Trechmannite $AgAsS_2$

Crystal Data: Hexagonal. *Point Group:* $\overline{3}$. Crystals short prismatic; equant, also irregular. size??ckMinSwitz

Physical Properties: *Cleavage:* Good on $\{10\overline{1}1\}$, distinct on {0001}. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 1.5–2 VHN = 97–100 (25 g load). D(meas.) = n.d. D(calc.) = 4.77 (synthetic).

Optical Properties: Opaque, except in thin pieces. *Color:* Scarlet-vermilion; in polished section, white having a bluish cast, with red-orange internal reflections. *Streak:* Scarlet-vermilion. *Luster:* Adamantine.
Optical Class: Uniaxial (–). *Pleochroism:* In transmitted light, faint; O = pale reddish; E = near colorless. $n = > 2.61$ (Li). *Anisotropism:* Moderate (synthetic).

R_1–R_2: (400) 26.2–37.6, (420) 25.7–36.9, (440) 24.9–35.5, (460) 23.7–33.8, (480) 23.0–32.6, (500) 23.4–31.6, (520) 23.7–30.7, (540) 23.4–29.9, (560) 22.7–29.1, (580) 22.1–28.5, (600) 21.5–28.0, (620) 21.0–27.6, (640) 20.6–27.2, (660) 20.3–26.9, (680) 20.0–26.4, (700) 19.9–26.2

Cell Data: *Space Group:* $R\overline{3}$. $a = 13.98$ $c = 9.12$ Z = 18

X-ray Powder Pattern: Binntal, Switzerland. (ICDD 16-700).
2.702 (100), 3.15 (80), 1.887 (80), 1.937 (70), 7.0 (60), 4.26 (60), 3.64 (60)

Chemistry:

	(1)	(2)
Ag	43.9	43.69
As	30.8	30.34
S	26.1	25.97
Total	100.8	100.00

(1) Binntal, Switzerland; by electron microprobe. (2) $AgAsS_2$.

Polymorphism & Series: Dimorphous with smithite.

Occurrence: Of hydrothermal origin, in dolostone (Binntal, Switzerland).

Association: Seligmannite, tennantite, pyrite, chromian muscovite (Binntal, Switzerland).

Distribution: From the Lengenbach quarry, Binntal, Valais, Switzerland [TL]. At Niederbeerbach, Odenwald, Hesse, Germany.

Name: Honoring Dr. Charles Otto Trechmann (1851–1917), English crystallographer.

Type Material: n.d.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 432–433. (2) Roland, G.W. (1968) Synthetic trechmannite. Amer. Mineral., 53, 1208–1214. (3) Matsumo, T. and W. Nowacki (1969) The crystal structure of trechmannite, $AgAsS_2$. Zeits. Krist., 129, 163–177. (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 581.