

**Petarasite****Na<sub>5</sub>Zr<sub>2</sub>Si<sub>6</sub>O<sub>18</sub>(OH, Cl)•2H<sub>2</sub>O**

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**Crystal Data:** Monoclinic. *Point Group:* 2/*m*. Crystals equant, commonly doubly terminated, to 6.5 cm; in irregular grains.

**Physical Properties:** *Cleavage:* Perfect on {110}, very good on {010}, and distinct on {001}. *Fracture:* Subconchoidal. Hardness = 5–5.5 D(meas.) = 2.88(1) D(calc.) = 2.915

**Optical Properties:** Transparent to translucent or opaque. *Color:* Light to dark greenish yellow, yellow, dark yellow, pale yellowish brown, brown; in transmitted light, colorless to light greenish yellow. *Streak:* White. *Luster:* Vitreous.

*Optical Class:* Biaxial (+). *Pleochroism:* X = colorless; Y = Z = pale greenish yellow. *Orientation:* X = b; Z ∧ c = 41.5°. *Dispersion:* r < v, weak. *Absorption:* Y = Z > X. α = 1.595–1.596 β = 1.598–1.600 γ = 1.631–1.632 2V(meas.) = 29°–43° 2V(calc.) = 28°

**Cell Data:** *Space Group:* P2<sub>1</sub>/*m*. a = 10.7956(8) b = 14.4928(16) c = 6.6229(6) β = 113.214(5)° Z = 2

**X-ray Powder Pattern:** Mont Saint-Hilaire, Canada.

4.10 (100), 2.924 (100), 7.25 (70), 6.09 (40), 3.220 (30), 3.041 (30), 1.729 (20)

**Chemistry:**

	(1)
SiO <sub>2</sub>	42.9
TiO <sub>2</sub>	0.07
ZrO <sub>2</sub>	29.5
CaO	0.88
Na <sub>2</sub> O	17.3
K <sub>2</sub> O	0.25
Cl	2.04
H <sub>2</sub> O	7.09
–O = Cl <sub>2</sub>	0.46
Total	99.57

(1) Mont Saint-Hilaire, Canada; by electron microprobe, average of five analyses, H<sub>2</sub>O by TGA; one of the H<sub>2</sub>O molecules is assumed to be adsorbed based on the crystal structure analysis and IR absorption studies; corresponds to (Na<sub>4.69</sub>Ca<sub>0.13</sub>K<sub>0.05</sub>)<sub>Σ=4.87</sub>(Zr<sub>2.01</sub>Ti<sub>0.01</sub>)<sub>Σ=2.02</sub>Si<sub>6</sub>O<sub>18</sub>[(OH)<sub>0.60</sub>Cl<sub>0.48</sub>]<sub>Σ=1.08</sub>•3.01H<sub>2</sub>O.

**Mineral Group:** Lovozerite group.

**Occurrence:** In a biotite-microcline xenolith and in pegmatitic veins in a nepheline syenite in an intrusive alkalic gabbro-syenite complex.

**Association:** Biotite, microcline, catapleiite, apatite, zircon, natrolite, nepheline, cancrinite, eudialyte, aegirine, mosandrite, analcime, ancylite, fluorite, sodalite, lăvenite, astrophyllite, pyrochlore, calcite, rhodochrosite, albite, arfvedsonite, galena, pyrrhotite.

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

**Name:** In honor of Dr. Peter Tarasoff, amateur mineralogist, Dollard-des-Ormeaux, Quebec, Canada.

**Type Material:** Royal Ontario Museum, Toronto, M36456–M36458; Canadian Geological Survey, Ottawa; Canadian Museum of Nature, Ottawa, Canada, 43721, 43630, 43631; National Museum of Natural History, Washington, D.C., USA, 148593, 148594.

**References:** (1) Chao, G.Y., T.T. Chen, and J. Baker (1980) Petarasite, a new hydrated sodium zirconium hydroxychlorosilicate mineral from Mont St.-Hilaire, Quebec. *Can. Mineral.*, 18, 497–502. (2) Ghose, S., C. Wan and G.Y. Chao (1980) Petarasite, Na<sub>5</sub>Zr<sub>2</sub>Si<sub>6</sub>O<sub>18</sub>(Cl, OH)•2H<sub>2</sub>O, a zeolite-type zirconosilicate. *Can. Mineral.*, 18, 503–509. (3) (1981) *Amer. Mineral.*, 66, 1277 (abs. refs. 1 and 2). (4) Perrault, G., G.Y. Chao, and T.T. Chen (1981) Additional data on petarasite from Mont St. Hilaire, Quebec. *Can. Mineral.*, 19, 411–413.

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