



>>Entry Name: Barium bromide (BaBr₂), 8Cl

Synonym(s): Barium dibromide

CAS Registry Number: 10553-31-8

BaBr₂

Molecular Formula: BaBr₂

Molecular Weight: 297.135

Accurate Mass: 295.781904

Percentage Composition: Ba 46.22%; Br 53.78%

General Statement: PbCl₂ type struct.

Source/Synthesis: Prepd. by slow neutralisation of BaCO₃ with aq. HBr. Cryst. as hydrate. Thermal dec. affords anhyd. product

Use/Importance: Forms solid solns. with other alkaline earth metal halides which, when activated with Eu(2+), are used as image recording, storage and conversion systems

Physical Description: Colourless, orthorhombic cryst.

Melting Point: Mp 857°

Solubility: V. sol. H₂O (104 g per 100 cm³ at 20°; 149 g per 100 cm³ at 100°), EtOH, MeOH

Other Data: ΔH_f° -758 kJ mol⁻¹; ΔG_f° -738 kJ mol⁻¹; S° 149 J K⁻¹ mol⁻¹

Hazard & Toxicity: Highly toxic, irritant

Aldrich: 41360-7

>>Derivative: Monohydrate

CAS Registry Number: 33429-48-0

Molecular Formula: BaBr₂H₂O

Molecular Weight: 315.15

Percentage Composition: Ba 43.58%; Br 50.71%; H 0.64%; O 5.08%

Physical Description: Colourless, orthorhombic cryst.; dec. on heating with H₂O loss

>>Derivative: Dihydrate

CAS Registry Number: 7791-28-8

Molecular Formula: BaBr₂H₄O₂

Molecular Weight: 333.165

Accurate Mass: 331.803034

Percentage Composition: Ba 41.22%; Br 47.97%; H 1.21%; O 9.60%

Source/Synthesis: Cryst. from aq. solns. of BaBr₂

Use/Importance: Commercially available

Physical Description: Colourless, monoclinic cryst.; dec. on heating with H₂O loss (-H₂O at 75°; -2H₂O at 120°)

Solubility: V. sol. H₂O (151 g per 100 cm³ at 20°; 204 g per 100 cm³ at 100°), EtOH, MeOH

Other Data: ΔH_f° -1366 kJ mol⁻¹; ΔG_f° -1231 kJ mol⁻¹; S° 226 J K⁻¹ mol⁻¹

Hazard & Toxicity: Highly toxic, irritant

Aldrich: 22172-4

Fluka: 11727

Sigma: B8383

References:

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Lutz, H.D. *et al.*, *J. Mol. Struct.*, 1982, **96**, 61; 1983, **101**, 199, (*monohydrate, ir, Raman*)
Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 322, (*thermochem data*)
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