

**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 <sub>3</sub>	0.98	CaO	50.88
V <sub>2</sub> O <sub>5</sub>	0.21	MgO	0.10
P <sub>2</sub> O <sub>5</sub>	9.37	K <sub>2</sub> O	0.04
TiO <sub>2</sub>	0.13	Na <sub>2</sub> O	0.46
SiO <sub>2</sub>	18.61	CO <sub>2</sub>	[2.30]
Al <sub>2</sub> O <sub>3</sub>	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, CO<sub>2</sub> calculated for charge balance; corresponds to  $(\text{Ca}_{17.73}\text{Na}_{0.17}\text{Mg}_{0.05}\text{Mn}^{2+}_{0.05})_{\Sigma=18.00}[(\text{SiO}_4)_{6.05}(\text{PO}_4)_{2.58}(\text{CO}_3)_{1.02}(\text{SO}_4)_{0.24}(\text{AlO}_4)_{0.04}(\text{TiO}_4)_{0.03}(\text{VO}_4)_{0.04}]_{\Sigma=10.00}(\text{F}_{3.23}\text{O}_{0.77})_{\Sigma=4.00}$ .

**Mineral Group:** Arctite supergroup.

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

**Association:** Spurrite, calcite, brownmillerite, shulamitite, CO<sub>3</sub>-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,  $\text{Ba}_2\text{Ca}_{18}(\text{SiO}_4)_6(\text{PO}_4)_3(\text{CO}_3)\text{F}_3\text{O}$ : 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,  $\text{Ba}_2\text{Ca}_{18}(\text{SiO}_4)_6(\text{PO}_4)_3(\text{CO}_3)\text{F}_3\text{O}$ , 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).