

Crystal Data: Orthorhombic, pseudotetragonal. *Point Group:* *mm*2. Crystals short to long prismatic, to 1 m, commonly with {110} terminated by {111}, striated || elongation. In stellate or interlacing groups; also radiating fibrous, granular, or compact, massive. *Twinning:* On {110}, {011}, {031}.

Physical Properties: *Cleavage:* {110}, perfect; parting on {010}. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 5–5.5 D(meas.) = 2.20–2.26 D(calc.) = 2.25 Pyroelectric, piezoelectric; commonly fluoresces orange to yellow under UV.

Optical Properties: Transparent to translucent. *Color:* Colorless, white, gray, bluish, yellowish, pink; colorless in thin section. *Luster:* Vitreous to pearly. *Optical Class:* Biaxial (+). *Orientation:* X = a; Y = b; Z = c. *Dispersion:* r < v, weak. α = 1.473–1.483 β = 1.476–1.486 γ = 1.485–1.496 2V(meas.) = 58°–64°

Cell Data: *Space Group:* *Fdd*2. a = 18.272(6) b = 18.613(6) c = 6.593(2) Z = 8

X-ray Powder Pattern: Wingendorf, Lauban, Poland; may be confused with gonnardite. (ICDD 20-759).

2.85 (100), 5.89 (85), 2.87 (80), 4.35 (70), 6.55 (60), 3.16 (50), 3.19 (45)

Chemistry:

	(1)
SiO ₂	47.60
Al ₂ O ₃	27.40
CaO	0.13
Na ₂ O	15.36
K ₂ O	0.23
H ₂ O	9.47
Total	100.19

(1) Puy de Marman, France; corresponds to (Na_{1.88}K_{0.02}Ca_{0.01})_{Σ=1.91}Al_{2.03}Si_{3.00}O₁₀•1.99H₂O.

Polymorphism & Series: Dimorphous with tetranatrolite.

Mineral Group: Zeolite group.

Occurrence: In cavities in amygdaloidal basalts and related igneous rocks, one of the last minerals to form; fills seams in granite, gneiss, and syenite.

Association: Zeolites, calcite, nepheline, sodalite, quartz.

Distribution: Many localities, even for fine crystals. From the Höwenegg quarry, Hegau, Baden-Württemberg, Germany. At Puy de Marman, near Veyre, Puy-de-Dôme, France. In the Dean quarry, St. Keverne, Lizard Peninsula, Cornwall, England. At White Head, Co. Antrim, Ireland. From the Langesundsfjord and Tvedalen areas, Norway. In the Khibiny and Lovozero massifs, Kola Peninsula, Russia, large crystals. In the USA, at Bergen Hill, Hudson Co., at Prospect Park, Passaic Co., and in the Chimney Rock quarry, Bound Brook, Passaic Co., New Jersey; from north of Livingstone, Park Co., Montana; around Springfield, Lane Co., Oregon; and at the Gem mine, San Benito Co., California, USA. In Canada, huge crystals from the Johnston asbestos mine, near Thetford, and from Mont Saint-Hilaire, Quebec; in the Bay of Fundy district, Nova Scotia; and along the Ice River, British Columbia.

Name: From the Latin *natron*, for the sodium content.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 600–604.

(2) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 4, framework silicates, 358–376. (3) Artioli, G., J.V. Smith, and Å Kvik (1984) Neutron diffraction study of natrolite, Na₂Al₂Si₃O₁₀•2H₂O, at 20 K. *Acta Cryst.*, C40, 1658–1662.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.