

Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. Rare as rhombohedral crystals, {10 $\bar{1}1$ }, to 3 mm; stalactitic, cottonlike, typically granular or in massive incrustations.

Physical Properties: *Cleavage:* Perfect on {10 $\bar{1}1$ }; imperfect on {01 $\bar{1}2$ }, {0001}.
Fracture: Conchoidal. *Tenacity:* Sectile to some degree. *Hardness* = 1.5–2 *D*(meas.) = 2.24–2.29 *D*(calc.) = 2.25 Soluble in H₂O, taste bitter, pungent, cooling; deliquescent above ~80% humidity.

Optical Properties: Transparent. *Color:* Colorless to white, tinged reddish brown, lemon-yellow, gray with impurities; colorless in transmitted light. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.587$ $\epsilon = 1.336$

Cell Data: *Space Group:* $R\bar{3}c$. $a = 5.070$ $c = 16.829$ $Z = 6$

X-ray Powder Pattern: Synthetic.
3.03 (100), 2.311 (25), 2.81 (16), 1.898 (16), 2.53 (10), 2.125 (10), 1.880 (8)

Chemistry: (1) Identified by correspondence of optical data and X-ray powder pattern with that of synthetic material.

Occurrence: Principally in bedded deposits formed in playas; in caves, deposited from seeping groundwater leaching nitrates from overlying rocks, especially in very dry and cold climates.

Association: Niter, nitrocalcite, epsomite, mirabilite, halite, gypsum.

Distribution: In Chile, in the Tarapacá district, and elsewhere along the coast, economically valuable deposits aggregating billions of tons; also at Chuquicamata, Antofagasta. Other studied occurrences include: in the Los Manos Cave, Santa Cruz Province, Argentina. In the USA, in Death Valley and along the Armagosa River, Inyo and San Bernardino Cos., California; at Niter Buttes, about 40 km southeast of Lovelock, Churchill Co., Nevada; in Plateau Canyon, 32 km east of Grand Junction, Mesa Co., Colorado; from the Organ Mountains, about 12 km east-northeast of Mesquite, Doña Ana Co., in the Jornada del Muerto lava tubes, near Socorro, Socorro Co., and other places in New Mexico; at the Wupatki fissure caves, near Flagstaff, Coconino Co., Arizona. Numerous other occurrences have been reported.

Name: For NITrogen in the composition.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 300–302 [soda-niter]. (2) Hill, C. and P. Forti (1997) Cave minerals of the world (2nd edition), National Speleological Soc., Huntsville, Alabama, esp. 161. (3) Göttlicher, S. and C.D. Knöchel (1978) Zur Kristallstruktur von Natriumnitrat. Zeits. Krist., 148, 101–105 (in German with English abs.). (4) (1956) NBS Circ. 539, 6, 50.