

Fluorescent minerals with activator impurities

<u>Mineral</u>	<u>Color of Fluorescence</u>
Albite	Very slight
Aragonite	White, yellow, green, red, pink
Hemimorphite	Cream
Quartz	Brownish yellow
Topaz	Light green
Chalcedony	Green, yellowish green, blue green
Beryl	Green
Calcite	Pink to red to blue
Amethyst quartz	Deep blue
Apatite	White, yellow, blue, green
Zircon	Bright orange (variable)
Alunite	White

## Fluorescent Mineral Determination

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Fluorescent / Phosphorescent reactions of various minerals

<u>Color of Fluorescence</u>	<u>Color of Phosphorescence</u>	<u>Mineral</u>
White White Yellowish White Gray White, Yellowish Green Pale Yellow Green Bluish Gray	Bluish White      Blue White	Colemanite Amblygonite Barite Dumortierite Dolomite  Glauberite Celestite Scheelite
Pale Yellow Yellow Yellow Yellow Yellow Bright Yellow		Diaspore Anglesite Apophyllite Tyuyamunite Wollastonite Witherite Wernerite
Yellowish Green Yellowish Green Light Green Green Bright Green Deep Green Green, Blue, Yellow Bluish Green	Bluish Green	Uranium Salts Autunite Lepidolite Opal Willemite Gypsum Cerussite Strontianite
Blue Green, Blue, Whitish Blue, Orange  Rare Light Blue Light Blue Light Blue Intense Light Blue Blue Blue	Greenish Blue   Light Blue Blue Blue	Fluorite  Borax Diamond Magnesite Trona Scheelite Wavellite Smithsonite Feldspar
Pink Red-Faint Green Bright Red  Deep Red Orange Red Orange Red	Pale Yellow, Red, Brown,	Tremolite Halite Spinel Uranium Salts Spodumene Sodalite Kunzite
Bright Orange (Variable) Bright Orange Bright Orange	Orange, Yellow, Light Green	Zircon Pectolite Sphalerite
Slight Dark Brown		Crocoite

FLUORESCENCE: Certain chemicals and compounds associated with minerals absorb ultraviolet (UV) energy. Electrons in the compounds are moved into new orbits, giving up energy as they return to their original orbital pattern. This takes place in a very small fraction of a second. We see only the resultant visible light emitted when the mineral is exposed to the stimuli of the ultra-violet rays.

PHOSPHORESCENCE: Some minerals are much slower in their reaction time, and the electrons remain in an unnatural orbit for an appreciable length of time. In such cases we continue to see the light AFTER the ultra-violet light source has been removed.

IMPURITY ACTIVATORS: Some minerals which do not normally fluoresce will sometimes do so because of an activating agent. For instance, most forms of calcite do not fluoresce. Yet, if a small amount of manganese is present in the mineral, it acts as an activator and causes the calcite to fluoresce red. The brilliance of the fluorescence varies with the amount of manganese. Uranium salts in various rocks or minerals are also activators and cause a green fluorescence. A mineral may be listed as fluorescent, but the fluorescence may result from a coating of a fluorescent substance. Thus, minerals may fluoresce from one locality and not from another due to the lack or presence of an activator or fluorescent coating.