

Kottenheimite**Ca₃Si(OH)₆(SO₄)₂·12H₂O**

Crystal Data: Hexagonal. *Point Group:* 6/m. As radiated and sub-parallel clusters of curved and split hair-like crystals, to 0.2 mm.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 2-2.5
D(meas.) = 1.92(2) D(calc.) = 1.93

Optical Properties: Translucent. *Color:* Snow-white, colorless in transmitted light. *Streak:* n.d.
Luster: Vitreous to silky (aggregates).
Optical Class: Uniaxial (-). $\omega = 1.490(2)$ $\varepsilon = 1.477(2)$

Cell Data: *Space Group:* P6₃/m. $a = 11.1548(3)$ $c = 10.5702(3)$ $Z = 2$

X-ray Powder Pattern: Bellerberg, near Kottenheim, Eastern Eifel area, Germany.
9.72 (100), 5.590 (60), 3.840 (54), 2.751 (34), 2.185 (30), 2.536 (27), 4.645 (26)

Chemistry:	(1)	(2)
CaO	26.04	25.54
MgO	0.20	
FeO	0.19	
Al ₂ O ₃	0.25	
SiO ₂	8.95	9.12
SO ₃	24.26	24.31
CO ₂	0.58	
H ₂ O	41.30	41.03
Total	101.77	100.00

(1) Bellerberg, near Kottenheim, Eastern Eifel area, Germany; average of 6 electron microprobe analyses, Fe⁺³ confirmed by Mössbauer spectroscopy, H₂O and CO₂ were determined by gas chromatography, OH, CO₃ and SO₄ confirmed by IR spectroscopy; corresponding to Ca_{3.015}Mg_{0.03}Fe_{0.02}Al_{0.03}Si_{0.97}(OH)_{5.94}(SO₄)_{1.97}(CO₃)_{0.09}·11.91H₂O. (2) Ca₃Si(OH)₆(SO₄)₂·12H₂O.

Mineral Group: Ettringite group.

Occurrence: In miarolitic cavities in alkali basalt.

Association: Wollastonite, clinocllore, ellestadite, melilite, cuspidine, and earlier-formed sanidine, clinopyroxene, magnetite.

Distribution: At Bellerberg, near Kottenheim, Eastern Eifel area, Rhineland-Palatinate (Rheinland-Pfalz), Germany.

Name: For the town near the locality that produced the first specimens.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (4102/1).

References: (1) Chukanov, N.V., S.N. Britvin, K.V. Van, S. Möckel, and A.E. Zadov (2012) Kottenheimite, Ca₃Si(OH)₆(SO₄)₂·12H₂O, a new member of the ettringite group from the Eifel area, Germany. *Can. Mineral.*, 50, 55-63. (2) (2014) *Amer. Mineral.*, 99, 1515 (abs. ref. 1).