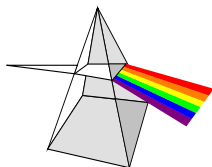




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## ***Frontier Analysis, Ltd***

### **TECHNICAL SERVICE RESPONSE NO.: UT032**

**Subject:** Composition of a Salve which Originates from an Obscure Source  
(Alaska, circa 1949-1951)

**Date:** June 30, 2004

**Requested By:** Victoria Jahnke  
15608 Highway R  
Maribel, WI 54227

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

**Analyzed By:** P. A. Budinger

Nick Reiter  
The Avalon Foundation

### **Background/Objective:**

An unusual event occurred in Alaska within the 1949-1951 time period. A couple, naked and covered in dirt or dust, came to the door of Victoria Jahnke's mother. They asked if they could bathe. Her mom reluctantly agreed to this. Before they left she gave them clothes. When she cleaned out the bathtub her hands went numb. Nothing she did would help. Suddenly there was a knock on the door. She found a very tall man standing there who had a tube of salve in his hand. He tore it in half and gave one half to her, telling her that it would take care of the problem with her hands. It did. She saved the remainder of the salve for years, wrapped in a handkerchief. It dried to a pink powder.

Victoria gave some of the sample to Bill Jones at the Dearborn MUFON symposium in July 2003. Bill submitted the sample to me for analysis.

### **Conclusions:**

The salve contains calcium bentonite (60 wt.%), glycerol (glycerine) (30 wt.%), and a mix of long chain mono-, di- and tri- glycerides (10 wt.%). A small amount of free carboxylic acid and carboxylic acid salt is also present (less than 5 wt.%).

The above reported quantitative amounts are very rough estimations, and certainly not representative of the original salve composition, though it is very probable that calcium bentonite predominated. More glycerides, which are natural oils, were most likely present. It is suspected the glyceride esters originally were in higher amounts to give the salve a grease-like consistency. The glycerides appear to have suffered some deterioration and probably experienced absorption into the handkerchief during the half century since the event. Hence, the salve is now solid. The presence of a long chain carboxylic acid is suspected to be degradation product resulting from decomposition of the glycerides, thereby supporting the degradation speculation. The carboxylic acid in salt form may be part of the original composition of the salve and associated with lead, i.e. a lead carboxylic acid salt. Perhaps water was initially present. If so, it would have long ago evaporated.

The use of calcium bentonite in salve is widely touted as a cure for a wide variety of ailments, including many skin irritations especially by holistic medicine. The composition is similar to a commercially available salve, **Pasca-Balm Bentonite Ointment & Skin Softener**<sup>1</sup>. The advertisement can be found in the appendix. Some history of calcium bentonite is also provided on the website. It was known by Native Americans as a healer, before the coming of Europeans.

The tube container is composed of tin. Metal Oxide was detected in the dried salve, but it is highly probable that it is oxidized metal from the tube.

### **Procedure:**

The salve was submitted on the original, rather decimated, tube remains. In fact, there was nothing resembling a tube left. It appeared to be crinkled metal with a dry coating of material which was more prevalent on one side. (It was difficult to determine which side the salve was on because it appeared to be smeared on both sides.) The shinier side was perceived to be the outside of the tube.) The sample was received in a plastic bag. Following are photographs of the front and back of tube fragment with the dry salve coating as submitted.

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<sup>1</sup> [www.herbalremedies.com](http://www.herbalremedies.com)

**Tube Inside with Salve Coating**



**Other Side of Tube – A shinier appearance indicates it is the Outer Side**



Infrared spectra were obtained of salve scrapings from the tube. A section of the tube with salve was cut into small pieces. These pieces were then extracted with progressively polar solvents, i.e. hexane followed by 1:1 acetone:methanol. Infrared spectra were obtained of the extracts and the insolubles. Additionally, the surface of the tube was thoroughly cleaned and a spectrum obtained from it. Weights of the extracts were obtained in order to determine a rough quantitative estimation of the amounts.

Microscopic photographs were obtained using the Leika GZ6 stereomicroscope interfaced to a Kodak Digital Science MDS 120 camera.

