

Crystal Data: Orthorhombic. *Point Group:* $mm2$. As prismatic crystals, elongated || [001], to 20 cm; commonly in hairlike tufts and aggregates of fibers; divergent, radiating compact masses; in fibrous stalactites; porcelaneous, massive. *Twinning:* Characteristically twinned on {010} or {100}.

Physical Properties: *Cleavage:* {110}, $\{\bar{1}10\}$, perfect. *Fracture:* Uneven. *Tenacity:* Brittle, but compact masses are tough. Hardness = 5 D(meas.) = 2.26 D(calc.) = 2.27 May exhibit a small pyroelectric effect; piezoelectric.

Optical Properties: Transparent to translucent, opaque. *Color:* Colorless, white, gray, yellowish; in thin section, colorless. *Luster:* Vitreous, silky when fibrous.

Optical Class: Biaxial (+). *Orientation:* $X \wedge c \simeq 8^\circ$; $Z = b$. *Dispersion:* $r > v$, strong. $\alpha = 1.5048$ $\beta = 1.5050$ $\gamma = 1.5053$ $2V(\text{meas.}) = \sim 80^\circ$

Cell Data: *Space Group:* $Fdd2$. $a = 18.4049(8)$ $b = 56.655(6)$ $c = 6.5443(4)$ $Z = 8$

X-ray Powder Pattern: Harbabkhandi, Iran.

6.585 (100), 2.857 (56), 2.885 (55), 4.715 (49), 5.858 (38), 4.196 (32), 4.600 (29)

Chemistry:

	(1)
SiO ₂	46.98
Al ₂ O ₃	26.43
CaO	10.06
Na ₂ O	4.57
K ₂ O	0.05
H ₂ O	11.94
Total	100.03

(1) Syhadree Mountains, Bombay, India; corresponds to (Na_{1.70}K_{0.01})_{Σ=1.71}Ca_{2.07}Al_{5.99}Si_{9.04}O₃₀•7.66H₂O.

Mineral Group: Zeolite group.

Occurrence: In cavities of volcanic rocks, typically basalt, also in andesites, porphyries, and hydrothermal veins.

Association: Natrolite, scolecite, other zeolites, calcite.

Distribution: Many localities, but only a few provide large crystals or rich masses. On North Mountain and Gates Mountain, and at Cape Blomiden, Nova Scotia, Canada. In the USA, on Table Mountain, Jefferson Co., Colorado; large crystals from Skookumchuck Dam, near Bucoda, Thurston Co., Washington. In Oregon, from Goble, Columbia Co.; near Dollar, and on Shotgun Creek, Linn Co.; Springfield, Lane Co.; Ritter Hot Springs, Grant Co., and elsewhere. From Puy de Marman, near Veyre, Puy-de-Dôme, France. In Iceland, from the Breiddalur-Berufjord area. On Naalsoy, Streymoy, and others of the Faeroe Islands. Exceptional crystals from the Pashan Hills and other localities around Poona, Maharashtra, India.

Name: From the Greek for *middle*, alluding to its composition intermediate between natrolite and scolecite.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 605–606.

(2) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 4, framework silicates, 358–376. (3) Alberti, A., D. Pongiluppi, and G. Vezzalini (1982) The crystal chemistry of natrolite, mesolite and scolecite. Neues Jahrb. Mineral., Abh., 143, 231–248. (4) Artioli, G., J.V. Smith, and J.J. Pluth (1986) X-ray structure refinement of mesolite. Acta Cryst., C42, 937–942.

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