



>>Entry Name: Beryllium sulfate (BeSO₄)

Synonym(s): Sulfuric acid, beryllium salt, 8Cl

CAS Registry Number: 13510-49-1

BeSO₄

Molecular Formula: BeO₄S

Molecular Weight: 105.076

Accurate Mass: 104.963912

Percentage Composition: Be 8.58%; O 60.91%; S 30.52%

General Statement: Struct. resembles BPO₄

Source/Synthesis: Prepd. by thermal dehyd. of the tetrahydrate *in vacuo*

Use/Importance: Cyclocondensation catalyst for conversion of anilines to indoles

Physical Description: Colourless tetragonal cryst., hygroscopic. Undergoes polymorphic transitions at 590° and 635°. On further heating dissociates without melting to BeO, SO₃, SO₂ and O₂

Solubility: Insol. H₂O

Other Data: $\Delta H_f^\circ -1201 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -1089 \text{ kJ mol}^{-1}$; $S^\circ 78 \text{ J K}^{-1} \text{ mol}^{-1}$

Hazard & Toxicity: Highly toxic, suspected carcinogen

>>Derivative: Monohydrate

CAS Registry Number: 14214-99-4

>>Derivative: Dihydrate

CAS Registry Number: 14215-00-0

>>Derivative: Tetrahydrate

Synonym(s): Tetraaquaberyllium(2+) sulfate

CAS Registry Number: 7787-56-6

Molecular Formula: BeH₈O₈S

Molecular Weight: 177.137

Accurate Mass: 177.006172

Percentage Composition: Be 5.09%; H 4.55%; O 72.26%; S 18.10%

Source/Synthesis: Synth. by cryst. from an aq. soln. of BeSO₄ obtained by careful neutralisation of BeO or Be(OH)₂ with aq. H₂SO₄

Use/Importance: Commercially available

Physical Description: Colourless tetragonal cryst. dec. on heating with H₂O loss (−2H₂O at 200°, −4H₂O at 400°)

Solubility: V. sol. H₂O (42.5 g per 100 cm³ at 25°; 100 g per 100 cm³ at 100°)

Other Data: Comprises [Be(H₂O)₄]²⁽⁺⁾ cations + SO₄²⁽⁻⁾ anions. Piezoelectric. $\Delta H_f^\circ -2424 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -2081 \text{ kJ mol}^{-1}$; $S^\circ 234 \text{ J K}^{-1} \text{ mol}^{-1}$

Hazard & Toxicity: Highly toxic; suspected carcinogen

Aldrich: 20278-9

Fluka: 14270

References:

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