

Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. As grains to 200 μm .

Physical Properties: *Cleavage:* n.d. *Fracture:* Uneven. *Tenacity:* n.d.
Hardness = 5-5.5 VHN = 564 (50 g load). D(meas.) = n.d. D(calc.) = 3.503

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.711(2)$ $\epsilon = 1.708(2)$

Cell Data: *Space Group:* $R\bar{3} m$. $a = 7.0966(1)$ $c = 25.7284(3)$ $Z = 3$

X-ray Powder Pattern: Hatrurim Basin, 5 km SE of Arad, Negev Desert, Israel.
3.051 (100), 3.154 (88), 3.548 (87), 1.774 (75), 2.738 (67), 2.859 (63), 3.279 (41)

Chemistry:	(1)		(1)
Na ₂ O	0.18	SiO ₂	8.43
CaO	42.26	P ₂ O ₅	19.29
SrO	0.33	V ₂ O ₅	7.51
BaO	19.92	SO ₃	1.22
Al ₂ O ₃	< 0.03	F	2.45
Fe ₂ O ₃	< 0.08	<u>-O = F₂</u>	<u>1.03</u>
CrO ₃	< 0.08	Total	100.56

(1) Hatrurim Basin, 5 km SE of Arad, Negev Desert, Israel; average of 5 electron microprobe analyses supplemented by Raman spectroscopy; corresponding to Ba_{1.02}(Ca_{5.91}Na_{0.05}Sr_{0.02}) $\Sigma=5.98$ [(SiO₄)_{1.10}(PO₄)_{0.78}(SO₄)_{0.12}] $\Sigma=2.00$ [(PO₄)_{1.35}(VO₄)_{0.65}] $\Sigma=2.00$ F_{1.01}.

Polymorphism & Series: Forms in the solid solution series BaCa₆[(SiO₄),(PO₄),(VO₄)]₄F.

Mineral Group: Nabimusaite group.

Occurrence: In paralava veins cutting gehlenite-rich pyrometamorphic rock formed by the combustion of organic matter in the sedimentary protolith or methane released by tectonic forces.

Association: Aradite, gehlenite, pseudowollastonite, wollastonite, andradite-schorlomite, rankinite, magnesioferrite, kalsilite, fluorapatite, P-rich ellestadite, larnite, cuspidine, hematite, dorrite-khesinite, barioferrite, walstromite, barite, gurimite, fresnoite, delafossite, cuprite, vorlanite, perovskite, hexacelsian.

Distribution: From the Gurim Anticline, Hatrurim Basin, 5 km SE of Arad, Negev Desert, Israel.

Name: Honors Russian mineralogist Aleksandr Efimovich Zadov (1958-2012), author or co-author of more than 90 new mineral species.

Type Material: The Museum of Natural History, Bern, Switzerland (NMBE 42103).

References: (1) Galuskin, E.V., F. Gfeller, I.O. Galuskina, A. Pakhomova, T. Armbruster, Y. Vapnik, R. Włodyka, P. Dzierżanowski, and M. Murashko (2015) New minerals with a modular structure derived from hatrurite from the pyrometamorphic Hatrurim Complex. Part II. Zadovite, BaCa₆[(SiO₄)(PO₄)](PO₄)₂F and aradite, BaCa₆[(SiO₄)(VO₄)](VO₄)₂F, from paralavas of the Hatrurim Basin, Negev Desert, Israel. *Mineral. Mag.*, 79(5), 1073-1087. (2) (2016) *Amer. Mineral.*, 101, 1709 (abs. ref. 1).