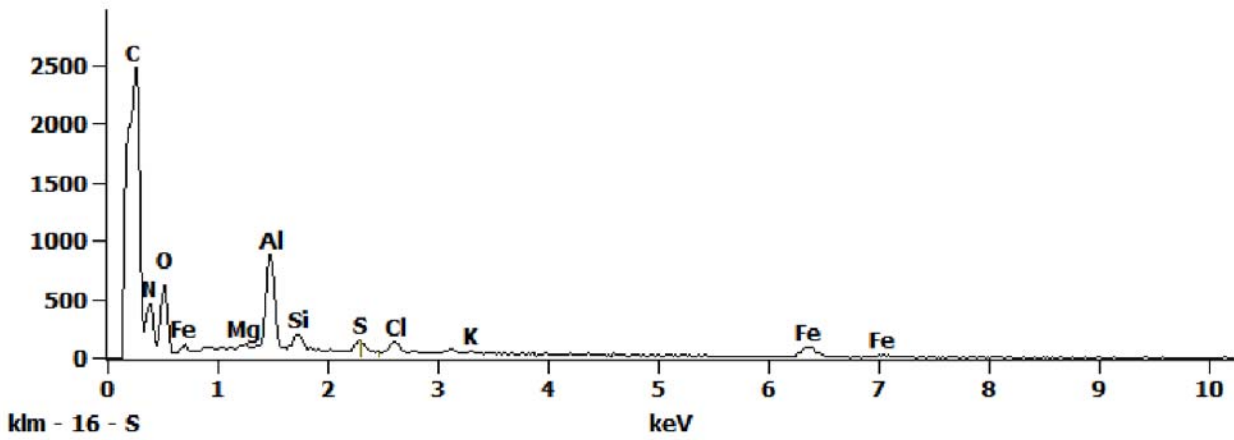


Figure 1. EDS Spectra for sample U2163-A-4 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1497

U2163-A4(1)_pt2

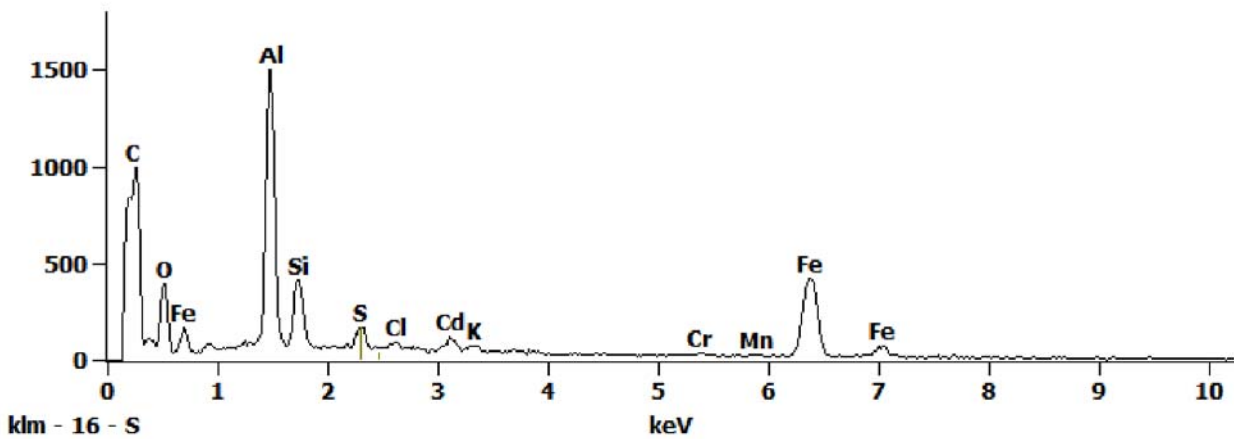


Figure 2. EDS Spectra for sample U2163-A-4 taken at test area 2. The test area is labeled in the particle SEM photo..

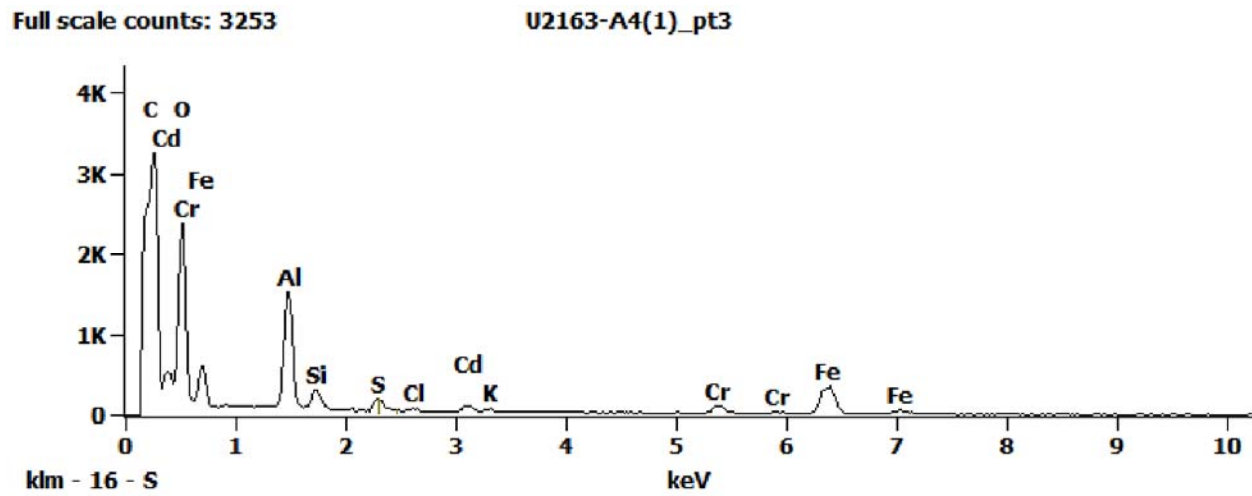
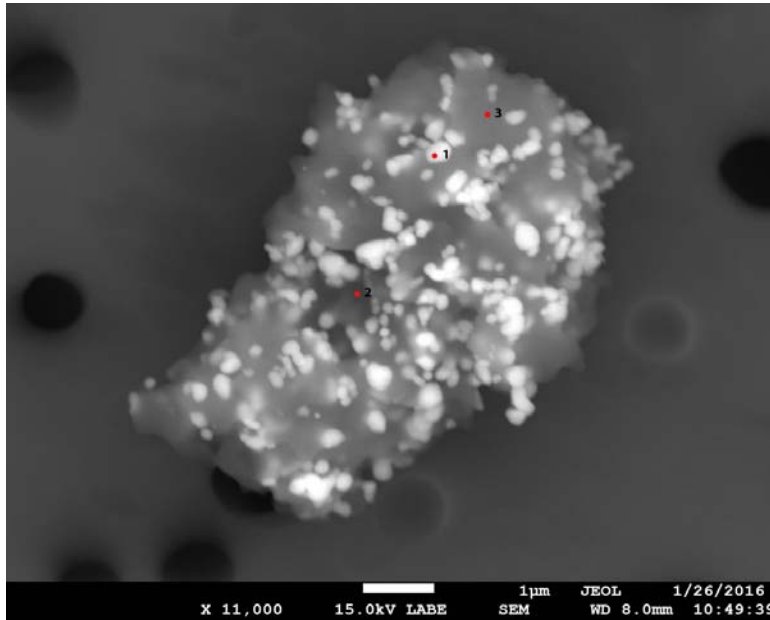


Figure 3. EDS Spectra for sample U2163-A-4 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 A7



Particle Size:	5x10 µm
Shape:	Spherical to Equidimensional
Transparency:	Translucent
Color:	Green, Gray
Luster:	Pearly to Subvitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 7
Comments:	

SEM Photo of sample U2163 A7 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 7

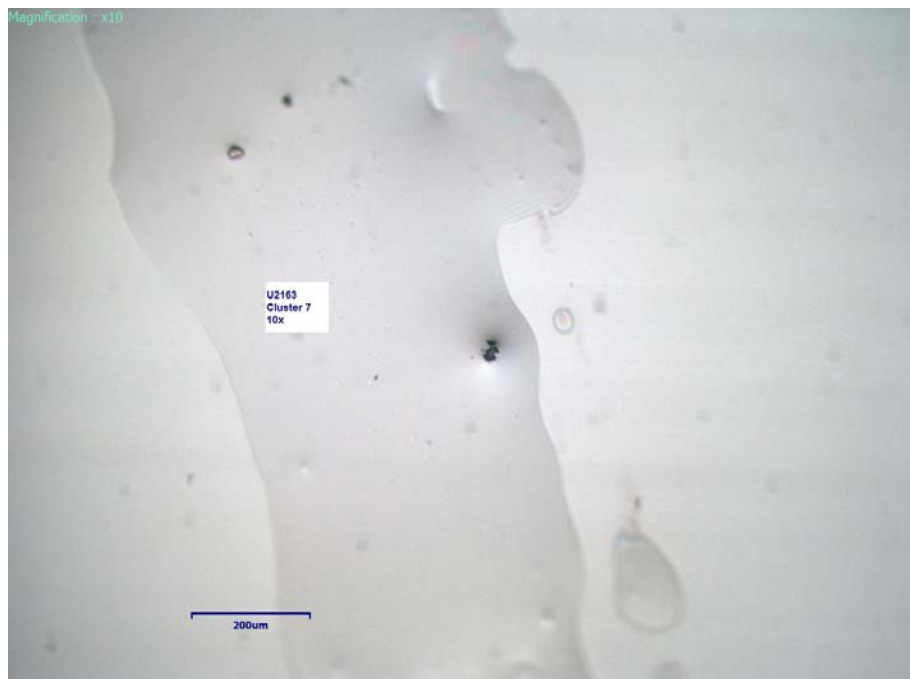


Photo of cluster U2163 Cluster 7.

U2163 A7 - EDS Spectra

Full scale counts: 2617

U2163-A7(1)_pt1

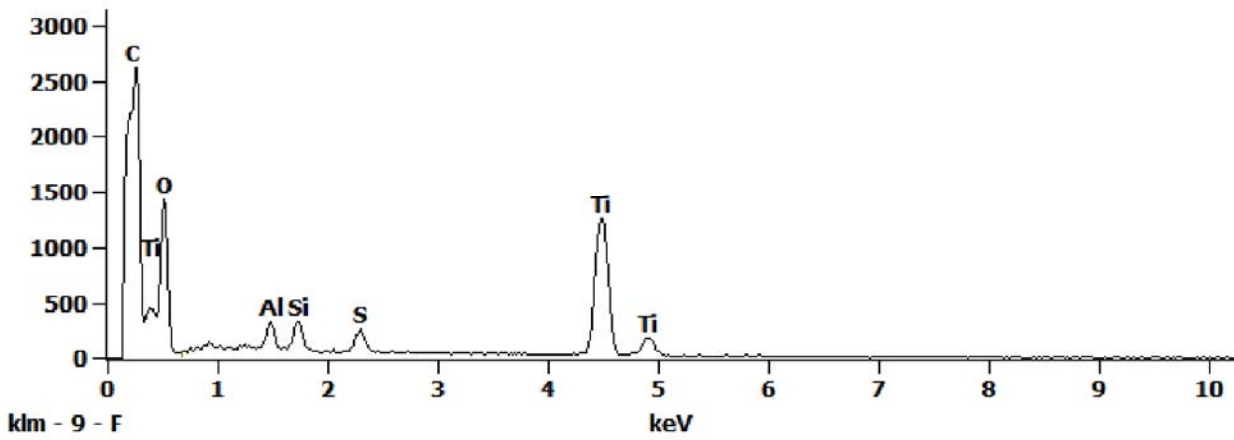


Figure 1. EDS Spectra for sample U2163-A-7 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 2774

U2163-A7(1)_pt2

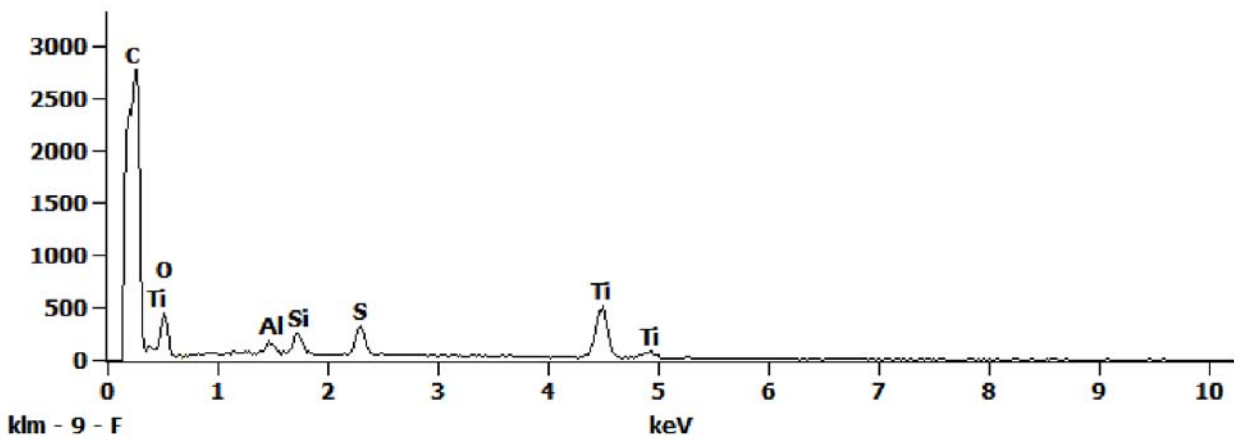


Figure 2. EDS Spectra for sample U2163-A-7 taken at test area 2. The test area is labeled in the particle SEM photo..

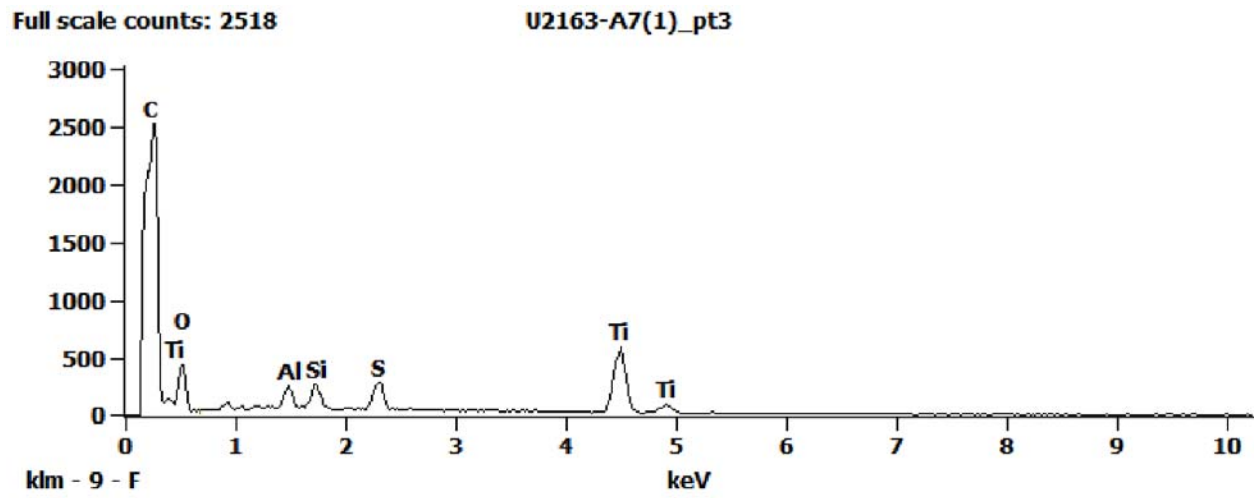
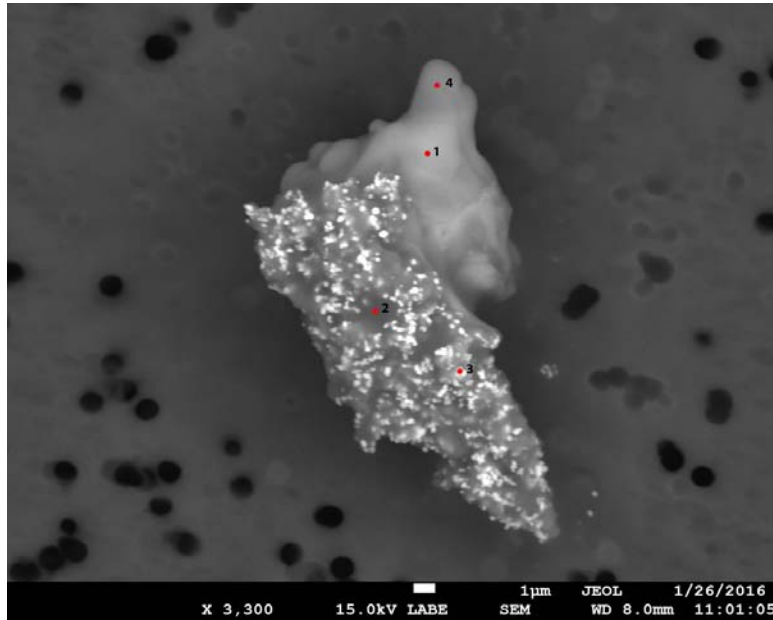


Figure 3. EDS Spectra for sample U2163-A-7 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 A8



Particle Size: 22x15 µm
Shape: Irregular
Transparency: Opaque
Color: Gray
Luster: Pearly
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2163 Cluster 8
Comments:

SEM Photo of sample U2163 A8 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 8

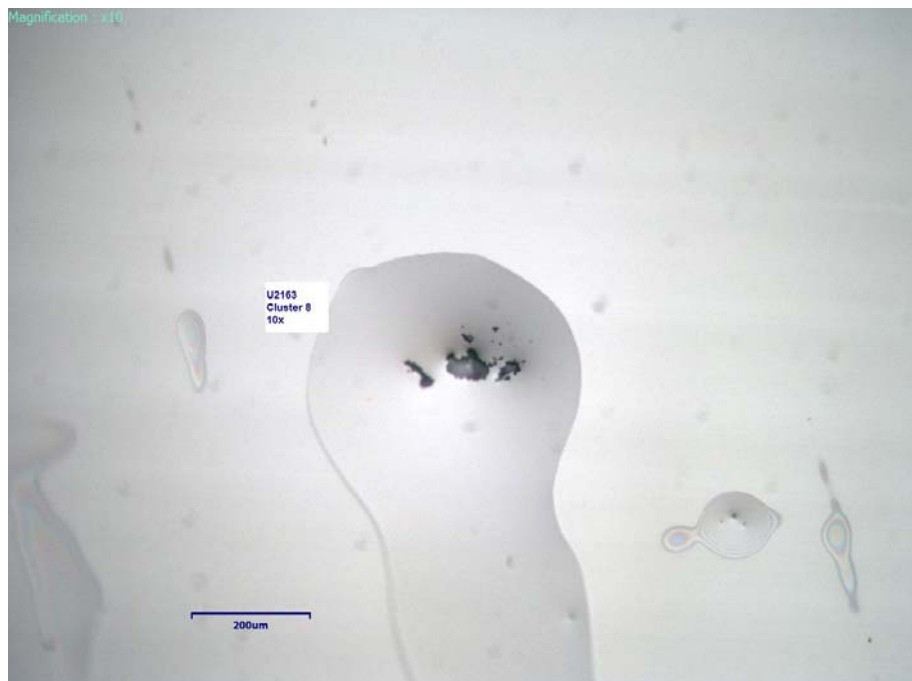


Photo of cluster U2163 Cluster 8.

U2163 A8 - EDS Spectra

Full scale counts: 1246

U2163-A8(1)_pt1

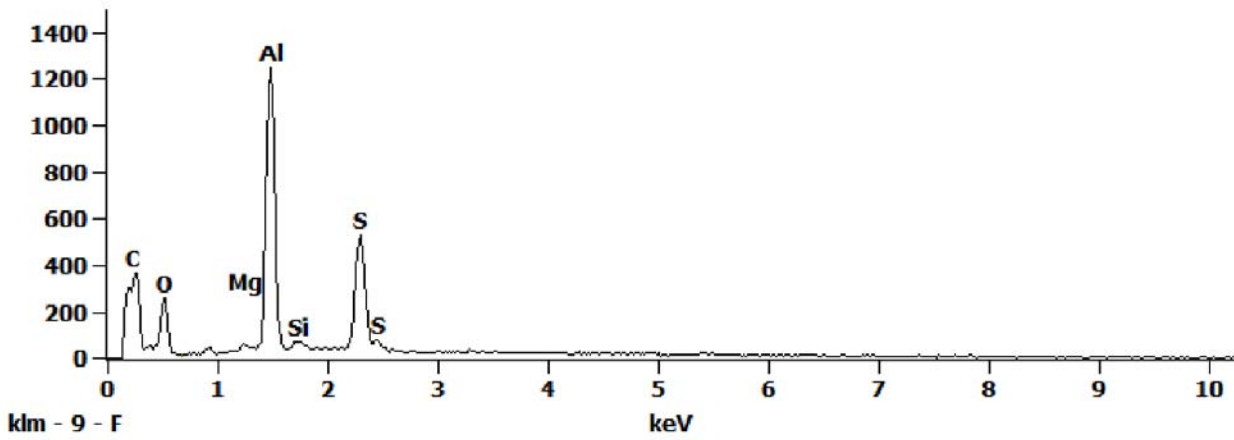


Figure 1. EDS Spectra for sample U2163-A-8 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 2008

U2163-A8(1)_pt2

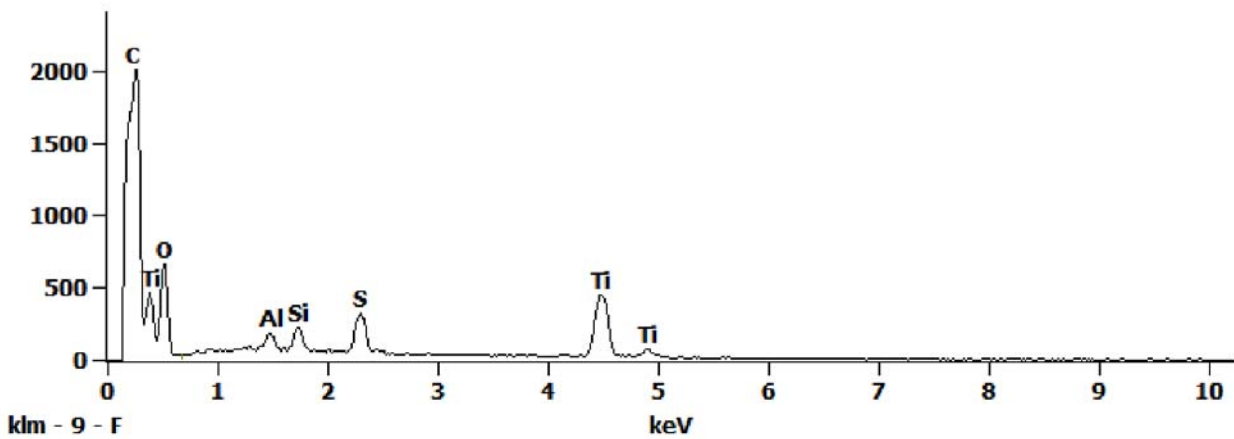


Figure 2. EDS Spectra for sample U2163-A-8 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 3141

U2163-A8(1)_pt3

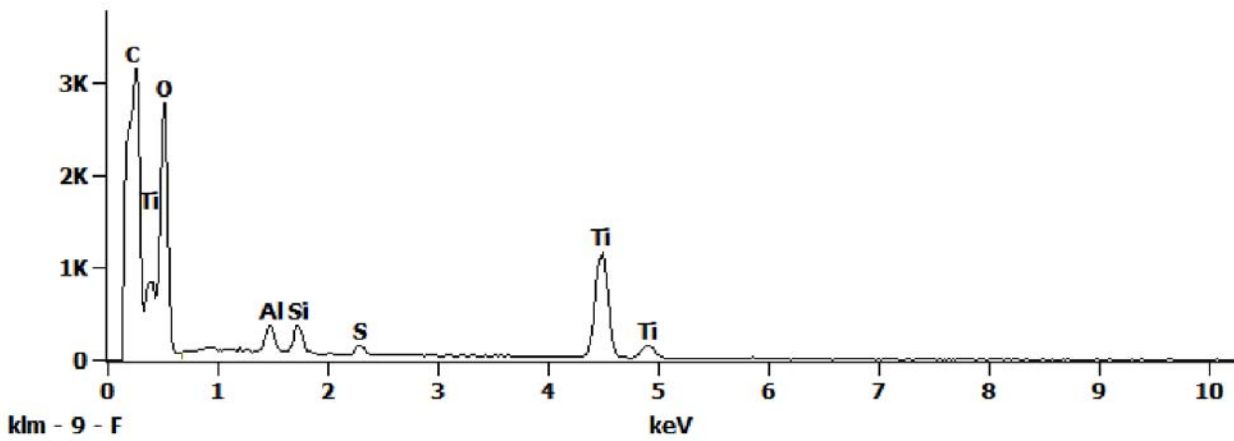


Figure 3. EDS Spectra for sample U2163-A-8 taken at test area 3. The test area is labeled in the particle SEM photo..

Full scale counts: 1041

U2163-A8(1)_pt4

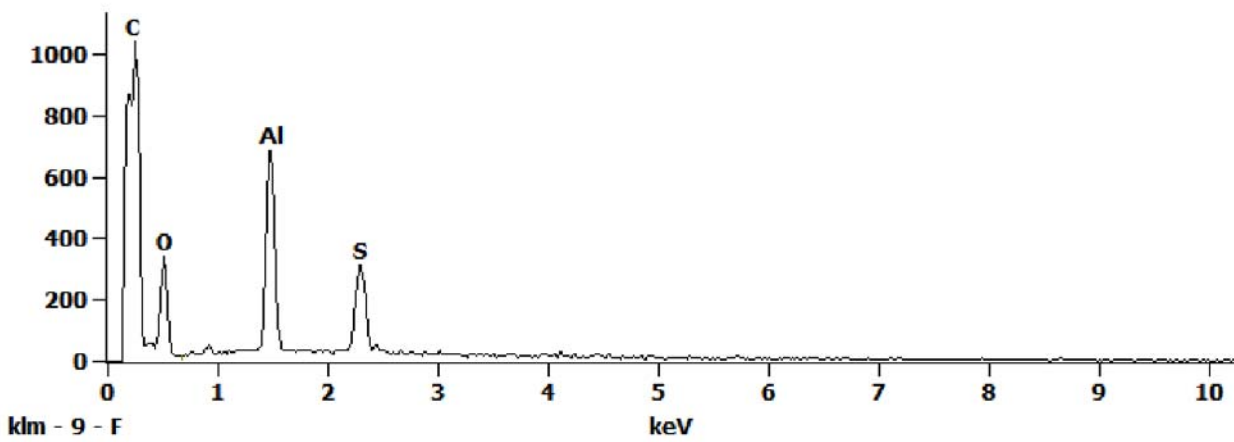
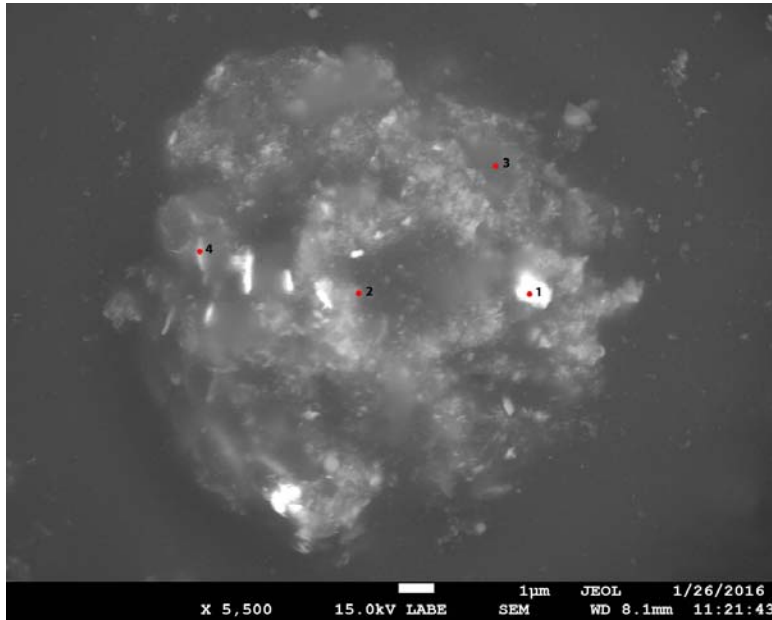


Figure 4. EDS Spectra for sample U2163-A-8 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 A10



Particle Size: 10 µm
Shape: Spherical
Transparency: Opaque
Color: Gray
Luster: Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2163 Cluster 10
Comments:

SEM Photo of sample U2163 A10 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 10



Photo of cluster U2163 Cluster 10.

U2163 A10 - EDS Spectra

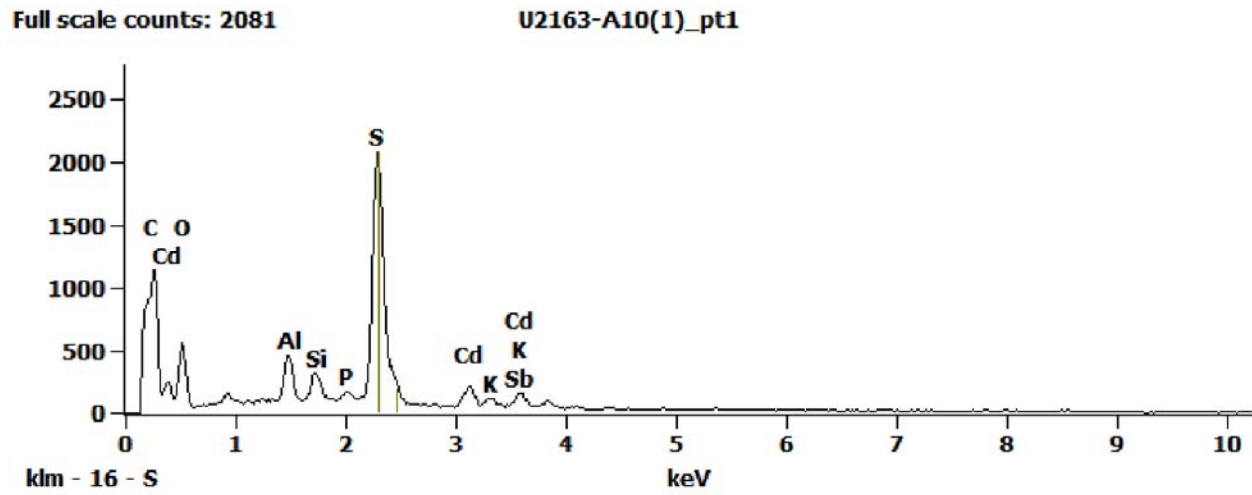


Figure 1. EDS Spectra for sample U2163-A-10 taken at test area 1. The test area is labeled in the particle SEM photo..

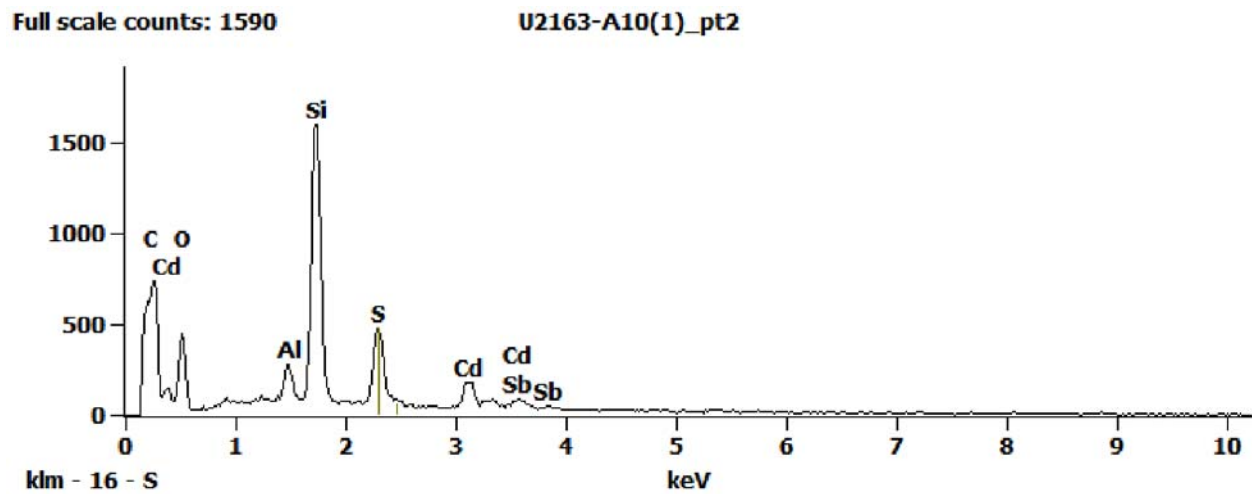


Figure 2. EDS Spectra for sample U2163-A-10 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 469

U2163-A10(1)_pt3

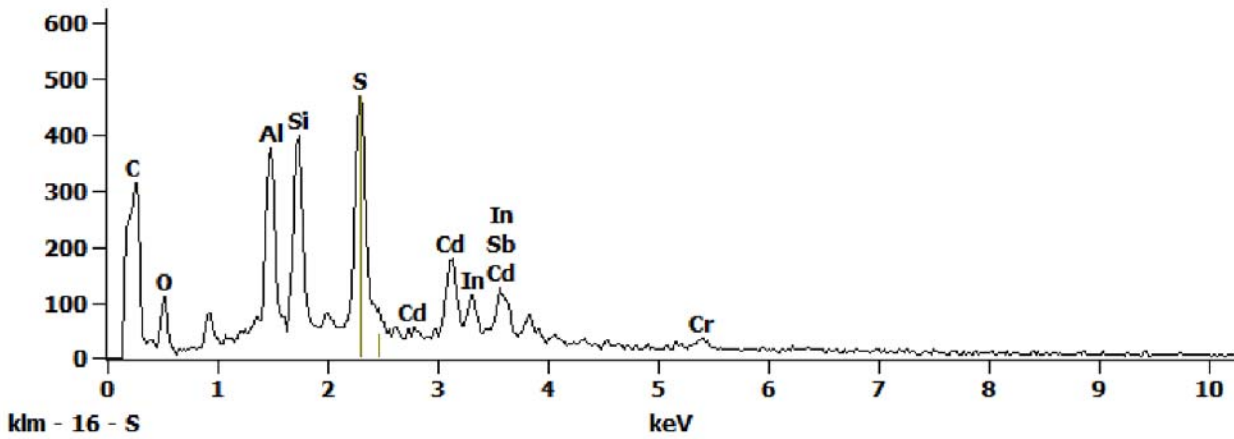


Figure 3. EDS Spectra for sample U2163-A-10 taken at test area 3. The test area is labeled in the particle SEM photo..

Full scale counts: 1444

U2163-A10(1)_pt4

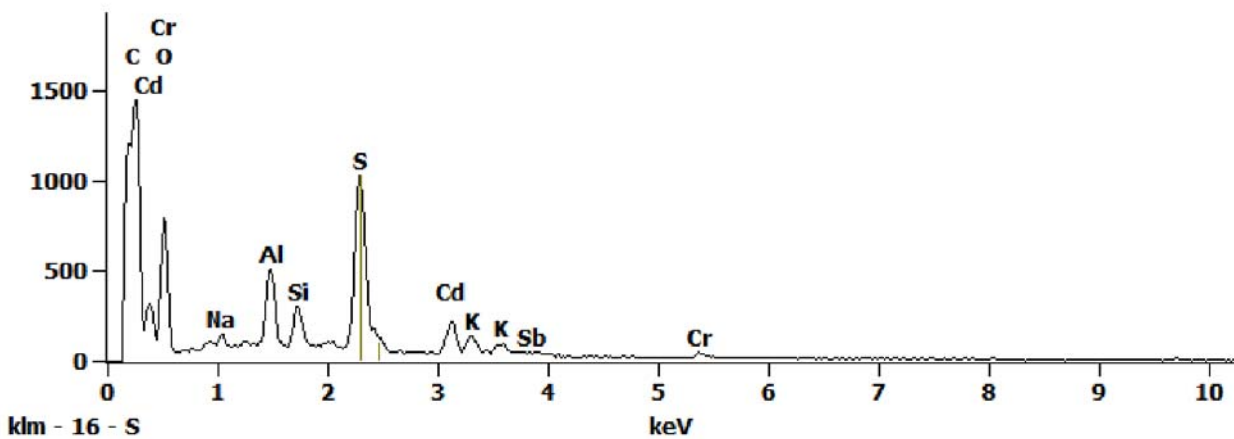
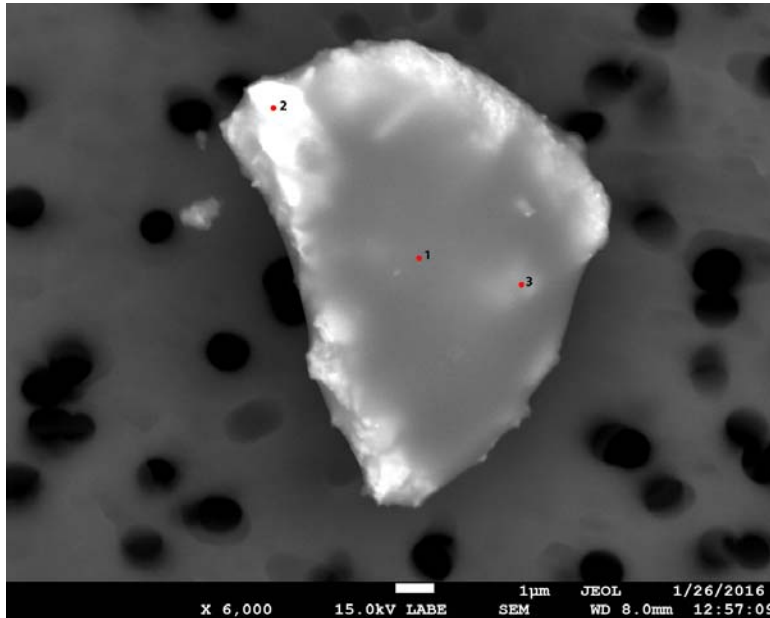


Figure 4. EDS Spectra for sample U2163-A-10 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 A11



Particle Size:	12 µm
Shape:	Irregular
Transparency:	Opaque to Subvitreous
Color:	Gray
Luster:	Pearly to Subvitreous
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 11
Comments:	

SEM Photo of sample U2163 A11 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 11



Photo of cluster U2163 Cluster 11.

U2163 A11 - EDS Spectra

Full scale counts: 2864

U2163-A11(1)_pt1

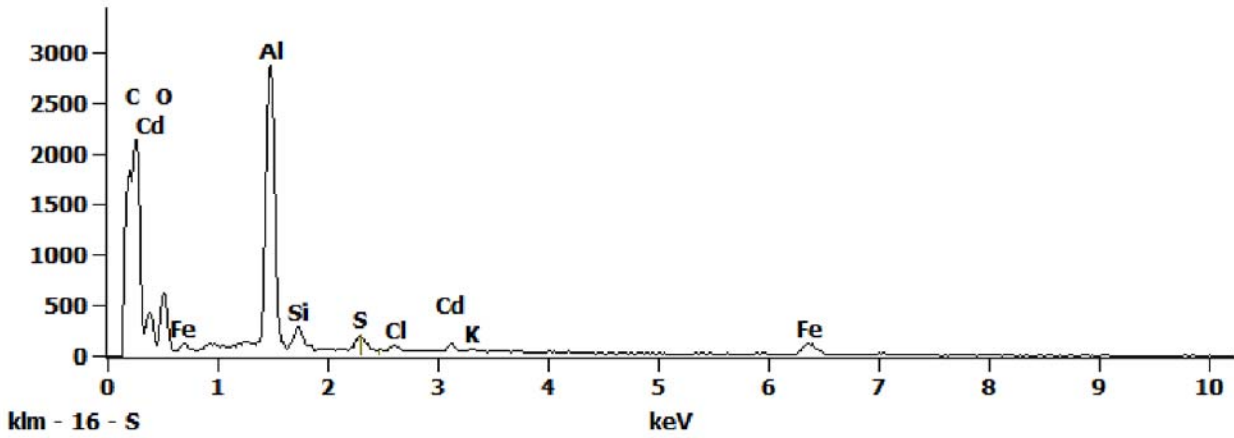


Figure 1. EDS Spectra for sample U2163-A-11 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 3474

U2163-A11(1)_pt2

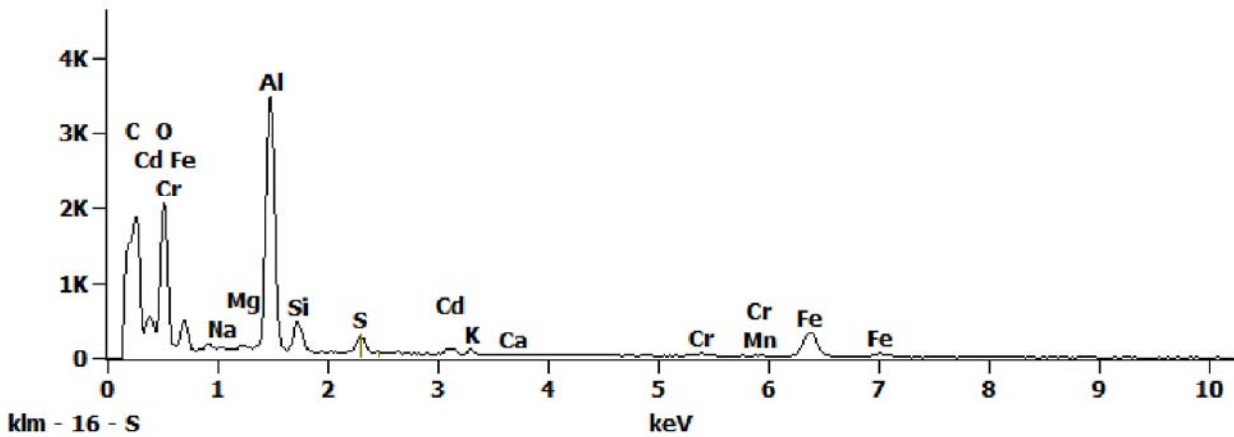


Figure 2. EDS Spectra for sample U2163-A-11 taken at test area 2. The test area is labeled in the particle SEM photo..

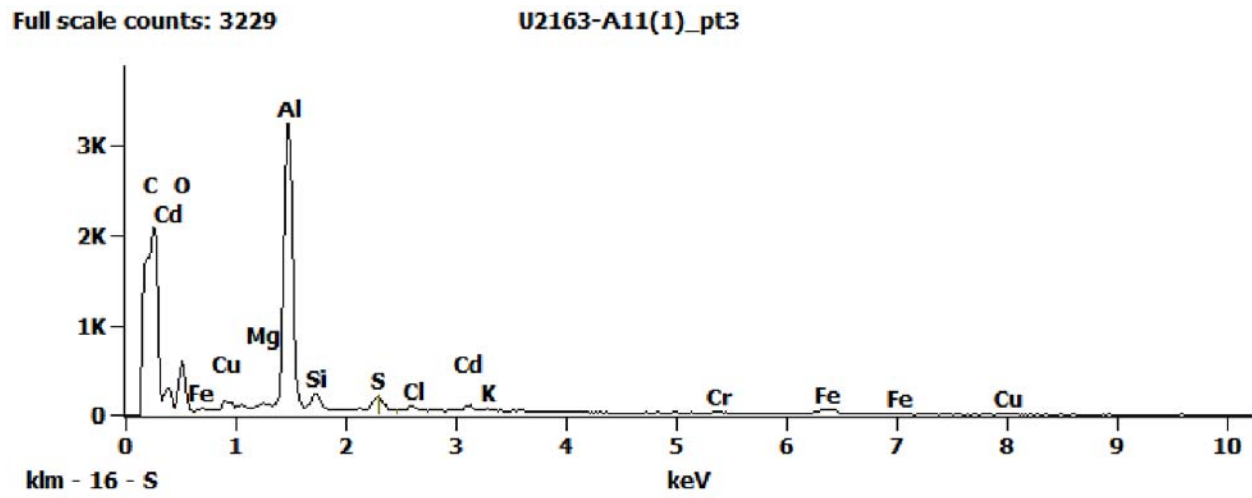
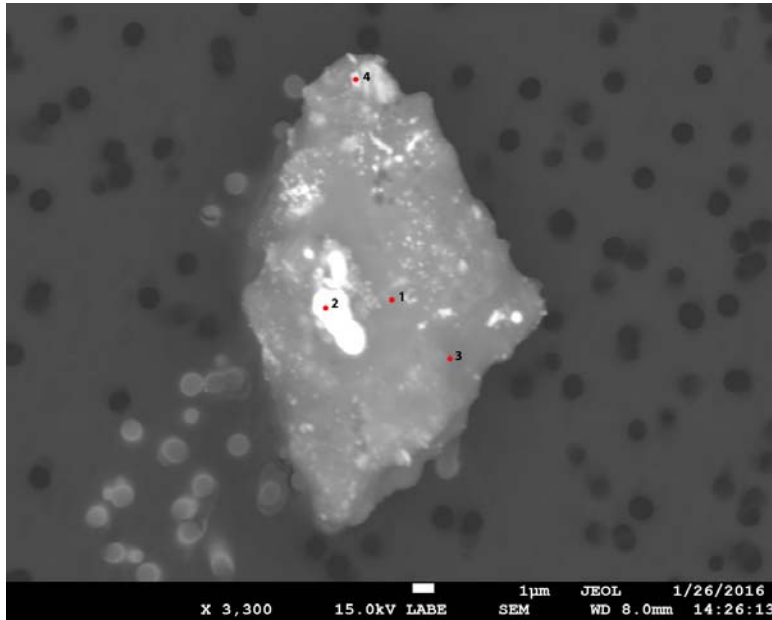


Figure 3. EDS Spectra for sample U2163-A-11 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 B1



Particle Size:	23 µm
Shape:	Equidimensional
Transparency:	Opaque to Translucent
Color:	Brown
Luster:	Pearly to Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 15
Comments:	

SEM Photo of sample U2163 B1 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 15

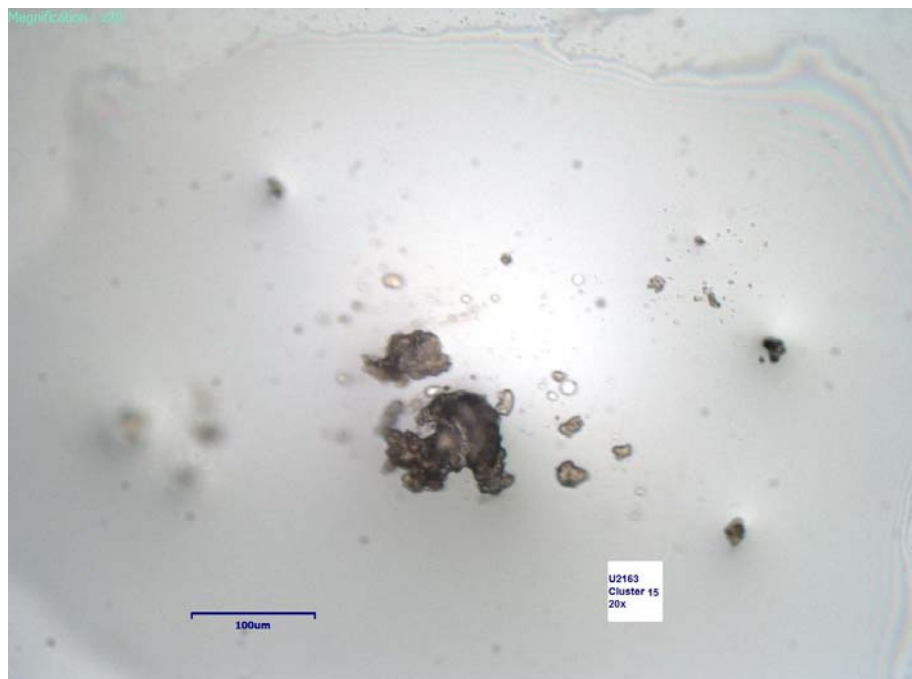


Photo of cluster U2163 Cluster 15.

U2163 B1 - EDS Spectra

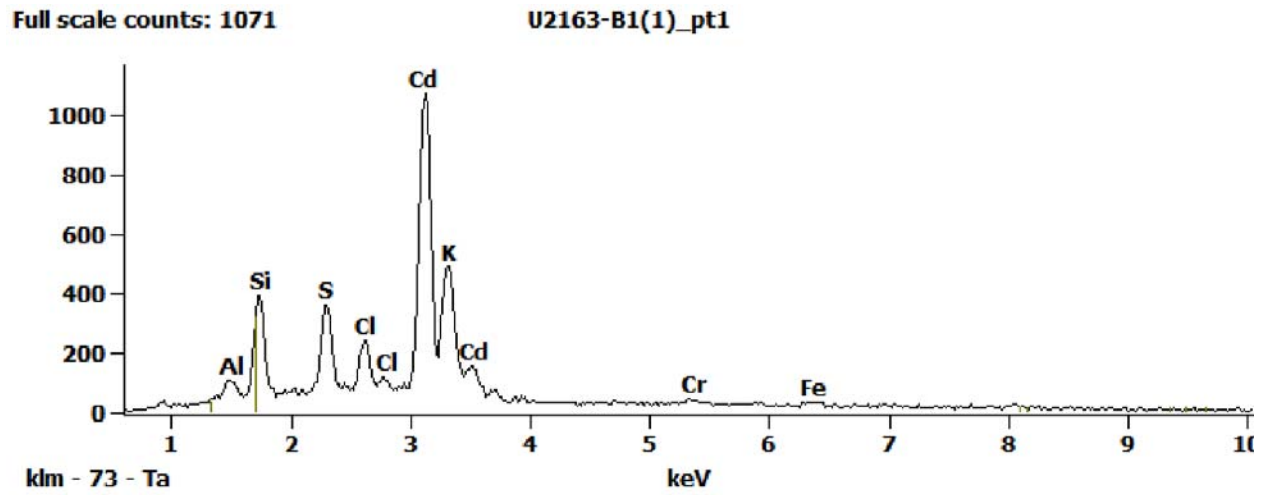


Figure 1. EDS Spectra for sample U2163-B-1 taken at test area 1. The test area is labeled in the particle SEM photo..

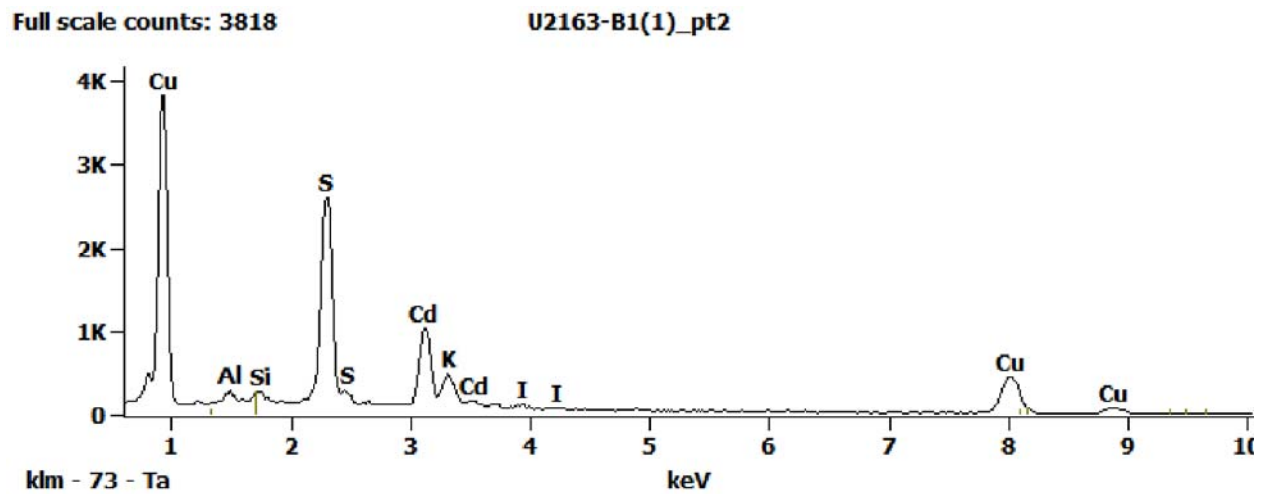


Figure 2. EDS Spectra for sample U2163-B-1 taken at test area 2. The test area is labeled in the particle SEM photo..

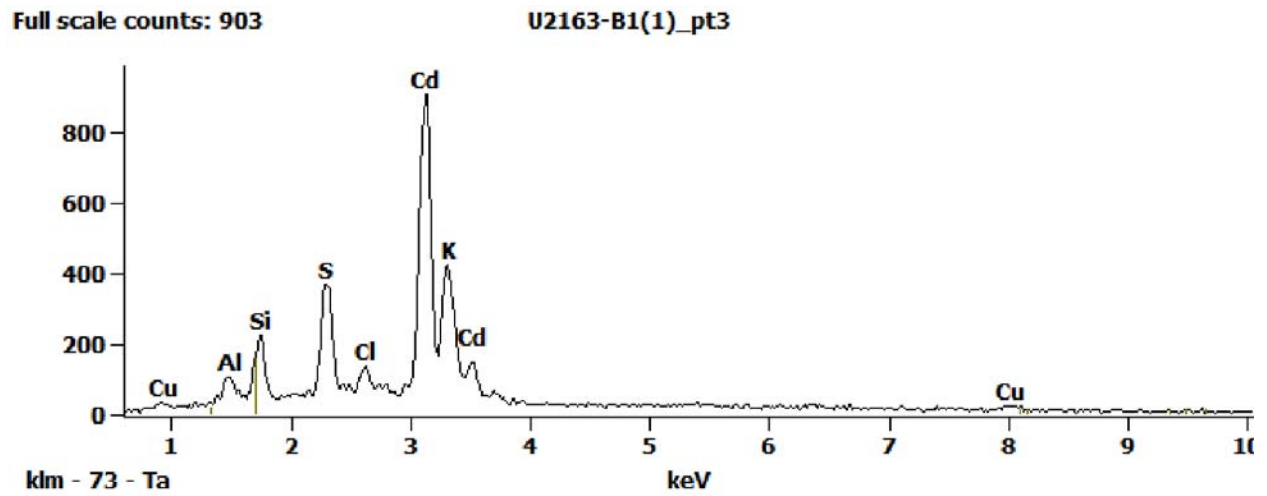


Figure 3. EDS Spectra for sample U2163-B-1 taken at test area 3. The test area is labeled in the particle SEM photo..

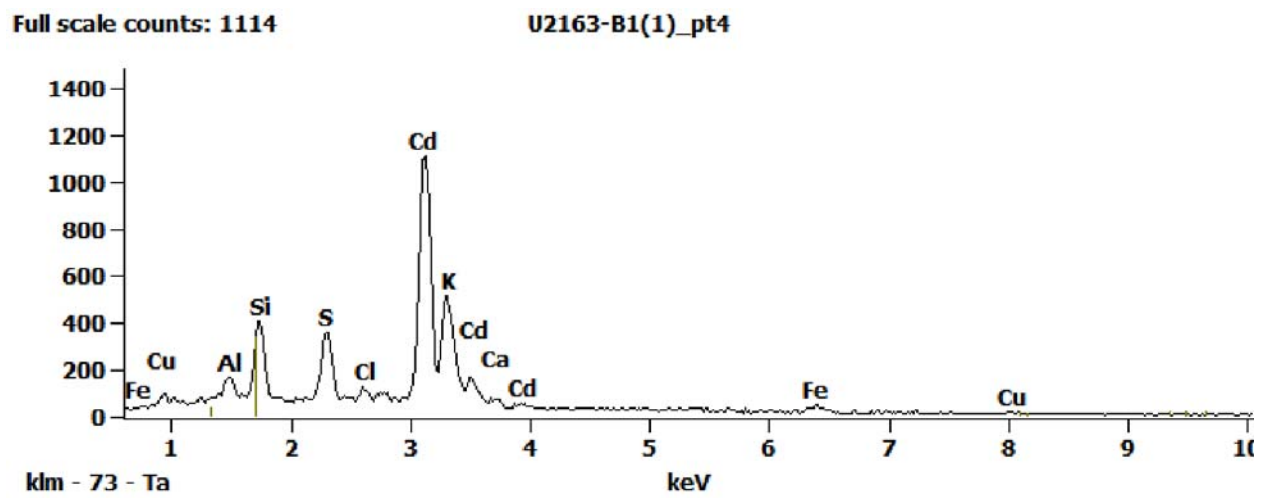


Figure 4. EDS Spectra for sample U2163-B-1 taken at test area 4. The test area is labeled in the particle SEM photo..

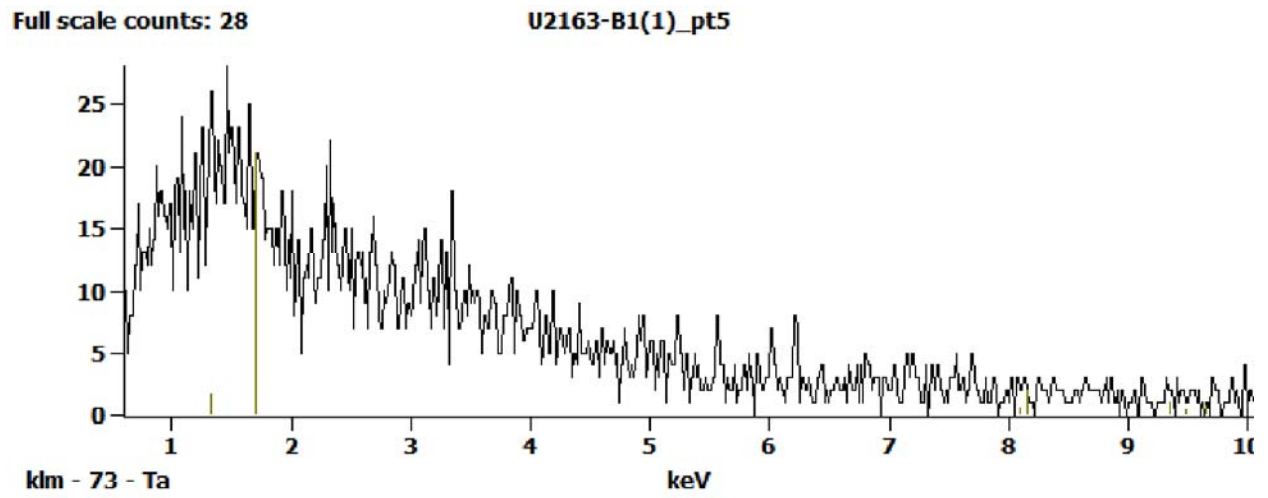
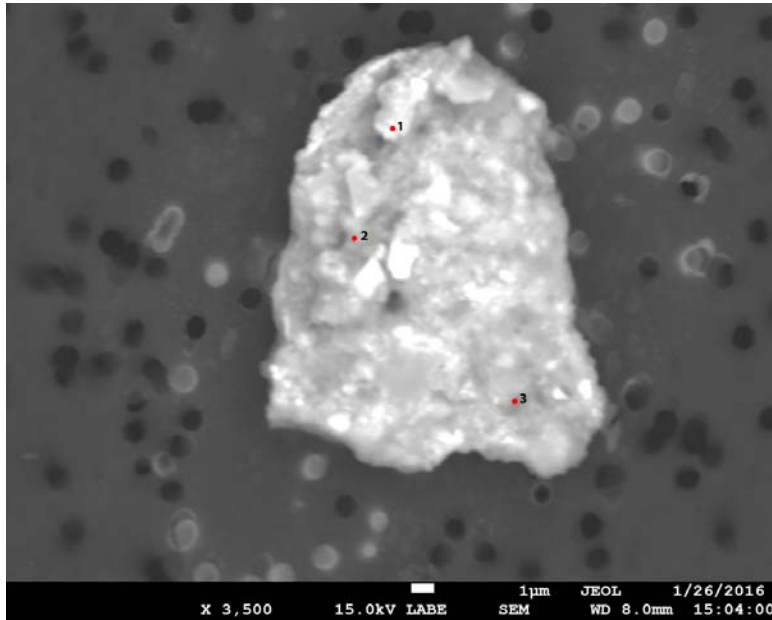


Figure 5. EDS Spectra for sample U2163-B-1 taken at test area 5. The test area is labeled in the particle SEM photo..

U2163 B5



Particle Size:	14 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black, Gray
Luster:	Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 19
Comments:	

SEM Photo of sample U2163 B5 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 19

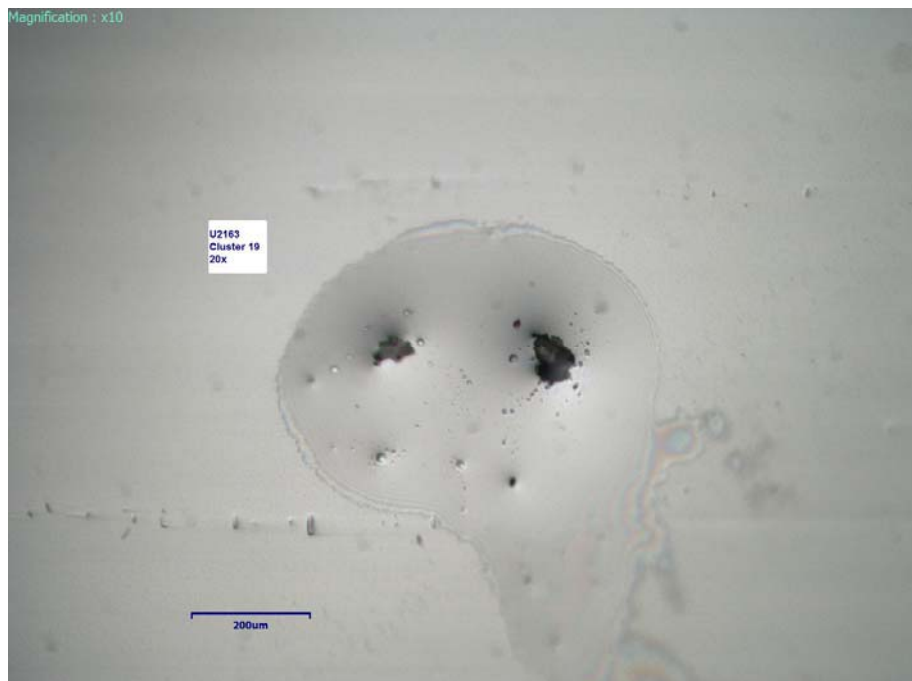


Photo of cluster U2163 Cluster 19.

U2163 B5 - EDS Spectra

Full scale counts: 2008

U2163-B5(1)_pt1

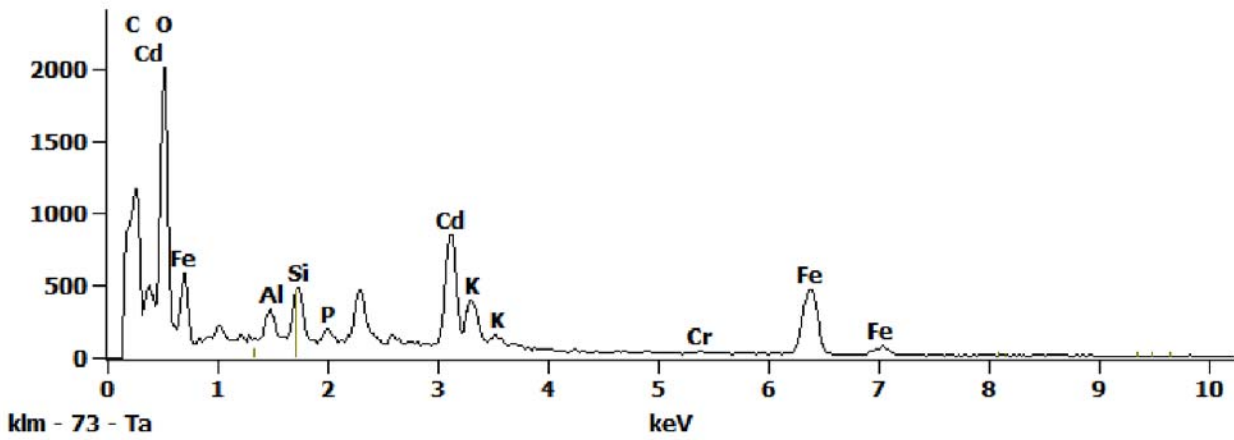


Figure 1. EDS Spectra for sample U2163-B-5 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1080

U2163-B5(1)_pt2

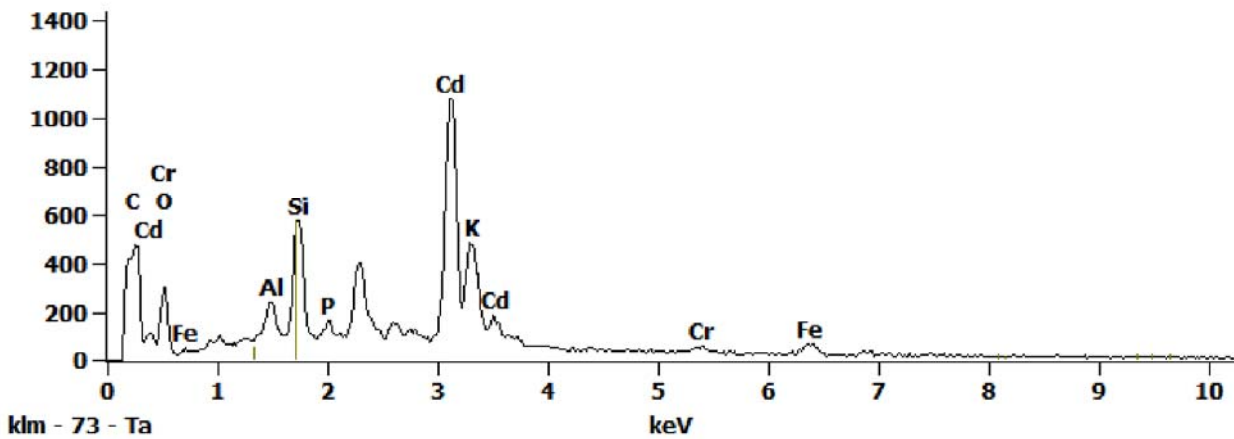


Figure 2. EDS Spectra for sample U2163-B-5 taken at test area 2. The test area is labeled in the particle SEM photo..

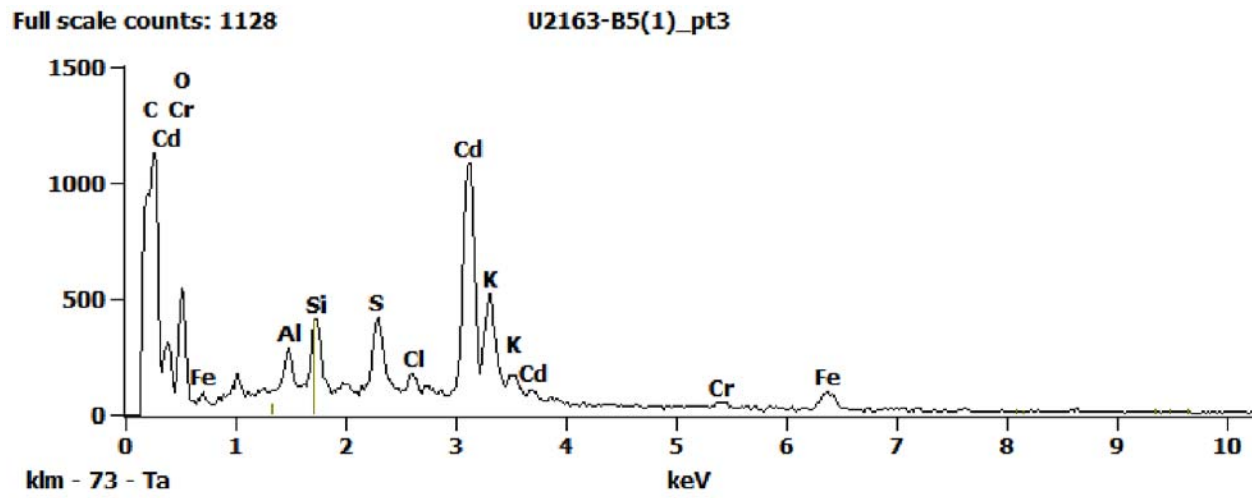
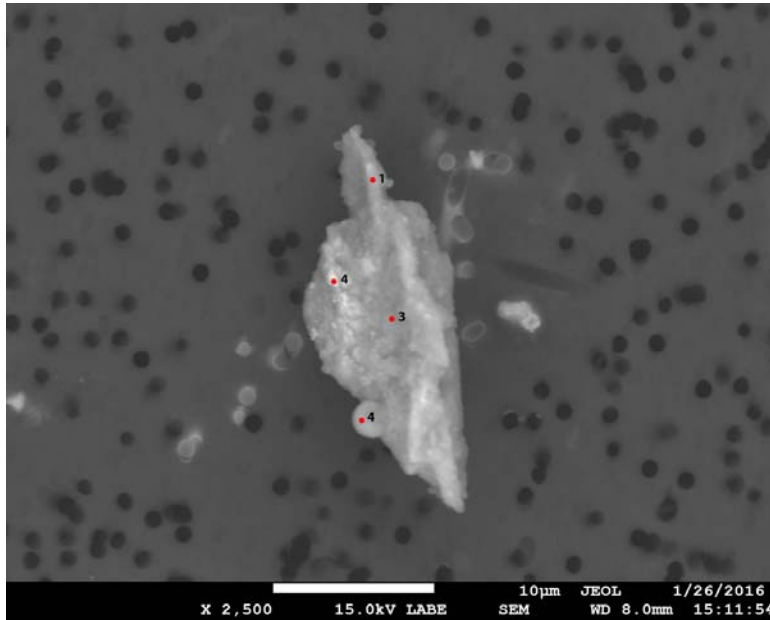


Figure 3. EDS Spectra for sample U2163-B-5 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 B6



Particle Size:	18x30 µm
Shape:	Equidimensional to Spherical
Transparency:	Opaque
Color:	Black, Gray
Luster:	Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 20
Comments:	

SEM Photo of sample U2163 B6 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 20

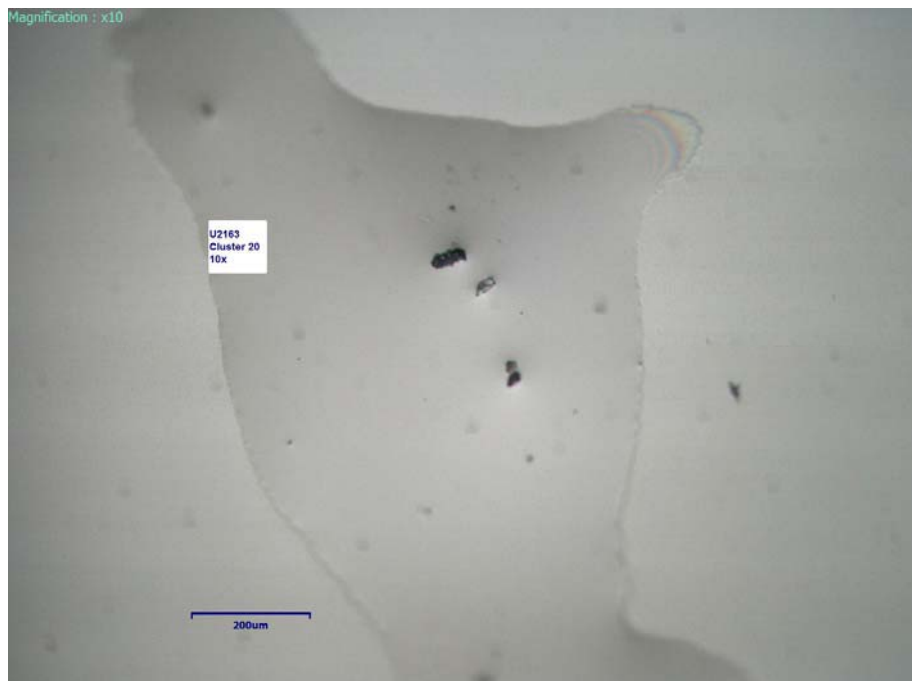


Photo of cluster U2163 Cluster 20.

U2163 B6 - EDS Spectra

Full scale counts: 6798

U2163-B6(1)_pt1

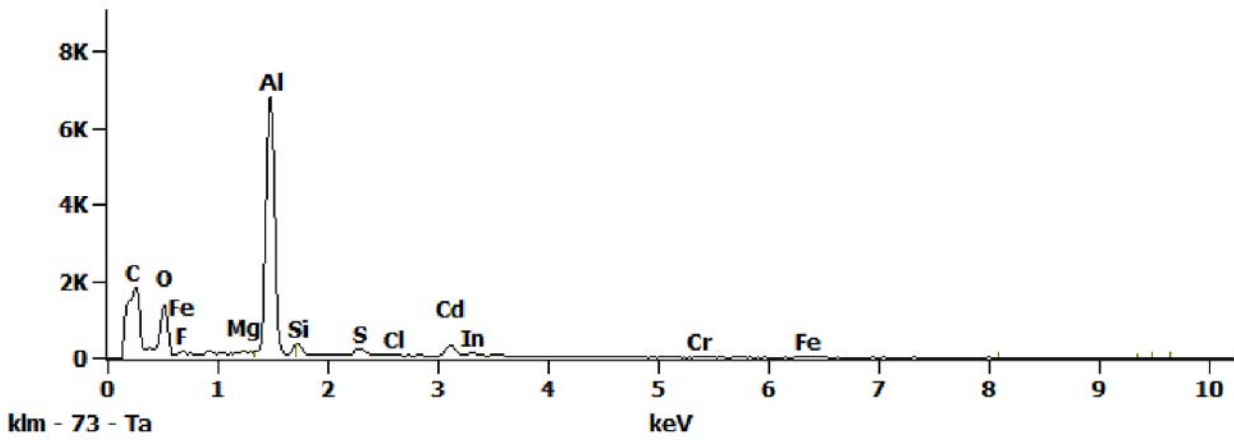


Figure 1. EDS Spectra for sample U2163-B-6 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 2904

U2163-B6(1)_pt2

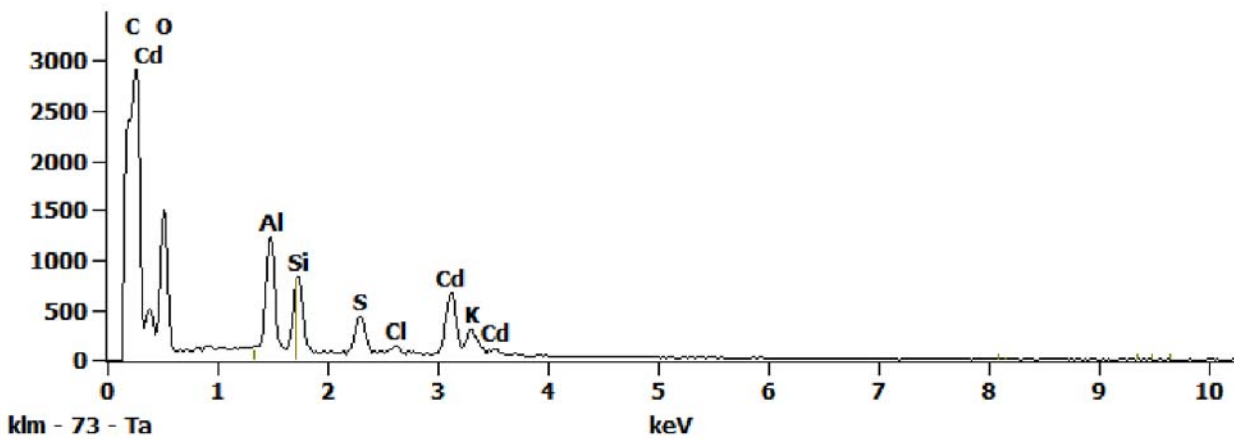


Figure 2. EDS Spectra for sample U2163-B-6 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 3676

U2163-B6(1)_pt3

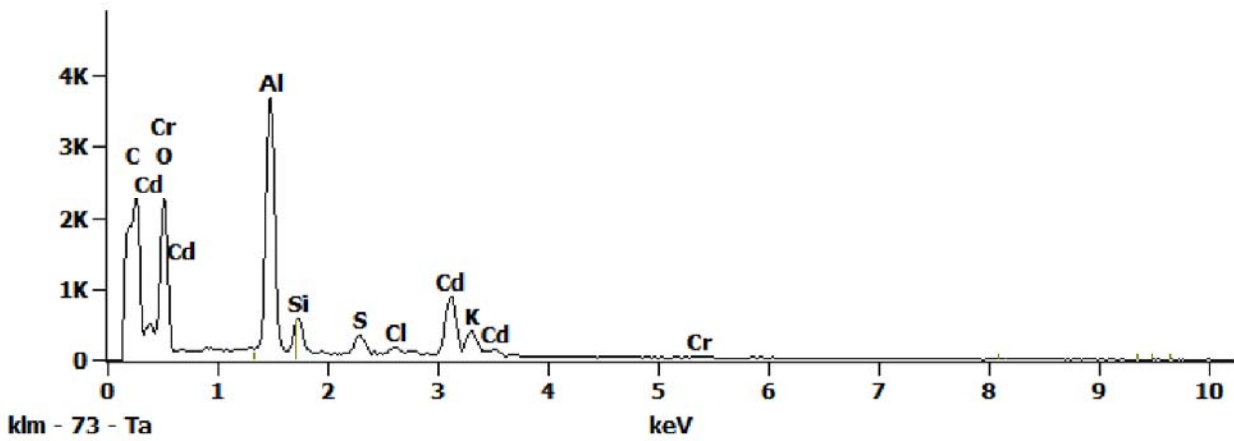


Figure 3. EDS Spectra for sample U2163-B-6 taken at test area 3. The test area is labeled in the particle SEM photo..

