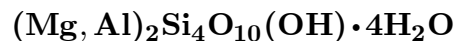


Palygorskite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals are tiny laths, flattened on $\{100\}$, elongated along $[001]$, to 1 cm. Commonly fibrous, forming tangled mats termed “mountain leather,” also compact.

Physical Properties: *Cleavage:* Good on $\{110\}$. *Tenacity:* Tough. Hardness = 2–2.5
D(meas.) = > 1.0 –2.6 D(calc.) = $[2.35]$

Optical Properties: Semitransparent. *Color:* White, grayish, yellowish, gray-green; colorless in thin section. *Luster:* Earthy to waxy.

Optical Class: Biaxial (–). *Pleochroism:* For colored varieties; X = pale yellow; $Y = Z$ = pale yellow-green. *Orientation:* $Z \wedge c$ = small. *Absorption:* $Z = Y > X$. $\alpha = 1.522$ – 1.528
 $\beta = 1.530$ – 1.546 $\gamma = 1.533$ – 1.548 $2V(\text{meas.}) = 30^\circ$ – 61°

Cell Data: *Space Group:* $C2/m$. $a = 12.78$ $b = 17.86$ $c = 5.24$ $\beta = 95.78^\circ$ $Z = 4$

X-ray Powder Pattern: Sapillo Creek, New Mexico, USA.

10.44 (100), 4.262 (22), 4.466 (20), 2.539 (20), 3.096 (16), 3.679 (15), 6.36 (13)

Chemistry:

	(1)
SiO ₂	55.03
Al ₂ O ₃	10.24
Fe ₂ O ₃	3.53
MgO	10.49
K ₂ O	0.47
H ₂ O ⁺	10.13
H ₂ O [–]	9.73
Total	99.62

(1) Attapulgis, Georgia, USA; corresponds to $(\text{Mg}_{0.99}\text{Al}_{0.68}\text{Fe}_{0.18}^{3+}\text{Ca}_{0.16}\text{Ti}_{0.04})_{\Sigma=2.05}$
 $(\text{Si}_{3.92}\text{Al}_{0.08})_{\Sigma=4.00}\text{O}_{10}(\text{OH}) \cdot 4\text{H}_2\text{O}$.

Occurrence: An alteration product of magnesium silicates in soils and sediments; in lacustrine marls, carbonate rocks, and mafic igneous rocks; in clay gouge associated with fault movement.

Association: Calcite, dolomite, talc, chlorite, quartz, “chalcedony,” “opal,” montmorillonite.

Distribution: Widespread; some localities for studied material include: at Palygorskaya, near the Popovka River, Perm, Russia. In the USA, at Attapulgis, Decatur Co., Georgia; near Sapillo Creek, Grant Co., New Mexico; in the Pend Oreille mine, Metaline Falls, Stevens Co., Washington; at the New Melones Dam, Calaveras Co., California; and at Gustavus, Alexander Archipelago, Alaska. In the Warren quarry, Enderby, Leicestershire, England. At Taфраout, Morocco. In the Hyderabad deposit, Andhra Pradesh, India.

Name: For the type locality, Palygorskaya, Russia.

Type Material: Mining Institute, St. Petersburg, Russia, N824/7; Harvard University, Cambridge, Massachusetts, USA, 105018.

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