Jasmundite $Ca_{11}(SiO_4)_4O_2S$

Crystal Data: Tetragonal. *Point Group:* $\bar{4}2m$. As equant crystals, with forms {110}, {101}, {100} and {001}; in irregular grains up to several mm.

Physical Properties: *Fracture:* Conchoidal. Hardness = ∼5 D(meas.) = 3.03 D(calc.) = 3.23

Optical Properties: Semitransparent. *Color:* Dark brown, greenish brown, brownish green; light brown in thin section. *Streak:* White. *Luster:* Resinous.
Optical Class: Uniaxial (+). $\omega = 1.715$ $\epsilon = 1.728$

Cell Data: *Space Group:* $I\bar{4}m2$. $a = 10.461(1)$ $c = 8.813(1)$ $Z = 2$

X-ray Powder Pattern: Bellerberg volcano, Germany.
2.832 (> 100), 3.242 (42), 2.615 (35), 1.849 (34), 1.5491 (21), 2.756 (17), 1.920 (16)

Chemistry:

	(1)	(2)
SiO_2	27.3	27.52
Al_2O_3	0.4	
FeO	0.8	
MgO	0.9	
CaO	67.6	70.64
S^{2-}	2.7	3.67
$-O = S$	1.4	1.83
Total	98.3	100.00

(1) Bellerberg volcano, Germany; by electron microprobe, average of seven analyses; corresponds to $(Ca_{10.6}Mg_{0.2}Fe_{0.1}Al_{0.05})_{\Sigma=10.95}Si_{4.0}O_{18.25}S_{0.75}$. (2) $Ca_{11}(SiO_4)_4O_2S$.

Occurrence: In metamorphosed limestone inclusions in basalt.

Association: Mayenite, brownmillerite, larnite, portlandite, ettringite, calcite, vaterite, tobermorite, thaumasite.

Distribution: From the Bellerberg volcano, two km north of Mayen, Eifel district, Germany.

Name: Honors Professor Karl Jasmund, retired Director of the Mineralogical-Petrographic Institute, University of Cologne, Cologne, Germany.

Type Material: Mineralogical-Petrographic Institute, University of Cologne, Cologne, Germany; Department of Chemistry, University of Aberdeen, Aberdeen, Scotland.

References: (1) Dent Glasser, L.S. and C.K. Lee (1981) The structure of jasmundite, $Ca_{22}(SiO_4)_8O_4S_2$. Acta Cryst., 37, 803–806. (2) Hentschel, G., L.S. Dent Glasser, and C.K. Lee (1983) Jasmundite, $Ca_{22}(SiO_4)_8O_4S_2$, a new mineral. Neues Jahrb. Mineral., Monatsh., 337–342. (3) (1984) Amer. Mineral., 69, 566–567 (abs. refs. 1 and 2).