Full scale counts: 2516

U2163-B6(1)_pt4

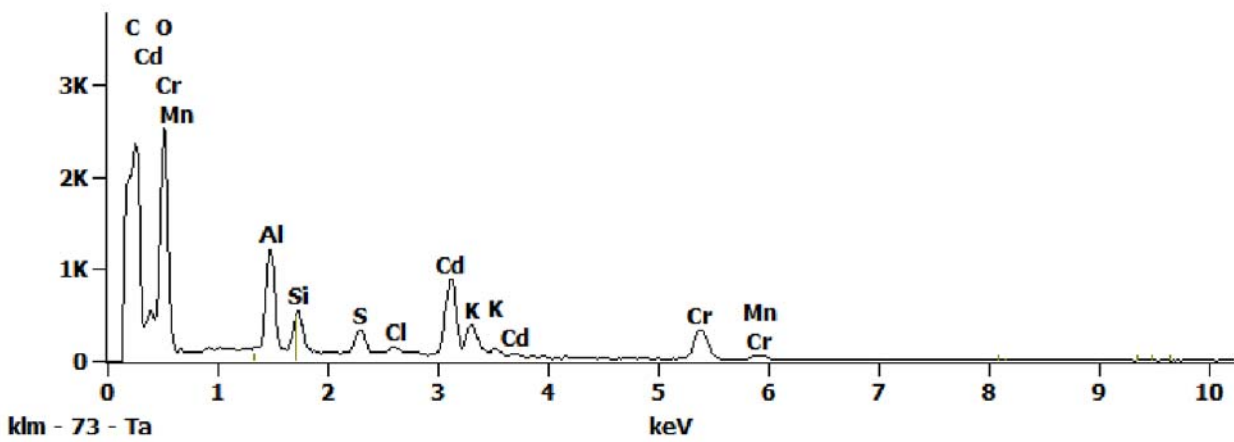
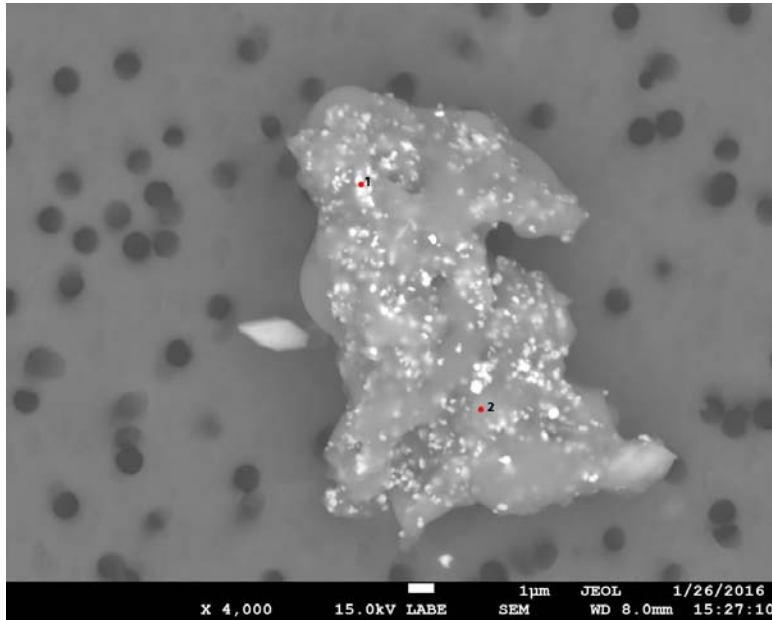


Figure 4. EDS Spectra for sample U2163-B-6 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 B8



Particle Size: 20x25 µm
Shape: Irregular to Equidimensional
Transparency: Opaque
Color: Gray
Luster: Dull
Particle Type: Artificial
Terrestrial
Contamination
Cluster No.: U2163 Cluster 22
Comments:

SEM Photo of sample U2163 B8 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 22

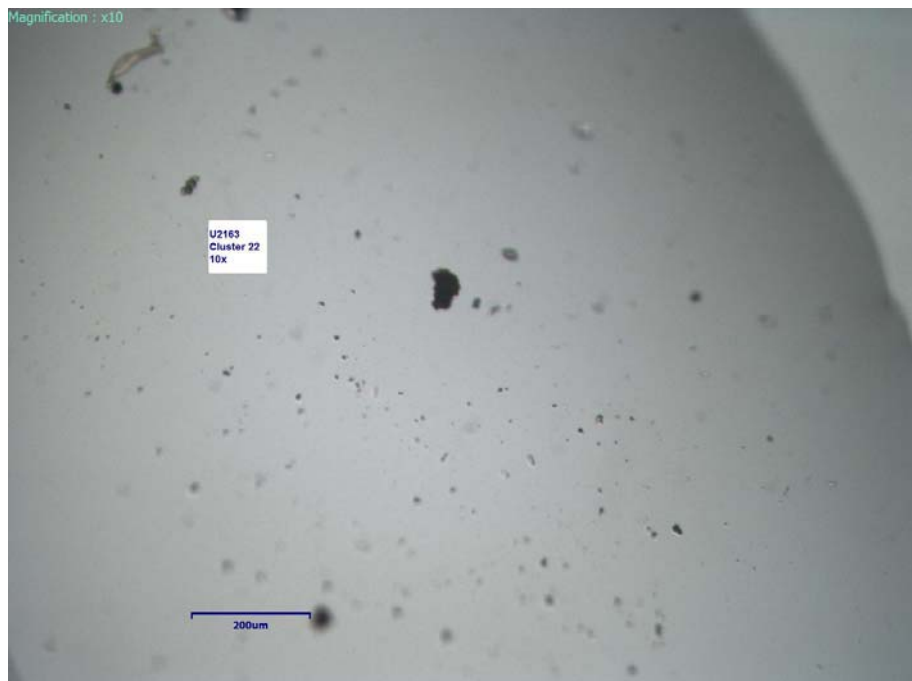


Photo of cluster U2163 Cluster 22.

U2163 B8 - EDS Spectra

Full scale counts: 1061

U2163-B8(1)_pt1

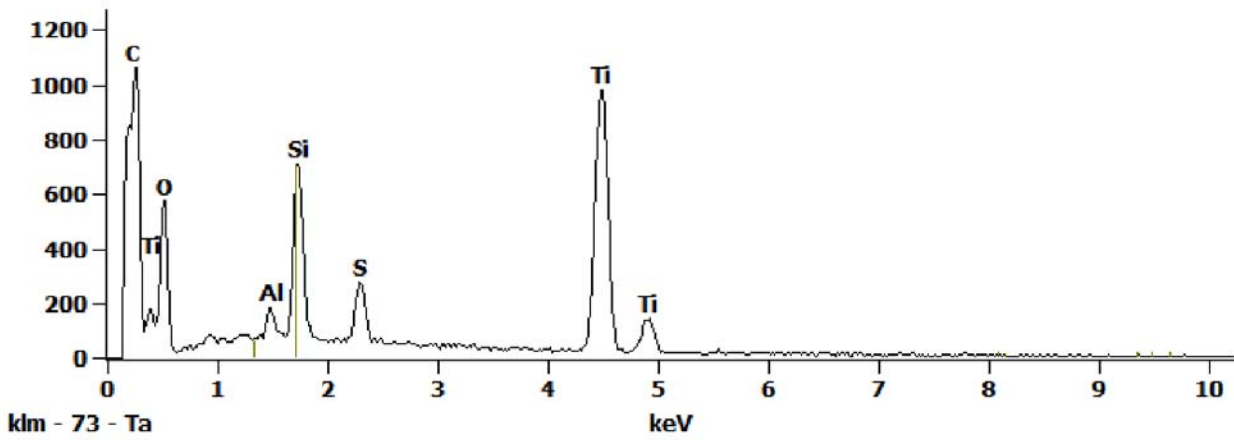


Figure 1. EDS Spectra for sample U2163-B-8 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1175

U2163-B8(1)_pt2

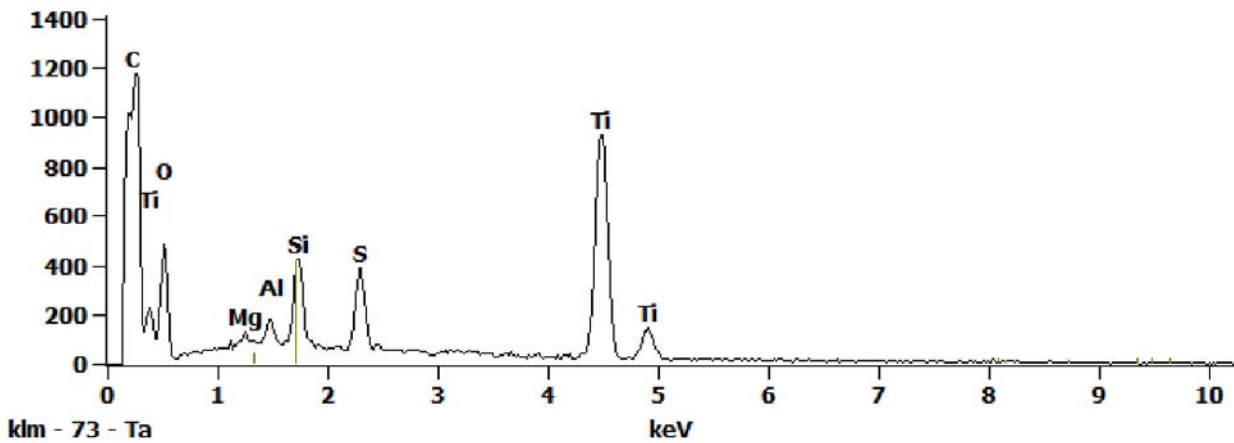
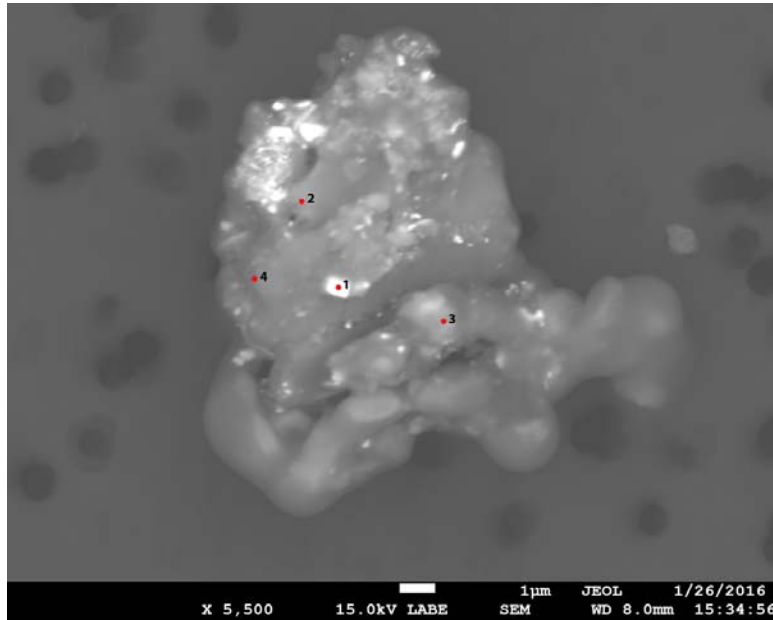


Figure 2. EDS Spectra for sample U2163-B-8 taken at test area 2. The test area is labeled in the particle SEM photo..

U2163 B9



SEM Photo of sample U2163 B9 with labeled EDS testing locations.

Particle Size:	12 µm
Shape:	Irregular
Transparency:	Opaque to Translucent
Color:	Gray
Luster:	Pearly to Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 23
Comments:	

Cluster of Origin: U2163 Cluster 23



Photo of cluster U2163 Cluster 23.

U2163 B9 - EDS Spectra

Full scale counts: 4316

U2163-B9(1)_pt1

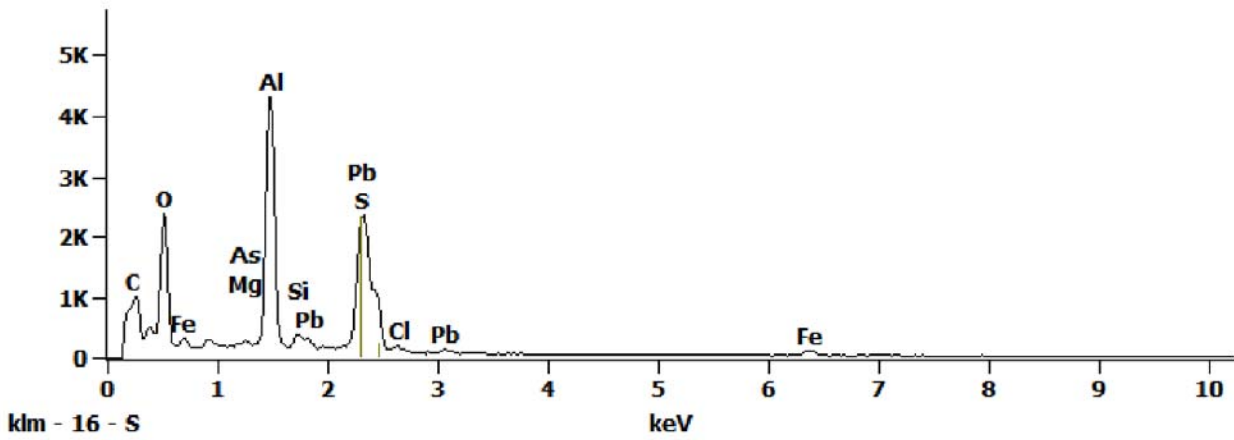


Figure 1. EDS Spectra for sample U2163-B-9 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 7028

U2163-B9(1)_pt2

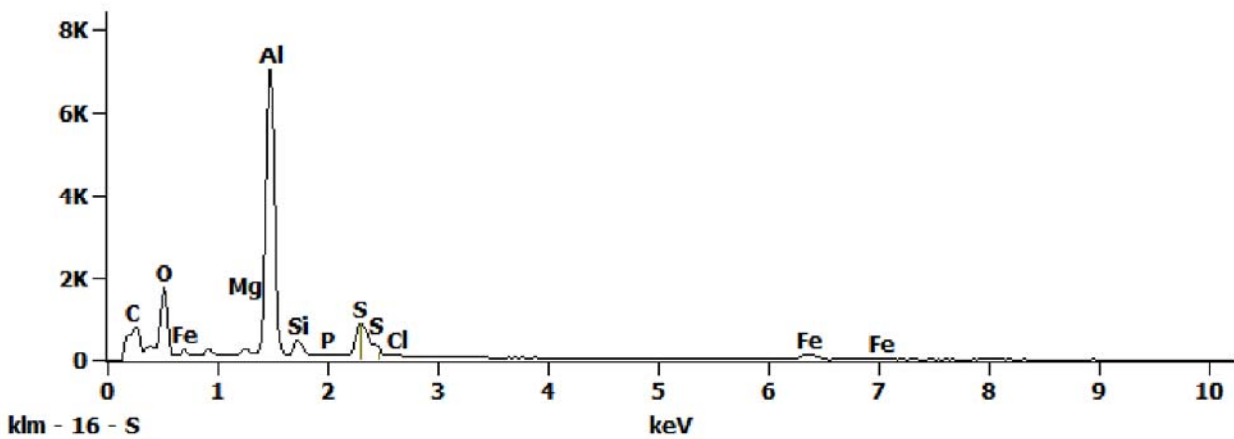


Figure 2. EDS Spectra for sample U2163-B-9 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 2716

U2163-B9(1)_pt3

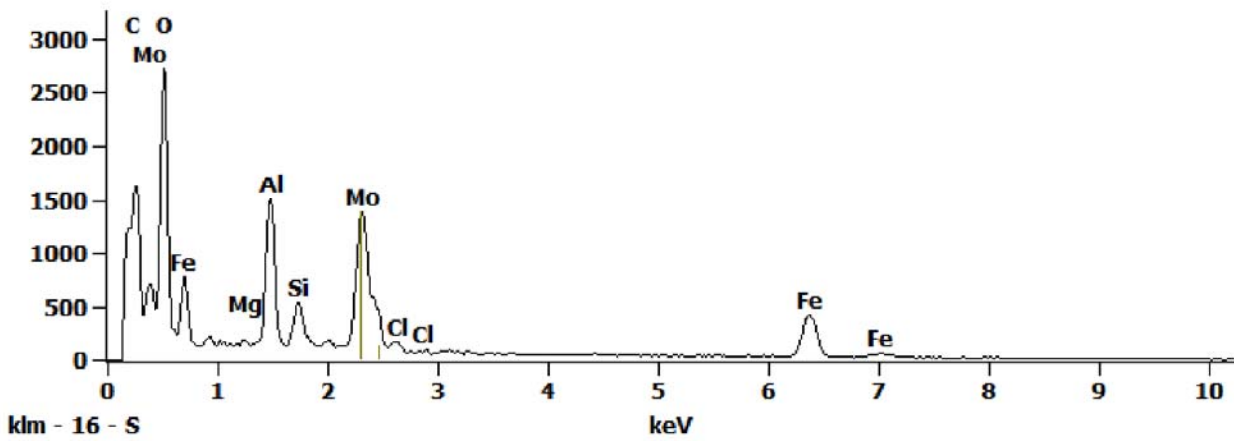


Figure 3. EDS Spectra for sample U2163-B-9 taken at test area 3. The test area is labeled in the particle SEM photo..

Full scale counts: 3441

U2163-B9(1)_pt4

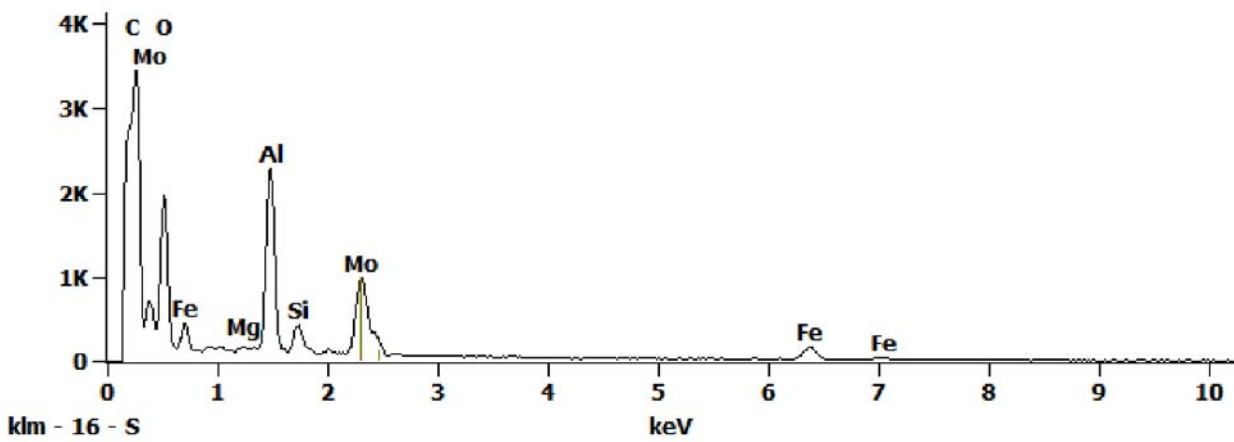
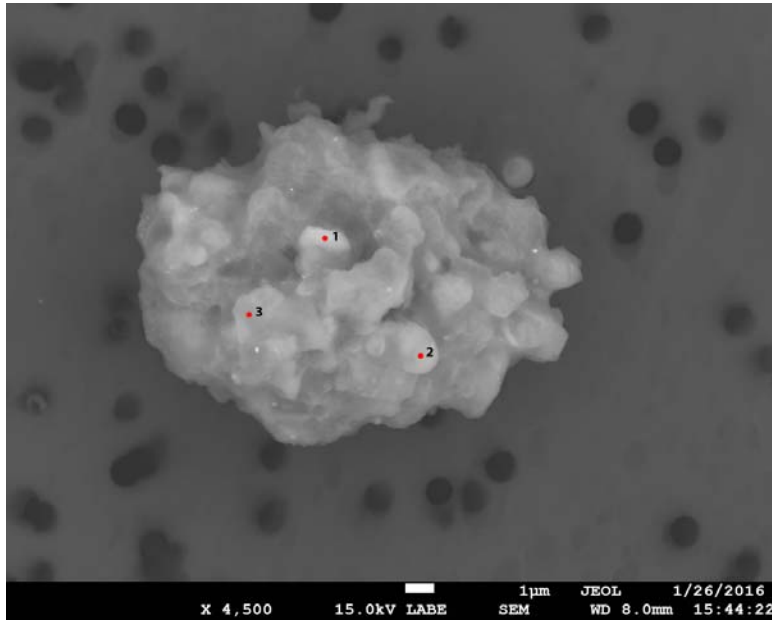


Figure 4. EDS Spectra for sample U2163-B-9 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 B10



Particle Size:	12 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black, Gray
Luster:	Pearly
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 24
Comments:	

SEM Photo of sample U2163 B10 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 24

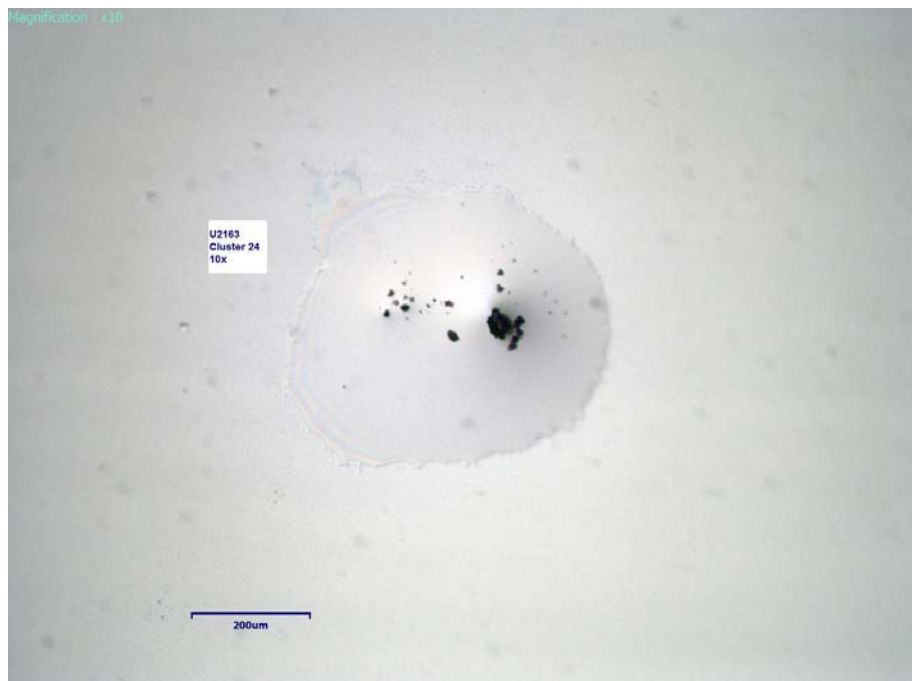


Photo of cluster U2163 Cluster 24.

U2163 B10 - EDS Spectra

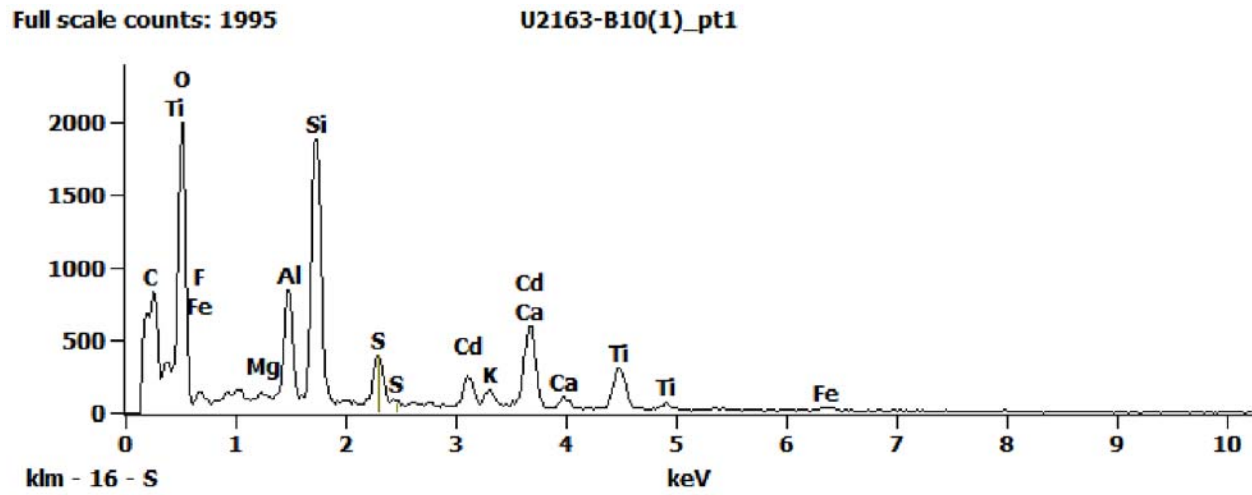


Figure 1. EDS Spectra for sample U2163-B-10 taken at test area 1. The test area is labeled in the particle SEM photo..

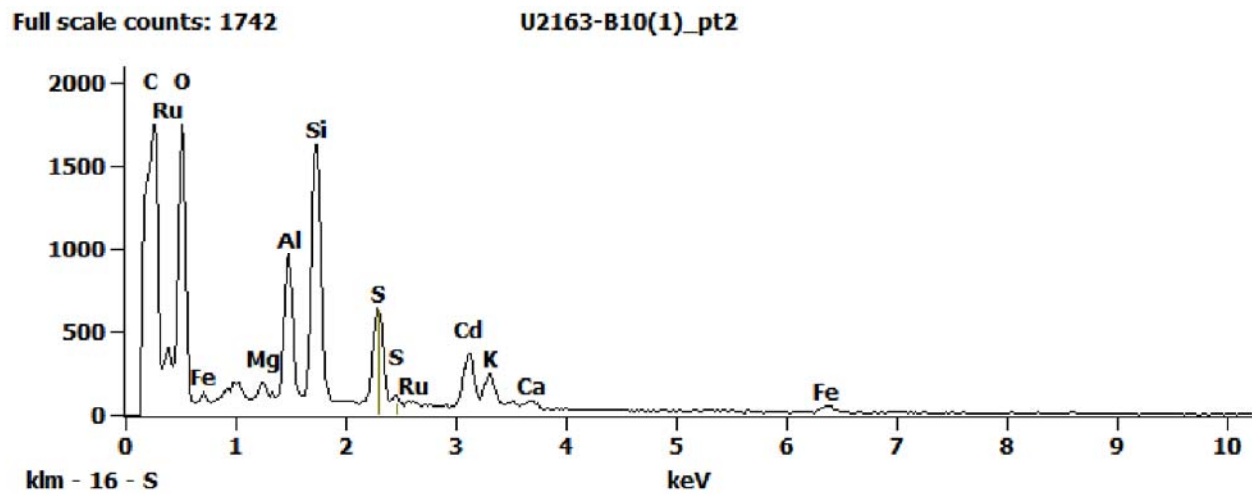


Figure 2. EDS Spectra for sample U2163-B-10 taken at test area 2. The test area is labeled in the particle SEM photo..

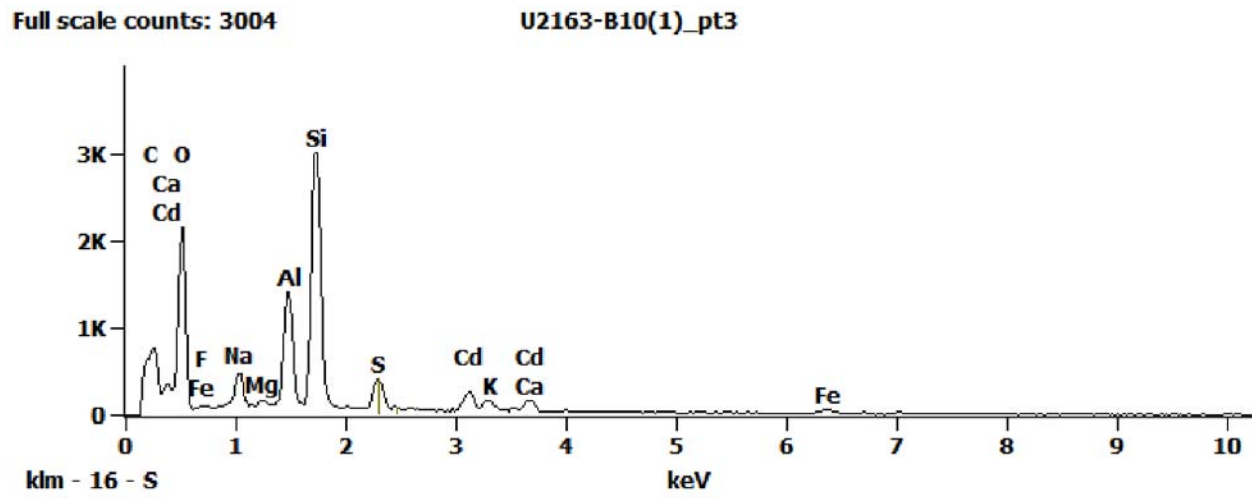
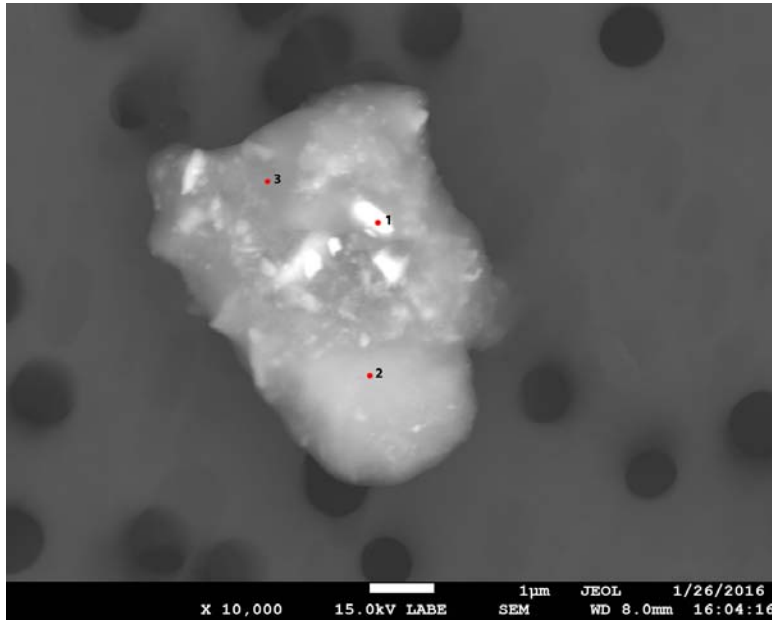


Figure 3. EDS Spectra for sample U2163-B-10 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 B13



SEM Photo of sample U2163 B13 with labeled EDS testing locations.

Particle Size:	8 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Gray
Luster:	Dull
Particle Type:	Artificial Terrestrial Contamination
Cluster No.:	U2163 Cluster 27
Comments:	

Cluster of Origin: U2163 Cluster 27

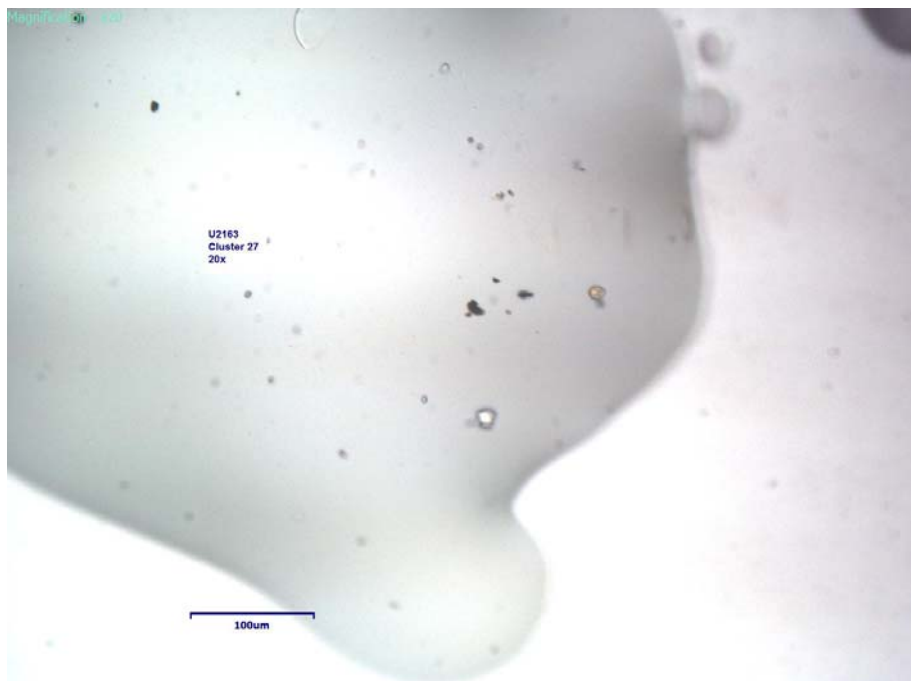


Photo of cluster U2163 Cluster 27.

U2163 B13 - EDS Spectra

Full scale counts: 2185

U2163-B13(1)_pt1

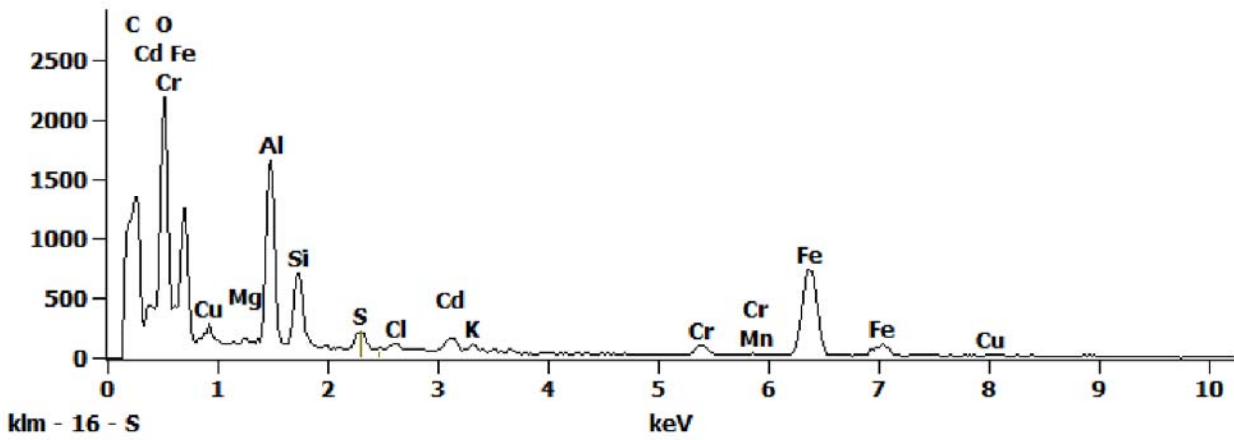


Figure 1. EDS Spectra for sample U2163-B-13 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 10497

U2163-B13(1)_pt2

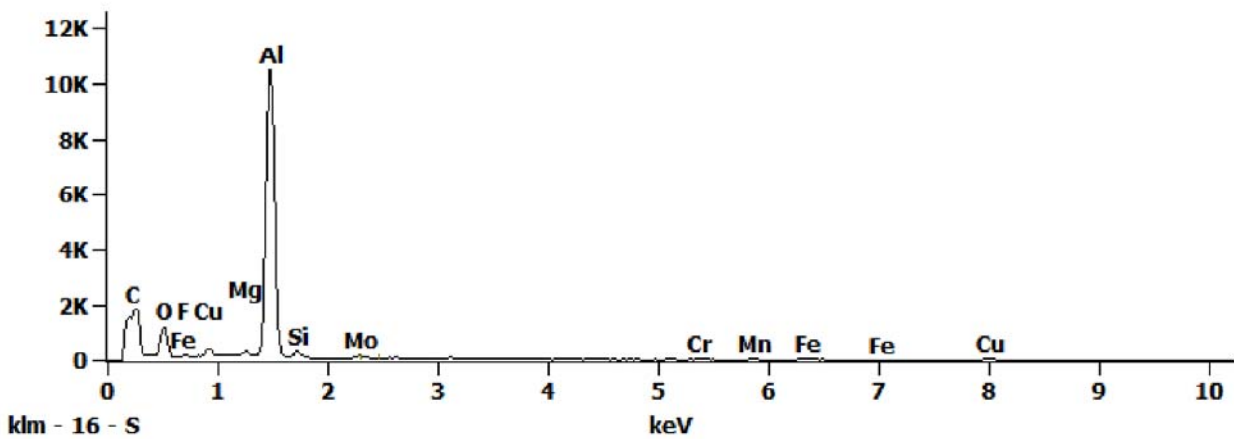


Figure 2. EDS Spectra for sample U2163-B-13 taken at test area 2. The test area is labeled in the particle SEM photo..

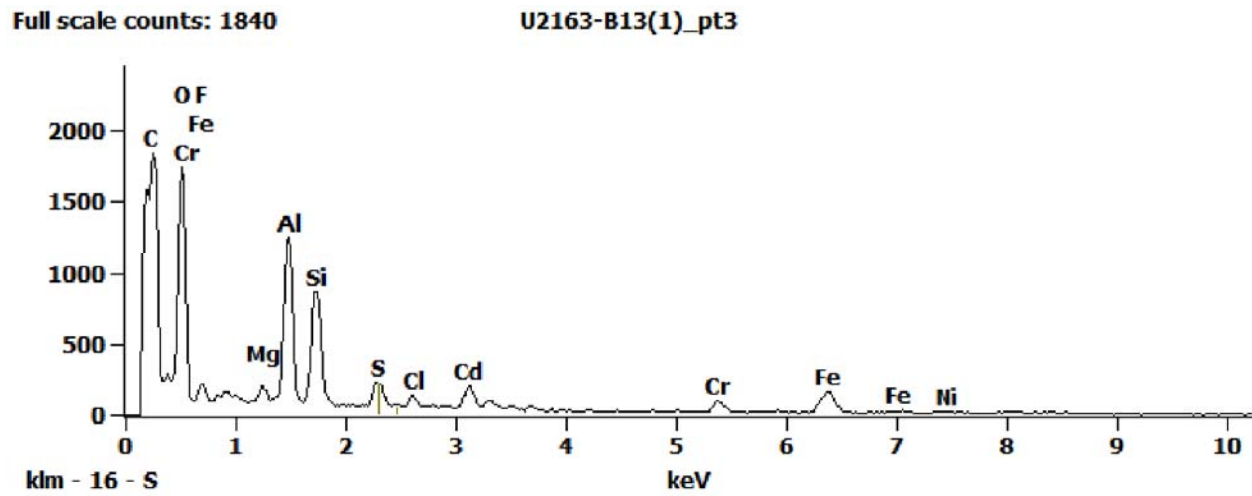
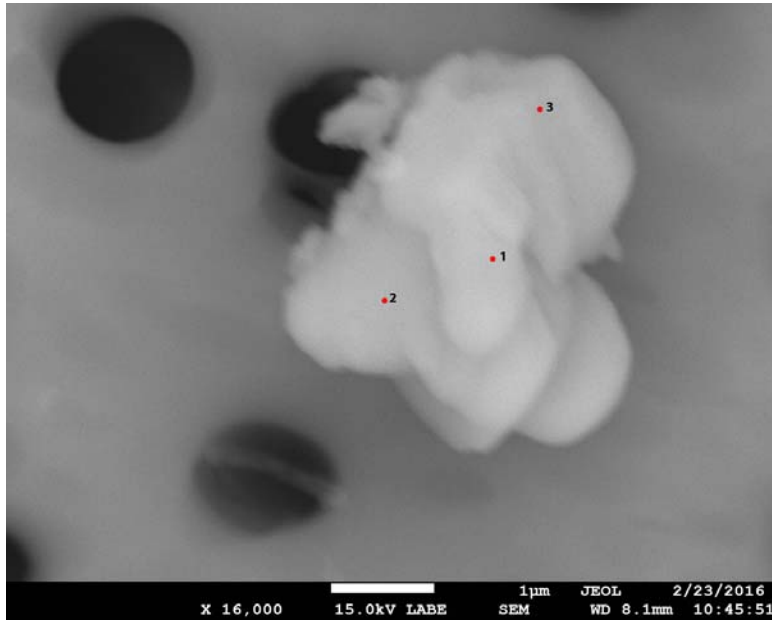


Figure 3. EDS Spectra for sample U2163-B-13 taken at test area 3. The test area is labeled in the particle SEM photo..

Particle Descriptions

Natural Terrestrial Contamination (TCN Type)

U2153 N1



Particle Size: 7x4 µm
Shape: Irregular
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Natural
Terrestrial
Contamination
Cluster No.: U2153 Cluster 4
Comments:

SEM Photo of sample U2153 N1 with labeled EDS testing locations.

Cluster of Origin: U2153 Cluster 4



Photo of cluster U2153 Cluster 4.

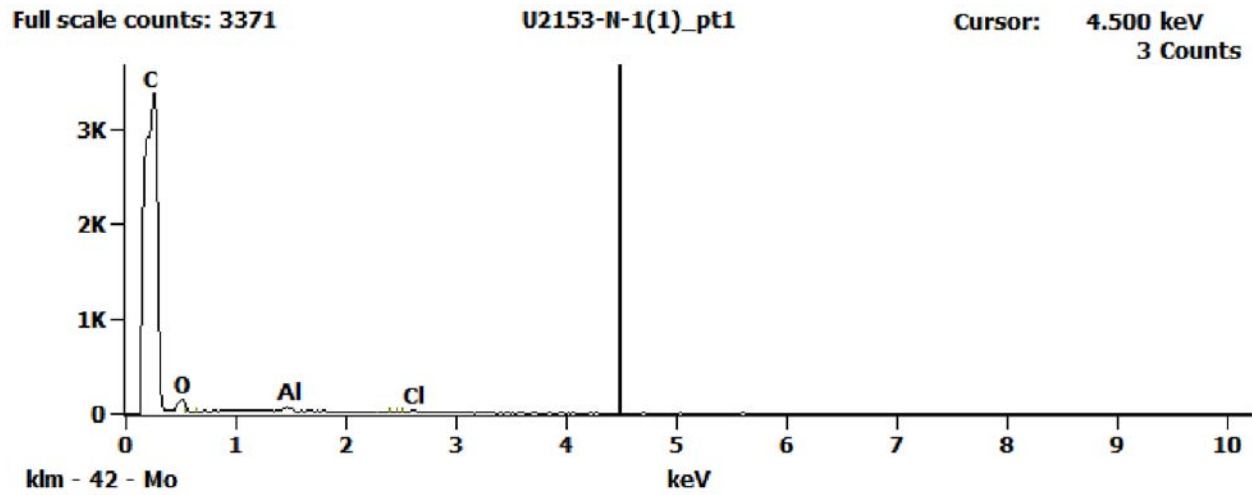
U2153 N1 - EDS Spectra

Figure 1. EDS Spectra for sample U2153-N-1 taken at test area 1. The test area is labeled in the particle SEM photo..

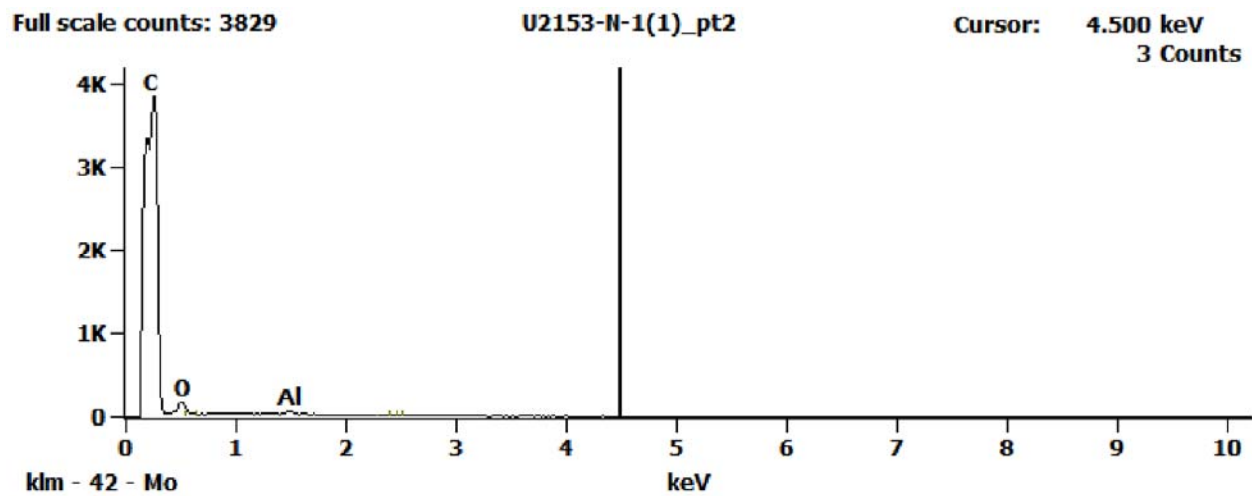


Figure 2. EDS Spectra for sample U2153-N-1 taken at test area 2. The test area is labeled in the particle SEM photo..

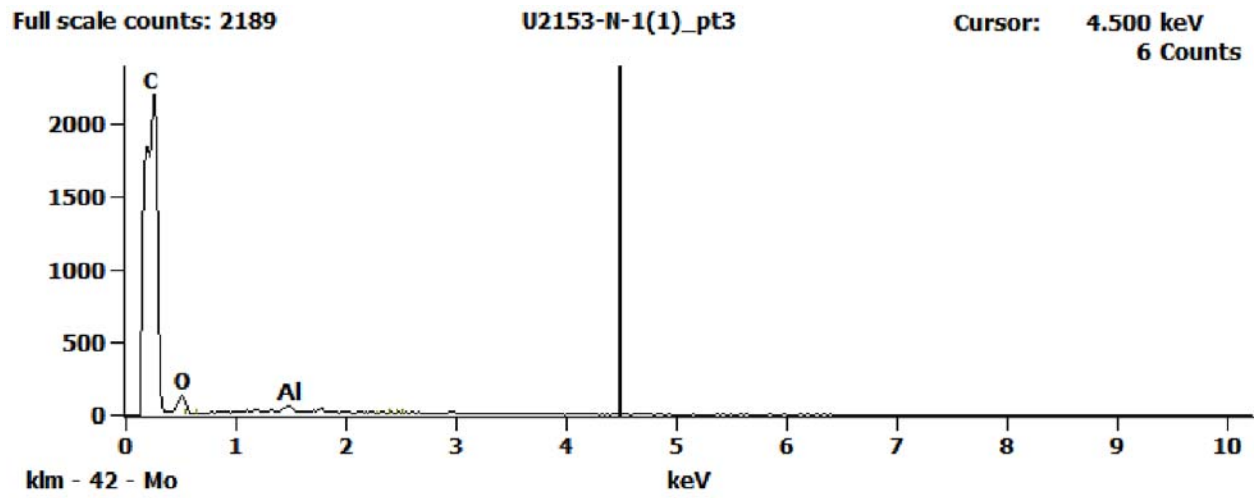
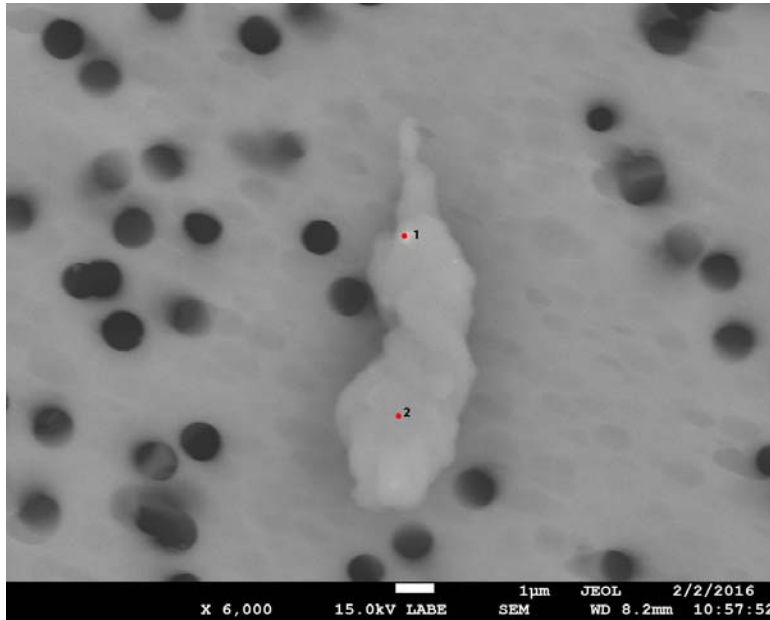


Figure 3. EDS Spectra for sample U2153-N-1 taken at test area 3. The test area is labeled in the particle SEM photo..

U2157 A1



SEM Photo of sample U2157 A1 with labeled EDS testing locations.

Particle Size:	4x10 µm
Shape:	Equidimensional
Transparency:	Transparent to Translucent
Color:	Clear
Luster:	Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2157 Cluster 1
Comments:	

Cluster of Origin: U2157 Cluster 1

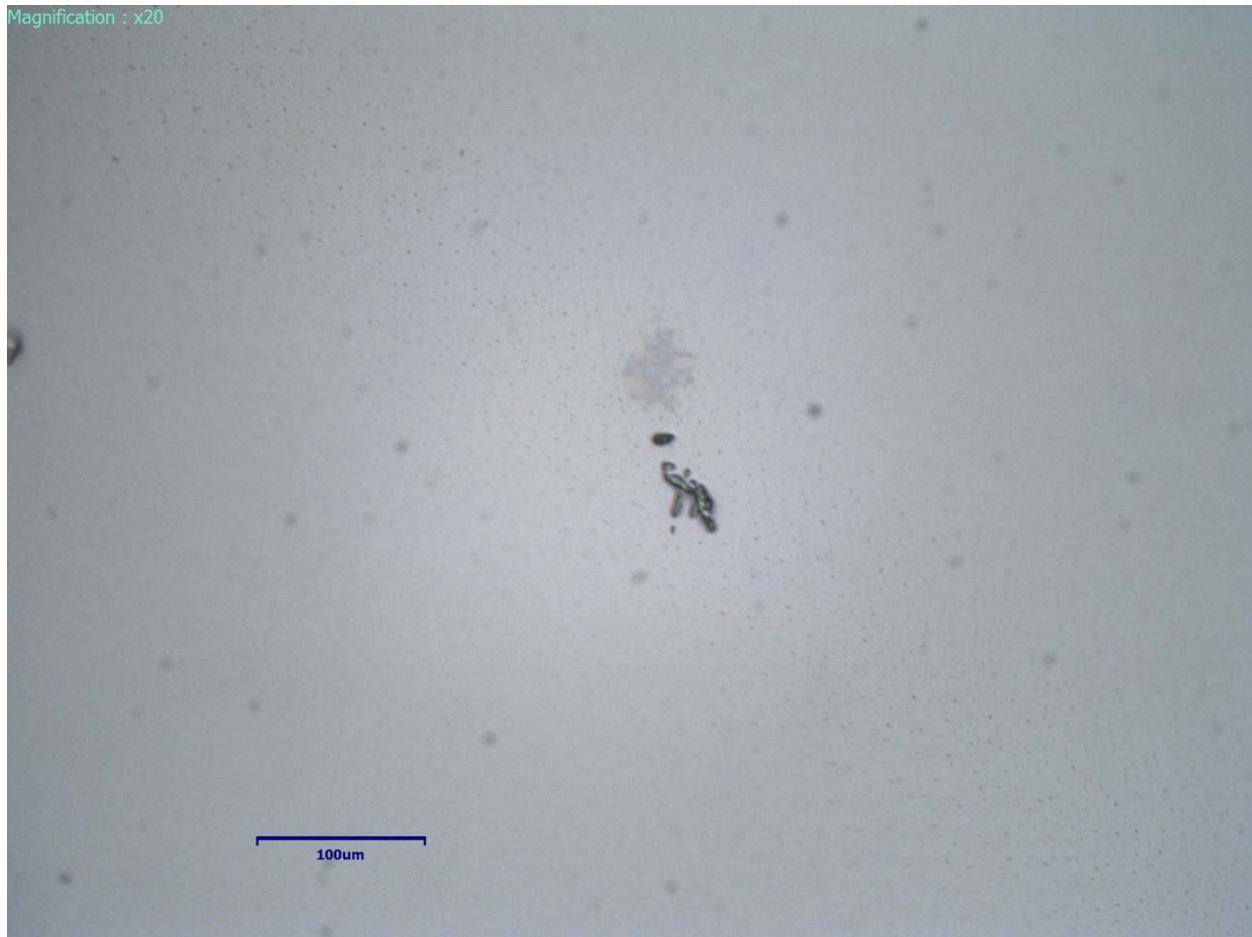


Photo of cluster U2157 Cluster 1.

U2157 A1 - EDS Spectra

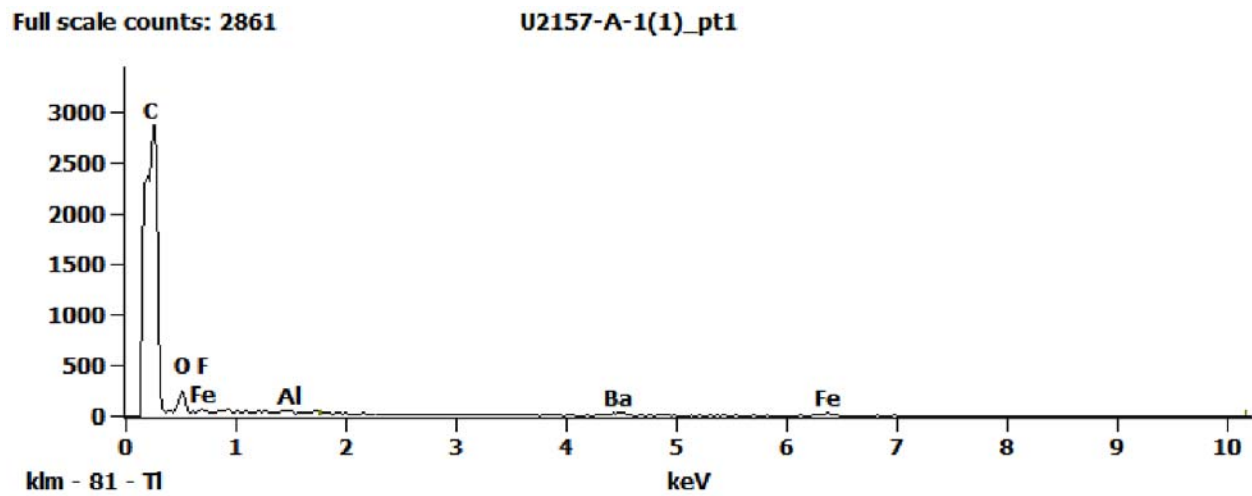


Figure 1. EDS Spectra for sample U2157-A-1 taken at test area 1. The test area is labeled in the particle SEM photo..

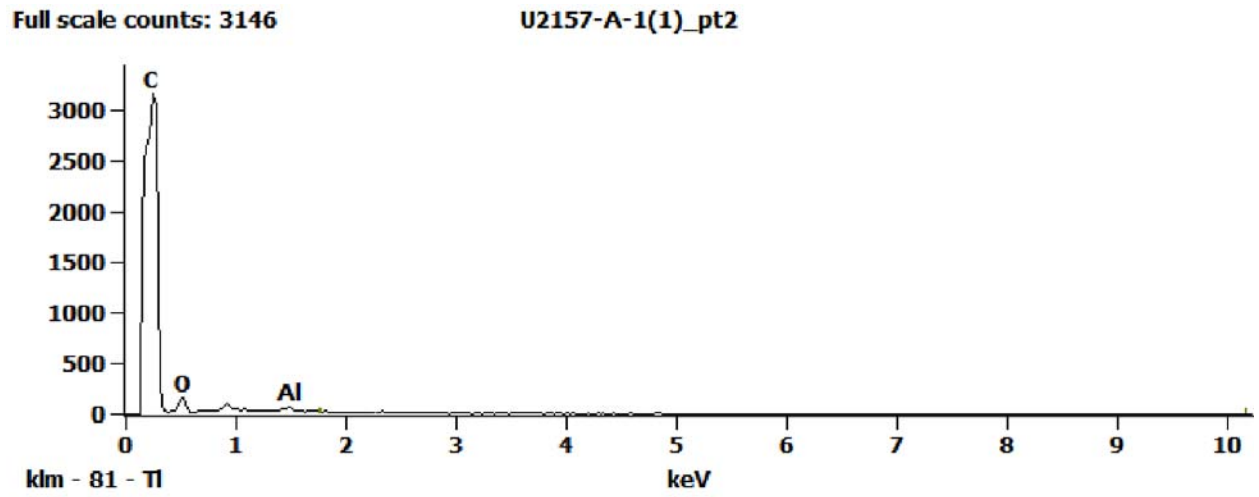
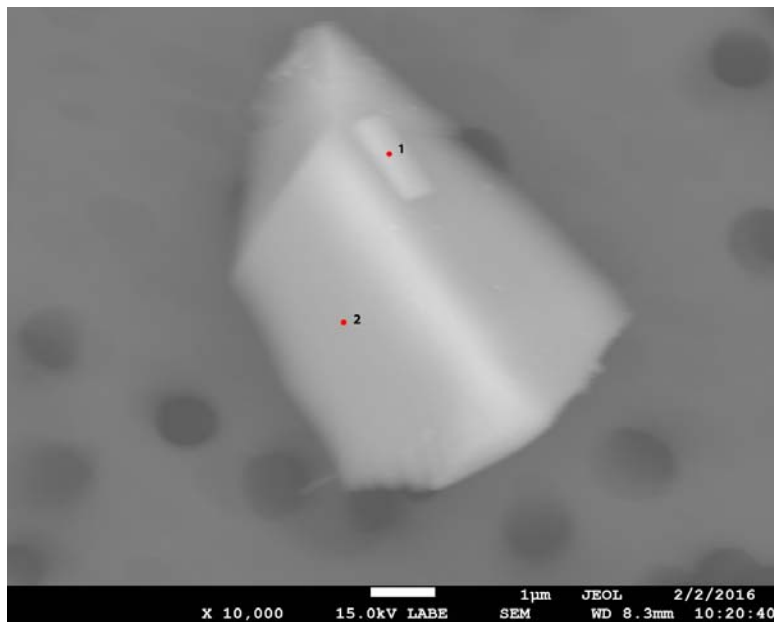


Figure 2. EDS Spectra for sample U2157-A-1 taken at test area 2. The test area is labeled in the particle SEM photo..

U2157 A6



SEM Photo of sample U2157 A6 with labeled EDS testing locations.

Particle Size:	7 μm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Gray
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

U2157 A6 - EDS Spectra

Full scale counts: 1547

U2157-A-6(1)_pt1

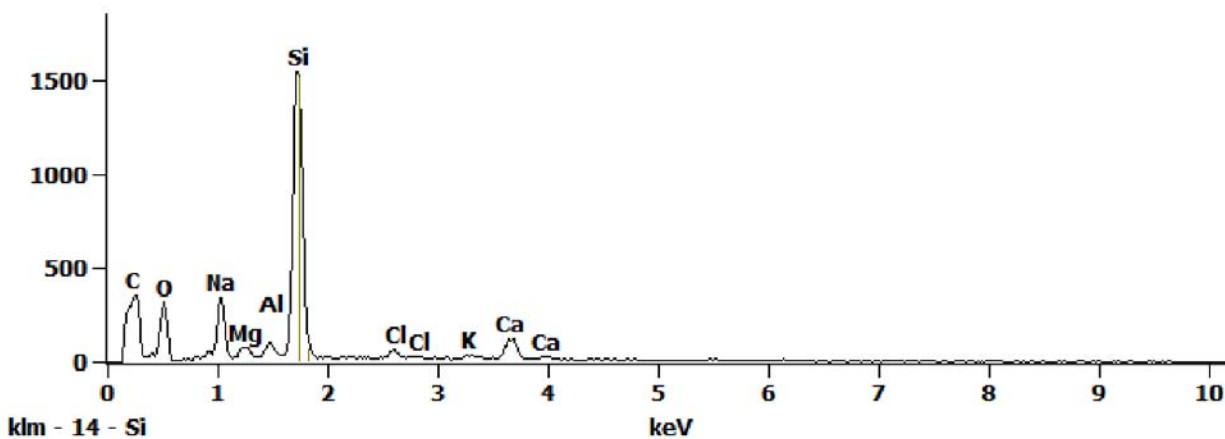


Figure 1. EDS Spectra for sample U2157-A-6 taken at test area 1. The test area is labeled in the particle SEM photo..

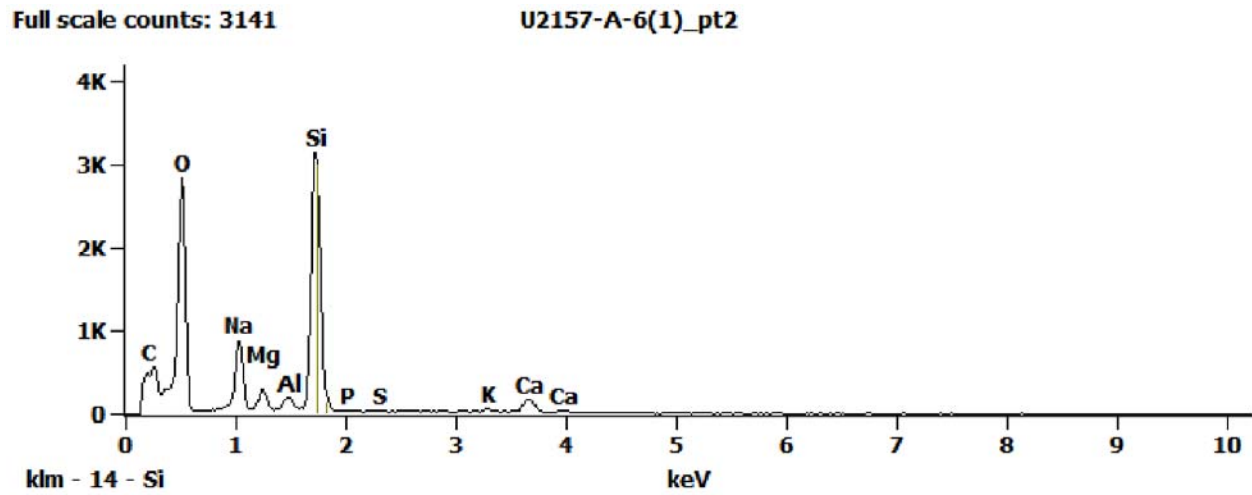
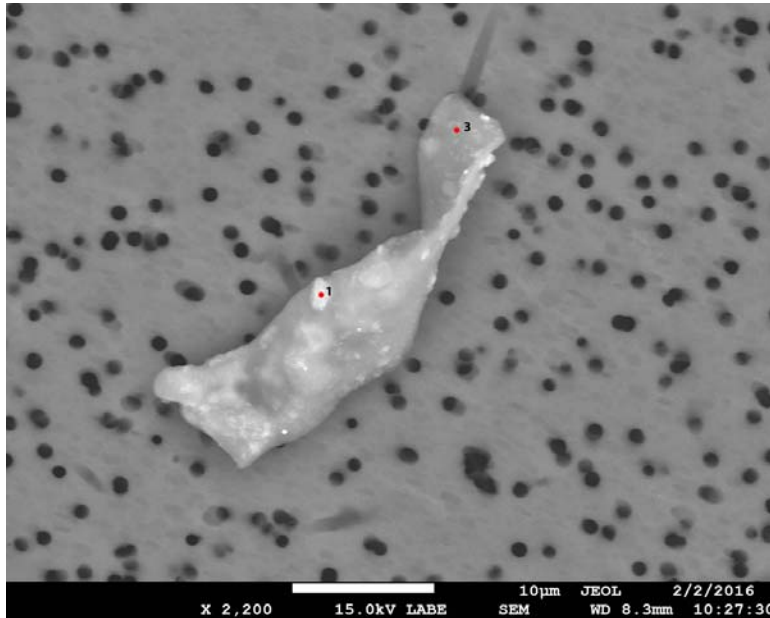


Figure 2. EDS Spectra for sample U2157-A-6 taken at test area 2. The test area is labeled in the particle SEM photo..

U2157 A7



Particle Size:	7x27 μm
Shape:	Irregular
Transparency:	Opaque to Transparent
Color:	Clear, Gray
Luster:	Resinous to Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2157 A7 with labeled EDS testing locations.

U2157 A7 - EDS Spectra

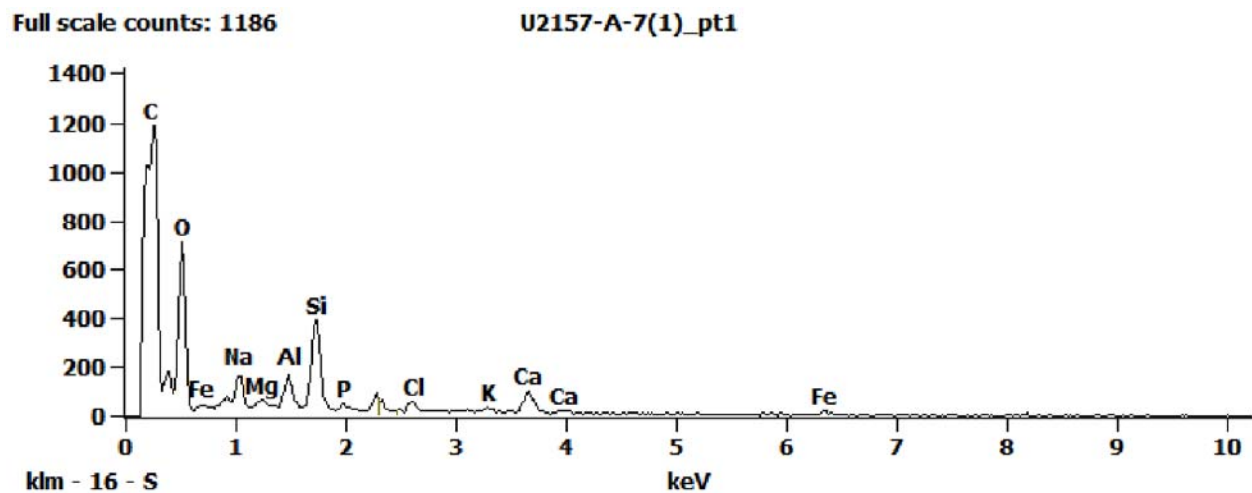


Figure 1. EDS Spectra for sample U2157-A-7 taken at test area 1. The test area is labeled in the particle SEM photo..

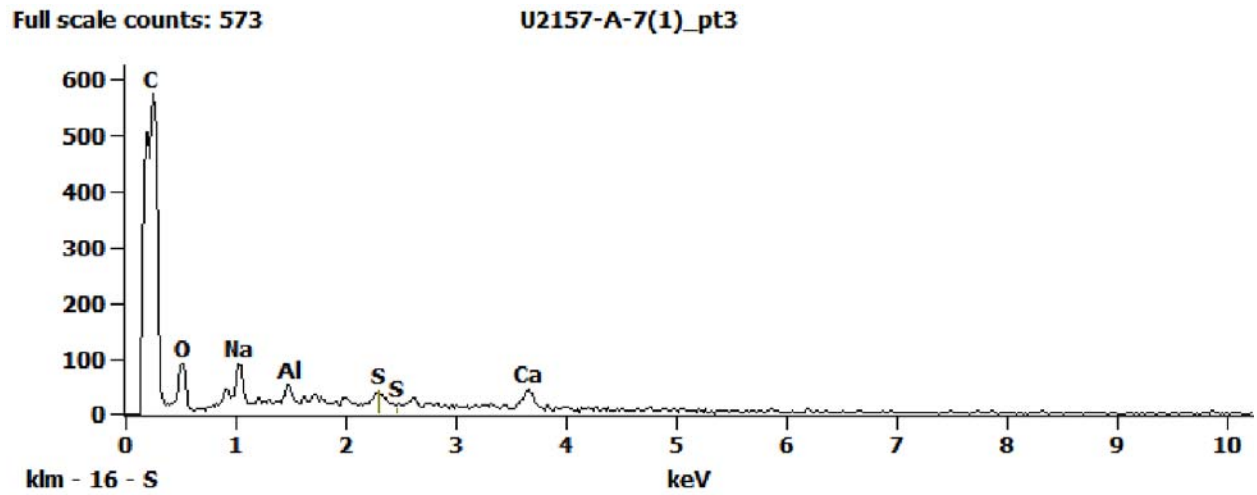
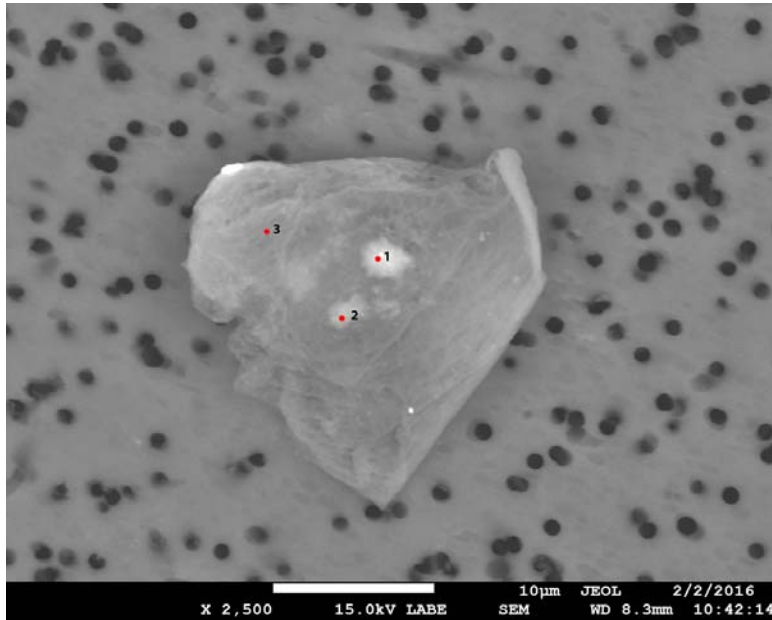


Figure 2. EDS Spectra for sample U2157-A-7 taken at test area 2. The test area is labeled in the particle SEM photo..

U2157 A10



Particle Size:	20 µm
Shape:	Equidimensional
Transparency:	Translucent to Transparent
Color:	Clear
Luster:	Subvitreous to Vitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2157 A10 with labeled EDS testing locations.

