## Sodium alum $NaAl(SO_4)_2 \cdot 12H_2O$



**Crystal Data:** Cubic. *Point Group:* $2/m\ \overline{3}$. As octahedral crystals, to 1 mm.

**Physical Properties:** *Fracture:* Conchoidal. Hardness = ∼3 D(meas.) = 1.64 (synthetic). D(calc.) = 1.670 (synthetic). Soluble in $H_2O$.

**Optical Properties:** Transparent. *Color:* Colorless; colorless in transmitted light.
*Luster:* Vitreous.
*Optical Class:* Isotropic. $n = 1.4388$

**Cell Data:** *Space Group:* $Pa3$. $a = 12.214(1)$ $Z = 4$

**X-ray Powder Pattern:** Synthetic.
4.314 (100), 2.962 (35), 3.526 (14), 7.05(7), 1.9077 (7), 3.263 (6), 2.493 (6)

**Chemistry:** (1) There are apparently no analyses of natural material.

**Occurrence:** A sublimate on burning coal heaps (Bátonyterenye, Hungary); a recent precipitate (Recsk mine, Hungary).

**Association:** Blödite, kröhnkite (Recsk mine, Hungary).

**Distribution:** Earlier reported localities require confirmation by modern methods. Recently identified in Hungary, from the Recsk copper mine, Mátra Mountains, and at Bátonyterenye.

**Name:** For its *sodium* content, and as a hydrated aluminum sulfate.

**Type Material:** n.d.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 474 [soda alum]. (2) Szakáll, S., Ed. (2002) Minerals of the Carpathians. Granit, Prague, 278. (3) Cromer, D.T., M.I. Kay, and A.C. Larson (1967) Refinement of the alum structures. II. X-ray and neutron diffraction of $NaAl(SO_4)_2.12H_2O$, $\gamma$ alum. Acta Cryst., 22, 182–187. (4) (1978) NBS Mono. 25, 15.