Paragonite

\( \text{NaAl}_2(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH})_2 \)

©2001 Mineral Data Publishing, version 1.2

Crystal Data: Monoclinic; hexagonal in part. Point Group: 2/m or m. Crystals thin tabular \{001\}; commonly fine scaly, compact, massive. Twinning: By rotation of 180° about [310] or [310].


Optical Properties: Transparent to translucent. Color: Colorless, pale yellow, grayish, grayish white, greenish, light apple-green; colorless in thin section, may show faint color tint. Luster: Pearly.

Optical Class: Biaxial (–). Orientation: Y \cong a; Z = b; X \wedge c \cong 5°. Dispersion: \( r > v \). Absorption: Very faint; \( Z \geq X > Y \). \( \alpha = 1.564–1.580 \) \( \beta = 1.594–1.609 \) \( \gamma = 1.600–1.609 \) 2V(meas.) = 0°–40°

Cell Data: Space Group: C2/c (2M1). \( a = 5.13(3) \) \( b = 8.89(5) \) \( c = 19.32(10) \) \( \beta = 95°10'(30) \) \( Z = 4 \)

X-ray Powder Pattern: Pizzo Forno, Switzerland; 2M1. 4.44 (100), 2.536 (90), 9.7 (80), 2.430 (80), 1.486 (80b), 2.921 (70), 2.831 (70)

Chemistry:

\| \begin{array}{cccccc}
\text{SiO}_2 & 46.81 & 45.95 & \text{FeO} & 0.53 & \text{BaO} \\
\text{TiO}_2 & 0.07 & 0.13 & \text{MnO} & \text{trace} & \text{Na}_2\text{O} \\
\text{Al}_2\text{O}_3 & 40.06 & 40.47 & \text{MgO} & 0.65 & \text{K}_2\text{O} \\
\text{Fe}_2\text{O}_3 & \text{trace} & 0.27 & \text{CaO} & 1.26 & \text{H}_2\text{O}^+ \\
\end{array} \| \begin{array}{c}
\text{Total 100.00} \\
\end{array}

(1) Pizzo Forno, Switzerland; corresponds to \((\text{Na}_{0.79}\text{Ca}_{0.08})_{\Sigma=0.88}(\text{Al}_{1.97}\text{Mg}_{0.06})_{\Sigma=2.03} \)

(2) Zermatt-Saas region, Switzerland; by electron microprobe, average of four analyses, \( \text{H}_2\text{O} \) by difference; corresponding to \((\text{Na}_{0.92}\text{K}_{0.04}\text{Ca}_{0.02})_{\Sigma=0.98} \)

Polymorphism & Series: 2M1, 3A polytypes.

Mineral Group: Mica group.

Occurrence: Uncommon, but may be in large amounts, in low- to medium-grade metamorphic schists and phyllites, in muscovite-biotite gneisses, quartz veins, fine-grained sediments, and glaucophane-bearing rocks.

Association: Kyanite, staurolite, muscovite, quartz, glaucophane, chlorite, garnet, tourmaline, calcite, actinolite.

Distribution: A few well-studied occurrences follow. On Pizzo Forno, Ticino, and in Val Täsch, Zermatt, Valais, Switzerland. From Prägraten, Tirol, Austria. At Ochsenkopf, Schwarzenberg, Saxony, Germany. In Italy, at Borgofranco, near Ivrea, Piedmont, and in the Pfitschtal, Trentino-Alto Adige. From Miass, Ilmen Mountains, Southern Ural Mountains, Russia. In the Ivigtut cryolite deposit, southwestern Greenland. In the USA, from Corundum Hill, Chester Co., Pennsylvania; in the Leadville district, Lake Co., Colorado.

Name: From the Greek, paragon, for misleading, as it looks like talc.

References:


All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.