



>>Entry Name: Zirconium sulfate

Synonym(s): Sulfuric acid zirconium(4+) salt, 9CI

CAS Registry Number: 14644-61-2

Related CAS Registry Numbers(s): 34806-73-0

$\text{Zr}(\text{SO}_4)_2$

Molecular Formula: $\text{O}_8\text{S}_2\text{Zr}$

Molecular Weight: 283.351

Accurate Mass: 281.808163

Percentage Composition: O 45.17%; S 22.63%; Zr 32.19%

Source/Synthesis: Synth. by heating the tetrahydrate to 380°

Physical Description: V. hygroscopic white microcrystalline powder

Solubility: Readily sol. H_2O , or by heating the tetrahydrate to 380°

Other Data: Dec. at 650° to give cubic ZrO_2

>>Variant: α -form

Molecular Formula: $\text{O}_8\text{S}_2\text{Zr}$

Molecular Weight: 283.351

Accurate Mass: 281.808163

Percentage Composition: O 45.17%; S 22.63%; Zr 32.19%

bonded to 4 Zr atoms, or to 3 Zr atoms leaving one terminal oxygen

Source/Synthesis: Synth. from $\text{Zr}(\text{SO}_4)_2 \cdot 4\text{H}_2\text{O}$ and H_2SO_4 at 350°

>>Derivative: Tetrahydrate

Synonym(s): Disulfatooxozirconic acid

CAS Registry Number: 7446-31-3

Molecular Formula: $\text{H}_8\text{O}_{12}\text{S}_2\text{Zr}$

Molecular Weight: 355.412

Accurate Mass: 353.850423

Percentage Composition: H 2.27%; O 54.02%; S 18.04%; Zr 25.67%

Source/Synthesis: Obt. by evaporating a soln. of ZrO_2 in H_2SO_4 , or from an aq. soln. of $\text{Zr}(\text{SO}_4)_2$, or from $\text{ZrOCl}_2 \cdot 8\text{H}_2\text{O} + \text{H}_2\text{SO}_4$

Physical Description: White cryst.

Other Data: May be formulated as $\text{H}_2\text{Zr}(\text{O})(\text{SO}_4)_2 \cdot 3\text{H}_2\text{O}$. Forms the monohydrate at 100°

References:

Clabaugh, W.S. *et al.*, *J.A.C.S.*, 1952, **74**, 2104-2105, (*synth*)

Staritsky, E. *et al.*, *Anal. Chem.*, 1956, **28**, 553-554, (*tetrahydrate, cryst struct*)

Gmelin Handbook Inorg. Chem., Syst. No. 42, Zirconium, 1958, 334-342, (*synth, props, hydrates*)

Blumenthal, W.B., *J. Chem. Educ.*, 1962, **39**, 604-610, (*synth, rev*)

Brauer, G., *Handb. Prep. Inorg. Chem., 2nd edn., Academic Press*, 1965, 1231-1232, (*synth*)

Bear, I.J. *et al.*, *Acta Cryst. B*, 1970, **26**, 1140-1145, (*α -form, synth, cryst struct*)

Chekmarev, A.M. *et al.*, *Koord. Khim.*, 1977, **3**, 211-215, (*ir*)

Chuvaev, V.F. *et al.*, *Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1978, **240**, 136-139; *CA*, **89**, 68096, (*pmr*)