

Frontier Analysis, Ltd

TECHNICAL SERVICE RESPONSE NO.: UT044

Subject: Analysis of a Boot Worn by A Witness During a Purported Close UFO Encounter (Indiana/Ohio, August 24-25, 2005)

Date: January 20, 2006

Requested By: William Puckett
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Background/Objective:

The event is described in the analytical request by William Puckett. An edited account follows.¹

The witness experienced two encounters with a UFO over a two-day period, i.e. early August 24 and early August 25, 2005. It involved a couple traveling from Eagle rock, Missouri to a small camping park near Marion, Ohio. The first encounter was near Indianapolis, IN while traveling east on I-70. The woman (primary witness) saw bright flames to the north. She became quite sickened by a strong odor, which was similar to creosol, sulfuric acid, and tar. She used to work for DOW Chemical and is quite familiar with chemical odors. After continuing to drive east on I-70 the couple stopped for fuel near the Indiana-Ohio Border (Richmond, Indiana). The woman saw several lights in the sky and became sick again with the same "foul" odor. The next night while driving on U.S. Highway 61 near Mount Gilead, Ohio she sighted a large triangular object. She again smelled the same strong odor and felt a "mist-like" substance on her skin. She had just purchased a new pair of black boots. They were marketed by Wal-Mart, but she purchased them new from a second party. She said she had never worn the boots before the trip. The synthetic suede on the surface of the boots was stripped clean in several areas after her encounters. She said that a "black substance" collected on the carpet of a relative that she was visiting right after the encounter.

¹ The account can also be found in the following website: www.ufosnw.com/ind-oh-aug2005.htm.

The witness suffered physical effects from the encounters for more than a month. The doctor's diagnosis was "chemical pneumonia" and kidney infection.

The objective is to examine a boot worn during the events to determine whether there are any residues that may relate to the suede to being stripped clean in various areas. Following are photographs of the left boot which clearly shows the damage to the suede surface.

Photographs of the Boot (Left)



Right Side of Boot



Left Side of Boot



Boot Top



Boot Sole/Heel



Boot Back

Conclusions:

1.) No unusual materials are detected on the boot. The boot is covered with fake suede, i.e. poly(ester urethane) MBI (MBI = Methylene Bis(phenyl-isocyanate which is one of the monomeric units of the polymer). The outer surface of the suede also has some polydimethylsiloxane which is commonly used as a water repellent. Soil particulates are present on the sole and heel of the boot. There is also a small amount of tarry material inside the boot, which consists of poly(ester urethane) MBI, talc, and a biological material containing an amide functionality. The urethane inside the boot is not completely cured. It is probably the glue that holds the suede to the boot. The talc may be from foot powder, and the amide-containing material may be perspiration. No radioactivity above background is detected.

2.) Black particulates found in a plastic bag containing the boot are fake suede poly(ester urethane) MBI, obviously from the boot.

3.) Though not analyzed, I speculate the black substance reported to be on the relative's carpet was also some of the boot material, specifically a poly(ester urethane, MBI.

4.) It is most unusual that the suede came off of the boot. With the absence of any unusual foreign substances, I can offer two speculations why this occurred. They follow.

- The witness described a creosol, sulfuric acid, and tar odor during the event. This is an important clue. Creosol contains phenolic-type materials

among other things. So, this may indicate the presence of phenolics, though not necessary from creosol. If the boot was exposed to these materials, there is a very real possibility they caused the adhesive to fail. According to "The Polymer Handbook"² poly(urethanes), of which the suede and glue are composed, are soluble in phenol, m-cresol (a phenolic derivative), formic acid, and sulfuric acid. Phenols sublime easily and would have been gone by the time the boot was received for analysis, and hence not detected. I can rule out sulfuric acid and formic acid because the pH measurements of the boot surface were neutral and possibly skewed to the basic side. These phenolic materials are hazardous and known to cause some of the effects suffered by the witness.³

- For the second, less likely speculation, I offer that the boot became wet during the encounter. This caused a loss of adhesiveness due to improper bonding of the urethane glue to the fake suede during manufacture. Partially uncured urethane adhesive was found in the boot.

