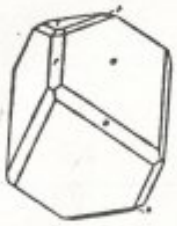
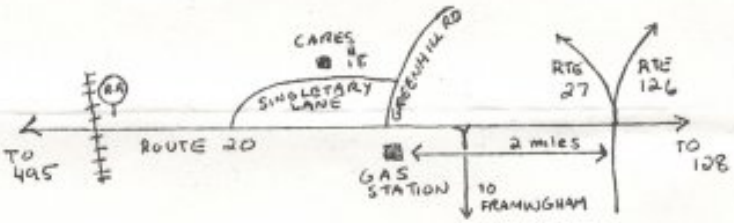


Whitlockite

MICROMOUNTERS OF NEW ENGLAND

November 3, 1983 Newsletter #84

The next regular meeting of the Micromounters of New England will be on Sunday, November 20th, 1983 at the home of Steve and Janet Cares, 18 Singletary Lane, Sudbury, Massachusetts. Janet is planning to hold a demonstration of the use of heavy liquids (see inside article).



This will be our last meeting for the calendar year of 1983. Dues for 1984 are due January 1st, but Janet will gladly accept dues at this meeting

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ADDENDUM-concerning the article "Some Notes on Francon Minerals"-please make the following additions/corrections. Additions: slide 50-viitaniemiite is a phosphate mineral; Corrections: slide 6-should read "hydrocarbonate-stained", slide 13-should read UK#13 (not UK#3).

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The Boston Mineral Club is organizing a group order/purchase of plastic thumbnail boxes. The boxes are 1¼"x1¼" hinged plastic with a clear 1" cube top and a ¼" black base. Orders are for units of 1000 boxes (with white foam inserts) for the amount of $100 plus $4 for postage. Groups of people interested in ordering less than 1000 boxes may order together as long as the final unit ordered is 1000 boxes. Those individuals seeking to split orders should contact the BMC as the club may be able to match you up with other parties interested in splitting an order. As of Oct 21st, the BMC has received orders for 17,000 boxes (out of a minimum order of 25,000 boxes required). Interested persons should contact Paul Young of the BMC at 625-8483

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Several club members, while on a recent trip in Vermont, found that the dumps located outside the gate at Eden Mills, have been completely covered over by dirt. Whether this is due to environmental issues or not--it seems that Eden Mills can no longer be considered a site open for collecting.

NOTES ON THE USE OF HEAVY LIQUIDS

Since a number of our members have sets of heavy liquids in the specific gravity range of 2 to 4, it is planned to have a demonstration of their use at the next meeting, and a summary of the technique is presented below. If you have a mineral you have been puzzling over, Steve or Janet Cares will determine the specific gravity range of a small chip for you. NOTE: Only minerals of a non-metallic luster are suitable, as others, almost without exception, have a specific gravity above the range of the method.

Though not the only possible approach, a recommended procedure for an unknown mineral is to start at the top and work down through the liquids, from highest to lowest specific gravity. This avoids the confusion which could result from haphazard guessing, and keeps the test specimen on the surface of the liquid where it is more easily retrieved, until the final point is reached.

In the recommended procedure a chip or crystal of the mineral to be tested is placed in the liquid of highest specific gravity (4.0) using stainless steel tweezers. After making certain that the mineral is thoroughly wet with liquid and has no entrapped air bubbles, it is observed (using the binocular microscope if needed) with the aid of a light source coming from the side, not above. One of the following results may be obtained:

1. The test specimen SINKS. This means that its specific gravity is higher than that of the liquid (>4.0), so no more testing is possible. The specimen should be removed using tweezers, drained on the side of the container, and rinsed with water before discarding.(a)

2. The test specimen HANGS. If the specimen hangs midway between top and bottom of the container, it has the same specific gravity as the liquid (=4.0) and no further testing is needed. It should be treated as in 1.

