

Mineral Identification (Lab #4 in manual)

Mineral- a naturally occurring compound or chemical element made of atoms arranged in an orderly, repetitive pattern

Physical Properties of Minerals

Color- easiest to determine, but not very helpful. Color can be misleading in identifying minerals because of many minerals having similar colors and multiple color variations (i.e. “smoky” quartz and “rose” quartz)

Luster- appearance of a mineral when light is reflected from its surface

Metallic- looks like a metal

Nonmetallic- doesn't look like a metal

Can be broken down into vitreous luster (glassy), dull luster (earthy looking), pearly luster (appears like a pearl), greasy luster, waxy luster, or resinous luster (looks like resin or tree sap)

Hardness- minerals have different hardness and can be a good way to distinguish between two similar minerals. To evaluate hardness, Mohs Hardness Scale is used. Mohs Hardness Scale varies from 1 (talc) to 10 (diamond).

Hardness of Common Items

Steel Knife: 5-6

Glass: 5-5.5

Copper coin (penny pre-1982): 3.5

Fingernail: 2-2.5

Streak- color a mineral is when finely powdered. Not useful in this lab, but very useful in diagnostic mineral identification. To obtain a streak, you rub the mineral carefully

against a streak plate (ceramic plate)

Cleavage- the tendency of a mineral to break upon parallel planes consistently when broken. Each cleavage includes 2 flat surfaces (see handout). A cleavage plane will make a flash of light when tilted towards and away from your eye.

Be careful. There is a difference between Cleavage and Crystal Form. Crystal form is the natural growth of a mineral undisturbed. Cleavage is what the mineral does when hit with a sledge hammer.

Fracture- the tendency of a mineral to break along random surfaces. A mineral that exhibits fracture is quartz, it has no consistent surfaces when broken.

For this lab, complete the table in your lab manual and the questions. Please write answers to your questions on a separate sheet of paper. You will be graded on the validity of your mineral names. Complete the rest of the table for your own record. You will be allowed to use this table on quizzes and exams, so the clearer you are, the better you'll do. There will be a short quiz next week on this material.