Procedure:

Samples: A black suede boot (left) with bare spots was submitted for analysis. There are also black flecks in a plastic bag that contained the boots when the witness shipped them to the investigator. The samples were received by this laboratory on October 21, 2005.

Infrared spectra were obtained from of the inside and outside of a piece of suede carefully removed from the boot. Spectra were also obtained from scrapings of the "bare area", scrapings from the sole and heel, a tarry material found inside the boot (heel), and flecks found in the bag containing the boot. Spectra were acquired on the Analect 360 spectrometer using the Harrick SplitPea[®] sampling accessory. Additionally, pH measurements were made by placing dampened pHDrion paper on two areas (the suede and the bare regions) of the boot. The samples were also examined with a radiation monitor (SE International's Radiation Alert[™] Monitor 4) and a UV light (Optical Engineering's Model 22-UV).

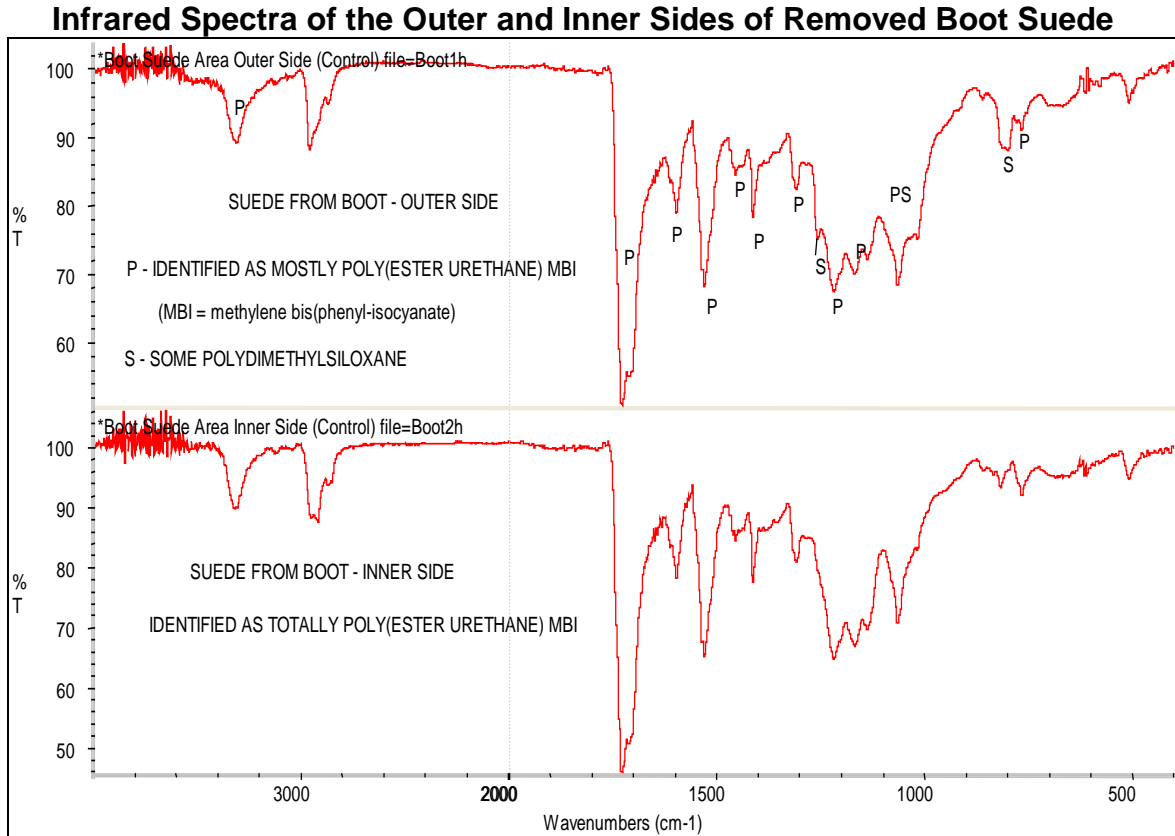
Results:

The results of the individual tests done on the samples follow. These results are summarized in the conclusions section on the page three of this report.

