



>>Entry Name: Indium(III) sulfate ($\text{In}_2(\text{SO}_4)_3$)

CAS Registry Number: 13464-82-9

Extra CAS Registry Numbers(s): 10294-68-5

$\text{In}_2(\text{SO}_4)_3$

Molecular Formula: $\text{In}_2\text{O}_{12}\text{S}_3$

Molecular Weight: 517.831

Accurate Mass: 517.66295

Percentage Composition: In 44.35%; O 37.08%; S 18.58%

Physical Description: White, v. hygroscopic solid

Other Data: See also Bis(sulfato)indate(1-) [HST82-J](#). Readily hydrol. with formation of hydroxide sulfates. Various double salts also descr.

Fluka: 57151

>>Derivative: Pentahydrate

Molecular Formula: $\text{H}_{10}\text{In}_2\text{O}_{17}\text{S}_3$

Molecular Weight: 607.907

Percentage Composition: H 1.66%; In 37.78%; O 44.74%; S 15.82%

Physical Description: White solid (H_2O)

>>Derivative: Double salt with $(\text{NH}_4)_2\text{SO}_4$

Synonym(s): Sulfuric acid ammonium indium salt (3:3:1)

CAS Registry Number: 51647-35-9

Molecular Formula: $\text{H}_{12}\text{InN}_3\text{O}_{12}\text{S}_3$

Molecular Weight: 457.126

Accurate Mass: 456.862192

Percentage Composition: H 2.65%; In 25.12%; N 9.19%; O 42.00%; S 21.04%

Source/Synthesis: Synth. from $(\text{NH}_4)_2\text{SO}_4$ and $\text{In}_2(\text{SO}_4)_3$ in a sealed tube at 250°

Physical Description: Colourless cryst. (H_2O)

Other Data: Formulated as $(\text{NH}_4)_3\text{In}(\text{SO}_4)_3$. Struct. has $[\text{In}(\text{SO}_4)_3]_x$ chains. Linked by $\text{NH}_4^{(+)}$. Monoclinic (low temp.) and trigonal (high temp.) forms descr.

References:

Seward, R.P., *J.A.C.S.*, 1933, **55**, 2740, (*props*)

Ekeley, J.B. *et al.*, *J.A.C.S.*, 1936, **58**, 907

Deichman, E.N., *Russ. J. Inorg. Chem. (Engl. Transl.)*, 1961, **6**, 855, (*synth, props*)

Hester, R.H. *et al.*, *J. Chem. Phys.*, 1963, **38**, 249, (*Raman*)

Hester, R.H. *et al.*, *Inorg. Chem.*, 1964, **3**, 768; 769, (*Raman*)

Cannon, T.H. *et al.*, *Trans. Faraday Soc.*, 1966, **62**, 1378, (*In-115 nmr*)

Patel, S.J. *et al.*, *J.C.S.(A)*, 1967, 1187, (*synth*)

Hester, R.H. *et al.*, *Spectrochim. Acta A*, 1967, **23**, 1945, (*Raman*)

Perret, R. *et al.*, *J. Less-Common Met.*, 1972, **27**, 333; 1974, **37**, 9, (*rel compds*)

Tudo, J., *C. R. Hebd. Seances Acad. Sci. Ser. C*, 1974, **278**, 117, (*synth, powder struct, tga, double salt*)

Jolibois, B. *et al.*, *Acta Cryst. B*, 1980, **36**, 2517, (*cryst struct, double salt*)

Jolibois, B. *et al.*, *J. Solid State Chem.*, 1981, **40**, 69, (*cryst struct, double salt*)