Elpasolite K$_2$NaAlF$_6$

Crystal Data: Cubic. Point Group: 4/m 3 2/m. As octahedra, trapezohedral or tetrahexahedral crystals, to 0.5 mm; in granular aggregates, massive.

Physical Properties: Fracture: Uneven. Hardness = 2.5  D(meas.) = 2.98(1)  D(calc.) = 3.01


Cell Data: Space Group: Fm$ar{3}$m. $a = 8.116(2)$  $Z = 4$

X-ray Powder Pattern: Pikes Peak, Colorado, USA. 2.863 (10), 2.024 (10), 2.336 (8), 1.428 (6), 0.795 (6), 0.905 (5), 1.650 (4)

Chemistry:

\[ \begin{array}{ccc}
\text{Na} & 9.90 & 7.96 & 9.50 \\
\text{K} & 28.94 & 30.82 & 32.29 \\
\text{Mg} & 0.22 & 0.03 & \\
\text{Ca} & 0.72 & 0.08 & \\
\text{Al} & 11.32 & 10.04 & 11.14 \\
\text{F} & [47.90] & 49.69 & 47.07 \\
\hline
\text{Total} & [99.00] & 98.62 & 100.00
\end{array} \]

(1) Pikes Peak, Colorado, USA; F calculated for charge balance; corresponds to K$_{1.79}$Na$_{1.07}$Ca$_{0.04}$Al$_{1.00}$F$_{6.11}$. (2) Cetine mine, Italy, by electron microprobe, corresponds to K$_{2.12}$Na$_{0.93}$Al$_{1.00}$F$_{7.03}$. (3) K$_2$NaAlF$_6$.

Occurrence: Replacing fluorine-bearing minerals in a quartz-microcline pegmatite (Pikes Peak, Colorado, USA); on vein quartz in a hydrothermal antimony deposit in silicified limestone (Cetine mine, Italy).

Association: Cryolite, pachnolite, thomsenolite, prosopite, gearsutite (Pikes Peak, Colorado, USA); cryolite, chiolite, pachnolite, thomsenolite, ralstonite (Amelia, Virginia, USA); ralstonite, rosenbergite, gypsum, fluorite, quartz (Cetine mine, Italy).

Distribution: In the USA, from the Cincinnati mine, St. Peters Dome, near Pikes Peak, El Paso Co., Colorado; from the Zapot pegmatite, 25 km northeast of Hawthorne, Fitting district, Mineral Co., Nevada; and in the Morefield pegmatite mine, Amelia, Amelia Co., Virginia. From the Cetine mine, 20 km southwest of Siena, Tuscany, Italy. In the Ivigtut cryolite deposit, southwestern Greenland.

Name: For El Paso County, Colorado, USA, where the mineral was found.
