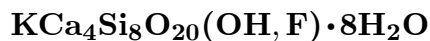


Hydroxyapophyllite



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Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. Crystals are equant or tabular on {001}, to 15 cm, with {100}, {001}, and {111}; some crystals striated on {100} || [001]. *Twinning:* Multiply twinned.

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* [Uneven] (by analogy to fluorapophyllite). *Tenacity:* [Brittle.] *Hardness* = 4.5–5 *D(meas.)* = 2.37 *D(calc.)* = 2.36

Optical Properties: Transparent to translucent, opaque. *Color:* Colorless to white; may be pink, light green, or light yellow. *Streak:* White. *Luster:* Vitreous on {100} and pearly on {001}.

Optical Class: Uniaxial (+). $\omega = 1.536\text{--}1.542$ $\epsilon = 1.537\text{--}1.543$

Cell Data: *Space Group:* $P4/mnc$. $a = 8.978(3)$ $c = 15.83(1)$ $Z = 2$

X-ray Powder Pattern: Jefferson, North Carolina, USA.

3.965 (100), 2.990 (67), 1.588 (26), 4.554 (23), 2.494 (22), 7.90 (13), 7.82 (13)

Chemistry:

	(1)	(2)	(3)
SiO ₂	51.93	52.59	53.10
Al ₂ O ₃	0.30	0.12	
CaO	25.78	25.44	24.78
K ₂ O	4.76	5.00	5.20
Na ₂ O	0.09	0.00	
H ₂ O	16.76	16.89	16.92
Total	99.62	100.04	100.00

(1) Jefferson, North Carolina, USA; by electron microprobe, H₂O by the Penfield method.

(2) Kimberley, South Africa; by electron microprobe, H₂O by the Penfield method.

(3) KCa₄Si₈O₂₀(OH)·8H₂O.

Polymorphism & Series: Forms a series with fluorapophyllite.

Occurrence: Typically a secondary mineral in amygdules or druses in basalts.

Association: Zeolites, fluorapophyllite, datolite, pectolite, calcite.

Distribution: In the USA, in the Ore Knob mine, Jefferson, Ashe Co., and the Foote mine, Kings Mountain, Cleveland Co., North Carolina; at Great Notch and Paterson, Passaic Co., and Franklin, Sussex Co., New Jersey; from the Fairfax quarry, Centreville, Fairfax Co., Virginia. From the Valenciana and La Luz mines, Guanajuato, Mexico. In India, around Bombay, Poona, and Nasik, Maharashtra. From Kimberley, and in large crystals, from near Kuruman, Cape Province, South Africa. In Norway, from the Mofjellet mine, Mo i Rana. These occurrences have been authenticated, which requires chemical analysis; there are undoubtedly additional ones.

Name: For the predominance of *hydroxyl* and relation to other *apophyllite* species.

Type Material: The Natural History Museum, London, England, 1977,58; Geological Survey of Canada, Ottawa, 14099; Royal Ontario Museum, Toronto, Canada; Harvard University, Cambridge, Massachusetts; National Museum of Natural History, Washington, D.C., USA, 115268.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 566–569.

(2) Dunn, P.J., R.C. Rouse, and J.A. Norberg (1978) Hydroxyapophyllite, a new mineral, and a redefinition of the apophyllite group. I. Description, occurrences, and nomenclature. Together with: Rouse, R.C, D.R. Peacor, and P.J. Dunn: II. Crystal structure. *Amer. Mineral.*, 63, 196–202. (3) Dunn, P.J. and W.E. Wilson (1978) Nomenclature revisions in the apophyllite group:

hydroxyapophyllite, apophyllite, fluorapophyllite. *Mineral. Record*, 9, 95–98.

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