

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As grains to 0.15 mm and as spherulitic aggregates.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = ~ 5 VHN = 537 (523-552) (50 g load). D(meas.) = n.d. D(calc.) = 3.06

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (+). $\alpha = 1.618(2)$ $\beta = 1.621(2)$ $\gamma = 1.628(2)$ $2V(\text{meas.}) = 75(5)^\circ$ $2V(\text{calc.}) = 67^\circ$ *Orientation:* $X \parallel b$, $Y \parallel a$, $Z \parallel c$. *Dispersion:* Medium, $r > v$.

Cell Data: *Space Group:* Pnma. $a = 6.72230(1)$ $b = 15.4481(2)$ $c = 10.0847(2)$ $Z = 4$

X-ray Powder Pattern: Calculated pattern.

2.815 (100), 2.596 (62), 2.575 (50), 3.285 (48), 3.903 (40), 3.007 (39), 3.176 (36)

Chemistry:	(1)	(2)
SO ₃	1.85	0.33
V ₂ O ₅	<0.08	0.50
P ₂ O ₅	25.81	27.82
SiO ₂	13.62	12.74
SrO	0.13	0.17
CaO	57.61	57.21
Na ₂ O	<0.02	<0.02
Total	99.02	98.77

(1) Mt. Har Parsa, Israel; average of 6 EDS analyses supplemented by Raman spectroscopy; corresponds to Ca_{5.01}Sr_{0.01}P_{1.77}Si_{1.11}S⁶⁺_{0.11}O₁₂. (2) Tsomet Hatrurim, Israel; average of 18 EDS analyses supplemented by Raman spectroscopy; corresponds to Ca_{4.99}Sr_{0.01}P_{1.92}V_{0.03}Si_{1.04}S⁶⁺_{0.02}O₁₂.

Polymorphism & Series: Forms a solid solution series with ternesite.

Occurrence: In pyrometamorphic gehlenite-bearing rocks, likely the result of combustion of bitumen contained in sedimentary rocks, as a result of reactions between primary pyrometamorphic minerals (larnite, flamite, fluorellestadite-fluorapatite) with sulfate-bearing melts, which are byproducts of the combustion processes during the pyrometamorphism.

Association: Andradite, fluorapatite, rankinite, pseudowollastonite, kalsilite, magnesioferrite-jacobsite, and as lamellae intergrowths with larnite and flamite.

Distribution: From Paleolithic stone-tool workshops on the eastern slope of Mt. Har Parsa and near Tsomet Hatrurim, between Arad and the Dead Sea, Negev Desert, Israel.

Name: Adopts the long-established name for synthetic Ca₅(PO₄)₂(SiO₄).

Type Material: Museum of Natural History, Bern, Switzerland (NMBE-42716).

References: (1) Galuskin, E.V., I.O. Galuskina, F. Gfeller, B. Krüger, J. Kusz, Y. Vapnik, M. Dulski, and P. Dzierzanowski (2016) Silicocarnotite, Ca₅[(SiO₄)(PO₄)](PO₄), a new "old" mineral from the Negev Desert, Israel, and the ternesite-silicocarnotite solid solution: indicators of high-temperature alteration of pyrometamorphic rocks of the Hatrurim Complex, Southern Levant. *Eur. J. Mineral.*, 28(1), 105-123. (2) (2016) *Amer. Mineral.*, 101, 2782-2783 (abs. ref. 1).