What is the real crystal structural forms of halite?

They are: cubic, prismatic, octahedral, prismatic-octahedral

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Mindat.org shows halite to be isometric, and then shows one crystal form, cubic. In annotation it states that is can also be octahedral. Wikipedia.com shows halite to be isometric, then its right column summary states its crystal system is cubic. Are these correct? We have 150 years of study of halite, so let us take a look, but to do so, we will be armed with reflectance infrared spectroscopy to conclusively define compositionally what we are studying, and with that we will look at the Searles Lake, CA minerals. Cubes of halite are understood, so let us look at the others.

Here is a common Searles halite prismatic crystal form (Photo 1). These are not cubes.

Photo 1. Searles Lake, CA prismatic halite.

Within the isometric group is also the octahedral form. Here is a Searles Lake octahedral halite (Photo 2). This was sold as sulfohalite, but infrared confirms this is halite with no sulfate.

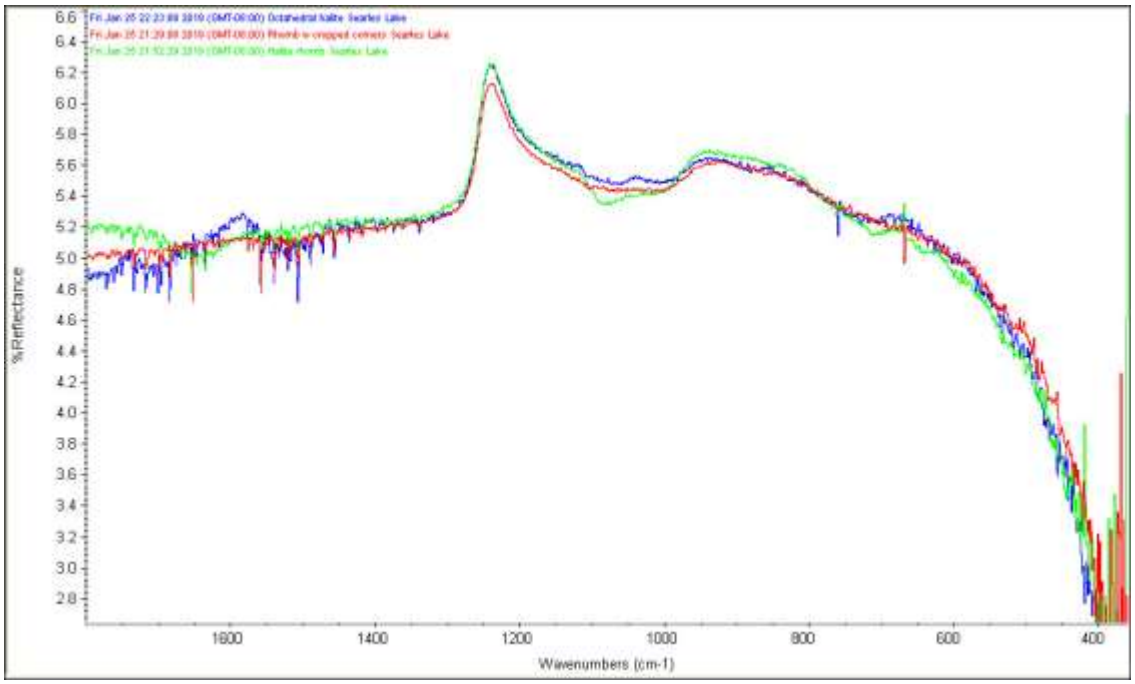
Photo 2. Searles Lake, CA octahedral halite. It was attached to mud in the back that probably includes some hanksite, making that green.

There are mixed forms of cubic and octahedral, and for Searles Lake, also prismatic-octahedral. This makes a prism with cropped corners (Photo 3).

Photo 3. Searles Lake, CA prismatic-octahedral crystal.

Conclusions:

It is clear that a dodecahedral halite form waits to be found, the final common form in the isometric system, and that halite commonly forms prismatic crystals. These are not from deformation as is proposed in the literature as they formed under the surface salt cap of Searles Lake which free-floats on a hypersaline lake. We should stop pretending that the only crystal form of halite is cubic. Here is the infrared spectra of these three specimens (Graph 1).



Graph 1. Comparison of the three minerals above, shown in infrared. They are all identical and do not match any other documented isometric minerals of Searles Lake that includes sulfohalite, northupite, and tychite. Blue spectrum—octahedral crystal; red spectrum—prismatic-octahedral crystal; green spectrum—prismatic crystal.