U2157 A10 - EDS Spectra

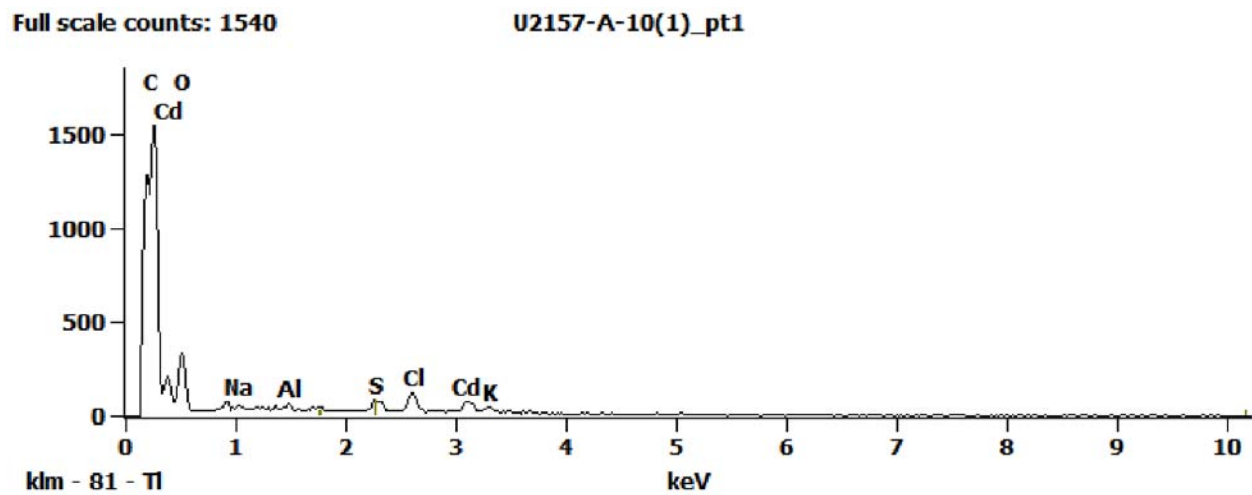


Figure 1. EDS Spectra for sample U2157-A-10 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1734

U2157-A-10(1)_pt2

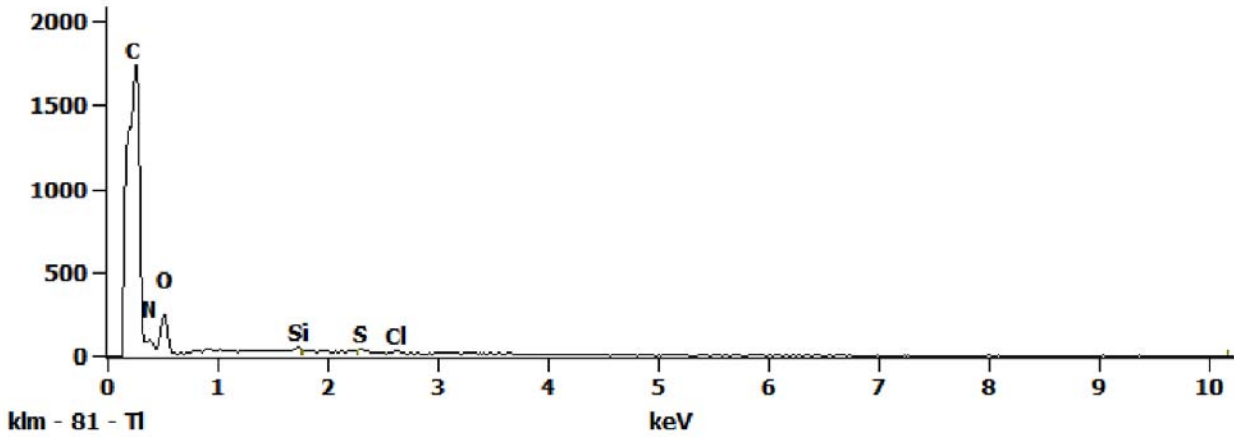


Figure 2. EDS Spectra for sample U2157-A-10 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 1682

U2157-A-10(1)_pt3

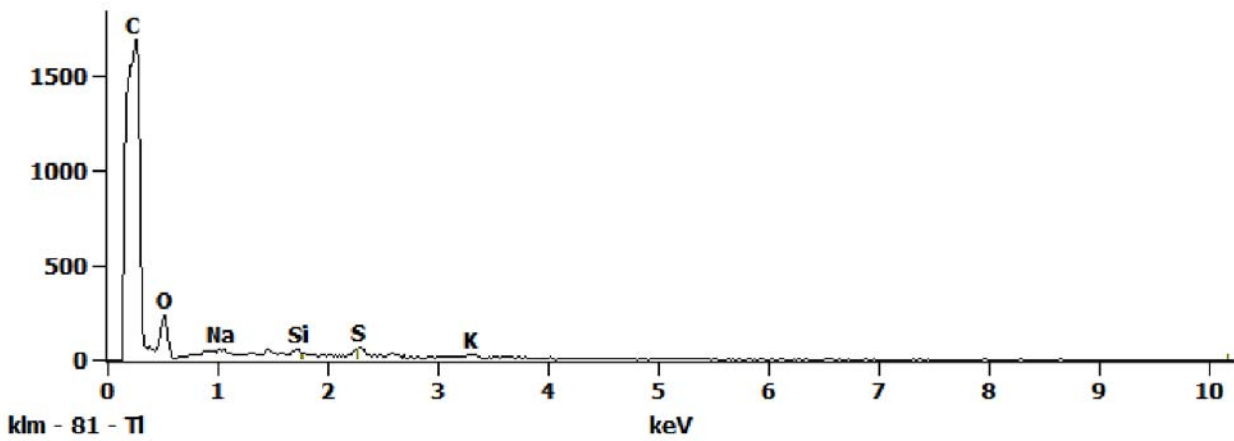
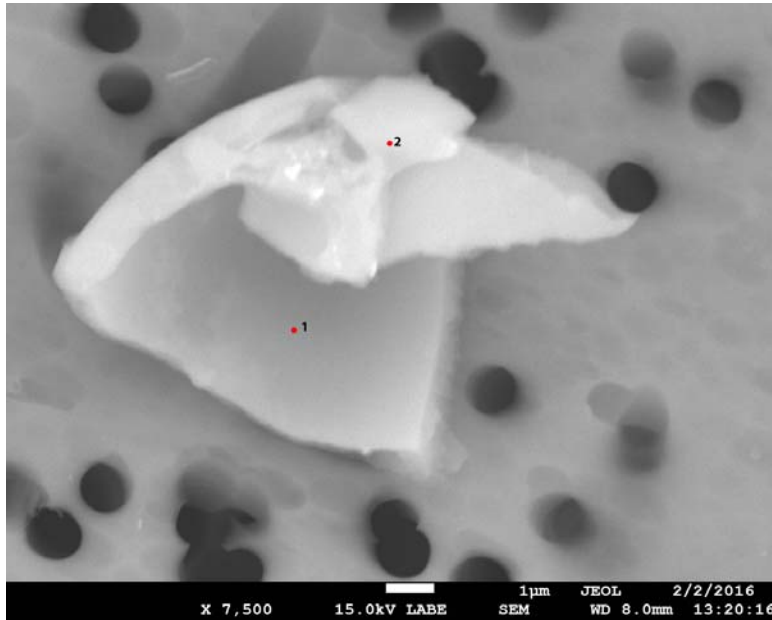


Figure 3. EDS Spectra for sample U2157-A-10 taken at test area 3. The test area is labeled in the particle SEM photo..

U2158 D1



SEM Photo of sample U2158 D1 with labeled EDS testing locations.

Particle Size:	8 μm
Shape:	Irregular
Transparency:	Opaque
Color:	Black
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2158 Cluster 51
Comments:	

Cluster of Origin: U2158 Cluster 51

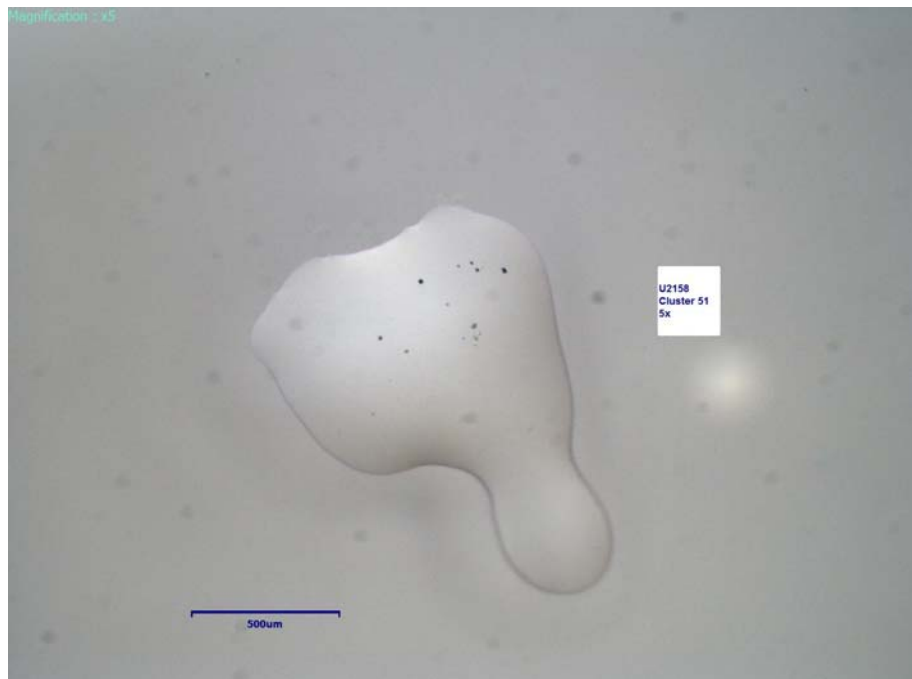


Photo of cluster U2158 Cluster 51.

U2158 D1 - EDS Spectra

Full scale counts: 1939

U2158-D-1(1)_pt1

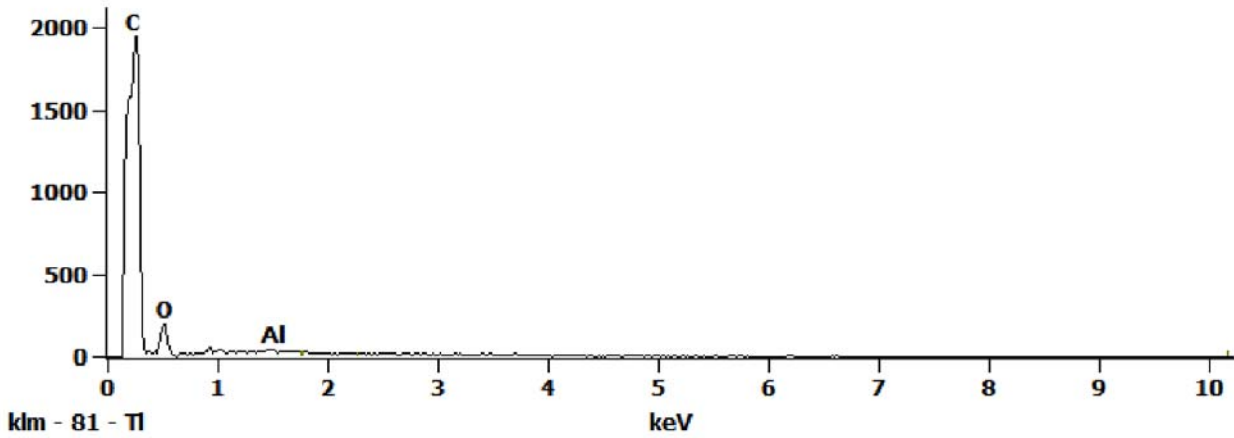


Figure 1. EDS Spectra for sample U2158-D-1 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 2050

U2158-D-1(1)_pt2

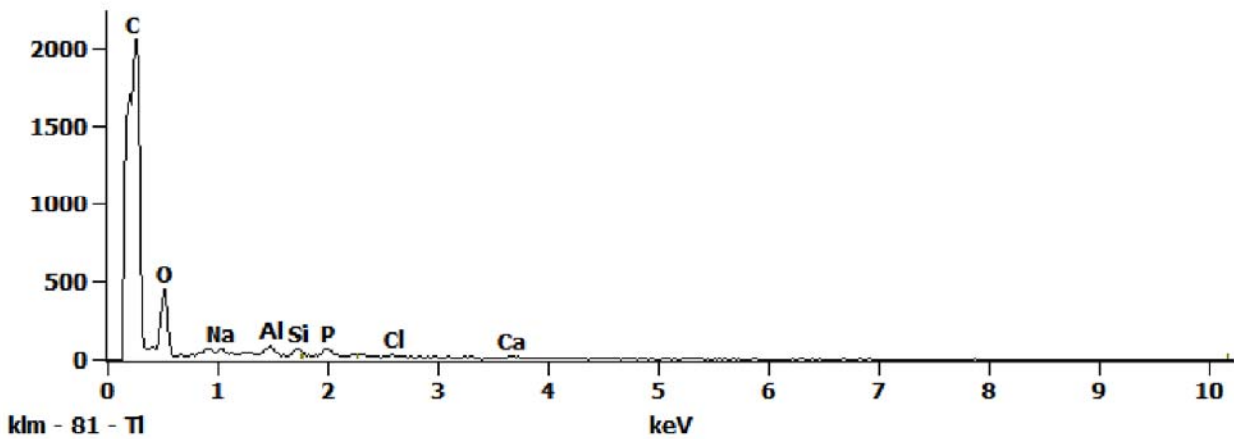
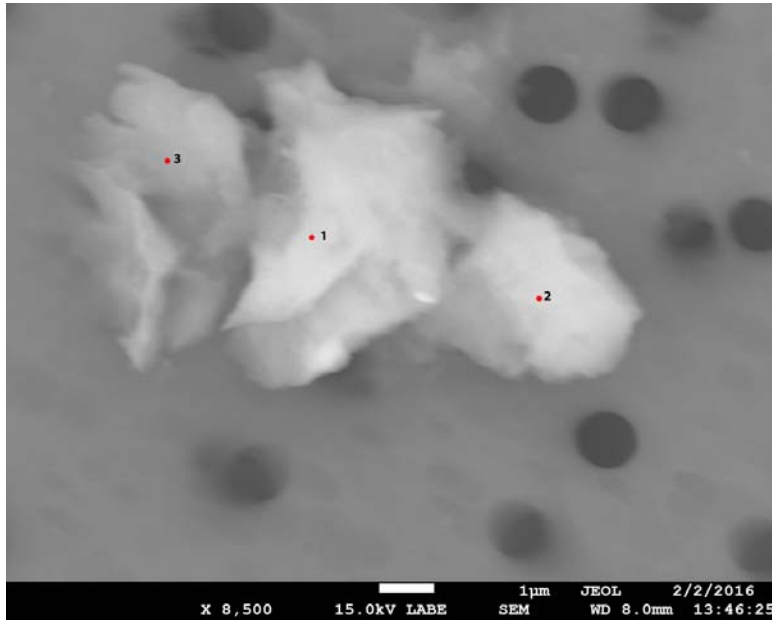


Figure 2. EDS Spectra for sample U2158-D-1 taken at test area 2. The test area is labeled in the particle SEM photo..

U2158 D2



Particle Size: 5 μm
Shape: Irregular to Equidimensional
Transparency: Translucent
Color: Black, Brown
Luster: Pearly
Particle Type: Natural Terrestrial Contamination
Cluster No.: U2158 Cluster 52
Comments:

SEM Photo of sample U2158 D2 with labeled EDS testing locations.

Cluster of Origin: U2158 Cluster 52

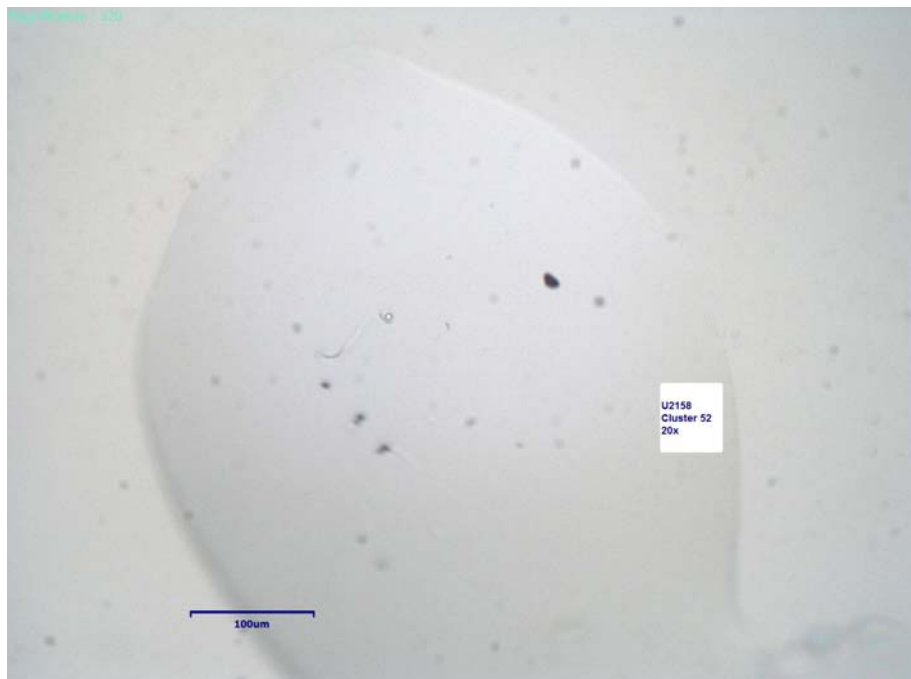


Photo of cluster U2158 Cluster 52.

U2158 D2 - EDS Spectra

Full scale counts: 1580

U2158-D-2(1)_pt1

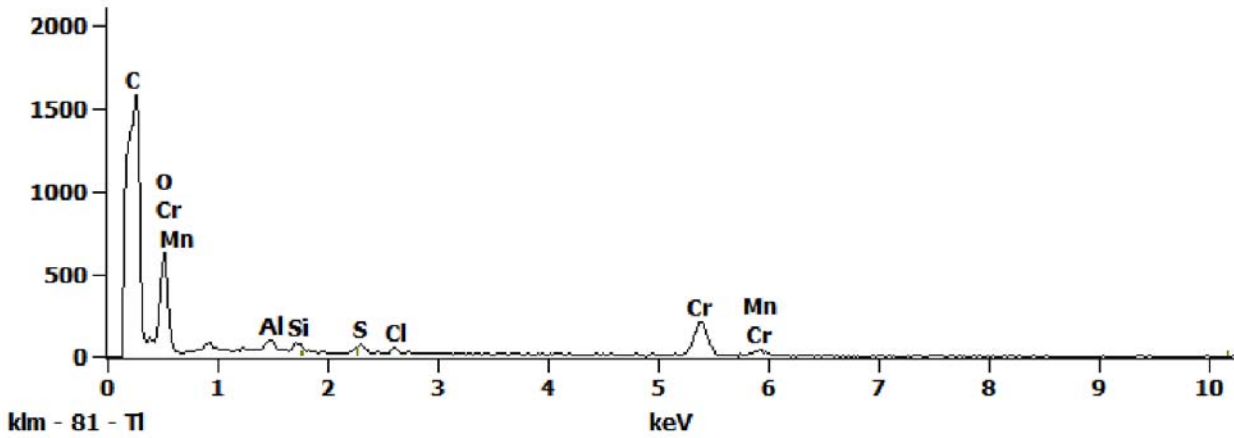


Figure 1. EDS Spectra for sample U2158-D-2 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1892

U2158-D-2(1)_pt2

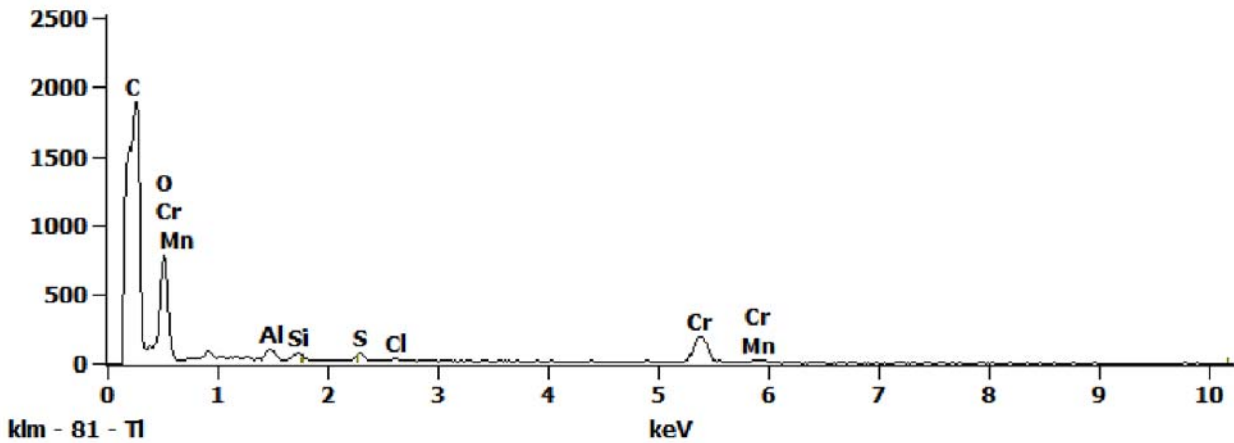


Figure 2. EDS Spectra for sample U2158-D-2 taken at test area 2. The test area is labeled in the particle SEM photo..

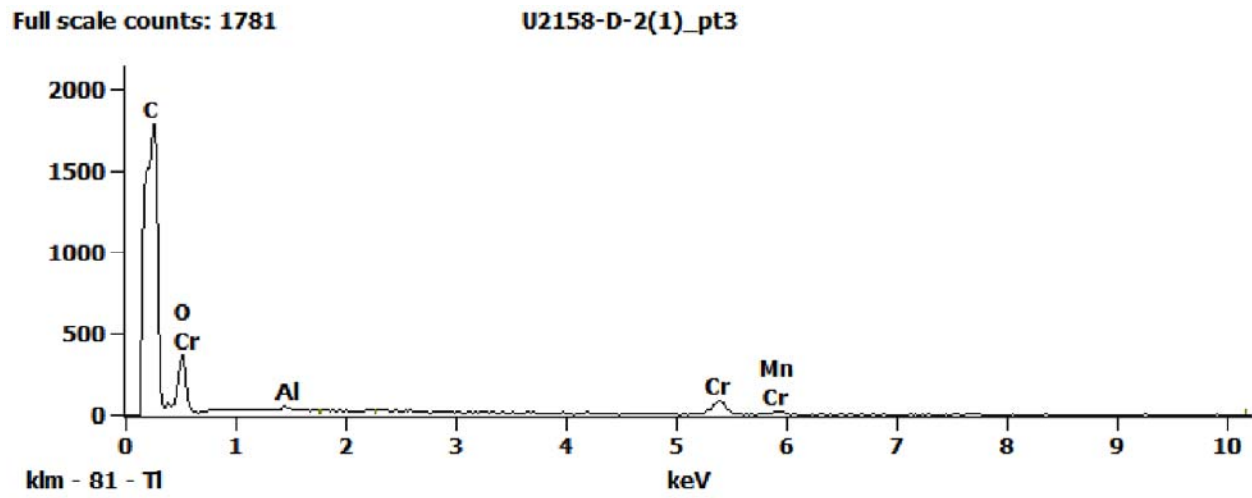
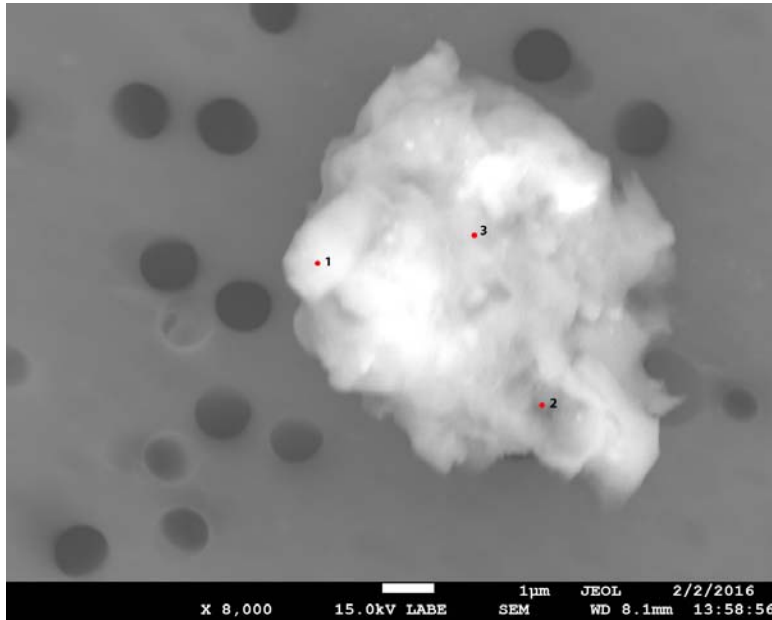


Figure 3. EDS Spectra for sample U2158-D-2 taken at test area 3. The test area is labeled in the particle SEM photo..

U2158 D3



Particle Size: 9 µm
Shape: Irregular
Transparency: Translucent
Color: Clear
Luster: Pearly to Subvitreous
Particle Type: Natural Terrestrial Contamination
Cluster No.: U2158 Cluster 54
Comments:

SEM Photo of sample U2158 D3 with labeled EDS testing locations.

Cluster of Origin: U2158 Cluster 54

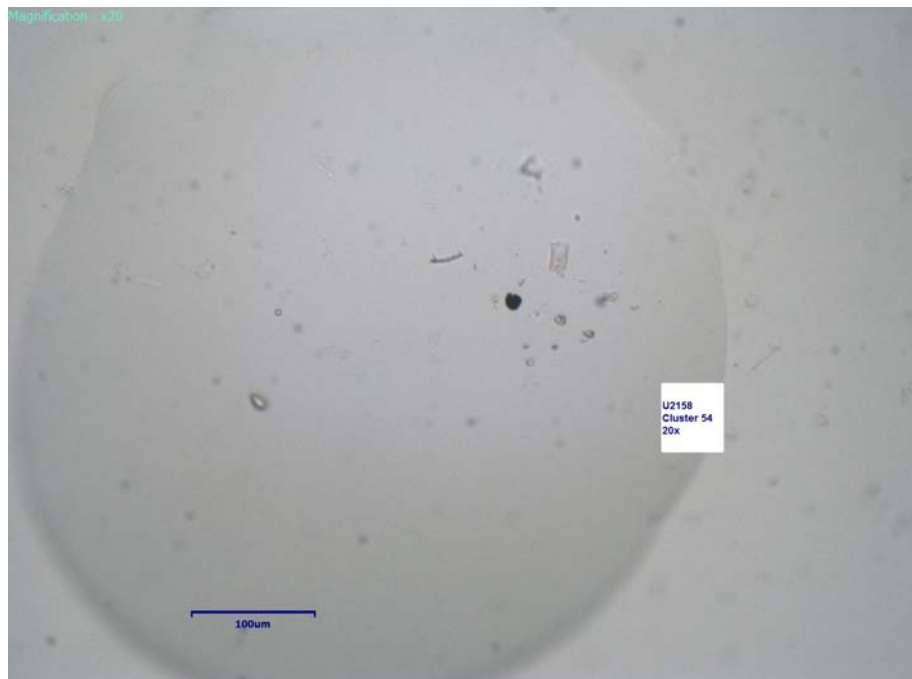


Photo of cluster U2158 Cluster 54.

U2158 D3 - EDS Spectra

Full scale counts: 3208

U2158-D-3(1)_pt1

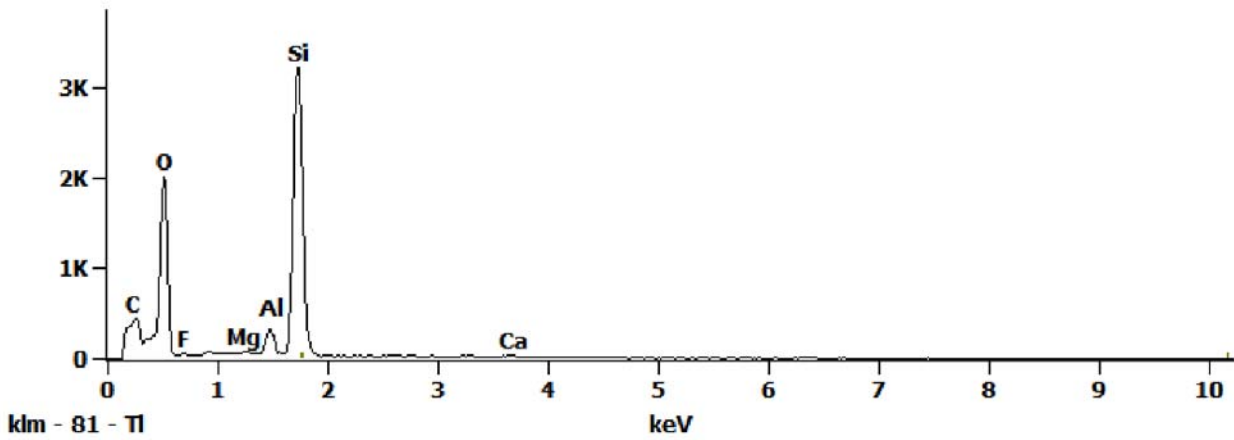


Figure 1. EDS Spectra for sample U2158-D-3 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1315

U2158-D-3(1)_pt2

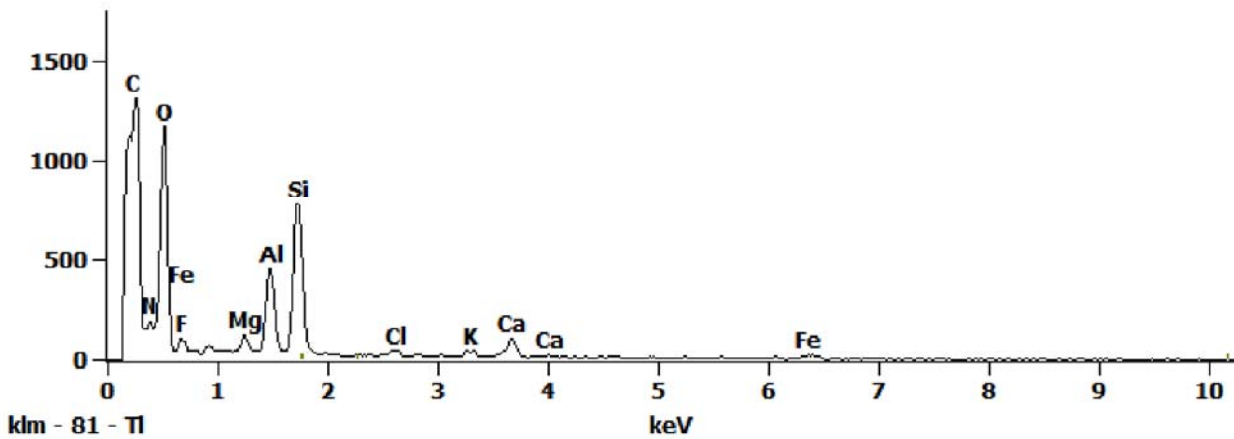


Figure 2. EDS Spectra for sample U2158-D-3 taken at test area 2. The test area is labeled in the particle SEM photo..

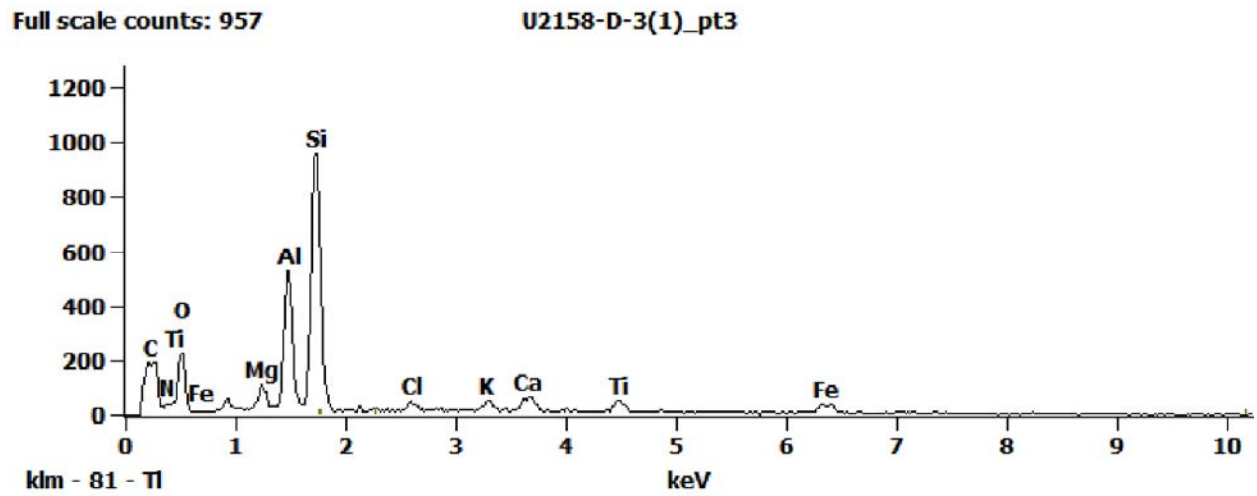
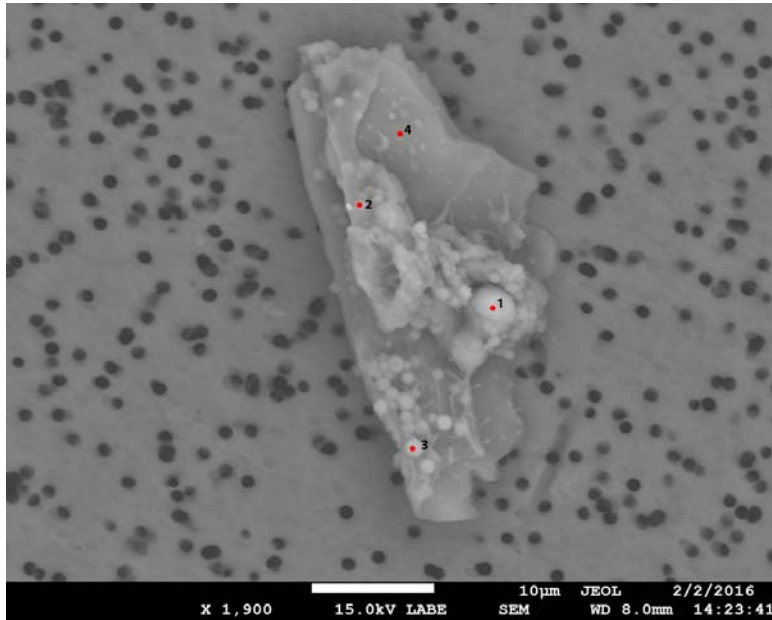


Figure 3. EDS Spectra for sample U2158-D-3 taken at test area 3. The test area is labeled in the particle SEM photo..

U2158 D5



SEM Photo of sample U2158 D5 with labeled EDS testing locations.

Particle Size:	20 µm
Shape:	Irregular
Transparency:	Opaque
Color:	Black, Brown, Clear
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2158 Cluster 56
Comments:	

Cluster of Origin: U2158 Cluster 56

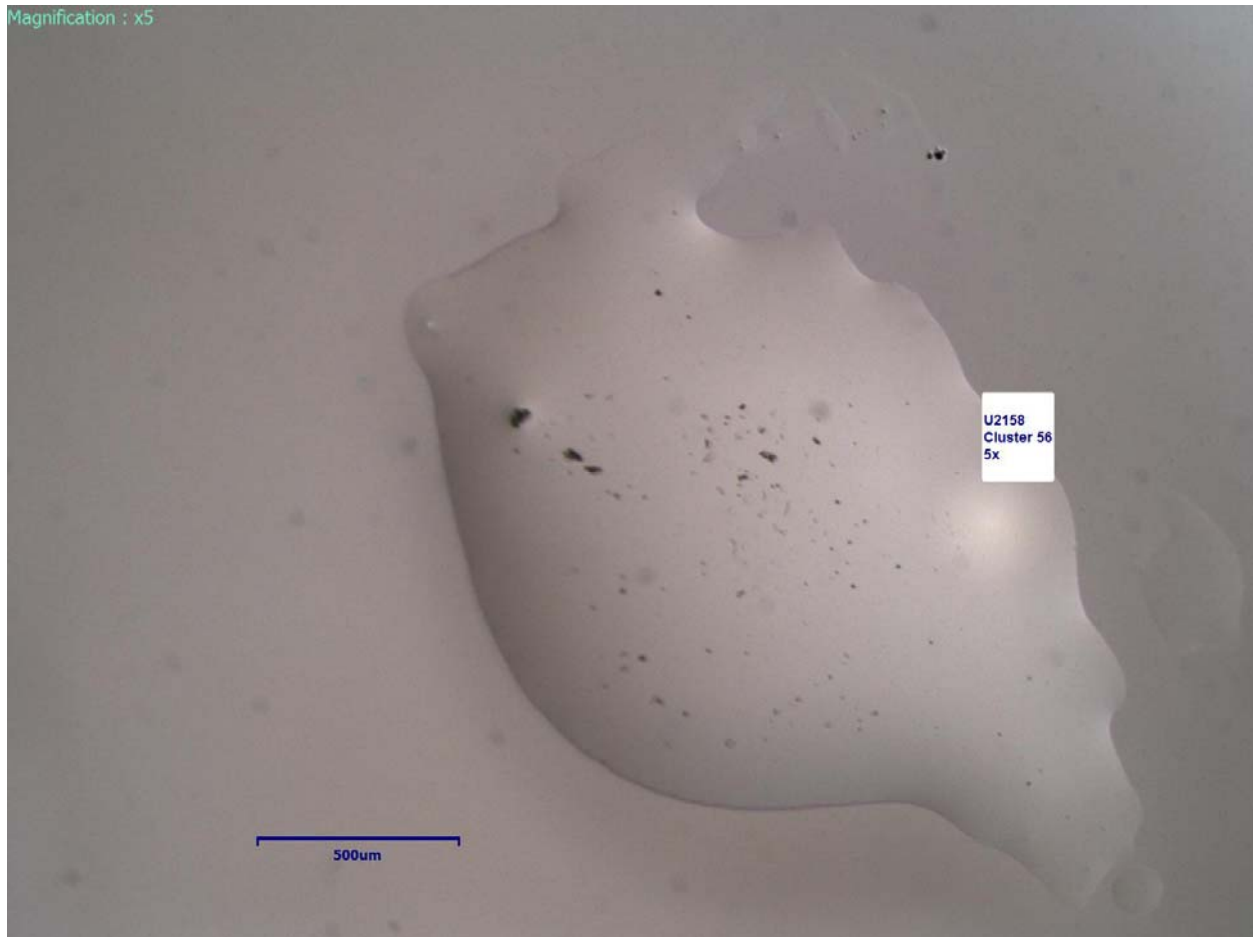


Photo of cluster U2158 Cluster 56.

U2158 D5 - EDS Spectra

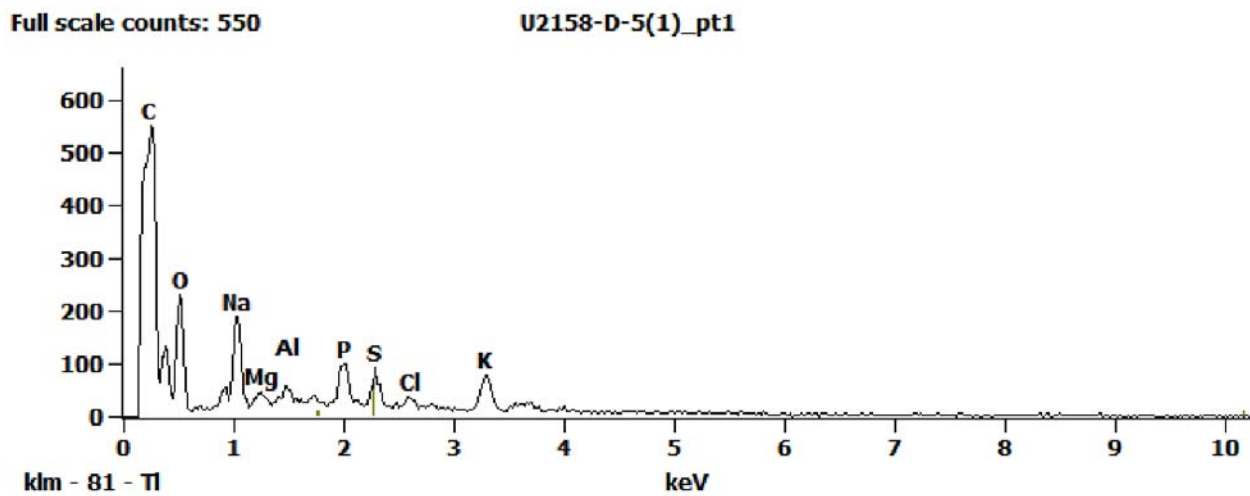


Figure 1. EDS Spectra for sample U2158-D-5 taken at test area 1. The test area is labeled in the particle SEM photo..

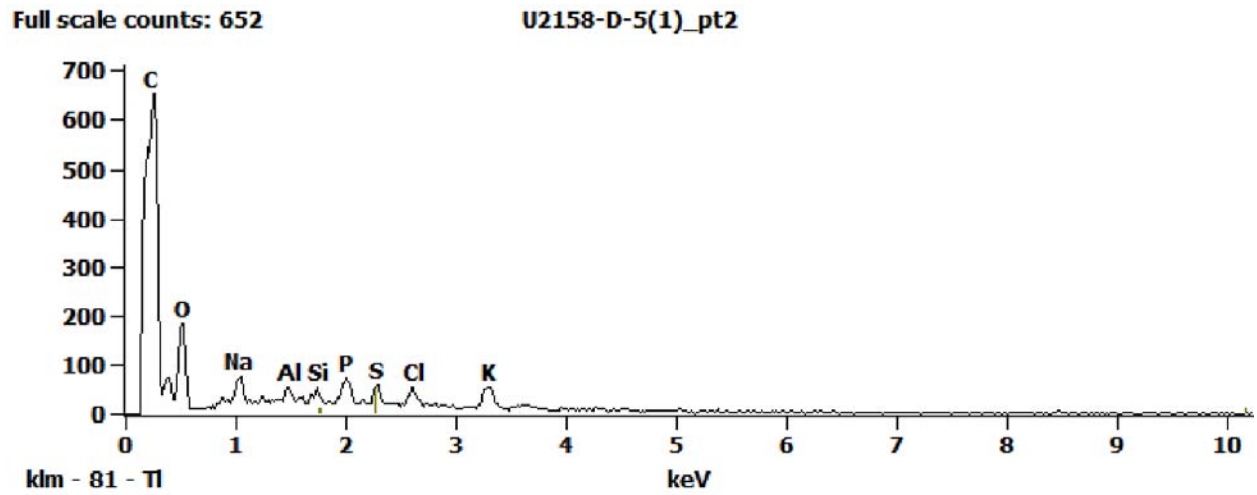


Figure 2. EDS Spectra for sample U2158-D-5 taken at test area 2. The test area is labeled in the particle SEM photo..

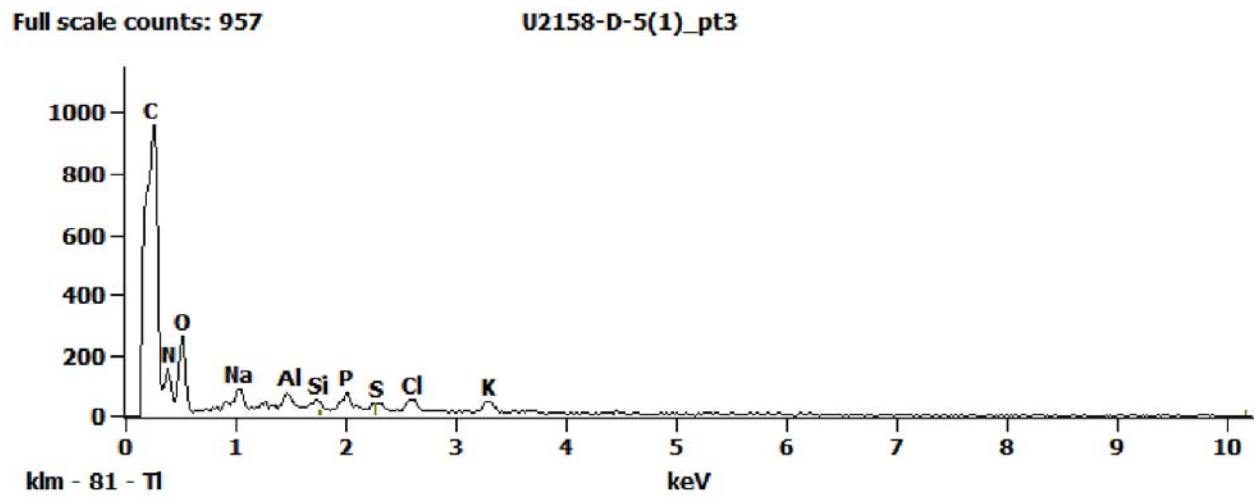


Figure 3. EDS Spectra for sample U2158-D-5 taken at test area 3. The test area is labeled in the particle SEM photo..

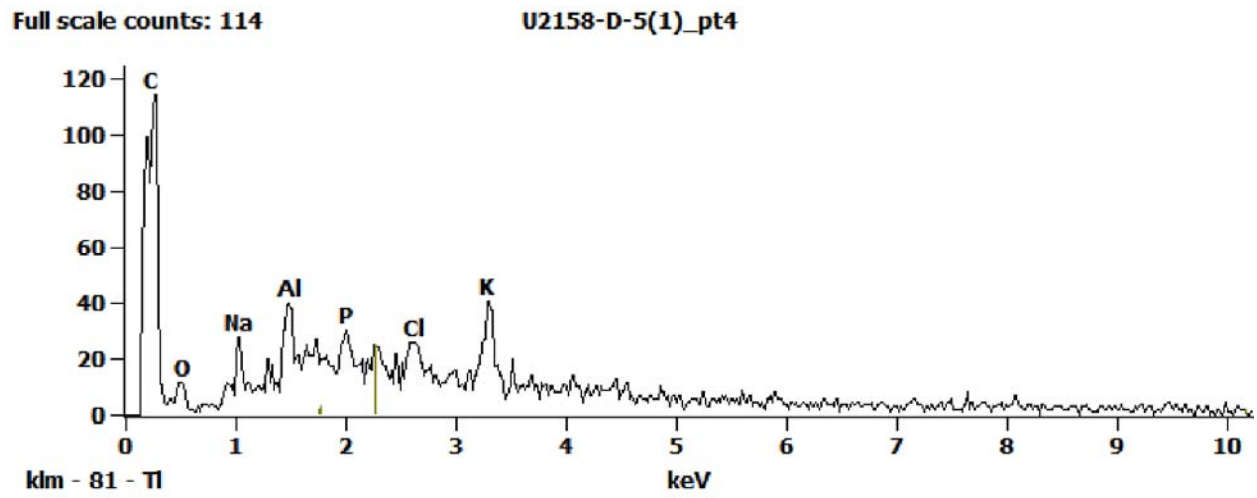
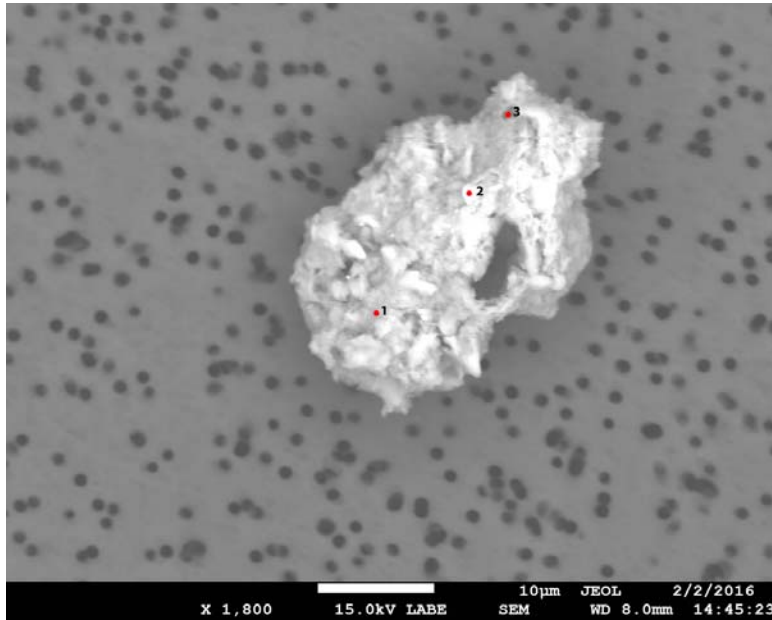


Figure 4. EDS Spectra for sample U2158-D-5 taken at test area 4. The test area is labeled in the particle SEM photo..

U2158 D6



SEM Photo of sample U2158 D6 with labeled EDS testing locations.

Particle Size:	12x15 µm
Shape:	Spherical to Equidimensional
Transparency:	Opaque
Color:	Brown, Yellow
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2158 Cluster 57
Comments:	

Cluster of Origin: U2158 Cluster 57



Photo of cluster U2158 Cluster 57.

U2158 D6 - EDS Spectra

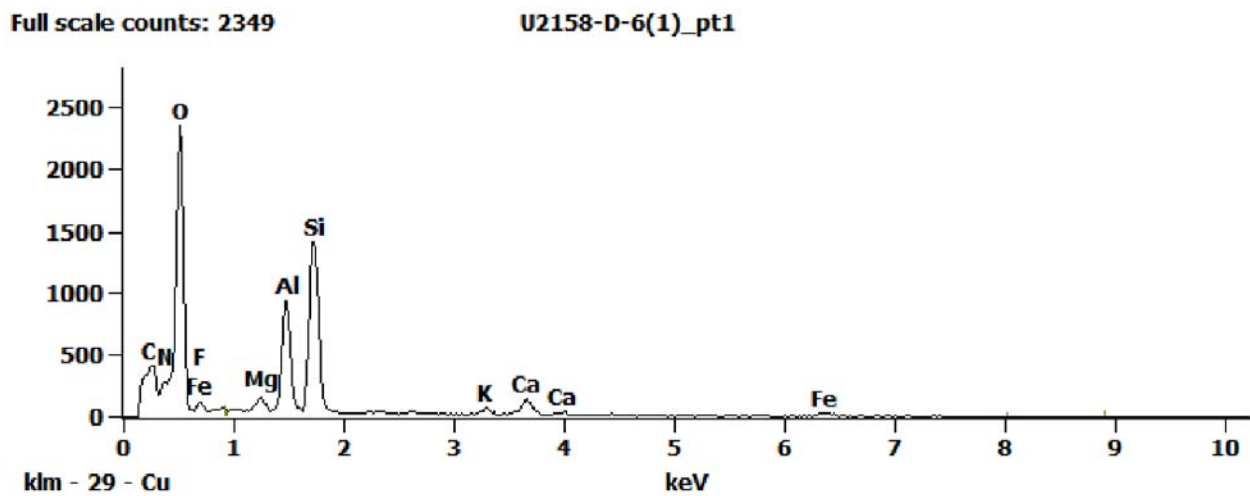


Figure 1. EDS Spectra for sample U2158-D-6 taken at test area 1. The test area is labeled in the particle SEM photo..

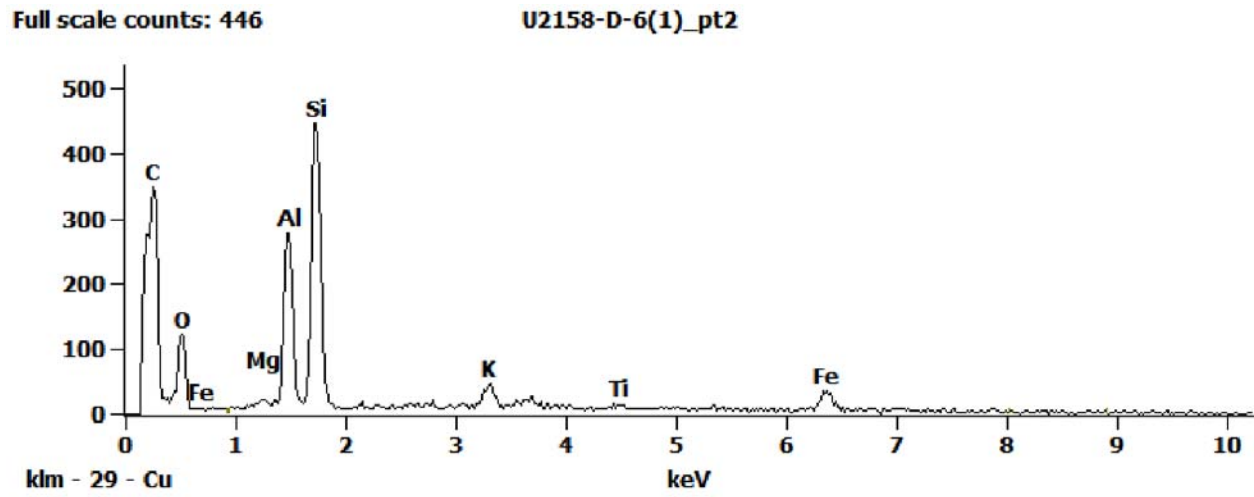
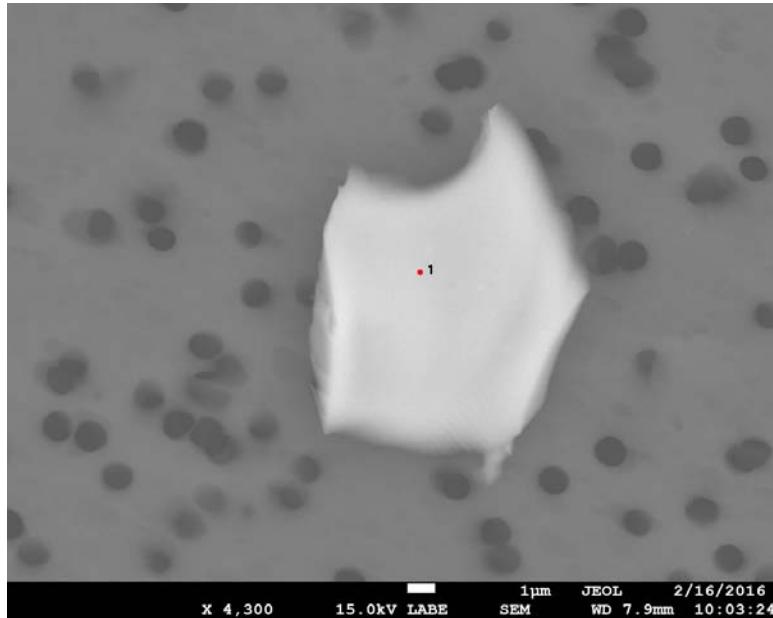


Figure 2. EDS Spectra for sample U2158-D-6 taken at test area 2. The test area is labeled in the particle SEM photo..

U2158 D8



Particle Size:	6 µm
Shape:	Spherical to Equidimensional
Transparency:	Translucent to Transparent
Color:	Clear
Luster:	Pearly to Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2158 Cluster 59
Comments:	

SEM Photo of sample U2158 D8 with labeled EDS testing locations.

Cluster of Origin: U2158 Cluster 59

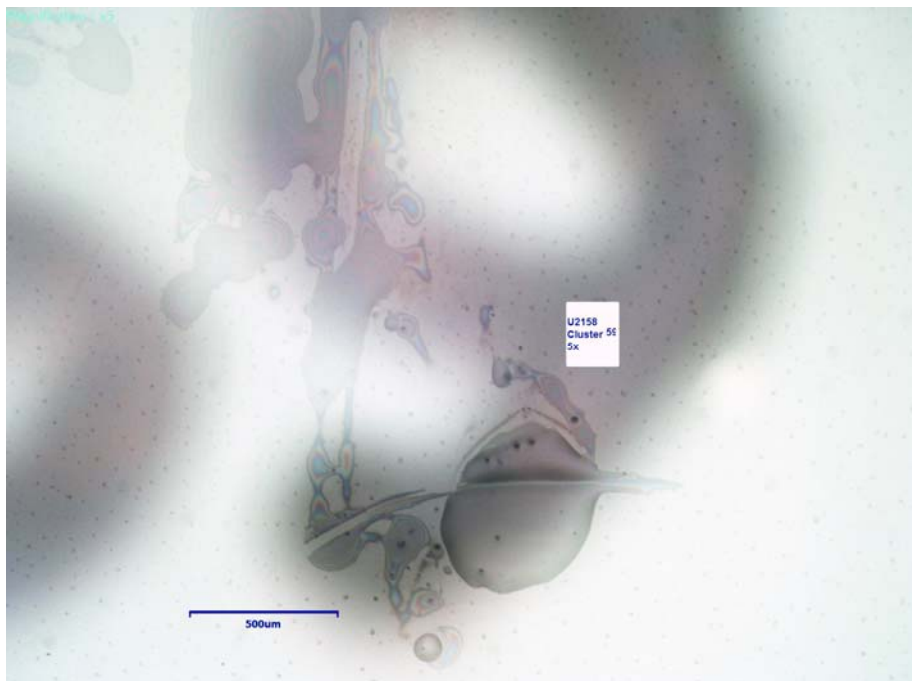


Photo of cluster U2158 Cluster 59.

U2158 D8 - EDS Spectra

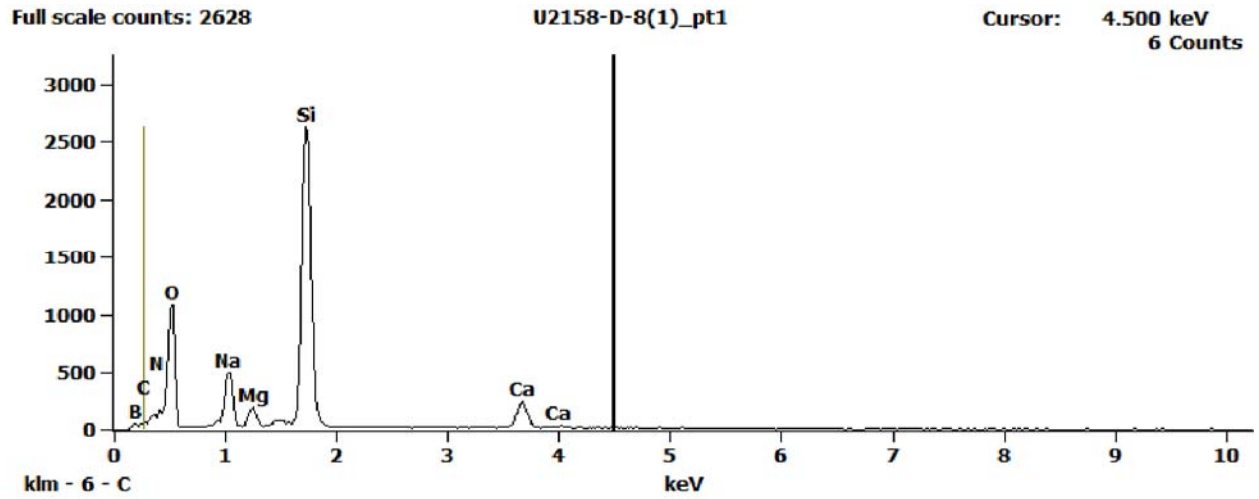
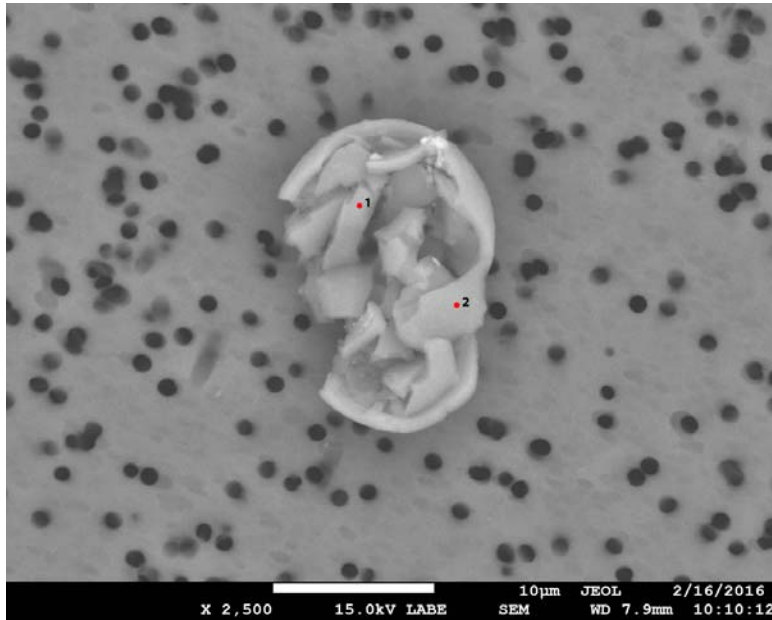


Figure 1. EDS Spectra for sample U2158-D-8 taken at test area 1. The test area is labeled in the particle SEM photo..

U2158 D9



Particle Size:	18 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Black
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2158 D9 with labeled EDS testing locations.

U2158 D9 - EDS Spectra

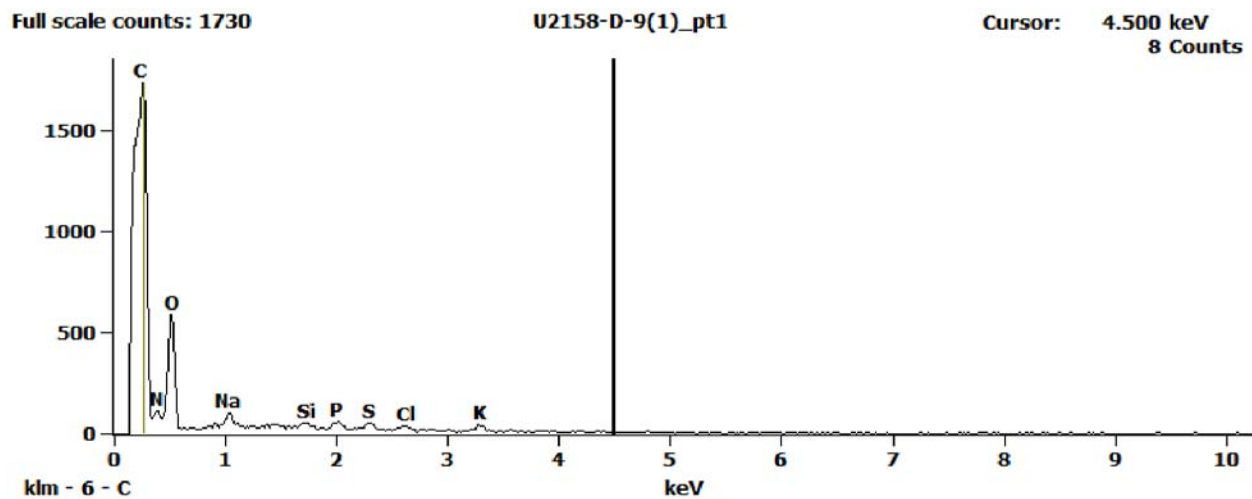


Figure 1. EDS Spectra for sample U2158-D-9 taken at test area 1. The test area is labeled in the particle SEM photo..

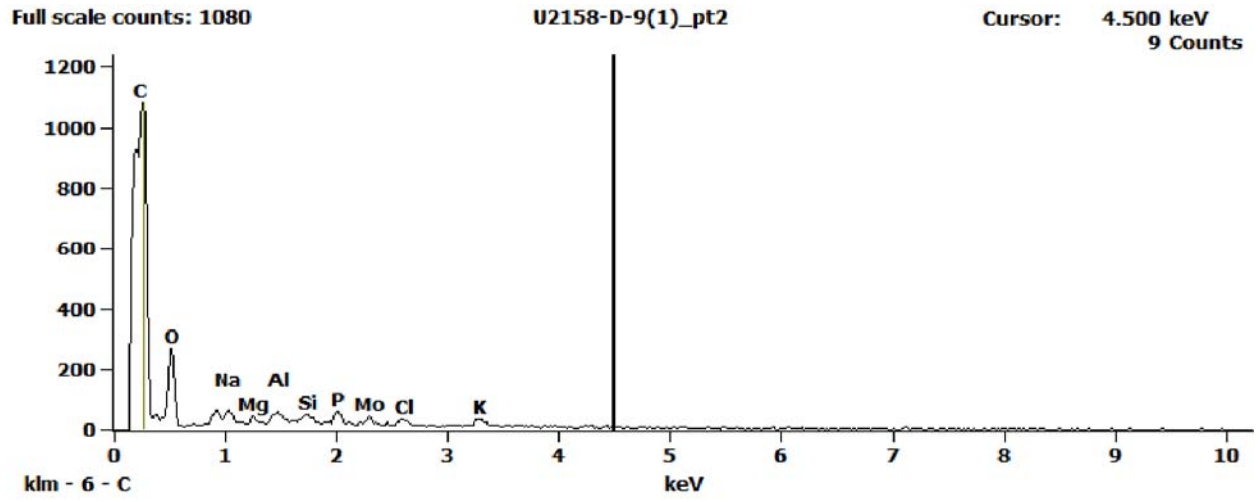
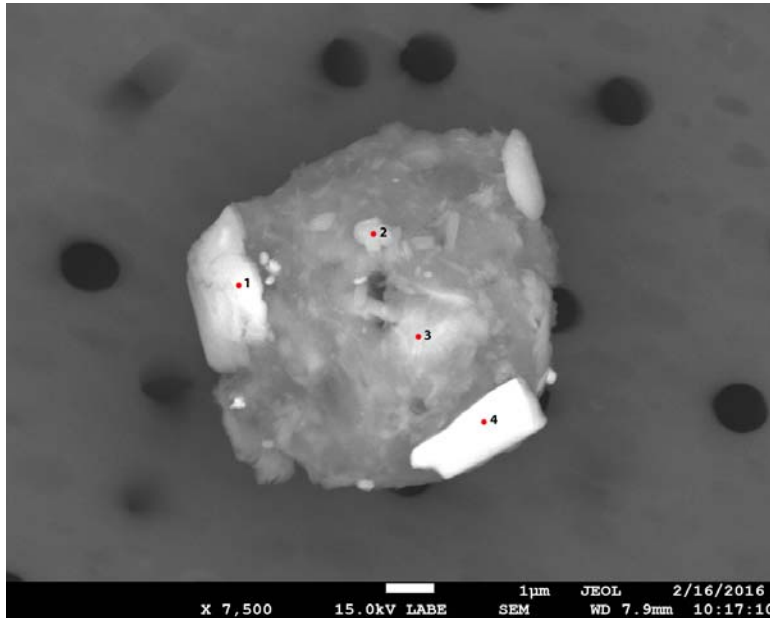


Figure 2. EDS Spectra for sample U2158-D-9 taken at test area 2. The test area is labeled in the particle SEM photo..

U2158 D10



Particle Size:	8 µm
Shape:	Equidimensional to Spherical
Transparency:	Opaque
Color:	Brown
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2158 D10 with labeled EDS testing locations.

U2158 D10 - EDS Spectra

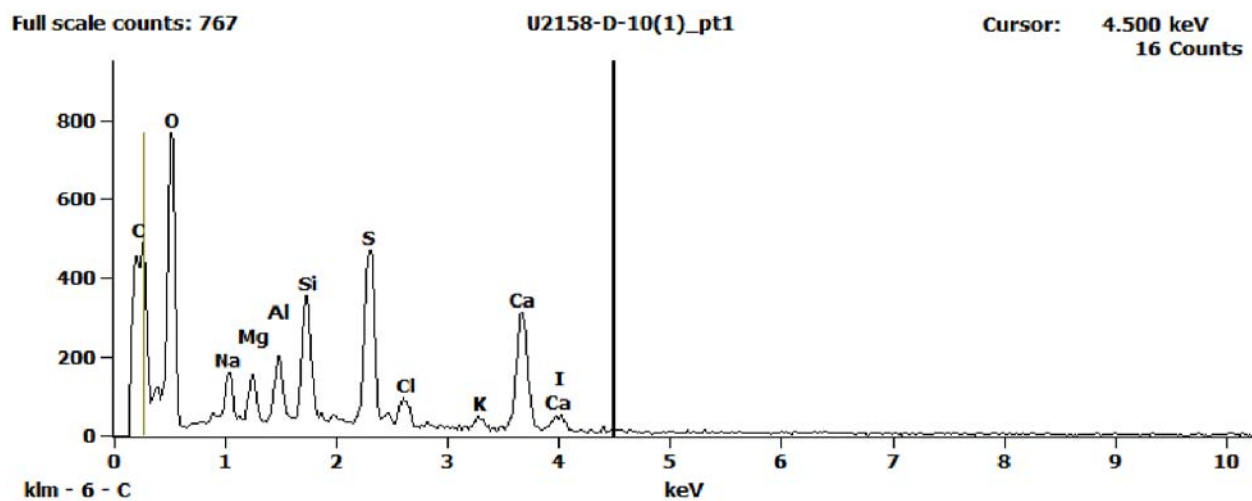


Figure 1. EDS Spectra for sample U2158-D-10 taken at test area 1. The test area is labeled in the particle SEM photo.

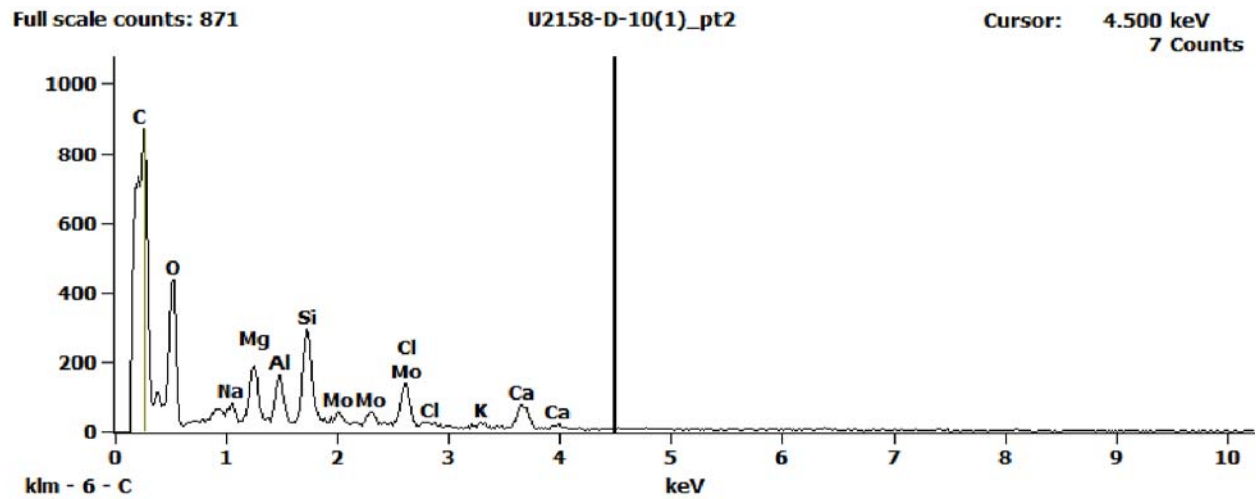


Figure 2. EDS Spectra for sample U2158-D-10 taken at test area 2. The test area is labeled in the particle SEM photo..

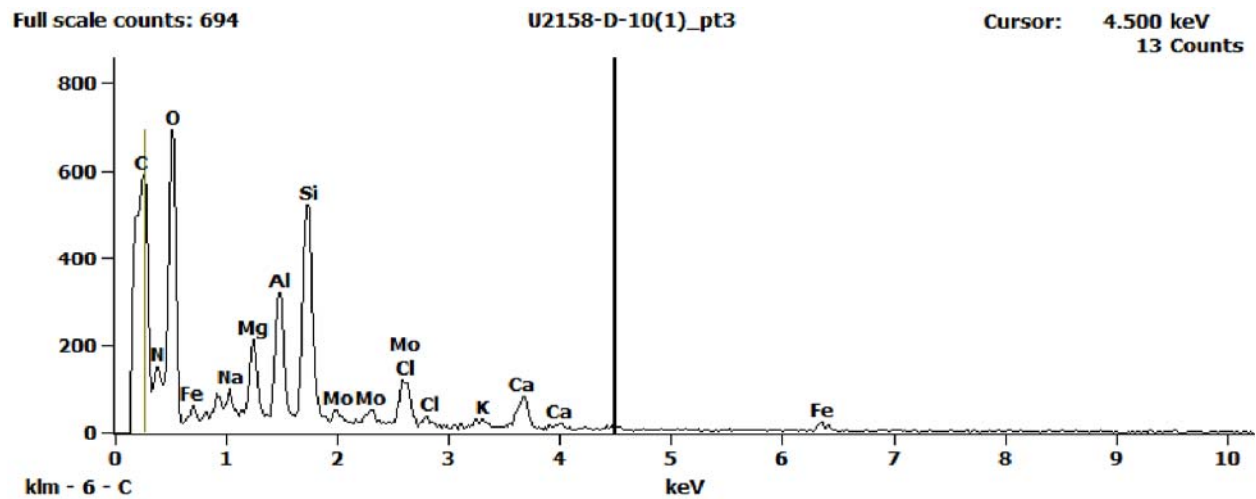


Figure 3. EDS Spectra for sample U2158-D-10 taken at test area 3. The test area is labeled in the particle SEM photo..

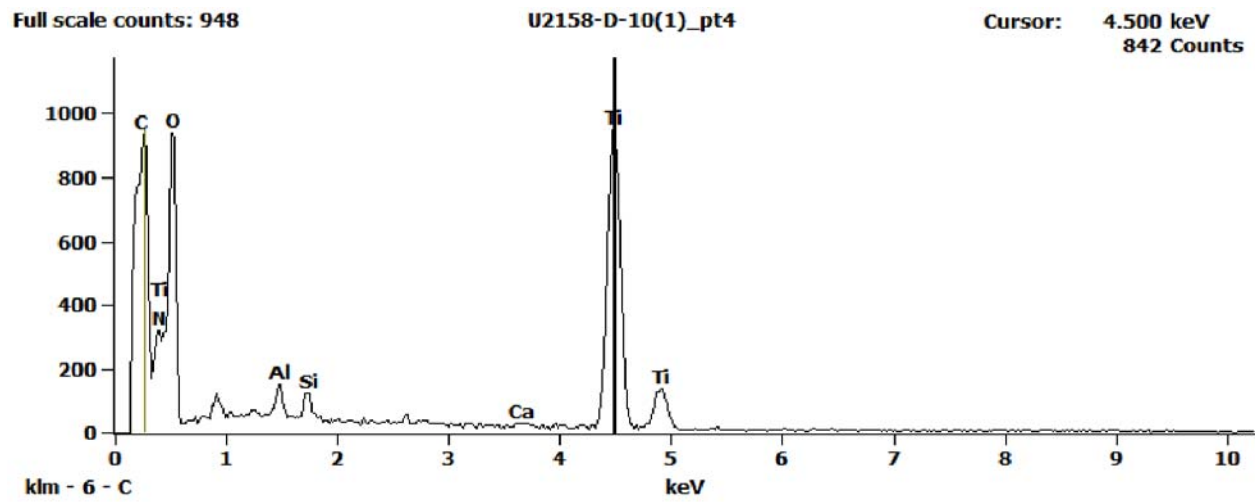
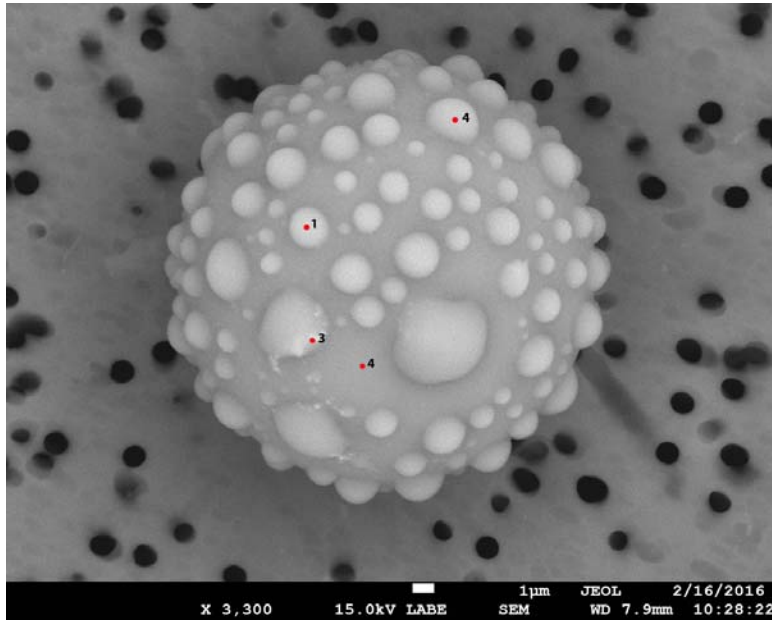


Figure 4. EDS Spectra for sample U2158-D-10 taken at test area 4. The test area is labeled in the particle SEM photo..

U2158 D11



Particle Size:	20 µm
Shape:	Spherical
Transparency:	Opaque to Translucent
Color:	Black, Brown
Luster:	Pearly to Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2158 D11 with labeled EDS testing locations.

U2158 D11 - EDS Spectra

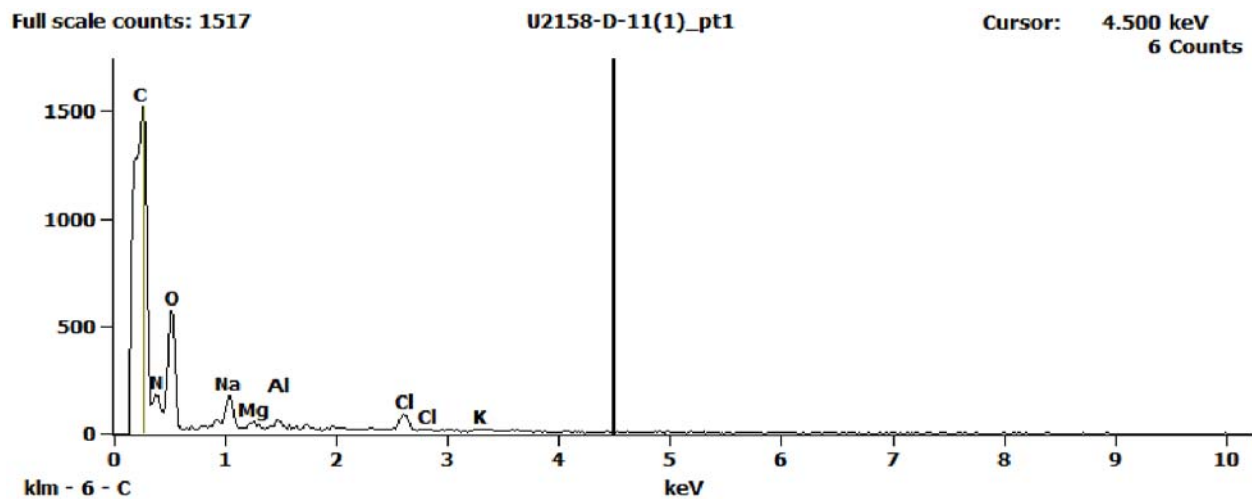


Figure 1. EDS Spectra for sample U2158-D-11 taken at test area 1. The test area is labeled in the particle SEM photo..