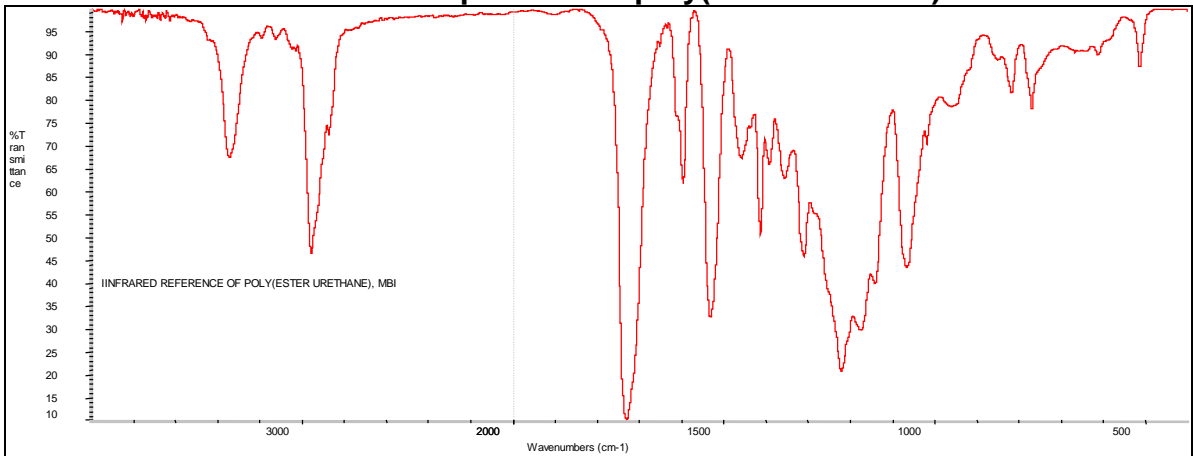
² E. H. Immergut et al, "The Polymer Handbook", Fourth Edition, John Wiley & Sons, Inc. VII/515 (1999).

³ See websites <http://onehomebiz.com/team/familybiz/faq.html> and <http://www.intox.org/databank/documents/cechemical/phenol/cie29.htm> for the effects on exposure to phenolic type materials.

Infrared Analysis: Infrared examination of the outside surface of suede carefully removed from the boot shows it is composed of poly(ester urethane) MBI (MBI = Methylene Bis(phenyl-isocyanate) which is one of the monomeric units of the polymer). Also detected is polydimethylsiloxane. This latter material is commonly used as a moisture repellent. The infrared spectrum of the inside of the removed suede only detects poly(ester urethane) MBI. Following are spectra of the outside and inside of the suede, along with a reference of poly(ester urethane) MBI for comparison.

