

Dachiardite

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Crystal Data: Monoclinic. *Point Group:* $2/m$. As bladed prismatic crystals, commonly fibrous, to 7 mm, and radiating aggregates. *Twinning:* On {110}, rare cyclical eightlings.

Physical Properties: *Cleavage:* Perfect on {001}, {100}. *Tenacity:* Brittle.
Hardness = 4–4.5 D(meas.) = 2.165–2.206 D(calc.) = 2.138–2.141

Optical Properties: Transparent. *Color:* Colorless. *Luster:* Vitreous.
Optical Class: Biaxial (+) or (–). *Orientation:* $X = b$; $Z \wedge c = 35^\circ$. $\alpha = 1.484\text{--}1.492$
 $\beta = 1.482\text{--}1.496$ $\gamma = 1.489\text{--}1.500$ $2V(\text{meas.}) = 65^\circ\text{--}73^\circ$

Cell Data: *Space Group:* $C2/m$. $a = 18.625$ $b = 7.508$ $c = 10.247$ $\beta = 108.056^\circ$ $Z = 1$

X-ray Powder Pattern: Elba, Italy.

3.452 (100), 3.204 (100), 1.873 (75), 8.90 (50), 6.91 (50), 4.97 (50), 4.88 (50)

Chemistry:	(1)	(2)		(1)	(2)
SiO ₂	63.20	64.53	Na ₂ O	1.20	2.16
Al ₂ O ₃	14.31	13.77	K ₂ O	1.92	1.31
Fe ₂ O ₃		0.01	Cs ₂ O	0.96	
MgO	0.00	0.00	H ₂ O ⁺		11.23
CaO	5.49	5.60	H ₂ O [−]		1.04
SrO	0.13		H ₂ O	[12.79]	
			Total	[100.00]	99.65

(1) Elba, Italy; by electron microprobe, H₂O by difference; corresponds to (Ca_{3.52}K_{0.73}Na_{0.70}Cs_{0.24}Sr_{0.04})_{Σ=5.23}Al_{10.10}Si_{37.86}O₉₆ • nH₂O. (2) Hatsuneura, Ogasawara Islands, Japan.

Mineral Group: Zeolite group.

Occurrence: Of hydrothermal origin in basalt, quartz veins, and pegmatites; in hydrothermally altered pumiceous tuffaceous sediments.

Association: Mordenite, heulandite, ferrierite.

Distribution: From San Piero in Campo, Elba, and on the Alpe di Siusi, Trentino-Alto Adige, Italy. From near Zvezdel, Rhodope Mountains, Bulgaria. In Japan, at Hatsuneura, Ogasawara Islands; Hokiya-dake, Nagano Prefecture; and in the Onoyama mine, Kagoshima Prefecture. In the USA, from Altoona, Wahkiakum Co., Washington; at Cape Lookout, Tillamook Co., and Agate Beach, Lincoln Co., Oregon; and in the Lower Geyser basin, Yellowstone National Park, Wyoming. A number of other localities are known.

Name: For Antonio D'Achiardi (1839–1902), Italian mineralogist, whose son described the mineral.

Type Material: Natural History Museum, Paris, France, 109.1084; National Museum of Natural History, Washington, D.C., USA, 123998.

References: (1) D'Achiardi, G. (1906) Zeoliti del filone della Speranza presso S. Piero in Campo (Elba). Mem. Soc. Tosc. Sci. Nat., 22, 150–165 (in Italian). (2) Berman, H. (1925) Notes on dachiardite. Amer. Mineral., 10, 421–428. (3) Galli, E. (1965) Lo spettro di polvere della dachiardite. Period. Mineral., 34, 129–135 (in Italian). (4) Bonardi, M. (1979) Composition of type dachiardite from Elba: a re-examination. Mineral. Mag., 43, 548–549. (5) Nishido, H. and R. Otsuka (1981) Chemical composition and physical properties of dachiardite group zeolites. Mineral. J. (Japan), 10, 371–384. (6) Quartieri, S., G. Vezzalini, and A. Alberti (1990) Dachiardite from Hokiya-dake: evidence of a new topology. Eur. J. Mineral., 2, 187–193.

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