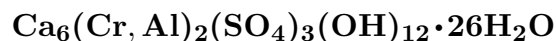


Bentorite

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Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. As stout hexagonal prisms, $\{10\bar{1}0\}$, $\{10\bar{1}1\}$, $\{0001\}$, to 0.25 mm; commonly in fibrous masses, granular aggregates, and thin films.

Twinning: On $\{10\bar{1}0\}$ as composition plane.

Physical Properties: *Cleavage:* $\{10\bar{1}0\}$, perfect; $\{0001\}$, distinct. Hardness = 2
D(meas.) = 2.025 D(calc.) = 2.021

Optical Properties: Transparent. *Color:* Bright violet. *Streak:* Very pale violet.
Luster: Vitreous.

Optical Class: Uniaxial (+). *Pleochroism:* O = nearly colorless; E = pale violet.

Absorption: $O < E$. $\omega = 1.478(2)$ $\epsilon = 1.484(2)$

Cell Data: *Space Group:* $P6_3/mmc$. $a = 22.35$ $c = 21.41$ $Z = 8$

X-ray Powder Pattern: Hatrurim Formation, Israel.

9.656 (100), 5.592 (40), 1.942 (20), 3.60 (10), 3.23 (10), 2.772 (10), 3.89 (8)

Chemistry:

	(1)
SO ₃	14.99
CO ₂	6.70
SiO ₂	2.50
Al ₂ O ₃	1.01
Fe ₂ O ₃	0.10
Cr ₂ O ₃	7.48
MgO	0.00
CaO	29.90
H ₂ O	37.70
<u>Total</u>	<u>100.38</u>

(1) Hatrurim Formation, Israel; by AA, SO₃ by gravimetric analysis, CO₂ and H₂O by TGA; after deduction of CaO and CO₂ as calcite and CaO, SiO₂, H₂O as truscottite, the remainder (about 80%) corresponds to $\text{Ca}_{5.88}(\text{Cr}_{1.61}\text{Al}_{0.32}\text{Fe}_{0.02}^{3+})_{\Sigma=1.95}(\text{S}_{1.02}\text{O}_4)_{3.00}(\text{OH})_{11.97} \cdot 28.06\text{H}_2\text{O}$.

Mineral Group: Ettringite group.

Occurrence: In low-temperature hydrothermal veins in black calcite–spurrite marble.

Association: Calcite, thaumasite, truscottite, vaterite, jennite, tobermorite, brownmillerite, mayenite, melnikovite, “chlorite”.

Distribution: In a marble quarry in the Hatrurim Formation, near the Arad-Sodom road, Negev Desert, Israel.

Name: To honor Professor Y.K. Bentor, University of California, San Diego, California, USA, for his contributions to geology and mineralogy in Israel.

Type Material: Geochemistry Department, Geological Survey of Israel, Jerusalem, Israel, SG644; Fairleigh-Dickinson University, Madison, New Jersey, USA.

References: (1) Gross, S. (1980) Bentorite. A new mineral from the Hatrurim Area, west of the Dead Sea, Israel. *Israel J. of Earth Sci.*, 29, 81–84. (2) (1981) *Amer. Mineral.*, 66, 639 (abs. ref. 1).