

Study of Mount Baldy, Cascade Canyon lapis

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Mindat reports that lapis is a rock comprised of lazurite or hauyne, calcite, pyrite, and diopside.

Infrared spectroscopy of specimens I have from Afghanistan show the rock is mostly diopside with pyrite and small amount of another mineral, perhaps hauyne. The white layers in this material are diopside.

Infrared spectroscopy of a specimen I have from Chile is mostly lazurite/hauyne candidate mineralization with diopside. I have a slice probably from Chile that has dolomite, very pale green.

This week I obtained two rock samples and two slices of the Cascade Canyon material. This is in its own class, and is not related to the Chile or Afghan lapis. It is a brown vein pargasite (an amphibole) with very high calcite content, probably 40% or more, with pyrite, and trace diopside-like mineralization and diopside water. This mineral in the diopside/lazurite/hauyne series may be the blue colorant.

Thanks much to the gentleman from Glendora for the samples to study. A picture of one sample and its graph are shown below, compared to pargasite.



Mt. Baldy lapis. Blue has diopside. Gray is pyrite. White is calcite. Brown is pargasite.

Mt. Baldy scans of lapis (blue and red graphs), pargasite reference (magenta graph) (Reflectance infrared). Large plateau peak on left is calcite. 875 cm⁻¹ area spike is also calcite. Rolling doublet peaks at 700-600 cm⁻¹ is diopside, a tiny calcite peak on the left, and an atmospheric CO₂ spike (trough). Diopside water not shown up spectrum to the left and beyond this graph segment. Overall graph is pargasite-calcite with diopside/lazurite/hauyne for the Mt. Baldy material. Infrared does not show peaks for pyrite. It is a long ramp-up to the right, enlarging other bands.