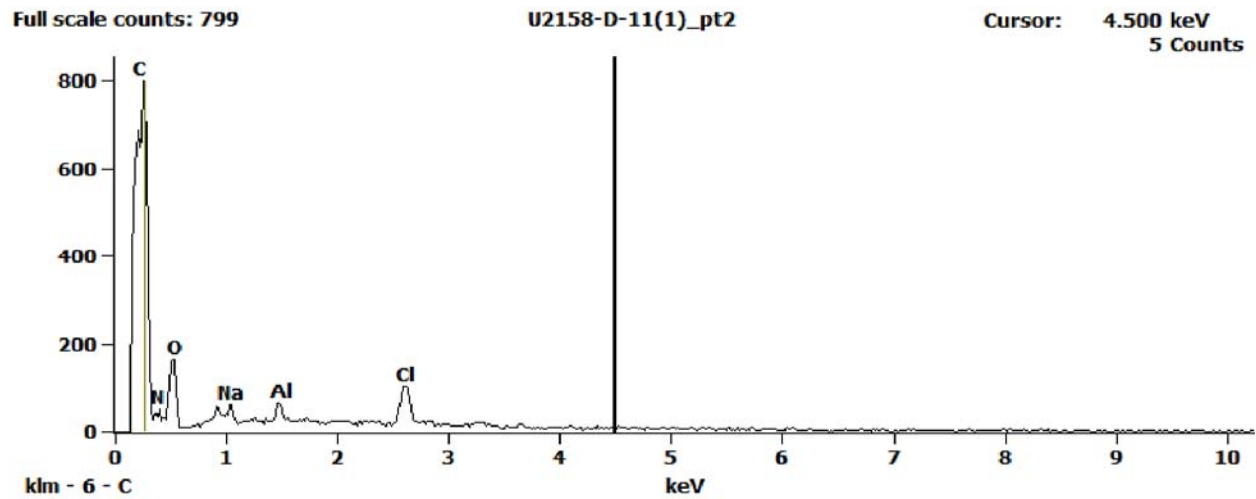


Figure 2. EDS Spectra for sample U2158-D-11 taken at test area 2. The test area is labeled in the particle SEM photo..

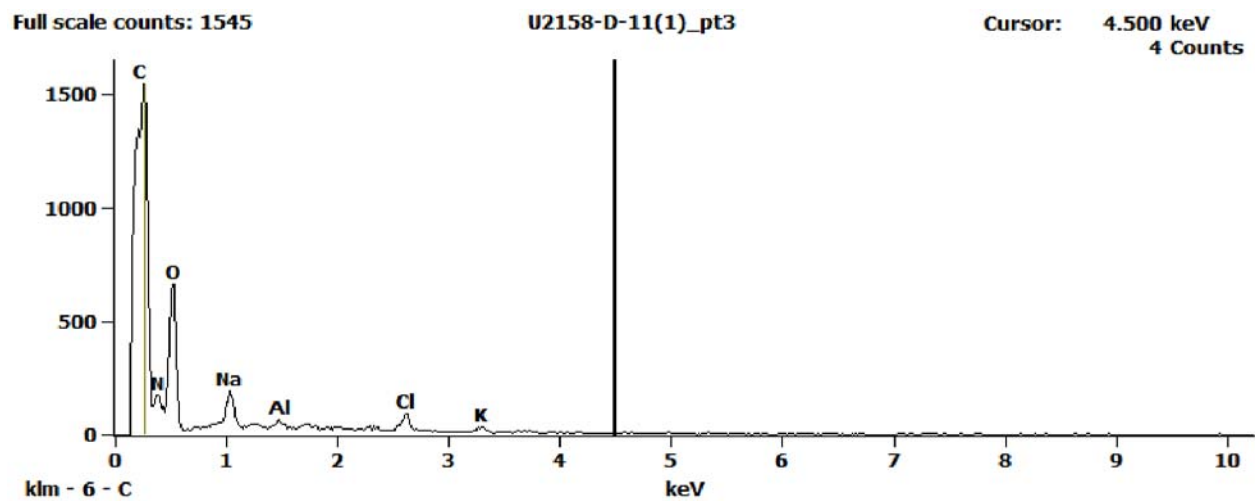


Figure 3. EDS Spectra for sample U2158-D-11 taken at test area 3. The test area is labeled in the particle SEM photo..

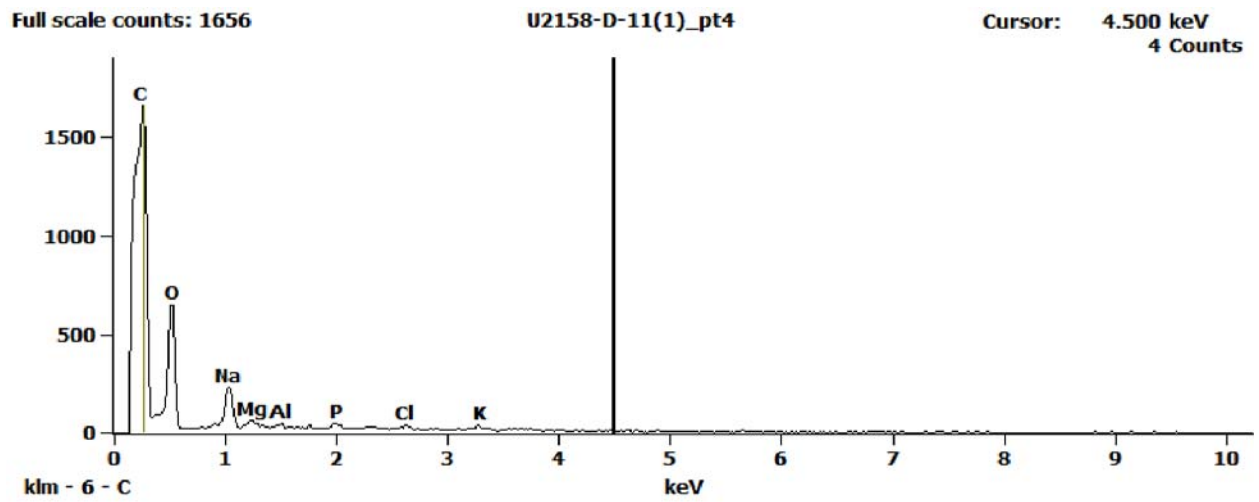
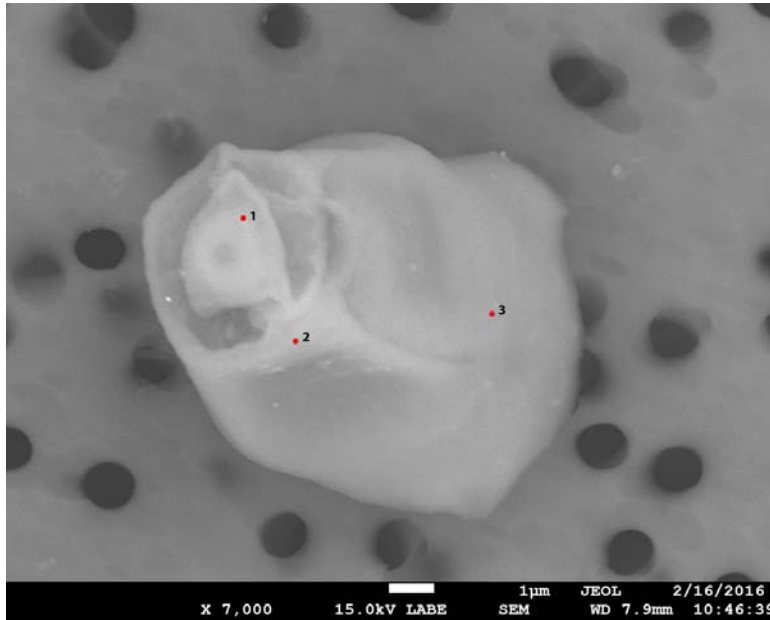


Figure 4. EDS Spectra for sample U2158-D-11 taken at test area 4. The test area is labeled in the particle SEM photo..

U2158 D13



Particle Size:	14 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black, Brown
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2158 D13 with labeled EDS testing locations.

U2158 D13 - EDS Spectra

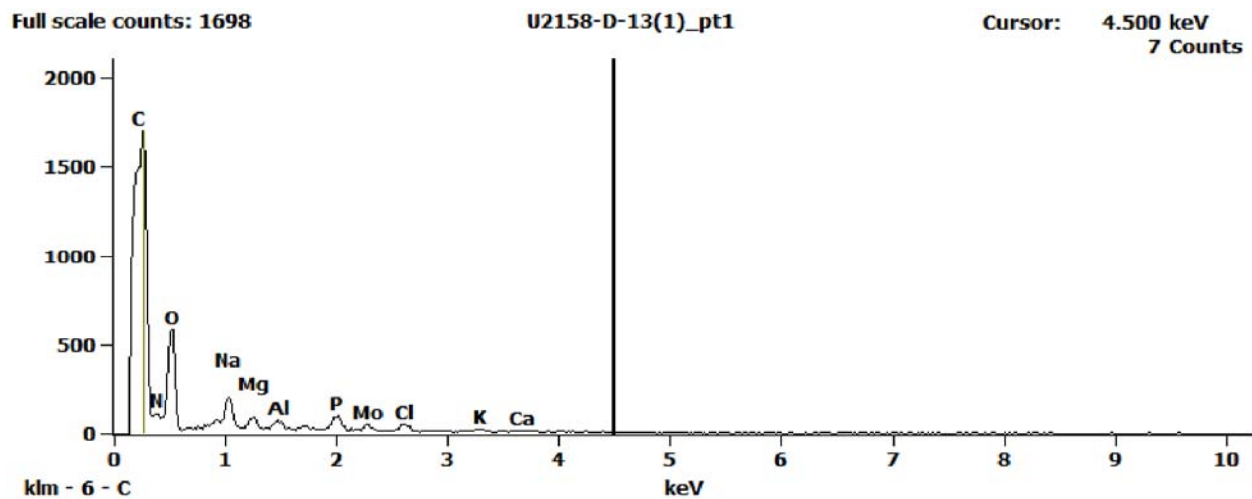


Figure 1. EDS Spectra for sample U2158-D-13 taken at test area 1. The test area is labeled in the particle SEM photo..

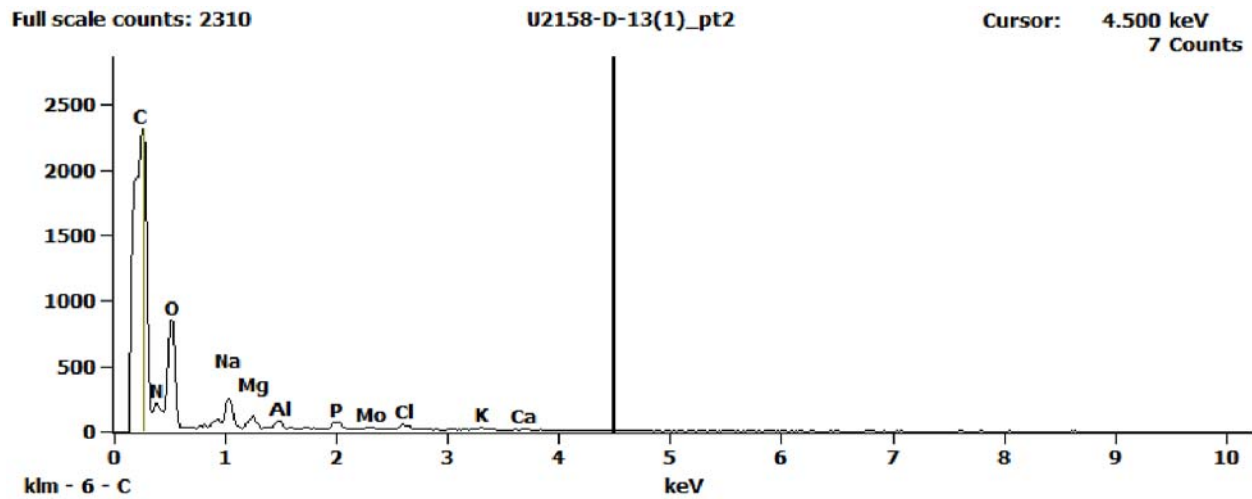


Figure 2. EDS Spectra for sample U2158-D-13 taken at test area 2. The test area is labeled in the particle SEM photo..

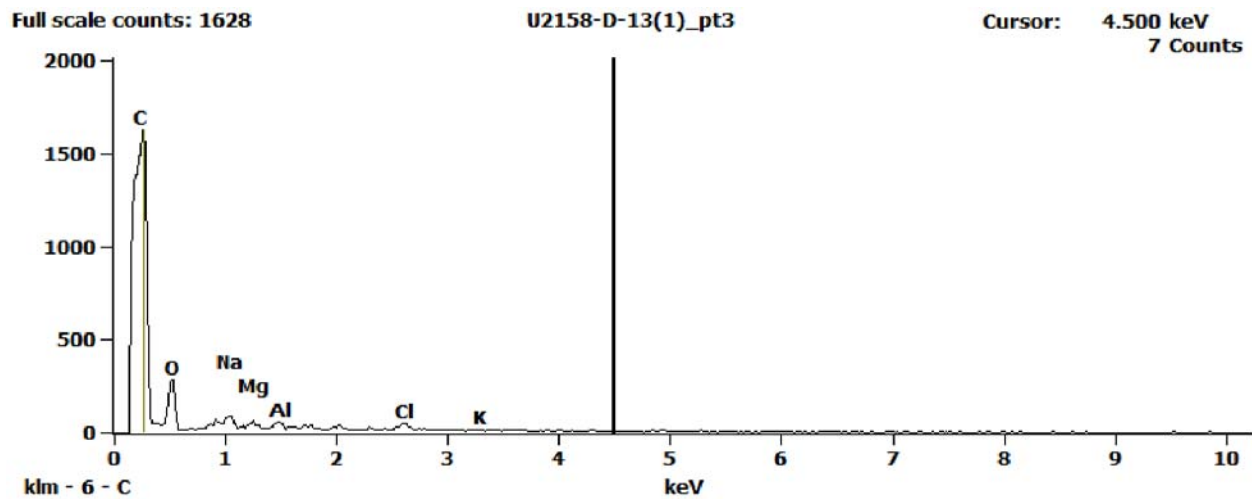
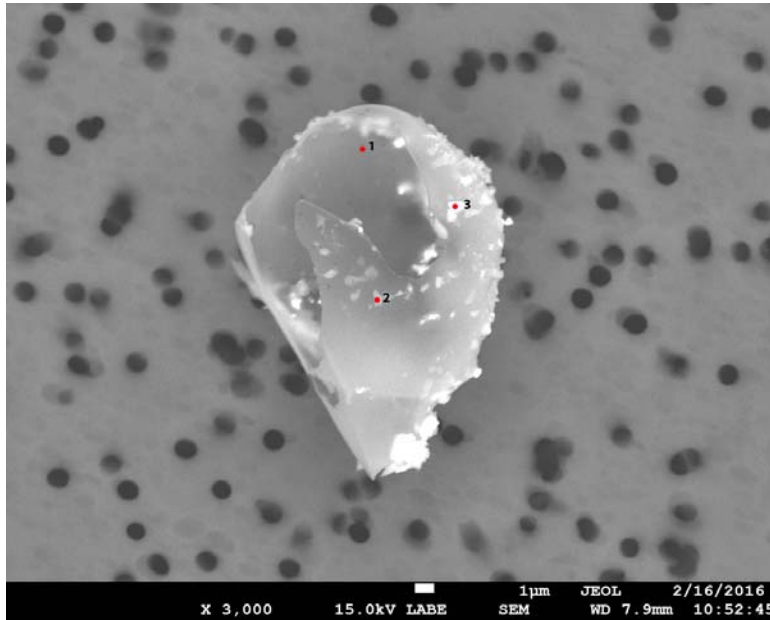


Figure 3. EDS Spectra for sample U2158-D-13 taken at test area 3. The test area is labeled in the particle SEM photo..

U2158 D14



SEM Photo of sample U2158 D14 with labeled EDS testing locations.

Particle Size:	20 µm
Shape:	Spherical
Transparency:	Opaque to Translucent
Color:	Black, Brown
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

U2158 D14 - EDS Spectra

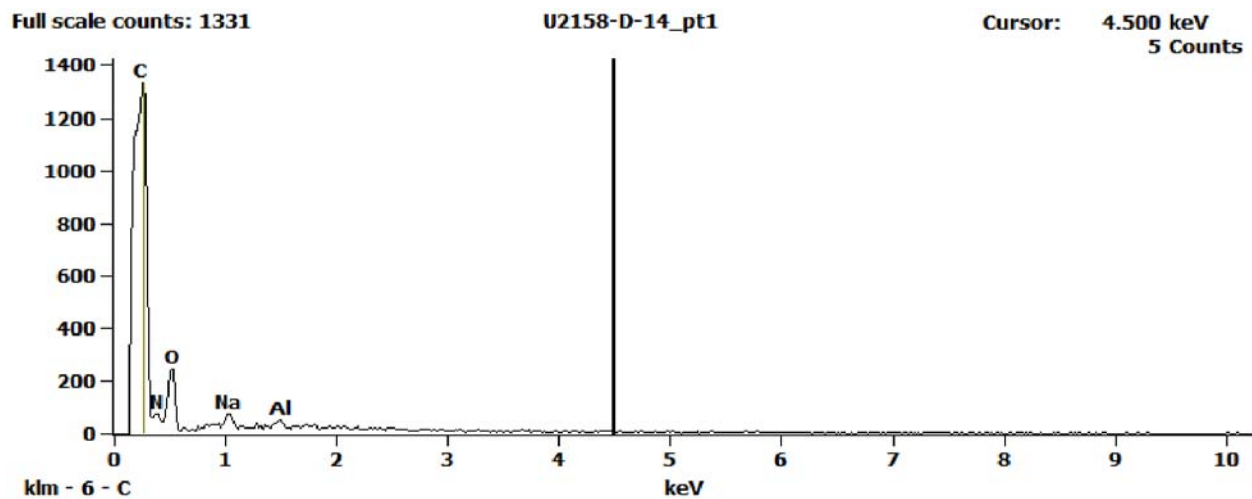


Figure 1. EDS Spectra for sample U2158-D-14 taken at test area 1. The test area is labeled in the particle SEM photo..

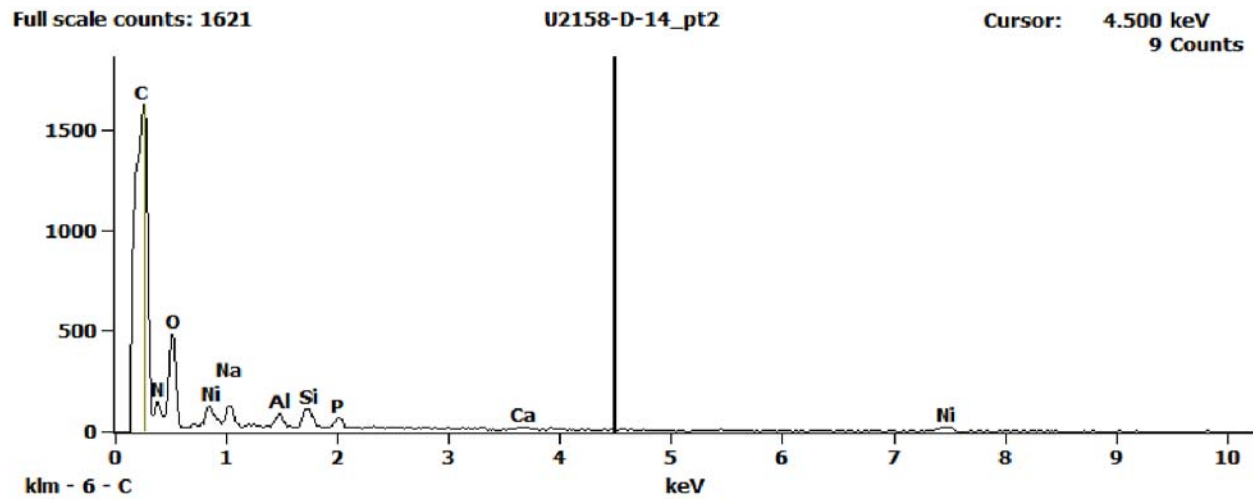


Figure 2. EDS Spectra for sample U2158-D-14 taken at test area 2. The test area is labeled in the particle SEM photo..

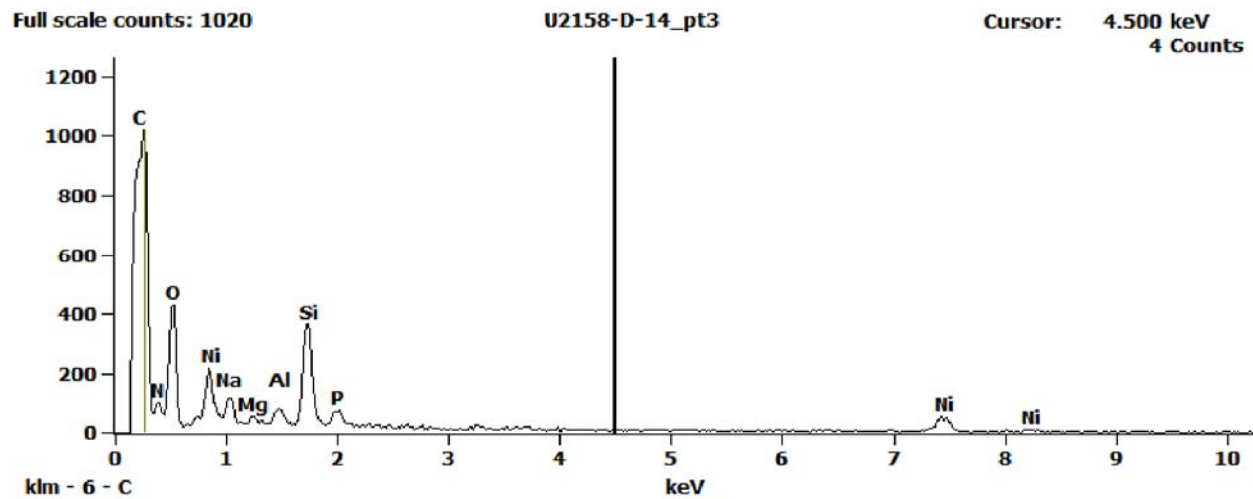
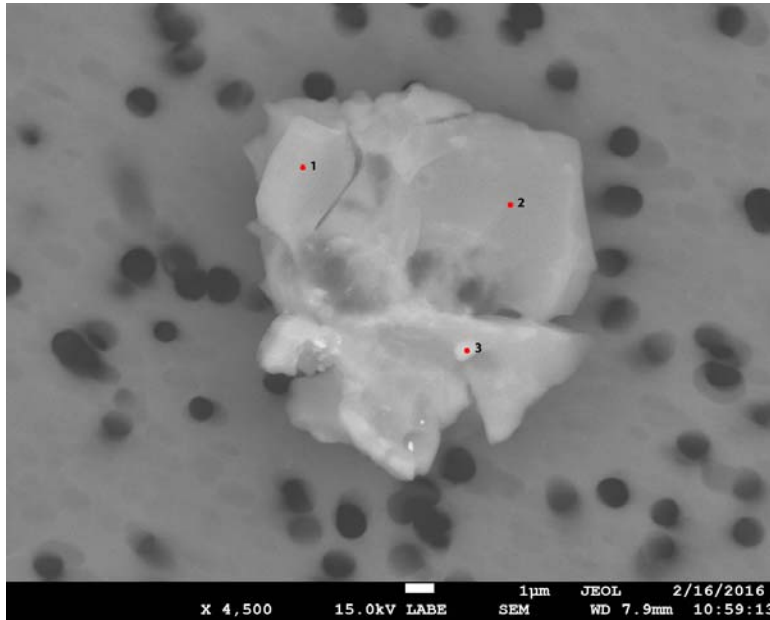


Figure 3. EDS Spectra for sample U2158-D-14 taken at test area 3. The test area is labeled in the particle SEM photo..

U2158 D15



Particle Size:	15 µm
Shape:	Equidimensional to Irregular
Transparency:	Translucent to Opaque
Color:	Brown
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2158 D15 with labeled EDS testing locations.

U2158 D15 - EDS Spectra

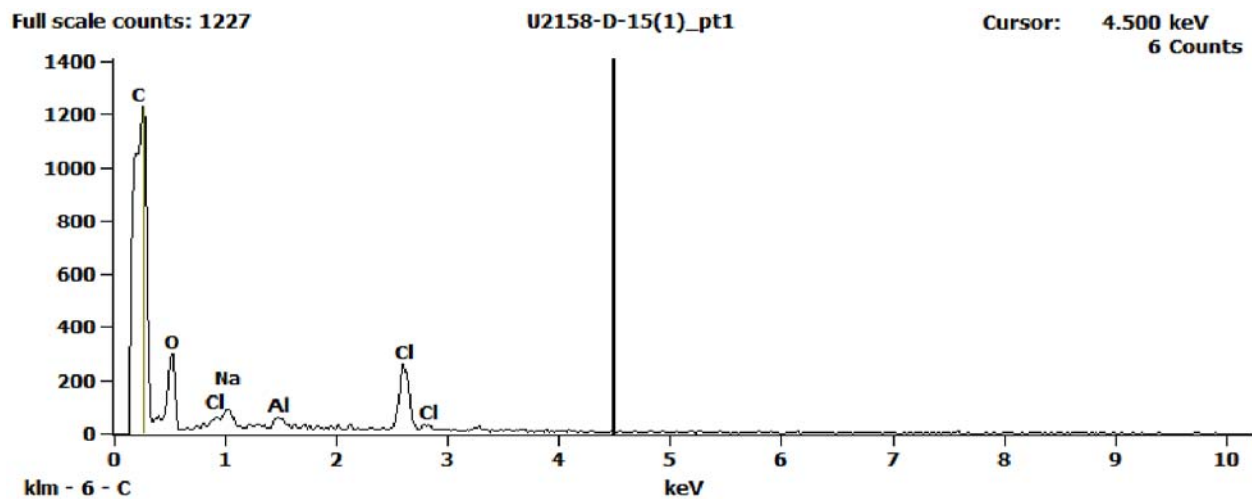


Figure 1. EDS Spectra for sample U2158-D-15 taken at test area 1. The test area is labeled in the particle SEM photo.

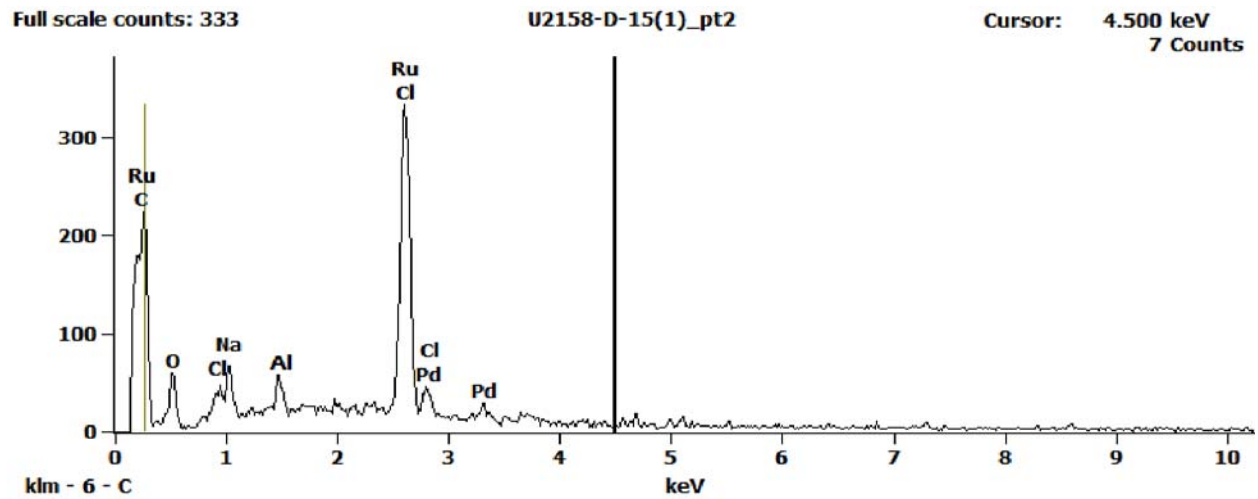


Figure 2. EDS Spectra for sample U2158-D-15 taken at test area 2. The test area is labeled in the particle SEM photo..

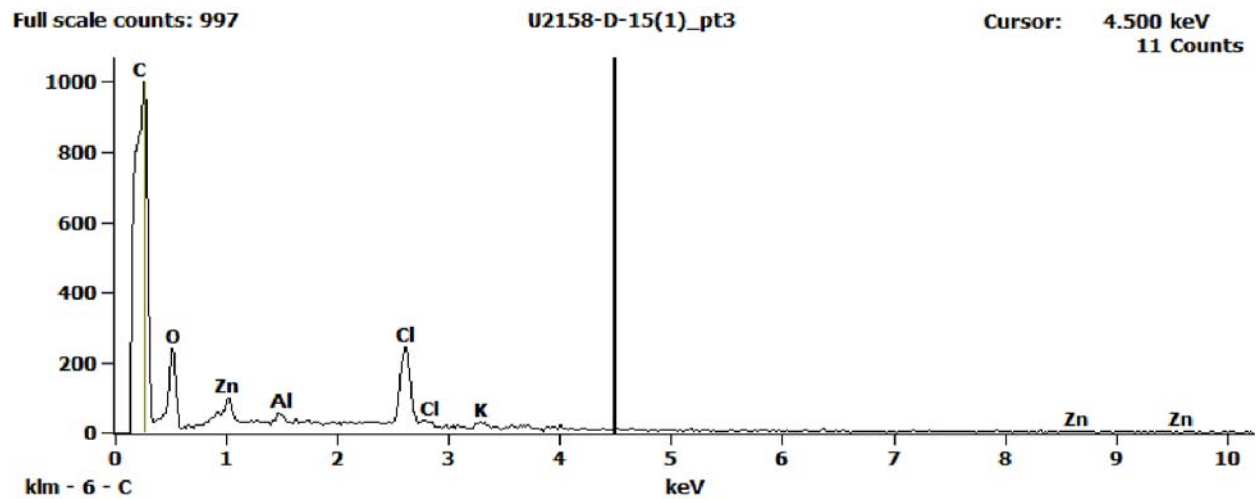
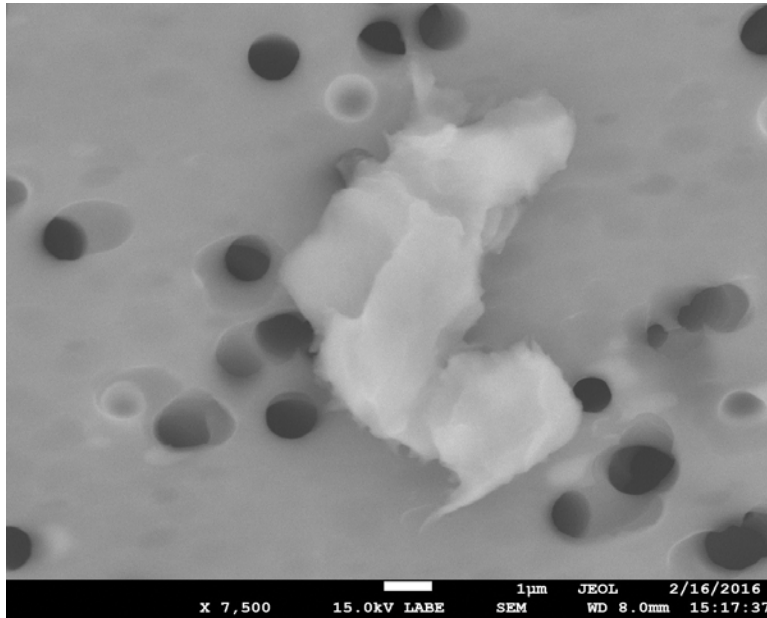


Figure 3. EDS Spectra for sample U2158-D-15 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A2



Particle Size:	15x27 µm
Shape:	Irregular to Equidimensional
Transparency:	Translucent to Transparent
Color:	Black, Clear, Orange
Luster:	Pearly to Subvitreous
Particle Type:	Possibly Natural Terrestrial Contamination
Cluster No.:	U2159 Cluster 2
Comments:	

SEM Photo of sample U2159 A2 with labeled EDS testing locations.

Cluster of Origin: U2159 Cluster 2

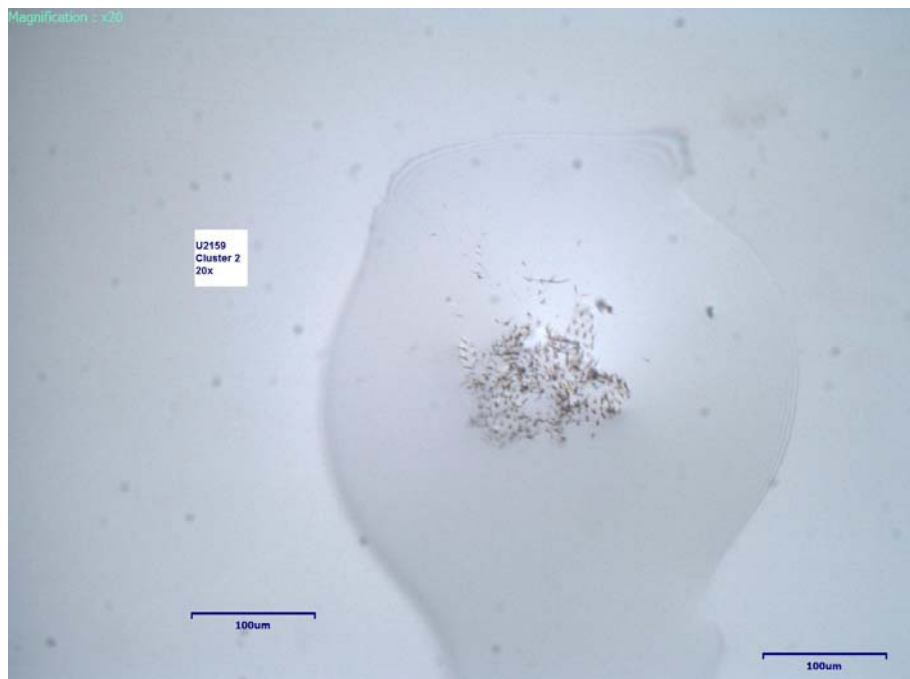


Photo of cluster U2159 Cluster 2.

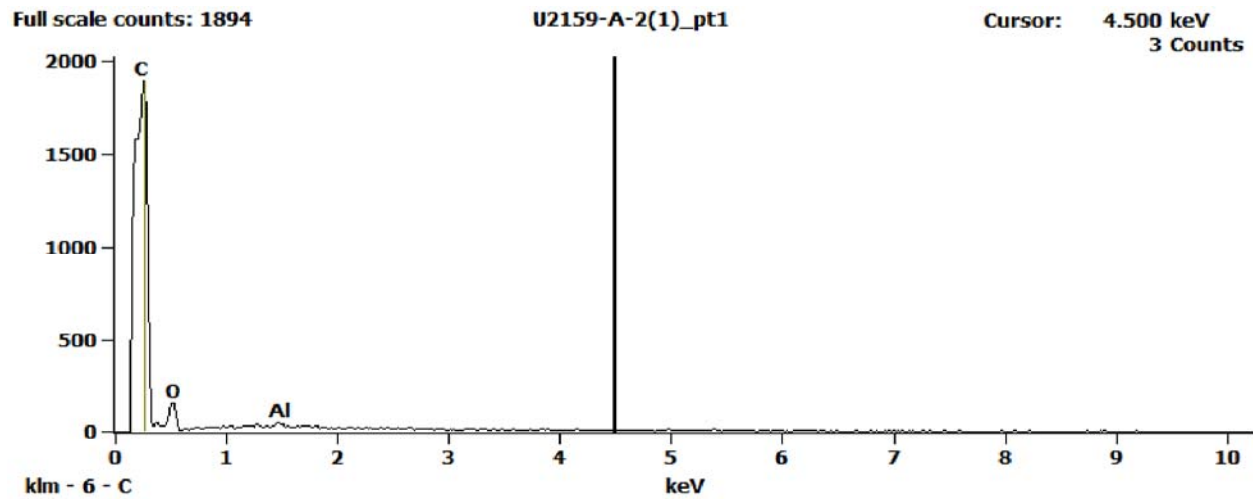
U2159 A2 - EDS Spectra

Figure 4. EDS Spectra for sample U2159-A-2 taken at test area 4. The test area is labeled in the particle SEM photo..

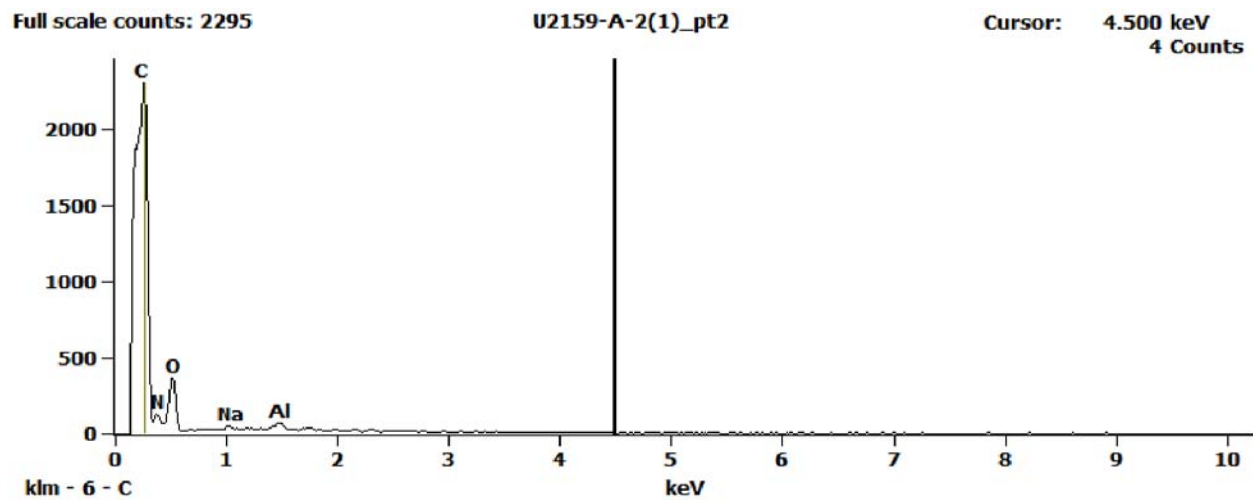


Figure 5. EDS Spectra for sample U2159-A-2 taken at test area 5. The test area is labeled in the particle SEM photo..

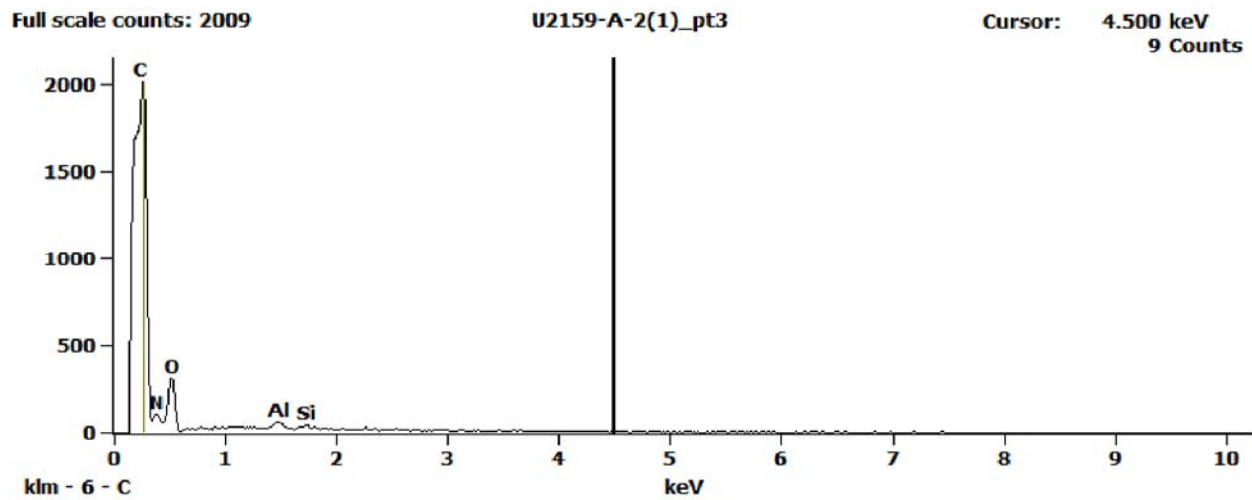


Figure 6. EDS Spectra for sample U2159-A-2 taken at test area 6. The test area is labeled in the particle SEM photo..

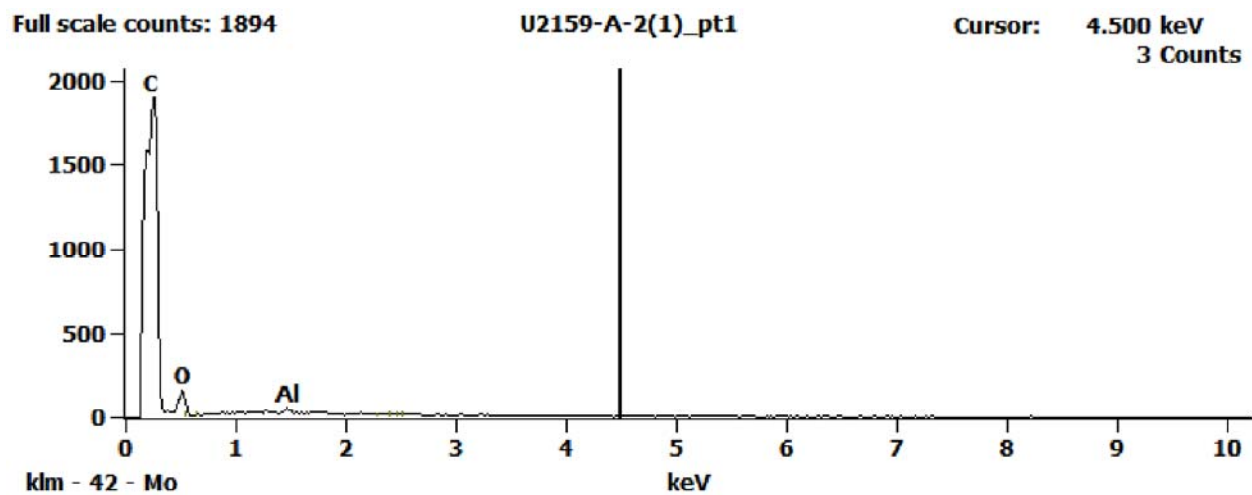


Figure 1. EDS Spectra for sample U2159-A-2 taken at test area 1. The test area is labeled in the particle SEM photo..

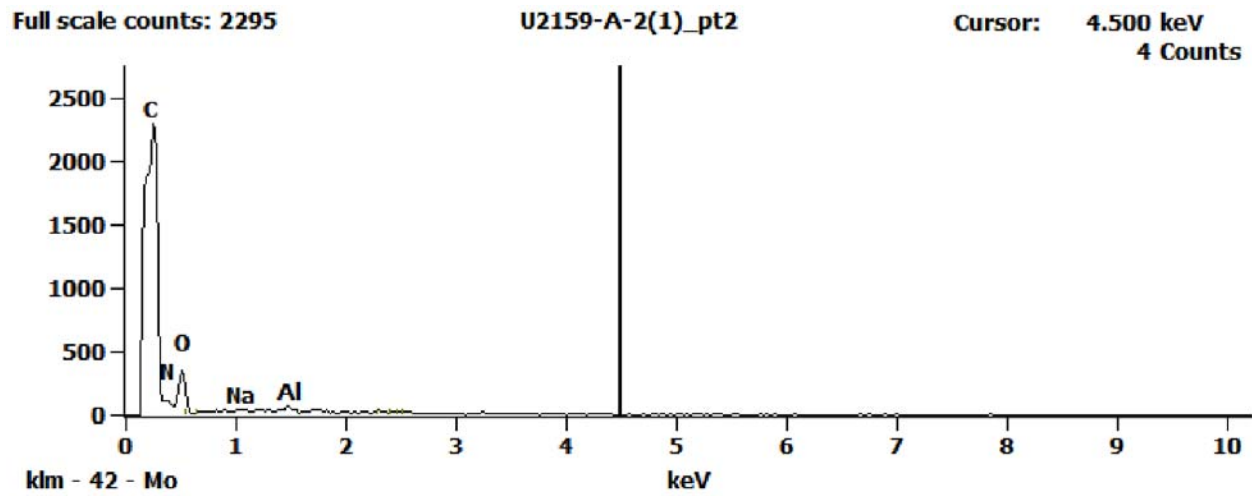


Figure 2. EDS Spectra for sample U2159-A-2 taken at test area 2. The test area is labeled in the particle SEM photo..

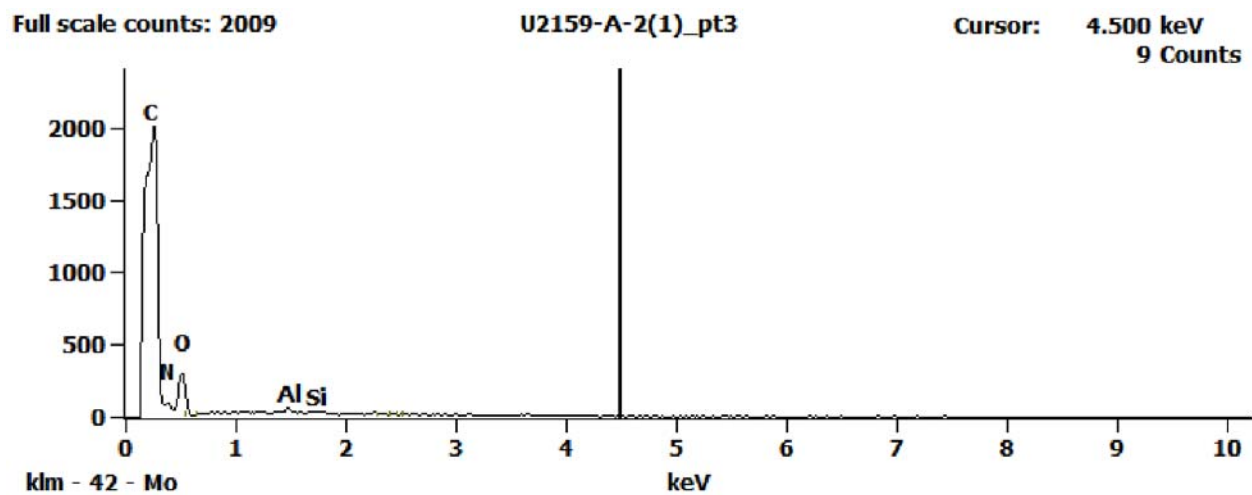
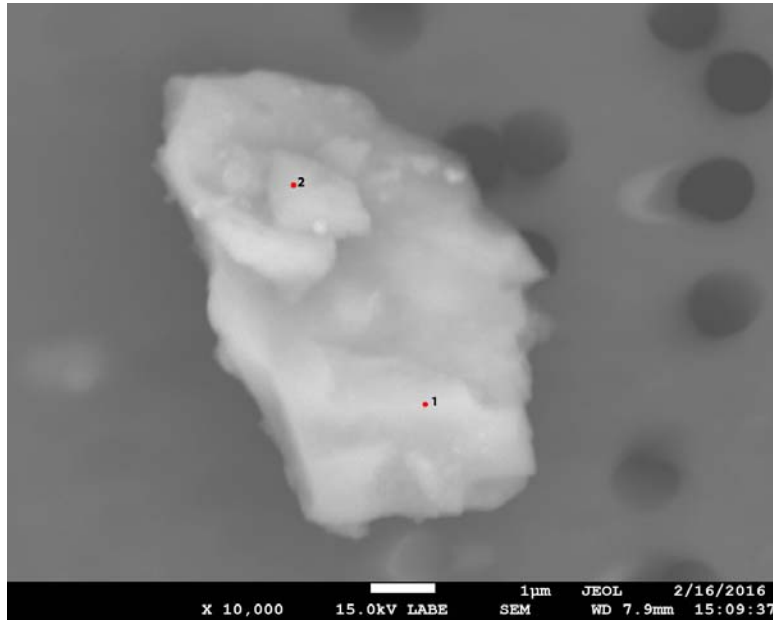


Figure 3. EDS Spectra for sample U2159-A-2 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A3



Particle Size:	7 μm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2159 Cluster 3
Comments:	

SEM Photo of sample U2159 A3 with labeled EDS testing locations.

Cluster of Origin: U2159 Cluster 3

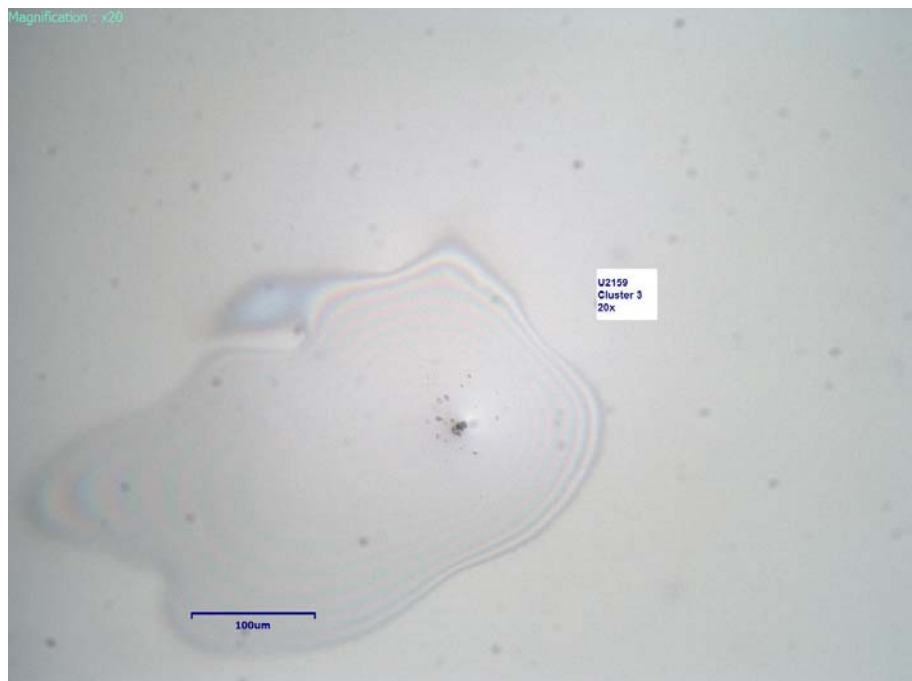


Photo of cluster U2159 Cluster 3.

U2159 A3 - EDS Spectra

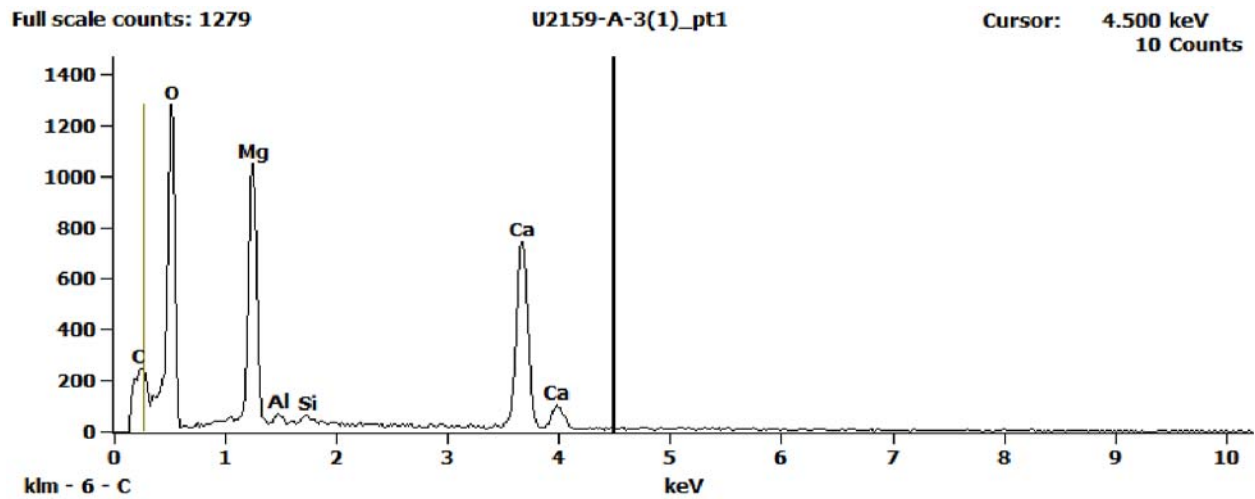


Figure 1. EDS Spectra for sample U2159-A-3 taken at test area 1. The test area is labeled in the particle SEM photo..

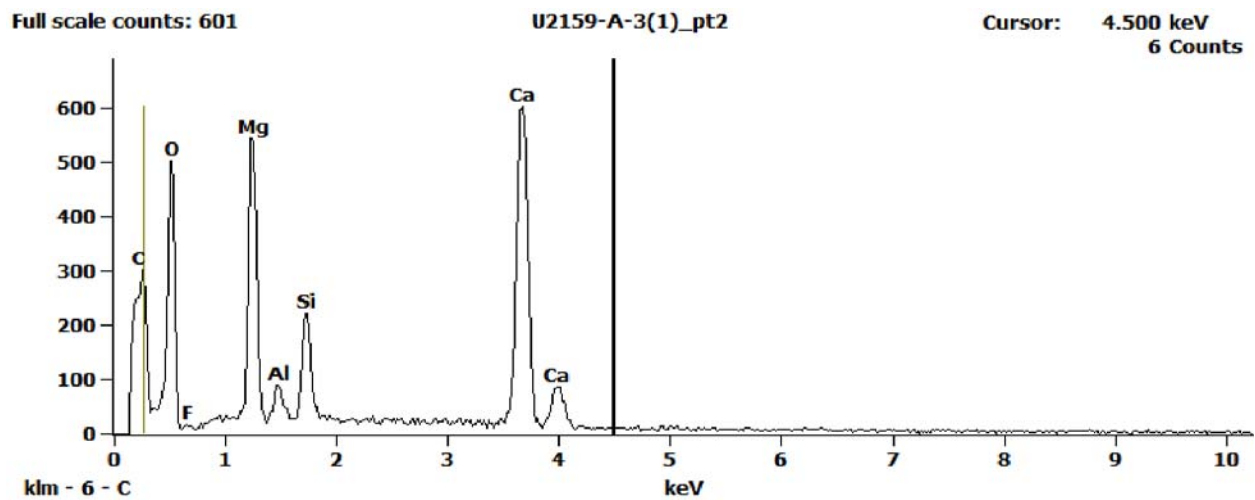
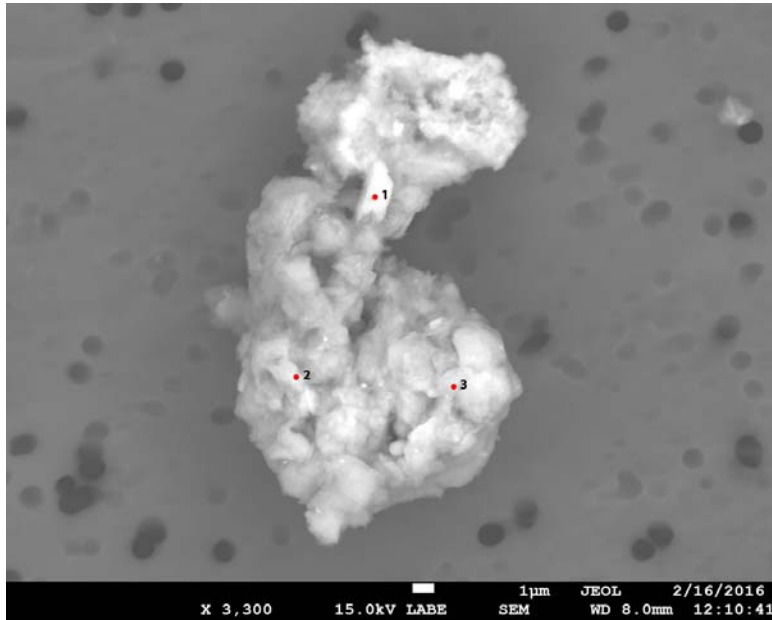


Figure 2. EDS Spectra for sample U2159-A-3 taken at test area 2. The test area is labeled in the particle SEM photo..

U2159 A6



Particle Size: 17 µm
Shape: Irregular
Transparency: Translucent to Opaque
Color: Gray, Red
Luster: Pearly to Dull
Particle Type: Natural
Terrestrial
Contamination
Cluster No.: U2159 Cluster 6
Comments:

SEM Photo of sample U2159 A6 with labeled EDS testing locations.

Cluster of Origin: U2159 Cluster 6

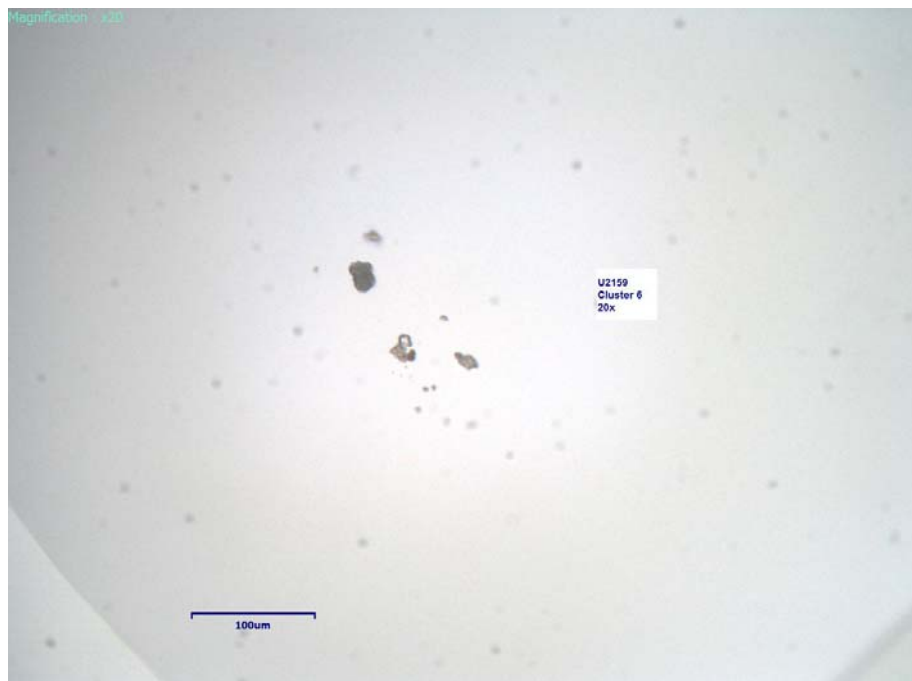


Photo of cluster U2159 Cluster 6.

U2159 A6 - EDS Spectra

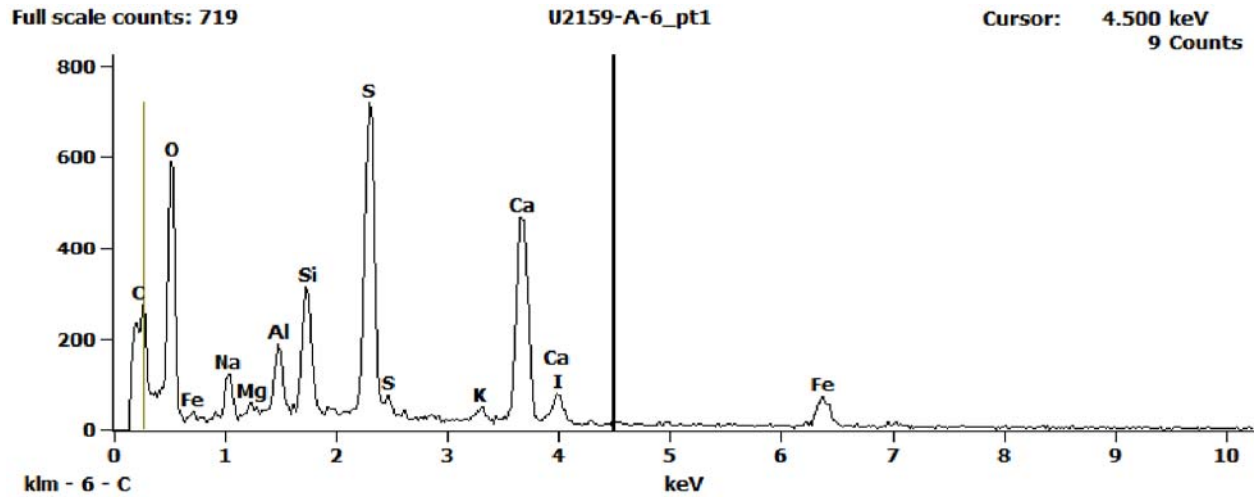


Figure 1. EDS Spectra for sample U2159-A-6 taken at test area 1. The test area is labeled in the particle SEM photo..

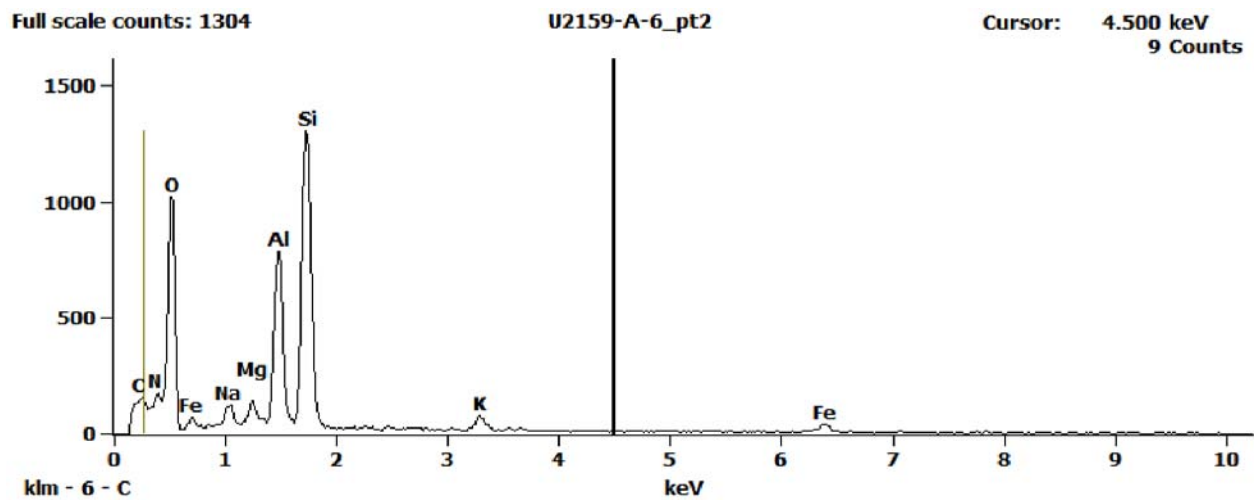


Figure 2. EDS Spectra for sample U2159-A-6 taken at test area 2. The test area is labeled in the particle SEM photo..

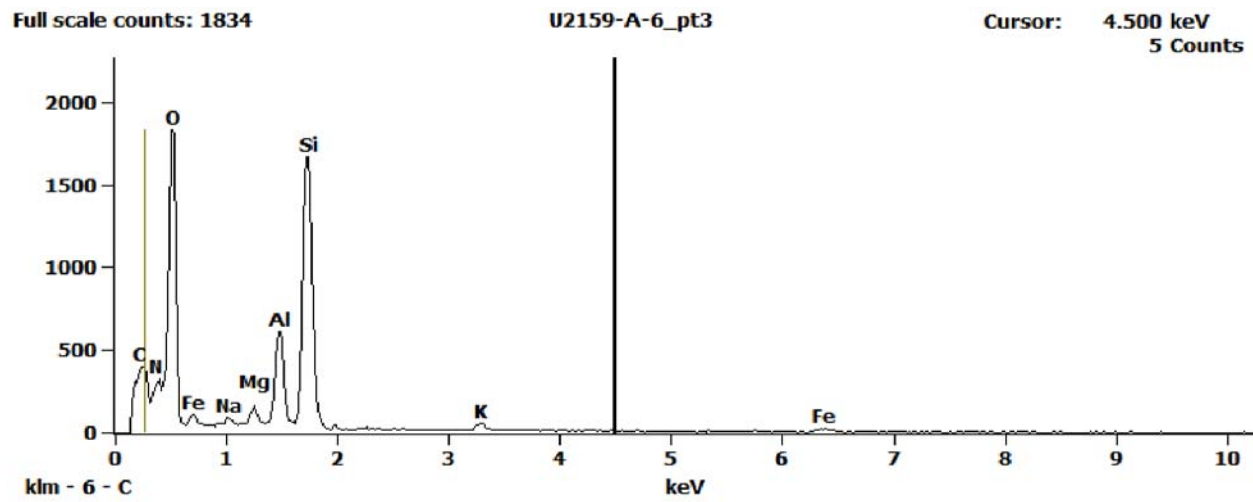
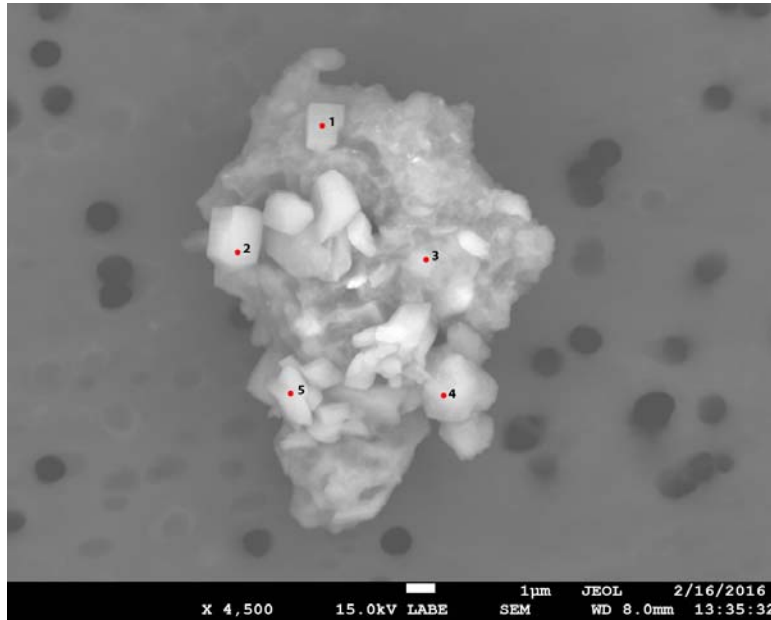


Figure 3. EDS Spectra for sample U2159-A-6 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A9



Particle Size: 16x11 µm
Shape: Equidimensional
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Natural
Terrestrial
Contamination
Cluster No.: U2159 Cluster 9
Comments:

SEM Photo of sample U2159 A9 with labeled EDS testing locations.

Cluster of Origin: U2159 Cluster 9

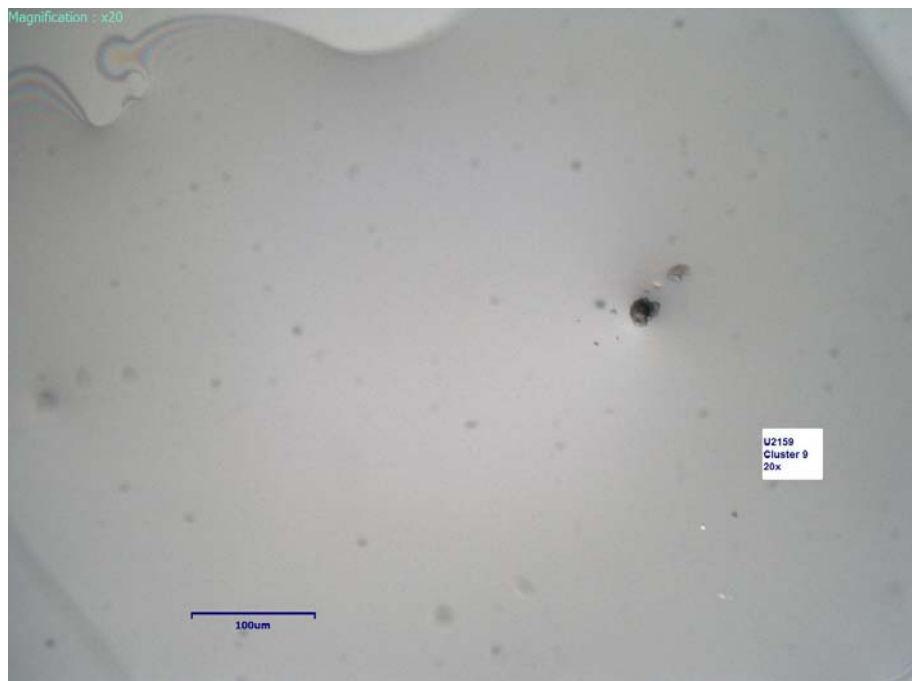


Photo of cluster U2159 Cluster 9.

U2159 A9 - EDS Spectra

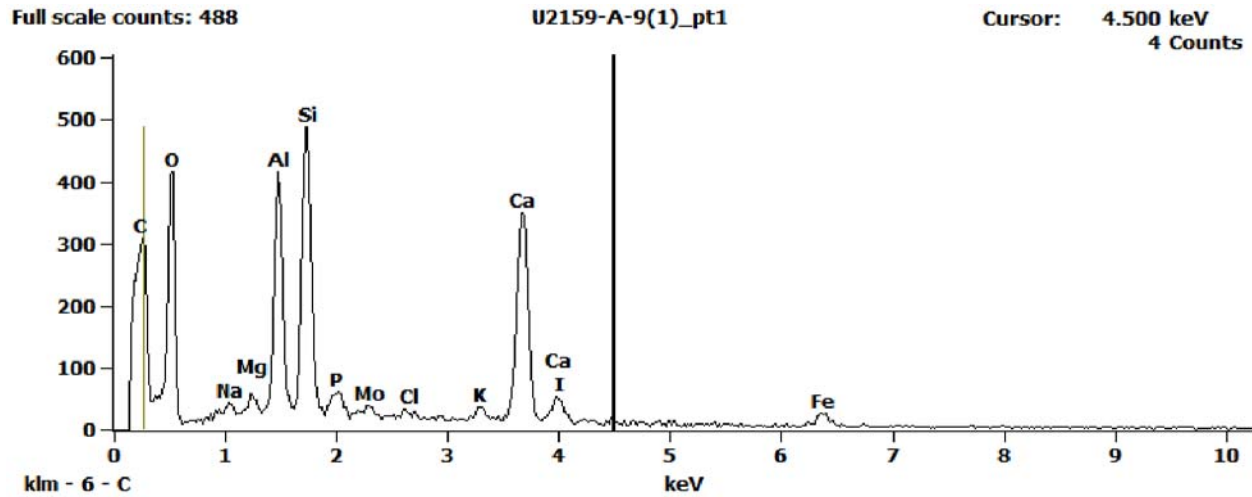


Figure 1. EDS Spectra for sample U2159-A-9 taken at test area 1. The test area is labeled in the particle SEM photo..

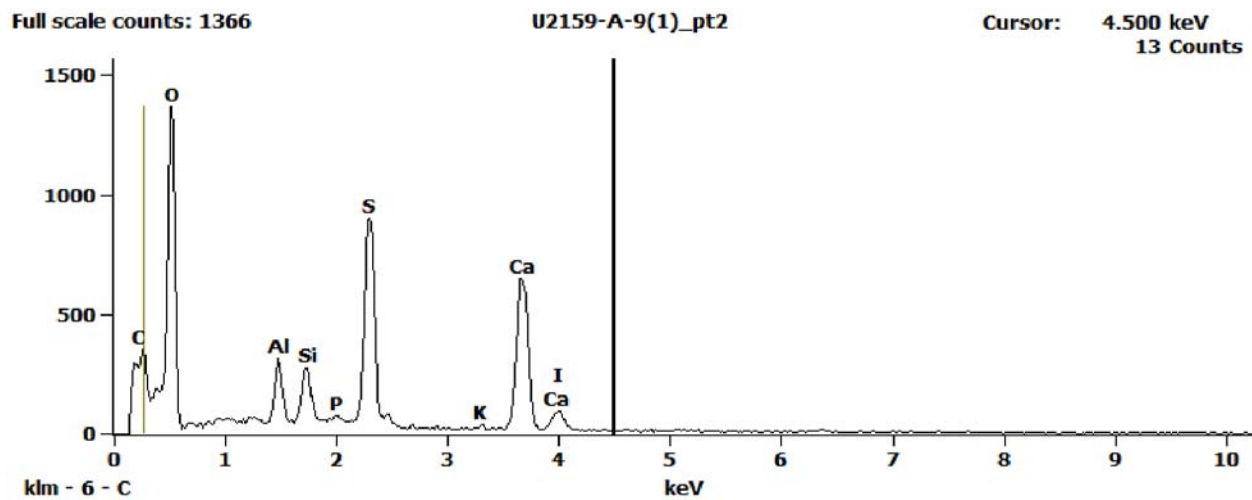


Figure 2. EDS Spectra for sample U2159-A-9 taken at test area 2. The test area is labeled in the particle SEM photo..

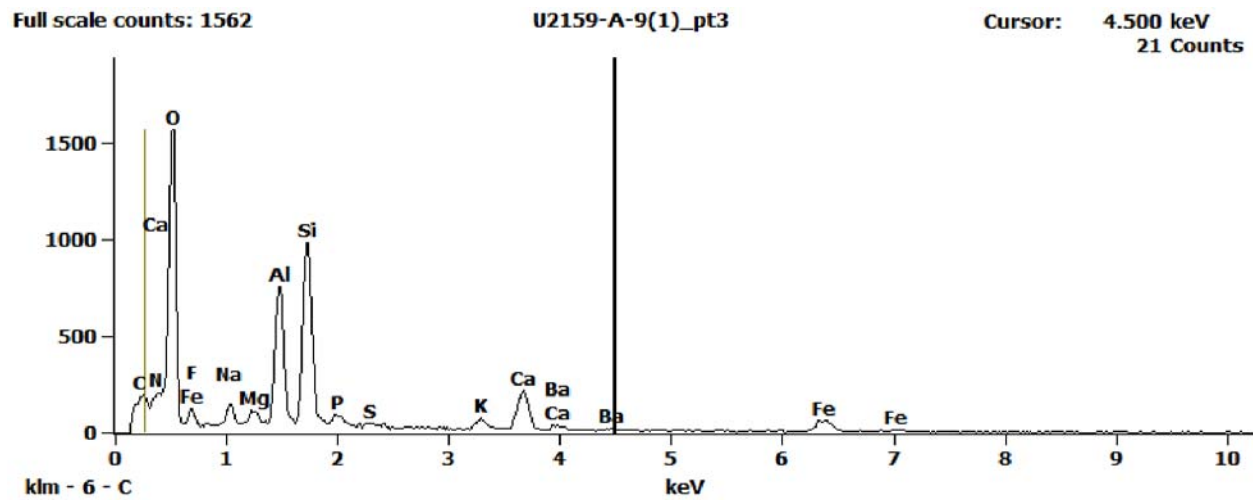


Figure 3. EDS Spectra for sample U2159-A-9 taken at test area 3. The test area is labeled in the particle SEM photo..

