

Crystal Data: Hexagonal. *Point Group:* 6/m 2/m 2/m. As thin elongate crystals to 50 μm in isolated oval polymineralic inclusions to 2 cm in rankinite. Also in angular aggregates interstitial to grains in paralava.

Physical Properties: *Cleavage:* Very good on {0001}. *Tenacity:* n.d. *Fracture:* Irregular. Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.305

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Uniaxial. *n*(calc.) = 1.561 *Pleochroism:* None.

Cell Data: *Space Group:* $P6_3/mcm$. $a = 5.2920(4)$ $c = 15.557(2)$ $\alpha = \beta = 90^\circ$ $\gamma = 120^\circ$ $Z = \text{n.d.}$

X-ray Powder Pattern: Calculated pattern from synthetic analog.
3.949 (100), 2.965 (75), 2.646 (44), 2.198 (30), 7.779 (28), 1.582 (22), 1.852 (20)

Chemistry:	(1)
SiO ₂	33.06
Fe ₂ O ₃	1.55
Al ₂ O ₃	26.07
CaO	0.64
BaO	37.76
K ₂ O	0.75
<u>Na₂O</u>	<u>0.08</u>
Total	99.91

(1) Gurim Anticline, near Arad, Negev Desert, Israel; average of 14 electron microprobe analyses supplemented by Raman spectroscopy; corresponds to $(\text{Ba}_{0.911}\text{K}_{0.059}\text{Ca}_{0.042}\text{Na}_{0.010})_{\Sigma=1.022}\text{Al}_{1.891}\text{Fe}^{3+}_{0.072}\text{Si}_{2.034}\text{O}_8$.

Occurrence: A common accessory mineral in thin veins of paralava cutting gehlenite-flamite hornfels and formed at $> 1100^\circ\text{C}$ from the relatively fast crystallization of residual melt.

Association: Gurimite, rankinite, gehlenite, pseudowollastonite, schorlomite, fluorapatite-fluorellestadite, minerals of the zadovite-aradite series, walstromite.

Distribution: Found at the Gurim Anticline, near Arad, Negev Desert, Israel.

Name: Historical name of the synthetic phase with structure and composition analogous to the mineral described in this paper and named after Anders Celsius (1701-1744), Swedish astronomer, physicist, and naturalist.

Type Material: Mineralogical Museum, University of Wroclaw, Poland (MMUWr II-20465).

References: (1) Galuskina, I.O., E.V. Galuskin, Ye. Vanek, K. Prusik, M. Stasiak, P. Dzierzanowski, and M. Murashko (2017) Gurimite, Ba₃(VO₄)₂ and hexacelsian, BaAl₂Si₂O₈ - two new minerals from schorlomite-rich paralava of the Hatrurim Complex, Negev Desert, Israel. Mineral. Mag., 81(4), 1009-1019. (2) (2018) Amer. Mineral., 103, 2526-2527 (abs. ref. 1).