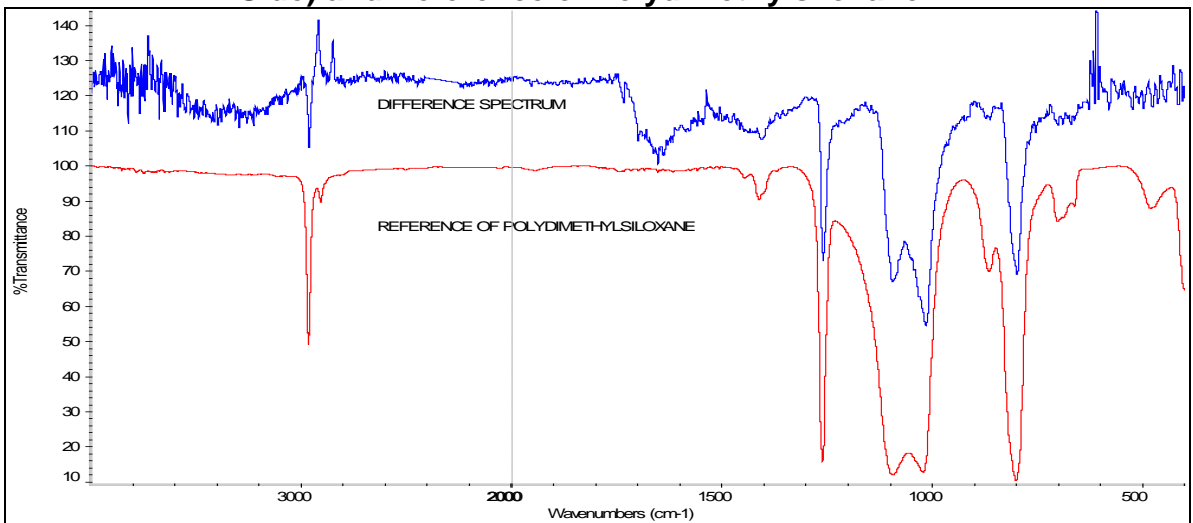


Infrared Reference spectrum of poly(ester urethane) MBI



To more clearly display that the presence of polydimethylsiloxane is exclusively on the suede outer surface, a difference spectrum (suede outer spectrum side versus suede inner side spectrum) was computer generated. This procedure effectively nulled out the poly(ester urethane) absorption bands. It showed additional absorption due to the siloxane, which matches a reference of polydimethylsiloxane. Following is the difference spectrum along with the polydimethylsiloxane reference for comparison.

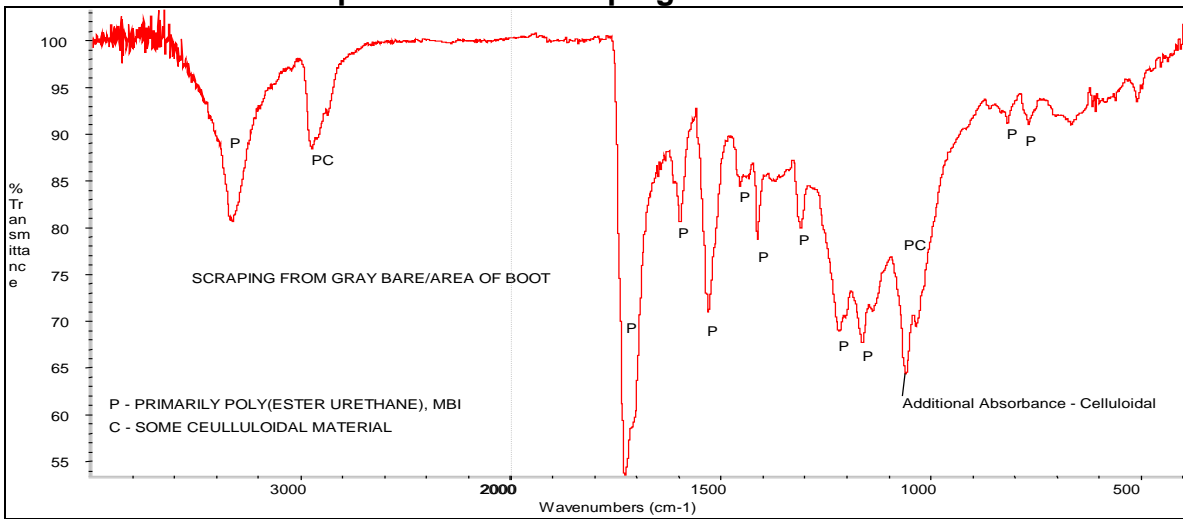
Infrared Spectra of Difference Spectrum (Suede Outer Side Vs Suede Inner Side) and Reference of Polydimethylsiloxane



