



>>Entry Name: Barium sulfate, JAN, USAN

Synonym(s): Sulfuric acid, barium salt (1:1), 8Cl. Barosperse. Barotrast. Esophotrast. Oratrast. Travad. Many other names

CAS Registry Number: 7727-43-7

BaSO₄

Molecular Formula: BaO₄S

Molecular Weight: 233.391

Accurate Mass: 233.856962

Percentage Composition: Ba 58.84%; O 27.42%; S 13.74%

Source/Synthesis: Manuf. from barite by classical extraction methods

Use/Importance: Commercially available. Used for gravimetric detn. of barium. Used extensively as an inert filler material. Diagnostic acid (radiopaque medium). Used in thermoluminescent sheets, in form of Eu-doped powder homogeneously mixed with Teflon, for *in vivo* measurement of spatial dose distribution around a radioactive source

Physical Description: White orthorhombic cryst. Undergoes orthorhombic to monoclinic phase transition at 1149°

Melting Point: Mp 1580°

Solubility: Spar. sol. H₂O (0.000246 g per 100 cm³ at 25°; 0.000413 g per 100 cm³ at 100°)

Other Data: ΔH_f° -1473 kJ mol⁻¹; ΔG_f° -1362 kJ mol⁻¹; S° 132 J K⁻¹ mol⁻¹

Hazard & Toxicity: OES: long-term 2 mg m⁻³ (respirable dust)

Aldrich: 24335-3

Fluka: 11845

Sigma: B3758

>>Variant: Mineral-form

Synonym(s): Barite. Barytes

CAS Registry Number: 13462-86-7

Molecular Formula: BaO₄S

Molecular Weight: 233.391

Accurate Mass: 233.856962

Percentage Composition: Ba 58.84%; O 27.42%; S 13.74%

Source/Synthesis: Widespread occurrence in hydrothermal deposits

Physical Description: Colourless to greyish, yellowish to deep brown, bluish, greenish, reddish, tabular cryst.

References:

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 1259C, (*ir*)

Swanson, H.E. *et al.*, *Natl. Bur. Stand. Circ. (U.S.)*, 1954, **3**, 65, (*cryst struct*)

Sibbing, E., *Ind. Miner. (London)*, 1976, **101**, 33, (*rev, bibl*)

Dawson, P. *et al.*, *Spectrochim. Acta A*, 1977, **33**, 83, (*ir, Raman*)

Volz, F.E., *Appl. Opt.*, 1983, **22**, 1842, (*ir, reflectance*)

Bently, A. *et al.*, *Pharm. J.*, 1987, **1**, 138, (*pharmacol*)

Sigma-Aldrich Library of Chemical Safety Data, 1988, **2**, 337D, (*haz*)

Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 703

Iwata, K. *et al.*, *Sens. Actuators, A*, 1993, **36**, 127, (*use*)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, BAP000

Chemical Hazards of the Workplace, 3rd edn., (eds. Proctor, N.H. *et al*), Van Nostrand Reinhold, 1991, 100