

Frontier Analysis, Ltd

TECHNICAL SERVICE RESPONSE NO.: UT083

Subject: Analysis of Shiny Particles Purportedly Falling from the Sky MUFON Case
File: 55131 (Newtown PA, 1/21/2014)

Date: June 10, 2014

Requested By: Donna Luther
MUFON SSD/FI
Pennsylvania

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Background/Objective:

A witness claims to have seen a vortex in the sky from which shiny particles fell onto his property. This occurred in Newtown, Pennsylvania on January 21, 2014. There was no mention of an unidentified object observed. The objective is to identify the shiny particulates.

Conclusions:

- The shiny particulates are identified as common glitter. They are composed of a man-made common polyester specifically identified as poly(ethylene terephthalate). Glitter is commonly made from this polyester.¹ This conclusion is confirmed by both microscopic and infrared analysis.
- Analysis of the soil was not done because of the positive identification of the particulate as a man-made product. Furthermore, there was no observation of an UFO so no physical evidence commonly observed when these craft are in proximity would be detected. However, the soils will be permanently stored for possible future analysis if it becomes warranted.

¹ See the website of Glitterglo Limited (www.glitterglo.com). The data sheets (MSDS) report their plastic glitter is composed of poly(ethylene) terephthalate.

Procedure:

Samples: Five samples were received April 26, 2014. Following are their identifications.

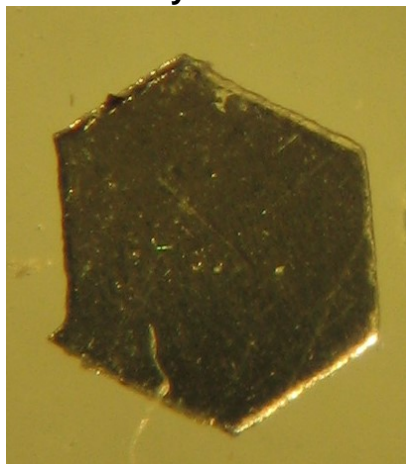
- Shiny particle in green plastic container, 4/10/2014.
- Shiny particles in clay sample in green plastic container, 4/10/2014.
- Side of house soil sample where particle fell in reclosable plastic bag, 4/10/2014.
- Back yard sample where particle fell in reclosable plastic bag, 4/10/2014.
- Front yard base line sample in reclosable plastic bag, 4/10/2014.

A FT-IR (Fourier Transform – Infrared) spectrum² was obtained from the shiny particle in the plastic container. The data were acquired on the Thermo Electron Avatar 360 spectrometer using the Smart Herrick diamond sampling accessory. Microscope photographs were obtained of the shiny particle in the green container using a Canon A520 digital camera interfaced to a Leica GZ6 stereomicroscope.

Results:

Microscopic Analysis: Examination of a shiny particulate under the microscope reveals a hexagonal shaped object ca. 1 mm (0.04 inch) wide. The photograph matches microscope photographs of hexagonal glitter. Following is a photograph of the shiny particle followed by microscope photographs of hexagonal glitter for comparison.³

Shiny Particle



² **FT-IR (Fourier Transform Infrared Spectroscopy):** Infrared spectroscopy is used for the molecular structure identification and quantification of solids, liquids, and gases. An infrared spectrum is the result of light (in the 2 to 25 micron wavelength range) interacting with the vibrations of molecules. The particular set of vibrations of a molecule gives rise to specific spectral absorption bands, often referred to as the “fingerprint” spectrum.

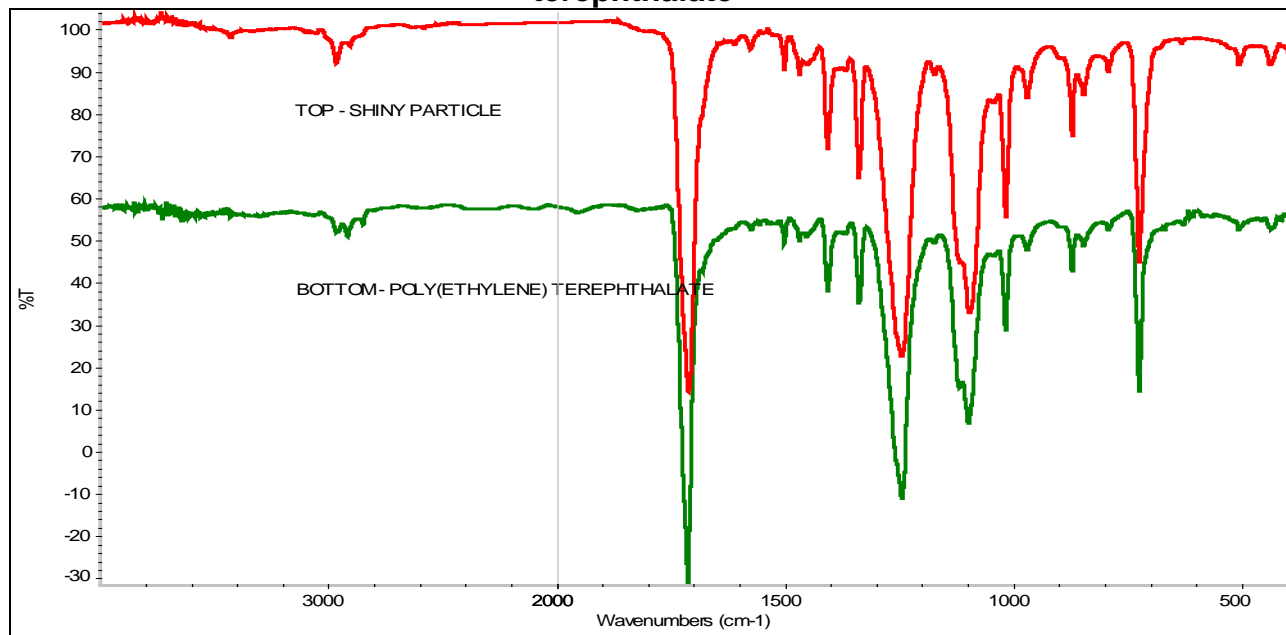
³ All the above reference glitter microscope photographs can be found in an article on “Holographic Glitter” by Kurt Gaenzle, Senior Materials Engineer, San Diego, CA, Edwin L. Jones Jr., Forensic Scientist III, Ventura CA, Bob Blackledge, Forensic Chemist Consultant, El Cajon, CA in the Modern Microscopy Journal” November 10, 2009. See website <http://www.modernmicroscopy.com/main.asp?article=95&print=true&pix=true>.

Reference Microscope Photographs of Hexagonal Glitter



Infrared analysis: The infrared spectrum identifies the shiny particle as a polyester, specifically poly(ethylene) terephthalate. The spectrum matches a reference of this polymer. This is a common component of glitter. Following are spectra of the particle and reference of poly(ethylene) terephthalate for comparison.

Infrared Spectra of the Shiny Particle and a Reference of Poly(ethylene) terephthalate



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Phyllis A. Budinger