

Crystal Data: Hexagonal. *Point Group:* $3m$, 32 , or $\bar{3}2/m$. As lamellar or flaky, mica-like crystals flattened on $[001]$, to 1.5 mm; epitaxial and coplanar with $\{001\}$ of pyrrhotite; as irregular lamellae, sometimes with crude hexagonal outline; striations on $\{001\}$ cross at 60° .

Physical Properties: *Cleavage:* Perfect on $\{001\}$. *Fracture:* Laminated. *Tenacity:* Flexible, inelastic. VHN = 34-38 (5 g load). Hardness = ~ 1 D(meas.) = n.d. D(calc.) = 3.83

Optical Properties: Opaque. *Color:* Iron black; light to dark gray in reflected light. *Streak:* Black. *Luster:* Metallic. *Anisotropism:* Strong. *Pleochroism:* Strong, light gray with a yellowish hue to gray.

Optical Class: n.d.

R_1 - R_2 : (470) 8.6-21.5, (546) 9.2-21.6, (589) 9.2-21.5, (650) 8.9-21.3

Cell Data: *Space Group:* $P\bar{3}m1$, $P3m1$, or $P321$. [$a = 3.220(2)$ $c = 11.47(2)$ sulfide sublattice] [$a = 3.073(2)$ $c = 11.50(2)$ hydroxide sublattice] One-layer polytypes. $Z = 1$

X-ray Powder Pattern: Mt. Kaskasnyunchorr, Khibiny alkaline complex, Kola Peninsula, Russia. 5.72 (100), 11.46 (97), 2.786 (51), 1.613 (33), 1.557 (10), 2.627 (7), 2.219 (7)

Chemistry:	(1)		(1)
Mg	5.94	Nb	13.39
Al	3.67	Mo	23.18
Ca	0.04	W	7.59
V	0.16	S	27.09
Mn	0.23	O	15.66
Fe	1.44	<u>H</u>	[0.99]
		Total	99.08

(1) Mt. Kaskasnyunchorr, Russia; average of 5 electron microprobe analyses, H calculated so that all O are OH⁻, presence of OH⁻ confirmed by Raman spectroscopy; corresponding to $(\text{Mo}_{0.57}\text{Nb}_{0.34}\text{W}_{0.10}\text{V}_{0.01})_{\Sigma=1.02}\text{S}_2 \cdot (\text{Mg}_{0.58}\text{Al}_{0.32}\text{Fe}_{0.06}\text{Mn}_{0.01})_{\Sigma=0.97}(\text{OH})_{2.32}$.

Mineral Group: Valleriite group.

Polymorphism & Series: Forms a series with manganokaskasite.

Occurrence: Of hydrothermal origin in fenites formed by the influence of a peralkaline fluid acting as a source of Nb on a large xenolith of alumina-rich metamorphic rocks (metapelites) located inside a huge intrusion of apatitic nepheline syenite.

Association: Orthoclase, anorthoclase, nepheline, fluorophlogopite, corundum, pyrrhotite, pyrite, rutile, monazite-(Ce), graphite, edgarite, molybdenite, tungstenite, alabandite.

Distribution: From Mt. Kaskasnyunchorr, Khibiny alkaline complex, Kola Peninsula, Russia.

Name: For Mount Kaskasnyunchorr, the locality that produced the first specimens, whose name is based on the word for "juniper" - *kaskas* - in the Saami language of the Kola aboriginal people.

Type Material: The A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (# 94231).

References: (1) Pekov, I.V., V.O. Yapaskurt, Y.S. Polekhovskiy, M.F. Viganina, and O.I. Siidra (2014) Ekplexite $(\text{Nb,Mo})\text{S}_2 \cdot (\text{Mg}_{1-x}\text{Al}_x)(\text{OH})_{2+x}$, kaskasite $(\text{Mo,Nb})\text{S}_2 \cdot (\text{Mg}_{1-x}\text{Al}_x)(\text{OH})_{2+x}$ and manganokaskasite $(\text{Mo,Nb})\text{S}_2 \cdot (\text{Mn}_{1-x}\text{Al}_x)(\text{OH})_{2+x}$, three new valleriite-group mineral species from the Khibiny alkaline complex, Kola peninsula, Russia. *Mineral. Mag.*, 78(3), 663-679. (2) (2015) *Amer. Mineral.*, 100, 658-659 (abs. ref. 1).