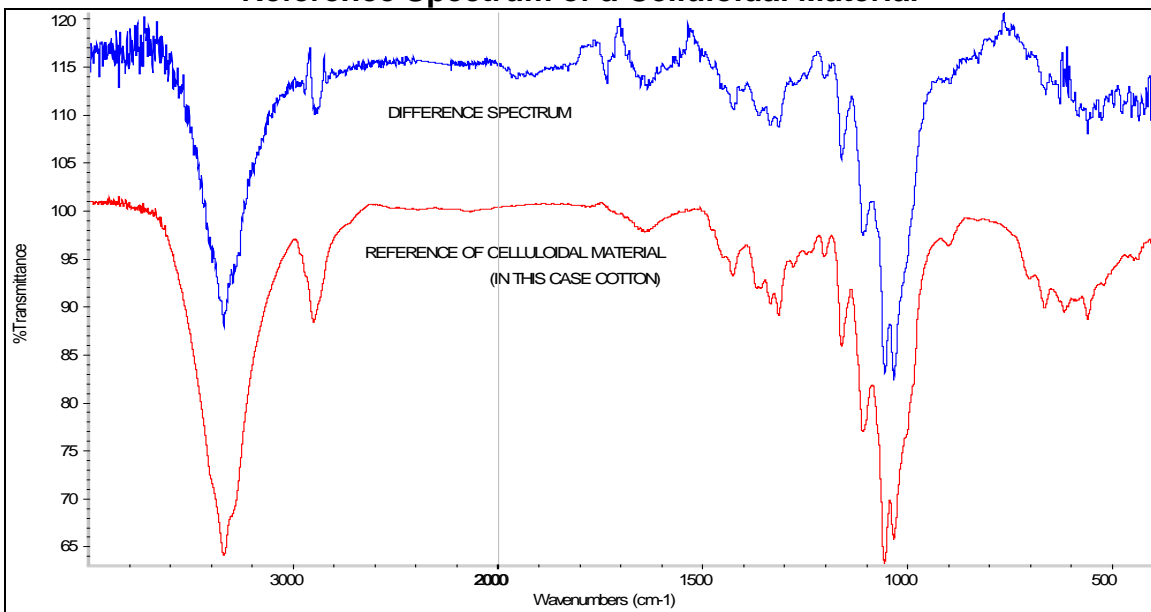
An infrared spectrum of a scraping from the bare area of the boot shows primarily poly(ester urethane) MBI. (Compare the spectrum to the reference of this material on page 6.) Additional absorbance between 1100 and 1000 cm^{-1} shows an additional component. Generation of a difference spectrum between this spectrum versus that of from the intact suede (outer side) effectively nulls out the urethane bands. This enhances absorption from the other component and

permits its identification. It is a cellulosidal material which obviously is part of the boot. Following are spectra of the scraping, the difference spectrum, and a reference of a cellulosidal material (cotton) for comparison.⁴

Infrared Spectrum of a Scraping from the Bare Area



Infrared Difference Spectrum (Bare Area Vs Intact Suede, Outer Side) and Reference Spectrum of a Cellulosidal Material

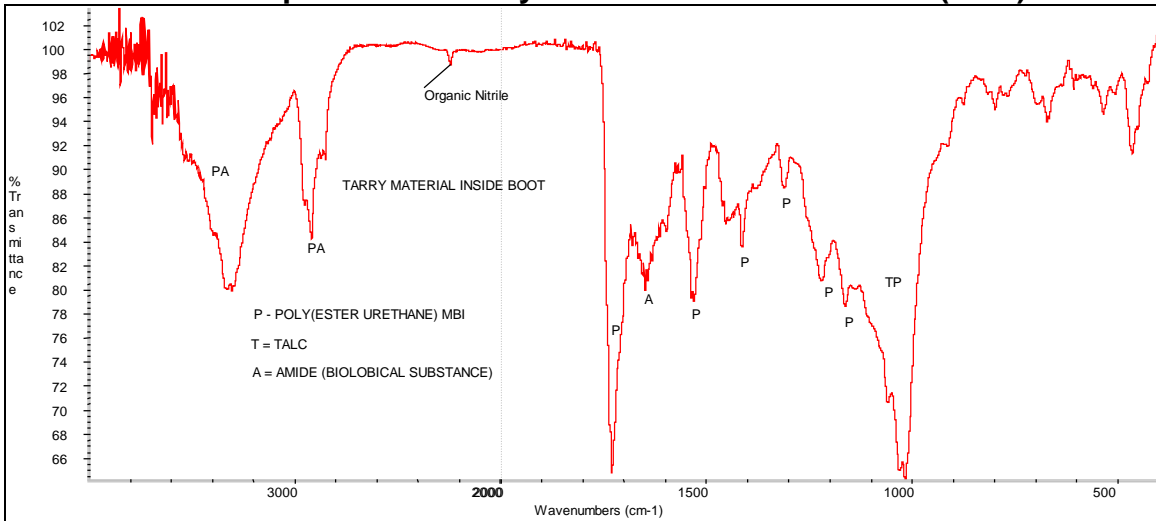


Infrared analysis of a small amount of black tarry material found inside the boot (heel) shows a mixture of poly(ester urethane) MBI, talc, and a material containing an amide functionality. This urethane does not have a suede appearance, i.e. it is tarry, and along with the detection of organic nitrile indicates