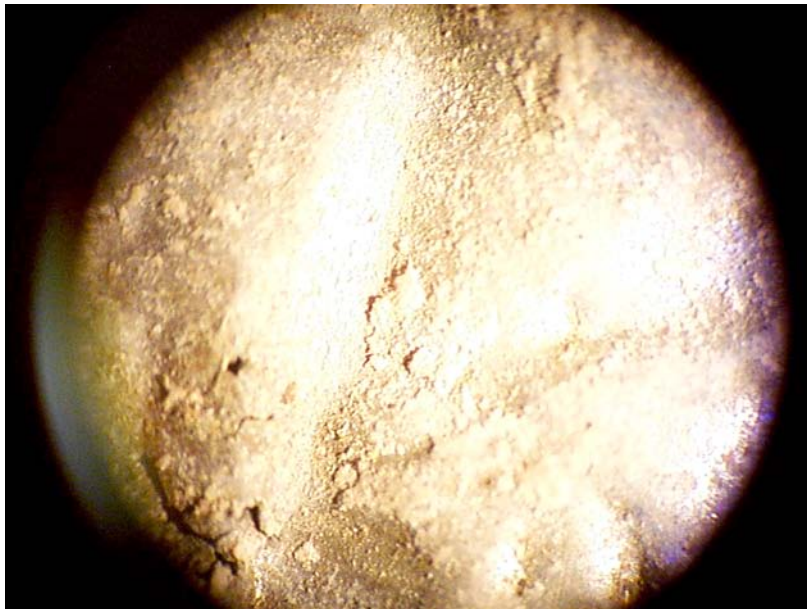
EDS elemental analysis was done on the salve and a cleaned portion of the tube by Nick Reiter (The Avalon Foundation).

### **Results:**

The results of the individual tests done on the salve and the tube container follow. These results are summarized in the conclusions section on the first page of this report.

### **Microscope Photographs**

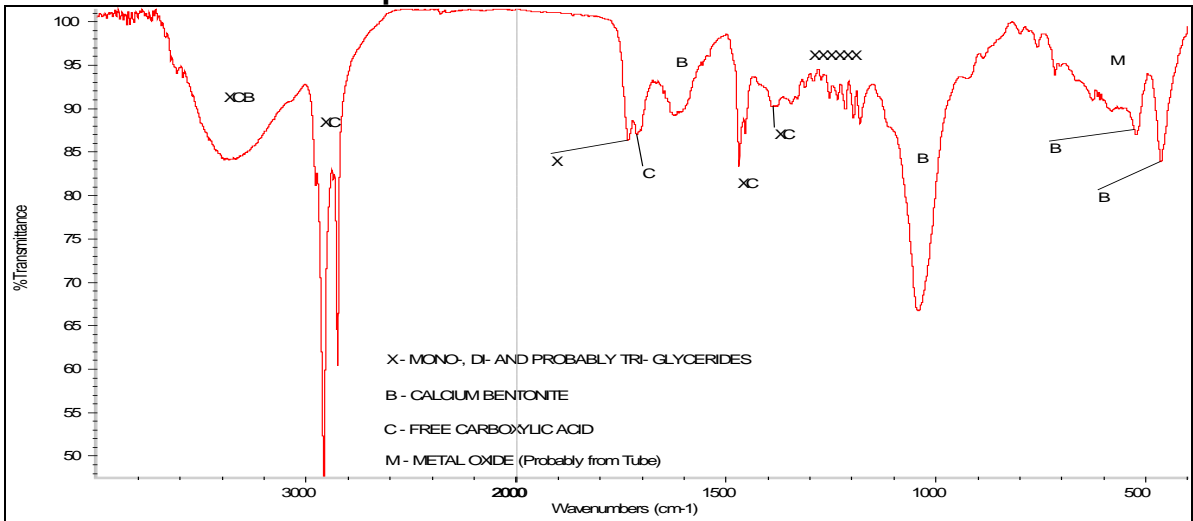
Microscopic examination of the material coating the tube shows it is solid. Expectedly, the salve has dried out over the past half century. A microscopic photograph follows.



