Montesommaite \( (K, Na)_9 Al_9 Si_{23} O_{64} \cdot 10H_2 O \)

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Crystal Data: Orthorhombic, pseudotetragonal. Point Group: \( mm2 \). Dipyramidal crystals, truncated by pedions, to 0.1 mm.

Physical Properties: Hardness = n.d. \( D(\text{meas.}) = 2.34(4) \) \( D(\text{calc.}) = 2.30 \)

Optical Properties: Transparent. Color: Colorless. Streak: White. Luster: Vitreous. Optical Class: Biaxial (-). Orientation: \( X = c; Y = a \) or \( b \), \( Z = a \) or \( b \). \( \alpha = 1.498(1) \) \( \beta = 1.506(1) \) \( \gamma = 1.507(1) \) 2V(meas.) = 35(5)° 2V(calc.) = 39°

Cell Data: Space Group: \( Fdd2 \). \( a = 10.099(1) \) \( b = 10.099(1) \) \( c = 17.307(3) \) \( Z = 1 \)

X-ray Powder Pattern: Pollena, Italy. 3.299 (100), 3.130 (100), 6.589 (75), 4.334 (43), 2.797 (30), 2.347 (22), 1.784 (22)

Chemistry:

\[
\begin{align*}
\text{SiO}_2 & \quad 55.7 \\
\text{Al}_2 \text{O}_3 & \quad 19.8 \\
\text{Na}_2 \text{O} & \quad 0.2 \\
\text{K}_2 \text{O} & \quad 16.7 \\
\text{H}_2 \text{O} & \quad [7.6] \\
\text{Total} & \quad [100.0]
\end{align*}
\]

(1) Pollena, Italy; by electron microprobe, \( H_2 O \) by difference; corresponding to \((K_{8.6} Na_{0.2})_{\Sigma=8.8} (Si_{22.6} Al_{9.4})_{\Sigma=32.00} O_{73.9} H_{20.5}\).

Mineral Group: Zeolite group.

Occurrence: In volcanic scoria.

Association: Dolomite, calcite, chabazite, natrolite.

Distribution: From Pollena, Monte Somma, Campania, Italy.

Name: For Monte Somma, the volcano ancestral to Vesuvius, Italy, in the remnants of which the mineral occurs.
