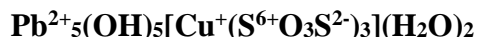


Steverustite

Crystal Data: Monoclinic. *Point Group:* 2/m. As fibrous to acicular crystals, elongated along [010], bounded by (h0l) faces; in divergent sprays to 1.5 mm.

Physical Properties: *Cleavage:* n.d. *Tenacity:* Brittle. *Fracture:* Splintery. *Hardness* = n.d. *D(meas.)* = n.d. *D(calc.)* = 5.150 Nonfluorescent.

Optical Properties: Transparent. *Color:* Colorless to white. *Streak:* White. *Luster:* Vitreous. *Optical Class:* *n(calc.)* = 1.94

Cell Data: *Space Group:* $P2_1/n$. $a = 12.5631(7)$ $b = 8.8963(5)$ $c = 18.0132(11)$ $\beta = 96.459(1)^\circ$ $Z = 4$

X-ray Powder Pattern: Frongoch Pb-Zn mine, Pontryhydrygroes, Ceredigion, Wales. 3.943 (100), 6.897 (80), 3.348 (70), 6.211 (60), 4.797 (60), 3.026 (60), 2.837 (50)

Chemistry:	(1)	(2)
PbO	72.59	71.95
SO ₃	15.78	15.49
Cu ₂ O	4.47	4.61
S ²⁻	6.32	6.20
H ₂ O	[4.83]	4.84
-O = S ²⁻	3.15	3.09
Total	100.84	100.00

(1) Frongoch Pb-Zn mine, Pontryhydrygroes, Ceredigion, Wales; average electron microprobe analysis supplemented by FTIR spectroscopy, H₂O from structure analysis; corresponds to $\text{Pb}^{2+}_{4.99}\text{Cu}^{0.96}(\text{S}^{6+}\text{O}_3\text{S}^{2-})_{3.03}(\text{OH})_{4.88}(\text{H}_2\text{O})_{1.67}$. (2) $\text{Pb}^{2+}_5\text{Cu}^+(\text{S}^{6+}\text{O}_3\text{S}^{2-})_3(\text{OH})_5(\text{H}_2\text{O})_2$.

Occurrence: Secondary by oxidation of galena in cavities in quartz veins.

Association: Galena, covellite, cerussite, anglesite, hemimorphite, sussannite, bechererite, caledonite.

Distribution: From the mine dumps at the Frongoch Pb-Zn mine [TL], Pontryhydrygroes, Upper Llanfihangelly-Creudyn, Ceredigion, Wales. Also in Powys, Wales, at the Nantycar mine dump, Rhayader and the Llangynog mine dump, Llangynog. In Ceredigion, Wales at the Bwlch Glas mine, Talybont,; Hendre Felen mine dump, Ysbyty Ystwyth; Esgair Hir mine dump, Talybont; the Penybach mine dump, Talybont; and the Llechwedd Helyg mine dump, Bontgoch. In Scotland, at Horners Vein dump, the Lady Anne Hopetoun Shaft dump, and the Susanna mine dump, Leadhills, Strathclyde.

Name: Honors Stephen Andrew Rust (b. 1952), a collector of United Kingdom minerals who discovered the mineral at the Frongoch mine.

Type Material: Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNMC 86053).

References: (1) Cooper, M.A., F.C. Hawthorne, and E. Moffatt (2009) Steverustite, $\text{Pb}^{2+}_5(\text{OH})_5[\text{Cu}^+(\text{S}^{6+}\text{O}_3\text{S}^{2-})_3](\text{H}_2\text{O})_2$, a new thiosulphate mineral from the Frongoch mine dump, Devils Bridge, Ceredigion, Wales: description and crystal structure. *Mineral. Mag.*, 73, 235-250. (2) (2010) *Amer. Mineral.*, 95, 208 (abs. ref. 1).