Barrerite  \((\text{Na,K,Ca})_2\text{Al}_2\text{Si}_7\text{O}_{18}\cdot7\text{H}_2\text{O}\)

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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.  \(D(\text{meas.}) = 2.13(1)\)
\(D(\text{calc.}) = 2.11\)

**Optical Properties:**  *Cleavage:* Perfect to translucent.  *Color:* White to slightly pink.  *Luster:* Vitreous.  *Optical Class:* Biaxial (−).  *Orientation:* \(X = a;\)  \(Y = b;\)  \(Z = c.\)  \(\alpha = 1.4791(5)\)  \(\beta = 1.4851(5)\)
\(\gamma = 1.4891(5)\)  \(2\text{V}(\text{meas.}) = \text{n.d.}\)  \(2\text{V}(\text{calc.}) = 78(8)^\circ\)

**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:**

\[
\begin{array}{|c|}
\hline
\text{Component} & \text{Weight} \\
\hline
\text{SiO}_2 & 58.82 \\
\text{Al}_2\text{O}_3 & 14.75 \\
\text{Fe}_2\text{O}_3 & 0.04 \\
\text{MgO} & \text{trace} \\
\text{CaO} & 1.66 \\
\text{SrO} & \text{trace} \\
\text{BaO} & \text{trace} \\
\text{Na}_2\text{O} & 5.97 \\
\text{K}_2\text{O} & 1.76 \\
\text{H}_2\text{O} & 16.40 \\
\hline
\text{Total} & 99.64 \\
\hline
\end{array}
\]

(1) Capo Pula, Sardinia, Italy; by AA, \(\text{SiO}_2\) by gravimetry, \(\text{Al}_2\text{O}_3\) by complexometric titration, \(\text{H}_2\text{O}\) by TGA; corresponds to \((\text{Na}_{1.36}\text{K}_{0.26}\text{Ca}_{0.21}\text{Mg}_{0.04})\Sigma=1.87\text{Al}_{2.05}\text{Si}_{6.93}\text{O}_{18}\cdot6.44\text{H}_2\text{O}\).

**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.