

**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . Lath-shaped to 150  $\mu\text{m}$ ; as thin-lamellar pseudo-hexagonal rhomb-like and band-shaped crystals to 2 mm, usually curved.

**Physical Properties:** *Cleavage:* Perfect on {001}. *Tenacity:* Elastic flakes. *Fracture:* n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 7.598

**Optical Properties:** Semi-transparent. *Color:* Silvery, brown-red inner reflections; white with slight pink hue in reflected light. *Streak:* Gray-black. *Luster:* Metallic.

*Optical Class:* Anisotropy: Strong.

R<sub>1</sub>-R<sub>2</sub>: (470) 44.1-39.1, (546) 42.8-37.6, (589) 42.2-37.6, (650) 42.4-37.3

**Cell Data:** *Space Group:*  $P\bar{1}$ .  $a = 6.470(5)$   $b = 6.368(5)$   $c = 6.401(7)$   $\alpha = 105.0(1)^\circ$   $\beta = 91.59(9)^\circ$   $\gamma = 118.90(6)^\circ$   $Z = 4$

**X-ray Powder Pattern:** Kudryavy volcano, Kurile volcanic arc, Russia. 2.7834 (10), 2.764 (10), 2.733 (10), 1.6156 (10), 1.5938 (10), 2.371 (9), 2.0914 (9),

Chemistry:	(1)	(2)
Mo	1.58	0.13
Re	74.77	74.30
Fe		
Cu	0.42	
S	23.43	25.46
Total	100.20	99.89

(1) Pagoni Rachi Mo-Cu-Te-Ag-Au prospect, northern Greece; electron microprobe analysis; corresponds to Re<sub>1.043</sub>Mo<sub>0.043</sub>Cu<sub>0.017</sub>S<sub>1.897</sub>. (2) Kudryavy volcano, Kurile volcanic arc, Russia; electron microprobe analysis; corresponds to Re<sub>1.002</sub>Mo<sub>0.005</sub>Cu<sub>0.017</sub>S<sub>1.993</sub>.

**Occurrence:** As sublimates in high-temperature fumaroles and in porphyry-type Mo-Cu-Te-Ag-Au hydrothermal mineralization.

**Association:** Molybdenite, pyrite, quartz (Pagoni Rachi); magnetite, corundum, wollastonite, andradite-grossular garnet, wurtzite, greenockite, cadmoindite, halite (Kudryavy volcano).

**Distribution:** At the Kudryavy volcano, Kurile volcanic arc, Russia [TL] and in the Pagoni Rachi and Konos prospects, in northeastern Greece.

**Name:** For its chemical composition as a unique mineral of *rhenium*.

**Type Material:** A.E. Fersman Mineralogical Museum, Moscow, Russia.

**References:** (1) Korzhinsky, M.A., S.I. Tkachenko, K.I. Shmulovich, Y.A. Taran, and G.S. Steinberg (1994) Discovery of a pure rhenium mineral at Kudriavy volcano. *Nature* 1994, 369, 51-52. (2) Znamensky, V.S., M.A. Korzhinsky, G.S. Steinberg, S.I. Tkachenko, A.I. Yakushev, I.P., Laputina, I.A. Bryzgalov, N.D. Samotoin, L.O. Magazina, O.V. Kuzmina, N.I. Organova, V.A. Rassulov, and I.V. Chaplygin (2005) Rheniite, ReS<sub>2</sub> - natural rhenium disulfide from fumaroles of Kudriavy volcano (Iturup Island, Kurile islands). *Zap. Vses. Mineral. Obshchest.* 134(5), 32-40 (in Russian, English abstract). (4) Ibáñez-Insa, J., T. Woźniak, R. Oliva, C. Popescu, S. Hernández, and J. López-Vidrier (2021) Structural and High-Pressure Properties of Rheniite (ReS<sub>2</sub>) and (Re,Mo)S<sub>2</sub>. *Minerals*, 11, 207. (5) Voudouris, P.C., V. Melfos, P.G. Spry, L. Bindi, T. Kartal, K. Arikas, R. Moritz, M. Ortelli (2009) Rhenium-rich molybdenite and rheniite in the Pagoni Rachi Mo-Cu-Te-Ag-Au prospect, northern Greece: implications for the Re geochemistry of porphyry-style Cu-Mo and Mo mineralization. *Can. Mineral.*, 47(5), 1013-1036.