3. The test specimen FLOATS. The specific gravity of the specimen is less than that of the liquid (<4.0). It should be drained on the side of the container and placed in the next lower liquid, and the process repeated until it sinks in a liquid of lower gravity than itself. It thus has a specific gravity between the adjacent liquids in which it sinks and floats. For example quartz would float on all liquids of 2.8 or more, and sink in 2.6. The specific gravity would be reported as 2.6 - 2.8.

It might be helpful, at least in the early stages, to write down the position of the specimen in each liquid using the symbols > or S if it sinks, = or H if it hangs, and < or F if it floats.

A very important part of the procedure is checking the specific gravity of the liquids, as on standing there is some water loss by evaporation resulting in an increase in the specific gravity of the liquid. When this occurs, a false result is obtained, which is worse than no result at all. A set of reference minerals can help in maintaining the integrity of your results. These are species which have a reliable specific gravity if specimens are carefully chosen. To calibrate the liquids, it is again advisable to start at the top and work down. Rutile will sink in the 4.0 liquid but corundum will hang and siderite float. If siderite is then moved to the 3.8 liquid it should sink, and rhodonite float, and so on down the line according to the table which gives examples of minerals which may be

(a) If the specimen is to be further tested for acid solubility, it should be rinsed, dried on absorbent paper, rinsed, and dried again, then rinsed in alcohol and dried. If placed directly in acid without thorough cleaning, a white gummy precipitate will form and interfere with results.

useful for checking the specific gravity of the liquids. Others in your collection may be suitable if you are certain of their reliability. Some are inert enough that they may be left in the appropriate liquid at all times. These are marked with an asterisk (*). As an example quartz may be kept in the 2.6 liquid, so that if it is seen to be floating it is obvious that the addition of water will be necessary to correct the specific gravity of the liquid just enough to make the quartz sink.

S.G.	Mineral	Floats	Hangs	Sinks
2.1	*Sulfur	2.2	-	2.0
2.2	*Graphite	-	2.2	2.0
2.3	Gypsum, analcime	2.4	-	2.2
2.55	*Orthoclase (moonstone)	2.6	-	2.4
2.65	*Quartz	2.8	-	2.6
2.7	*Beryl (calcite)	2.8	-	2.6
2.85	Dolomite	3.0	--	2.8
3.0	*Elbaite (green)	3.2	-	2.8
3.18	Fluorite	3.2	-	3.0
3.3	*Diopside	3.4	-	3.2
3.5	*Diamond (*Topaz)	3.6	-	3.4
3.7	*Rhodonite	3.8	-	3.6
3.9	Siderite	4.0	-	3.8
4.0	*Corundum	-	4.0	3.8
4.2	*Rutile	-	-	4.0

Chips or crystals used for checking should be non-fibrous, clear, and free from inclusions, surface coatings, and internal cracks or bubbles. Carbonates or other fairly soluble minerals should never be left in the liquid, as they tend to decompose and change the specific gravity of the liquid.

PRECAUTIONS IN HANDLING

Water-soluble heavy liquids contain thallium salts (thallous mal formate) which are poisonous in large doses. Safe handling is a matt common sense combined with a knowledge of the ways in which such mate enter the body. Inhalation, ingestion, and skin absorption are the p cipal means of entry. If used at room temperature the solutions are volatile, so there is no danger from inhalation of vapors. If solutic are spilled and allowed to dry however, the powder could become airborne and be inhaled. For this reason it is advisable to work on a tray which will contain spills and can be washed thoroughly at regular intervals or after a spill. Ingestion can take place if contaminated hands or other objects contact the lips or mouth. Don't eat, smoke, or chew pencils or fingernails while testing, and avoid rubbing the eyes. Skin absorption can be minimized by handling specimens with tweezers, and containers with tongs or light disposable gloves. Clothing, skin, or other parts of the body on which solutions have been spilled should be thoroughly washed as soon as possible. Never heat solutions, as this could create an inhalation hazard. As with any household poison, the liquids should be kept safely away from children.

JWC 11/83