

Crystal Data: Monoclinic. *Point Group:* 2/m or 2. Cryptocrystalline fibrous, may be flat platy {010}, to < 1 μm; gumlike to compact massive, typically as coatings.

Physical Properties: *Cleavage:* Perfect on {010}; fair on {100} and {100}.
Tenacity: Pulverulent. Hardness = 2.5–3 D(meas.) = 2.52–2.58 D(calc.) = 2.58

Optical Properties: Semitransparent. *Color:* Canary-yellow, greenish yellow, olive-green.
Luster: Waxy in compact aggregates.
Optical Class: Biaxial (+). α = 1.720–1.730 β = 1.730–1.734 γ = 1.748–1.752
2V(meas.) = n.d.

Cell Data: *Space Group:* P2₁/m or P2₁. a = 11.840 b = 25.00 c = 11.040
β = 111°10' Z = 24

X-ray Powder Pattern: Kara-Tau Mountains, Kazakhstan.
2.93 (10), 12.52 (5), 2.18 (5), 1.897 (5), 1.758 (5), 3.09 (4), 2.21 (4)

Chemistry:	(1)	(2)	(3)
SO ₃		0.66	
P ₂ O ₅		4.91	
V ₂ O ₅	44.44	39.00	46.41
SiO ₂		0.28	
Al ₂ O ₃	25.14	26.00	26.01
Fe ₂ O ₃	1.50	0.90	
Cr ₂ O ₃		0.95	
CaO		1.20	
H ₂ O ⁺	21.04	19.30	
H ₂ O ⁻	8.08	6.90	
H ₂ O			27.58
Total	100.20	100.10	100.00

(1) Gypsum Valley, Colorado, USA. (2) Kara-Tau Mountains, Kazakhstan. (3) Al(VO₄)•3H₂O.

Occurrence: In U–V deposits impregnating sandstone (Gypsum Valley, Colorado, USA); a weathering product in vanadium-rich schists (Kara-Tau Mountains, Kazakhstan).

Association: Fervanite, corvusite, gypsum (Gypsum Valley, Colorado, USA); navajoite, tyuyamunite, rauvite, hewettite (Monument No. 2 mine, Arizona, USA); vanalite, hewettite, delvauxite, satpaeveite, gypsum, vashegyite, variscite, halloysite, alunite (Kara-Tau Mountains, Kazakhstan).

Distribution: In the USA, from the Sullivan Brothers and adjacent Ponto No. 3 claims, Gypsum Valley, San Miguel Co.; in the Fox mine, Atkinson Mesa, Uravan district, Montrose Co., Colorado; on the Cactus Rat claims, Thompsons district, Grand Co., Utah; at the Monument No. 2 mine, Monument Valley, Apache Co., Arizona. In several mines of the Kurumsak and Balasauskandy districts, northwestern Kara-Tau Mountains, Kazakhstan.

Name: Honoring Dr. George Steiger (1869–1944), Chief Chemist, U.S. Geological Survey, Washington, D.C., USA.

Type Material: National Museum of Natural History, Washington, D.C., USA, C5108.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1049–1050. (2) Ankinovich, E.A., F.A. Kurmakaeva, and I.S. Zazubina (1987) Steigerite and vanalite from carbonaceous-siliceous vanadium-bearing formations of northwestern Kara-Tau (southern Kazakhstan). Zap. Vses. Mineral. Obshch., 116, 100–113 (in Russian with English abs.).

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