

Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. As flattened crystals to 0.5 mm as epitaxial intergrowths with stracherite or/and ariegilatite crystals.

Physical Properties: *Cleavage:* Imperfect on {0001}. *Tenacity:* Brittle. *Fracture:* Irregular or flat. Hardness = ~5 VHN = 444-534, 486 average (25 g load). D(meas.) = n.d. D(calc.) = 3.327

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Uniaxial (-). $\omega = 1.658(2)$ $\epsilon = 1.654(2)$

Cell Data: Space Group: $R\bar{3}m$. $a = 7.12550(11)$ $c = 66.2902(13)$ $Z = 3$

X-ray Powder Pattern: Arava Valley, Negev desert, near Arad, Israel.

1.783 (100), 3.075 (89), 2.776 (86), 3.566 (60), 2.764 (57), 1.967 (50), 1.498 (49)

Chemistry:	(1)		(1)
SO ₃	0.98	CaO	50.88
V ₂ O ₅	0.21	MgO	0.10
P ₂ O ₅	9.37	K ₂ O	0.04
TiO ₂	0.13	Na ₂ O	0.46
SiO ₂	18.61	CO ₂	[2.30]
Al ₂ O ₃	0.10	F	3.30
BaO	14.63	<u>- O = F</u>	<u>1.39</u>
MnO	0.17	Total	99.90

(1) Arava Valley, Negev desert, near Arad, Israel; average of 41 electron microprobe analyses supplemented by Raman spectroscopy, CO₂ calculated for charge balance; corresponds to (Ca_{17.73}Na_{0.17}Mg_{0.05}Mn²⁺_{0.05}) $\Sigma=18.00$ [(SiO₄)_{6.05}(PO₄)_{2.58}(CO₃)_{1.02}(SO₄)_{0.24}(AlO₄)_{0.04}(TiO₄)_{0.03}(VO₄)_{0.04}] $\Sigma=10.00$ (F_{3.23}O_{0.77}) $\Sigma=4.00$.

Mineral Group: Arctite supergroup.

Occurrence: In pyrometamorphic spurrite rocks of the Hatrurim Complex, Israel.

Association: Spurrite, calcite, brownmillerite, shulamitite, CO₃-bearing fluorapatite, brucite, fluormayenite-fluorkyuygenite, periclase, barytocalcite, baryte.

Distribution: From the Arava Valley, Negev desert, near Arad, Israel.

Name: For the *Arava* (Hebrew for “desolate and dry area”) Valley, Negev desert, Israel.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4960/1).

References: (1) Krüger, B., H. Krüger, E.V. Galuskin, I.O. Galuskina, Y. Vapnik, V. Olieric, and A. Pauluhnd (2018) Aravaite, Ba₂Ca₁₈(SiO₄)₆(PO₄)₃(CO₃)F₃O: modular structure and disorder of a new mineral with single and triple antiperovskite layers. *Acta Crystallographica*, B74, 492-501. (2) Galuskin, E., I. Galuskina, B. Krüger, H. Krüger, Ye. Vapnik, A. Krz̄ała, D. Środek, and G. Zieliński (2020) Nomenclature and classification of the arctite supergroup. Aravaite, Ba₂Ca₁₈(SiO₄)₆(PO₄)₃(CO₃)F₃O, a new arctite supergroup mineral from Negev desert, Israel. *Can. Mineral.* (Elena Sokolova thematic issue), in press. (3) (2021) *Amer. Mineral.*, 106, 158 (abs. refs. 1 & 2).