

Petarasite**Na₅Zr₂Si₆O₁₈(OH, Cl)•2H₂O**

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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:* P2₁/*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 ₂ | 42.9 |
| TiO ₂ | 0.07 |
| ZrO ₂ | 29.5 |
| CaO | 0.88 |
| Na ₂ O | 17.3 |
| K ₂ O | 0.25 |
| Cl | 2.04 |
| H ₂ O | 7.09 |
| –O = Cl ₂ | 0.46 |
| Total | 99.57 |

(1) Mont Saint-Hilaire, Canada; by electron microprobe, average of five analyses, H₂O by TGA; one of the H₂O molecules is assumed to be adsorbed based on the crystal structure analysis and IR absorption studies; corresponds to (Na_{4.69}Ca_{0.13}K_{0.05})_{Σ=4.87}(Zr_{2.01}Ti_{0.01})_{Σ=2.02}Si₆O₁₈[(OH)_{0.60}Cl_{0.48}]_{Σ=1.08}•3.01H₂O.

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, Na₅Zr₂Si₆O₁₈(Cl, OH)•2H₂O, 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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