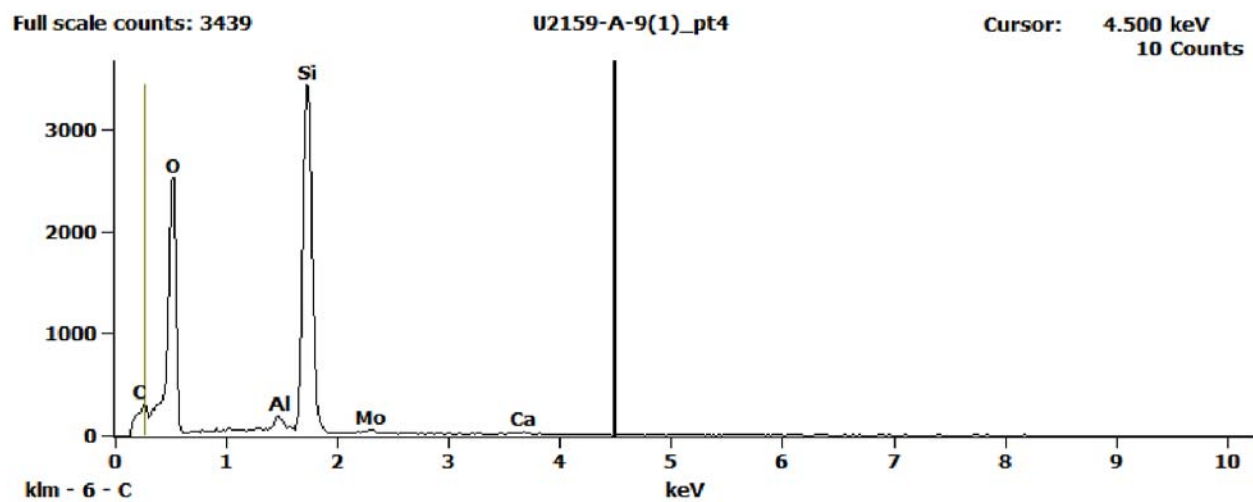


Figure 4. EDS Spectra for sample U2159-A-9 taken at test area 4. The test area is labeled in the particle SEM photo..

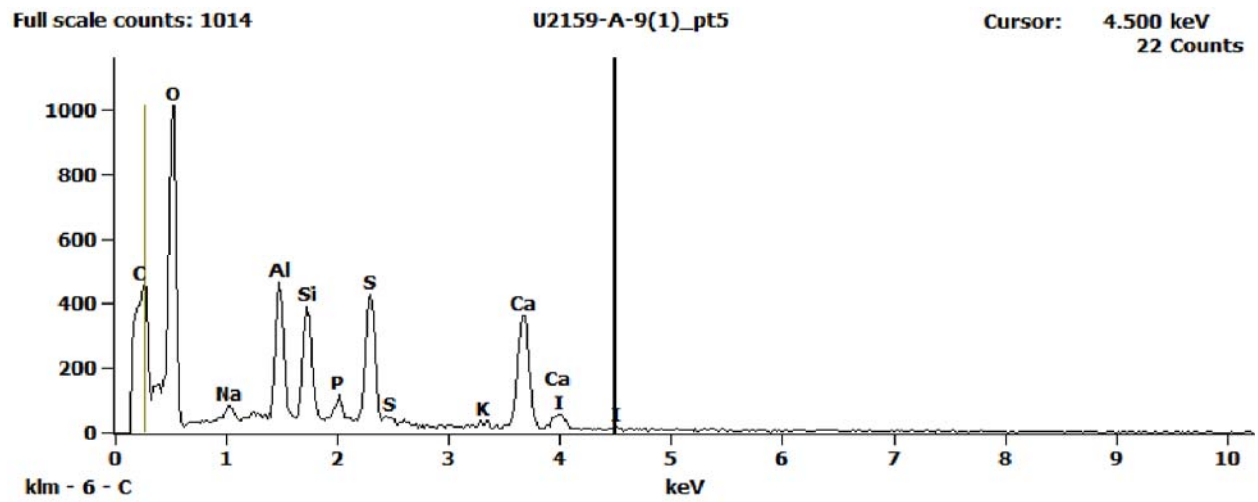
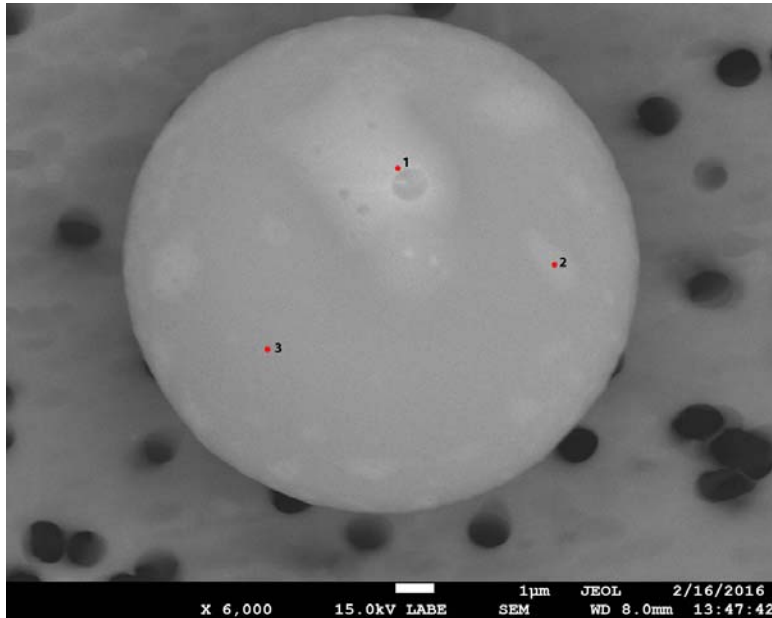


Figure 5. EDS Spectra for sample U2159-A-9 taken at test area 5. The test area is labeled in the particle SEM photo..

U2159 A10



Particle Size:	13 µm
Shape:	Spherical
Transparency:	Opaque
Color:	Black
Luster:	Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2159 A10 with labeled EDS testing locations.

U2159 A10 - EDS Spectra

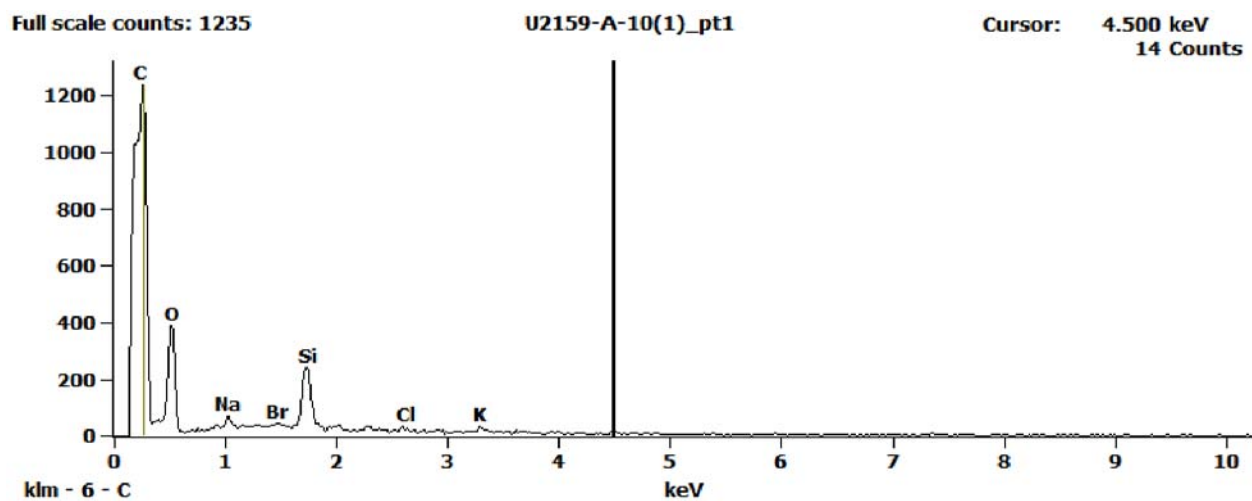


Figure 1. EDS Spectra for sample U2159-A-10 taken at test area 1. The test area is labeled in the particle SEM photo..

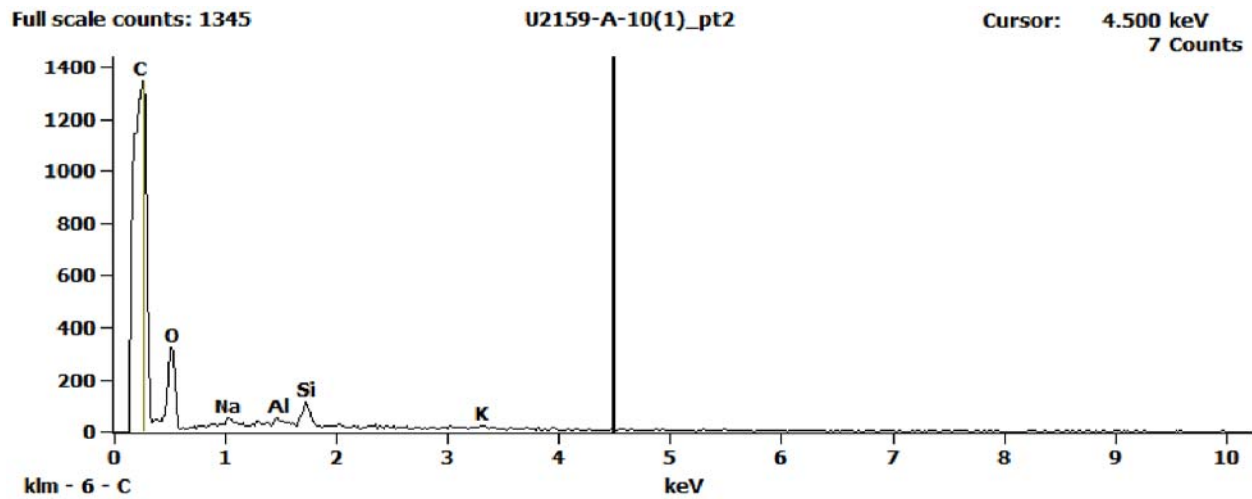


Figure 2. EDS Spectra for sample U2159-A-10 taken at test area 2. The test area is labeled in the particle SEM photo..

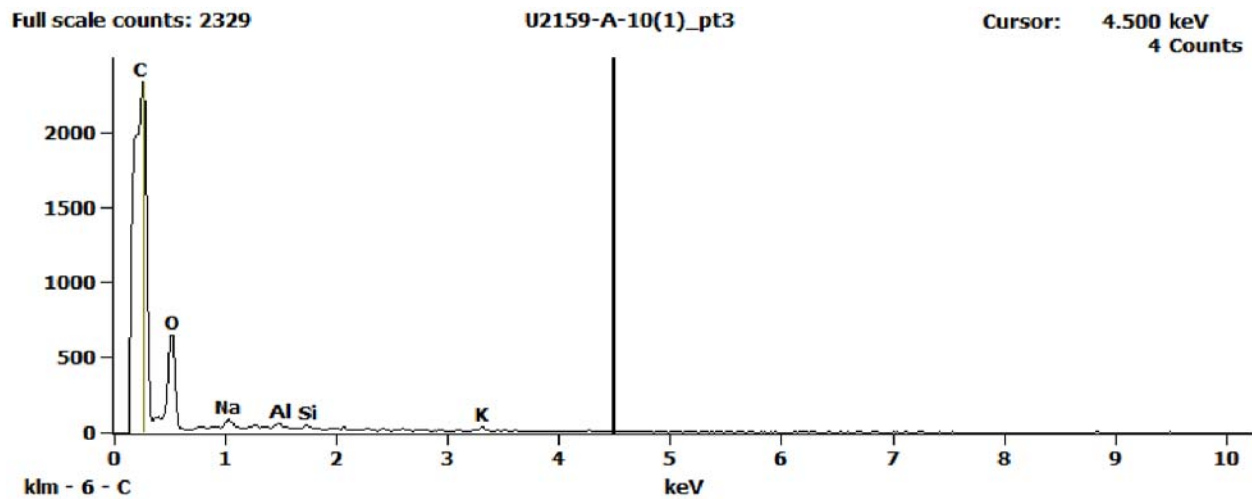
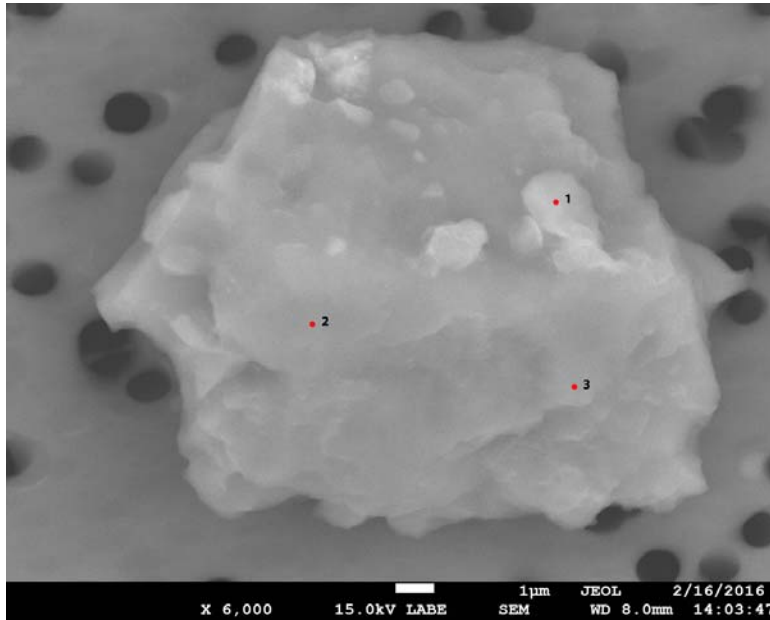


Figure 3. EDS Spectra for sample U2159-A-10 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A11



Particle Size:	15 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black
Luster:	Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2159 A11 with labeled EDS testing locations.

U2159 A11 - EDS Spectra

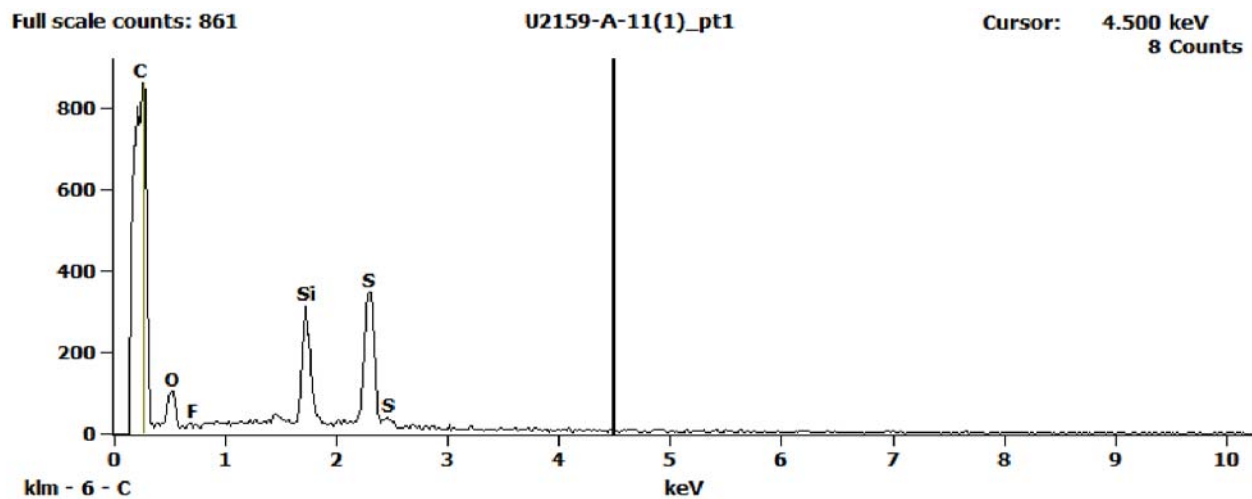


Figure 1. EDS Spectra for sample U2159-A-11 taken at test area 1. The test area is labeled in the particle SEM photo..

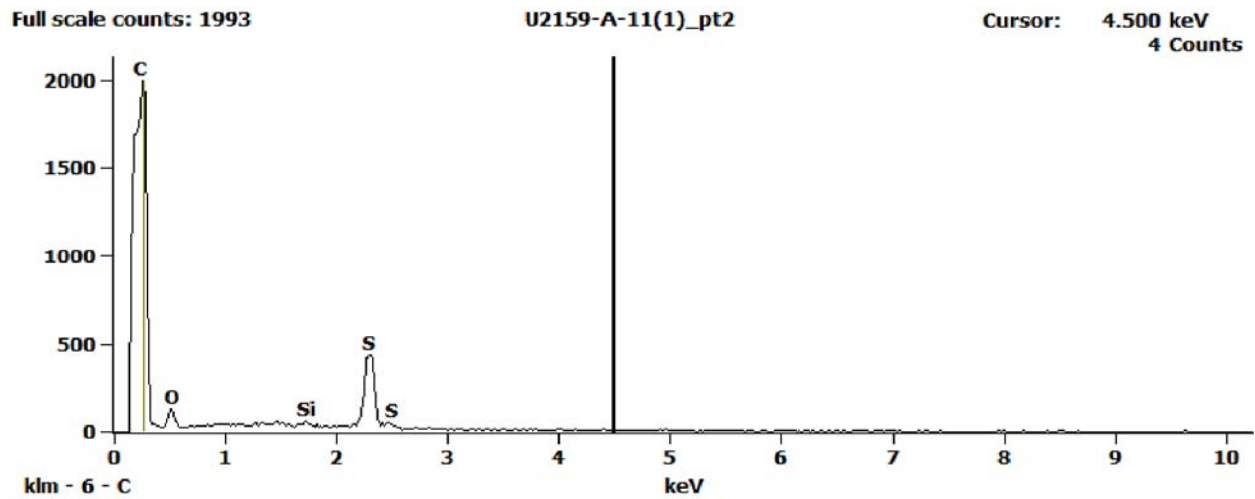


Figure 2. EDS Spectra for sample U2159-A-11 taken at test area 2. The test area is labeled in the particle SEM photo..

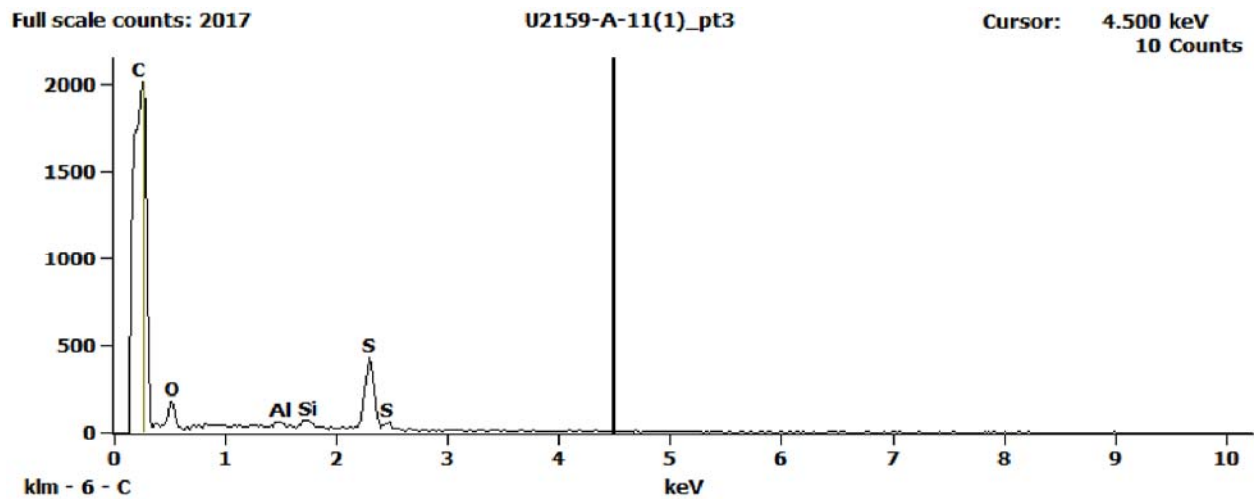
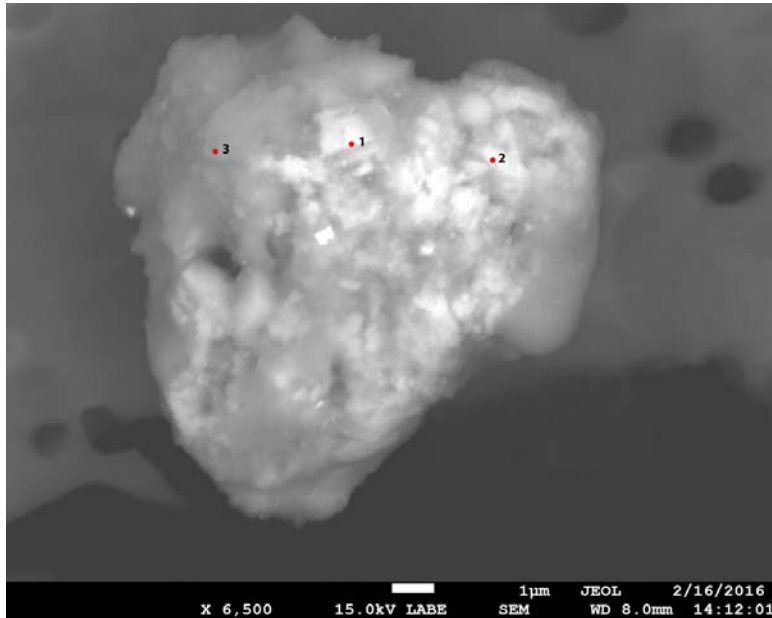


Figure 3. EDS Spectra for sample U2159-A-11 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A12



Particle Size:	12 µm
Shape:	Equidimensional
Transparency:	Opaque to Translucent
Color:	Black, Green
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2159 A12 with labeled EDS testing locations.

U2159 A12 - EDS Spectra

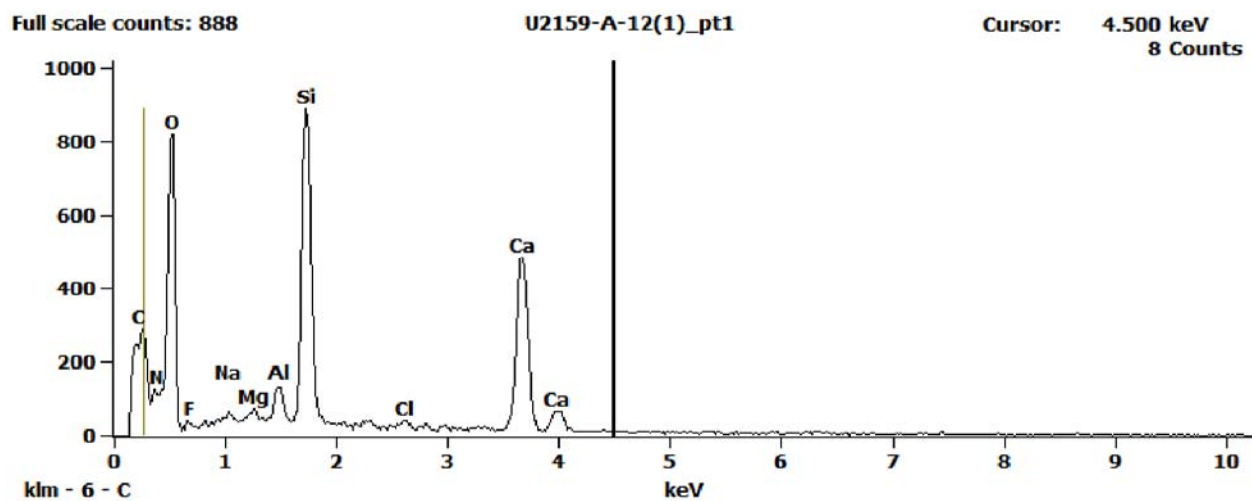


Figure 1. EDS Spectra for sample U2159-A-12 taken at test area 1. The test area is labeled in the particle SEM photo..

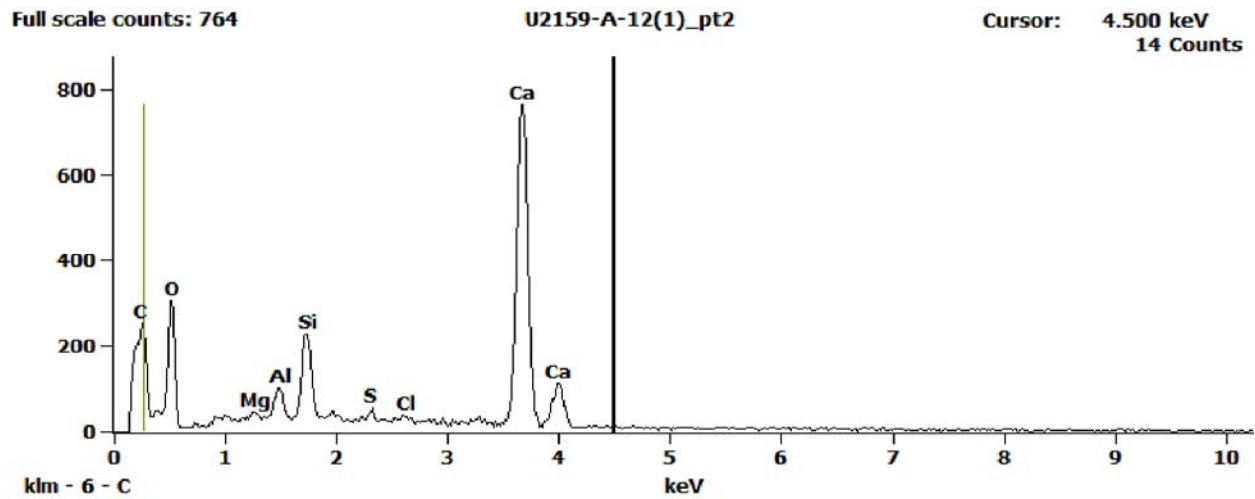


Figure 2. EDS Spectra for sample U2159-A-12 taken at test area 2. The test area is labeled in the particle SEM photo..

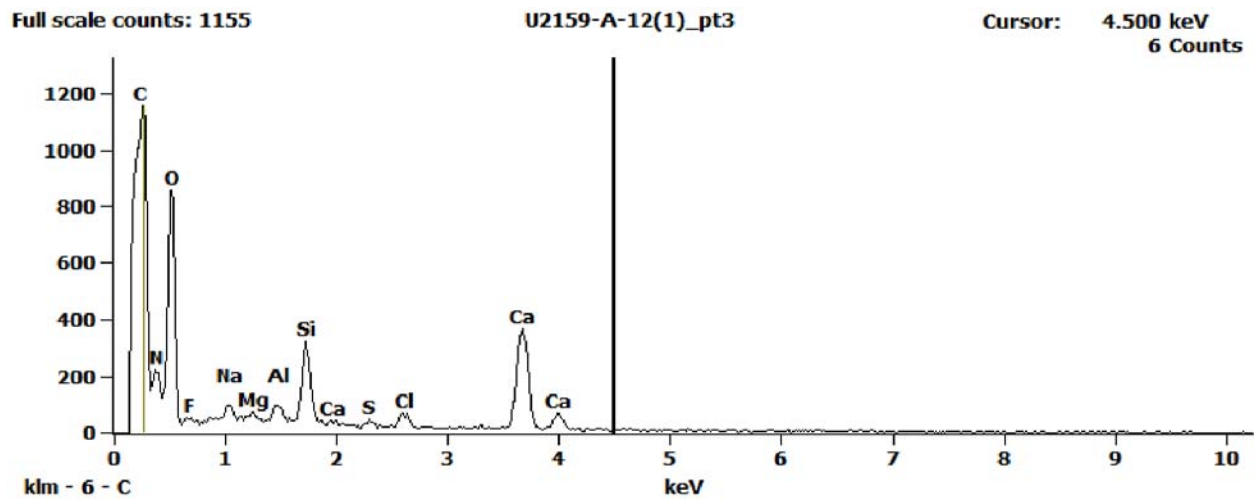
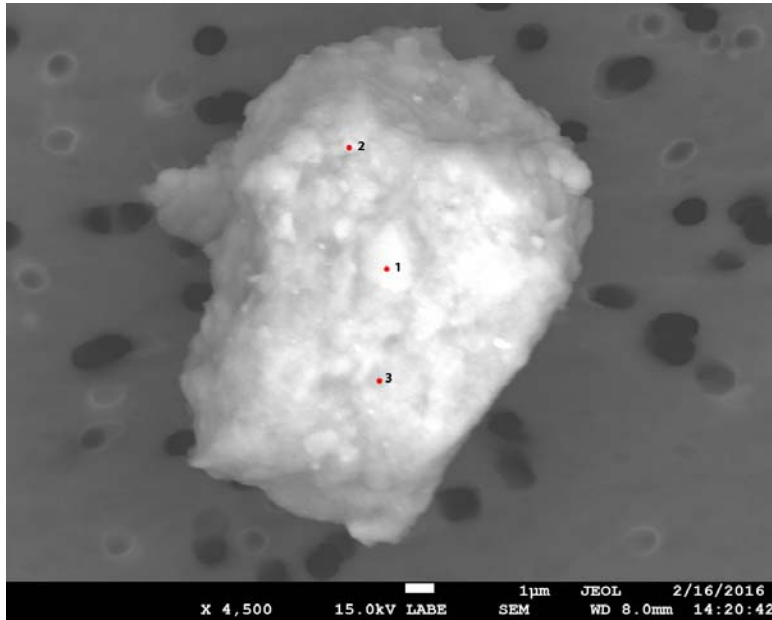


Figure 3. EDS Spectra for sample U2159-A-12 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A13



Particle Size:	14 µm
Shape:	Equidimensional to Irregular
Transparency:	Translucent to Transparent
Color:	Clear
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2159 A13 with labeled EDS testing locations.

U2159 A13 - EDS Spectra

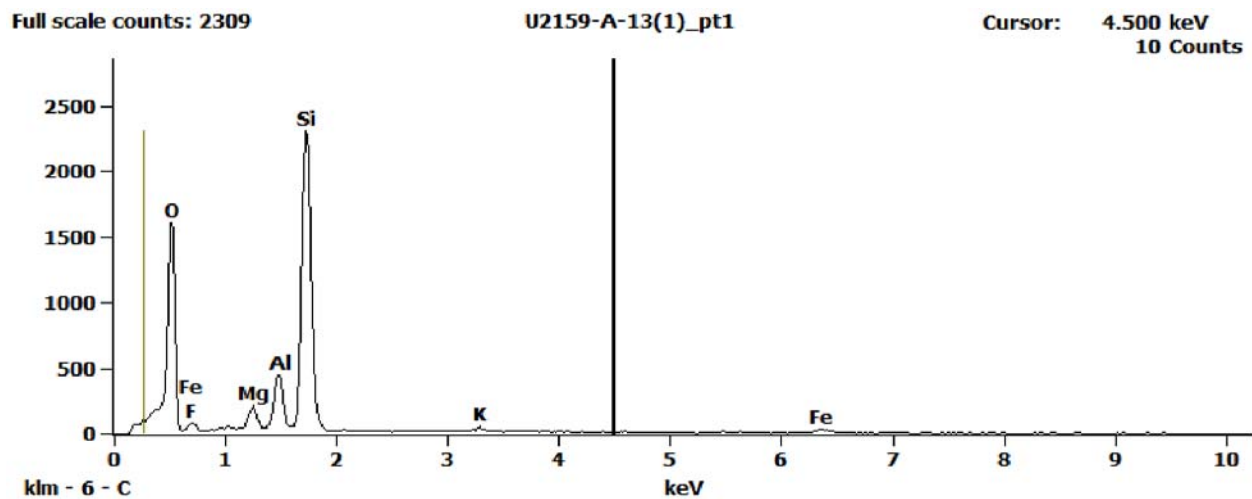


Figure 1. EDS Spectra for sample U2159-A-13 taken at test area 1. The test area is labeled in the particle SEM photo..

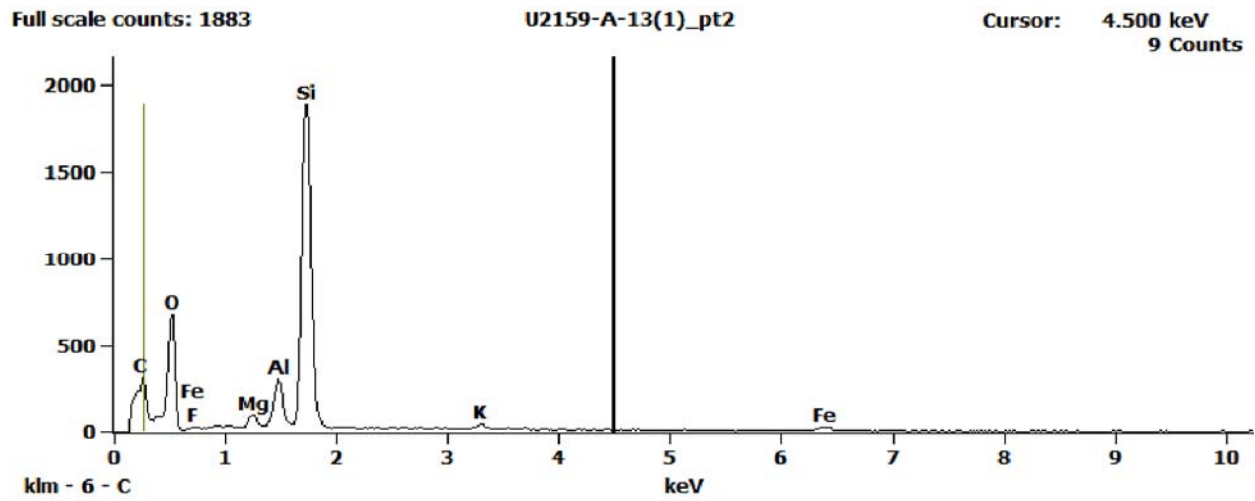


Figure 2. EDS Spectra for sample U2159-A-13 taken at test area 2. The test area is labeled in the particle SEM photo..

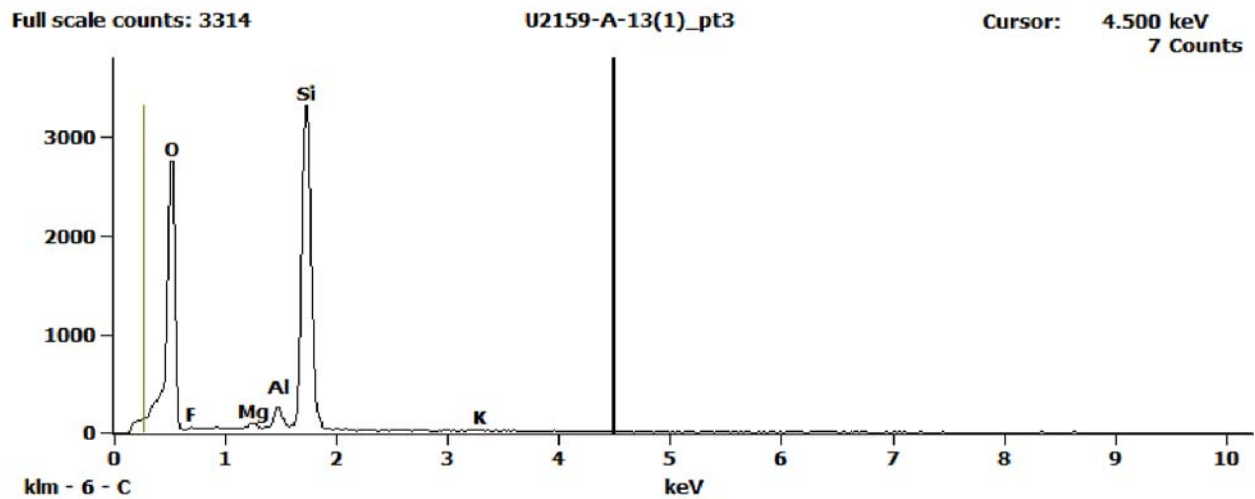
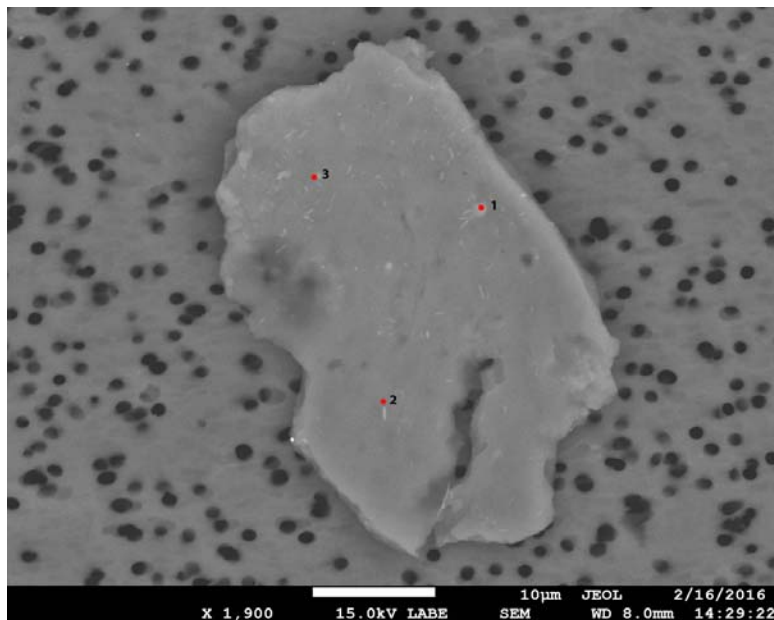


Figure 3. EDS Spectra for sample U2159-A-13 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A14



Particle Size:	20 µm
Shape:	Spherical
Transparency:	Translucent to Transparent
Color:	Yellow
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2159 A14 with labeled EDS testing locations.

U2159 A14 - EDS Spectra

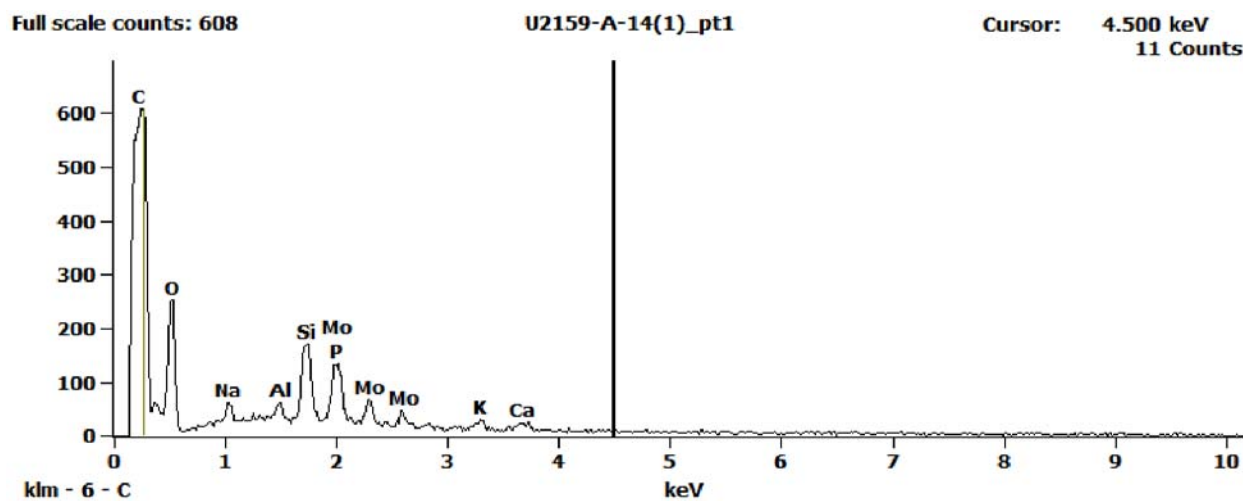


Figure 1. EDS Spectra for sample U2159-A-14 taken at test area 1. The test area is labeled in the particle SEM photo..

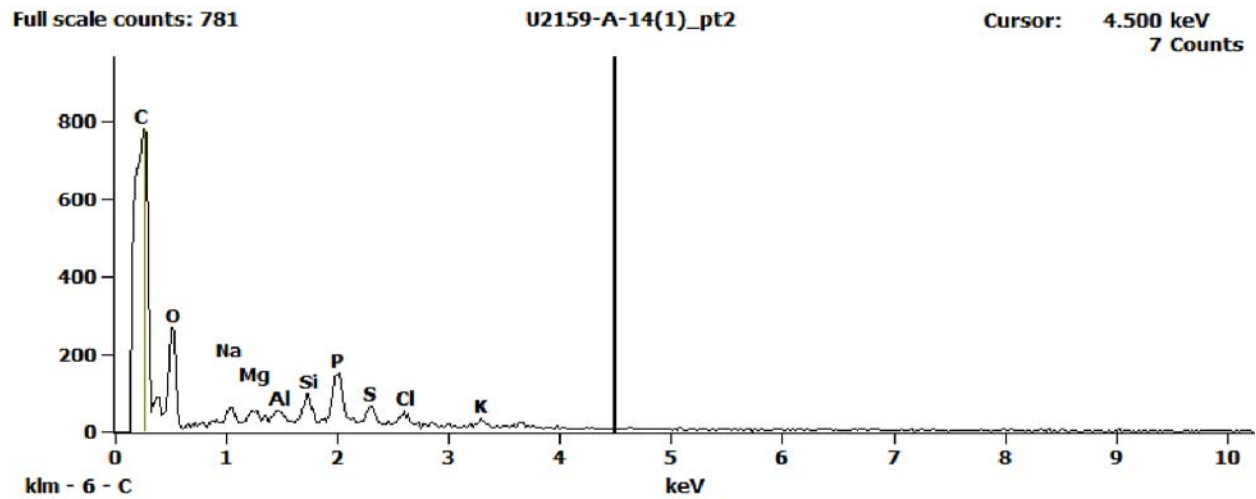


Figure 2. EDS Spectra for sample U2159-A-14 taken at test area 2. The test area is labeled in the particle SEM photo..

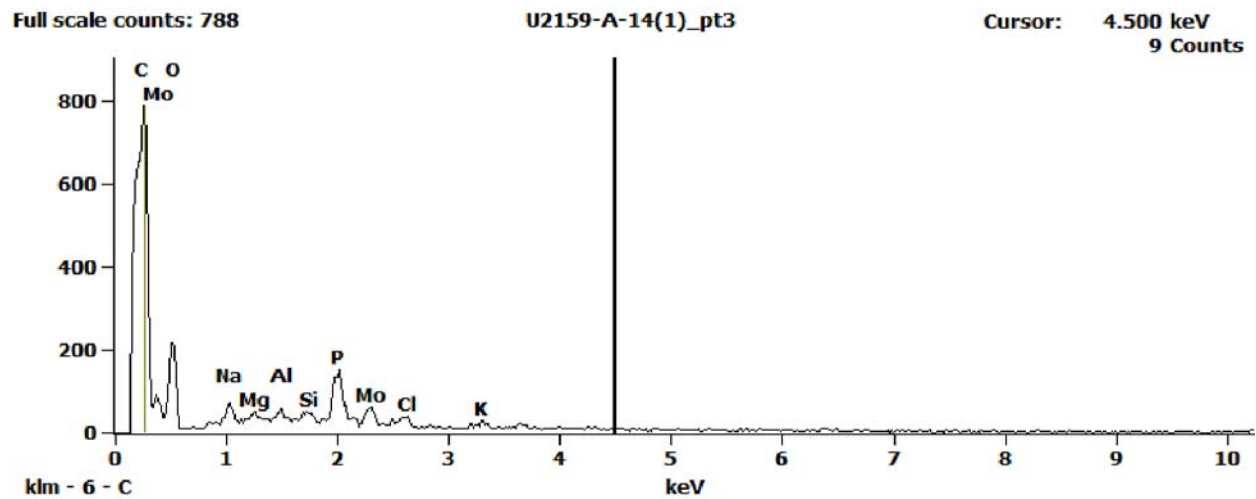
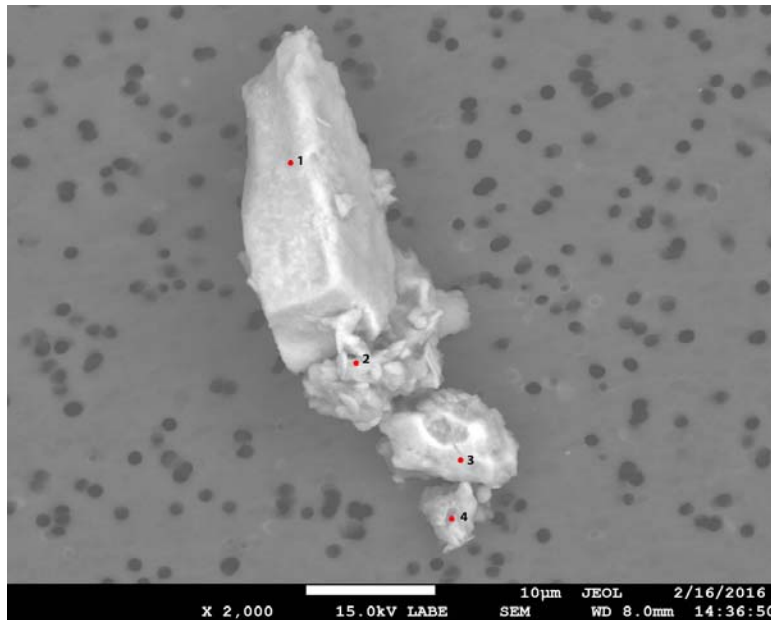


Figure 3. EDS Spectra for sample U2159-A-14 taken at test area 3. The test area is labeled in the particle SEM photo..

U2159 A15



Particle Size:	13x37 µm
Shape:	Irregular
Transparency:	Opaque to Translucent
Color:	Gray
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2159 A15 with labeled EDS testing locations.

U2159 A15 - EDS Spectra

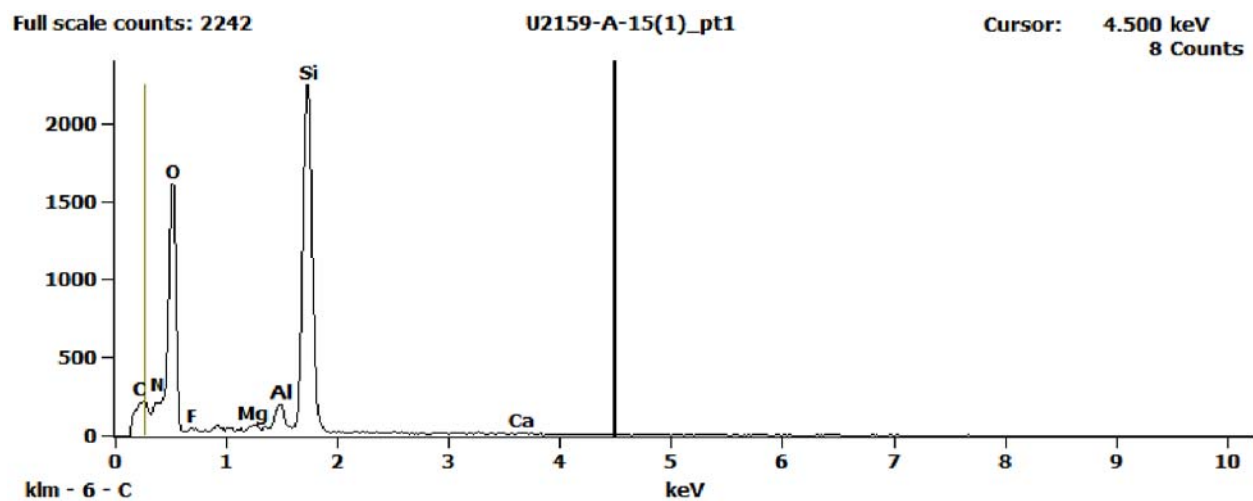


Figure 1. EDS Spectra for sample U2159-A-15 taken at test area 1. The test area is labeled in the particle SEM photo..

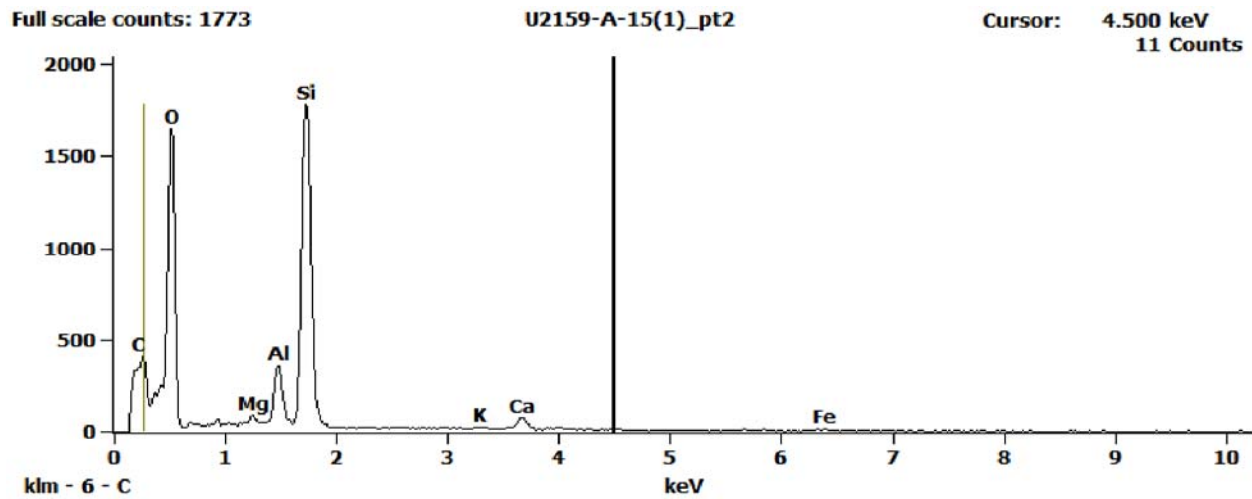


Figure 2. EDS Spectra for sample U2159-A-15 taken at test area 2. The test area is labeled in the particle SEM photo..

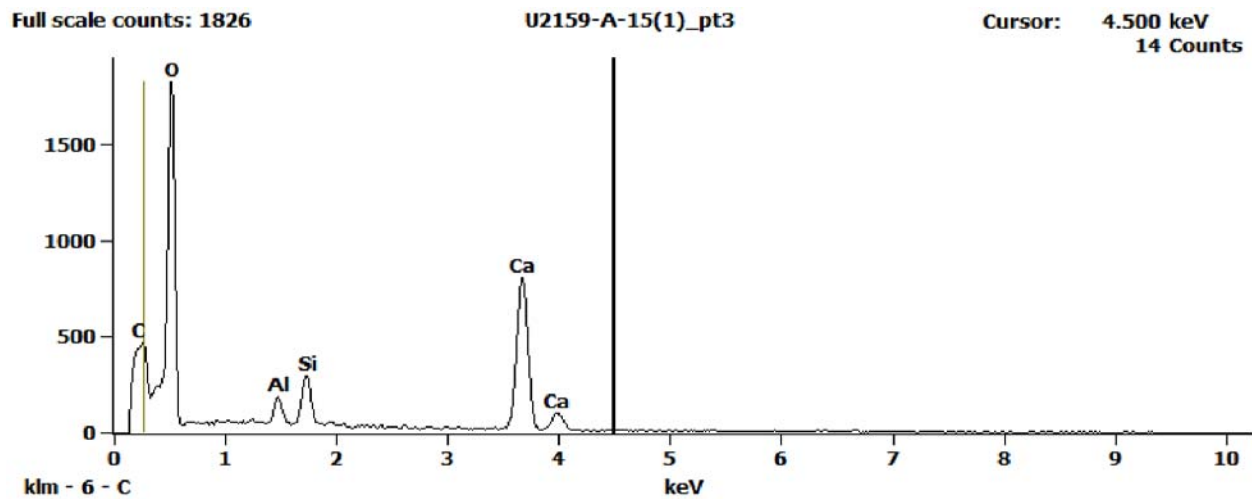


Figure 3. EDS Spectra for sample U2159-A-15 taken at test area 3. The test area is labeled in the particle SEM photo..

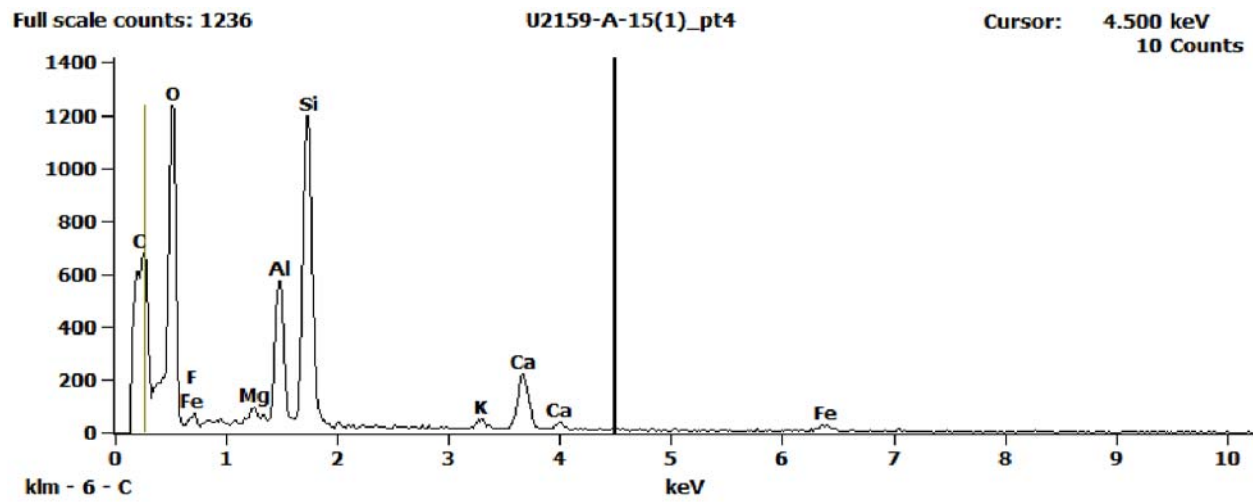
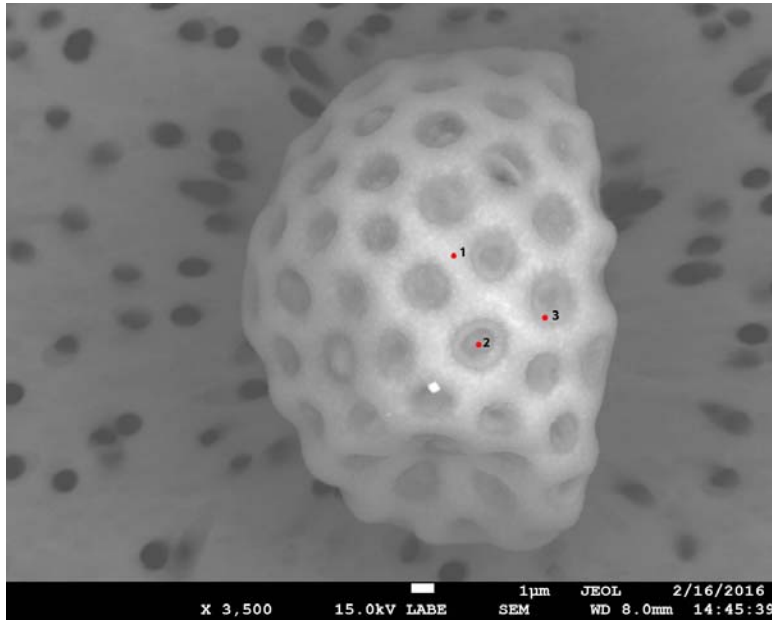


Figure 4. EDS Spectra for sample U2159-A-15 taken at test area 4. The test area is labeled in the particle SEM photo..

U2159 A16



Particle Size:	22 µm
Shape:	Equidimensional to Spherical
Transparency:	Transparent to Opaque
Color:	Clear, Green
Luster:	Pearly
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2159 A16 with labeled EDS testing locations.

U2159 A16 - EDS Spectra

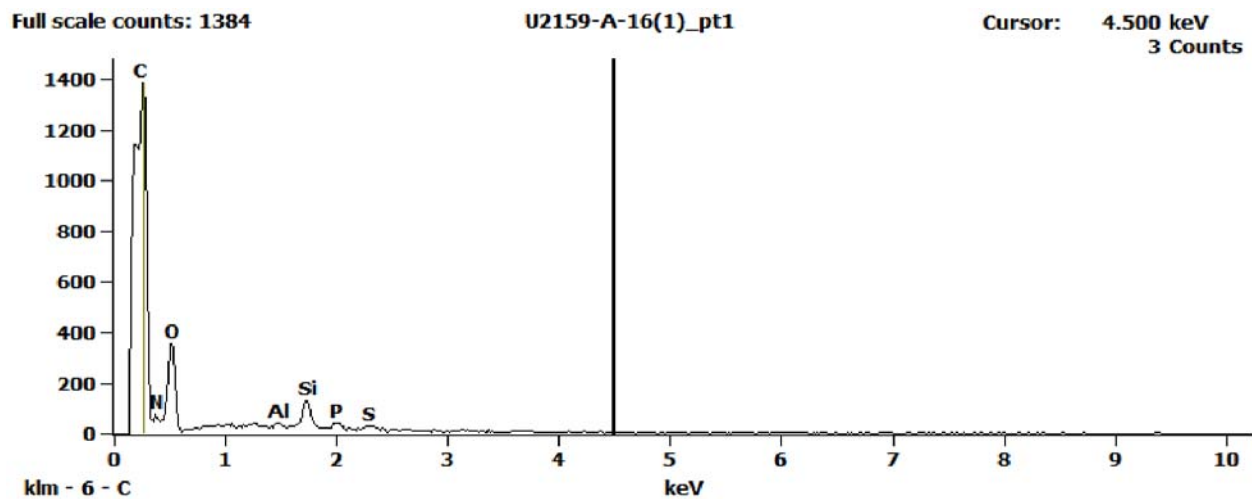


Figure 1. EDS Spectra for sample U2159-A-16 taken at test area 1. The test area is labeled in the particle SEM photo..

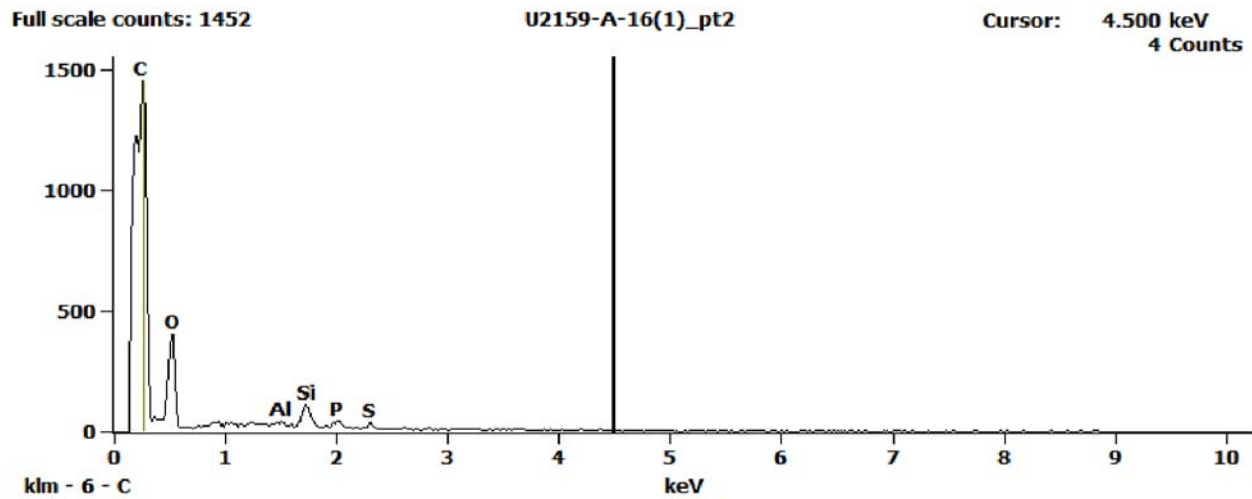


Figure 2. EDS Spectra for sample U2159-A-16 taken at test area 2. The test area is labeled in the particle SEM photo..

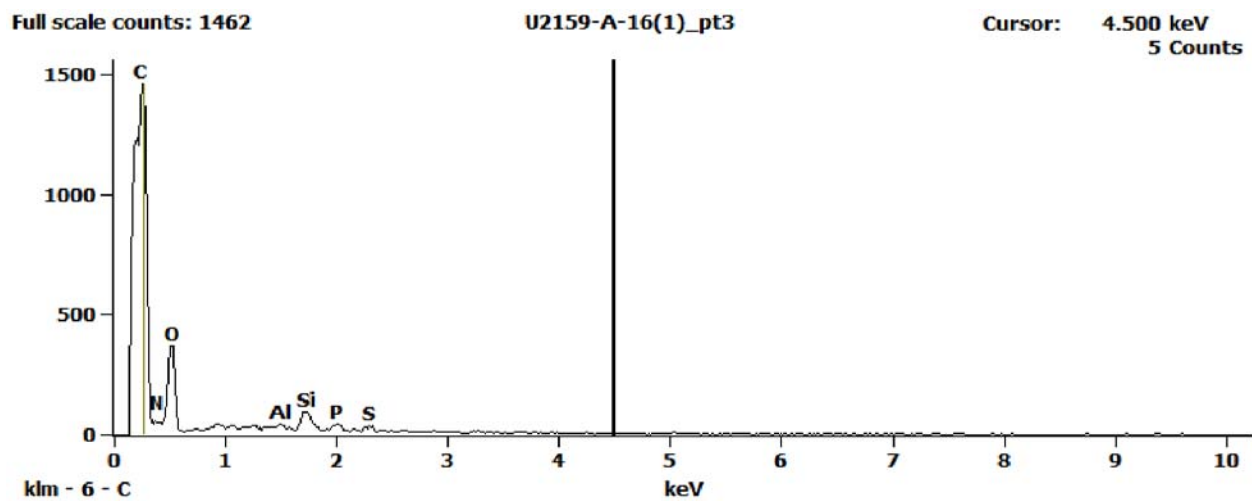
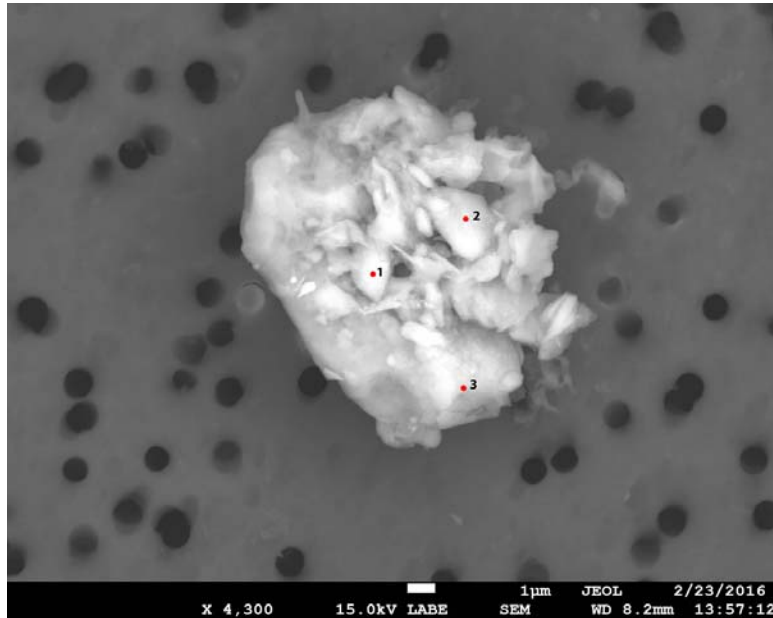


Figure 3. EDS Spectra for sample U2159-A-16 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A1



Particle Size:	20 µm
Shape:	Equidimensional to Spherical
Transparency:	Opaque to Translucent
Color:	Black
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 1
Comments:	

SEM Photo of sample U2162 A1 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 1



Photo of cluster U2162 Cluster 1.

U2162 A1 - EDS Spectra

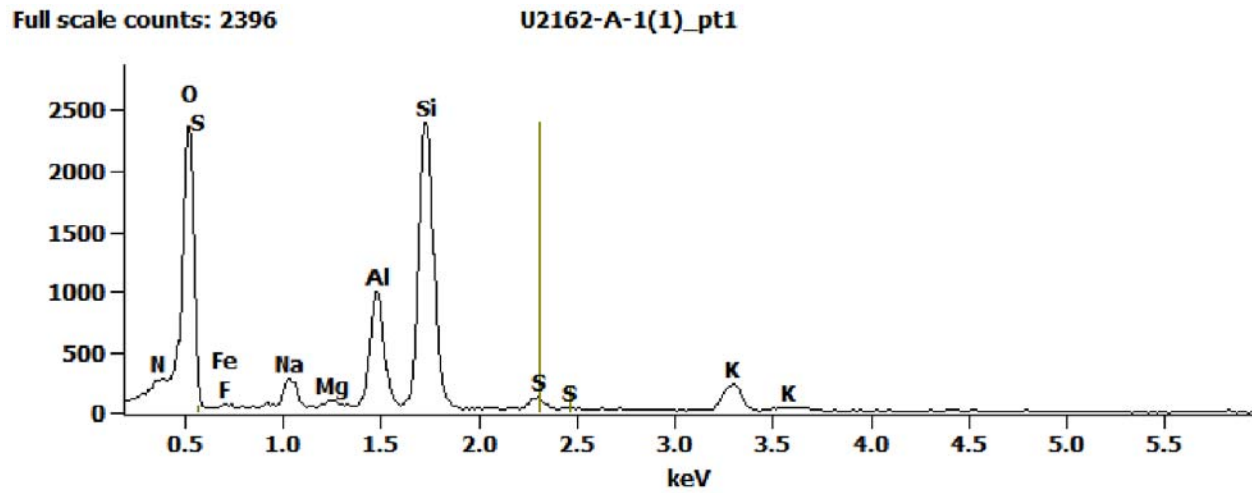


Figure 1. EDS Spectra for sample U2162-A-1 taken at test area 1. The test area is labeled in the particle SEM photo..

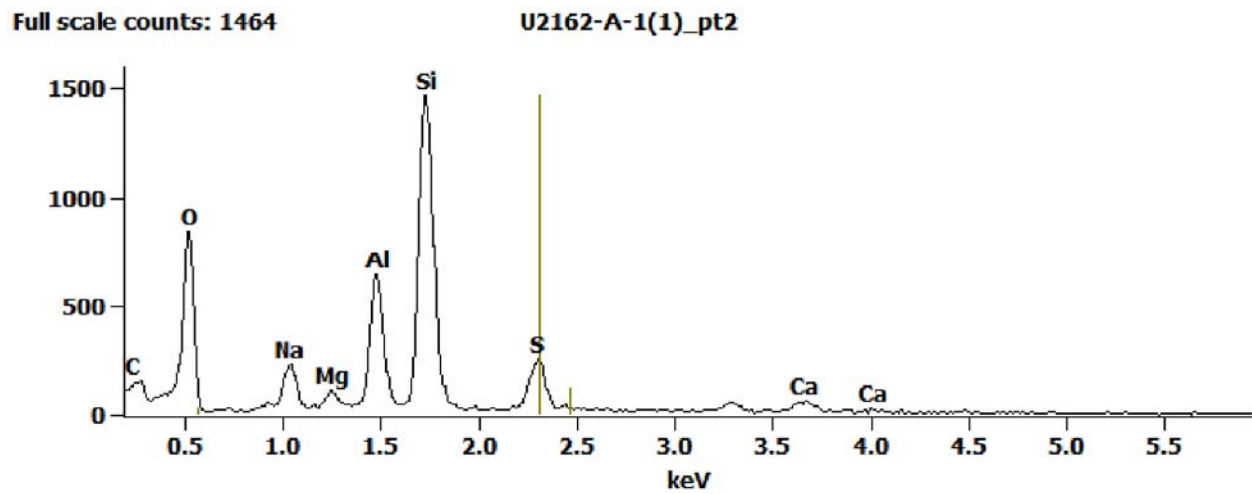


Figure 2. EDS Spectra for sample U2162-A-1 taken at test area 2. The test area is labeled in the particle SEM photo..

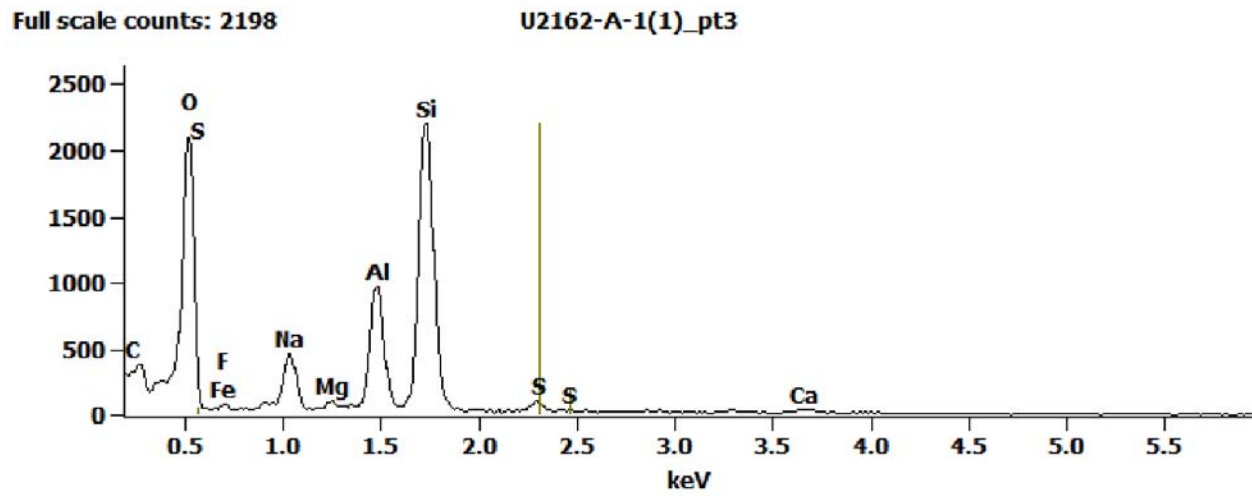
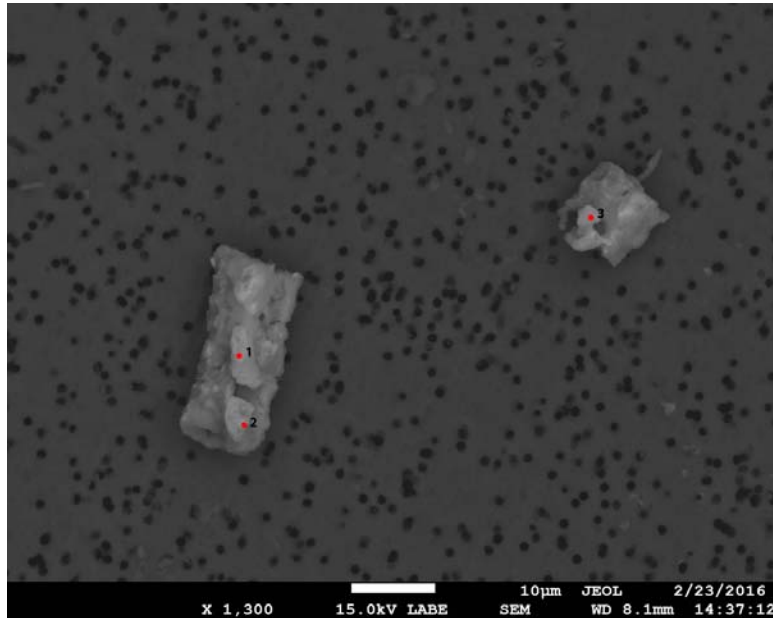


Figure 3. EDS Spectra for sample U2162-A-1 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A7



Particle Size:	23x9 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque to Subvitreous
Color:	Black
Luster:	Pearly to Subvitreous
Particle Type:	Possibly Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 7
Comments:	

SEM Photo of sample U2162 A7 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 7

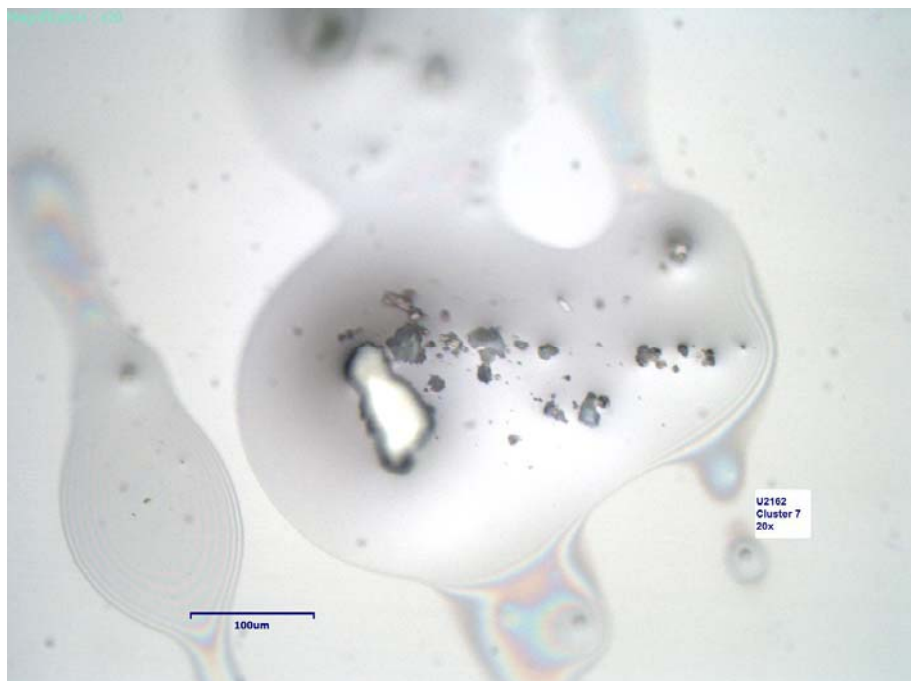


Photo of cluster U2162 Cluster 7.

U2162 A7 - EDS Spectra

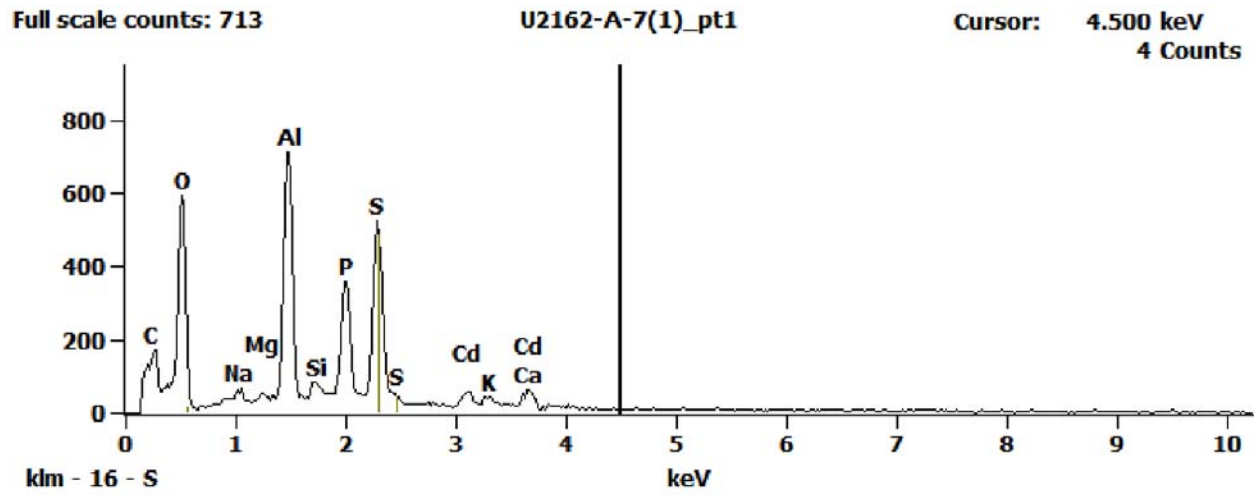


Figure 1. EDS Spectra for sample U2162-A-7 taken at test area 1. The test area is labeled in the particle SEM photo..

