



>>Entry Name: Ammonia, 11Cl

Synonym(s): Azane. Ammine. Amine

CAS Registry Number: 7664-41-7

Related CAS Registry Numbers(s): 13587-49-0 13767-16-3 19496-55-0 34819-78-8

NH₃ (C_{3v})

Molecular Formula: H₃N

Molecular Weight: 17.03

Accurate Mass: 17.026549

Percentage Composition: H 17.75%; N 82.25%

General Statement: Pyramidal. Interatomic distance: H-N 101.2 pm; angle: HNH 106.7°

Source/Synthesis: Synth. from N₂ + H₂. Manuf. via Haber Process

Use/Importance: Commercially available as anhyd. gas and aq. soln. Extensively used in fertiliser industry; in manuf. of HNO₃, explosives, synthetic fibres; in chemical industry. Self-ionising non-aqueous solvent: 2NH₃ <<>> NH₄⁽⁺⁾ + NH₂⁽⁻⁾; K_{-50°} = 10⁻³⁰. Important industrial chemical, USA production in 1999 18.99 million tons

Physical Description: Colourless alkaline nonflammable gas with v. pungent odour

Melting Point: Mp -77.8°

Boiling Point: Bp -33.5°

Solubility: V. sol. H₂O, CHCl₃, Et₂O

pKa Value: pK_a 9.25 (25°)

Other Data: T_{crit} 133.0; P_{crit} 111.5 atm.

Hazard & Toxicity: Corrosive, toxic, irritant

Aldrich: 39268-5

>>Derivative: Trideutero compd.

Synonym(s): Ammonia-d₃. Perdeuteroammonia

CAS Registry Number: 13550-49-7

Molecular Formula: D₃N

Molecular Weight: 20.049

Source/Synthesis: Synth. from Mg₃N₂ + D₂O

Use/Importance: Commercially available

Physical Description: Colourless gas, similar to NH₃

Melting Point: Mp -73.6°

Boiling Point: Bp -31.1°

pKa Value: pK_a 9.76 (20°)

Other Data: T_{crit} 132.3°

Aldrich: 42297-5

Fluka: 9704

Sigma: A5266

>>Derivative: Hydrate

see Ammonium hydroxide ((NH₄)(OH)), [HVD34-P](#)

References:

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