

**Nosean****Na<sub>8</sub>Al<sub>6</sub>Si<sub>6</sub>O<sub>24</sub>(SO<sub>4</sub>)•H<sub>2</sub>O**

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**Crystal Data:** Cubic. *Point Group:*  $\bar{4}3n$ . Crystals are dodecahedra, to 2 mm; commonly as grains, or massive. *Twining:* On {111}.

**Physical Properties:** *Cleavage:* {110}, indistinct. *Fracture:* Uneven to conchoidal. *Tenacity:* Brittle. Hardness = 5.5 D(meas.) = 2.30–2.40 D(calc.) = 2.21

**Optical Properties:** Transparent to translucent. *Color:* Colorless, white, gray, gray-brown, blue, black from iron contamination, may be irregularly distributed; colorless to blue in thin section. *Luster:* Vitreous.

*Optical Class:* Isotropic; may show weak birefringence in samples containing inclusions.  $n = 1.461\text{--}1.495$

**Cell Data:** *Space Group:*  $P\bar{4}3n$ .  $a = 9.05\text{--}9.08$   $Z = 1$

**X-ray Powder Pattern:** Col de Maza, Morocco.

3.718 (100), 2.625 (49), 6.464 (36), 2.143 (25), 2.876 (24), 1.607 (11), 9.127 (10)

<b>Chemistry:</b>	(1)	(2)	(3)
SiO <sub>2</sub>	36.69	34.95	35.61
Al <sub>2</sub> O <sub>3</sub>	28.45	29.41	30.21
Fe <sub>2</sub> O <sub>3</sub>	0.47	1.38	
CaO	0.63	4.40	
Na <sub>2</sub> O	23.90	19.01	24.49
K <sub>2</sub> O		0.33	
Cl	1.05	0.86	
H <sub>2</sub> O	2.15	1.83	1.78
SO <sub>3</sub>	7.30	8.11	7.91
–O = Cl <sub>2</sub>	0.23	0.19	
Total	100.41	100.09	100.00

(1) Laacher See, Germany. (2) Covao, Cape Verde Islands. (3) Na<sub>8</sub>Al<sub>6</sub>Si<sub>6</sub>O<sub>24</sub>(SO<sub>4</sub>)•H<sub>2</sub>O.

**Mineral Group:** Sodalite group.

**Occurrence:** In silica-deficient alkalic volcanic rocks, principally phonolites.

**Association:** Sanidine, mica, leucite, magnetite, ilmenite, titanite, zircon.

**Distribution:** In Germany, at the Schellkopf, near Brenk, and elsewhere around the Laacher See, Eifel district; at Dutchlingen and in the Höwenegg quarry, Hegau, Baden-Württemberg. In the Mont-Dore massif, Auvergne, and at Vinsac, Aldis, and Cournil, Cantal, France. At Wolf Rock, Cornwall, England. From Covao, Cape Verde Islands. South of the Col de Maza, Morocco. From the Black Hills, Lawrence Co., South Dakota, and in the Cripple Creek district, Teller Co., Colorado, USA. From the Lovozero massif, Kola Peninsula, Russia. On Hsi Kuang T'a Men Mountain, Chiao Ch'eng Mountains, Shansi Province, China.

**Name:** After Karl Wilhelm Nose (1753?–1835), German mineralogist, of Brunswick (now Lower Saxony), Germany.

**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 432. (2) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 4, framework silicates, 289–302. (3) Taylor, D. (1967) The sodalite group of minerals. *Contr. Mineral. Petrol.*, 16, 172–188. (4) Hassan, I. and H.D. Grundy (1989) The structure of nosean, ideally Na<sub>8</sub>[Al<sub>6</sub>Si<sub>6</sub>O<sub>24</sub>]SO<sub>4</sub>•H<sub>2</sub>O. *Can. Mineral.*, 27, 165–172.

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