Gismondine $Ca_2Al_4Si_4O_{16}\cdot 9H_2O$

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals dipyramidal, composite, to 2 cm. In stellate or radiating spherulitic aggregates; powdery. *Twinning:* On the normal to {100}, giving pseudotetragonal or pseudo-orthorhombic individuals.

Physical Properties: *Cleavage:* $\{\bar{2}32\}$, distinct. *Fracture:* Subconchoidal. Hardness = 4.5 D(meas.) = 2.20–2.26 D(calc.) = 2.28 Piezoelectric.

Optical Properties: Transparent to translucent. *Color:* White, grayish, bluish white, reddish; colorless in thin section. *Luster:* Vitreous.
Optical Class: Biaxial (–); sectored. *Orientation:* $Y = b$; $Z \wedge c = 42.5°$. $\alpha = 1.525$–1.540 $\beta = 1.531$–1.544 $\gamma = 1.541$–1.550 2V(meas.) = 82°–86°

Cell Data: *Space Group:* $P2_1/c$. $a = 10.02$ $b = 10.62$ $c = 9.84$ $\beta = 92°25'$ $Z = 2$

X-ray Powder Pattern: Round Top volcano, Hawaii, USA.
2.706 (100), 4.25 (70), 3.19 (70), 4.93 (60), 3.13 (60), 7.26 (55), 2.738 (55)

Chemistry:

	(1)	(2)	(3)
SiO_2	33.89	38.03	33.45
Al_2O_3	28.14	26.61	28.38
Fe_2O_3	0.00	trace	
CaO	13.96	12.81	15.61
SrO	0.025		
BaO	0.27	0.00	
Na_2O		1.32	
K_2O	2.86	0.07	
H_2O	20.76	21.58	22.56
Total	99.91	100.42	100.00

(1) Capo di Bove, Italy; corresponds to $(Ca_{1.78}K_{0.44})_{\Sigma=2.22}Al_{3.95}Si_{4.03}O_{16}\cdot 8.24H_2O$.
(2) Eyrarfjäll, Reydarfjord, Iceland; corresponds to $(Ca_{1.59}Na_{0.30}K_{0.02})_{\Sigma=1.91}$ $Al_{3.63}Si_{4.40}O_{16}\cdot 8.34H_2O$. (3) $Ca_2Al_4Si_4O_{16}\cdot 9H_2O$.

Mineral Group: Zeolite group.

Occurrence: In cavities in nepheline and olivine basalt and leucite tephrite.

Association: Zeolites, calcite, chlorite, quartz.

Distribution: At Capo di Bove and elsewhere around Rome, Lazio, Italy. In Germany, from the Hohenberg, near Bühne, Westphalia; on the Frauenberg, near Fulda, Hesse; at the Schlauroth, Görlitz, Saxony; on the Arensberg, near Zilsdorf; and from the Schellkopf, near Brenk, and elsewhere in the Eifel district. From near Zálezly (Salesel), Czech Republic. Found near the Gorner glacier, near Zermatt, Valais, Switzerland. In Ireland, at many localities in Co. Antrim, as in the Bruslee quarry, Ballyclare. On Iceland, many localities around Reydarfjord, Fáskrúdsfjord, and Fagridalur. At Round Top volcano, Oahu, and Alexander Dam, Kauai, Hawaii, USA. From Concepción del Oro, Zacatecas, Mexico. A number of other localities are known.

Name: For Professor Carlo Giuseppe Gismondi (1762–1824), Italian mineralogist, Rome, Italy, who first examined the mineral.

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