



>>Entry Name: Sodalite

CAS Registry Number: 1302-90-5

Extra CAS Registry Numbers(s): 1344-00-9

$\text{Na}_6[\text{Al}_6\text{Si}_6\text{O}_{24}]\cdot 2\text{NaCl}$

Molecular Formula: $\text{Al}_3\text{ClNa}_4\text{O}_{12}\text{Si}_3$

Molecular Weight: 484.605

Accurate Mass: 483.742298

Percentage Composition: Al 16.70%; Cl 7.32%; Na 18.98%; O 39.62%; Si 17.39%

comprising stacked 14-hedra (truncated octahedra) with apertures formed by $(\text{Al},\text{Si}-\text{O})_6$ rings, are commonly found in other zeolites (Zeolite A, etc.)

Source/Synthesis: Widely distributed mineral (incl. var. *Hackmanite*); hydrothermal synth. from aluminosilicate gels in presence of NaOH and $[\text{Me}_4\text{N}]\text{OH}$

Physical Description: White cryst. Mineral samples show various colours

Other Data: n_D 1.483

>>Derivative: Chloride form

Molecular Formula: $\text{Al}_6\text{Cl}_2\text{Na}_8\text{O}_{24}\text{Si}_6$

Molecular Weight: 969.211

Accurate Mass: 967.484596

Percentage Composition: Al 16.70%; Cl 7.32%; Na 18.98%; O 39.62%; Si 17.39%

Source/Synthesis: Mineral from Ontario, Canada

Physical Description: White solid

>>Derivative: Hydroxide form

Synonym(s): Basic sodalite

Molecular Formula: $\text{Al}_6\text{H}_6\text{Na}_8\text{O}_{28}\text{Si}_6$

Molecular Weight: 968.35

Accurate Mass: 967.573502

Percentage Composition: Al 16.72%; H 0.62%; Na 18.99%; O 46.26%; Si 17.40%

Source/Synthesis: Made hydrothermally at 450° and 1.53×10^7 atm.

Use/Importance: Adsorbant for small molecules

Physical Description: Dodecahedral white cryst.

>>Derivative: Sulfate form

Synonym(s): Nosean. Noselite

Molecular Formula: $\text{Al}_6\text{Na}_8\text{O}_{28}\text{SSi}_6$

Molecular Weight: 994.369

Accurate Mass: 993.498622

Percentage Composition: Al 16.28%; Na 18.50%; O 45.05%; S 3.22%; Si 16.95%

>>Derivative: Ultramarine

CAS Registry Number: 1317-97-1

Extra CAS Registry Numbers(s): 1302-83-6

Molecular Formula: $\text{Al}_6\text{Na}_8\text{O}_{24}\text{S}_4\text{Si}_6$

Molecular Weight: 1026.569

Accurate Mass: 1025.435172

Percentage Composition: Al 15.77%; Na 17.92%; O 37.40%; S 12.49%; Si 16.42%

Source/Synthesis: Contact metamorphic mineral *Lapis lazuli* (*Lazurite*) formulated as $(\text{Na},\text{Ca})_8(\text{Al},\text{Si})_{12}\text{O}_{24}[\text{SO}_4\text{Cl}_2(\text{OH})_2]$. A related mineral is *Hauyne* or *Hauynite* which is also blue but formulated $(\text{Na},\text{Ca})_{4-8}\text{Al}_6\text{Si}_6(\text{O},\text{S})_{24}(\text{SO}_4,\text{Cl})_{1-2}$. Synth. from kaolinite, S, NaOH + coke at 800°. Hydrothermal synth. at 410° and 5.5×10^5 atm.

Use/Importance: Pigment. Lapis lazuli used as gemstone

Physical Description: Blue cryst.

Other Data: Related green, violet and red substances cont. different S-cont. spp. also descr. Zeolite struct. SOD cont. $\text{S}_2^{(-)}$ and $\text{S}_3^{(-)}$ radical ions

>>Derivative: Me_4N form

Molecular Formula: $\text{C}_4\text{H}_{12}\text{AlNO}_{12}\text{Si}_5$

Molecular Weight: 433.547

Accurate Mass: 432.902128

Percentage Composition: C 11.08%; H 2.79%; Al 6.22%; N 3.23%; O 44.28%; Si 32.39%

Source/Synthesis: From $(\text{Me}_4\text{N})\text{OH}$, $\text{Si}(\text{OMe})_4$, $\text{Al}(\text{OPr}^i)_3$ and H_2O at 100° then 180°

Physical Description: White cryst. (aq. melt)