



>>Entry Name: Zinc sulfite

CAS Registry Number: 13597-44-9

Related CAS Registry Numbers(s): 123714-57-8

$\text{Zn}(\text{SO}_3)$

Molecular Formula: O_3SZn

Molecular Weight: 145.454

Accurate Mass: 143.88596

Percentage Composition: O 33.00%; S 22.05%; Zn 44.96%

Use/Importance: Catalyses polym. of acrylonitrile. Cross-linking catalyst. Catalyst for urea or melamine formaldehyde resins. Bleaching agent. Preservative. Antiseptic. Coal liquefaction catalyst

Physical Description: Cryst.

Solubility: Sl. sol. H_2O (ca. 0.15g per 100g)

Other Data: Dec. at 300°

>>Derivative: Hemihydrate (incorr.)

CAS Registry Number: 65410-82-4

Source/Synthesis: Synth. from aq. ZnCO_3 and SO_2 at 95°

Physical Description: Cryst.

Other Data: Dehydrates to anhydrous salt at 175° . Now known to be $\text{ZnSO}_3 \cdot 1\text{H}_2\text{O}$

>>Derivative: Monohydrate

CAS Registry Number: 66516-57-2

Source/Synthesis: Obt. by cryst. from H_2O at $>88^\circ$ + SO_2 (α -form)

Physical Description: Cryst.

Other Data: Two cryst. forms; α - and metastable β -form (isotypic with $\text{MgSO}_3 \cdot 1\text{H}_2\text{O}$ and $\text{MnSO}_3 \cdot 1\text{H}_2\text{O}$)

>>Derivative: Dihydrate

CAS Registry Number: 7488-52-0

Source/Synthesis: Cryst. from $\text{Zn}(\text{HSO}_3)_2$ soln. at $65\text{--}85^\circ$ or from Na_2SO_3 and ZnSO_4 in H_2O

Physical Description: White cryst. or powder

Solubility: Sol. H_2SO_4 ; spar. sol. cold H_2O ; dec. hot H_2O

Other Data: Dehydrates at 120° to β - $\text{ZnSO}_3 \cdot 1\text{H}_2\text{O}$ and to anhydrous ZnSO_3 . Struct. comprises 3D network of ZnO_4 tetrahedra and ZnO_6 octahedra linked via SO_3 groups

>>Derivative: $2\frac{1}{2}$ Hydrate

CAS Registry Number: 14460-28-7

Source/Synthesis: α -Form cryst. from $\text{Zn}(\text{HSO}_3)_2$ soln. at r.t. β -Form from $\text{ZnSO}_4 + \text{Na}_2\text{SO}_3$

Other Data: α -Form contains both tetrahedral and octahedral zinc. Dehydrates at 90° to dihydrate

>>Derivative: Trihydrate

CAS Registry Number: 75042-13-6

Source/Synthesis: Synth. from aq. $\text{ZnCO}_3 + \text{SO}_2$ at 0° or from aq. $\text{Zn}(\text{HSO}_3)_2$ soln. $<0^\circ$

Physical Description: Cryst.

Other Data: Isotypic with β - $\text{MnSO}_3 \cdot 3\text{H}_2\text{O}$. Dec. at 115° to mixture of $2\frac{1}{2}$ hydrate and the dihydrate

References:

Gmelin Handbook Inorg. Chem., Syst. No. 32, 1956, 935, (rev)

Pannetier, G. et al., Bull. Soc. Chim. Fr., 1964, 1749, (synth, thermal anal, powder struct, ir)

Nyberg, B. et al., Acta Chem. Scand., 1972, **26**, 857; 1973, **27**, 63; 857, (cryst struct, ir, $2\frac{1}{2}$ hydrate)

Quinones, H. et al., J. Inorg. Nucl. Chem., 1972, **34**, 2153, (synth, cryst struct)

Lutz, H.D. et al., Z. Naturforsch., B, 1977, **32**, 1230; 1980, **35**, 808, (ir, Raman, powder struct, thermal anal, phase system)

Lutz, H.D. et al., Thermochim. Acta, 1984, **74**, 323, (thermal anal, ir, Raman, anhydrous, mono and dihydrates)