Ye'elimite $Ca_4Al_6O_{12}(SO_4)$

Crystal Data: Cubic. *Point Group:* 432. Crystals, to 15 μm, in aggregates.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 2.61 Decomposes in H_2O to give ettringite and $Al(OH)_3$.

Optical Properties: Semitransparent. *Color:* Colorless.
Optical Class: Isotropic. $n = 1.568(2)$

Cell Data: *Space Group:* $I4_132$ (synthetic). $a = 18.392$ Z = 16

X-ray Powder Pattern: Hatrurim Formation, Israel.
3.754 (100), 2.909 (15), 3.915 (10), 6.52 (4)

Chemistry:

	(1)	(2)
SO_3	14.54	13.12
Al_2O_3	47.84	50.12
Fe_2O_3	1.04	
CaO	36.56	36.76
Total	99.98	100.00

(1) Hatrurim Formation, Israel; by electron microprobe, average of two analyses, total Fe as Fe_2O_3; corresponds to $Ca_{3.98}(Al_{5.71}Fe_{0.08})_{\Sigma=5.79}O_{12}(S_{1.11}O_4)$. (2) $Ca_4Al_6O_{12}(SO_4)$.

Occurrence: In a high-temperature (> 900 °C) metamorphic assemblage in cobbles in a pseudo-conglomerate.

Association: Larnite, brownmillerite, sulfatian-phosphatian fluorapatite.

Distribution: In the lower part of the Hatrurim Formation, west of the Dead Sea, Israel.

Name: For Har Ye'elim and Nahal Ye'elim, the most conspicuous hill and wadi in the Hatrurim Basin, Israel.

Type Material: Geochemistry Department, Geological Survey of Israel; Department of Geology, Hebrew University, Jerusalem, Israel, 62815.

References: (1) Gross, S. (1984) Occurrence of ye'elimite and ellestadite in an unusual cobble from the "pseudo-conglomerate" of the Hatrurim Basin, Israel. Geol. Surv. Israel, Current Research 1983–84, 1–4. (2) (1987) Amer. Mineral., 72, 226–227 (abs. ref. 1).