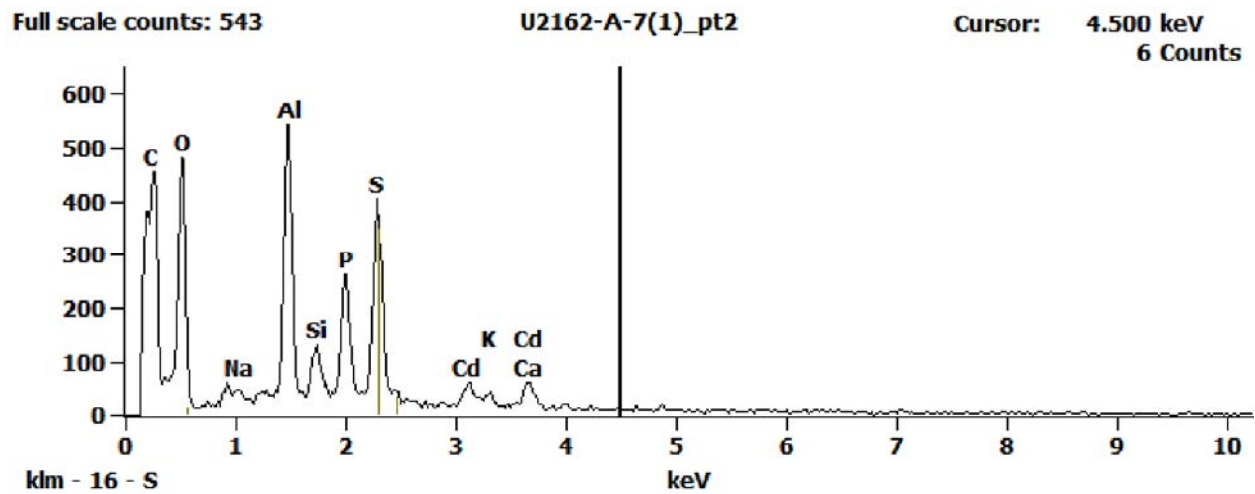


Figure 2. EDS Spectra for sample U2162-A-7 taken at test area 2. The test area is labeled in the particle SEM photo..

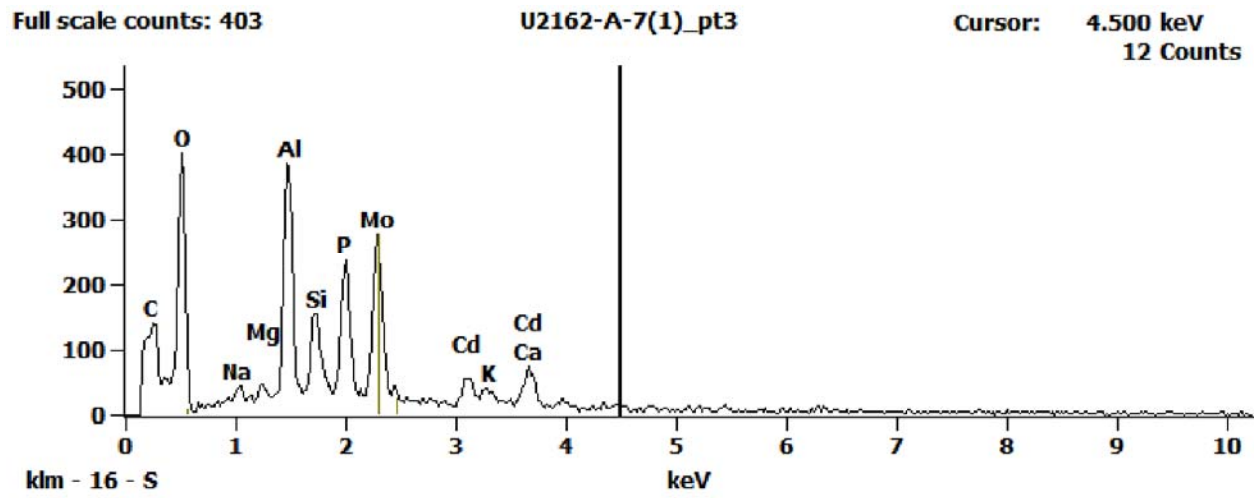
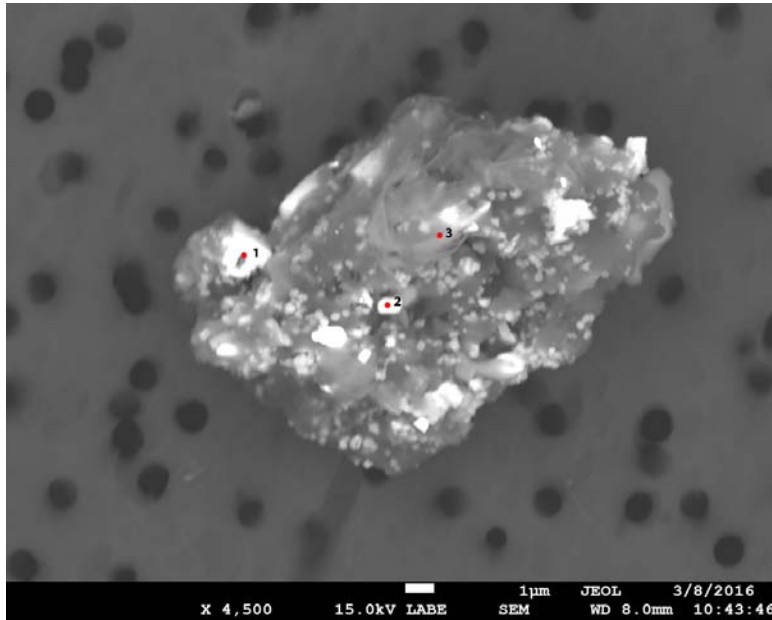


Figure 3. EDS Spectra for sample U2162-A-7 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A15



Particle Size:	22 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Gray
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 15
Comments:	

SEM Photo of sample U2162 A15 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 15



Photo of cluster U2162 Cluster 15.

U2162 A15 - EDS Spectra

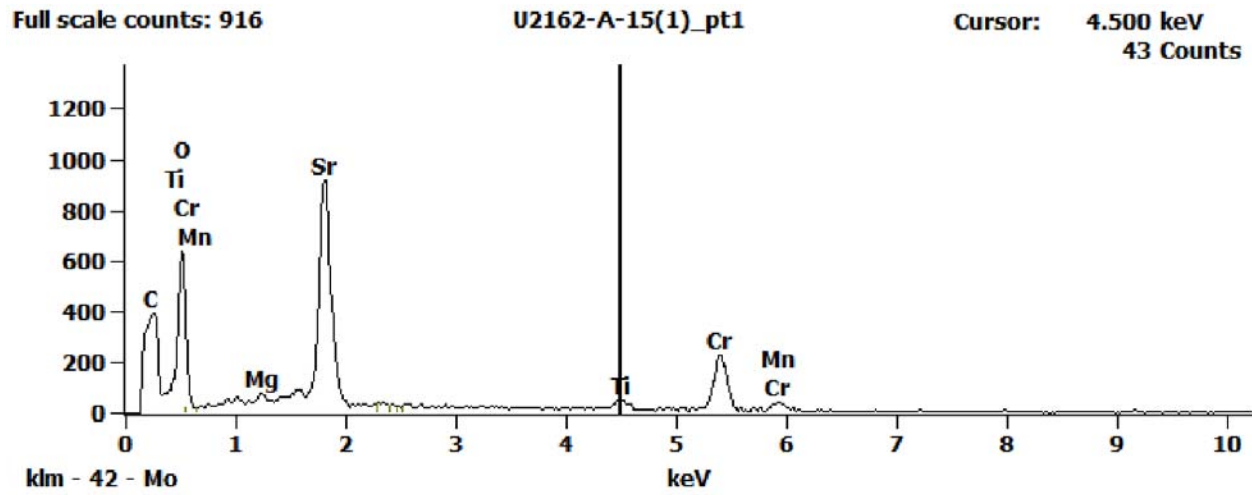


Figure 1. EDS Spectra for sample U2162-A-15 taken at test area 1. The test area is labeled in the particle SEM photo..

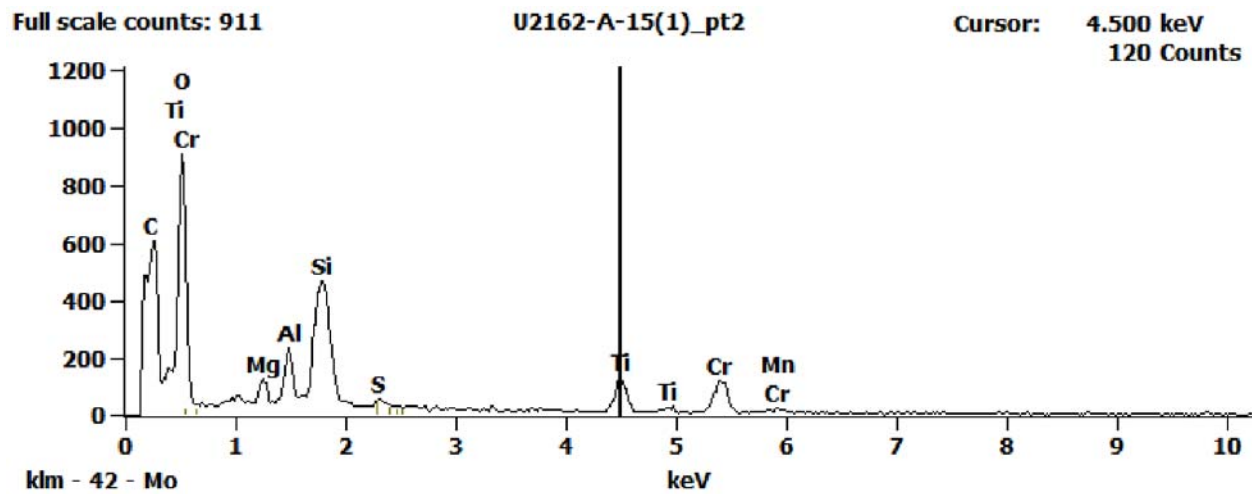


Figure 2. EDS Spectra for sample U2162-A-15 taken at test area 2. The test area is labeled in the particle SEM photo..

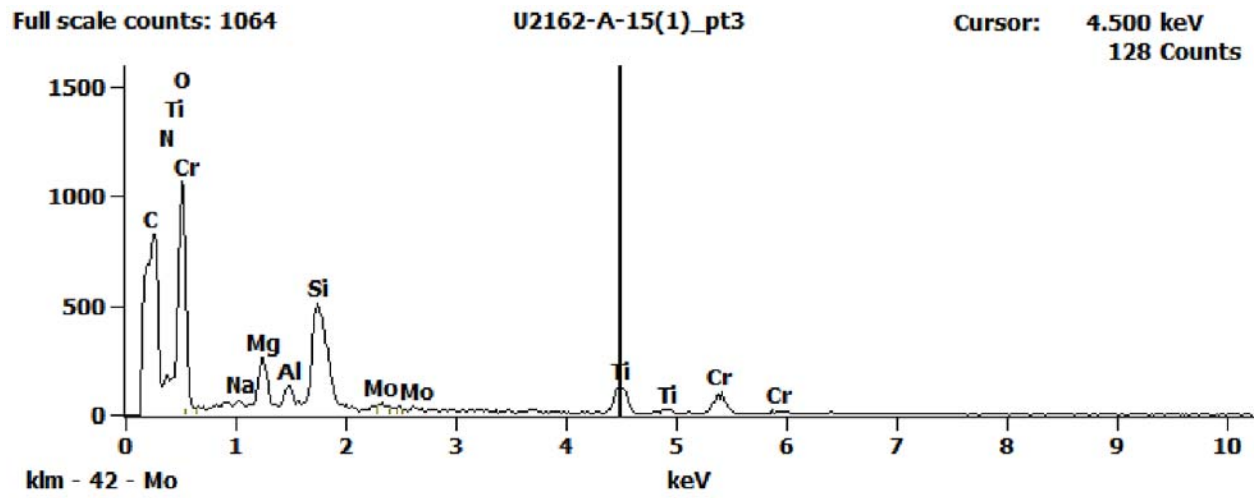
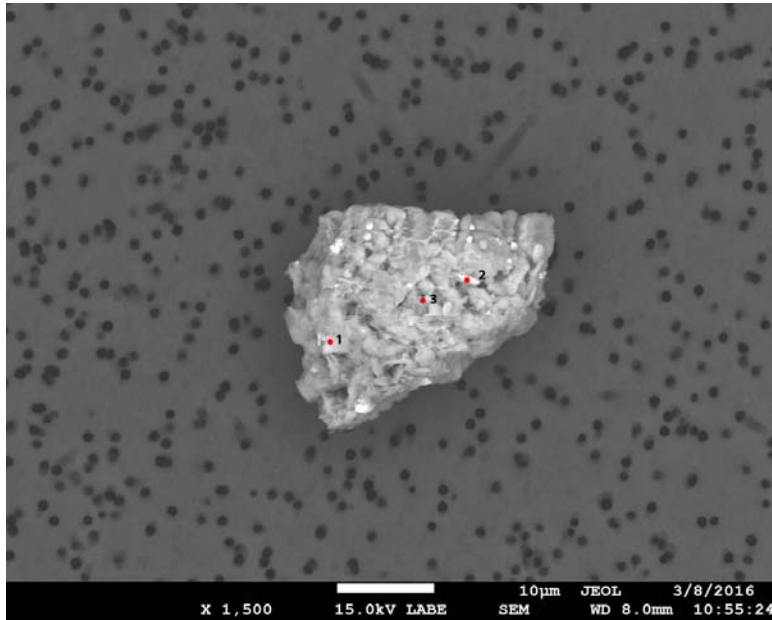


Figure 3. EDS Spectra for sample U2162-A-15 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A16



Particle Size:	35 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque to Translucent
Color:	Gray
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 26
Comments:	

SEM Photo of sample U2162 A16 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 26

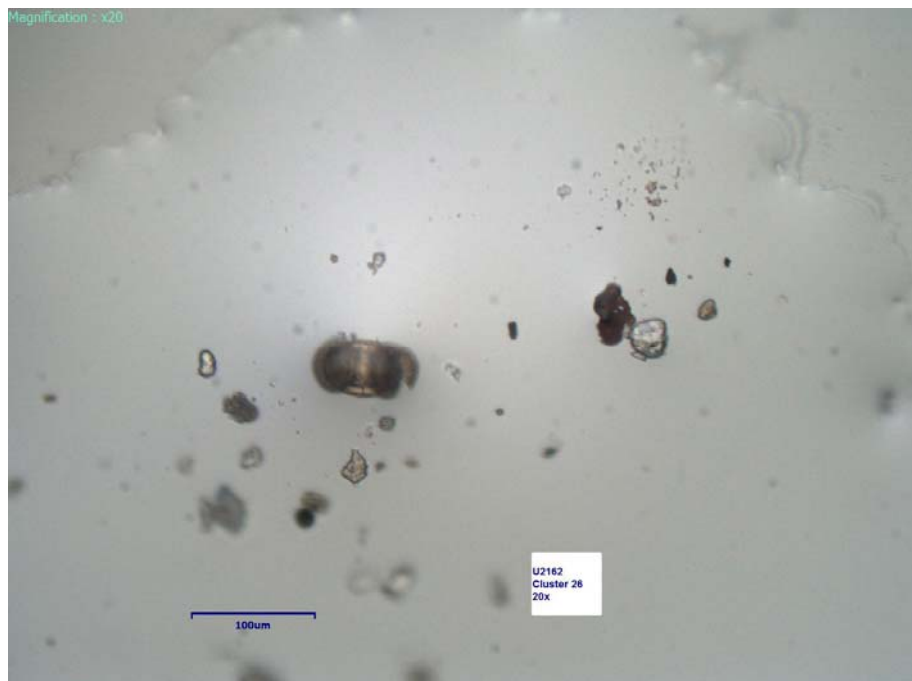


Photo of cluster U2162 Cluster 26.

U2162 A16 - EDS Spectra

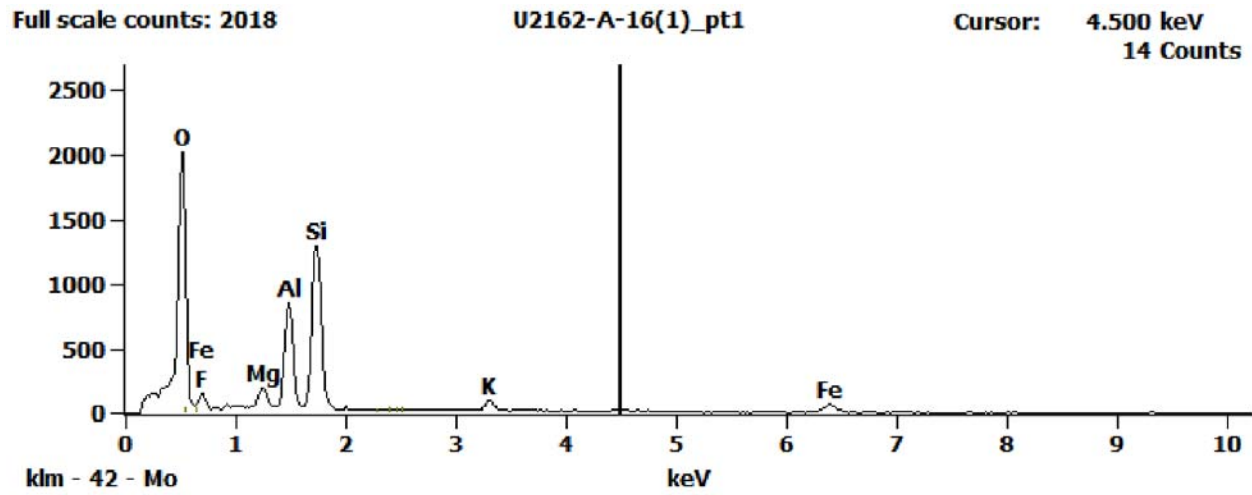


Figure 1. EDS Spectra for sample U2162-A-16 taken at test area 1. The test area is labeled in the particle SEM photo..

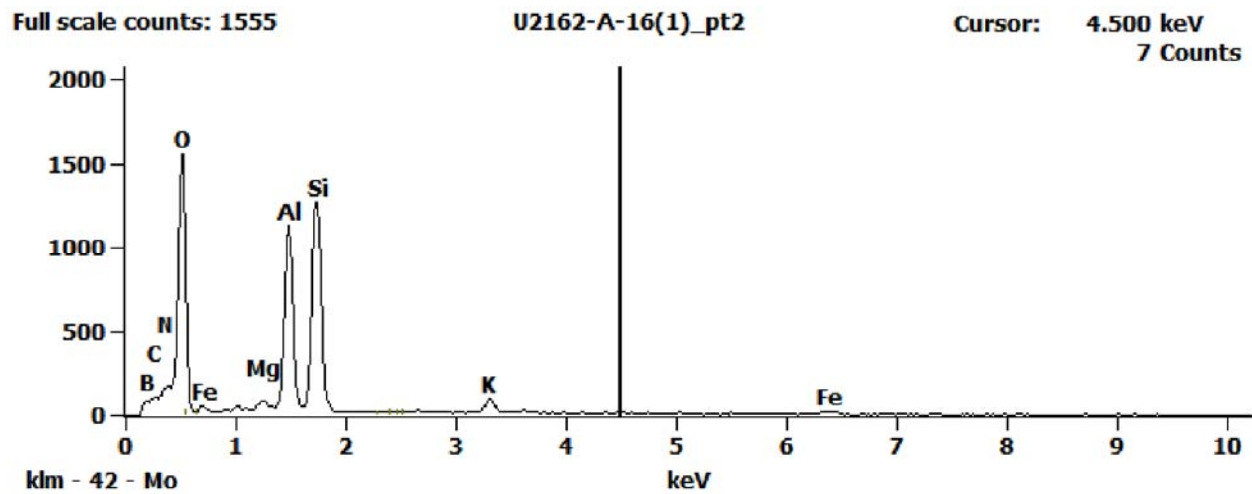


Figure 2. EDS Spectra for sample U2162-A-16 taken at test area 2. The test area is labeled in the particle SEM photo..

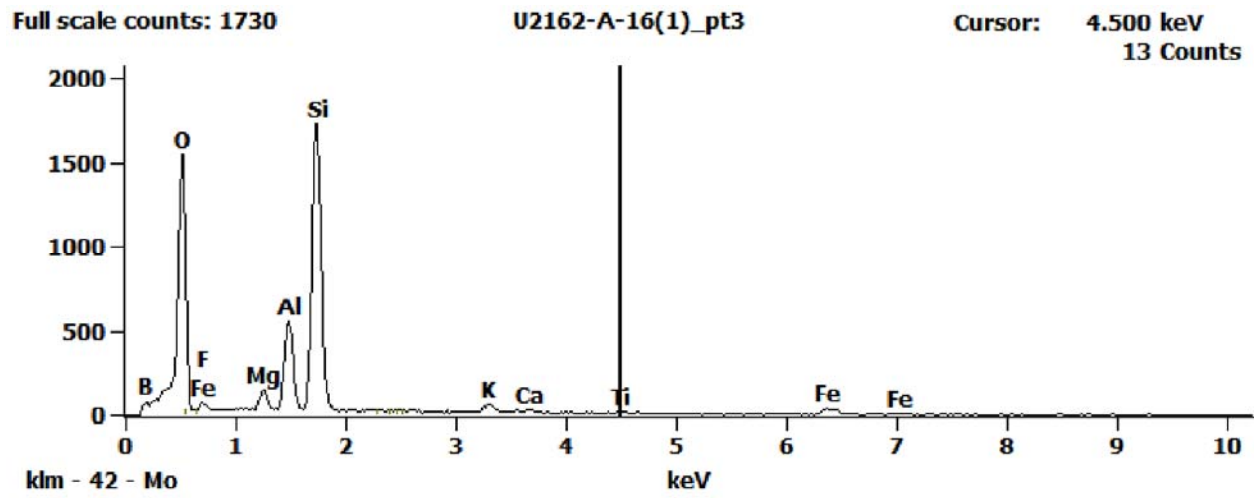
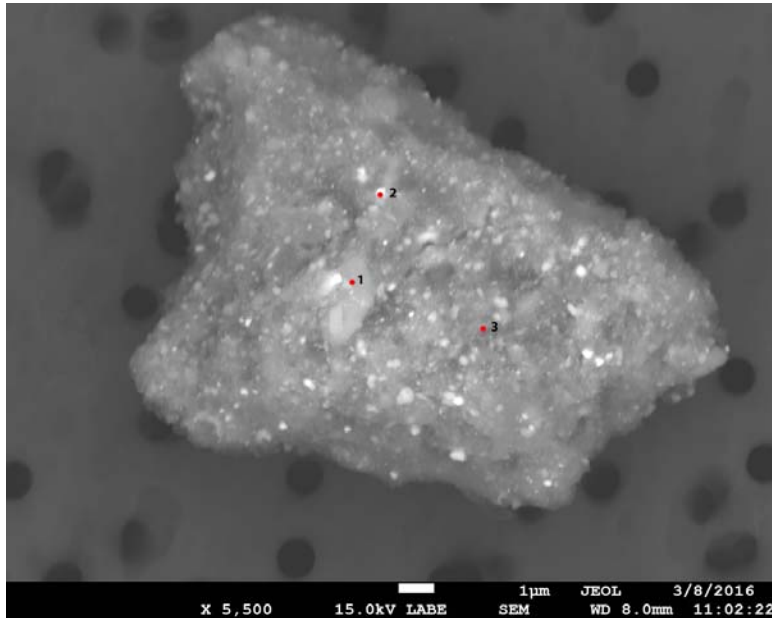


Figure 3. EDS Spectra for sample U2162-A-16 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A17



Particle Size: 23 µm
Shape: Equidimensional to Irregular
Transparency: Opaque
Color: Gray
Luster: Dull
Particle Type: Natural Terrestrial Contamination
Cluster No.: U2162 Cluster 25
Comments:

SEM Photo of sample U2162 A17 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 25

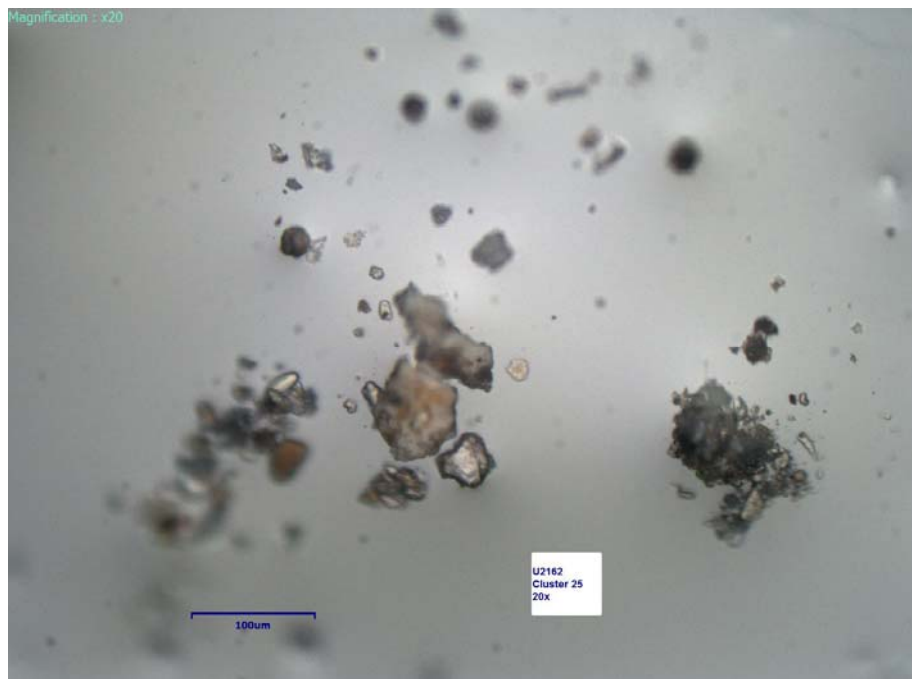


Photo of cluster U2162 Cluster 25.

U2162 A17 - EDS Spectra

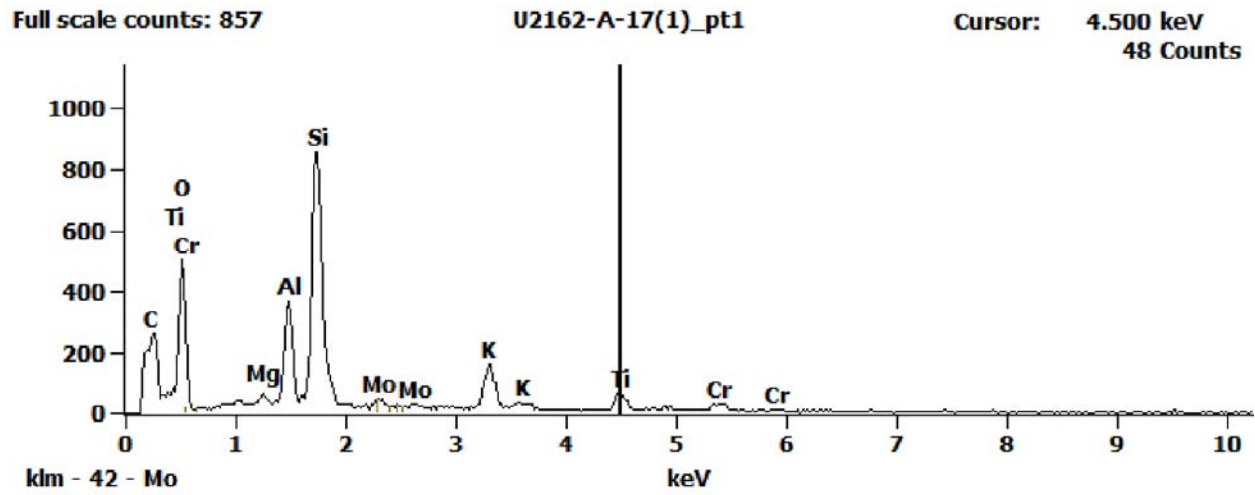


Figure 1. EDS Spectra for sample U2162-A-17 taken at test area 1. The test area is labeled in the particle SEM photo..

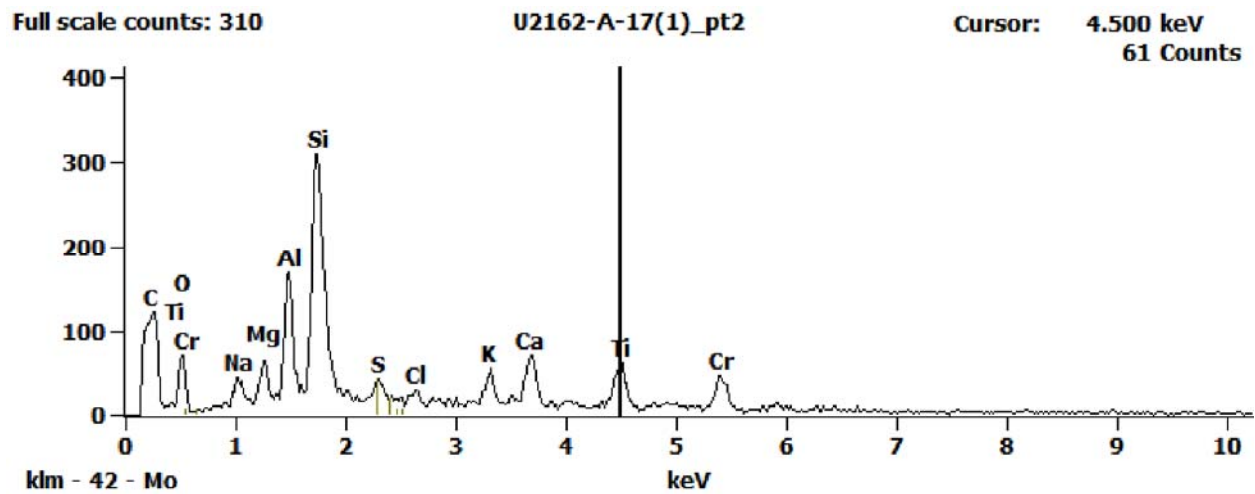


Figure 2. EDS Spectra for sample U2162-A-17 taken at test area 2. The test area is labeled in the particle SEM photo..

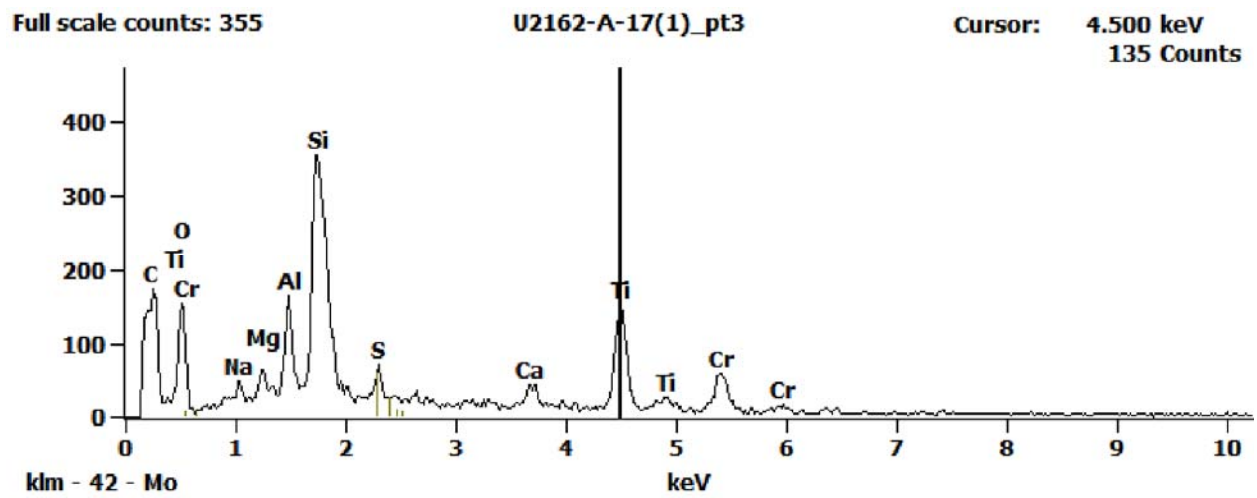
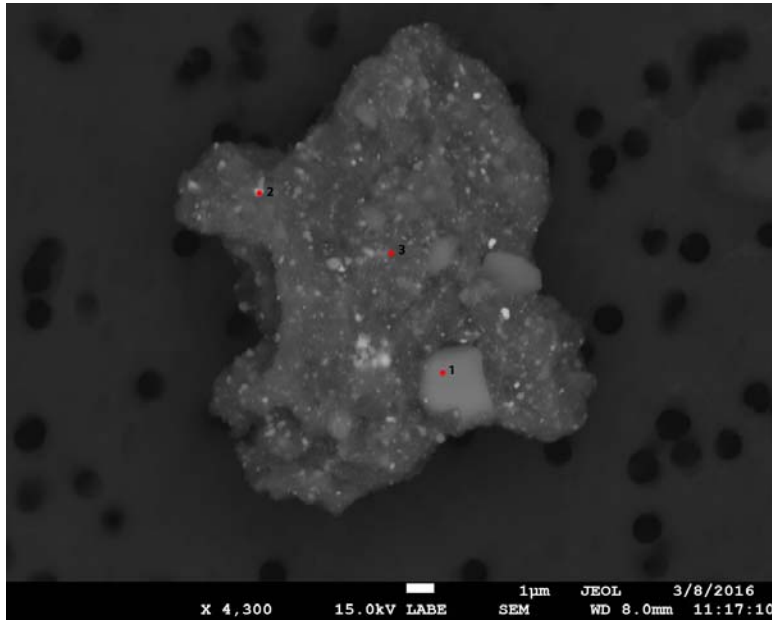


Figure 3. EDS Spectra for sample U2162-A-17 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 A19



Particle Size:	20 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Gray
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 17
Comments:	

SEM Photo of sample U2162 A19 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 17

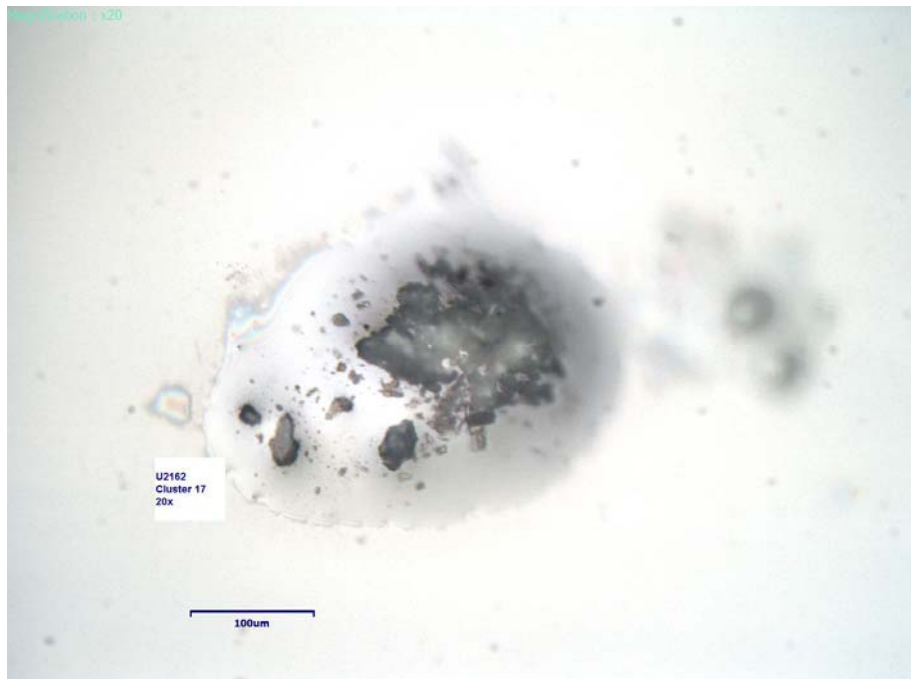


Photo of cluster U2162 Cluster 17.

U2162 A19 - EDS Spectra

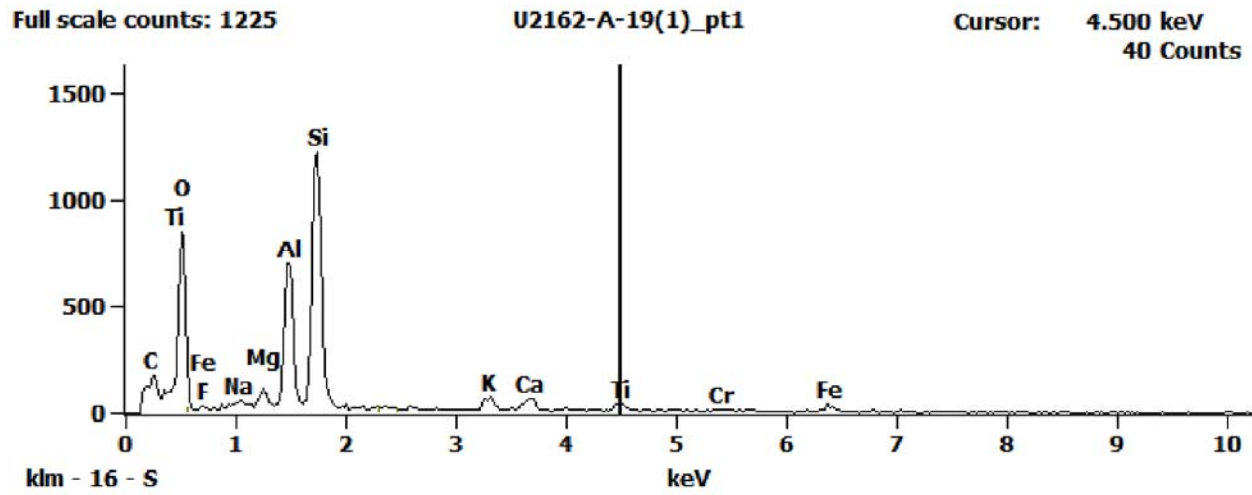


Figure 1. EDS Spectra for sample U2162-A-19 taken at test area 1. The test area is labeled in the particle SEM photo..

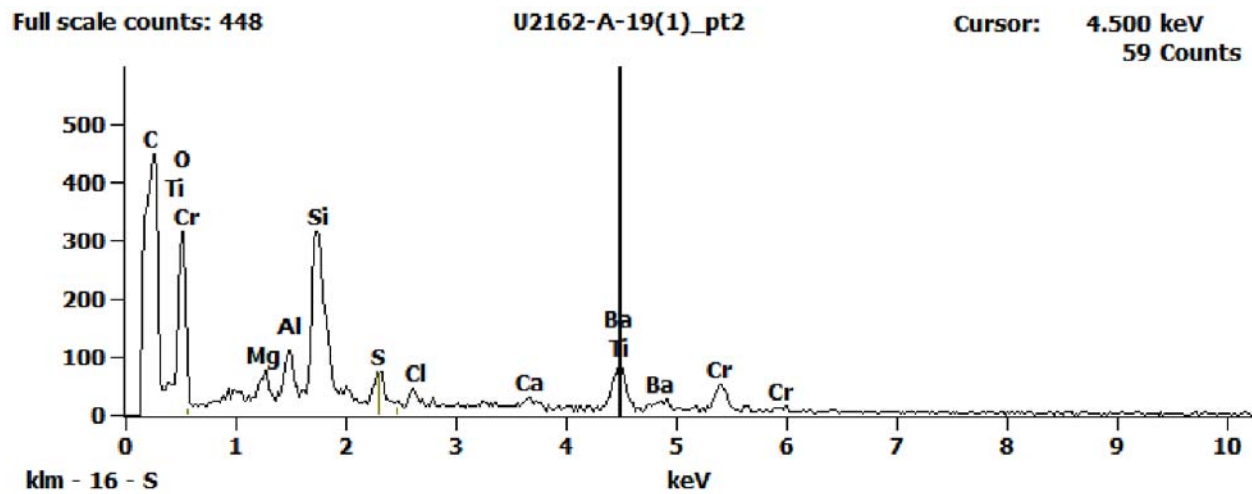


Figure 2. EDS Spectra for sample U2162-A-19 taken at test area 2. The test area is labeled in the particle SEM photo..

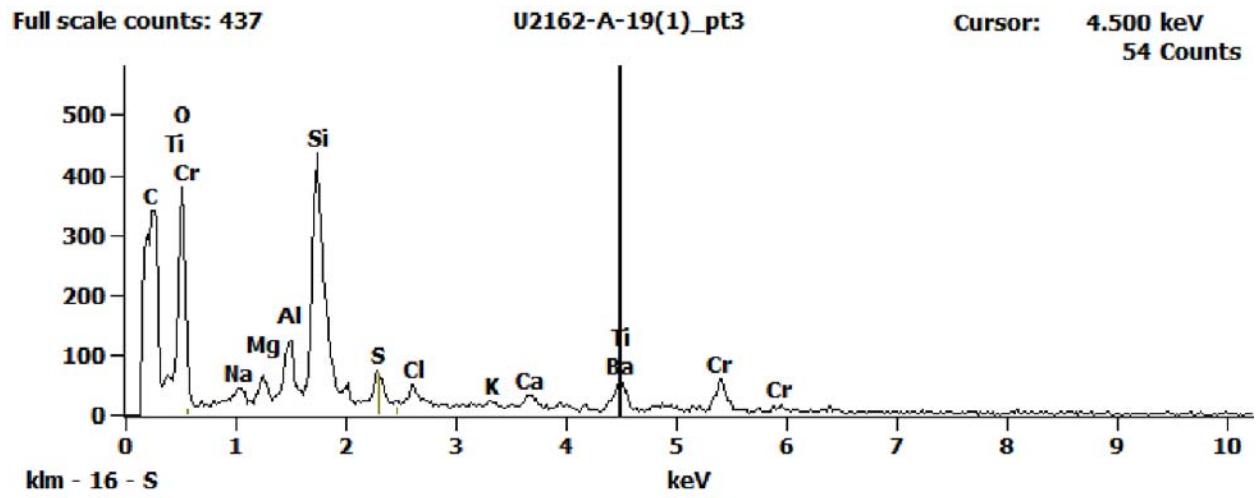
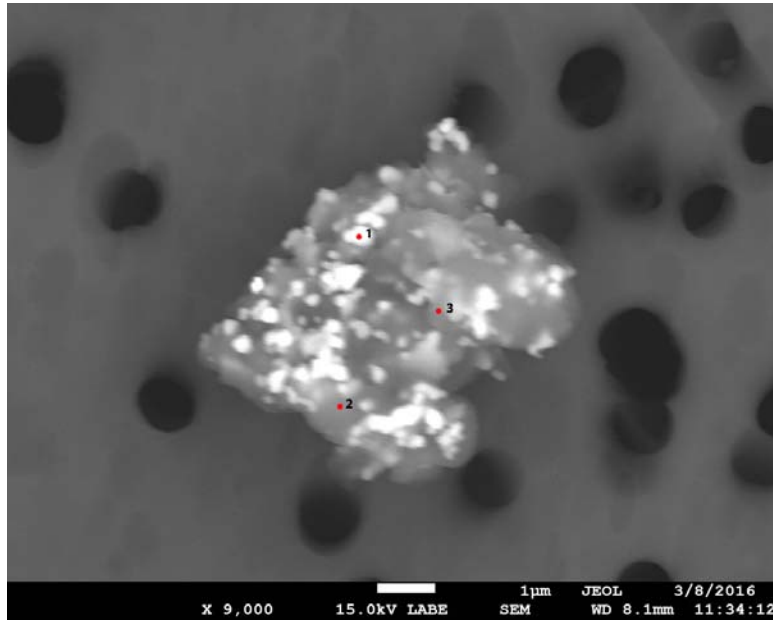


Figure 3. EDS Spectra for sample U2162-A-19 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B1



SEM Photo of sample U2162 B1 with labeled EDS testing locations.

Particle Size:	7 µm
Shape:	Equidimensional to Spherical
Transparency:	Translucent to Opaque
Color:	Gray
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 18
Comments:	

Cluster of Origin: U2162 Cluster 18



Photo of cluster U2162 Cluster 18.

U2162 B1 - EDS Spectra

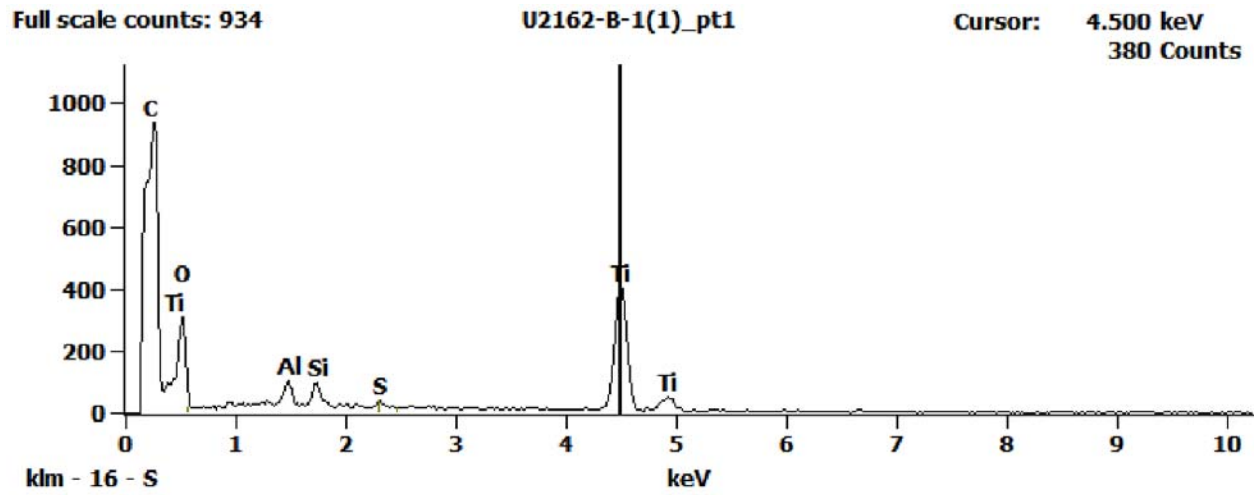


Figure 1. EDS Spectra for sample U2162-B-1 taken at test area 1. The test area is labeled in the particle SEM photo..

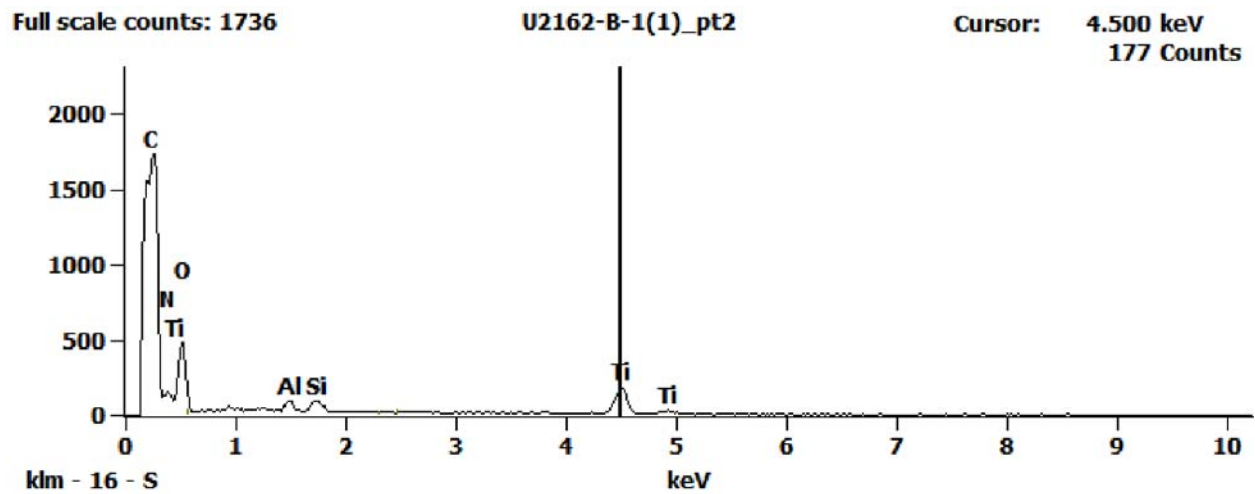


Figure 2. EDS Spectra for sample U2162-B-1 taken at test area 2. The test area is labeled in the particle SEM photo..

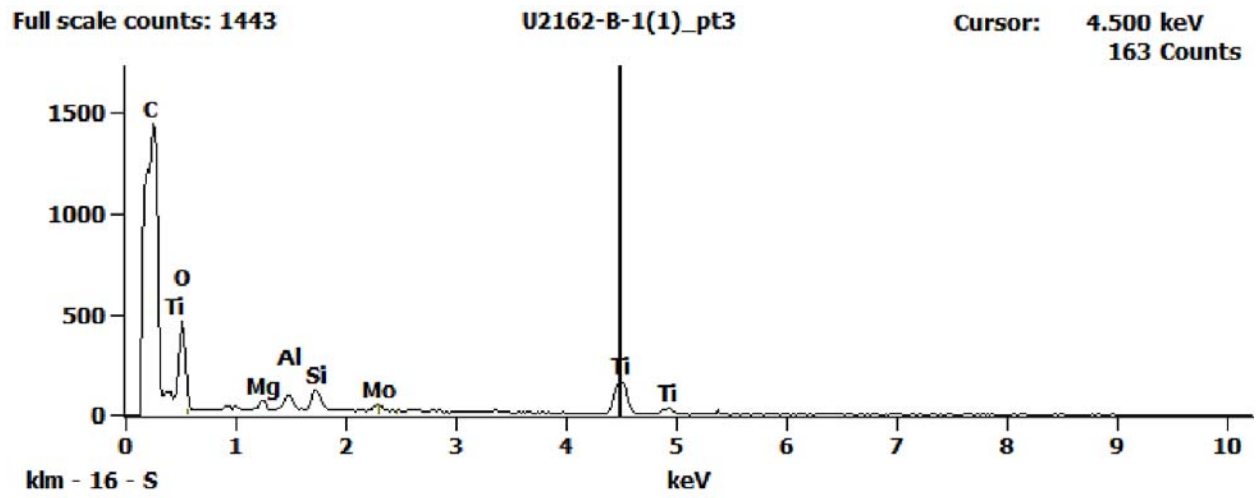
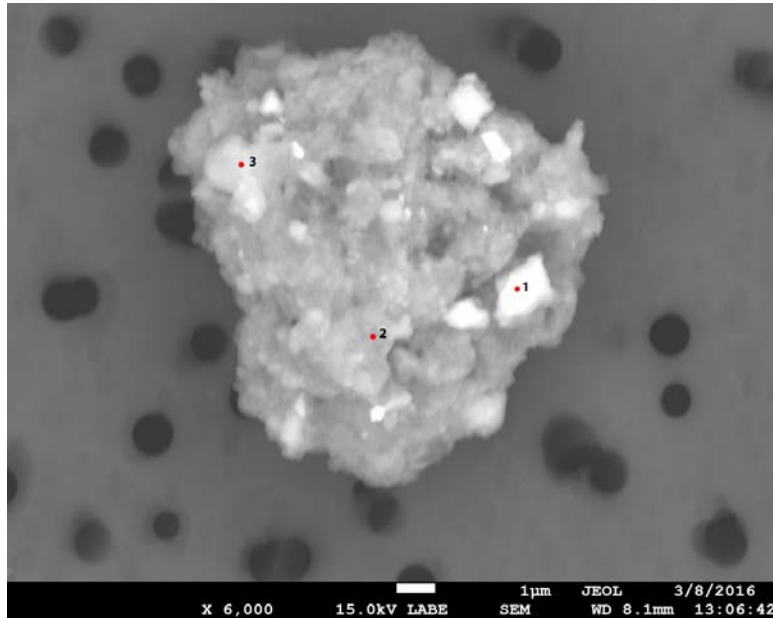


Figure 3. EDS Spectra for sample U2162-B-1 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B6



Particle Size:	13 µm
Shape:	Equidimensional to Spherical
Transparency:	Opaque
Color:	Black
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 23
Comments:	

SEM Photo of sample U2162 B6 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 23

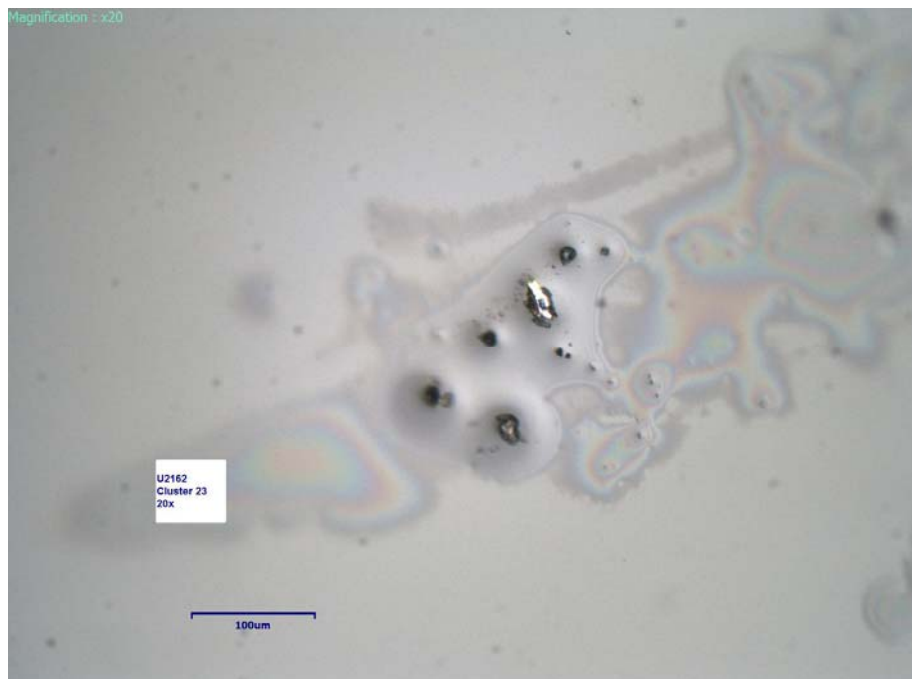


Photo of cluster U2162 Cluster 23.

U2162 B6 - EDS Spectra

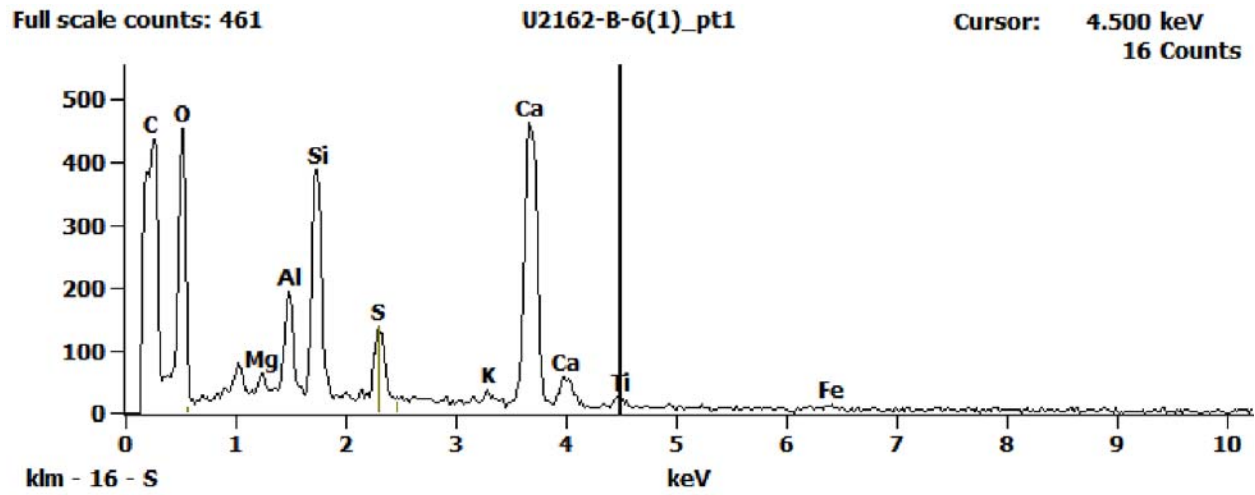


Figure 1. EDS Spectra for sample U2162-B-6 taken at test area 1. The test area is labeled in the particle SEM photo..

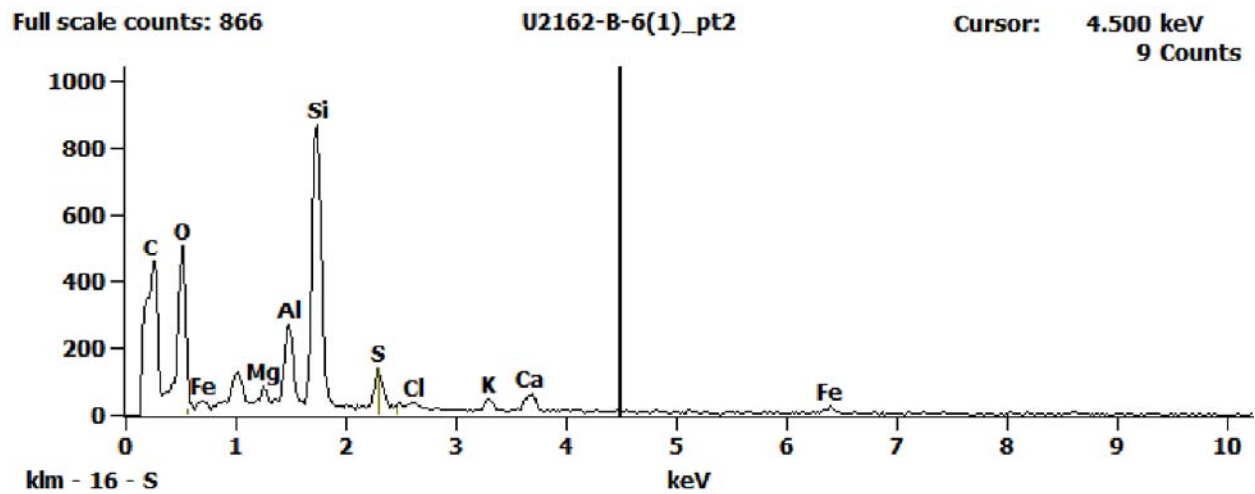


Figure 2. EDS Spectra for sample U2162-B-6 taken at test area 2. The test area is labeled in the particle SEM photo..

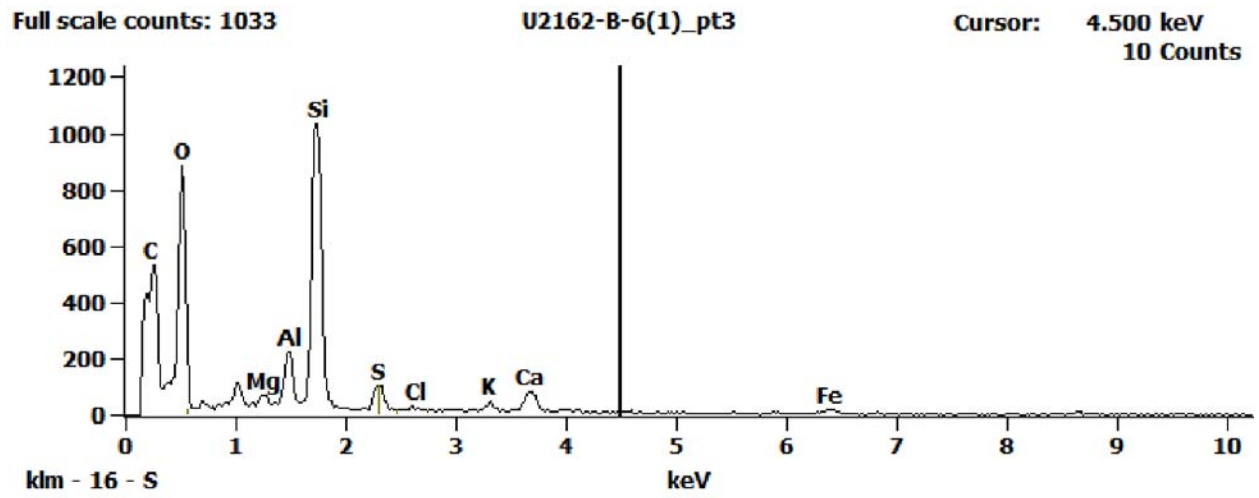
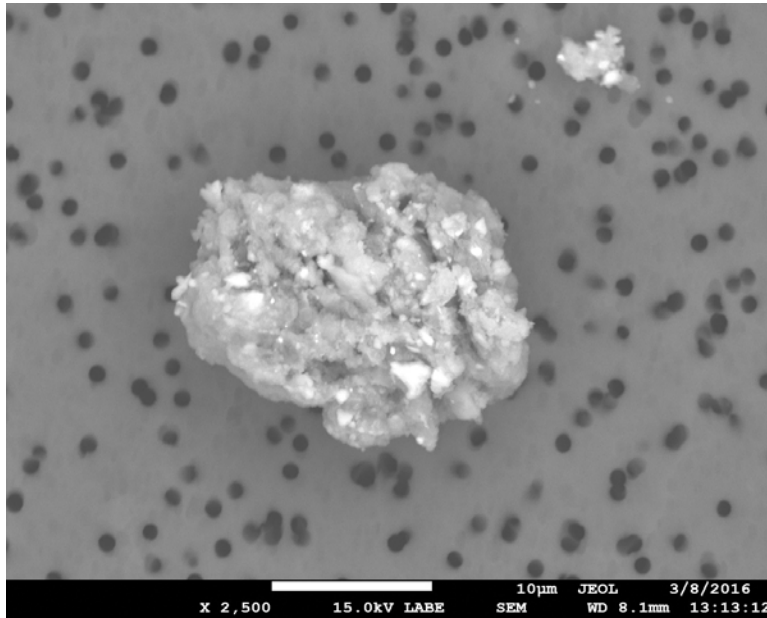


Figure 3. EDS Spectra for sample U2162-B-6 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B8



Particle Size: 20 μm
Shape: Equidimensional
Transparency: Opaque
Color: Black, Gray
Luster: Dull
Particle Type: Natural
Terrestrial
Contamination
Cluster No.: U2162 Cluster
27
Comments:

SEM Photo of sample U2162 B8 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 27



Photo of cluster U2162 Cluster 27.

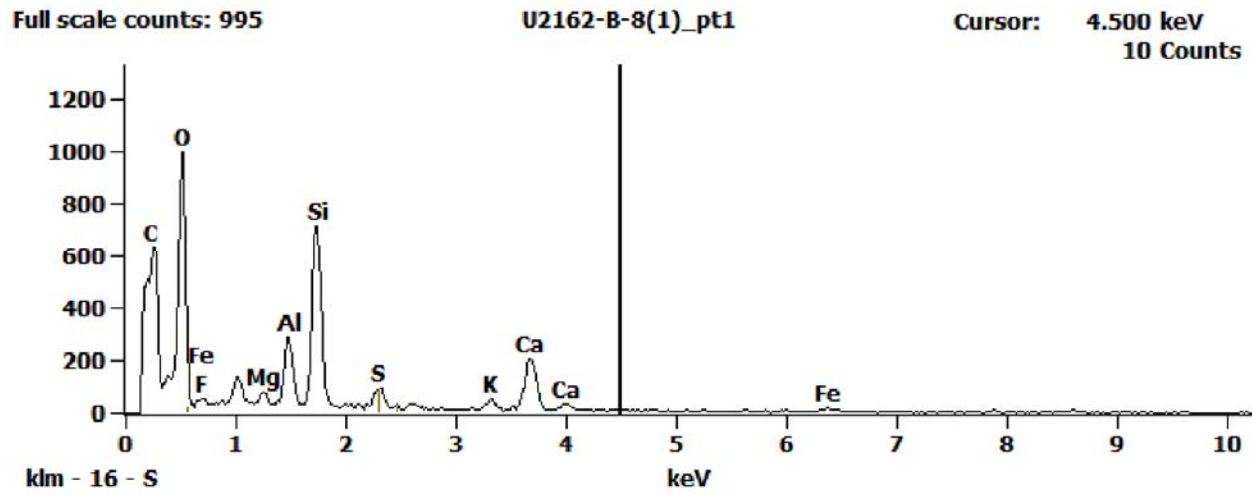
U2162 B8 - EDS Spectra

Figure 1. EDS Spectra for sample U2162-B-8 taken at test area 1. The test area is labeled in the particle SEM photo..

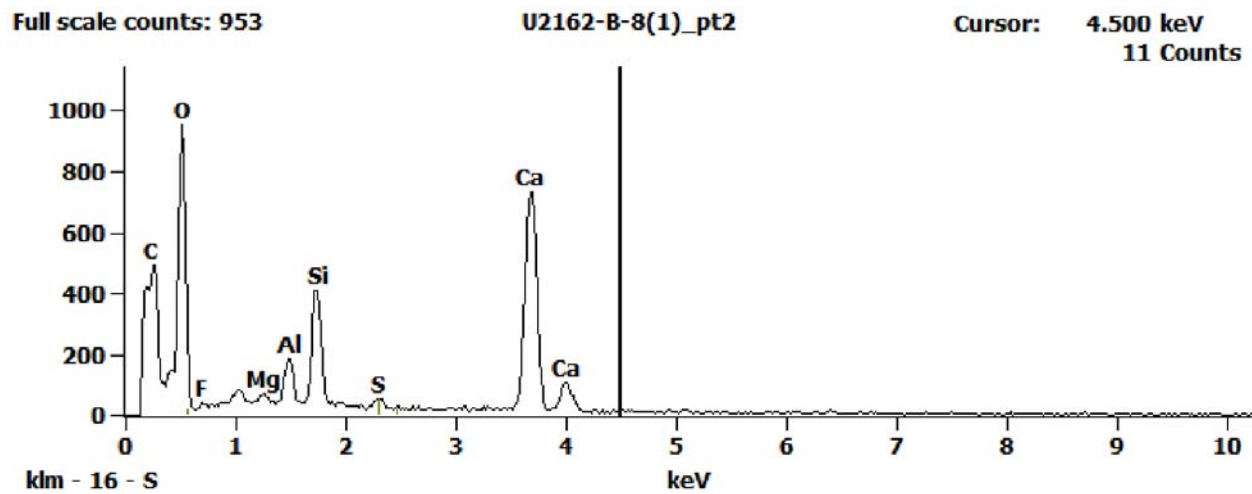


Figure 2. EDS Spectra for sample U2162-B-8 taken at test area 2. The test area is labeled in the particle SEM photo..

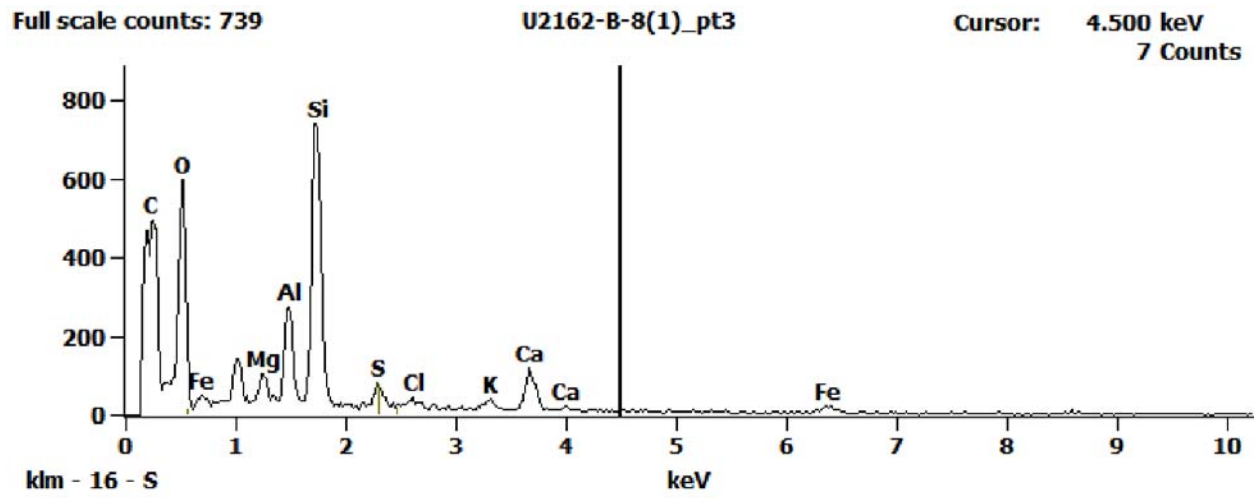
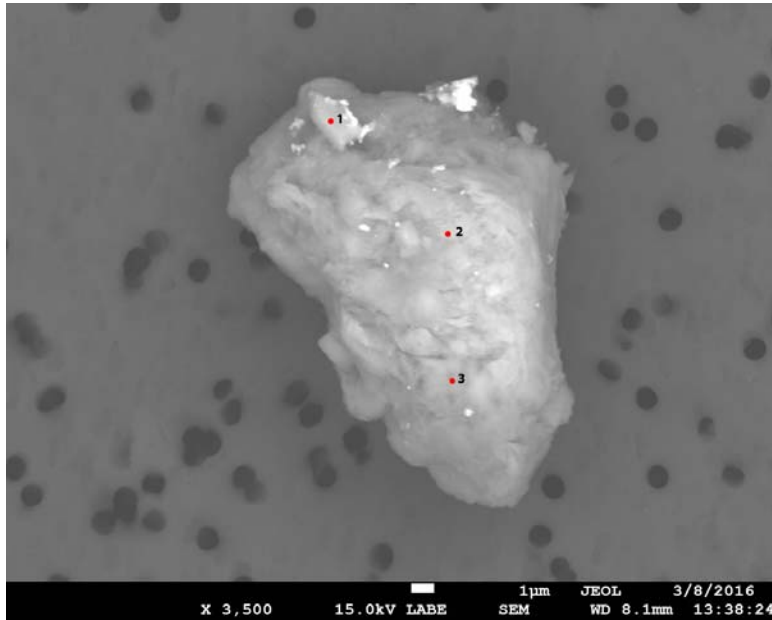


Figure 3. EDS Spectra for sample U2162-B-8 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B9



Particle Size: 17 µm
Shape: Irregular
Transparency: Opaque to Translucent
Color: Brown
Luster: Pearly to Subvitreous
Particle Type: Natural Terrestrial Contamination
Cluster No.: U2162 Cluster 28
Comments:

SEM Photo of sample U2162 B9 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 28



Photo of cluster U2162 Cluster 28.

U2162 B9 - EDS Spectra

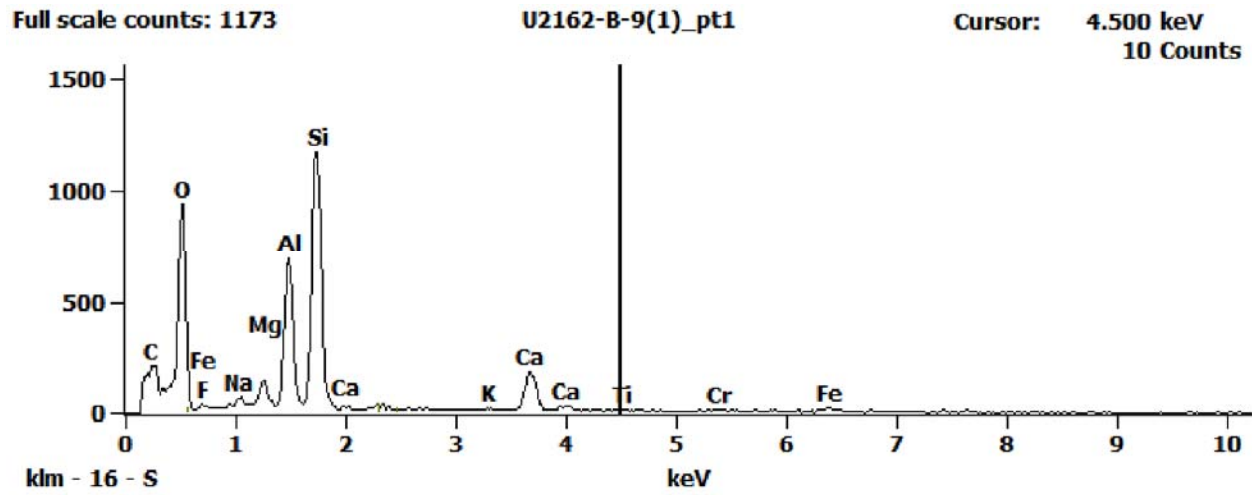


Figure 1. EDS Spectra for sample U2162-B-9 taken at test area 1. The test area is labeled in the particle SEM photo..

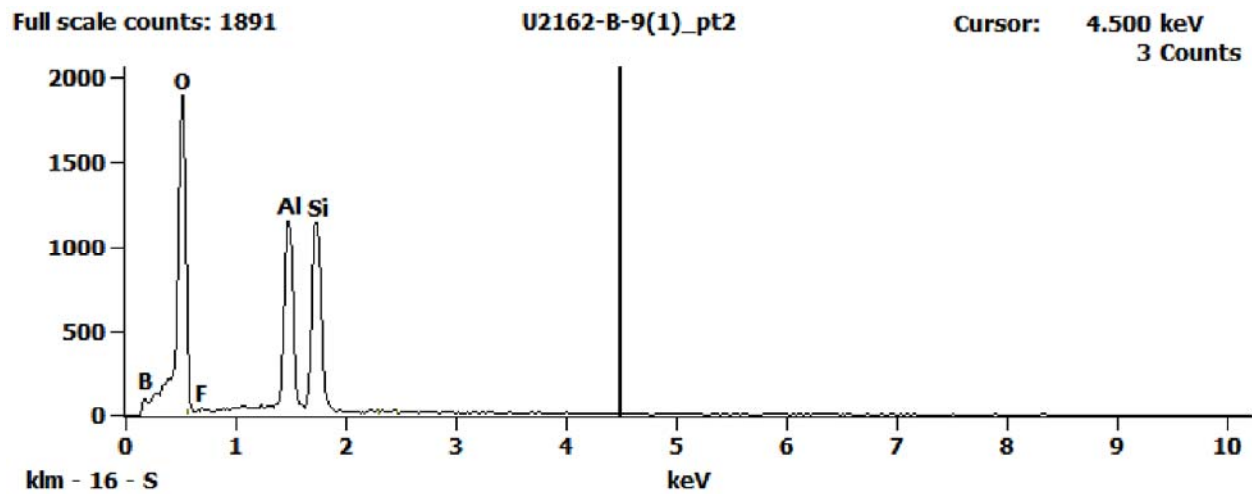


Figure 2. EDS Spectra for sample U2162-B-9 taken at test area 2. The test area is labeled in the particle SEM photo..

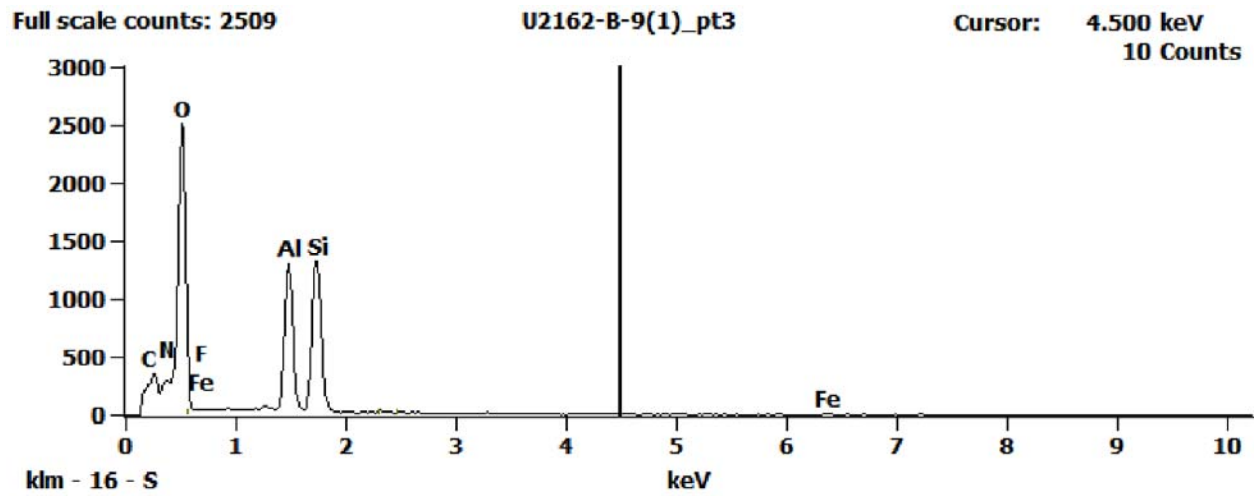
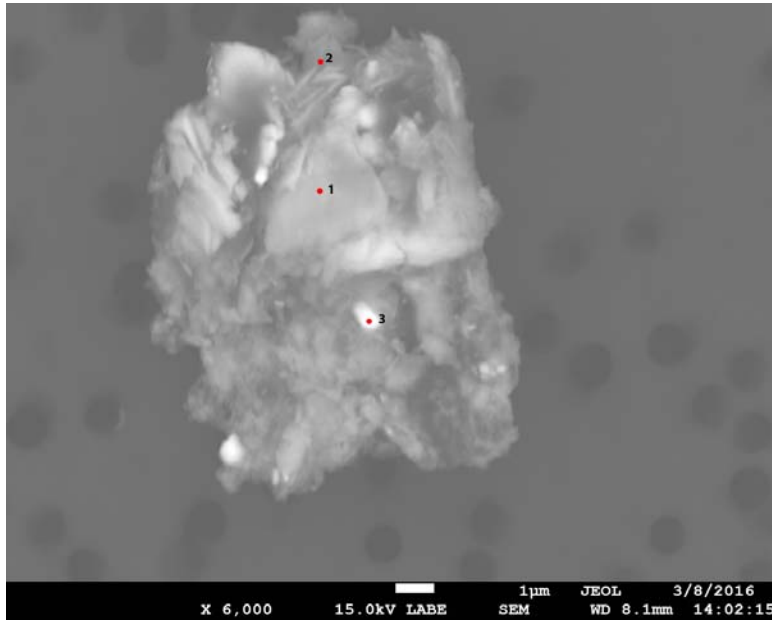


Figure 3. EDS Spectra for sample U2162-B-9 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B12



SEM Photo of sample U2162 B12 with labeled EDS testing locations.