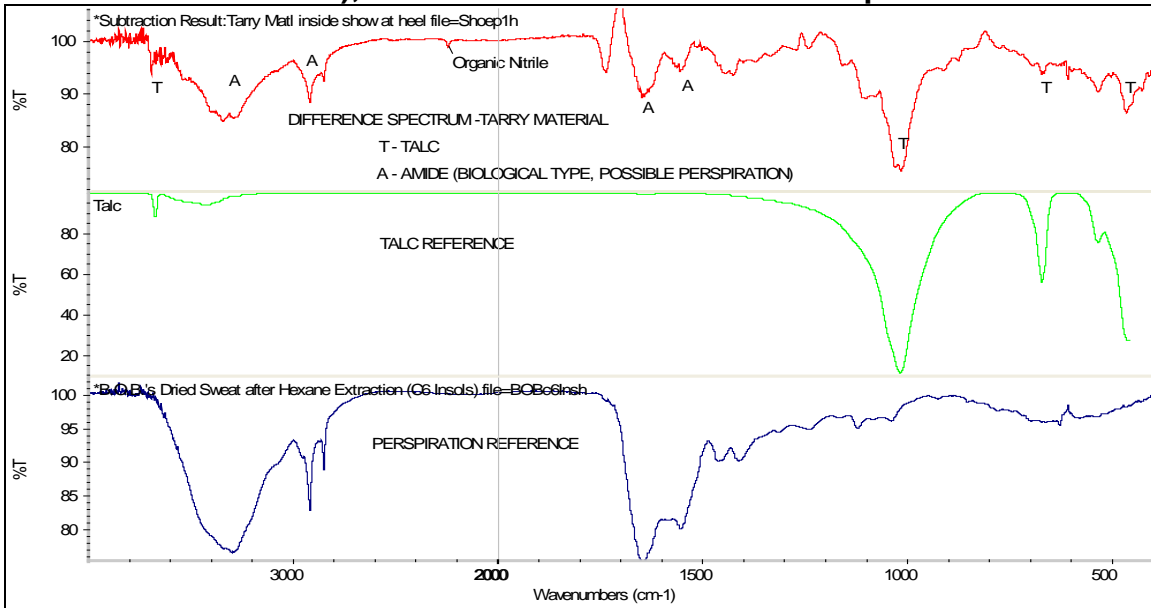
⁴ Rayon is also a cellulosidal material.

it is not completely cured. It is probably used as the adhesive which binds the "suede" urethane to the boot. Talc could be from foot powder. The amide-containing material may be from foot perspiration. Generation of a difference spectrum between those of the tarry material and the intact suede (outer side) nulls out the interfering urethane absorption. The resulting spectrum more definitively shows the talc and amide containing material. Following are spectra of the tarry material, the difference spectrum, and references of talc, and an amide-containing material (perspiration) for comparison.

Infrared Spectrum of Tarry Material from Boot Inside (Heel)

