

Frontier Analysis, Ltd

TECHNICAL SERVICE RESPONSE NO.: UT069

Subject: Identification of a White Powder Found in a Crop Formation (Hoeven, Holland, October 5, 2009)

Date: February 16, 2010

Requested By: Nancy Talbott
BLT Research

Reported By: P. A. Budinger
Analytical Scientist

Background/Objective:

White powders identified as a hydrated form of magnesium carbonate, specifically with formula $(\text{MgCO}_3)_4 \cdot \text{Mg}(\text{OH})_2 \cdot 5\text{H}_2\text{O}$, have been examined by this laboratory from assorted unusual events occurring in Holland. One powder was associated with the appearance of a ball of light (Technical Service Report: UT009) and three others were found in different crop formations (Technical Service Report: UT055). Another white powder was recently procured from a crop formation which occurred on October 5, 2009 in Hoeven, Holland. A photograph of the powder as found in the formation follows.



White material, as found, in field. Photo: Roy Boschman.

Following is a diagram of the formation. The white powder was found in the large circle as indicated by the arrow.

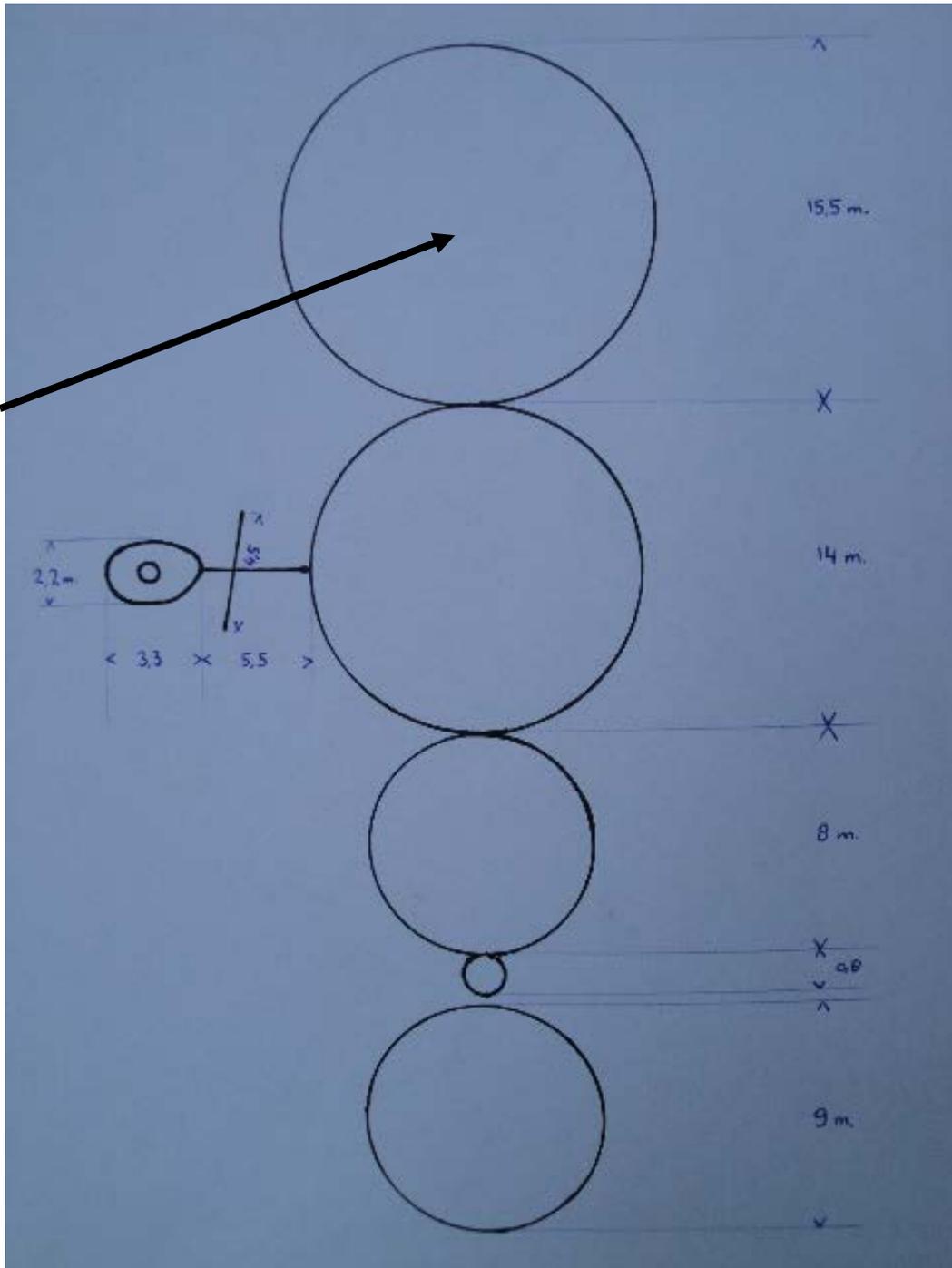


Diagram of 8-10 inch-wide crop rings found on 9/27/09 near Hoeven.
Diagram: Roy Boschman

The objective of this analysis is to identify this powder, and determine if it is the same as those previously encountered.

