Adamsite-(Y)  \( \text{NaY(CO}_3\text{)}_2\cdot6\text{H}_2\text{O} \)

Crystal Data:  Triclinic, pseudo-orthorhombic if twinned.  \( \text{Point Group: } \overline{1} \).  Crystals are acicular to fibrous, to 2.5 cm, elongated along [001], flattened on {001}, showing {010} and {001}; in spherical radiating groups, which rarely are reticulated.  \( \text{Twinning: } \) By reflection on {001}, common.

Physical Properties:  \( \text{Cleavage: } \) Perfect on {001}; good on {100}, {010}.  \( \text{Tenacity: } \) Brittle.  \( \text{Hardness = 3 D(meas.) = 2.27(2) D(calc.) = 2.27} \)

Optical Properties:  \( \text{Color: } \) Colorless, white, may be pale pink or pale purple.  \( \text{Streak: } \) White.  \( \text{Luster: } \) Vitreous to pearly.  \( \text{Optical Class: } \) Biaxial (+).  \( \alpha = 1.480(4) \quad \beta = 1.498(2) \quad \gamma = 1.571(4) \quad 2\text{V(meas.)} = 53(3)^\circ \quad 2\text{V(calc.)} = 55^\circ \)

Cell Data:  \( \text{Space Group: } \text{P}\overline{1} \).  \( \alpha = 91.130(1)^\circ \quad \beta = 103.554(1)^\circ \quad \gamma = 90.188(1)^\circ \quad Z = 4 \)

X-ray Powder Pattern:  Mont Saint-Hilaire, Canada.  12.81 (100), 6.45 (70), 4.456 (60), 4.291 (60), 2.571 (60), 2.050 (50), 2.869 (30)

Chemistry:  \( \begin{align*}
\text{CO}_2 & \quad 25.10 & \quad 25.89 & \quad \text{Ho}_2\text{O}_3 & \quad 0.90 \\
\text{Y}_2\text{O}_3 & \quad 22.88 & \quad 33.21 & \quad \text{Er}_2\text{O}_3 & \quad 2.83 \\
\text{Ce}_2\text{O}_3 & \quad 0.37 & \quad \text{Tm}_2\text{O}_3 & \quad 0.27 \\
\text{Nd}_2\text{O}_3 & \quad 1.41 & \quad \text{Yb}_2\text{O}_3 & \quad 1.04 \\
\text{Sm}_2\text{O}_3 & \quad 1.02 & \quad \text{CaO} & \quad 0.05 \\
\text{Gd}_2\text{O}_3 & \quad 1.92 & \quad \text{Na}_2\text{O} & \quad 8.64 & \quad 9.11 \\
\text{Tb}_2\text{O}_3 & \quad 0.56 & \quad \text{H}_2\text{O} & \quad 29.90 & \quad 31.79 \\
\text{Dy}_2\text{O}_3 & \quad 3.28 & \quad \text{Total} & \quad 100.17 & \quad 100.00 \\
\end{align*} \)

(1) Mont Saint-Hilaire, Canada; by electron microprobe, seven analyses on three crystals, \( \text{CO}_2 \) and \( \text{H}_2\text{O} \) by TGA, confirmed by IR and crystal-structure analysis; corresponds to \( \text{Na}_{1.00}(\text{Y}_{0.72} \text{Dy}_{0.06} \text{Er}_{0.05} \text{Gd}_{0.04} \text{Nd}_{0.03} \text{Yb}_{0.02} \text{Sm}_{0.02} \text{H}_{0.02} \text{Ce}_{0.01} \text{Tb}_{0.01} \text{Tm}_{0.01})_{\Sigma=0.99}(\text{CO}_3)_{2.04}\cdot5.94\text{H}_2\text{O} \).

(2) \( \text{NaY(CO}_3\text{)}_2\cdot6\text{H}_2\text{O} \).


Association:  Thomasclarkite-(Y), horváthite-(Y), donnayite-(Y), petersenite-(Ce), rhodochrosite.

Distribution:  From Mont Saint-Hilaire, Quebec, Canada.

Name:  To honor Professor Frank Dawson Adams (1859–1942), McGill University, Montreal, Canada, geologist and petrologist, who studied the Monteregian Hills, of which Mont Saint-Hilaire is one.

Type Material:  Canadian Museum of Nature, Ottawa, Canada, 82939, 82940.