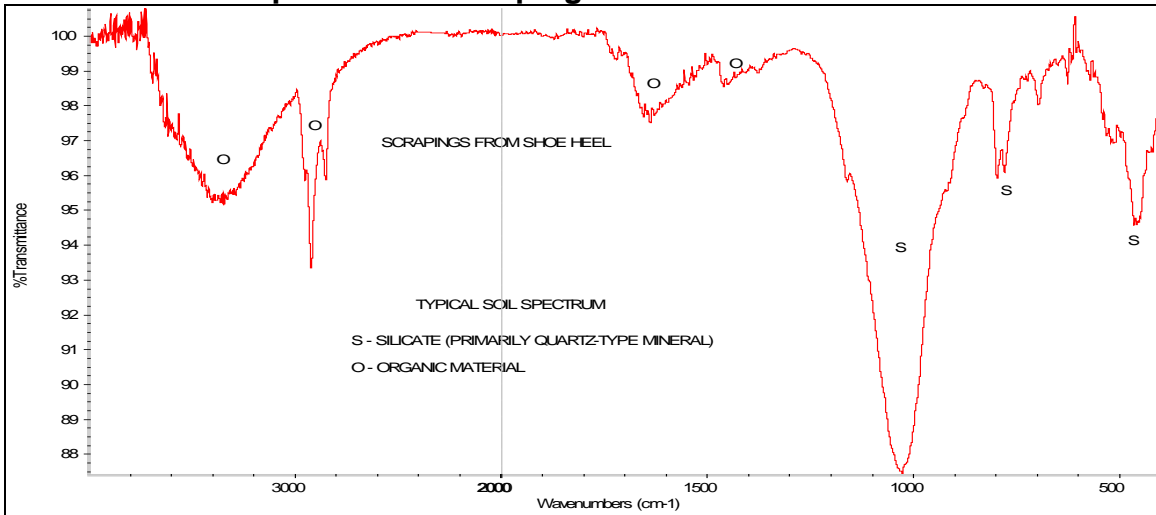


Infrared Difference Spectrum of the Tarry Material (Tarry Vs Intact Suede, Outer Side), and References of Talc and Perspiration



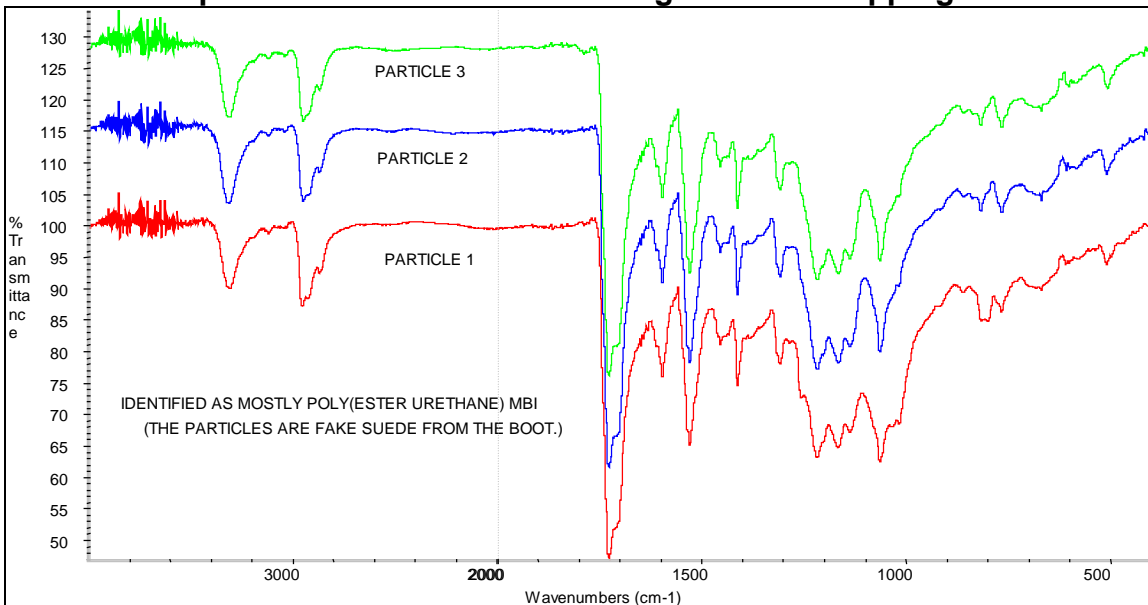
The infrared spectrum of scrapings from the sole and heel of the boot is expectedly typical of soil. A quartz-type mineral is apparent along with typical soil organics. The spectrum follows with pertinent peaks labeled.

Infrared Spectrum of Scrapings from the Boot Sole and Heel



Infrared analysis was also done on particulate material found in a plastic bag in which the witness enclosed the boots for shipping to the investigator. All particulates have the same composition. They are poly(ester urethane) MBI, and match the reference of this material on page 6. Therefore, they are from the boot. Following are three spectra of the particulates.

Infrared Spectra of Particulates from Bag used for Shipping the Boots



pH Measurements: The suede and bare areas of the boot were exposed to damp pHydrion paper to determine whether there were any acidic or basic materials present. The test is a rough measurement and shows a pH of 7-8, indicating both areas are neutral or near neutral. So, no highly acidic or basic components are detected. Following is a photograph of the boot with damp pHydrion attached along with the indicator guide. Clearly the yellow color compares to a pH of 7/8.



Boot with dampened pHydrion Paper

Other Tests: Radiation measurements show no radiation above normal background for any of the above samples. Additionally, no fluorescing material was detected under UV light.

FILE: UT044

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