



>>Entry Name: Sodium carbonate (Na₂CO₃) decahydrate

Synonym(s): Carbonic acid, disodium salt, decahydrate, 8Cl. Washing soda

CAS Registry Number: 6132-02-1

Na₂CO₃·10H₂O

Molecular Formula: CH₂₀Na₂O₁₃

Molecular Weight: 286.141

Accurate Mass: 286.069929

Percentage Composition: C 4.20%; H 7.04%; Na 16.07%; O 72.69%

Source/Synthesis: Synth. by cryst. from aq. Na₂CO₃

Use/Importance: Heat storage material. Commercially available

Physical Description: White efflorescent monoclinic cryst. Dec. on heating by H₂O loss giving the monohydrate and the anhydrous material

Solubility: V. sol. H₂O (22 g per 100 cm³ at 0°; 421 g per 100 cm³ at 104°); insol. EtOH

Other Data: ΔH_f° -4082.5 kJ mol⁻¹; ΔG_f° -3424.3 kJ mol⁻¹; S° 53.6 J K⁻¹ mol⁻¹

Fluka: 71360

References:

Bauer, T.W. *et al.*, *Can. J. Chem.*, 1952, **30**, 76, (*thermodyn data*)

Buijs, K., *Spectrochim. Acta*, 1961, **17**, 917, (*ir*)

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Rinne, M. *et al.*, *Bull. Soc. R. Sci. Liege*, 1967, **36**, 328; *CA*, 1968, **68**, 110101, (*Na-23 nmr*)

Groenvold, F. *et al.*, *J. Chem. Thermodyn.*, 1983, **15**, 881, (*cryst struct*)

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