Ekplexite $(Nb,Mo)S_2{\cdot}(Mg_{1-x}Al_x)(OH)_{2+x}$

Crystal Data: Hexagonal. *Point Group*: 3*m*, 32, or $\bar{3}$ 2/*m*. As isolated lenticular nests, to 1 mm; as near-parallel, radiating or chaotic aggregates of mica-like, corrugated flakes, to 0.1 mm; or as flakes epitaxially growing on Ti-bearing pyrrhotite, to 0.7 mm.

Physical Properties: *Cleavage*: Perfect on {001}. *Fracture*: Laminated. *Tenacity*: Flexible, inelastic. VHN = 64 (5 g load). Hardness = ~1 D(meas.) = n.d. D(calc.) = 3.63

Optical Properties: Opaque. *Color*: Iron black; light to dark gray in reflected light. *Streak*: Black. *Luster*: Metallic. *Anisotropism:* Strong. *Pleochroism*: Strong, light to dark gray. *Optical Class*: n.d.
R_1-R_2: (470) 8.7-18.9, (546) 8.7-19.4, (589) 8.8-19.0, (650) 8.6-18.2

Cell Data: *Space Group*: $P\bar{3}\,m1$, $P3m1$, or $P321$. [a = 3.262(2) c = 11.44(2) sulfide sub-lattice] [a = 3.066(2) c = 11.52(2) hydroxide sub-lattice] One-layer polytypes. Z = 1

X-ray Powder Pattern: Mt. Kaskasnyunchorr, Khibiny alkaline complex, Kola Peninsula, Russia. 11.40 (100), 5.65 (56), 2.812 (21), 1.622 (11), 2.647 (9), 2.248 (4), 1.573 (4)

Chemistry:

	(1)		(1)
Mg	6.25	Nb	18.17
Al	4.31	Mo	15.89
Ca	0.00	W	8.13
V	0.86	S	27.68
Mn	0.00	O	16.33
Fe	0.44	H	[1.03]
		Total	99.09

(1) Mt. Kaskasnyunchorr, Russia; average of 5 electron microprobe analyses, H calculated so that all O are OH^-, OH^- confirmed by Raman spectroscopy; corresponding to $(Nb_{0.45}Mo_{0.38}W_{0.10}V_{0.04})_{\Sigma=0.97}S_2{\cdot}(Mg_{0.60}Al_{0.37}Fe_{0.02})_{\Sigma=0.99}(OH)_{2.36}$.

Mineral Group: Valleriite group.

Occurrence: Of hydrothermal origin in fenites formed by a peralkaline fluid, as a source of Nb, reacting with a large xenolith of alumina-rich metamorphic rocks (metapelites) in agpaitic 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: After the Greek word έκπληξη meaning "surprise", for its exotic combination of major chemical constituents.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (# 93628).

References: (1) Pekov, I.V., V.O. Yapaskurt, Y.S. Polekhovsky, M.F. Vigasina, and O.I. Siidra (2014) Ekplexite $(Nb,Mo)S_2{\cdot}(Mg_{1-x}Al_x)(OH)_{2+x}$, kaskasite $(Mo,Nb)S_2{\cdot}(Mg_{1-x}Al_x)(OH)_{2+x}$ and manganokaskasite $(Mo,Nb)S_2{\cdot}(Mn_{1-x}Al_x)(OH)_{2+x}$, 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).