



>>Entry Name: Barium chlorate (Ba(ClO₃)₂)

Synonym(s): Chloric(V) acid, barium salt, 8Cl

CAS Registry Number: 13477-00-4

Ba(ClO₃)₂

Molecular Formula: BaCl₂O₆

Molecular Weight: 304.229

Accurate Mass: 303.812426

Percentage Composition: Ba 45.14%; Cl 23.31%; O 31.55%

Source/Synthesis: Prepd. by slow neutralisation of BaCO₃ with aq. HClO₃. Cryst. as monohydrate. Thermal dec. under vacuum yields anhyd. material

Use/Importance: Component of fireworks giving green colouration to flames. Heat stabiliser and antioxidant for synthetic rubbers and pvc's

Physical Description: Colourless, orthorhombic cryst.

Melting Point: Mp 414°

Other Data: ΔH_f° -763 kJ mol⁻¹; ΔG_f° -557 kJ mol⁻¹; S° 231 J K⁻¹ mol⁻¹

Hazard & Toxicity: Oxidiser, highly toxic

>>Derivative: Monohydrate

CAS Registry Number: 10294-38-9

Molecular Formula: BaCl₂H₂O₇

Molecular Weight: 322.244

Accurate Mass: 321.822991

Percentage Composition: Ba 42.62%; Cl 22.00%; H 0.63%; O 34.75%

Use/Importance: Commercially available

Physical Description: Colourless, monoclinic cryst., dec. on heating by H₂O loss (-H₂O at 120°)

Solubility: V. sol. H₂O (27.4 g per 100 cm³ at 15°; 111.2 g per 100 cm³ at 100°); spar. sol. EtOH, Me₂CO

Other Data: ΔH_f° -1069 kJ mol⁻¹

Hazard & Toxicity: Oxidiser, highly toxic

Aldrich: 24455-4

Fluka: 11750

Sigma: B6541

References:

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Lutz, H.D. *et al.*, *Spectrochim. Acta A*, 1985, **41**, 637, (*monohydrate, ir, Raman*)

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Krishnan, V. *et al.*, *Z. Naturforsch., A*, 1986, **41**, 338, (*monohydrate, nqr*)

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