

Barrerite**(Na, K, Ca)₂Al₂Si₇O₁₈•7H₂O**

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As well-formed, laminar crystals, to 5 mm, with {010}, {011}, and {111}; {001} is common, but of poor quality.

Physical Properties: *Cleavage:* Perfect on {010}. *Hardness* = n.d. *D(meas.)* = 2.13(1) *D(calc.)* = 2.11

Optical Properties: Transparent to translucent. *Color:* White to slightly pink.

Luster: Vitreous.

Optical Class: Biaxial (-). *Orientation:* X = a; Y = b; Z = c. $\alpha = 1.4791(5)$ $\beta = 1.4851(5)$ $\gamma = 1.4891(5)$ *2V(meas.)* = n.d. *2V(calc.)* = 78(8)°

Cell Data: *Space Group:* Amma. *a* = 13.643(2) *b* = 18.200(3) *c* = 17.842(2) *Z* = 8

X-ray Powder Pattern: Capo Pula, Sardinia, Italy; cannot be distinguished from stellerite. 9.10 (> 100), 4.054 (100), 3.028 (80), 3.004 (25), 4.659 (20), 2.773 (20), 1.8192 (17)

Chemistry:

	(1)
SiO ₂	58.82
Al ₂ O ₃	14.75
Fe ₂ O ₃	0.04
MnO	trace
MgO	0.24
CaO	1.66
SrO	trace
BaO	trace
Na ₂ O	5.97
K ₂ O	1.76
H ₂ O	16.40
Total	99.64

(1) Capo Pula, Sardinia, Italy; by AA, SiO₂ by gravimetry, Al₂O₃ by complexometric titration, H₂O by TGA; corresponds to (Na_{1.36}K_{0.26}Ca_{0.21}Mg_{0.04})_{Σ=1.87}Al_{2.05}Si_{6.93}O₁₈•6.44H₂O.

Mineral Group: Zeolite group.

Occurrence: On the walls of large fractures in deeply weathered andesitic and rhyolitic lavas.

Association: Heulandite.

Distribution: Found near Capo Pula, below South Efisio Tower, Nora, Sardinia, Italy.

Name: For Richard Maling Barrer (1910–), New Zealand-born British teacher and student of the chemistry of zeolites.

Type Material: University of Modena, Modena, Italy; National Museum of Natural History, Washington, D.C., USA, 128521.

References: (1) Passaglia, E. and D. Pongiluppi (1974) Sodian stellerite from Capo Pula, Sardegna. *Lithos*, 7, 69–73. (2) Passaglia, E. and D. Pongiluppi (1975) Barrerite, a new natural zeolite. *Mineral. Mag.*, 40, 208. (3) (1976) *Amer. Mineral.*, 61, 1053 (abs. refs. 1 and 2). (4) Galli, E. and A. Alberti (1975) The crystal structure of barrerite. *Bull. Soc. fr. Minéral.*, 98, 331–340.