

# AMMONIUM SULPHATE SPECIFICATIONS

## 1. CHEMICAL & PHYSICAL PROPERTIES

### Computed Properties

Property Name	Property Value
Molecular Weight	132.134 g/mol
Hydrogen Bond Donor Count	2
Hydrogen Bond Acceptor Count	4
Rotatable Bond Count	0
Complexity	62.2
CACTVS Substructure Key Fingerprint	AAADccADOABAAAAAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAAAAAAAAAAAAAQAAAA AAAAAAAAAAAAAAAAAAAAAAAAADAAAAAAAA AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Topological Polar Surface Area	90.6 A <sup>2</sup>
Monoisotopic Mass	132.02 g/mol
Exact Mass	132.02 g/mol
Compound Is Canonicalized	true
Formal Charge	0
Heavy Atom Count	7
Defined Atom Stereocenter Count	0
Undefined Atom Stereocenter Count	0
Defined Bond Stereocenter Count	0
Undefined Bond Stereocenter Count	0
Isotope Atom Count	0
Covalently-Bonded Unit Count	3



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## 1. CHEMICAL & PHYSICAL PROPERTIES

### Experimental Properties

#### PHYSICAL DESCRIPTION

Ammonium sulphate is a white odourless solid. Sinks and dissolves in water. (USCG, 1999)

GasVapor, Liquid, DryPowder, PelletsLargeCrystals, OtherSolid, PelletsLargeCrystals, WetSolid. White powder, shining plates or crystalline fragments.

#### COLOUR

White or brown orthorhombic crystals, orthorhombic crystals or white granules. Brownish gray to white crystals according to degree of purity.

#### ODOUR

Odourless.

#### MELTING POINT

280°C (decomposes).

#### SOLUBILITY

Freely soluble in water, insoluble in ethanol. In water, 76.4 g/100 g water at 25°C. In water: g ammonium sulphate/100 g saturated solution: 41.22 at 0°C; 43.47 at 25°C; 50.42 at 100°C. Insoluble in acetone, ethanol. Solubility decreases with addition of ammonia: at 1°C, from 73 g in 100 g of water, to 18 g in 100 g of 24.5% aqueous ammonia.

#### DENSITY

1.78 at 59° F (USCG, 1999). 1.77 g/cu cm.

#### VAPOUR PRESSURE

Vapor pressure of saturated solution: 0.901 kPa at 10°C; 1.319 kPa at 15°C; 1.871 kPa at 20°C; 2.573 kPa at 25°C; 3.439 kPa at 30°C; 4.474 kPa at 35°C.

#### STABILITY

Stable under recommended storage conditions.

#### AUTO-IGNITION

Not flammable (USCG, 1999).

#### DECOMPOSITION

When heated to decomposition it emits very toxic fumes of sulphur oxides, nitrogen oxides and ammonia. On heating in an open system, the compound begins to decompose at about 150°C, yielding ammonium bisulphate (NH<sub>4</sub>HSO<sub>4</sub>), and releasing ammonia.

#### CORROSIVITY

Ammoniacal solutions does not attack iron or aluminum.

#### PH

pH = 5.5 (0.1 M aqueous solution).