### **Infrared Analysis**

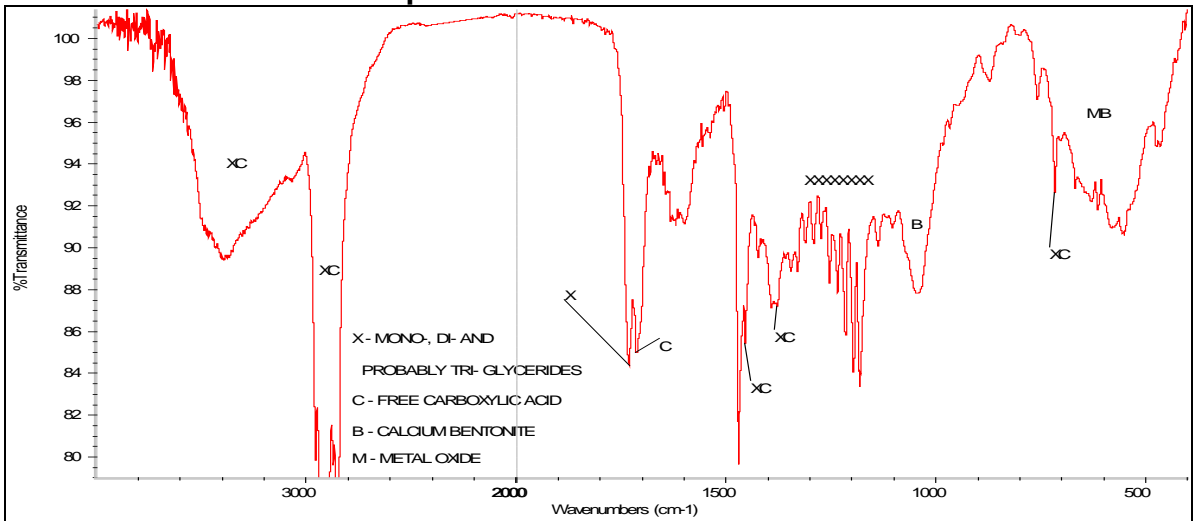
Infrared analysis of the salve “as received” shows it is a mixture components. Spectral bands suggest calcium bentonite and a mixture of long chain mono-, di-, and tri-, glyceride esters, Small amounts of free carboxylic acid and metal oxide are also indicated. The spectrum follows. Pertinent reference spectra can be found in the appendix for comparison.

### Infrared Spectrum of the Salve "As Received"



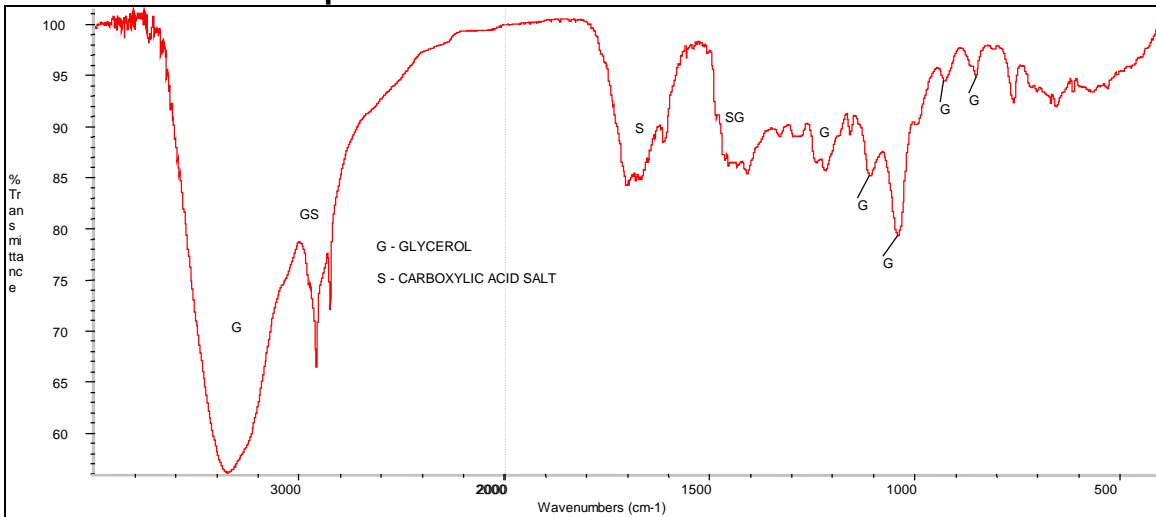
Solvent extractions were done to isolate the materials indicated in the spectrum of "as received" salve to better confirm their identifications using infrared spectroscopy. A very small amount of material was hexane soluble. The infrared spectrum of this extract shows primarily the long chain di-, mono-, and tri- glycerides mixture. Some free carboxylic acid is also present. Additionally, small amounts of residual, insoluble calcium bentonite and metal oxide carry over are detected. The spectrum follows.

