

Crystal Data: Triclinic. *Point Group:* 1 or $\bar{1}$. As lamella to 0.15 mm cross-cutting millimeter-sized grains of sarcopside. *Twinning:* On (111).

Physical Properties: *Cleavage:* Perfect on {010}. *Tenacity:* n.d. *Fracture:* n.d. *Hardness* = 3.5-4
D(meas.) = 3.58(5) D(calc.) = 3.53

Optical Properties: Translucent. *Color:* Bluish green to gray-green. *Streak:* White.
Luster: Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.675(2)$ $\beta = 1.681(2)$ $\gamma = 1.681(2)$ $2V(\text{meas.}) = 10^\circ\text{-}20^\circ$
Pleochroism: Distinct, X = yellow-green, Z = dark gray-green.

Cell Data: *Space Group:* P1 or $P\bar{1}$. $a = 9.643(6)$ $b = 9.633(5)$ $c = 17.645(11)$ $\alpha = 88.26(5)^\circ$
 $\beta = 88.16(5)^\circ$ $\gamma = 64.83(5)^\circ$ $Z = 3$

X-Ray Diffraction Pattern: Augustinovka meteorite.

3.020 (100), 2.703 (77), 2.719 (67), 5.860 (56), 3.188 (47), 2.568 (39), 7.47 (32)

Chemistry:	(1)
Na ₂ O	10.9
K ₂ O	0.4
MnO	5.8
FeO	42.1
Cr ₂ O ₃	0.8
<u>P₂O₅</u>	<u>40.7</u>
Total	100.7

(1) Augustinovka meteorite; average electron microprobe analysis supplemented by Raman spectroscopy; corresponds to (Na_{3.67}K_{0.09}) $\Sigma=3.76$ (Fe²⁺_{6.12}Mn²⁺_{0.85}Cr_{0.11}) $\Sigma=7.08$ P_{5.99}O_{24.00}.

Occurrence: In phosphide-phosphate assemblages confined to troilite nodules of an iron meteorite (medium octahedrite, IIIAB).

Association: Sarcopside, schreibersite, chromite, pentlandite.

Distribution: From the Augustinovka meteorite.

Name: From the Greek, *xénos* (stranger) and *fillo* (leaf), for its extraterrestrial origin and perfect cleavage.

Type Material: Mining Museum, St. Petersburg Mining University, Russia (23/2005).

References: (1) Britvin, S.N., S.V. Krivovichev, E.V. Obolonskaya, N.S. Vlasenko, V.N. Bocharov, and V.V. Bryukhanova (2020) Xenophyllite, Na₄Fe₇(PO₄)₆, an exotic meteoritic phosphate: new mineral description, Na-ions mobility and electrochemical implications. *Minerals*, 10(4), 300.