

Crystal Data: Tetragonal. *Point Group:* $4/m$. Crystals are typically pseudo-octahedral {011} or {112}, with modifying forms {001}, {013}, {121}, several others, to 32 cm; commonly granular, massive. *Twinning:* {110}, common, penetration and contact twins, composition plane {110} or {001}.

Physical Properties: *Cleavage:* On {101}, distinct; on {112}, interrupted; on {001}, indistinct. Hardness = 4.5–5 D(meas.) = 6.10(2) D(calc.) = 6.09 Bright bluish white cathodoluminescence and fluorescence under SW UV and X-rays.

Optical Properties: Transparent to opaque; transparent in transmitted light. *Color:* Colorless, white, gray, brown, pale yellow, yellow-orange, pale shades of orange, red, green; may be compositionally color zoned. *Streak:* White. *Luster:* Vitreous to adamantine. *Optical Class:* Uniaxial (+). $\epsilon = 1.935\text{--}1.938$ $\omega = 1.918\text{--}1.921$

Cell Data: *Space Group:* $I4_1/a$ (synthetic). $a = 5.2429(3)$ $c = 11.3737(6)$ $Z = 4$

X-ray Powder Pattern: Kernville, California, USA.
3.10 (100), 4.76 (55), 3.072 (30), 1.928 (30), 1.592 (30), 2.622 (25), 2.296 (20)

Chemistry:	(1)	(2)
WO ₃	80.17	80.52
MoO ₃	0.07	
MgO	trace	
CaO	19.49	19.48
Total	99.73	100.00

(1) Schwarzenberg, Germany. (2) CaWO₄.

Polymorphism & Series: Forms a series with powellite.

Occurrence: Typically a component of contact-metamorphic tactite; in high-temperature hydrothermal veins and greisen; less common in granite pegmatites and medium-temperature hydrothermal veins; alluvial.

Association: Cassiterite, wolframite, topaz, fluorite, apatite, tourmaline, quartz (greisen); grossular-andradite, diopside, vesuvianite, tremolite (tactite).

Distribution: An important ore of tungsten, with many localities. Some for fine and large crystals include: from Sweden, at the Bispsberg iron mine, near Säter, Dalarna. In Germany, from Altenberg and Schwarzenberg, Saxony. At Cínovec (Zinnwald) and Horní Slavkov (Schlaggenwald), Czech Republic. From Traversella, Piedmont, Italy. At Tenkergin, Chukotka, Siberia, Russia. In the Natas mine, about 80 km south of Windhoek, Namibia. Large crystals from the Tae wha mine, Chungju, North Chungchong Province, South Korea. At Pia Oac, Tonkin, North Vietnam. In China, from near Pingwu, Xuebao Ding Mountains, Sichuan Province, China. A large deposit in the Flat River Valley, Northwest Territories, Canada. In the USA, in Arizona, large crystals from the Cohen mine, Dragoon Mountains, Cochise Co.; commercially mined at the Pine Creek mine, near Bishop, Inyo Co., California. At Mitopilas, Sonora, Mexico. In the Morro Velho gold mine, Nova Lima, Minas Gerais, Brazil.

Name: Honors Karl Wilhelm Scheele (1742–1786), who determined the mineral contained tungsten.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1075–1077. (2) Hazen, R.M., L.W. Finger, and J.W.E. Mariathasan (1985) High-pressure crystal chemistry of scheelite-type tungstates and molybdates. *J. Phys. Chem. Solids*, 46, 253–263. (3) (1956) NBS Circ. 539, 6, 23.

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