

Reinhardbraunsite

$\text{Ca}_5(\text{SiO}_4)_2(\text{OH}, \text{F})_2$

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Anhedral to subhedral grains, up to 3 mm. *Twinning:* Single and multiple twinning on $\{001\}$, noted only in minute recrystallized grains.

Physical Properties: *Cleavage:* Distinct on $\{001\}$. *Fracture:* Conchoidal. Hardness = 5–6
D(meas.) = 2.85(2) D(calc.) = 2.885

Optical Properties: Transparent to translucent. *Color:* Light pink; colorless in thin section. *Streak:* White. *Luster:* Vitreous.

Optical Class: Biaxial (–). *Orientation:* $Z = b$; $X \wedge c = 18(1)^\circ$. *Dispersion:* $r > v$, distinct.
 $\alpha = 1.606(2)$ $\beta = 1.617(2)$ $\gamma = 1.620(2)$ $2V(\text{meas.}) = 44^\circ\text{--}50^\circ$

Cell Data: *Space Group:* $P2_1/a$. $a = 11.458(2)$ $b = 5.052(1)$ $c = 8.840(2)$
 $\beta = 108.91(1)^\circ$ $Z = 2$

X-ray Powder Pattern: Bellerberg volcano, Germany.

1.902 (100), 3.035 (80), 2.903 (75), 3.322 (50), 2.941 (50), 1.894 (50), 1.658 (45)

Chemistry:

	(1)
SiO_2	26.97
CaO	65.68
F	4.24
H_2O	[2.66]
P_2O_5	0.69
$-\text{O} = \text{F}_2$	1.78
Total	[98.46]

(1) Bellerberg volcano, Germany; by electron microprobe, H_2O calculated from stoichiometry, original total given as 98.65%; corresponds to $\text{Ca}_{5.10}(\text{Si}_{1.96}\text{P}_{0.04})_{\Sigma=2.00}\text{O}_8[(\text{OH})_{1.24}\text{F}_{0.97}]_{\Sigma=2.21}$.

Occurrence: In contact metamorphosed and metasomatized calcium-rich xenoliths in scoria.

Association: Ellestadite, cuspidine, gehlenite, brownmillerite, mayenite, periclase.

Distribution: From the Ettringer Bellerberg volcano, near Mayen, Eifel district, Germany.

Name: For Dr. Reinhard Brauns (1861–1937), Professor of Mineralogy at the University of Bonn, Bonn, Germany.

Type Material: Mineralogical-Petrological Institute, University of Bonn, Bonn, Germany.

References: (1) Hamm, H.-M. and G. Hentschel (1983) Reinhardbraunsite, $\text{Ca}_5(\text{SiO}_4)_2$ equivalent of synthetic “calcio-chondrodite.” Neues Jahrb. Mineral., Monatsh., 119–129.

(2) (1983) Amer. Mineral., 68, 1039–1040 (abs. ref. 1). (3) Kirfel, A., H.-M. Hamm, and G. Will (1983) The crystal structure of reinhardbraunsite, $\text{Ca}_5(\text{SiO}_4)_2(\text{OH}, \text{F})_2$, a new mineral of the calcio-chondrodite type. Tschermaks Mineral. Petrog. Mitt., 31, 137–150.