### Infrared Spectrum of Salve Hexane Extract



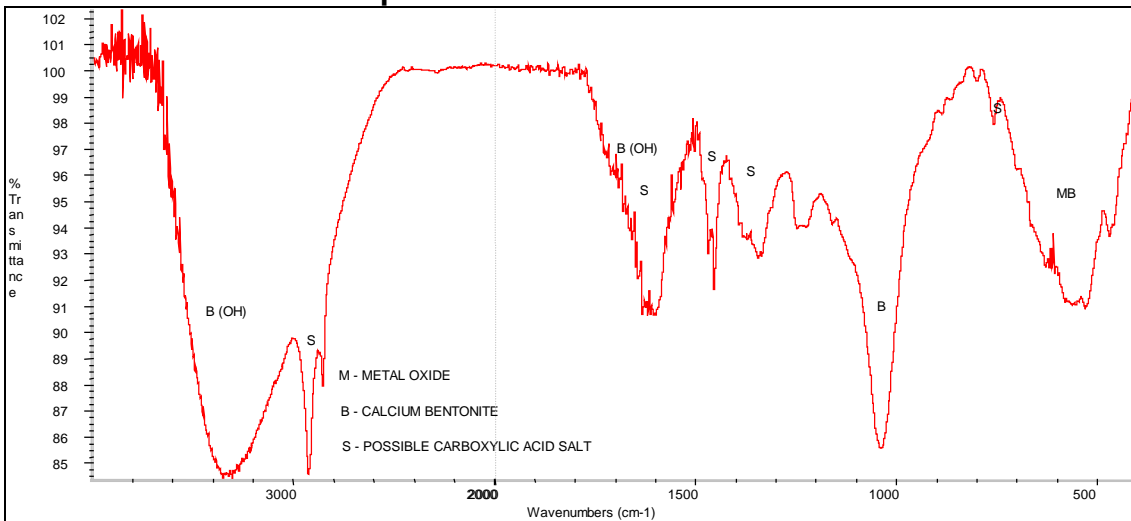
There was a moderate amount of 1:1 acetone:methanol soluble material. Infrared analysis of the extract shows mostly glycerol. A small amount of carboxylic acid salt is indicated. The spectrum follows.

### Infrared Spectrum of Salve Acetone:Methanol Extract



The amount of solvent insoluble material predominates. The spectrum displays primarily calcium bentonite. There is some metal oxide and organic material which may possibly be carboxylic acid salt. Following is the spectrum.

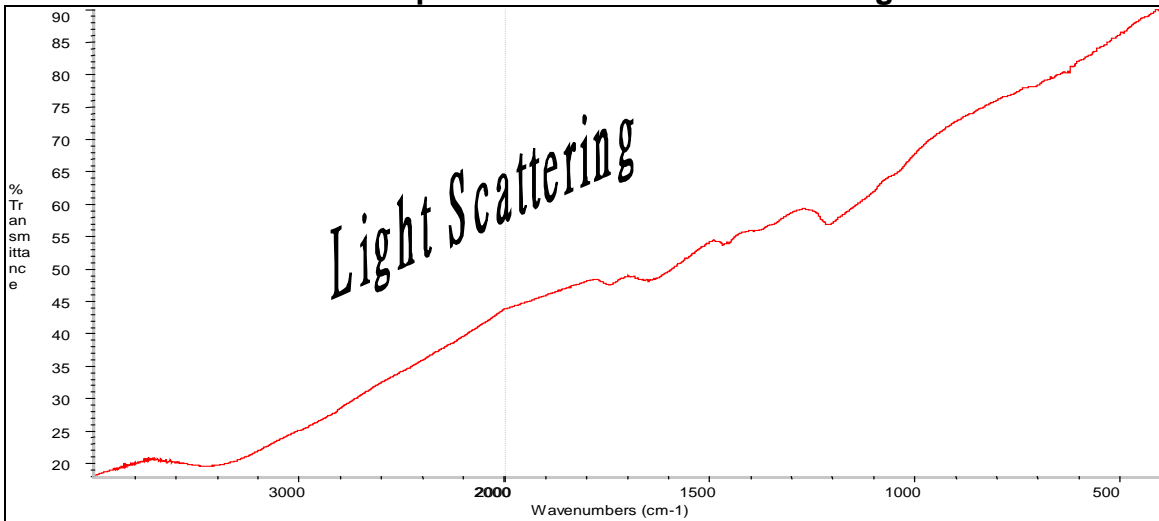
### Infrared Spectrum of Salve Solvent Insolubles



