Schöllhornite

\[ \text{Na}_{0.3}\text{CrS}_2\cdot\text{H}_2\text{O} \]

Crystal Data: Hexagonal. Point Group: \( \overline{3} 2/m, 3m, \) or \( 32 \). As thin bands a few \( \mu \text{m} \) wide in caswellsilverite, also as individual grains, to 250 \( \mu \text{m} \).

Physical Properties: Cleavage: Basal, perfect (synthetic); distinct parting on \( \{h0l\} \).
Hardness = n.d. VHN = 41.8–90.8 on \( \{0001\} \) (15 g load) (synthetic). D(meas.) = 2.70 (synthetic). D(calc.) = 2.74

Optical Properties: Opaque. Color: In reflected light, gray in air, bluish gray in oil.
Luster: Submetallic (synthetic).
Optical Class: Uniaxial (\( \epsilon \)). Pleochroism: Distinct; white with yellowish tint to light gray with bluish or greenish tint. Anisotropism: Strong.

Cell Data: Space Group: \( R\overline{3}m, R\overline{3}m, \) or \( R\overline{3}2 \). \( a = 3.32(1) \ c = 26.6(1) \ Z = 3 \)

X-ray Powder Pattern: Synthetic.
8.85 (vsb), 2.81 (mb), 2.53 (mb), 1.66 (mb), 4.43 (wb), 2.21 (vvwb)

Chemistry:
\[
\begin{array}{ccc}
\text{Na} & \text{(1)} & 5.10 \\
\text{Cr} & \text{(2)} & 36.3 \\
\text{Ti} & \text{(3)} & 0.17 \\
\text{Mn} & \text{(3)} & 0.17 \\
\text{S} & \text{(3)} & 45.5 \\
\text{H}_2\text{O} & \text{(3)} & 14.3 \\
\text{Total} & 101.5 & 100.0 \\
\end{array}
\]

(1) Norton County meteorite; by electron microprobe, average values; corresponds to \( \text{Na}_{0.31}\text{Cr}_{0.98}\text{S}_{2.00}\cdot1.20\text{H}_2\text{O} \). (2) Synthetic schöllhornite; by electron microprobe, corresponds to \( \text{Na}_{0.31}\text{Cr}_{0.99}\text{S}_{2.00}\cdot1.10\text{H}_2\text{O} \). (3) \( \text{Na}_{0.3}\text{CrS}_2\cdot\text{H}_2\text{O} \).

Occurrence: In an enstatite achondrite meteorite with other chromium-rich minerals, probably formed by terrestrial weathering of caswellsilverite.

Association: Caswellsilverite, daubréelite, titanoan troilite, ferromagnesian alabandite, oldhamite, kamacite, perryite.

Distribution: Found in the Norton County enstatite achondrite meteorite [TL].

Name: Honors Professor Robert Schöllhorn, Inorganic Chemical Institute, Münster University, Münster, Germany.

Type Material: Institute of Meteoritics and Department of Geology, University of New Mexico, Albuquerque, New Mexico, USA.