Conclusions:

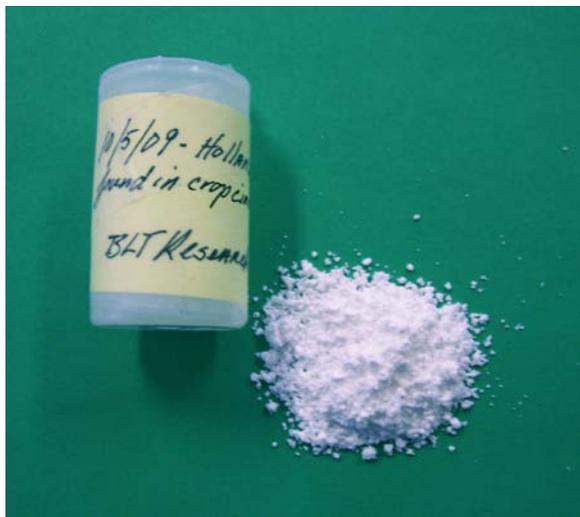
- The white powder is a hydrated form of magnesium carbonate, with an approximate formula of $(\text{MgCO}_3)_4 \bullet \text{Mg}(\text{OH})_2 \bullet 5\text{H}_2\text{O}$. No other components are detected by FT-IR.¹ The detection limit for this test is about 0.5% depending on the sample.
- The powder is the same as encountered in previous Holland events.
- No evidence for radiation above background, or UV fluorescing material is detected.

Recommendation:

Additional analysis using ICP-MS (Inductively Coupled Plasma emission spectroscopy)-(Mass Spectrometry) is recommended. This technique would be used to scan for elements other than those in magnesium carbonate, in order to determine purity, as well as possibly suggest the source of the powder. This test should also be used to determine the isotopic ratios of magnesium. Isotopic ratios would indicate whether the origin of the sample was terrestrial or extra-terrestrial. See the definition in the Appendix.

Procedure:

Roughly 0.45 grams of white powder was submitted in a small plastic vial on October 5, 2009. A photograph of the sample follows.



An infrared spectrum was obtained of the sample on the Thermo Electron Avatar 360 spectrometer using the Smart Herrick diamond sampling accessory. The sample was also tested with a SE International Radiation Alert™ Monitor 5 radiation meter

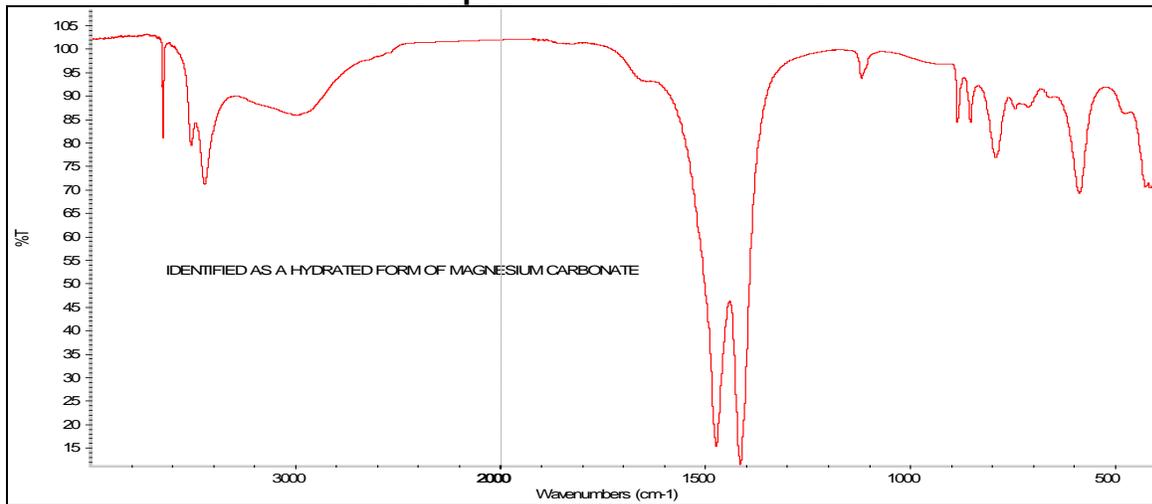
¹ **FT-IR (Fourier Transform Infrared Spectroscopy):** Infrared spectroscopy is used for the molecular structure identification and quantification of solids, liquids, and gases. An infrared spectrum is the result of light (in the 2 to 25 micron wavelength range) interacting with the vibrations of molecules. The particular set of vibrations of a molecule gives rise to specific spectral absorption bands, often referred to as the “fingerprint” spectrum.