Particle Size:	10x6 μm
Shape:	Equidimensional to Spherical
Transparency:	Opaque
Color:	Black
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 31
Comments:	

Cluster of Origin: U2162 Cluster 31



Photo of cluster U2162 Cluster 31.

U2162 B12 - EDS Spectra

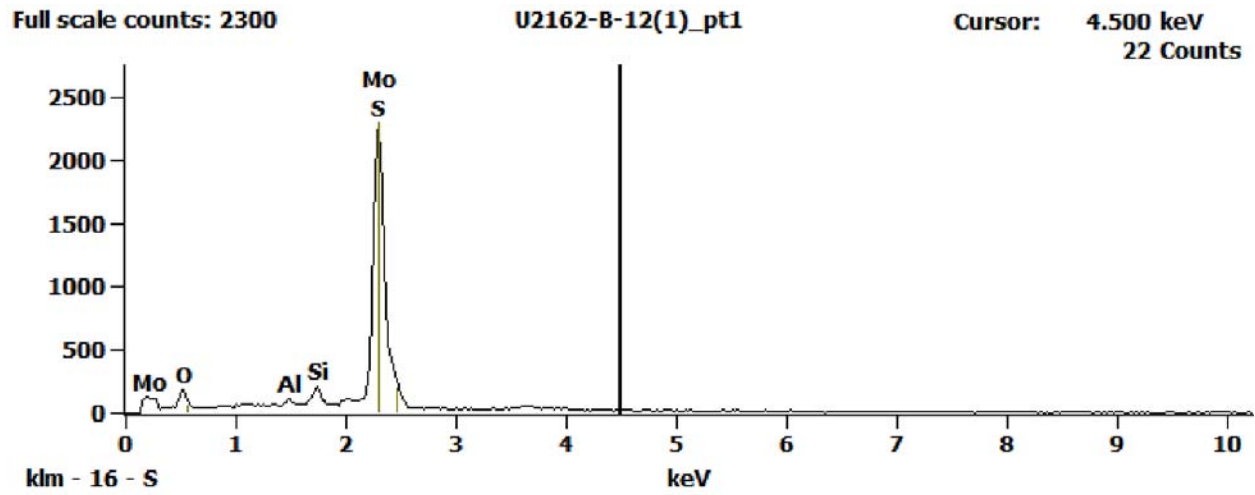


Figure 1. EDS Spectra for sample U2162-B-12 taken at test area 1. The test area is labeled in the particle SEM photo..

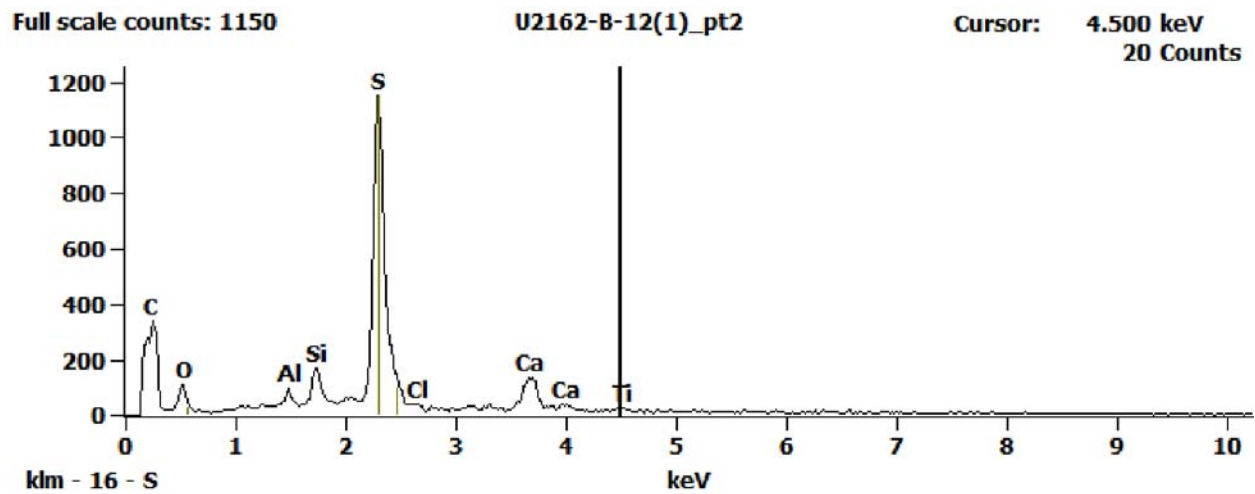


Figure 2. EDS Spectra for sample U2162-B-12 taken at test area 2. The test area is labeled in the particle SEM photo..

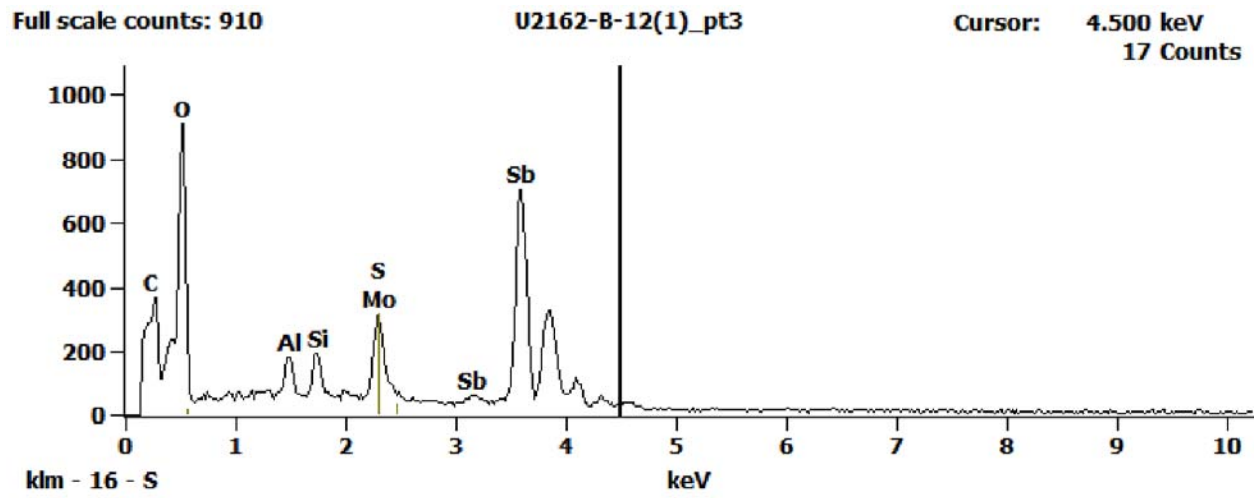
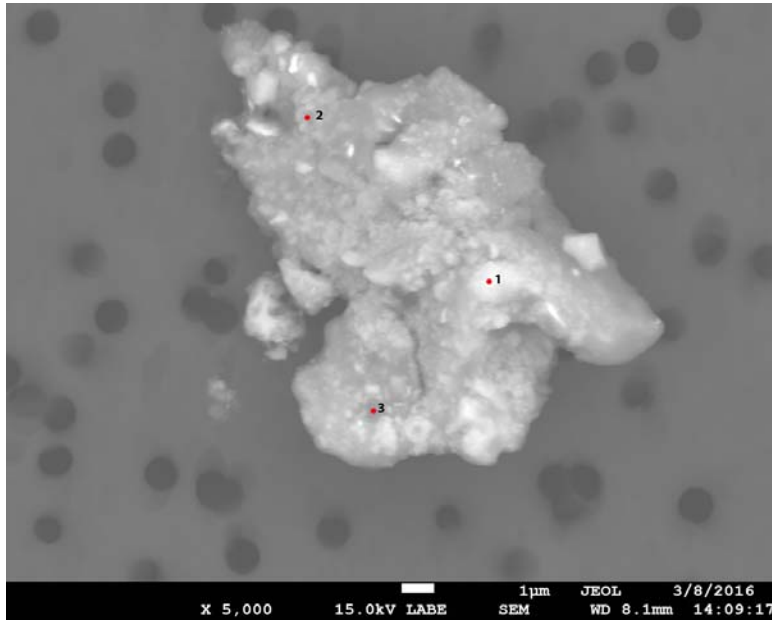


Figure 3. EDS Spectra for sample U2162-B-12 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B13



Particle Size: 16x10 µm
Shape: Irregular
Transparency: Opaque
Color: Black
Luster: Dull
Particle Type: Natural
Terrestrial
Contamination
Cluster No.: U2162 Cluster
32
Comments:

SEM Photo of sample U2162 B13 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 32



Photo of cluster U2162 Cluster 32.

U2162 B13 - EDS Spectra

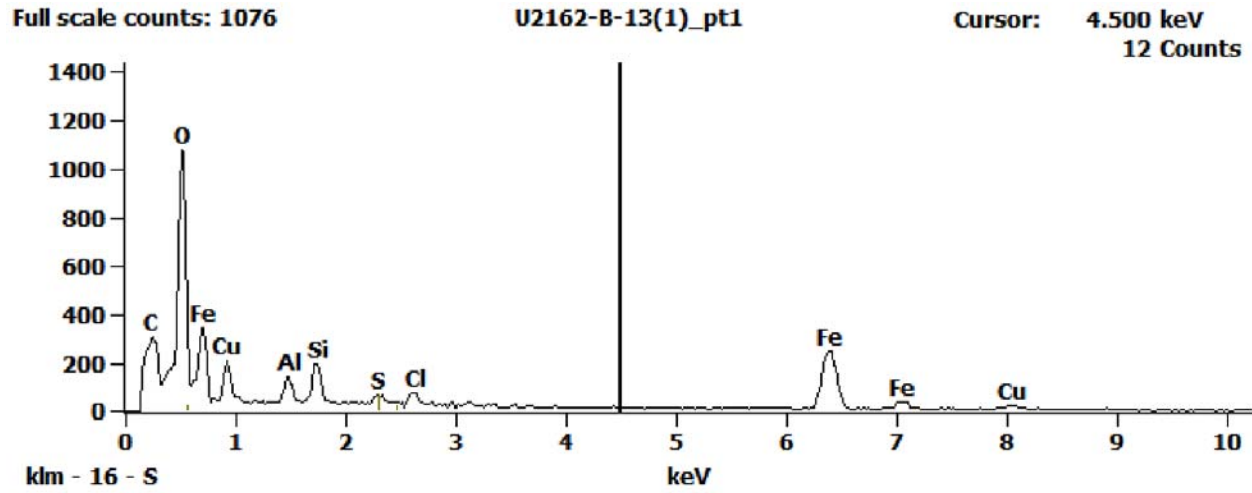


Figure 1. EDS Spectra for sample U2162-B-13 taken at test area 1. The test area is labeled in the particle SEM photo..

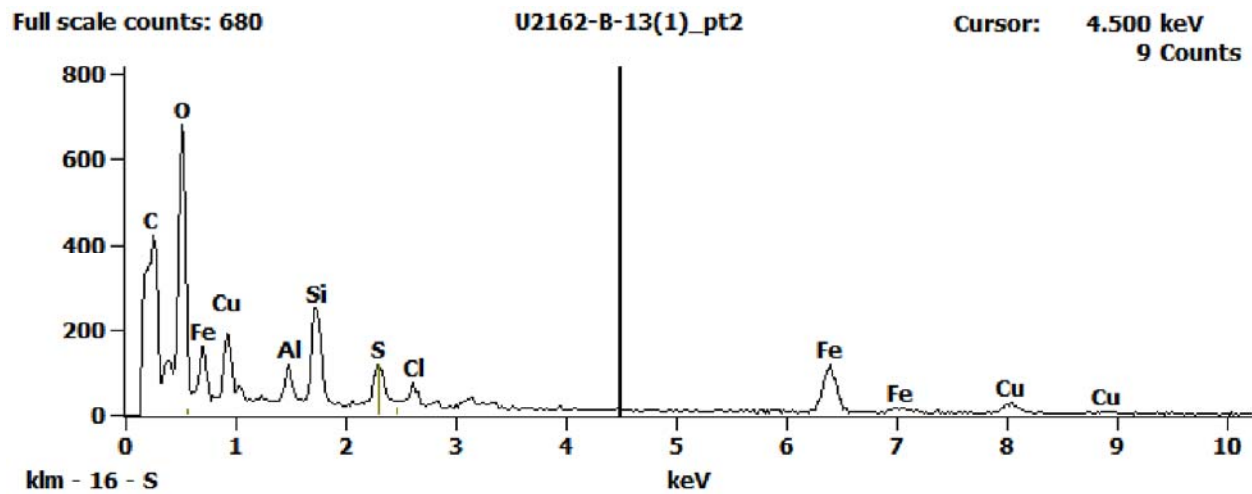


Figure 2. EDS Spectra for sample U2162-B-13 taken at test area 2. The test area is labeled in the particle SEM photo..

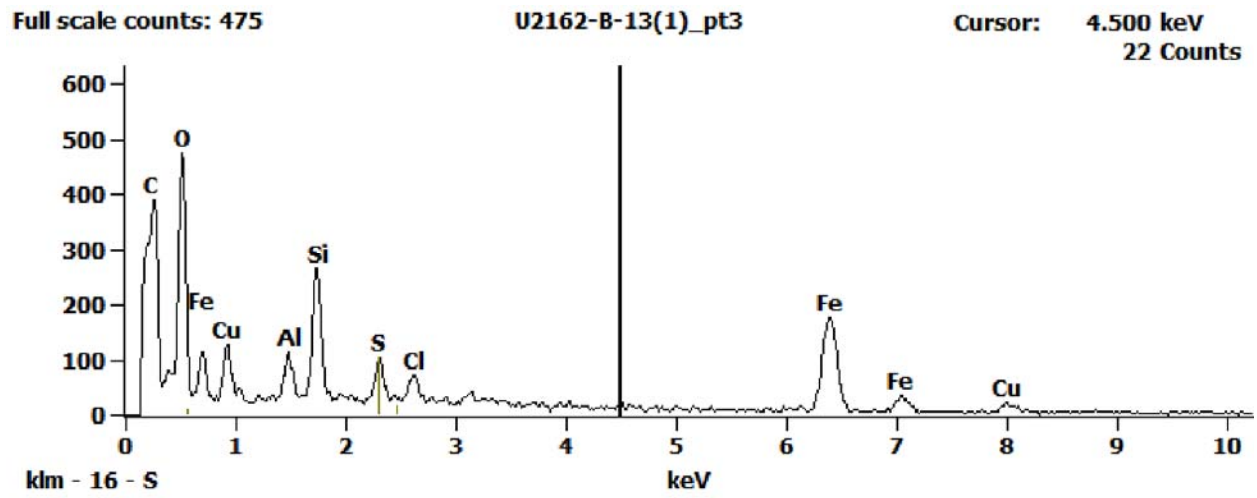
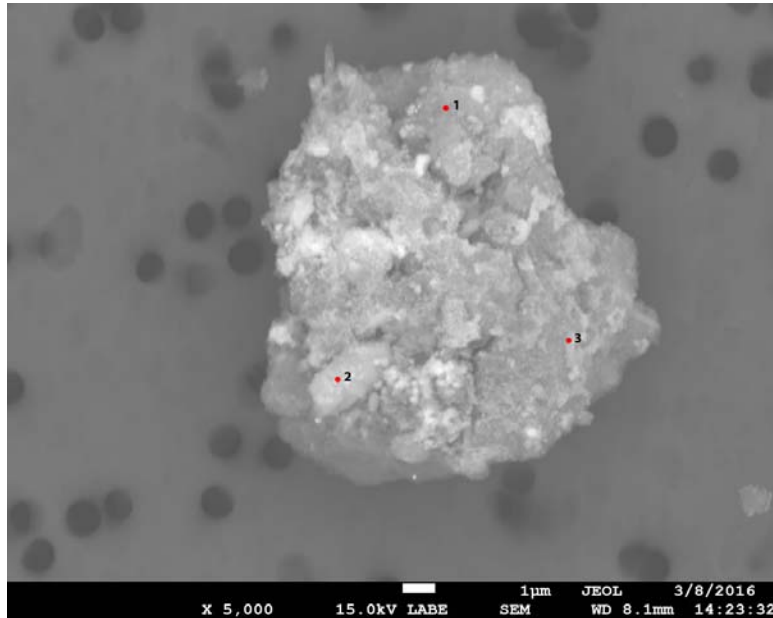


Figure 3. EDS Spectra for sample U2162-B-13 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B15



Particle Size:	10x12 µm
Shape:	Irregular to Equidimensional
Transparency:	Opaque to Transparent
Color:	Black, Brown, Green
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 34
Comments:	

SEM Photo of sample U2162 B15 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 34

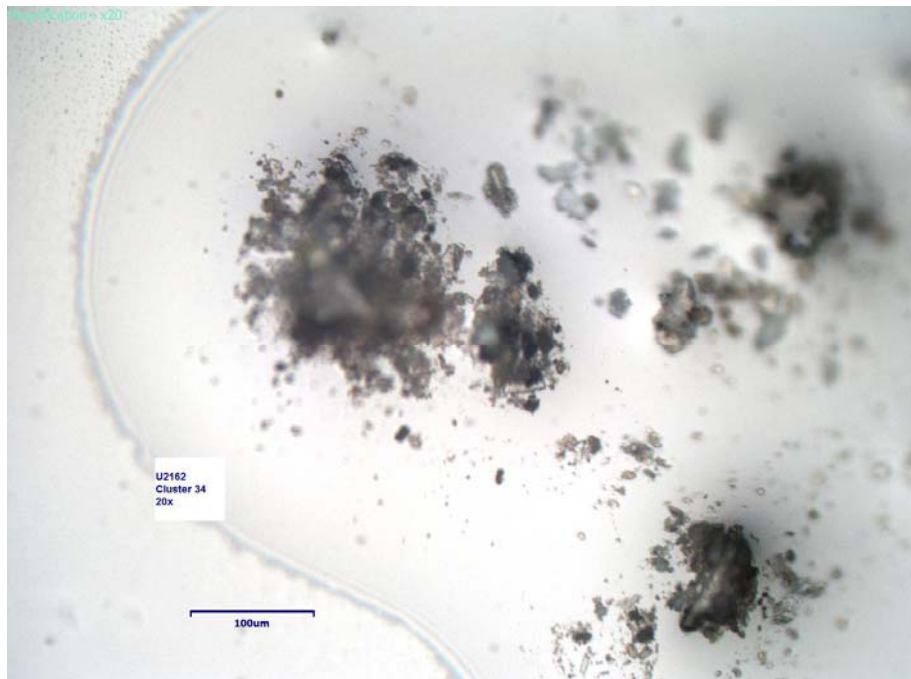


Photo of cluster U2162 Cluster 34.

U2162 B15 - EDS Spectra

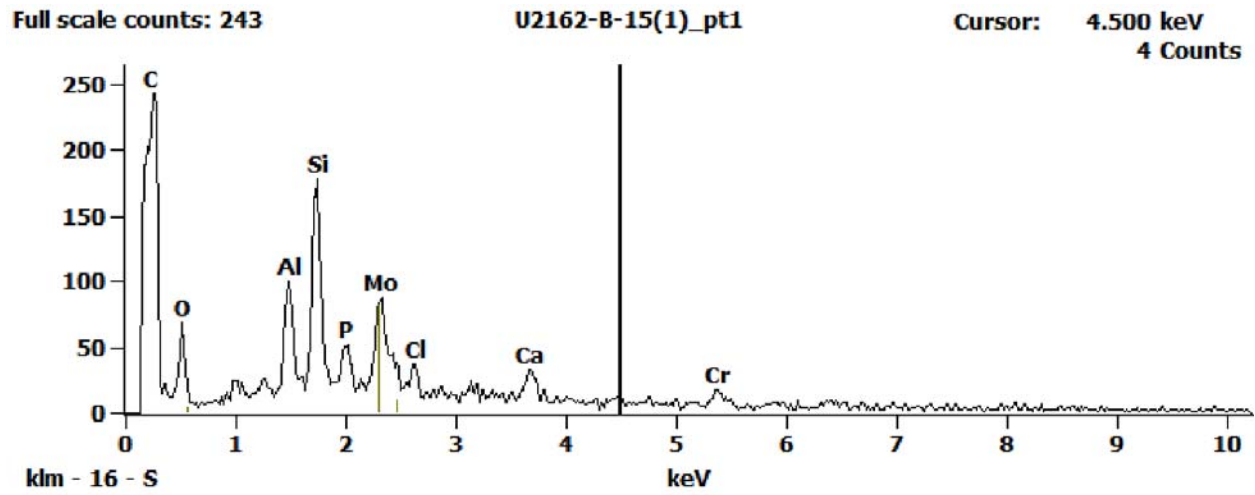


Figure 1. EDS Spectra for sample U2162-B-15 taken at test area 1. The test area is labeled in the particle SEM photo..

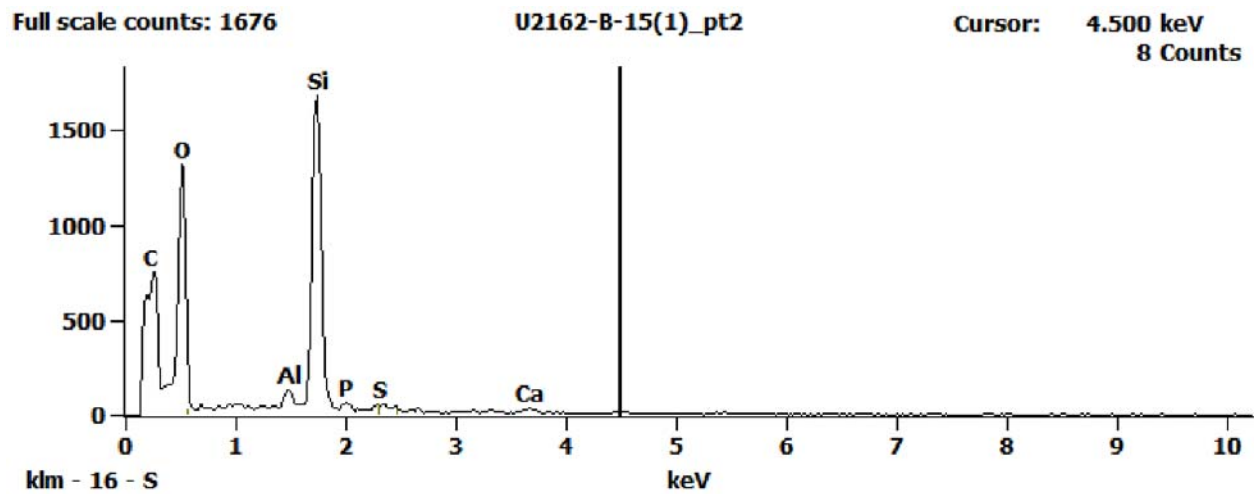


Figure 2. EDS Spectra for sample U2162-B-15 taken at test area 2. The test area is labeled in the particle SEM photo..

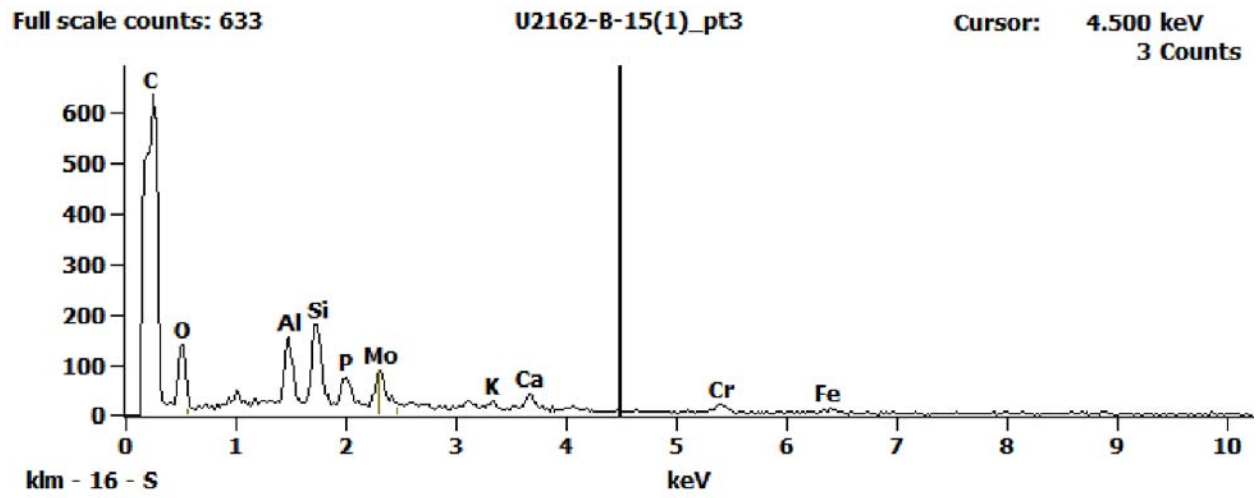
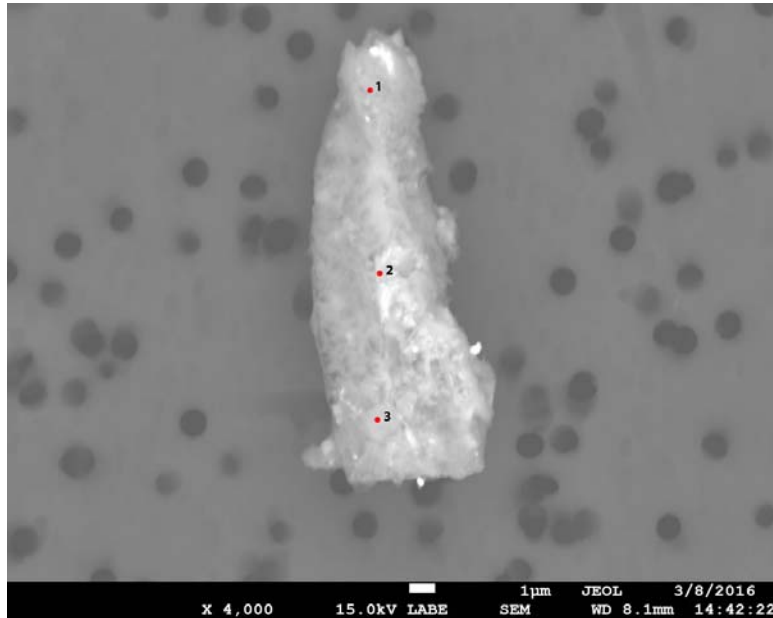


Figure 3. EDS Spectra for sample U2162-B-15 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 B18



Particle Size:	11x18 µm
Shape:	Irregular to Equidimensional
Transparency:	Opaque to Subvitreous
Color:	Black, Gray
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2162 Cluster 37
Comments:	

SEM Photo of sample U2162 B18 with labeled EDS testing locations.

Cluster of Origin: U2162 Cluster 37

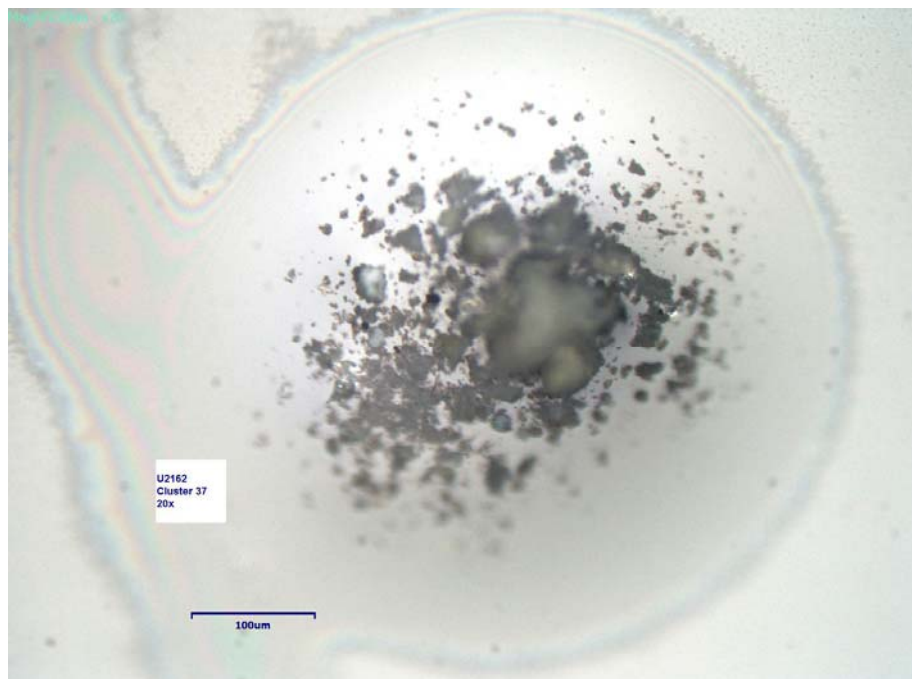


Photo of cluster U2162 Cluster 37.

U2162 B18 - EDS Spectra

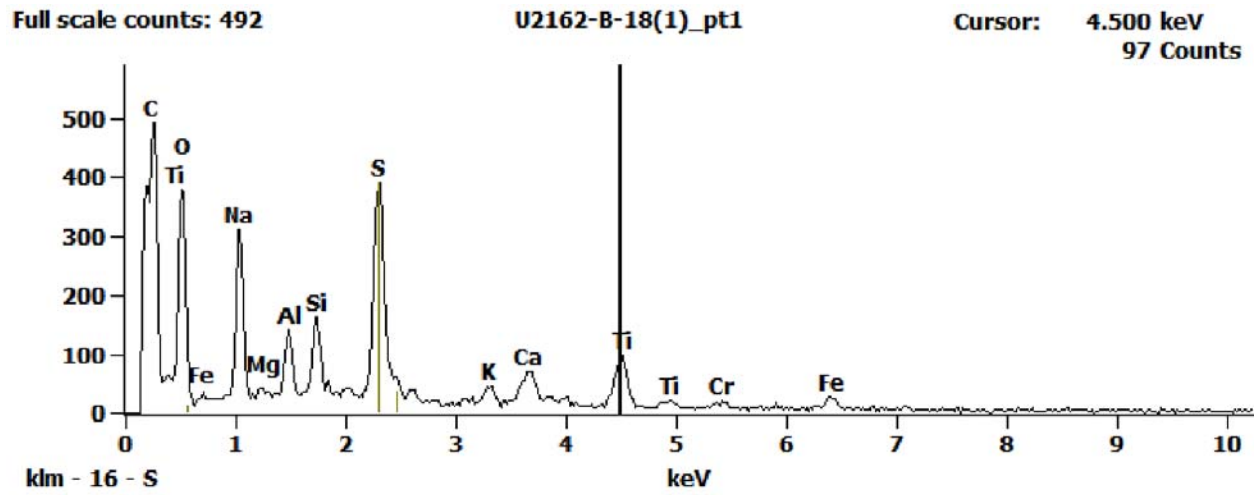


Figure 1. EDS Spectra for sample U2162-B-18 taken at test area 1. The test area is labeled in the particle SEM photo..

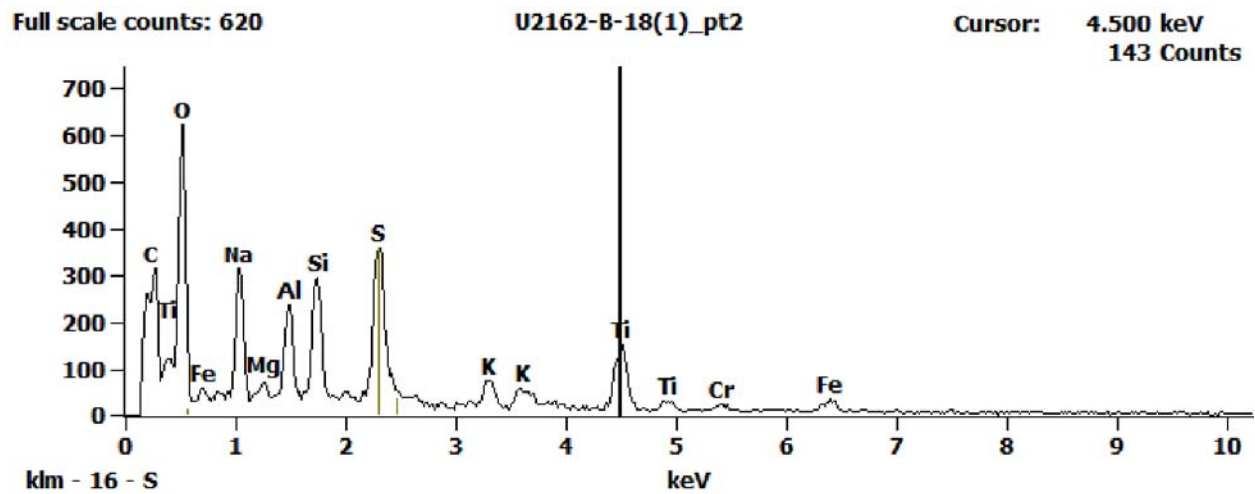


Figure 2. EDS Spectra for sample U2162-B-18 taken at test area 2. The test area is labeled in the particle SEM photo..

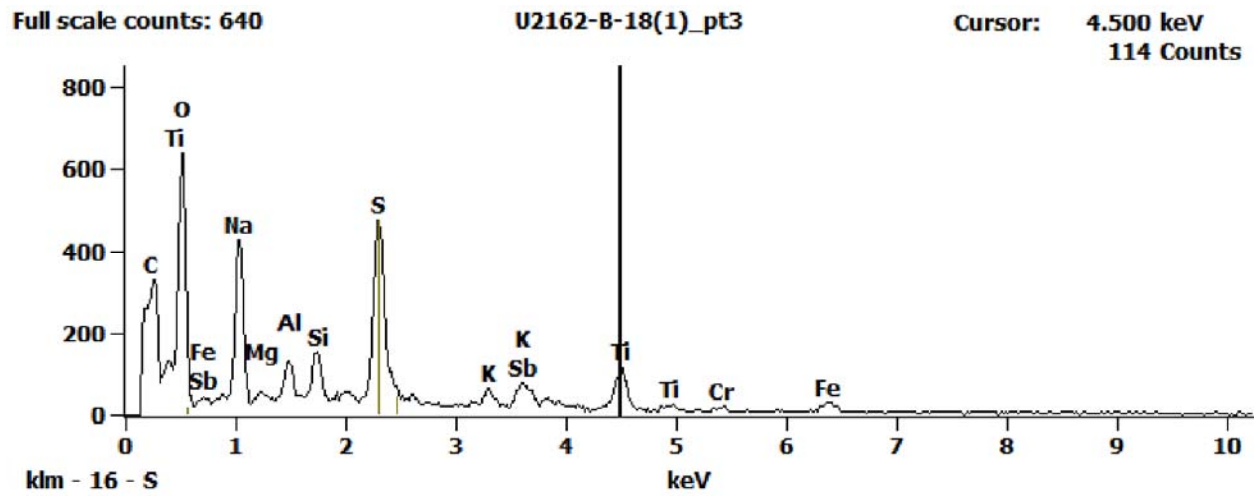
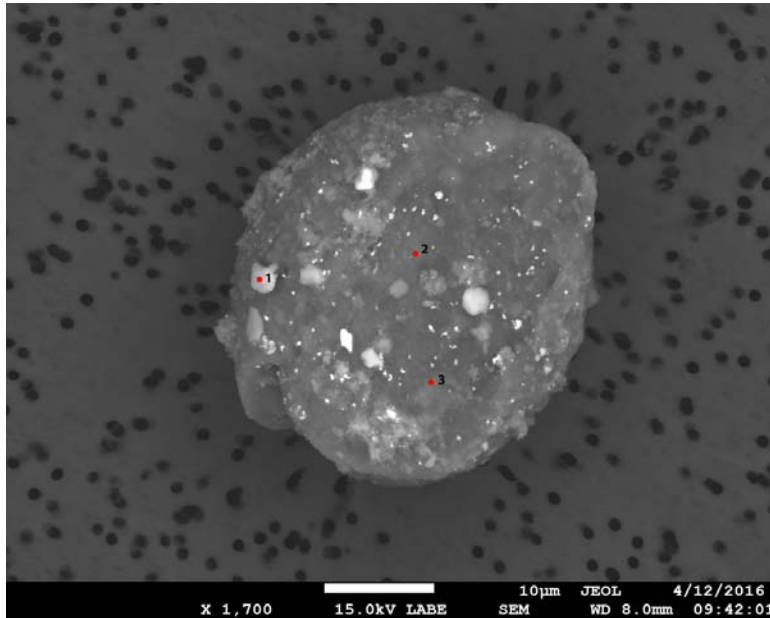


Figure 3. EDS Spectra for sample U2162-B-18 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 C1



Particle Size:	35 μm
Shape:	Equidimensional to Spherical
Transparency:	Opaque
Color:	Black
Luster:	Submetallic to Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2162 C1 with labeled EDS testing locations.

U2162 C1 - EDS Spectra

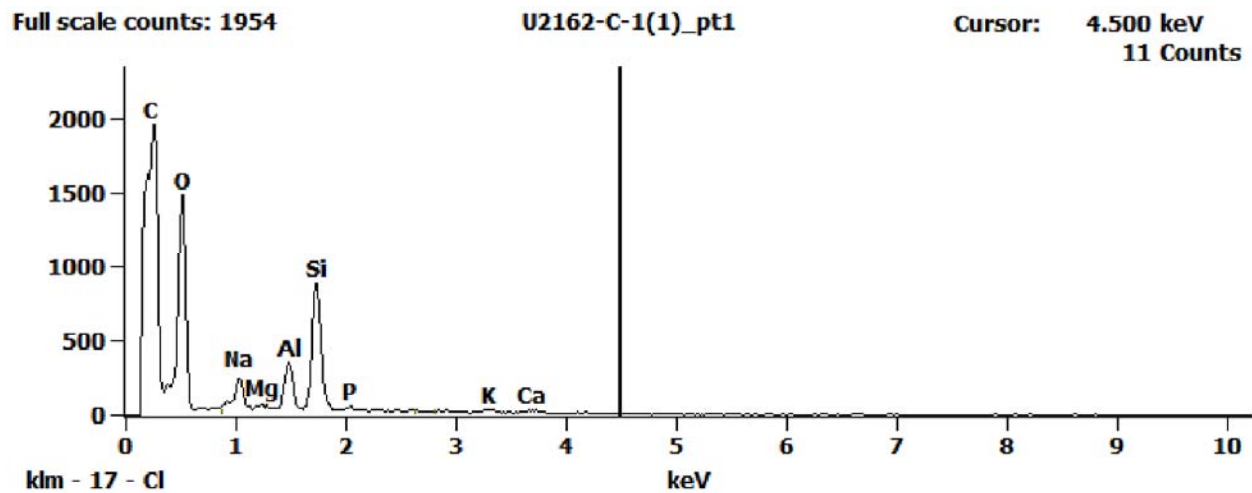


Figure 1. EDS Spectra for sample U2162-C-1 taken at test area 1. The test area is labeled in the particle SEM photo..

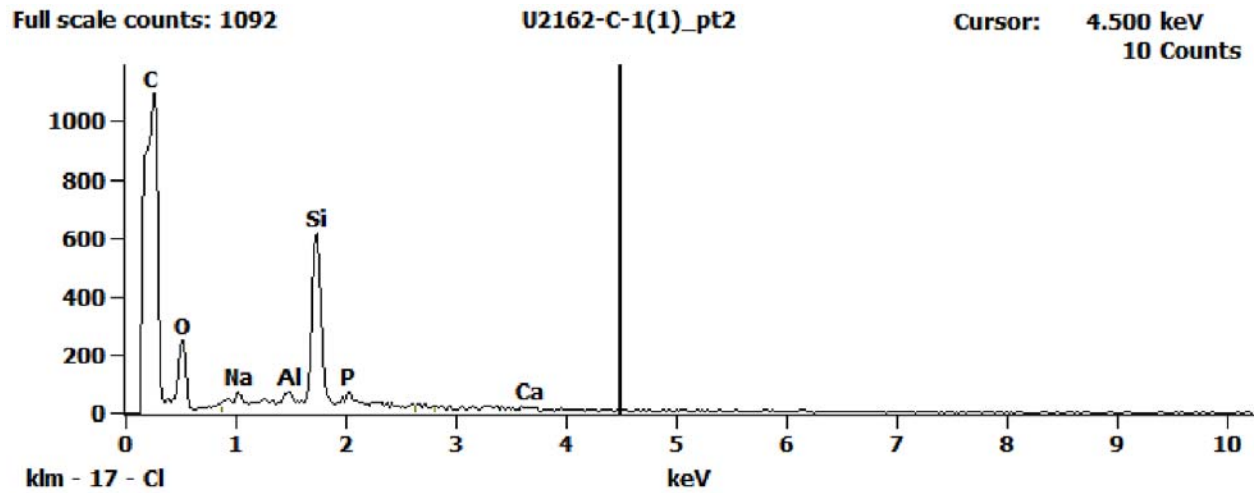


Figure 2. EDS Spectra for sample U2162-C-1 taken at test area 2. The test area is labeled in the particle SEM photo..

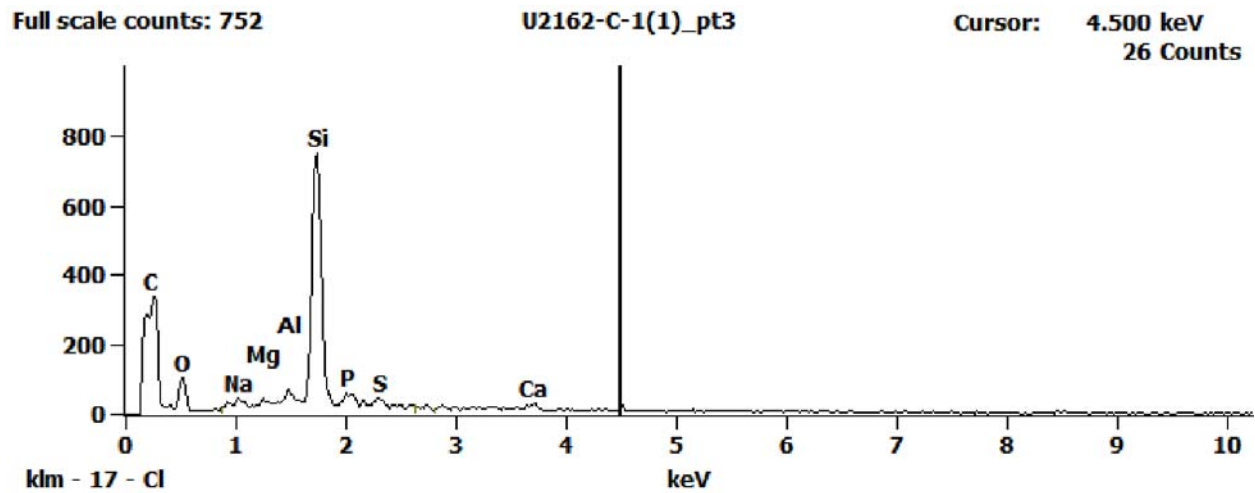
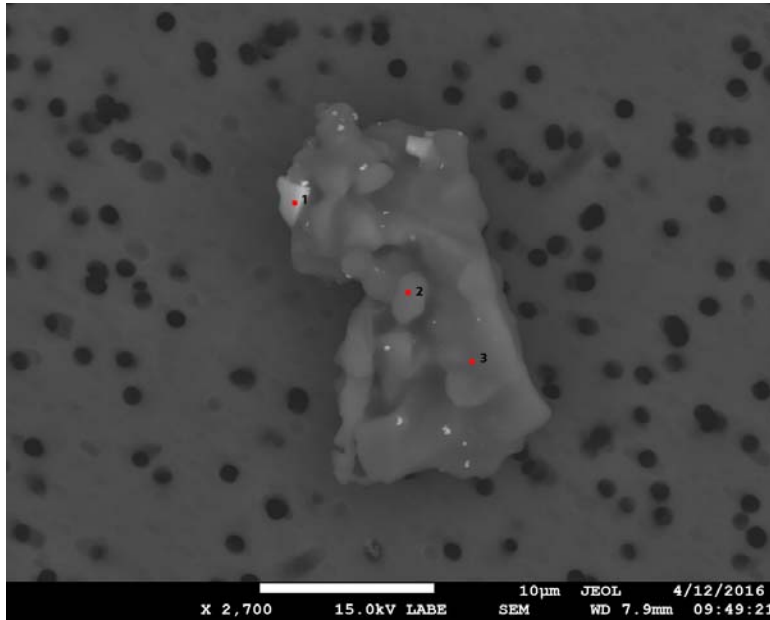


Figure 3. EDS Spectra for sample U2162-C-1 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 C2



Particle Size:	13x22 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque to Translucent
Color:	Black, Gray
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2162 C2 with labeled EDS testing locations.

U2162 C2 - EDS Spectra

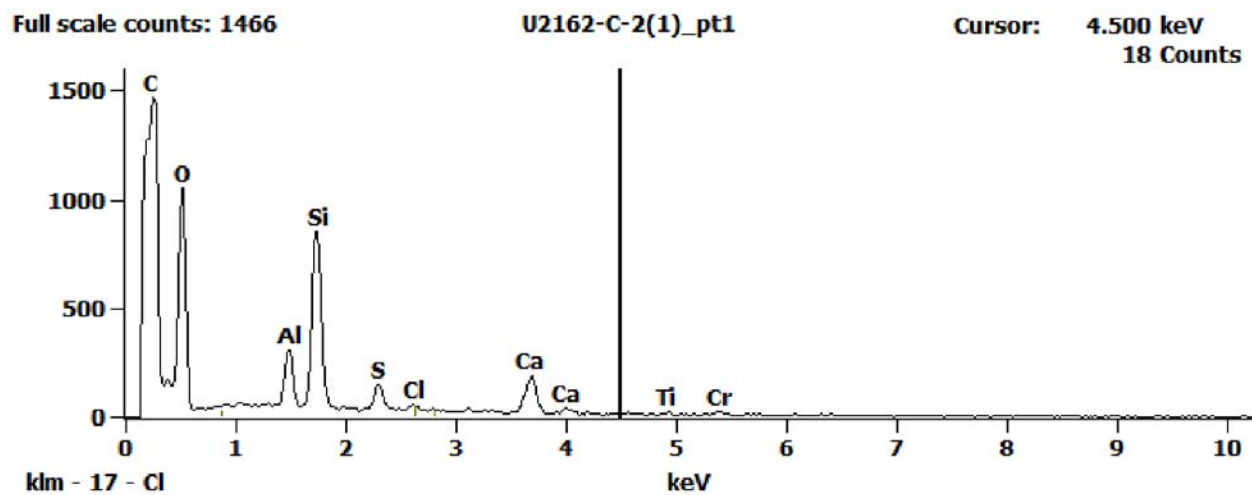


Figure 1. EDS Spectra for sample U2162-C-2 taken at test area 1. The test area is labeled in the particle SEM photo..

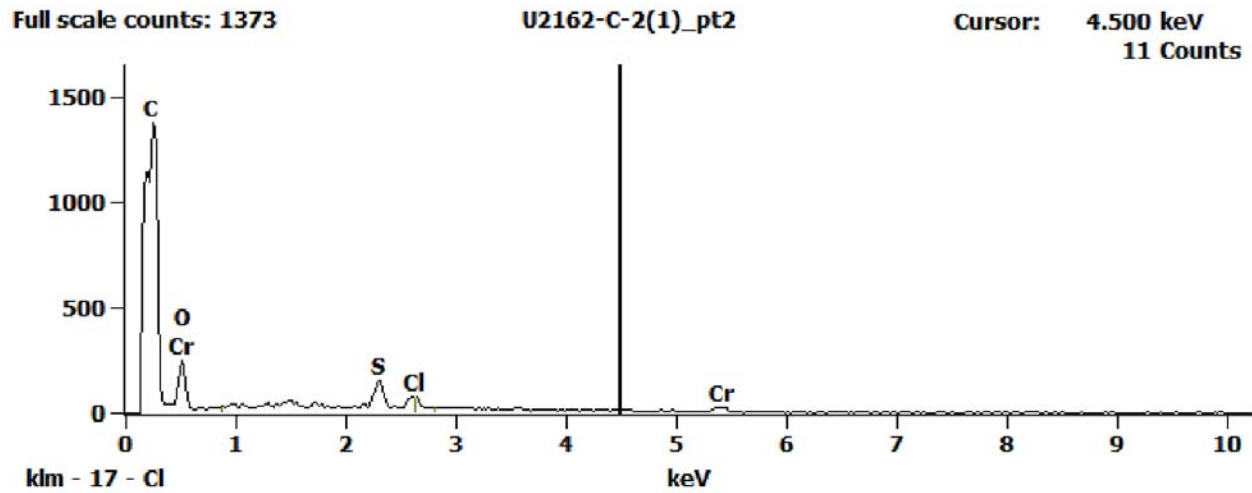


Figure 2. EDS Spectra for sample U2162-C-2 taken at test area 2. The test area is labeled in the particle SEM photo..

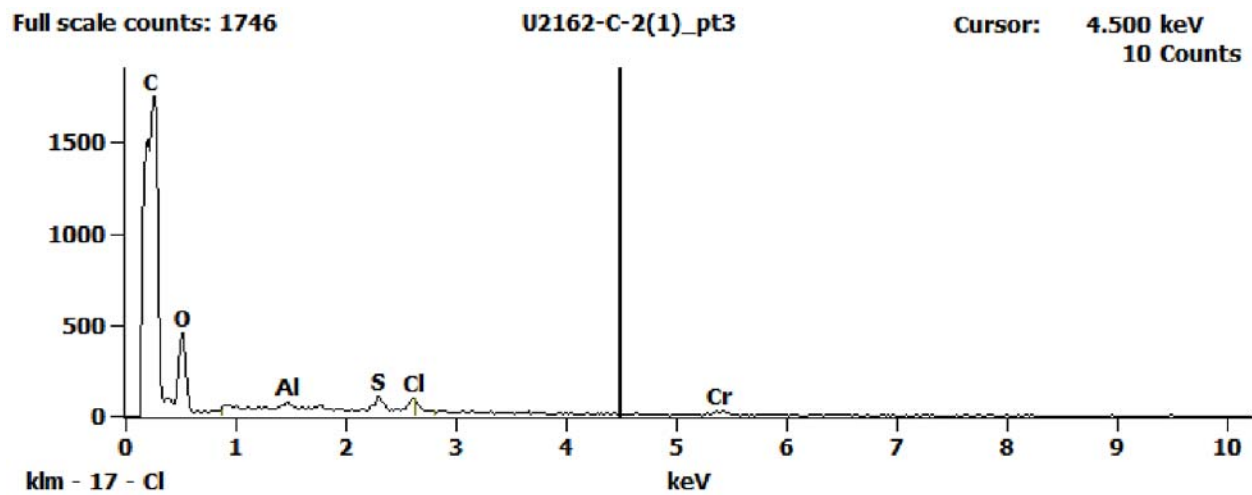
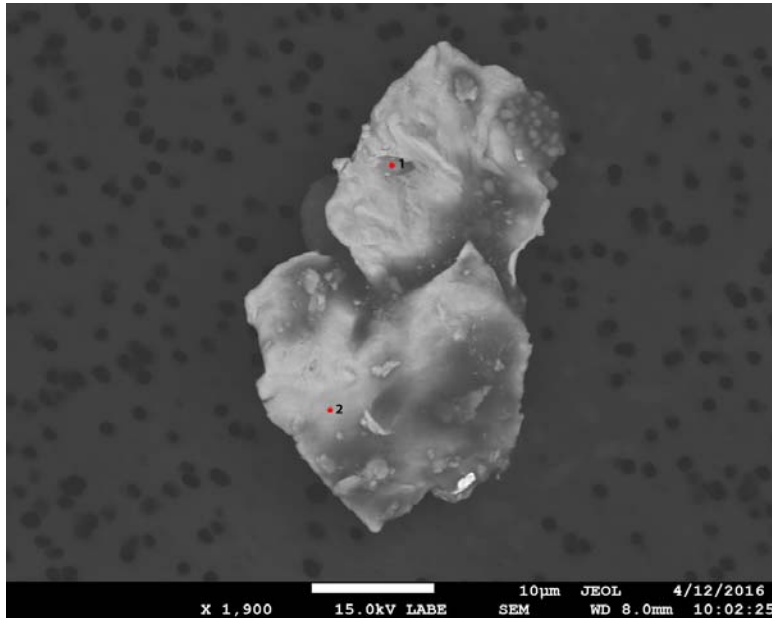


Figure 3. EDS Spectra for sample U2162-C-2 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 C4



Particle Size:	20x30 µm
Shape:	Irregular
Transparency:	Opaque
Color:	Black, Gray
Luster:	Pearly to Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2162 C4 with labeled EDS testing locations.

U2162 C4 - EDS Spectra

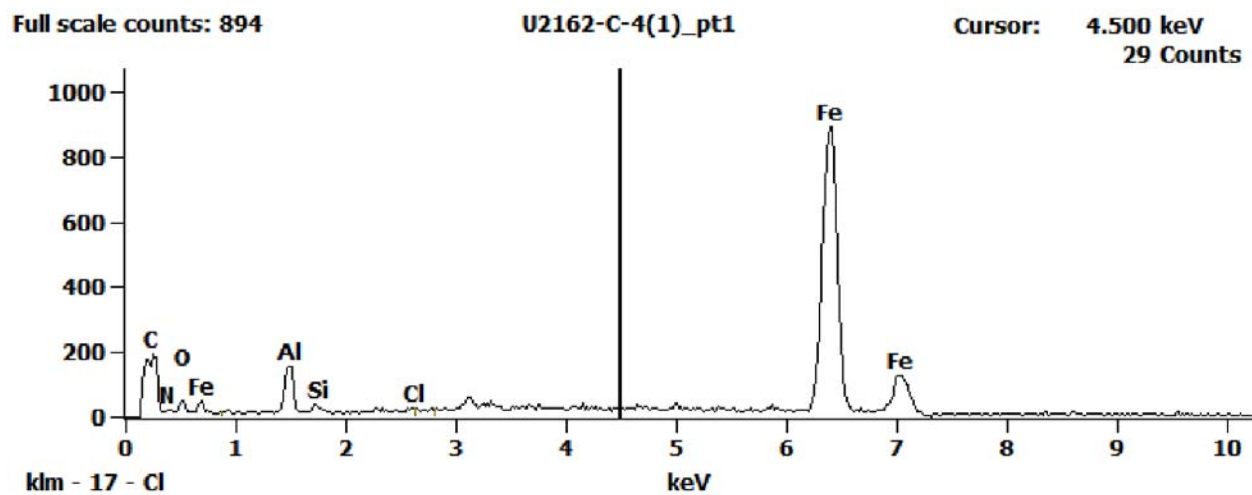


Figure 1. EDS Spectra for sample U2162-C-4 taken at test area 1. The test area is labeled in the particle SEM photo..

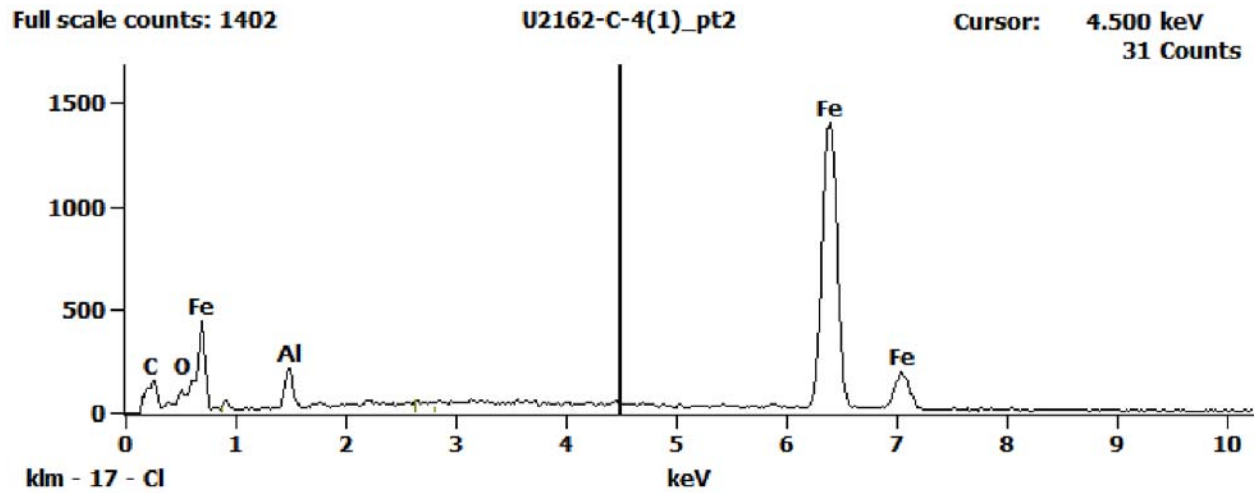


Figure 2. EDS Spectra for sample U2162-C-4 taken at test area 2. The test area is labeled in the particle SEM photo..

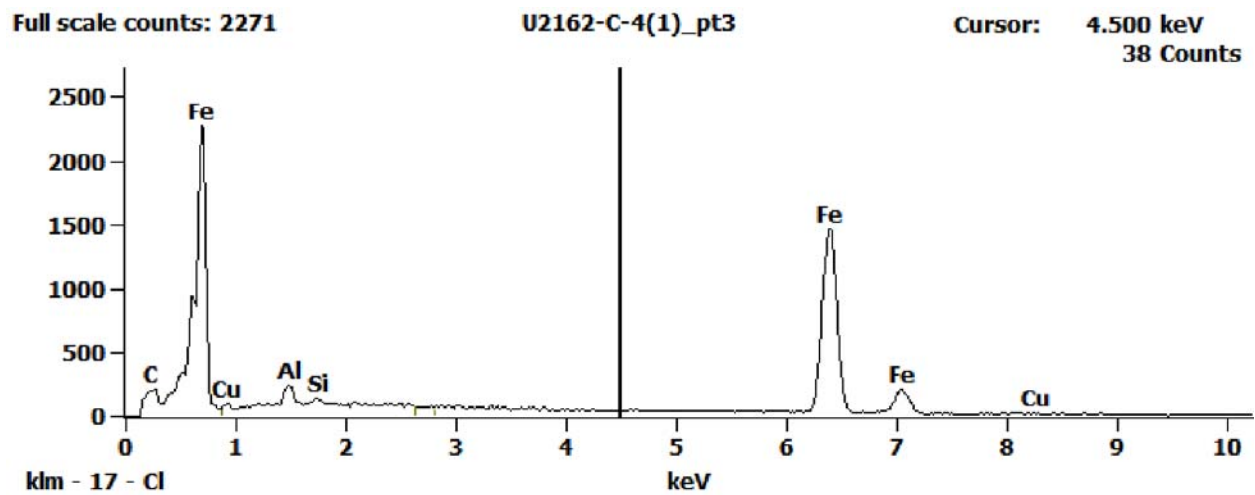
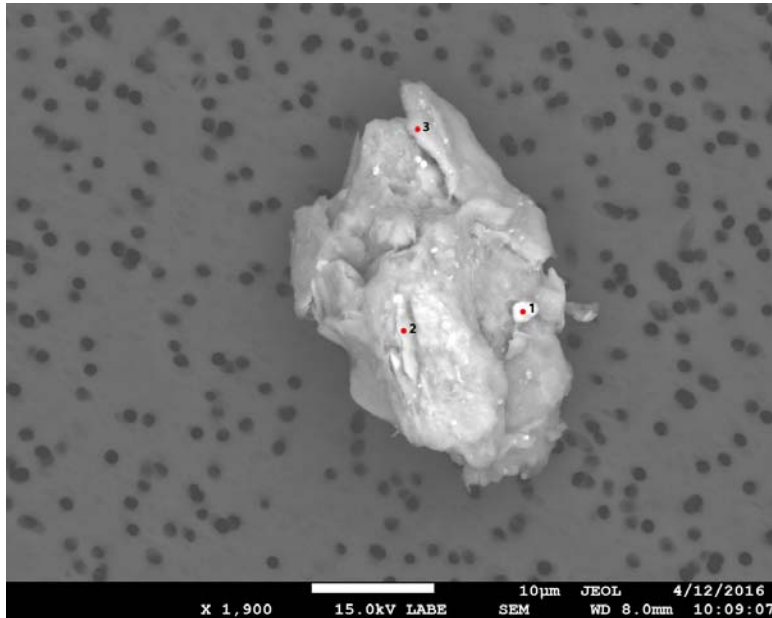


Figure 3. EDS Spectra for sample U2162-C-4 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 C5



Particle Size:	18 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque to Translucent
Color:	Black, Brown, Gray
Luster:	Pearly
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

SEM Photo of sample U2162 C5 with labeled EDS testing locations.

U2162 C5 - EDS Spectra

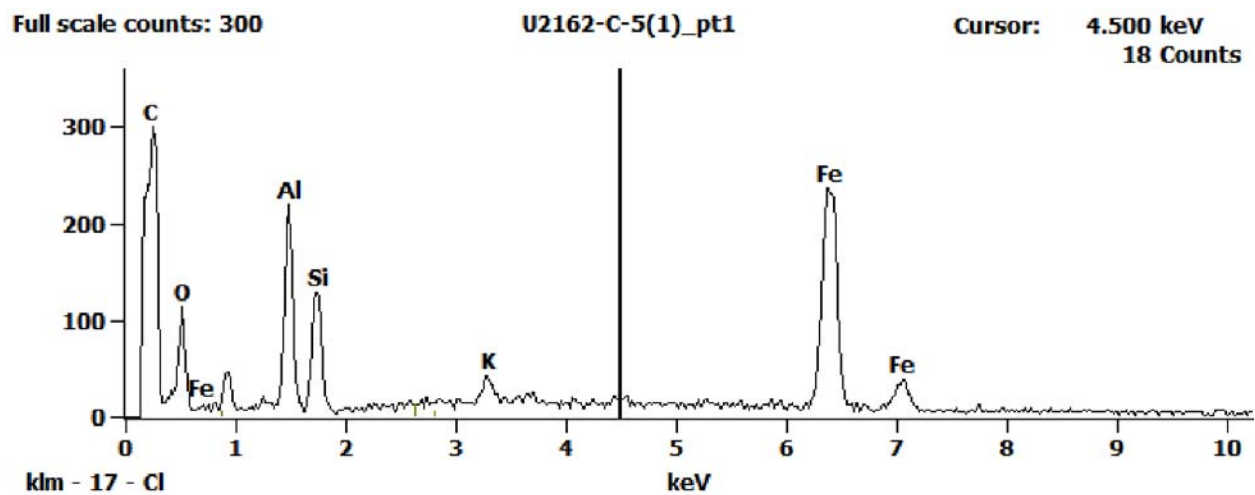


Figure 1. EDS Spectra for sample U2162-C-5 taken at test area 1. The test area is labeled in the particle SEM photo..

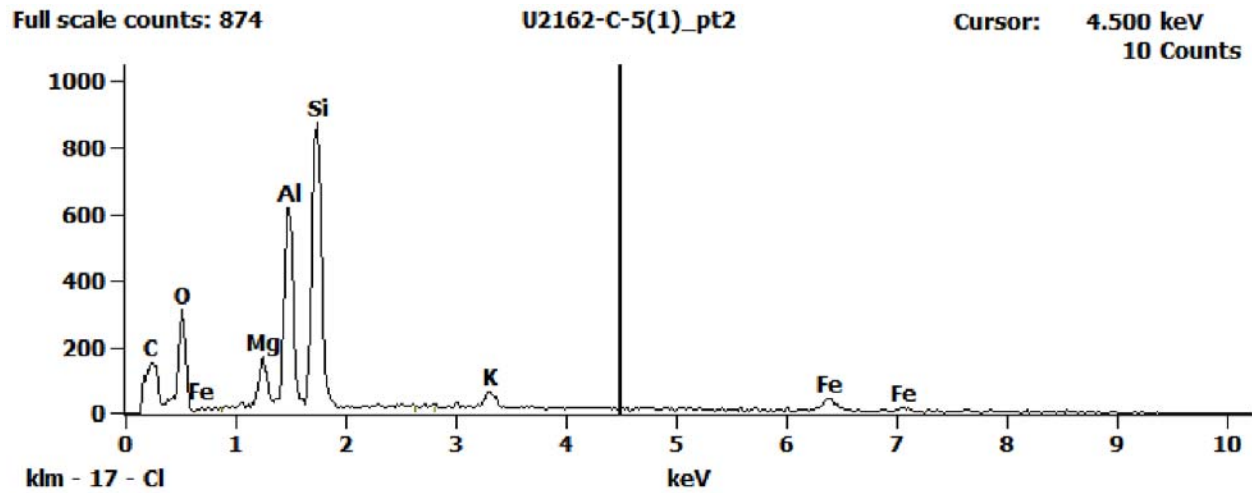


Figure 2. EDS Spectra for sample U2162-C-5 taken at test area 2. The test area is labeled in the particle SEM photo..

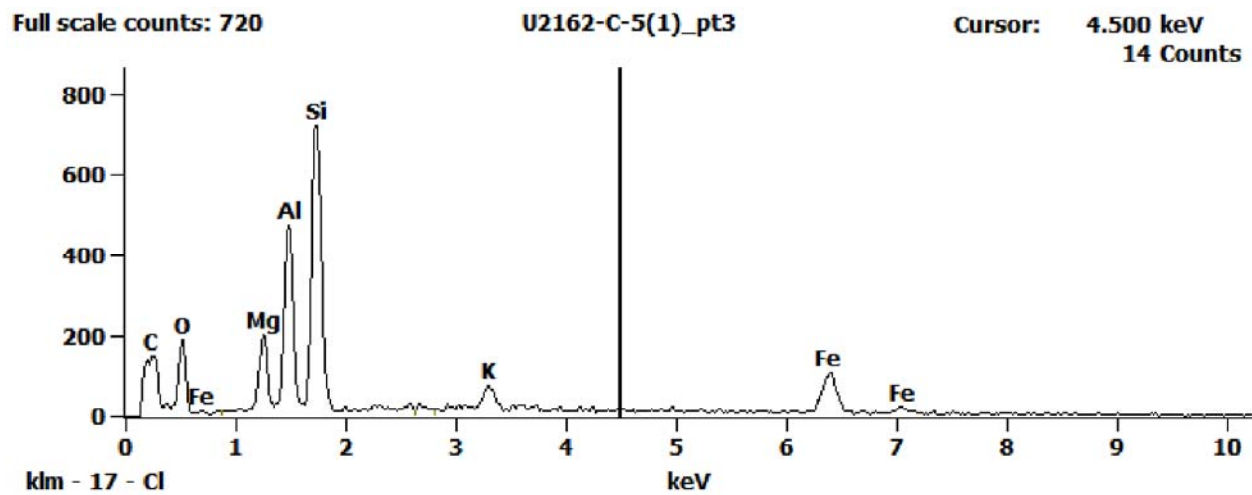
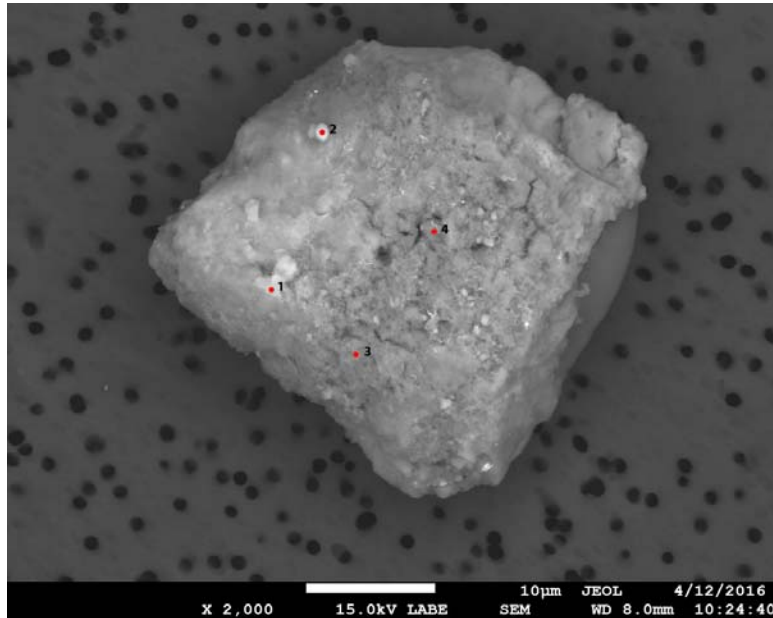


Figure 3. EDS Spectra for sample U2162-C-5 taken at test area 3. The test area is labeled in the particle SEM photo..

U2162 C7



SEM Photo of sample U2162 C7 with labeled EDS testing locations.

Particle Size:	26 µm
Shape:	Equidimensional
Transparency:	Opaque to Translucent
Color:	Black, Brown, Clear
Luster:	Pearly
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	
Comments:	

U2162 C7 - EDS Spectra

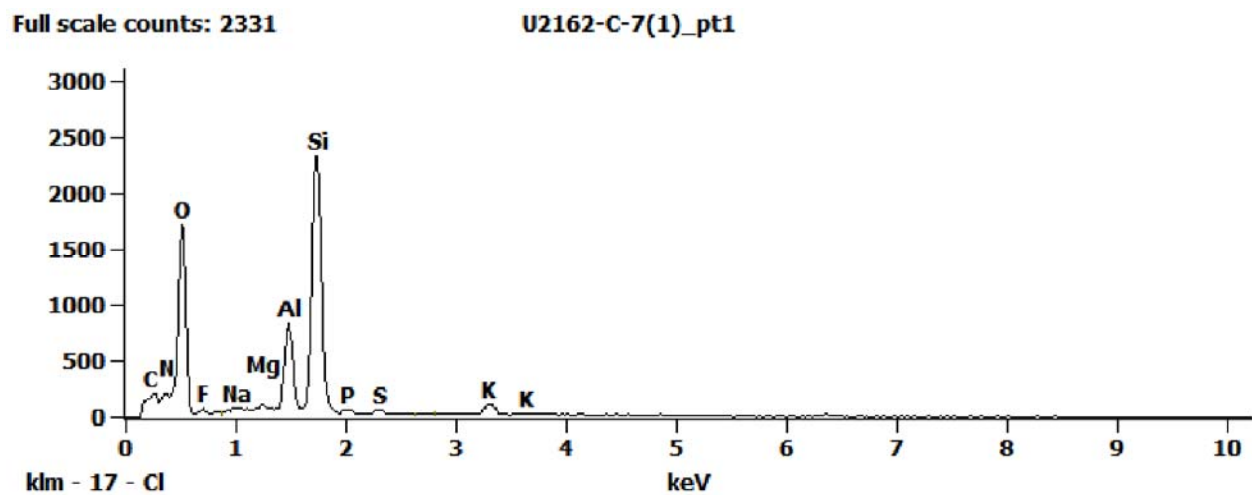


Figure 1. EDS Spectra for sample U2162-C-7 taken at test area 1. The test area is labeled in the particle SEM photo..

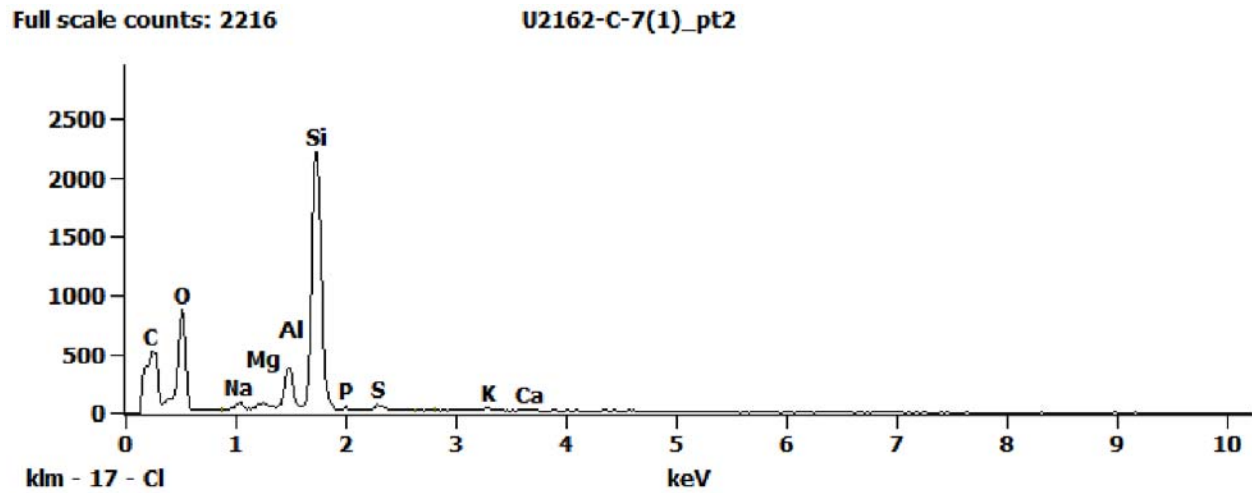


Figure 2. EDS Spectra for sample U2162-C-7 taken at test area 2. The test area is labeled in the particle SEM photo..

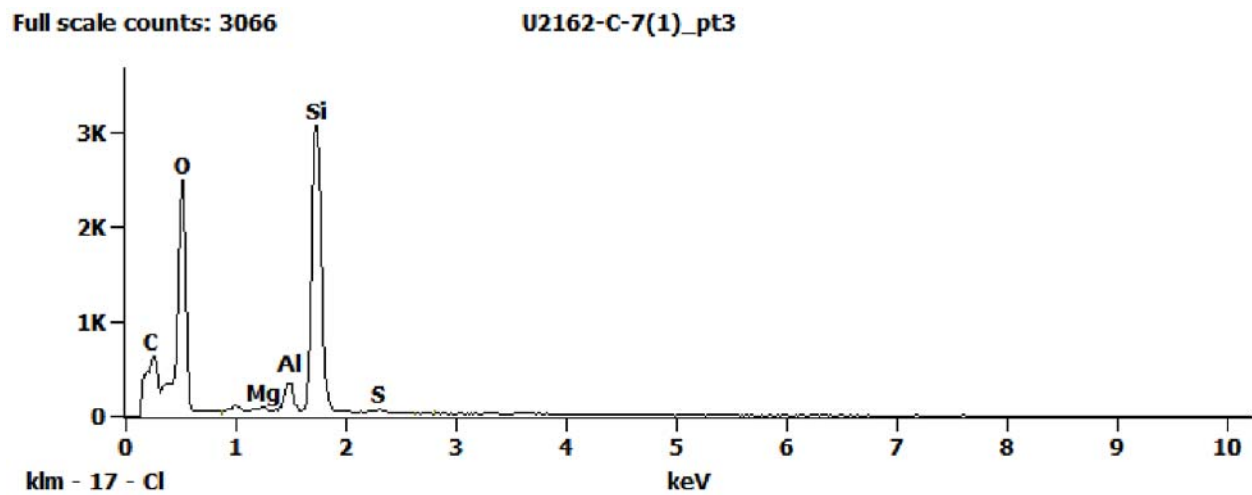


Figure 3. EDS Spectra for sample U2162-C-7 taken at test area 3. The test area is labeled in the particle SEM photo..

