Maxwellite

Crystal Data: Monoclinic. Point Group: 2/m. As blocky to short prismatic crystals, dominated by {013}, {526}, {526}, {011}, to 1 mm.

Physical Properties: Cleavage: Good on {110}. Fracture: Irregular to conchoidal. Hardness = 5–5.5 D(meas.) = 3.90(2) D(calc.) = 3.95


Cell Data: Space Group: C2/c. a = 6.667(2) b = 8.781(4) c = 7.134(2) β = 114.50(2)° Z = 4

X-ray Powder Pattern: Squaw Creek, New Mexico, USA. 3.290 (100), 2.614 (80), 3.039 (75), 4.844 (70), 2.637 (50), 3.642 (35), 3.437 (35)

Chemistry:

\[
\begin{align*}
\text{As}_2\text{O}_5 & \quad 51.0 & \quad 48.54 & \quad \text{ZnO} & \quad 0.1 \\
\text{Nb}_2\text{O}_5 & \quad 0.2 & \quad \text{MgO} & \quad 3.5 \\
\text{TiO}_2 & \quad 5.0 & \quad \text{CaO} & \quad 8.0 \\
\text{SnO}_2 & \quad 0.6 & \quad \text{Li}_2\text{O} & \quad 0.1 \\
\text{ZrO}_2 & \quad 0.3 & \quad \text{Na}_2\text{O} & \quad 8.0 & \quad 13.09 \\
\text{Al}_2\text{O}_3 & \quad 5.0 & \quad \text{F} & \quad 6.0 & \quad 8.02 \\
\text{Fe}_2\text{O}_3 & \quad 14.0 & \quad 33.73 & \quad -\text{O} = \text{F}_2 & \quad 2.5 & \quad 3.38 \\
\text{Mn}_2\text{O}_3 & \quad 0.5 & \quad \text{Total} & \quad 99.8 & \quad 100.00 \\
\end{align*}
\]

(1) Squaw Creek, New Mexico, USA; by electron microprobe, average of 43 analyses, total Fe as Fe$_2$O$_3$, total Mn as Mn$_2$O$_3$, Li by ion microprobe; corresponding to (Na$_{0.59}$Ca$_{0.33}$Li$_{0.02}$)$_\Sigma$=0.94 (Fe$_{0.46}$Al$_{0.22}$Mg$_{0.26}$Ti$_{0.14}$Mn$_{0.01}$Si$_{0.01}$Zr$_{0.01}$)$_\Sigma$=0.99(As$_{1.01}$O$_{4}$)(F$_{0.72}$O$_{0.28}$)$_\Sigma$=1.00. (2) NaFe(AsO$_4$)F.

Polymorphism & Series: Forms two series, with durangite, and with tilasite.

Occurrence: Rarely formed in miarolitic cavities in rhyolite adjacent to high-temperature veins in hydrothermal tin deposits.

Association: Squawcreekite, cassiterite, hematite, quartz, tridymite, pseudobrookite, sanidine, chernovite-(Y), gasparite-(Ce), tilasite, heulandite, stilbite, calcite.

Distribution: From the Squaw Creek tin prospect, Catron Co., and in Willow Spring Draw, Sierra Co., Taylor Creek district, New Mexico, USA.

Name: Honors Charles Henry Maxwell (1923– ), geologist with the U.S. Geological Survey, who studied the Taylor Creek district.


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