

Parthéite

CaAl₂Si₂O₈•2H₂O

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Crystal Data: Monoclinic. *Point Group:* 2/*m*. As pseudohexagonal crystals elongated || [001], with {100} and {110}, forming radiating fibrous aggregates and subhedral grains, to 0.3 mm.

Physical Properties: *Cleavage:* {100}, {110}, distinct. Hardness = 4 D(meas.) = 2.39–2.45 D(calc.) = 2.41

Optical Properties: Transparent. *Color:* White, dark blue [*sic*]; in transmitted light, colorless. *Luster:* Vitreous.

Optical Class: Biaxial (+). *Orientation:* Y = b; X ∧ c = 23°–30°. *Dispersion:* r > v, moderate. α = 1.547–1.550 β = 1.549–1.552 γ = 1.559–1.565 2V(meas.) = 45°–48°

Cell Data: *Space Group:* C2/c. a = 21.555(3) b = 8.761(1) c = 9.304(2) β = 91.55(2)° Z = 8

X-ray Powder Pattern: Doğanbaba, Turkey.

10.79 (100), 8.12 (80), 6.10 (70), 3.740 (50), 3.600 (40), 3.190 (40), 3.046 (30)

Chemistry:	(1)	(2)	(1)	(2)
SiO ₂	40.24	36.64	CaO	16.38
TiO ₂		< 0.01	Na ₂ O	0.32
Al ₂ O ₃	31.99	31.76	K ₂ O	0.23
Fe ₂ O ₃		0.05	H ₂ O ⁺	14.14
FeO		0.04	H ₂ O ⁻	0.32
MnO		< 0.01	H ₂ O	[10.83]
MgO		0.25	CO ₂	< 0.05
			Total	[99.99] [100.08]

(1) Doğanbaba, Turkey; by electron microprobe, H₂O by difference; corresponds to (Ca_{1.0}Na_{0.03}K_{0.01})_{Σ=1.04}Al_{2.1}Si_{2.2}O₈•2.06H₂O. (2) Denezhkin Kamen complex, Russia; original total given as 99.76%; corresponds to (Ca_{0.96}Mg_{0.02}Na_{0.01})_{Σ=0.99}Al_{2.02}Si_{1.98}O₈•2.54H₂O.

Polymorphism & Series: Dimorphous with lawsonite.

Occurrence: In rodingite dikes within an ophiolite (Doğanbaba, Turkey); in veins cutting a gabbroic intrusive complex (Denezhkin Kamen complex, Russia).

Association: Prehnite, thomsonite, augite (Doğanbaba, Turkey); chlorite, tremolite (Denezhkin Kamen complex, Russia).

Distribution: From Belenköysirti Hill, seven km southeast of the village of Doğanbaba, Taurus Mountains, Burdur Province, Turkey. In Russia, in the Denezhkin Kamen complex, Ural Mountains.

Name: In honor of Professor Erwin Parthé, crystallographer at the University of Geneva, Geneva, Switzerland.

Type Material: Museum of Natural History, Geneva, Switzerland, 435/10; National Museum of Natural History, Washington, D.C., USA, 146562; The Natural History Museum, London, England, 1984,742.

References: (1) Sarp, H., J. Deferne, H. Bizouard, and B.W. Liebich (1979) La parthéite, CaAl₂Si₂O₈•2H₂O, un nouveau silicate naturel d'aluminium et de calcium. Schweiz. Mineral. Petrog. Mitt., 59, 5–13 (in French with English abs.). (2) (1980) Amer. Mineral., 65, 1068 (abs. ref. 1). (3) Ivanov, O.K. and Y.V. Mozzherin (1982) Parthéite from gabbro-pegmatites of Denezhkin Kamen, Urals (first occurrence in the USSR). Zap. Vses. Mineral. Obshch., 111, 209–214 (in Russian). (4) (1982) Chem. Abs., 96, 220671 (abs. ref. 3). (5) Engel, N. and K. Yvon (1984) The crystal structure of parthéite. Zeits. Krist., 169, 165–175. (6) Sarp, H. (1985) Quelques données nouvelles sur la parthéite et son étude au spectrophotomètre à l'infrarouge. Schweiz. Mineral. Petrog. Mitt., 65, 129–135 (in French with English abs.).

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