

Stellerite**CaAl₂Si₇O₁₈•7H₂O**

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Single crystals show the forms {100}, {010}, {001}, and {111}. Commonly in spheres, to 12 cm, of radiating crystals; as crystal aggregates.

Physical Properties: *Cleavage:* {010}, perfect. *Hardness* = n.d. *D(meas.)* = 2.13(1) *D(calc.)* = 2.12

Optical Properties: Transparent. *Color:* Colorless to white; in transmitted light, colorless. *Optical Class:* Biaxial (-). *Orientation:* $X = a$; $Y = c$; $Z = b$. $\alpha = 1.4848(5)$ $\beta = 1.4964(5)$ $\gamma = 1.4979(5)$ $2V(\text{meas.}) = 47(2)^\circ$ $2V(\text{calc.}) = 39(8)^\circ$

Cell Data: *Space Group:* $Fmmm$. $a = 13.599(4)$ $b = 18.222(4)$ $c = 17.863(3)$ $Z = [8]$

X-ray Powder Pattern: Villanova Monteleone, Sardinia, Italy; cannot be distinguished from barrerite.

9.03 (100), 4.057 (45), 3.028 (23), 4.655 (15), 3.003 (10), 2.771 (8), 3.397 (7)

Chemistry:	(1)		(1)	
	SiO ₂	59.15	SrO	0.05
	Al ₂ O ₃	14.21	BaO	0.02
	Fe ₂ O ₃	0.17	Na ₂ O	0.19
	MnO	trace	K ₂ O	0.23
	MgO	0.04	H ₂ O	17.79
	CaO	7.45	Total	99.30

(1) Villanova Monteleone, Sardinia, Italy; corresponds to $(\text{Ca}_{0.94}\text{Na}_{0.04}\text{K}_{0.04}\text{Mg}_{0.01})_{\Sigma=1.03}(\text{Al}_{1.98}\text{Fe}_{0.02})_{\Sigma=2.00}\text{Si}_{7.00}\text{O}_{18} \cdot 7.02\text{H}_2\text{O}$.

Mineral Group: Zeolite group.

Occurrence: Lines cavities and fracture surfaces in volcanic rocks altered by hydrothermal solutions.

Association: Zeolites, prehnite, tridymite.

Distribution: Increasingly recognized from localities worldwide; only a few of the best confirmed of these can be given. On Copper Island, Komandorskiye (Commander) Islands, Bering Sea, and at Klichka, Chita region, Siberia, Russia. Fine examples in the Sarbayskaya quarry, near Rudniy, Kazakhstan. From Villanova Monteleone, Alghero, Sardinia, Italy. At Kongsberg, Norway. In the USA, at Ritter Hot Springs, Grant Co., Oregon; on Hook Mountain, Rockland Co., New York; and at Fanwood, Somerset Co., New Jersey. In Australia, large crystals from around Gunnedah, New South Wales, and at Harcourt, Dookie, and Corop, Victoria. Exceptional examples from Cinchwad, Poona, and in the Nasik district, Maharashtra, India.

Name: For Georg Wilhelm Steller (1709–1746), discoverer of the Komandorskiye (Commander) Islands, Russia.

Type Material: The Natural History Museum, London, England, 1934,650.

References: (1) Morozewicz, J.A. (1909) Über Stellerit, ein neues Zeolithmineral. Bull. Intern. Acad. Sci. Cracovie, part 2, 344–359 (in German). (2) Erd, R.C., G.D. Eberlein, and A. Pabst (1967) Stellerite: a valid orthorhombic end member of a continuous series with monoclinic stilbite. Geol. Soc. Amer. Annual Meeting Abs. with Prog., 58–59 (abs.). (3) (1968) Amer. Mineral., 53, 511 (abs. ref. 2). (4) Galli, E. and E. Passaglia (1973) Stellerite from Villanova Monteleone, Sardinia. Lithos, 6, 83–90. (5) Galli, E. and A. Alberti (1975) The crystal structure of stellerite. Bull. Minéral., 98, 11–18. (6) Passaglia, E., E. Galli, L. Leonardo, and G. Rossi (1978) The crystal chemistry of stilbites and stellerites. Bull. Minéral., 101, 368–375.

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