

Frontier Analysis, Ltd.

TECHNICAL SERVICE RESPONSE NO.: UT015

Subject: Identification Unknown Substance Suspected to be "Pseudo Crystals"

Date: July 27, 2001

Requested By: W. C. Levengood
Pinelandia Biophysical Lab.
Grass Lake, MI

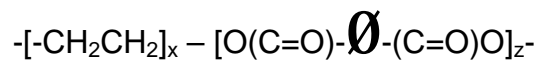
Reported By: P. A. Budinger
Analytical Scientist

Background/Objective:

Unusual appearing materials dubbed "pseudo crystals" have been found in house hold dust of individuals claiming alien abductions. They are usually in micron sizes and therefore difficult to identify. A recently found material has a similar appearance under the microscope as previously encountered "pseudo crystals". However, this time the "crystals" are in a larger cluster, and the amount is suitable for infrared analysis. It is the object of this analysis to identify this sample by infrared analysis.

Conclusions:

The sample is identified as poly(ethylene terephthalate) i.e. PET. It has the following structure:



This material is a common polyester manufactured under a variety of trade names by many companies. This polymer has many uses such as: blended with cotton, for wash-and-wear fabrics; blended with wool, for worsteds and suitings; packaging films; recording tapes; soft-drink bottles.¹

¹ Gessner G. Hawley;, "The Condensed Chemical Dictionary", tenth edition, Van Nostrand Reinhold Company, New York (1981) p. 832.

Procedure:

Sample: The sample was submitted with the following identification.

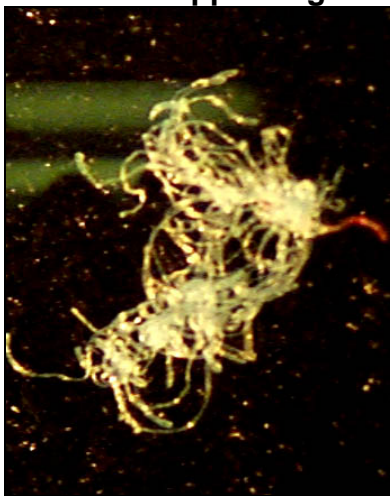
- KS-05-62 – Sample #8 “Nest of Pseudo Crystals”

Infrared spectra were obtained from the sample using the Harrick SplitPea™ cell on the Nicolet Avatar 360 spectrometer. The ATR crystal was silicon. The photographs at this laboratory were taken using the Leika GZ6 stereomicroscope interfaced to a Kodak digital Science MDS 120 camera.

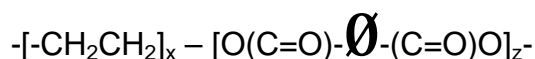
Results:

A microphotograph of the substance follows. It was taken at 60X magnification. Under the microscope the sample appears as a tangled/twisted mass of white fibrous material. The “as received” cluster was just under 1 mm at the widest width.

