Wattevillite $Na_2Ca(SO_4)_2 \cdot 4H_2O(?)$

Crystal Data: Orthorhombic or monoclinic (?). *Point Group:* n.d. Acicular to hairlike crystals, minute, in aggregates. *Twinning:* Noted.

Physical Properties: Hardness = n.d. D(meas.) = 1.81 D(calc.) = n.d. Soluble in H_2O, with separation of gypsum after some time; taste initially sweet then astringent.

Optical Properties: Semitransparent. *Color:* Snow-white; colorless in transmitted light. *Luster:* Silky.
Optical Class: Biaxial (–). *Orientation:* Highly variable extinction. $\alpha = 1.435(3)$ $\beta = 1.455(3)$ $\gamma = 1.459(3)$ 2V(meas.) = 48(3)°

Cell Data: *Space Group:* n.d. Z = n.d.

X-ray Powder Pattern: Bauersberg, Germany. (ICDD 41-1360).
4.39 (100), 4.20 (64), 2.892 (53), 2.945 (49), 5.44 (45), 4.03 (42), 5.10 (36)

Chemistry:

	(1)	(2)
SO_3	44.01	45.72
Al_2O_3	0.24	
FeO	0.88	
CoO	1.30	
NiO	1.05	
MgO	2.49	
CaO	16.87	16.01
Na_2O	10.46	17.70
K_2O	4.74	
H_2O	17.73	20.57
Total	99.77	100.00

(1) Einigkeit mine, Germany; after deduction of H_2O 33.69% as hygroscopic.
(2) $Na_2Ca(SO_4)_2 \cdot 4H_2O$.

Occurrence: In pyritic lignite.

Association: Pyrite, other sulfides.

Distribution: From the Einigkeit mine, on the Bauersberg, near Bischofsheim, Bavaria, Germany.

Name: Honors Oscar de Watteville, Paris, France.

Type Material: n.d.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 452.