

Educational Innovations[®]

#RM-518/520

Bismuth Crystals/Bismuth Eggs

Bismuth is a very unusual and rare metal that is solid at room temperature. It is more rare than platinum, ranking number 69 out of the 75 listed rare elements found on Earth's crust. One very interesting thing about bismuth is that its liquid form is denser than its solid form. So as bismuth crystallizes, its solid form floats above the liquid. This effect is only found in 3 other cases (water, gallium, and germanium).

Bismuth crystals are man-made or man "grown". Their growing time is between 5-10 minutes after forming in a supercooled bismuth melt. In its solid form, bismuth is incredibly fragile. However, the crystals form to show perfect cleavage, making it tempting to handle and touch. The reason the crystal structure is so fragile is because the rapid growth causes hollow forms, called "hopper crystals".

The iridescent coloring is due to a thin layer of bismuth oxide that forms on the surface of the crystal as it cools. This is actually interference coloring, similar to the coloring you see on soap bubbles and on oil slicks, and is based on how thick the oxide grows. The brightness and color intensity can vary from sample to sample, depending on the quality and purity of the bismuth used.



362 Main Avenue
Norwalk, CT 06851
www.teachersource.com

Phone (888) 912-7474
Fax (203) 229-0740
info@teachersource.com

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