

Cassidyite

$\text{Ca}_2(\text{Ni, Mg})(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$ or 1. Fibrous, as spherules and thin crusts.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 3.1\text{--}3.2$

Optical Properties: Semitransparent. *Color:* Pale green to bright green; colorless in transmitted light.

Optical Class: Biaxial. *Orientation:* Length-slow. $\alpha = 1.64\text{--}1.65$ $\beta = \text{n.d.}$ $\gamma = 1.67\text{--}1.68$
 $2V(\text{meas.}) = \text{n.d.}$

Cell Data: *Space Group:* $P\bar{1}$ or $P1$. $a = 5.71$ $b = 6.73$ $c = 5.41$ $\alpha = 96^\circ 49.5'$
 $\beta = 107^\circ 21.5'$ $\gamma = 104^\circ 34.9'$ $Z = [1]$

X-ray Powder Pattern: Wolf Creek meteorite.

2.70 (100), 3.03 (95), 2.67 (79), 3.23 (65), 3.13 (48), 1.660 (46), 3.49 (38)

Chemistry:

	(1)	(2)
P_2O_5	39.2	40.83
FeO	0.0	
CoO	0.4	
NiO	6.4 – 16.2	10.74
MgO	2.2 – 5.7	5.80
CaO	32.3	32.26
H_2O		10.37
Total		100.00

(1) Wolf Creek meteorite; partial analyses by electron microprobe. (2) $\text{Ca}_2(\text{Ni, Mg})(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$ with Ni:Mg = 1:1.

Mineral Group: Fairfieldite group.

Occurrence: An alteration product of a highly weathered iron-nickel meteorite, formed by alteration of schreibersite.

Association: Reevesite, goethite, nickelian maghemite, jarosite, nickel-rich serpentine, apatite, lipscombite.

Distribution: In the Wolf Creek meteorite.

Name: In honor of Dr. William A. Cassidy, who mapped the Wolf Creek, Australia, crater in 1953.

Type Material: National Museum of Natural History, Washington, D.C., USA, 119553, 119554A.

References: (1) White, J.S., Jr., E.P. Henderson, and B. Mason (1967) Secondary minerals produced by weathering of the Wolf Creek meteorite. *Amer. Mineral.*, 52, 1190–1197.