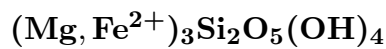


# Antigorite



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**Crystal Data:** Monoclinic. *Point Group:*  $m$ . Minute crystals, typically platy along [001], rarely elongated along [010]; some plates have rectangular outline due to cleavage; commonly bladed or fibrous. *Twinning:* May exhibit two- or three-fold twins rotated  $60^\circ$  about an axis  $\perp$  [001].

**Physical Properties:** *Cleavage:* Perfect on {001}, observed on {100} and {010}.  
*Fracture:* Conchoidal or splintery. Hardness = 2.5–3.5 D(meas.) = 2.65 D(calc.) = 2.61

**Optical Properties:** Translucent to opaque. *Color:* Green, blue-green, white; colorless to pale green in thin section. *Streak:* White. *Luster:* Resinous, greasy, silky, waxy, earthy.  
*Optical Class:* Biaxial (-). *Orientation:*  $X = c$ . *Dispersion:*  $r > v$ .  $\alpha = 1.558\text{--}1.567$   $\beta = 1.565$   
 $\gamma = 1.562\text{--}1.574$   $2V(\text{meas.}) = 37^\circ\text{--}61^\circ$

**Cell Data:** *Space Group:*  $Cm$ .  $a = 43.53(1)$   $b = 9.259(3)$   $c = 7.263(7)$   $\beta = 91^\circ 8.4(1.6)'$   
 $Z = 16$

**X-ray Powder Pattern:** Griffen Range, Westland, New Zealand.  
7.29 (100), 2.525 (100), 3.61 (80), 2.458 (60), 2.172 (60), 1.694 (60), 6.43 (40)

Chemistry:	(1)	(2)	(3)
SiO <sub>2</sub>	41.65	44.50	43.37
Al <sub>2</sub> O <sub>3</sub>	0.10	1.41	
Fe <sub>2</sub> O <sub>3</sub>	2.88		
FeO	0.16	0.35	
MnO	0.05		
MgO	41.06	41.56	43.63
H <sub>2</sub> O	14.22	12.36	13.00
Total	100.12	100.18	100.00

(1) Nikka Vord quarries, Unst, Scotland. (2) State Line pits, Rock Springs, Cecil Co., Maryland, USA; Cr<sub>2</sub>O<sub>3</sub> 0.06% and NiO 0.095% additionally. (3) Mg<sub>3</sub>Si<sub>2</sub>O<sub>5</sub>(OH)<sub>4</sub>.

**Polymorphism & Series:** Polymorphous with clinochrysotile, lizardite, orthochrysotile, and parachrysotile.

**Mineral Group:** Kaolinite-serpentine group.

**Occurrence:** Commonly replaces ultramafic rocks, pervasively or in crosscutting veinlets. As a replacement of siliceous dolostone along contacts with diabase sills.

**Association:** Chromite, magnetite, chrysotile, olivine.

**Distribution:** Widespread; less common however than lizardite. Some localities for well-studied material include: in the Val Antigorio, Piedmont, Italy. From Prägraten, Tirol, Austria. At Glen Urquhart, Inverness-shire, Scotland. From Hsiu-Yen Hsien, Liaoning Province, China. In the Nishisonnogi area, Nagasaki Prefecture, and the Sasagure area, Fukuoka Prefecture, Japan. From Woodsreef, New South Wales, Australia. In the USA, at Texas, Lancaster Co., Pennsylvania; around Baltimore, Baltimore Co., Maryland; from Brewster, Putnam Co., New York; and at Buck Creek, Clay Co., North Carolina. At Asbestos, Quebec, and Timmins, Ontario, Canada.

**Name:** For the occurrence at Val Antigorio, Italy.

**Type Material:** Swiss Federal Institute of Technology, Zurich, Switzerland, Wi4868.  
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