

Vantasselite**Al₄(PO₄)₃(OH)₃•9H₂O**

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m, mm2, or 222. Lamellar crystals, elongated along [100], flattened on [001], terminated by {120}. Typically in flat rosettes, to 8 mm, less commonly globular to spherical.

Physical Properties: *Cleavage:* On {001}, micaceous; imperfect on {010}. *Tenacity:* Slightly flexible. Hardness = 2–2.5 D(meas.) = 2.30(2) D(calc.) = 2.312

Optical Properties: Transparent to translucent. *Color:* White. *Luster:* Pearly on cleavages. *Optical Class:* Biaxial (-). *Orientation:* X = c; Y = b; Z = a. $\alpha = [1.511]$ $\beta = 1.560(2)$ $\gamma = 1.578(2)$ 2V(meas.) = 61(2)°

Cell Data: *Space Group:* Pmam, Pma2, or P2₁am. a = 10.528(4) b = 16.541(3) c = 20.373(6) Z = 8

X-ray Powder Pattern: Bihain, Belgium.
10.22 (10), 2.892 (5), 3.395 (4), 3.210 (4), 2.394 (4), 4.87 (3), 3.720 (3)

Chemistry:	(1)	(2)
SO ₃	0.35	
P ₂ O ₅	33.47	35.14
Al ₂ O ₃	30.46	33.65
Fe ₂ O ₃	5.22	
H ₂ O	30.83	31.21
Total	100.33	100.00

(1) Bihain, Belgium; by electron microprobe, average of nine analyses; total Fe as Fe₂O₃, H₂O by TGA; corresponds to (Al_{3.61}Fe_{0.39})_{Σ=4.00}[(PO₄)_{2.97}(SO₄)_{0.03}]_{Σ=3.00}(OH)_{3.03}•8.98H₂O.

(2) Al₄(PO₄)₃(OH)₃•9H₂O.

Occurrence: On dumps in a quartzite quarry, in quartz veinlets or lining schistosity planes.

Association: Wavellite, cacoxenite, variscite, turquoise, lithiophorite, cryptomelane, quartz, clinocllore, muscovite.

Distribution: Found about one km north of Bihain, Belgium.

Name: Honoring Dr. René Van Tassel (1916–), mineralogist, Royal Institute of Natural Sciences, Brussels, Belgium, for his work on Belgian mineralogy.

Type Material: University of Liège, Liège, Belgium.

References: (1) Fransolet, A.-M. (1987) La vantasselite, Al₄(PO₄)₃(OH)₃•9H₂O, une nouvelle espèce minérale du Massif de Stavelot, Belgique. Bull. Minéral., 110, 647–656 (in French with English abs.). (2) (1988) Amer. Mineral., 73, 931 (abs. ref. 1).