The tube was cleaned and an infrared spectrum shows it is metal. There is no prominent absorption band. The spectrum shows typical light scattering.



### Infrared Spectrum of Tube After Cleaning

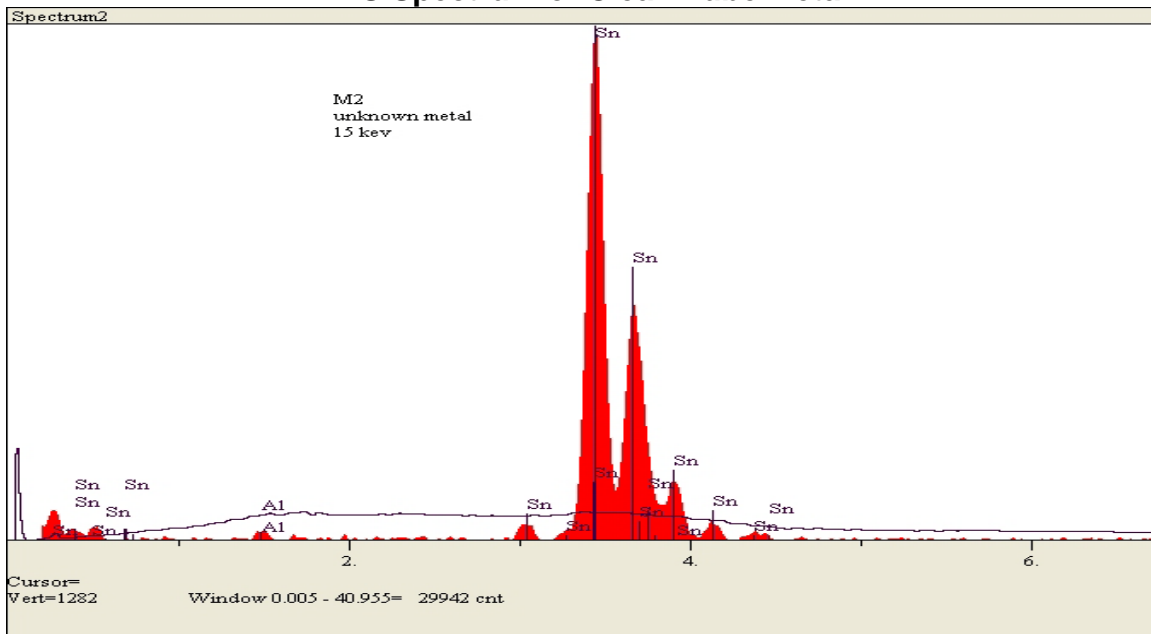


The extractions were done quantitatively. A very rough approximation of the amounts of components are calcium bentonite 60 wt.%, glycerol 25-30 wt.%, and glyceride esters 5 - 10 wt.%. The free carboxylic acid and carboxylic acid salt are probably present at roughly less than 5 wt.%.

