

Thomsonite**NaCa₂Al₅Si₅O₂₀•6H₂O**

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Crystal Data: Orthorhombic, pseudotetragonal. *Point Group:* 2/m 2/m 2/m. Crystals commonly prismatic, acicular, or bladed, flattened on {010}, elongated and striated || [001], to 12 cm; in radiated spherical or columnar aggregates; smooth, globular, botryoidal; compact, massive. *Twinning:* On {110}.

Physical Properties: *Cleavage:* Perfect on {010}, good on {100}. *Fracture:* Uneven to subconchoidal. *Tenacity:* Brittle. Hardness = 5–5.5 D(meas.) = 2.23–2.39 D(calc.) = 2.366 Pyroelectric.

Optical Properties: Transparent to translucent. *Color:* White, yellowish, pink, brown, greenish, may be concentrically zoned; colorless in thin section. *Streak:* White. *Luster:* Vitreous to somewhat pearly.

Optical Class: Biaxial (+). *Orientation:* X = a; Y = c; Z = b. *Dispersion:* r > v, strong. α = 1.497–1.530 β = 1.513–1.533 γ = 1.518–1.544 2V(meas.) = 42°–75°

Cell Data: *Space Group:* Pncn. a = 13.088(2) b = 13.052(2) c = 13.229(2) Z = 4

X-ray Powder Pattern: Kaden [sic, Kadaň (Kaaden)], Czech Republic. (ICDD 19-1344). 2.86 (100), 4.64 (90), 2.68 (80), 2.95 (70), 3.51 (65), 6.60 (60), 3.19 (45)

Chemistry:

	(1)	(2)
SiO ₂	37.17	41.49
Al ₂ O ₃	31.93	28.59
CaO	13.98	11.89
Na ₂ O	4.00	4.23
K ₂ O	trace	
H ₂ O	13.35	[13.80]
Total	100.43	[100.00]

(1) Old Kilpatrick, Scotland; corresponds to Na_{1.04}Ca_{2.00}Al_{5.03}Si_{4.97}O₂₀•5.95H₂O. (2) Goble, Oregon, USA; by electron microprobe, H₂O by difference; corresponds to Na_{1.09}Ca_{1.70}Al_{4.48}Si_{5.52}O₂₀•6H₂O.

Mineral Group: Zeolite group.

Occurrence: In amygdules and fractures in mafic igneous rocks, typically basalts; in some alkalic igneous rocks, contact metamorphic zones, and hypabyssal rocks. As an authigenic cement in some sandstones.

Association: Zeolites, calcite, prehnite, datolite, quartz.

Distribution: A common zeolite with many localities known; a few for good crystals are: from Old Kilpatrick, Dumbartonshire, and Bishopton, Renfrew, Scotland. At Mt. Monzoni, Val di Fassa, Trentino-Alto Adige, Italy. From Ostroh (Seeberg), Kadaň (Kaaden), and Ústí nad Lábem (Aussig), Czech Republic. At Hammer-Unterwiesenthal, Saxony, Germany. From Nolsoy, Essuroy, and Streymoy, Faeroe Islands. In the USA, from Paterson, Passaic Co., New Jersey; on North and South Table Mountain, Jefferson Co., Colorado; and in Oregon, at Springfield, Lane Co., Drain, Douglas Co., Goble, Columbia Co., Ritter Hot Springs, Grant Co., and elsewhere. At Flinders, Victoria, Australia.

Name: For Dr. Thomas Thomson (1773–1852), Scottish chemist and mineralogist of Glasgow, Scotland, who first analyzed the mineral.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 607–609. (2) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 4, framework silicates, 359–376. (3) Wise, W.S. and R.W. Tschernich (1978) Habits, crystal forms and composition of thomsonite. Can. Mineral., 16, 487–493. (4) Pluth, J.J., J.V. Smith, and Å. Kvikvick (1985) Neutron diffraction study of the zeolite thomsonite. Zeolites, 5(2), 74–80. (5) (1986) Mineral. Abs., 37, 154 (abs. ref. 4).

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