

## **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

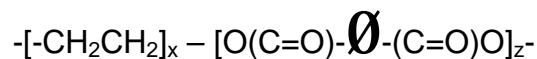
**Reported By:** P. A. Budinger  
Analytical Scientist

### **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.<sup>1</sup>

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<sup>1</sup> 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.

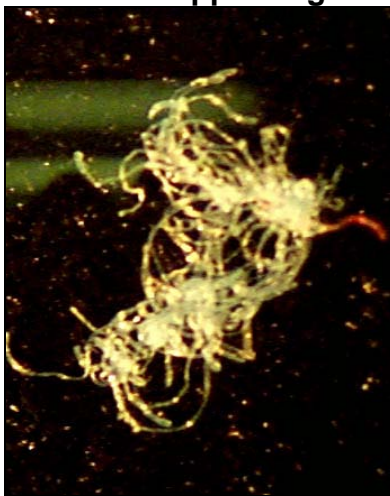
- KS-05-62 – Sample #8 “Nest of Pseudo Crystals”

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.

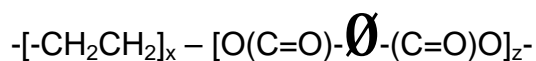
**Results:**

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:

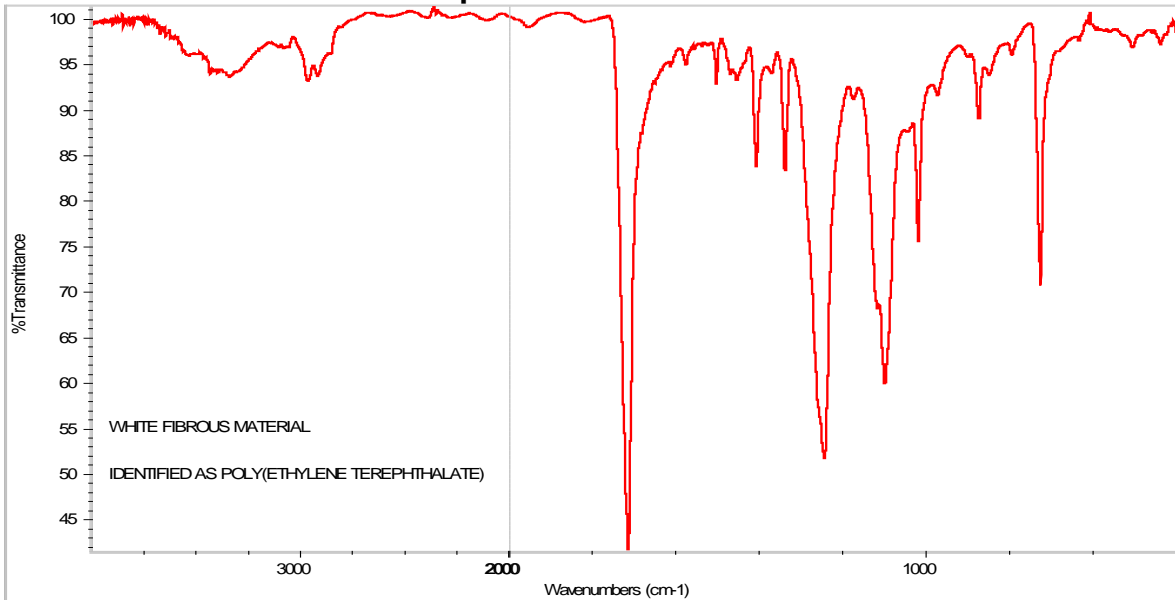


The spectrum matches a reference<sup>2</sup> of this material. A spectrum of the sample along with that of a reference of PET for comparison follows.

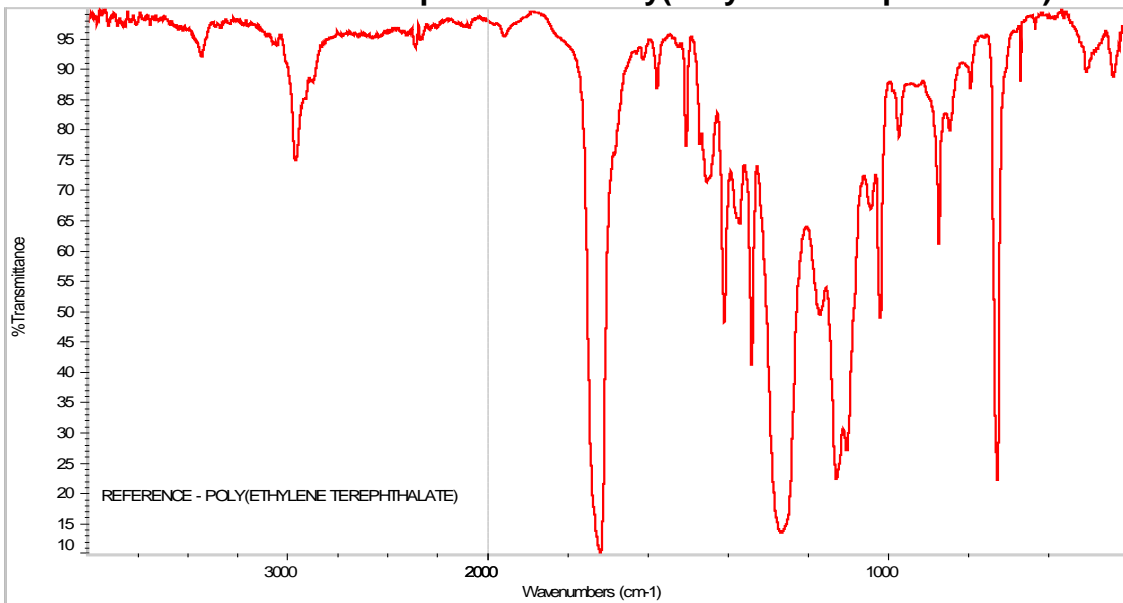
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<sup>2</sup> Hummel/Scholl, “Atlas of Polymer and Plastics Analysis”, Vol. 1, Polymers: Structures and Spectra, Ref. 694.

**Infrared Spectrum of White Material**



**Infrared Reference Spectrum of Poly(Ethylene Terephthalate)**



File: UT015.DOC

Phyllis A. Budinger