White Fibrous Appearing Material



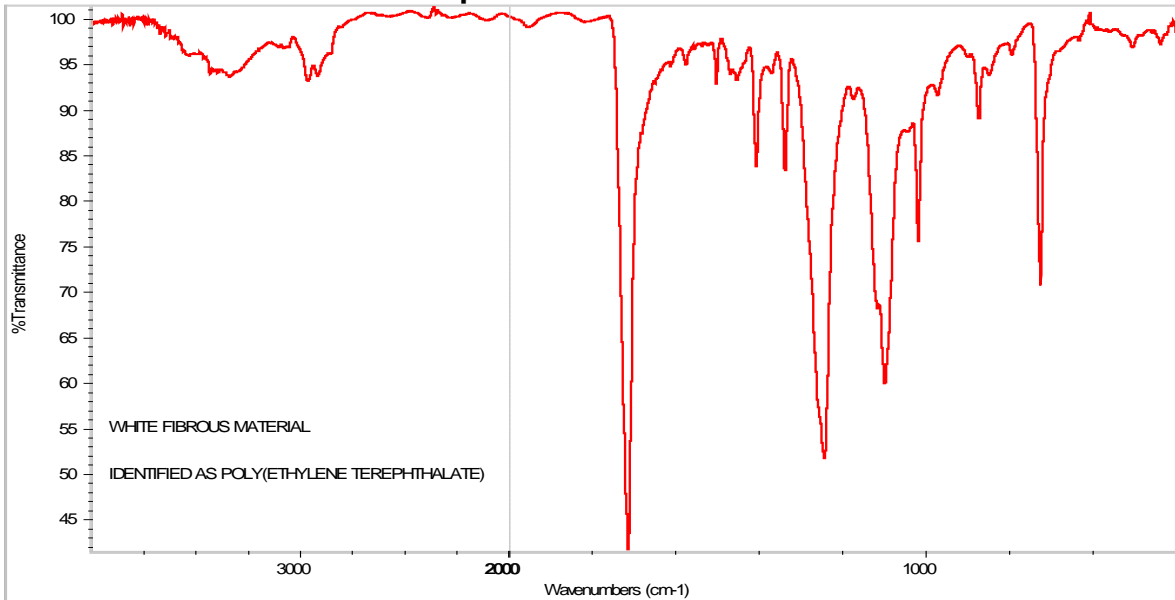
Infrared analysis of the material identifies it as poly(ethylene terephthalate). It has the following structure:



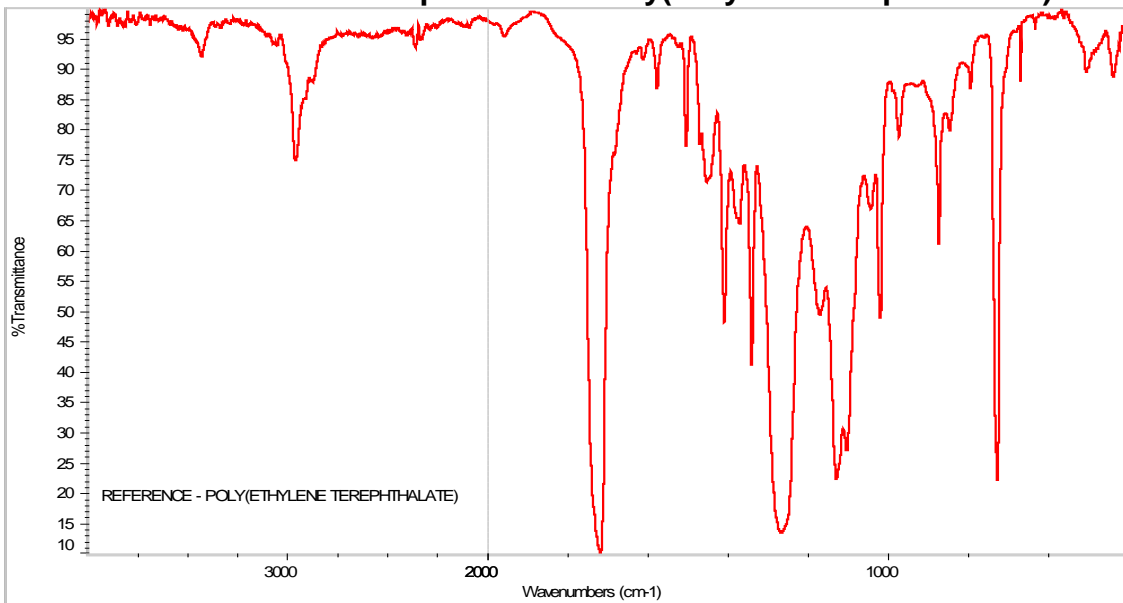
The spectrum matches a reference² of this material. A spectrum of the sample along with that of a reference of PET for comparison follows.

² Hummel/Scholl, “Atlas of Polymer and Plastics Analysis”, Vol. 1, Polymers: Structures and Spectra, Ref. 694.

Infrared Spectrum of White Material



Infrared Reference Spectrum of Poly(Ethylene Terephthalate)



File: UT015.DOC

Phyllis A. Budinger