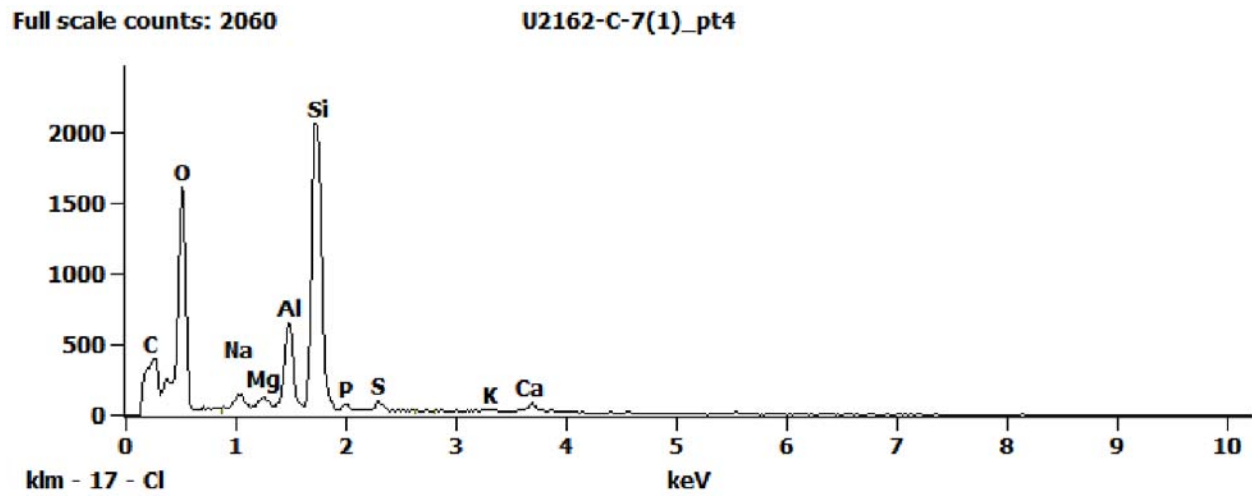
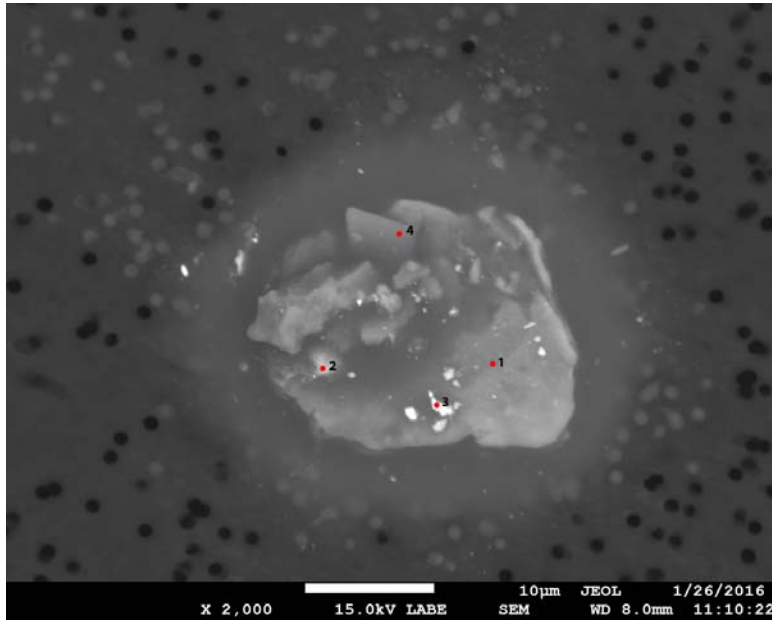


Figure 4. EDS Spectra for sample U2162-C-7 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 A9



Particle Size:	25 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black, Gray, Yellow
Luster:	Pearly
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2163 Cluster 9
Comments:	

SEM Photo of sample U2163 A9 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 9



Photo of cluster U2163 Cluster 9.

U2163 A9 - EDS Spectra

Full scale counts: 2732

U2163-A9(1)_pt1

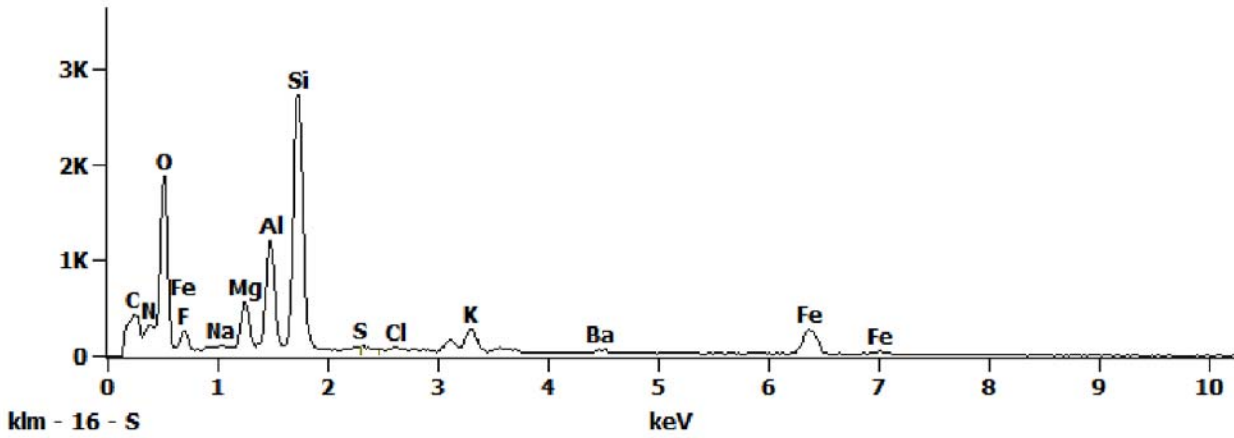


Figure 1. EDS Spectra for sample U2163-A-9 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 3208

U2163-A9(1)_pt2

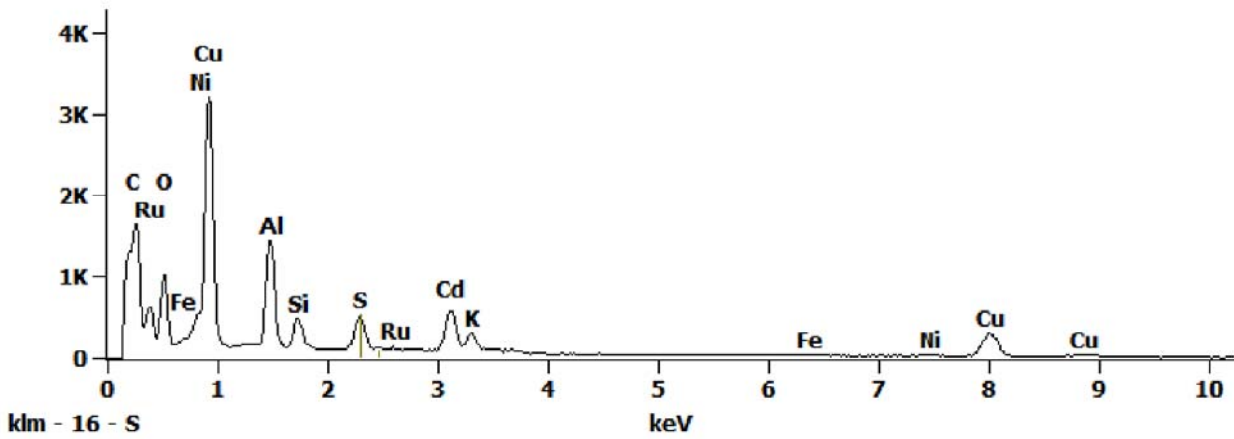


Figure 2. EDS Spectra for sample U2163-A-9 taken at test area 2. The test area is labeled in the particle SEM photo..

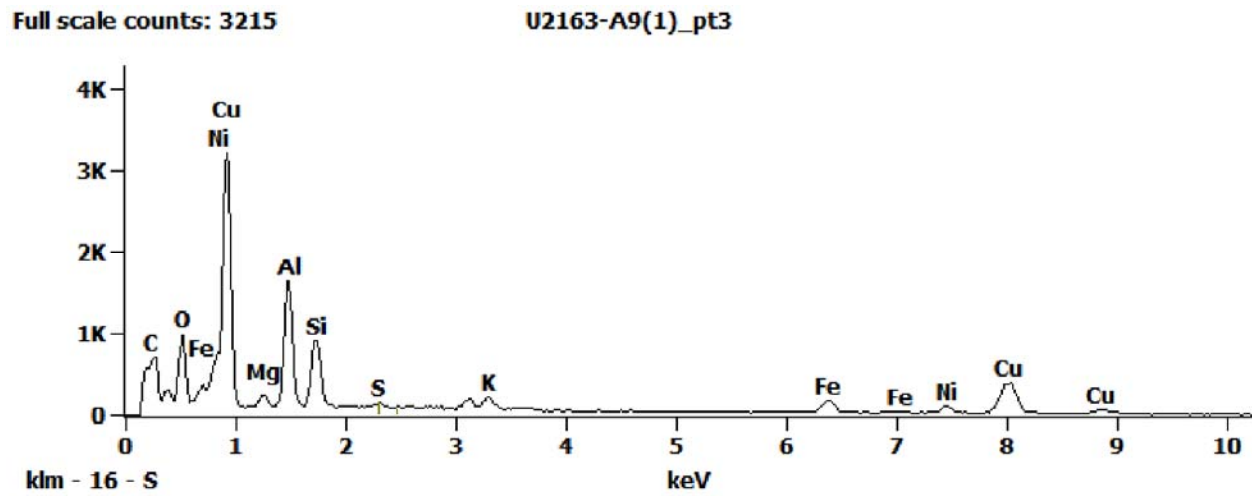


Figure 3. EDS Spectra for sample U2163-A-9 taken at test area 3. The test area is labeled in the particle SEM photo..

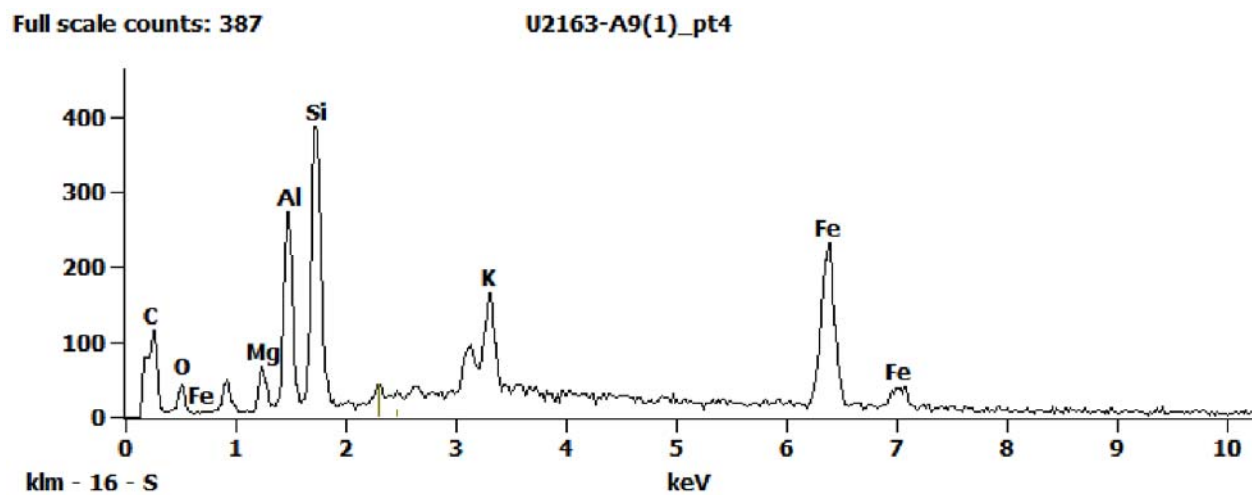
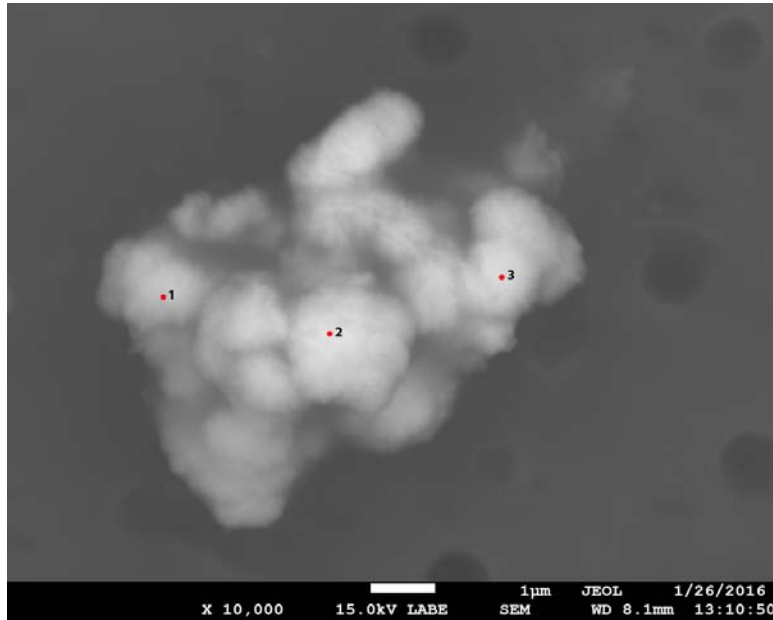


Figure 4. EDS Spectra for sample U2163-A-9 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 A12



Particle Size: 20 µm
Shape: Equidimensional to Spherical
Transparency: Opaque
Color: Gray
Luster: Pearly to Dull
Particle Type: Natural Terrestrial Contamination
Cluster No.: U2163 Cluster 12
Comments:

SEM Photo of sample U2163 A12 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 12

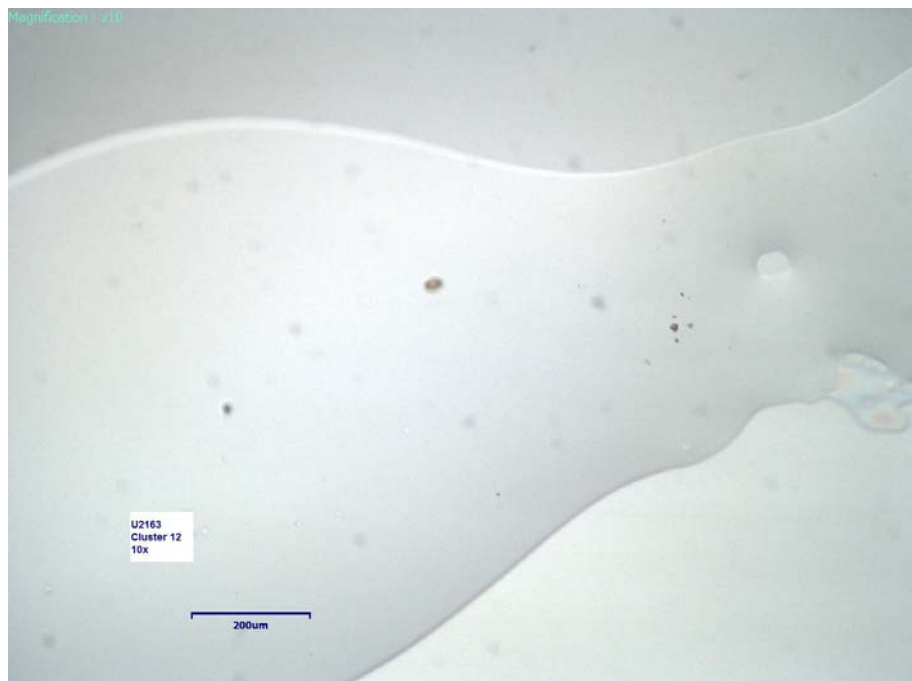


Photo of cluster U2163 Cluster 12.

U2163 A12 - EDS Spectra

Full scale counts: 3872

U2163-A12(1)_pt1

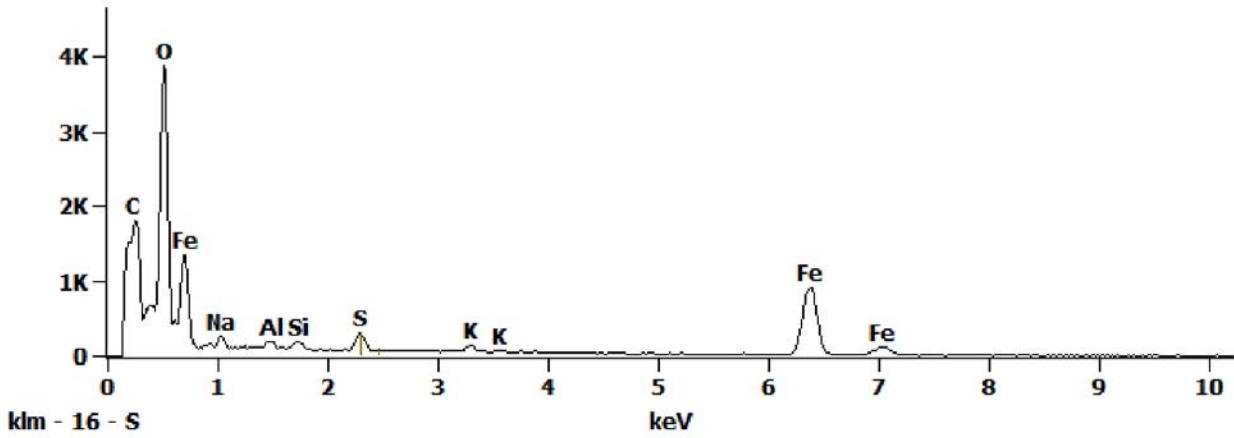


Figure 1. EDS Spectra for sample U2163-A-12 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 3495

U2163-A12(1)_pt2

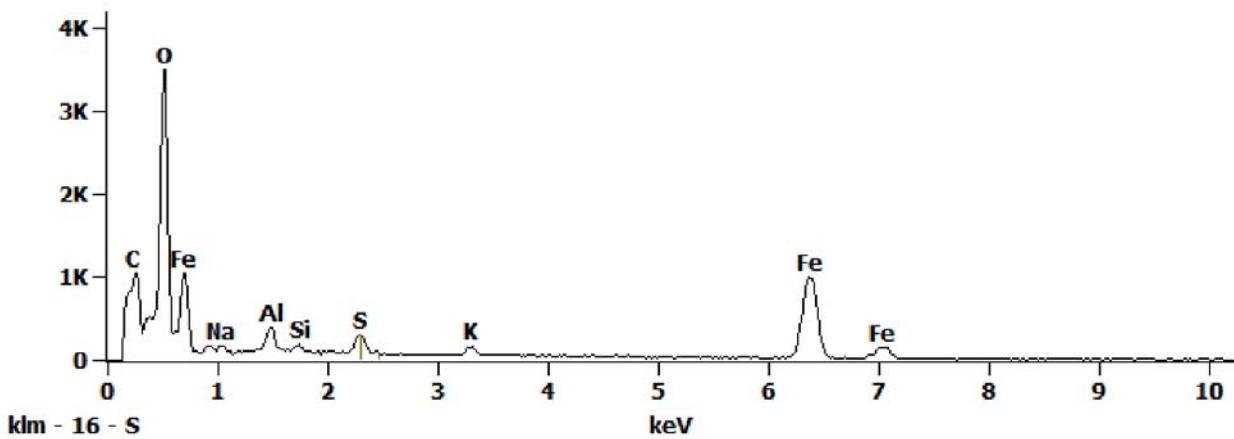


Figure 2. EDS Spectra for sample U2163-A-12 taken at test area 2. The test area is labeled in the particle SEM photo..

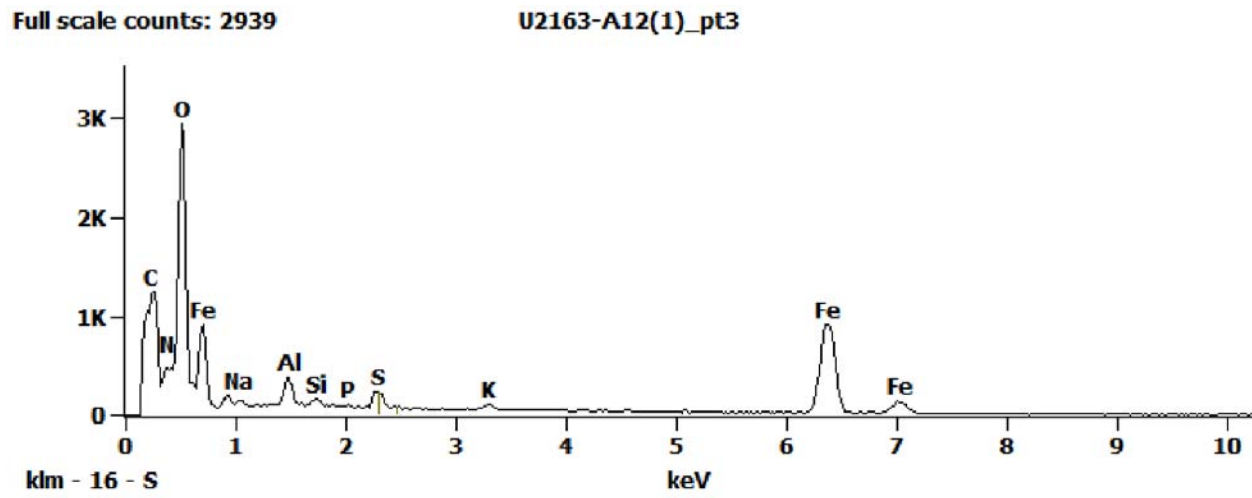
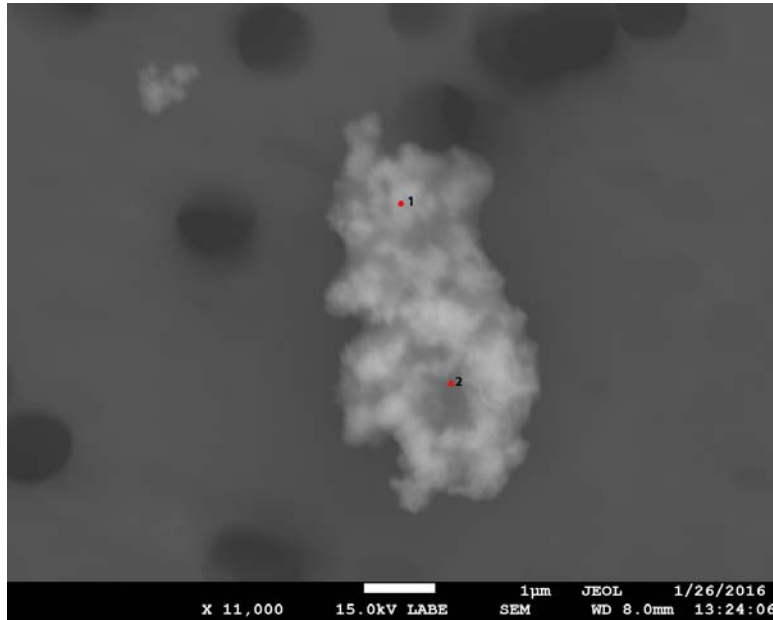


Figure 3. EDS Spectra for sample U2163-A-12 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 A13



Particle Size: 8 µm
Shape: Irregular
Transparency: Translucent to Opaque
Color: Gray, Red
Luster: Pearly to Subvitreous
Particle Type: Natural Terrestrial Contamination
Cluster No.: U2163 Cluster 13
Comments:

SEM Photo of sample U2163 A13 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 13



Photo of cluster U2163 Cluster 13.

U2163 A13 - EDS Spectra

Full scale counts: 3005

U2163-A13(1)_pt1

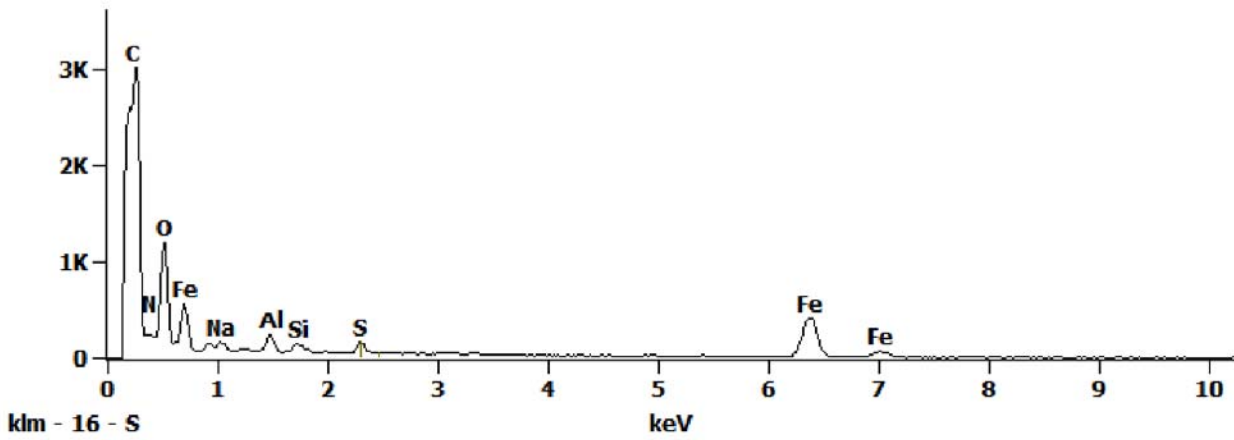


Figure 1. EDS Spectra for sample U2163-A-13 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 3627

U2163-A13(1)_pt2

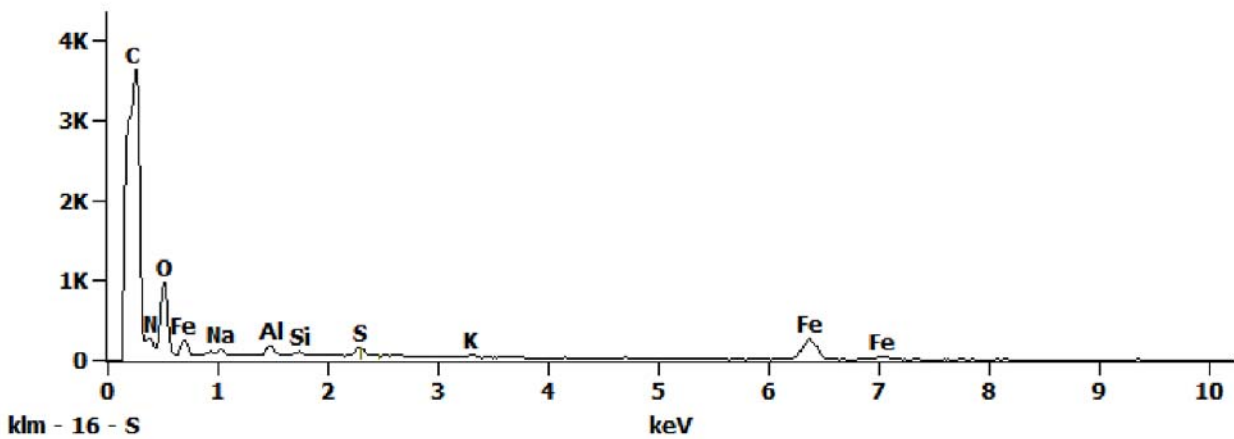
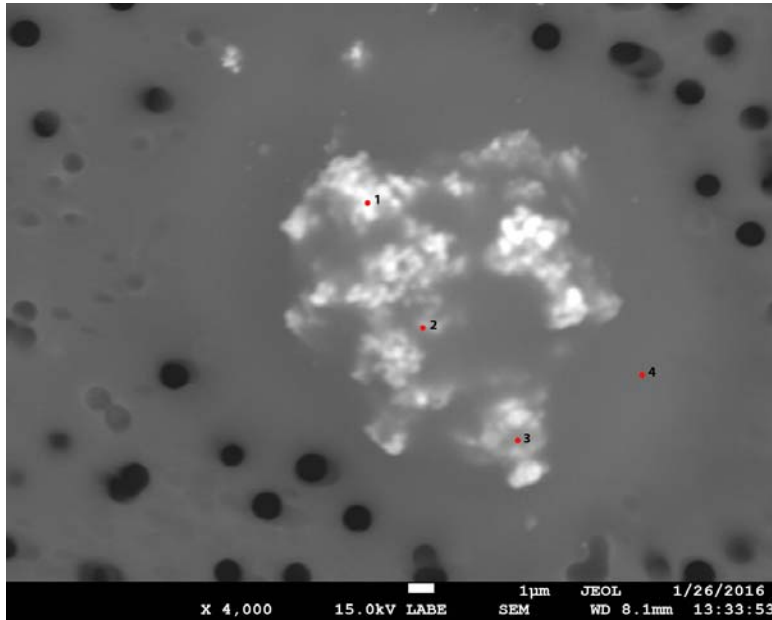


Figure 2. EDS Spectra for sample U2163-A-13 taken at test area 2. The test area is labeled in the particle SEM photo..

U2163 A14



Particle Size:	15 µm
Shape:	Spherical to Equidimensional
Transparency:	Translucent
Color:	Gray, Red
Luster:	Pearly to Subvitreous
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2163 Cluster 14
Comments:	

SEM Photo of sample U2163 A14 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 14

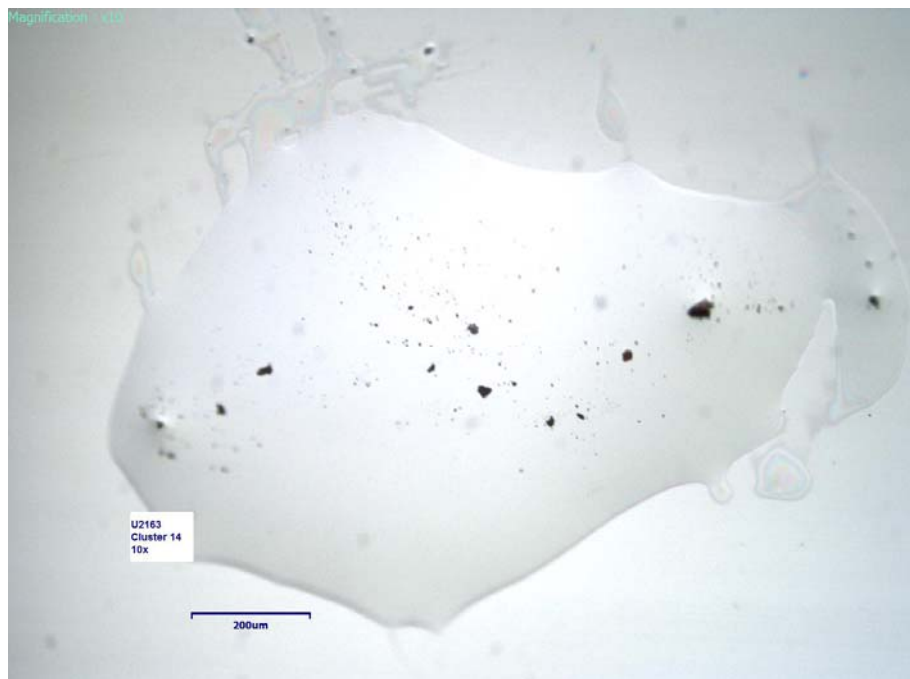


Photo of cluster U2163 Cluster 14.

U2163 A14 - EDS Spectra

Full scale counts: 1541

U2163-A14(1)_pt1

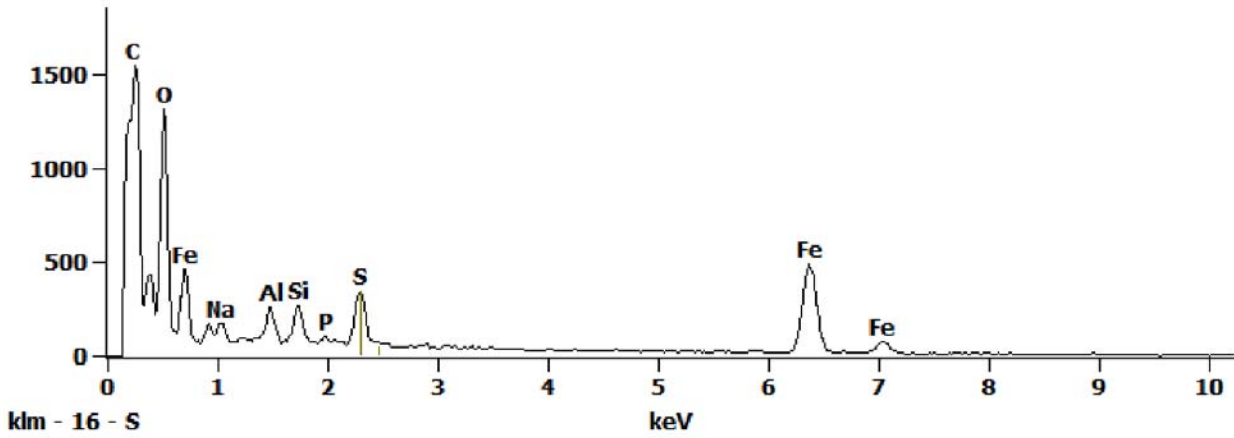


Figure 1. EDS Spectra for sample U2163-A-14 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 2131

U2163-A14(1)_pt2

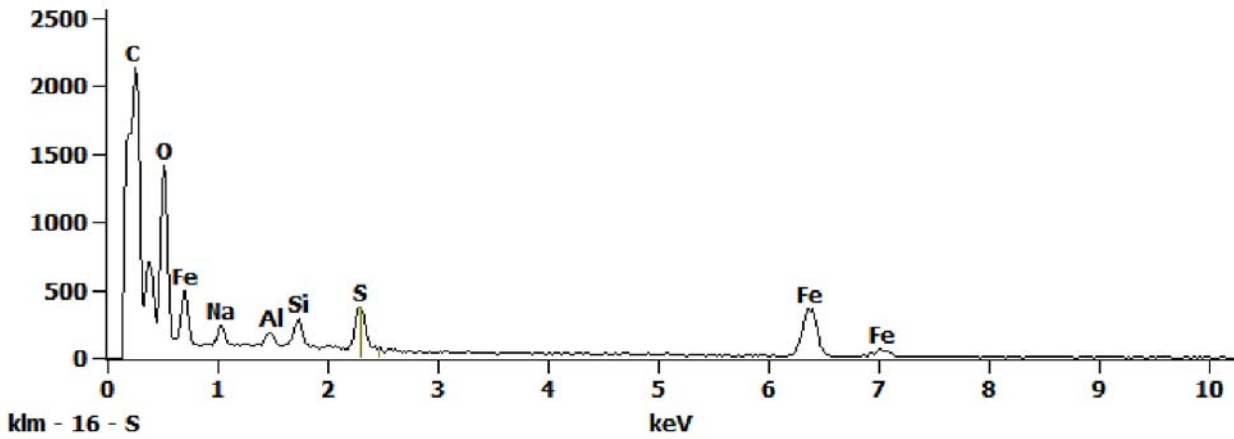


Figure 2. EDS Spectra for sample U2163-A-14 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 2359

U2163-A14(1)_pt3

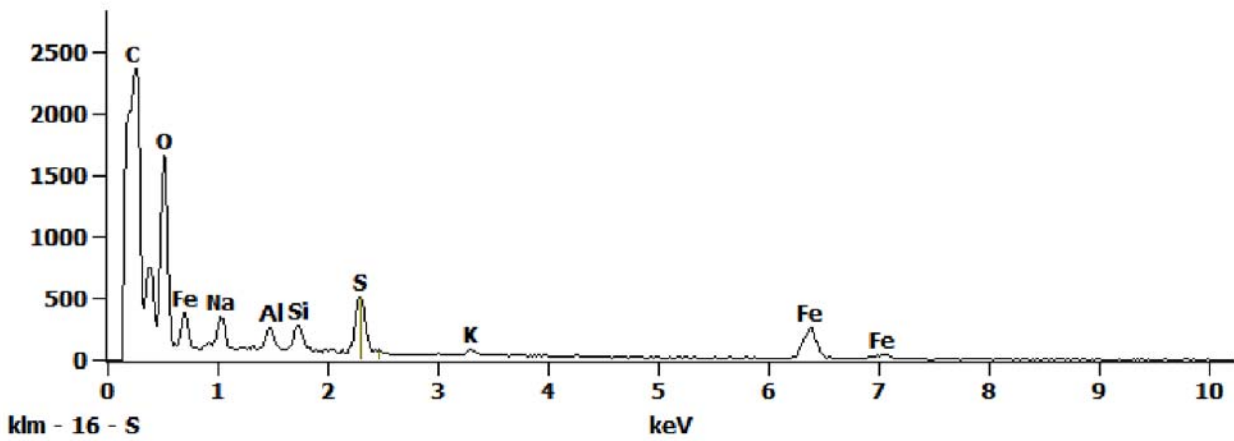


Figure 3. EDS Spectra for sample U2163-A-14 taken at test area 3. The test area is labeled in the particle SEM photo..

Full scale counts: 1814

U2163-A14(1)_pt4

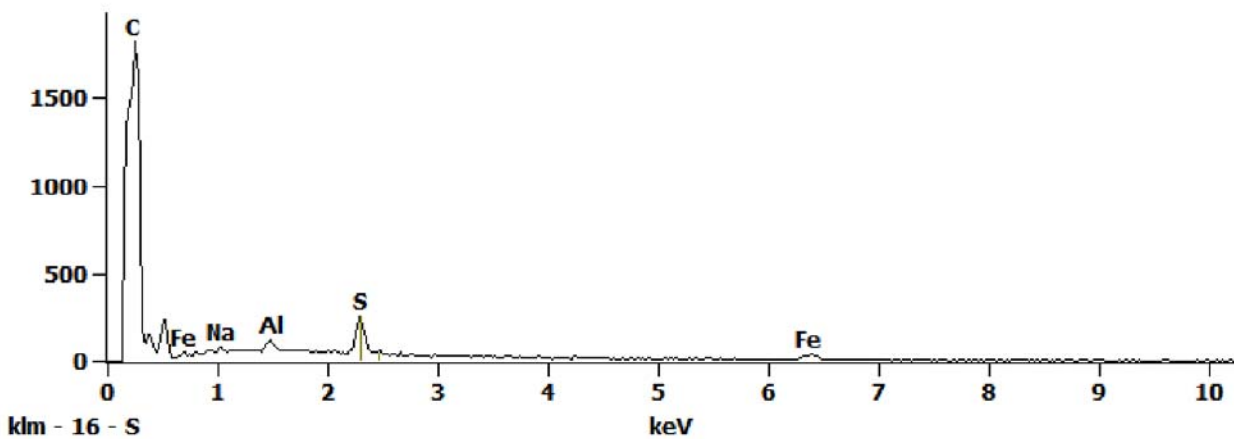
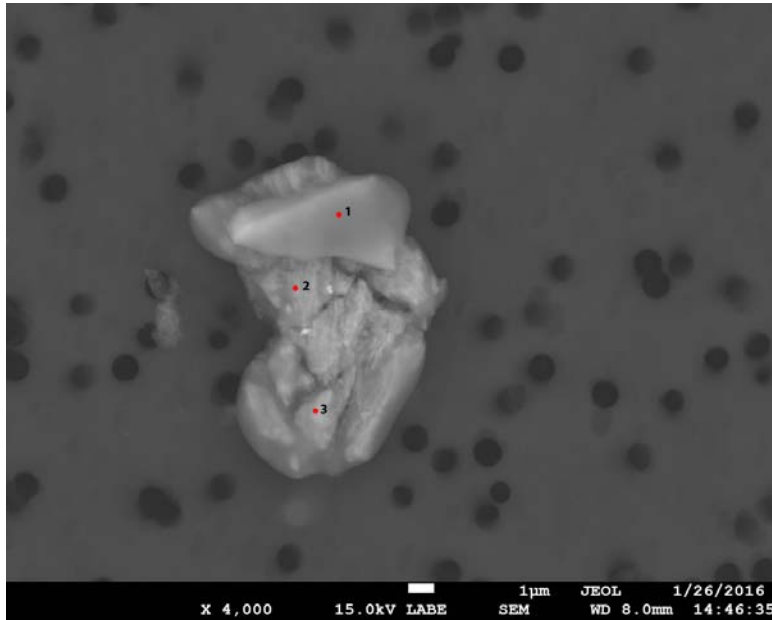


Figure 4. EDS Spectra for sample U2163-A-14 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 B3



Particle Size:	8 µm
Shape:	Equidimensional to Spherical
Transparency:	Opaque to Translucent
Color:	Brown
Luster:	Pearly to Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2163 Cluster 17
Comments:	

SEM Photo of sample U2163 B3 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 17

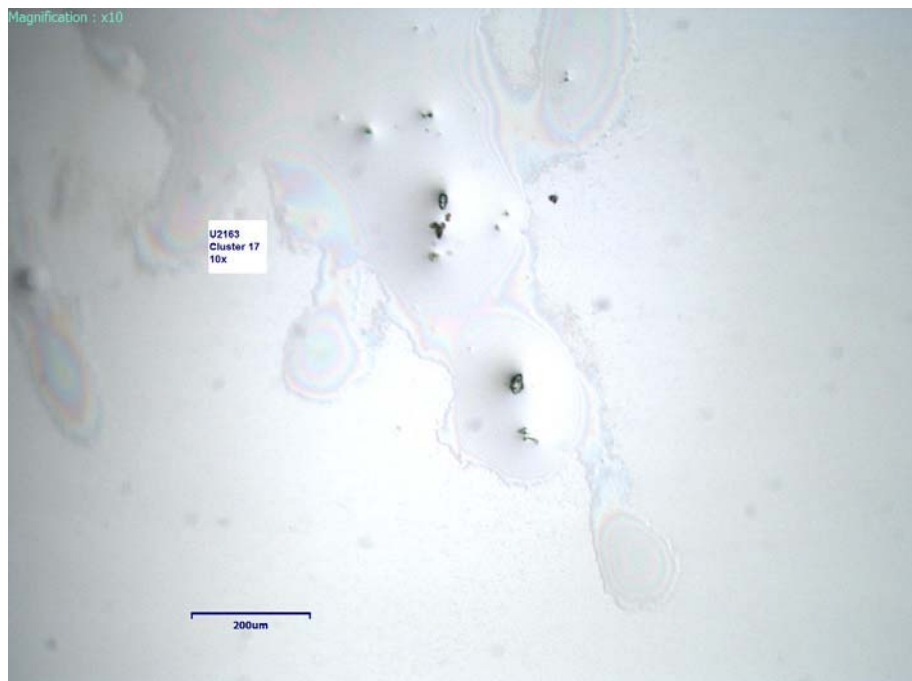


Photo of cluster U2163 Cluster 17.

U2163 B3 - EDS Spectra

Full scale counts: 1954

U2163-B3(1)_pt1

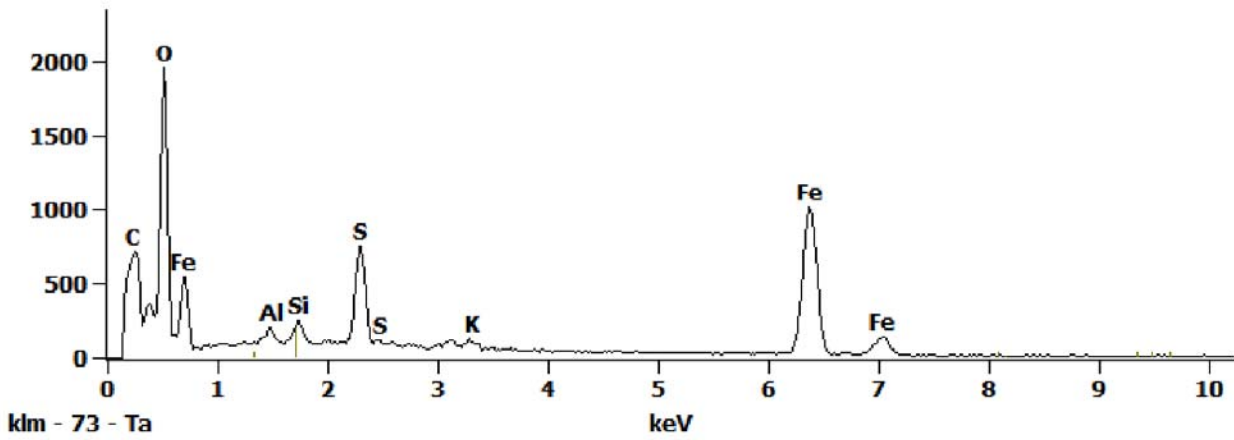


Figure 1. EDS Spectra for sample U2163-B-3 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 2377

U2163-B3(1)_pt2

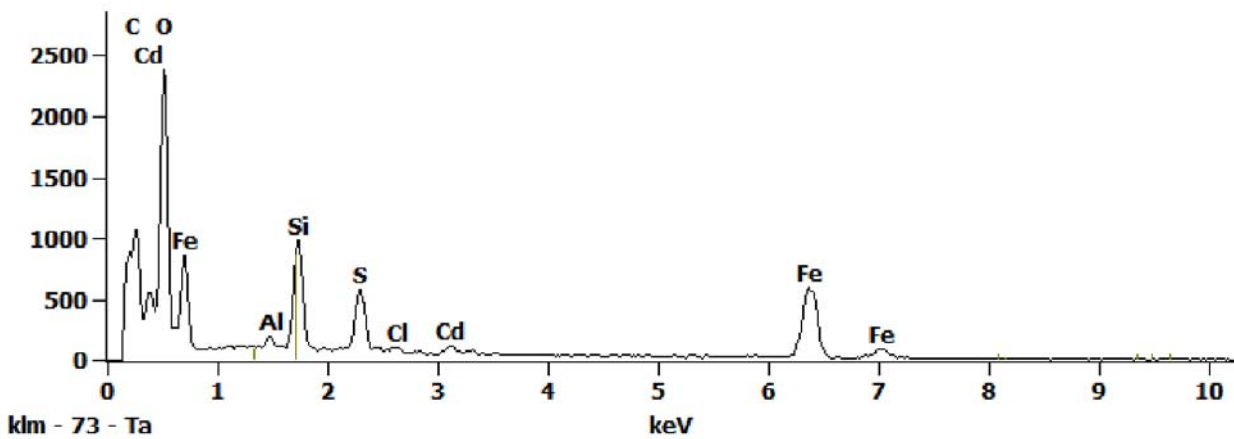


Figure 2. EDS Spectra for sample U2163-B-3 taken at test area 2. The test area is labeled in the particle SEM photo..

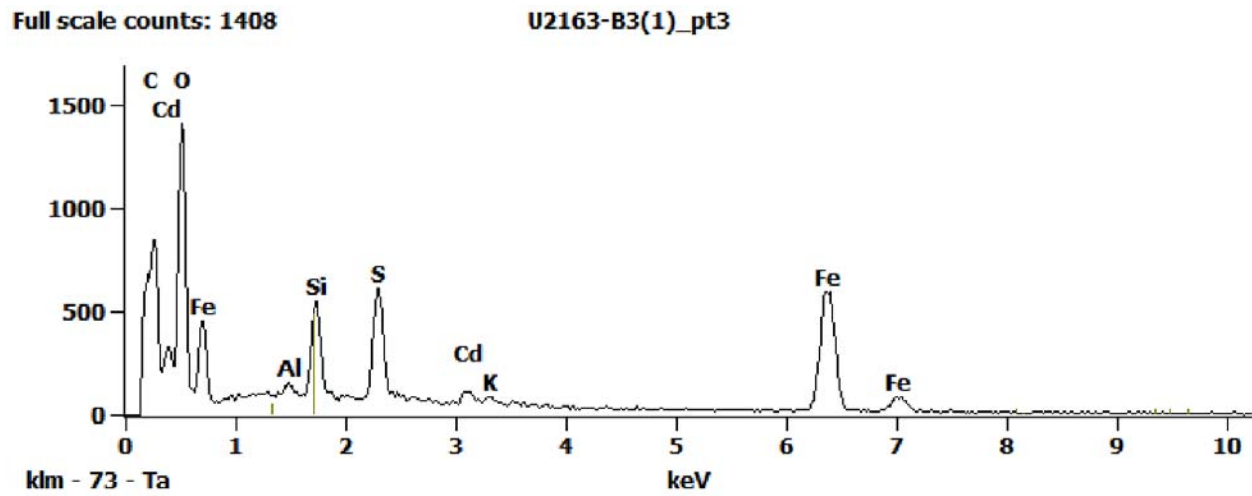
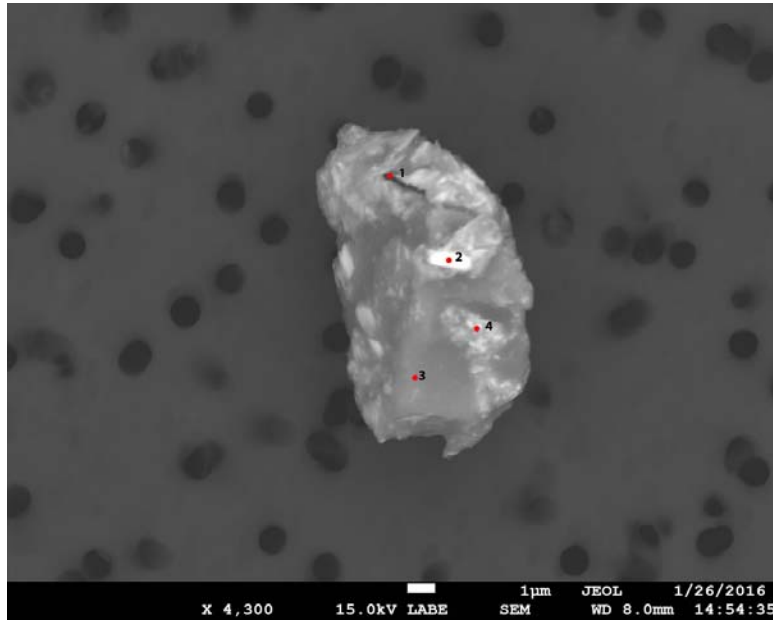


Figure 3. EDS Spectra for sample U2163-B-3 taken at test area 3. The test area is labeled in the particle SEM photo..

U2163 B4



SEM Photo of sample U2163 B4 with labeled EDS testing locations.

Particle Size:	10x7 µm
Shape:	Equidimensional
Transparency:	Opaque
Color:	Black, Gray
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2163 Cluster 18
Comments:	

Cluster of Origin: U2163 Cluster 18

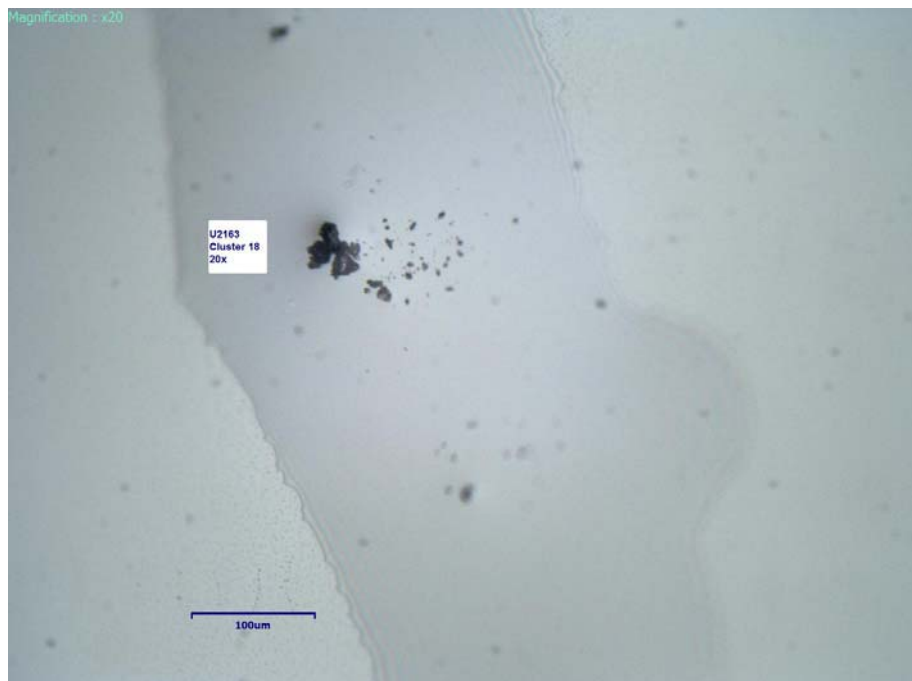


Photo of cluster U2163 Cluster 18.

U2163 B4 - EDS Spectra

Full scale counts: 5473

U2163-B4(1)_pt1

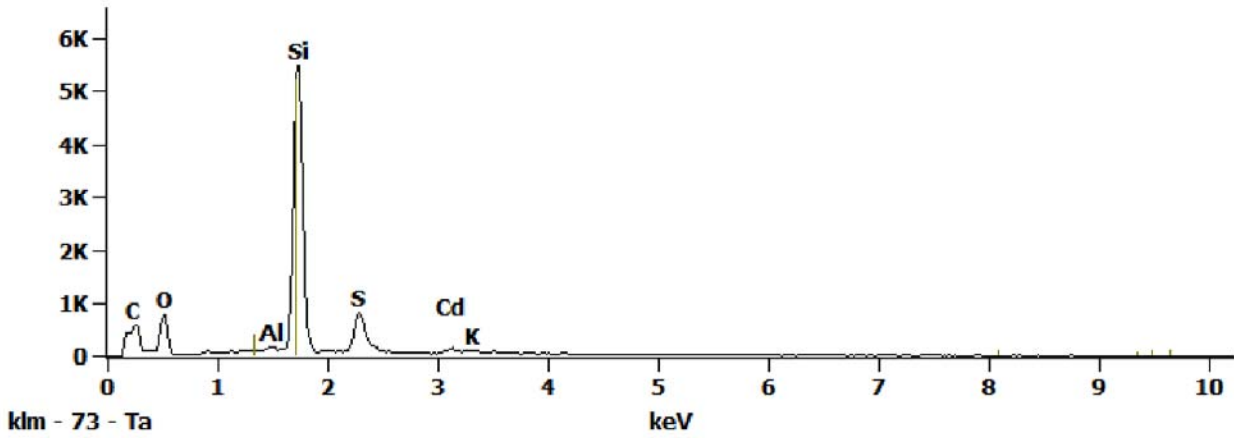


Figure 1. EDS Spectra for sample U2163-B-4 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 3681

U2163-B4(1)_pt2

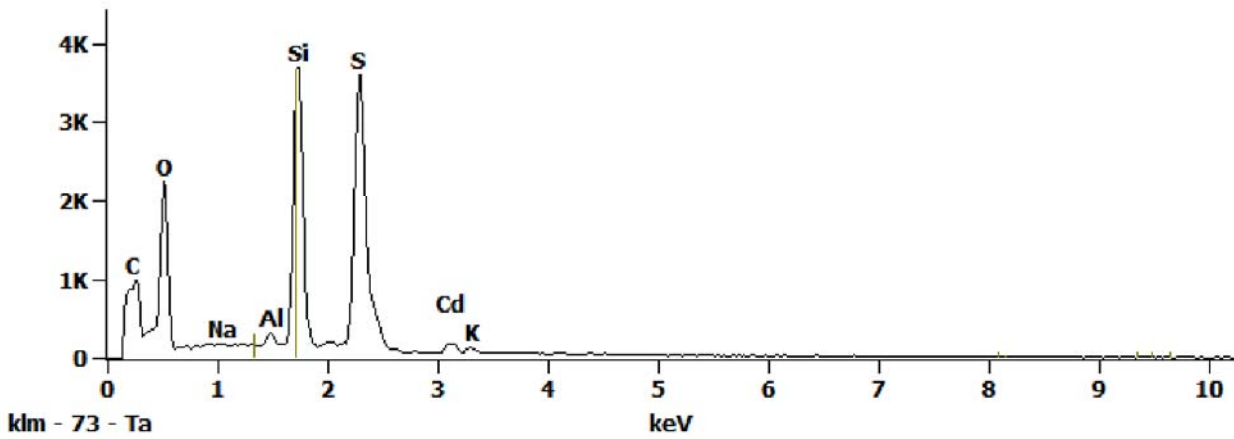


Figure 2. EDS Spectra for sample U2163-B-4 taken at test area 2. The test area is labeled in the particle SEM photo..

Full scale counts: 9904

U2163-B4(1)_pt3

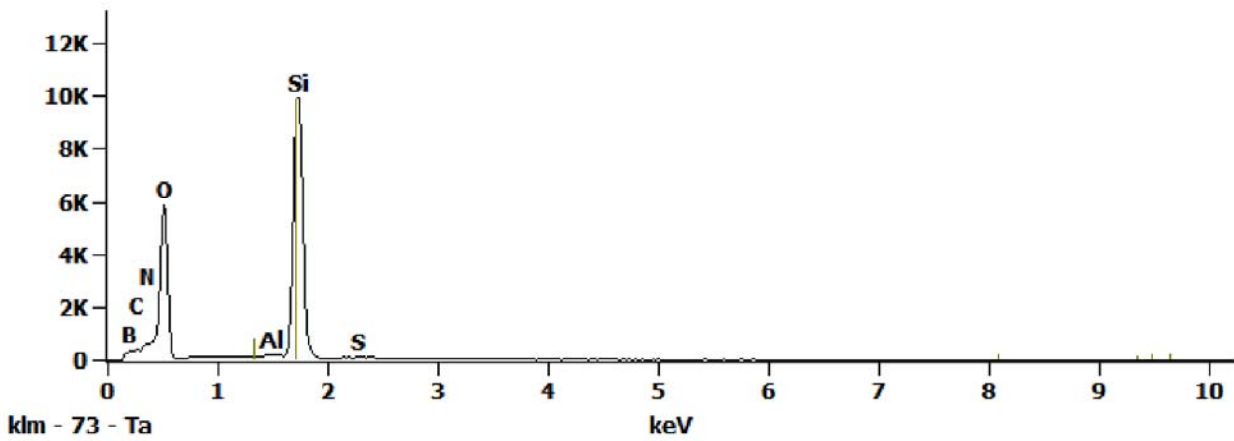


Figure 3. EDS Spectra for sample U2163-B-4 taken at test area 3. The test area is labeled in the particle SEM photo..

Full scale counts: 6241

U2163-B4(1)_pt4

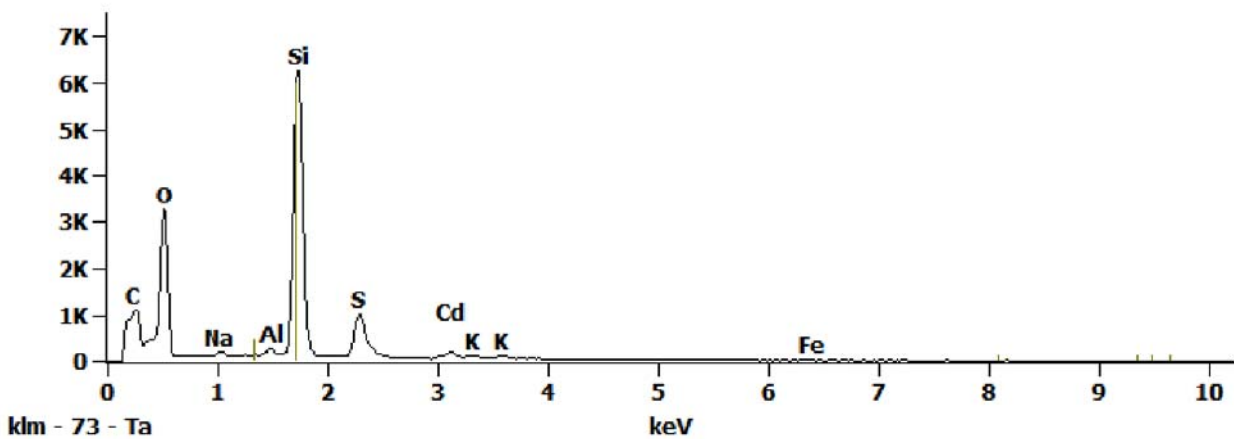
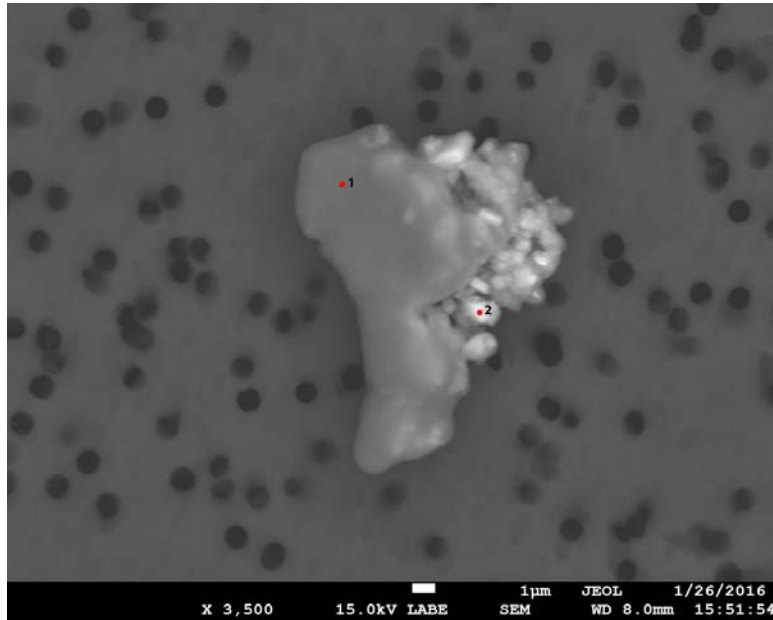


Figure 4. EDS Spectra for sample U2163-B-4 taken at test area 4. The test area is labeled in the particle SEM photo..

U2163 B11



Particle Size:	15x20 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Gray
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2163 Cluster 25
Comments:	

SEM Photo of sample U2163 B11 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 25

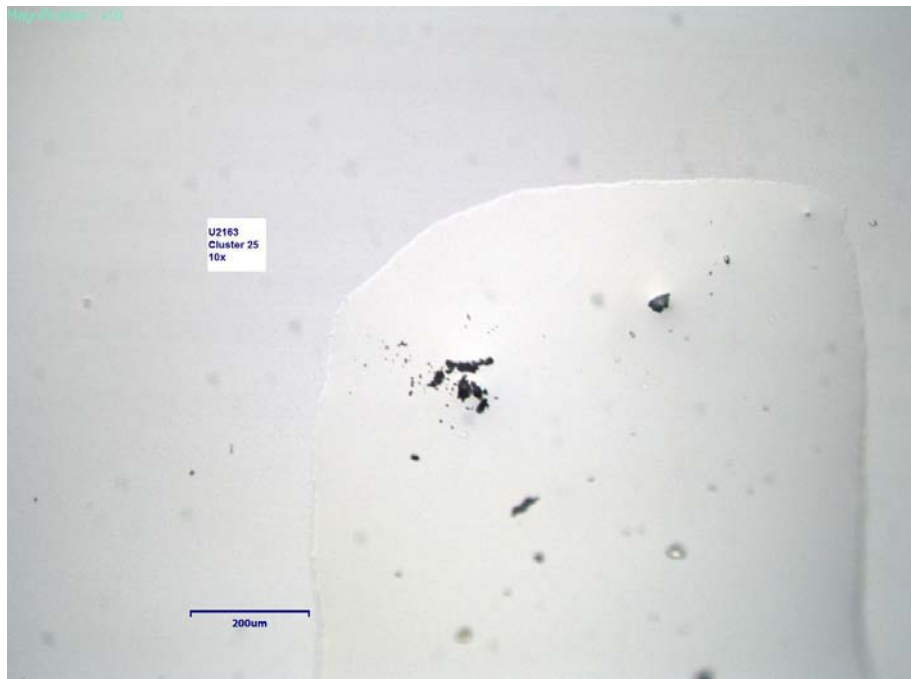


Photo of cluster U2163 Cluster 25.

U2163 B11 - EDS Spectra

Full scale counts: 1945

U2163-B11(1)_pt1

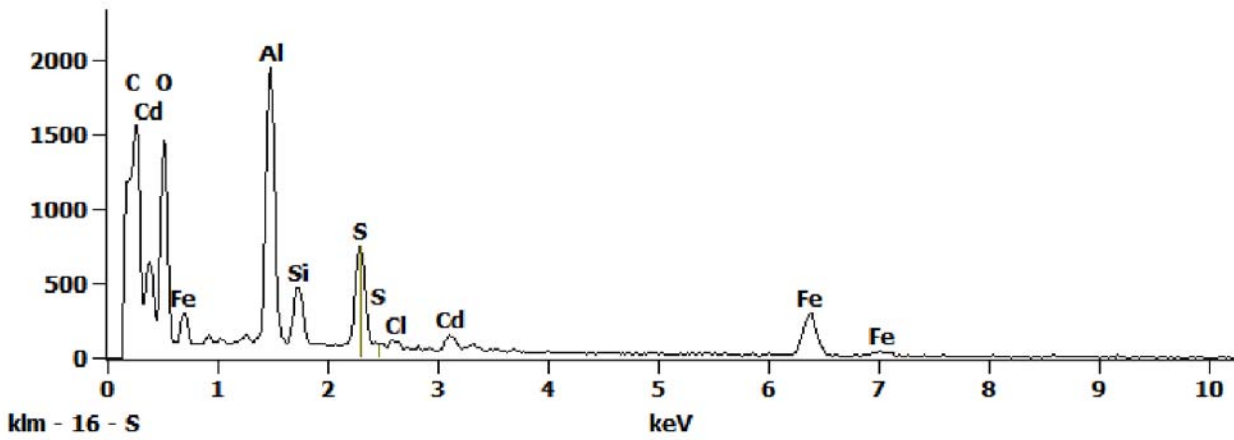


Figure 1. EDS Spectra for sample U2163-B-11 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1353

U2163-B11(1)_pt2

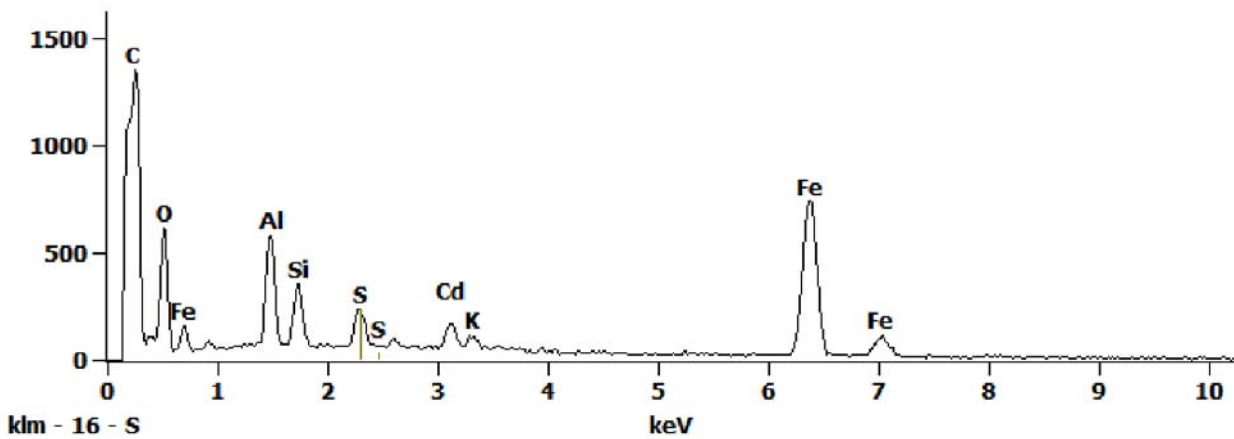
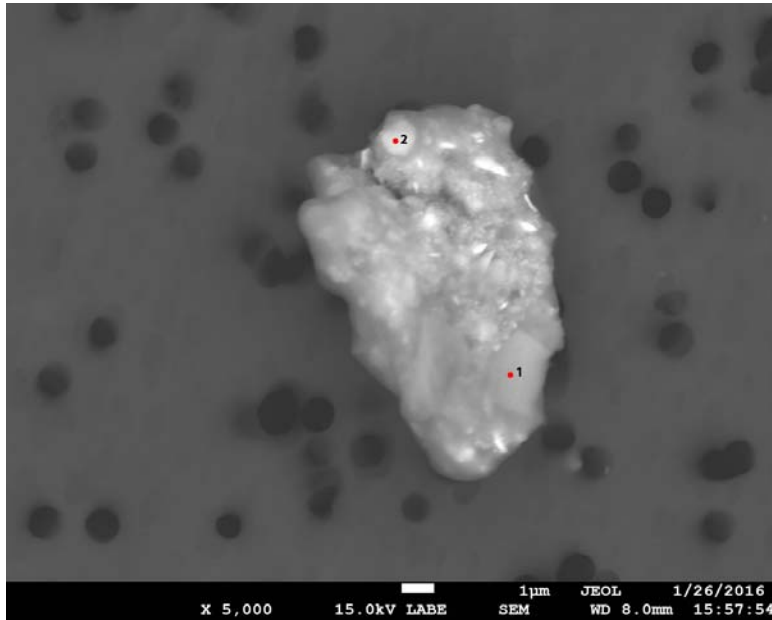


Figure 2. EDS Spectra for sample U2163-B-11 taken at test area 2. The test area is labeled in the particle SEM photo..

U2163 B12



Particle Size:	8x12 µm
Shape:	Equidimensional to Irregular
Transparency:	Opaque
Color:	Black, Brown, Orange
Luster:	Dull
Particle Type:	Natural Terrestrial Contamination
Cluster No.:	U2163 Cluster 26
Comments:	

SEM Photo of sample U2163 B12 with labeled EDS testing locations.

Cluster of Origin: U2163 Cluster 26

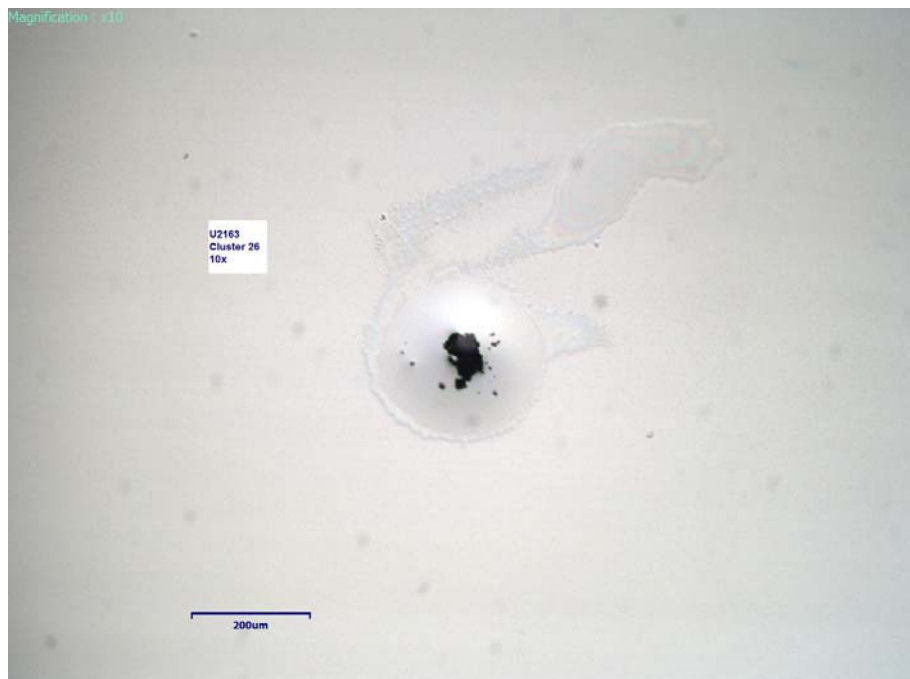


Photo of cluster U2163 Cluster 26.

U2163 B12 - EDS Spectra

Full scale counts: 1204

U2163-B12(1)_pt1

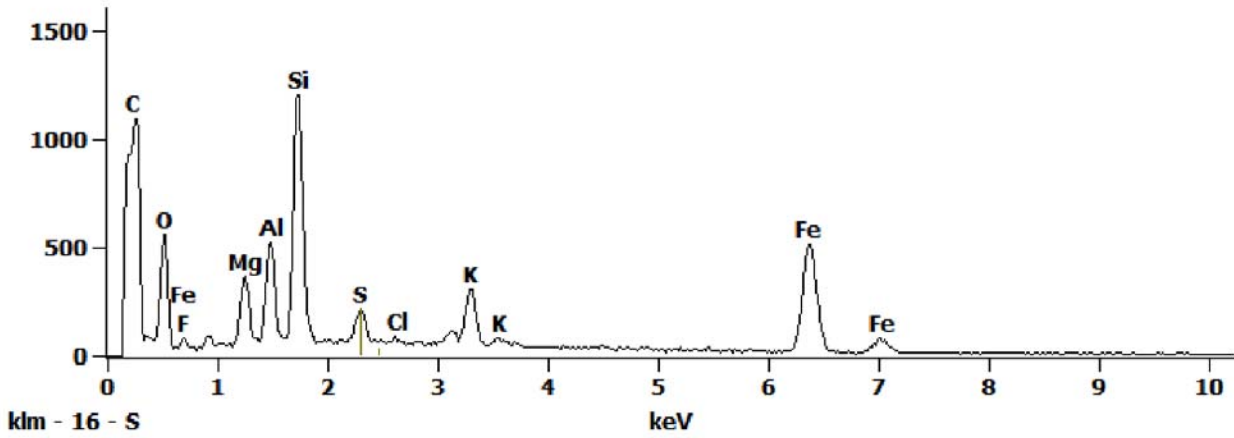


Figure 1. EDS Spectra for sample U2163-B-12 taken at test area 1. The test area is labeled in the particle SEM photo..

Full scale counts: 1503

U2163-B12(1)_pt2

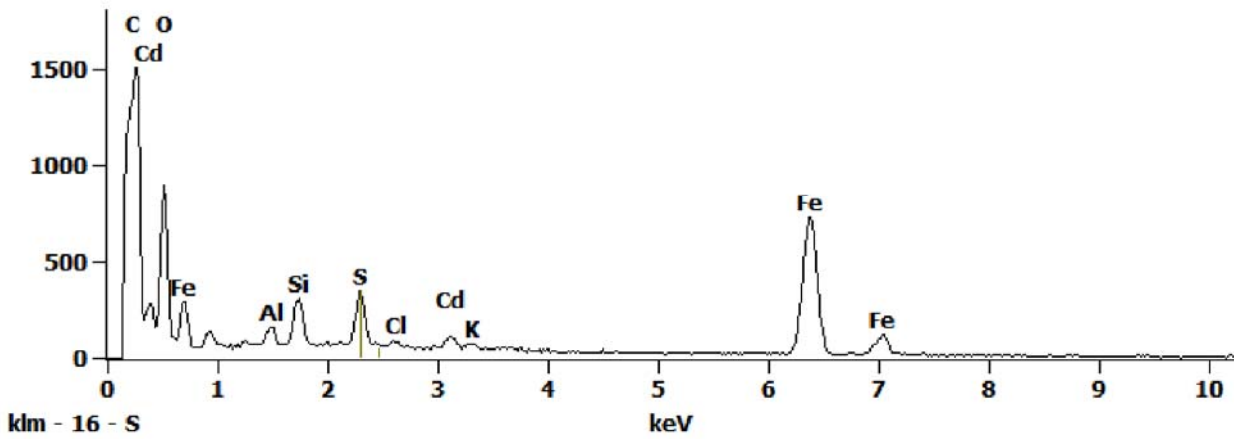


Figure 2. EDS Spectra for sample U2163-B-12 taken at test area 2. The test area is labeled in the particle SEM photo..

