

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Tabular crystals, to a few mm, aggregated in stalactites.

Physical Properties: Hardness = n.d. D(meas.) = 2.31 D(calc.) = 2.32 Soluble in H₂O, acid taste.

Optical Properties: Transparent. *Color:* Colorless, may be blue if impure; colorless in transmitted light. *Luster:* Vitreous.

Optical Class: Biaxial (+). *Orientation:* X = b; Y = c; Z = a. *Dispersion:* r < v, weak. α = 1.445 β = [1.460] γ = 1.491 2V(meas.) = 56°

Cell Data: *Space Group:* Pbca. a = 8.429(3) b = 18.976(6) c = 9.807(3) Z = 16

X-ray Powder Pattern: Synthetic. (ICDD 11-649).
3.84 (100), 3.52 (85), 3.41 (85), 3.26 (85), 3.87 (65), 3.03 (65), 2.472 (30)

| Chemistry: | (1) | (2) | (3) |
|--------------------------------|-------|----------|--------|
| HSO ₄ | 65.68 | 74.92 | 71.29 |
| SO ₄ | 4.25 | | |
| Al ₂ O ₃ | 0.12 | | |
| Cu | 0.77 | | |
| Ca | 0.25 | | |
| Na | 3.67 | | |
| K | 21.99 | 25.08 | 28.71 |
| H ₂ O ⁺ | 0.64 | | |
| H ₂ O ⁻ | 1.81 | | |
| insol. | 0.57 | | |
| Total | 99.75 | [100.00] | 100.00 |

(1) Vesuvius, Italy. (2) Do.; recalculated to 100% after deduction of misenite and thénardite estimated 6%–7% and other impurities. (3)KHSO₄.

Occurrence: In fumaroles.

Association: Halite, misenite, hieratite, carobbiite.

Distribution: On Vesuvius, Campania, Italy.

Name: To honor Giuseppe Mercalli (1850–1914), a Director of the Vesuvius Observatory, Italy.

Type Material: University of Florence, Florence, Italy, 1976/I.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 395. (2) Payan, F. and R. Haser (1976) On the hydrogen bonding in potassium hydrogen sulphate. Comparison with a previous crystal structure determination. Acta Cryst., 32, 1875–1879.