and an Optical Engineering Model 22-U UV light. A photograph was taken of the sample with a Kodak EasyShare CX7430.

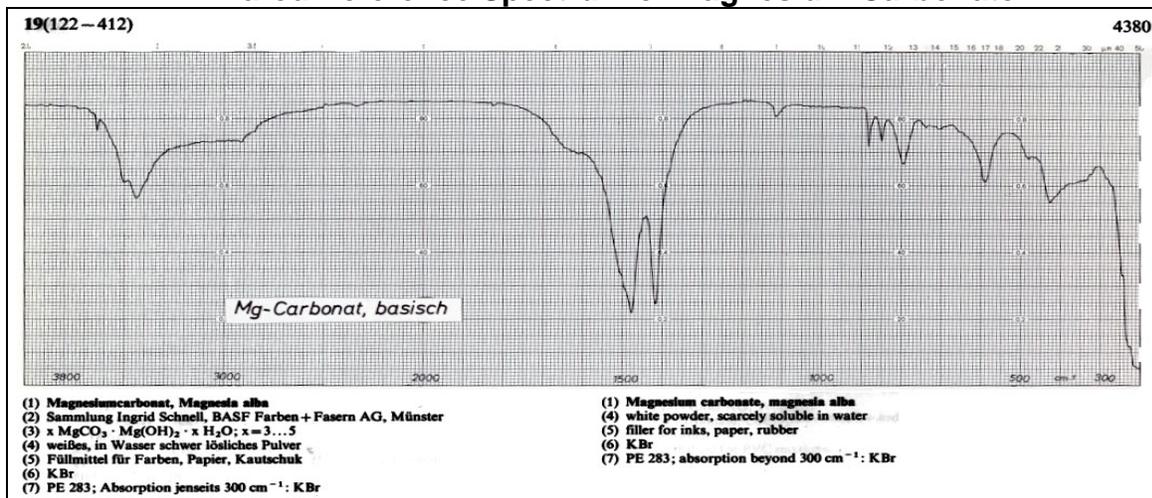
Results:

Infrared analysis shows the sample is magnesium carbonate, and it appears to be in the basic form, i.e. the chemical structure is $(\text{MgCO}_3)_4 \cdot \text{Mg}(\text{OH})_2 \cdot 5\text{H}_2\text{O}$ (a close approximate). The spectrum shows this is the same type of material found in other bizarre events. Following is the spectrum, along with a reference of the hydrated (basic) form of magnesium carbonate for comparison.

Infrared Spectrum of the White Powder



Infrared Reference Spectrum of Magnesium Carbonate.



Reference from: Prof. Dr. Dieter O. Hummel, Atlas of Polymer and Plastics Analysis, "Inorganics Section", Verlag Chemie GmbH, Df-6940 Weinheim, 1984, Part a/II, Ref. 4380.

Examination of the white powder with a radiation meter reveals no radiation above background. Also, viewing the sample under ultraviolet light shows no fluorescing components.

File: UT069

Phyllis A. Budinger

APPENDIX

Elemental Isotopic Analysis Definition

Elemental Isotopic Analysis

Isotopic (measurements) ratios of the elements can be taken by ICP/MS (Inductively Coupled Plasma/Mass Spectrometry) to see if they differ from terrestrial values. An element is defined by the number of protons in its nucleus. Most elements have two or more isotopic forms. That is, the element may have more or less neutrons. Each neutron has a weight of one. So an isotope with more neutrons weighs more than an isotope with less. The ratios of isotopes for any given element on earth will always be the same, i.e. it's a constant. The theory is that these isotopic ratios might be a result of the elements formation in the earliest phase of our solar system, i.e. they are unique to this system. It is thought that these ratios might vary in other solar systems because the elemental formations may have been different. So, if we find the ratios are not normal as compared to terrestrial elements, then the sample may have an extraterrestrial origin.