



>>Entry Name: Sodium bromate(V)

Synonym(s): Bromic(V) acid, sodium salt, 8Cl

CAS Registry Number: 7789-38-0

NaBrO₃

Molecular Formula: BrNaO₃

Molecular Weight: 150.892

Accurate Mass: 149.912848

Percentage Composition: Br 52.95%; Na 15.24%; O 31.81%

Source/Synthesis: Manuf. by electrolysis of aq. NaBr. Synth. (with NaBr) by adding bromine to aq. NaOH. Also prepared by mixing aq. solns. of Na₂SO₄ and Ba(BrO₃)₂

Use/Importance: Commercially available. Component of oxidising solns. Used to set hair. Component of the Belousov-Zhabotinskii oscillating reaction (malonic acid, H₂SO₄, Ce₂(SO₄)₃, [or [Fe(bipy)₃]²⁽⁺⁾] and NaBrO₃)

Physical Description: Colourless cubic cryst. Dec. on heating with O₂ evolution and formation of NaBr

Solubility: V. sol. H₂O (28 g per 100 cm³ at 0°; 91 g per 100 cm³ at 100°); insol. EtOH

Other Data: ΔH_f° -334 kJ mol⁻¹; ΔG_f° -243 kJ mol⁻¹; S° 129 JK⁻¹ mol⁻¹

Hazard & Toxicity: Oxidiser, irritant

Aldrich: 22487-1

Fluka: 71325

References:

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 1254C, (ir)

Figgis, B.N. *et al.*, *Proc. R. Soc. London, A*, 1962, **269**, 469, (O-17 nmr)

Gmelin Handbook Inorg. Chem., Syst. No. 21, 1970, **5**, 1803, (rev, bibl)

Sterzel, W. *et al.*, *Z. Anorg. Allg. Chem.*, 1971, **383**, 231, (ir)

Kondilenko, I.I. *et al.*, *Opt. Spektrosk.*, 1975, **38**, 689, (Raman)

Abrahams, S.C. *et al.*, *Acta Cryst. B*, 1977, **33**, 3601, (cryst struct)

Bachelart, S. *et al.*, *CA*, 1982, **96**, 149841, (oscillating reaction)

Oldfield, E. *et al.*, *J.A.C.S.*, 1982, **104**, 919, (Na-23 nmr)

Kovalenko, A.S. *et al.*, *Teor. Eksp. Khim.*, 1985, **21**, 669, (oscillating reaction)

Sigma-Aldrich Library of Chemical Safety Data, 1988, **2**, 3134A, (haz)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, SFG000