

Pecoraite**Ni₃Si₂O₅(OH)₄**

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Crystal Data: Monoclinic. *Point Group:* n.d. As curved plates, tubes, and spirals, to 0.4 μm; granular, to 5 mm; massive.

Physical Properties: Hardness = n.d. D(meas.) = 3.084 with absorbed H₂O. D(calc.) = [3.47]

Optical Properties: Transparent to translucent. *Color:* Bright green to blue-green. *Luster:* Vitreous. *Optical Class:* Biaxial (probable). *n* = 1.56–1.63, with absorbed H₂O; 1.650 dried. 2*V*(meas.) = n.d.

Cell Data: *Space Group:* n.d. *a* = 5.26 *b* = 9.16 *c* = 14.7 β = 92° *Z* = [4]

X-ray Powder Pattern: Wolf Creek meteorite. 7.43 (100), 3.66 (75), 1.529 (75), 4.50 (62), 2.620 (62), 2.447 (50)

Chemistry:	(1)
	SiO ₂ 31.0
	Al ₂ O ₃ 1.4
	FeO 0.7
	NiO 51.5
	MgO 0.5
	CaO 0.4
	H ₂ O ⁺ 9.7
	H ₂ O ⁻ 4.1
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	Total 99.3

(1) Wolf Creek meteorite; after deduction of H₂O⁻ and Ca as cassidyite ~1%, corresponds to (Ni_{2.70}Al_{0.11}Mg_{0.05}Fe_{0.04}²⁺)_{Σ=2.90}Si_{2.02}O₅(OH)₄.

Polymorphism & Series: Dimorphous with népouite.

Mineral Group: Kaolinite-serpentine group.

Occurrence: Formed by weathering of Ni-Fe meteorite fragments in a desert environment (Wolf Creek meteorite); along shears in Archaean ultramafic rocks (Otway prospect, Western Australia); in geodes (St. Louis, Missouri, USA).

Association: Maghemite, quartz, goethite, cassidyite, reevesite (Wolf Creek meteorite); millerite, gaspéite, otwayite, nullagine (Otway prospect, Western Australia); millerite (St. Louis, Missouri, USA).

Distribution: In the Wolf Creek meteorite. From the Otway prospect, near Spinnaway, Nullagine district, and in Rocky's Reward pit, near Agnew, Western Australia. From about 30 km west of St. Louis, St. Louis Co., Missouri, and in the Nickel mine, Riddle, Douglas Co., Oregon, USA. At Tscherschanskoe, Ural Mountains, Russia.

Name: To honor Dr. William Thomas Pecora (1913–1972), Director of the U.S. Geological Survey, geologist and student of nickel silicate deposits.

Type Material: National Museum of Natural History, Washington, D.C., USA, 128111.

References: (1) Faust, G.T., J.J. Fahey, B. Mason, and E.J. Dwornik (1969) Pecoraite, Ni₆Si₄O₁₀(OH)₈, nickel analog of clinochrysotile, formed in the Wolf Creek Meteorite. *Science*, 165, 59–60. (2) (1969) *Amer. Mineral.*, 54, 1740–1741 (abs. ref. 1). (3) Nickel, E.H. (1973) An occurrence of gaspéite and pecoraite in the Nullagine region of Western Australia. *Mineral. Mag.*, 39, 113–115. (4) Bayliss, P. (1981) Unit cell data of serpentine group minerals. *Mineral. Mag.*, 44, 153–156. (5) Milton, C., E.J. Dwornik, and R.B. Finkelman (1983) Pecoraite, the nickel analogue of chrysotile, Ni₃Si₂O₅(OH)₄ from Missouri. *Neues Jahrb. Mineral., Monatsh.*, 513–523.

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