

February 26th, 2014 Jared Collins wrote:

Dear Dr. Irving,

I am contacting you because I recently came into possession of a somewhat mysterious material which to date, no one seems to be able to conclusively determine its elemental composition in its true proportion or what the source of its color is. It was reported that a few laboratories supposedly examined the material, but I have never personally seen any of the results and there is nothing scientifically conclusive about it posted online.

I am getting in touch with you to see if you might be willing to consider to collaborate with me to analyze a small sample of this material.

If you are willing to consider this request, I am looking to determine:

Is this material natural or artificial

What are the elements that comprise this material and in what proportion

What is the source of its blue color and is this coloring agent natural or artificial

Can its age be determined

Can its origin be determined

Is this material terrestrial or extraterrestrial

Would you use any of the equipment noted below to make these determinations?

X-ray Diffractometer

Nuclear Magnetic Resonance (NMR) spectroscopy

X-ray photo electron spectroscopy

High Performance Liquid Chromatography

Scanning electron microscope

Infrared spectrophotometer

CHN-Elemental Analyzer

Gas chromatography

The rumor of this material is that it was delivered to earth via meteorite. This is hard to believe given its blue color and weight and texture being so completely out of line with what I know about meteorites, but nonetheless, there are multiple accounts from unrelated people who are steadfast in their statement that it is not terrestrial material and the fall was supposedly witnessed - a story passed down by many generations until this day. Can you please help me to put an end to this debate and determine the truth once and for all?

If the material is in fact deemed to be scientifically important and worthy of note in a publication, I would allow you / University of Washington to publish the results so long my name also accompanies the article as the source of the sample and I have had time to discuss the findings with you or your colleagues first.

I thank you very much for taking the time to read through this email. Please find photos of the material attached.

Most respectfully,

- Jared Collins
Bali, Indonesia

On Feb 27, 2014, at 6:08 AM, Tony Irving wrote:

Dear Jared:

We would be happy to conduct some elemental analysis of a small sample of the material. Such analyses of minerals in meteorites and in many other natural and synthetic materials are accomplished utilizing an electron microprobe. This is somewhat like an electron microscope, but with a higher energy electron beam permitting quantitative determination of abundances of most elements utilizing secondary X-rays, routinely down to atomic number 11 (sodium), and even as low as atomic number 6 (carbon), if abundances are sufficiently high.

Assuming that your material is not a plastic, but composed largely of elements of higher atomic number, then the blue color could be caused by a minor amount of copper or some other transition element, which we could determine. Alternatively, color in solids can be caused by other effects (including lattice vacancies), which might require confirmation by X-ray diffraction or neutron diffraction analysis. Should such techniques be needed, we have access to them through colleagues in the UW Dept. of Astronomy.

Assuming that your material is sufficiently hard to be polished (and neither soluble in water nor radioactive), we should be able to conduct some preliminary analyses. Based upon those results we could decide what other tests might be relevant. Regarding your question about age determination, this would depend on exactly what elements are present, but we have colleagues who conduct such studies on meteorites. Any conclusions we might draw about whether this material is natural or artificial, terrestrial or extraterrestrial, and its mechanism of origin would be based on our interpretation of the analytical results in combination with our extensive experience.

Please let me know if you want to proceed and are willing to send a small sample.

Regards,

Tony Irving

Dear Jared:

Please see my responses to your email below.

Dr. Irving,

Thank you very much for getting back to me.

I have a few questions for you regarding the capabilities of an electron microprobe.

Will the sample remain intact or is it pierced or liquified?

We work only with solid samples, but for quantitative analysis it is necessary to mount a piece (usually in epoxy resin) and use diamond abrasives to achieve a high polish. The sample itself is not damaged by the analysis with an electron beam.

Is that microprobe capable of accurately identifying not only what elements are present in the sample, but more importantly, in what proportion?

Yes, we conduct quantitative analyses of exact element proportions by simultaneously measuring well-known mineral and synthetic standards.

Did I understand you correctly that if the sample contains any of the elements hydrogen, helium, lithium, beryllium, boron or carbon (as well as possibly nitrogen, oxygen, fluorine, neon and sodium,) the microprobe won't be able to identify those elements or determine the correct proportion of those elements in the sample? I have a suspicion this sample will contain at least one or two of those elements.

We routinely measure sodium in minerals, and we have the capability to measure fluorine, nitrogen and carbon, but with decreasing precision at progressively lower atomic numbers. The electron microprobe is not the instrument of choice for measuring elements below atomic number 10 in a quantitative way (unless of course they are present in high abundance). For elements below atomic number 6, it would be necessary to instead use other techniques, but we would first want to see how much of the higher atomic number elements are present and then consult other colleagues as needed.

Other than a microprobe, is there any piece of equipment or identification process that you are aware of that could analyze the sample which could add further to the information able to be gathered from the sample's analysis? I need to be able to very accurately determine exactly which elements are comprising this material, what is causing its blue color, if it is natural or artificial, terrestrial or extraterrestrial. I have heard rumors of other scientists having attempted to analyze this material and all failed to accurately or completely identify its components. This supposedly includes Dr. Preeti at GRS Swisslab, though I have never contacted him to find out why he was unable to identify the sample's components or if he actually did attempt to analyze it. This was told to me by the person I acquired the sample from.

Obviously I cannot give you an assurance that any analysis we conduct will explain the blue color in your material. But we are connected with other scientists in disciplines such as Materials Science, who may be able to contribute. Your material is made of some proportion of known elements, so it is just a matter of getting it to the right experts.

If it will take 1/2 an hour to perform the examination and the cost for that would run \$90, I am ok with this. I want to ask one more time if there are any other scientific processes which you could perform or you could recommend after your examination, which could perhaps give a more accurate or a more complete understanding of what is in this material, even if it means sacrificing a small part of it to liquify it and drop it into a solution which could break it down further in an attempt to identify it?

I would be in a better position to answer this question after we conduct the non-destructive analyses we can perform here - should you choose to let us do so. If some solution-based analysis seems worthwhile, I would first check with you to obtain your permission.

February 27th, 2014

Jared Collins

to irving

Ok, Dr. Irving, thank you. I will be receiving the material within the next 7-10 days. It's currently in transit by hand carry and then shipping. I am going to cut a piece off of it and place it into a membrane case. Is there a minimum size that I must send you? As you can see from the ruler, I only have a very small piece. Can you please tell me what the minimum size requirements are for testing?

Thank you again,

-Jared

Tony Irving February 27th, 2014

to me

Dear Jared:

We can work with very small fragments (down to millimeters), but of course the larger the better. I can only assure you that we will do our best with whatever you choose to send us.

Tony

Jared Collins February 27th, 2014

to irving

Ok, let me cut this and I'll see what fragments can be spared.

Thank you -