### EDS (Elemental) Analysis

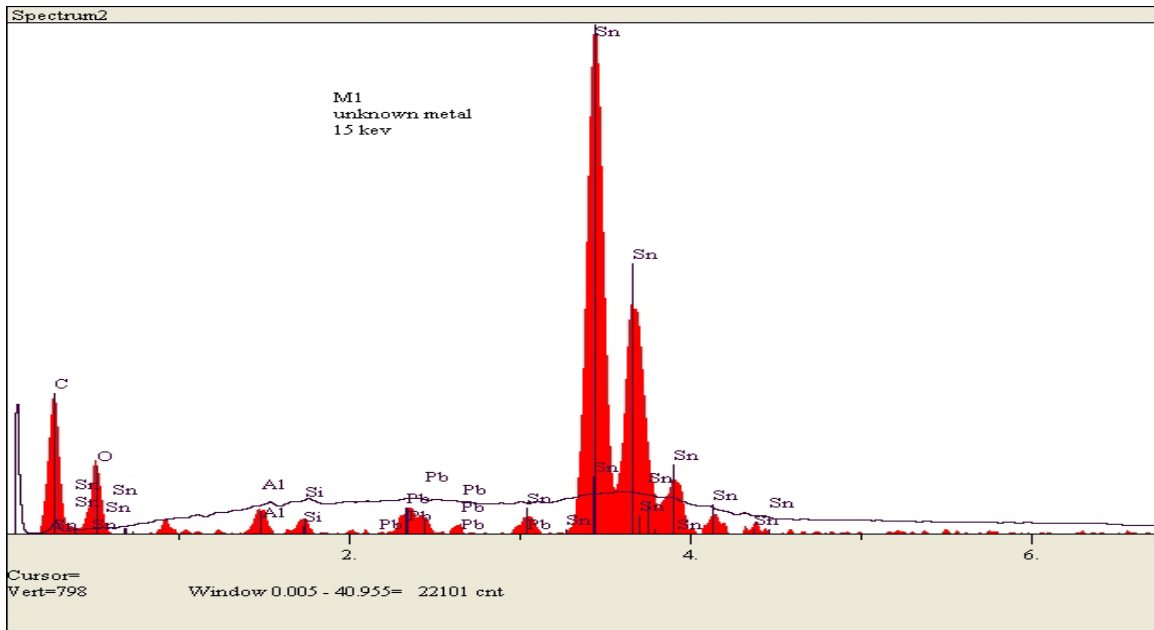
EDS elemental analysis was done on the tube itself after removing the salve to determine the metal it was made from. The EDS spectrum shown below shows tin (Sn). There is a trace of aluminum impurity.

### EDS Spectrum of Clean Tube Metal





EDS was also done on the “as received” tube coated with the salve. The major peaks in the spectrum are due to tin from the tube. The remaining elements of carbon, oxygen, aluminum, silicon, and probably lead are from the salve. Their presence supports the infrared analysis. Carbon and oxygen are representative of the organic materials (glycerin, glycerol esters, carboxylic acid and carboxylic acid salt), while aluminum and silicon are from the calcium bentonite. The calcium is masked in the spectrum by tin (Sn). The lead may be associated with the carboxylic acid salt in the salve, i.e. its anion. The spectrum follows.



FILE: TSRUT032

Phyllis A. Budinger

Distribution:

Bill Jones  
John Scheussler  
Dwight Connelly  
Craig Lang

## **APPENDIX**

Advertisement for Salve Similar to Alaska Salve  
Pertinent Infrared Reference Spectra



### **Pasca-Balm Bentonite Ointment & Skin Softener – 5 oz.**

Calcium Bentonite Montmorillonite Ointment Formula is a Hand Made Ointment and skin softner developed to sooth dry and itchy skin.

**Suggested Use:** For minor skin irritations, cuts scrapes, bug bites, itchy rashes, dry and cracked skin.

**To Use:** Stir as needed. Rub into or dab on skin as desired or several times daily. Keep tightly closed when not in use and out of reach of children.

**Ingredients:** Pascalite Clay (Calcium-Bentonite Montmorillonite), Water, Glycerin, Cocoa Butter, Lanoline, Petroleum Jelly, Rosemary Oil.

**Brand:** [Pascalite](#)

**Pasca-Balm Bentonite Ointment & Skin Softener - 5 oz.**

PascBalm70-NOUPC Retail: \$12.99 Our Low price: **\$12.45, 2/\$23**

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