

**Crystal Data:** Hexagonal. *Point Group:* 32. As nearly equidimensional rhombohedral crystals, displaying {11 $\bar{2}$ 0} and {01 $\bar{1}$ 2}, to 4 mm. *Twinning:* Multiple twinning by rotation about [2 $\bar{2}$ 01] and about [0001], common; typically multiply twinned after both laws, involving four, eight, or more individuals.

**Physical Properties:** *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = > 4  
D(meas.) = 2.724(4) D(calc.) = 2.739

**Optical Properties:** Transparent to opaque. *Color:* Pale to dark brown, yellow, colorless, white, flesh-pink, rose-red. *Streak:* White. *Luster:* Vitreous to porcelaneous.  
*Optical Class:* Uniaxial (-).  $\omega = 1.609(1)$   $\epsilon = 1.596(1)$

**Cell Data:** *Space Group:* R32.  $a = 10.556(1)$   $c = 15.855(2)$   $Z = 6$

**X-ray Powder Pattern:** Mont Saint-Hilaire, Canada.  
5.28 (100), 6.00 (60), 3.168 (50), 3.046 (40), 1.759 (40), 2.994 (30), 2.639 (30)

Chemistry:	(1)
SiO <sub>2</sub>	42.08
TiO <sub>2</sub>	0.04
ZrO <sub>2</sub>	29.72
Al <sub>2</sub> O <sub>3</sub>	0.03
FeO	0.03
MnO	0.02
MgO	0.01
CaO	0.20
Na <sub>2</sub> O	13.43
K <sub>2</sub> O	0.52
H <sub>2</sub> O	13.54
Total	99.62

(1) Mont Saint-Hilaire, Canada; by electron microprobe, H<sub>2</sub>O by TGA; corresponding to (Na<sub>1.85</sub>K<sub>0.05</sub>Ca<sub>0.02</sub>) $\Sigma=1.92$ Zr<sub>1.03</sub>Si<sub>2.99</sub>O<sub>9.30</sub>•3.21H<sub>2</sub>O.

**Occurrence:** In miarolitic cavities and altered pegmatite dikes in nepheline syenite in an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

**Association:** Catapleiite, elpidite, gaidonnayite, aegirine, analcime, albite, microcline, chlorite, calcite, epididymite, natrolite, fluorite, pyrite, sphalerite, galena (Mont Saint-Hilaire, Canada).

**Distribution:** In Canada, at Mont Saint-Hilaire, and in the Strange Lake complex, Quebec. From Bratthaggen, near Larvik, Norway. On Mt. Alluaiv, Lovozero massif, Kola Peninsula, Russia. At Poços de Caldas, Minas Gerais, Brazil.

**Name:** For the locality at Mont Saint-Hilaire, Quebec, Canada.

**Type Material:** Canadian Museum of Nature, Ottawa; Royal Ontario Museum, Toronto, Canada, 34803.

**References:** (1) Chao, G.Y., D.H. Watkinson, and T.T. Chen (1974) Hilairite, Na<sub>2</sub>ZrSi<sub>3</sub>O<sub>9</sub>•3H<sub>2</sub>O, a new mineral from Mont St. Hilaire, Quebec. *Can. Mineral.*, 12, 237–240. (2) Ilyushin, G.D, A.A. Voronkov, N.N. Nevskii, V.V. Ilyukhin, and N.V. Belov (1981) Crystal structure of hilairite, Na<sub>2</sub>ZrSi<sub>3</sub>O<sub>9</sub>•3H<sub>2</sub>O. *Sov. Phys. Doklady Acad. Nauk SSSR*, 260, 1118–1120 (in Russian).

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