



>>Entry Name: Disodium pyrophosphate, 8Cl

ENTRY UNDER REVIEW

Synonym(s): Disodium diphosphate, 9Cl. Disodium dihydrogen diphosphate. Sodium phosphate ($\text{Na}_2\text{H}_2\text{P}_2\text{O}_7$). Sodium acid pyrophosphate. E450a

CAS Registry Number: 7758-16-9

Type of Compound Code(s): WC2400 WC4300 WC0400 WC3600

$\text{Na}_2\text{H}_2\text{P}_2\text{O}_7$

Molecular Formula: $\text{H}_2\text{Na}_2\text{O}_7\text{P}_2$

Molecular Weight: 221.938

Accurate Mass: 221.907113

Percentage Composition: H 0.91%; Na 20.72%; O 50.46%; P 27.91%

Source/Synthesis: Synth. from Sodium diphosphate ($\text{Na}_4(\text{P}_2\text{O}_7)$) [HTW34-S](#) + AcOH

Use/Importance: Employed in food processing as preservative. Also in dentifrices, corrosion inhibitors and detergents

Physical Description: Monoclinic lattice

Aldrich: 34073-1

Fluka: 71501

Sigma: P8135

>>Derivative: Hexahydrate

CAS Registry Number: 13510-98-0

Molecular Formula: $\text{H}_{14}\text{Na}_2\text{O}_{13}\text{P}_2$

Molecular Weight: 330.03

Accurate Mass: 329.970503

Percentage Composition: H 4.28%; Na 13.93%; O 63.02%; P 18.77%

Source/Synthesis: Synth. from Diphosphoric acid [HTV84-C](#) + aq. NaOH or aq. Na_2CO_3

>>Variant: α -form

Molecular Formula: $\text{H}_2\text{Na}_2\text{O}_7\text{P}_2$

Molecular Weight: 221.938

Accurate Mass: 221.907113

Percentage Composition: H 0.91%; Na 20.72%; O 50.46%; P 27.91%

Source/Synthesis: Obt. from the hexahydrate at 100° in H_2O vap. atmos. or from Sodium phosphate ($\text{Na}(\text{H}_2\text{PO}_4)$) [HTN10-P](#) when heated in H_2O vap.

>>Variant: β -form

Molecular Formula: $\text{H}_2\text{Na}_2\text{O}_7\text{P}_2$

Molecular Weight: 221.938

Accurate Mass: 221.907113

Percentage Composition: H 0.91%; Na 20.72%; O 50.46%; P 27.91%

Source/Synthesis: Obt. by desiccation of hexahydrate at ambient temp. in absence of H_2O vap.

>>Variant: β^1 -form

Molecular Formula: $\text{H}_2\text{Na}_2\text{O}_7\text{P}_2$

Molecular Weight: 221.938

Accurate Mass: 221.907113

Percentage Composition: H 0.91%; Na 20.72%; O 50.46%; P 27.91%

Source/Synthesis: Obt. by heating Sodium phosphate ($\text{Na}(\text{H}_2\text{PO}_4)$) [HTN10-P](#) in absence of H_2O vap.

References:

Collin, R.L. *et al.*, *Acta Cryst. B*, 1971, **27**, 291, (*cryst struct*)

De Sallier-Dupin, A. *et al.*, *Bull. Soc. Chim. Fr.*, 1975, 1105; 1976, 417; 1977, 629, (*synth, props*)

Griffiths, L. *et al.*, *J.C.S. Dalton*, 1986, 2247, (*P-31 nmr*)

Marshall, W.L. *et al.*, *J.C.S. Faraday 2*, 1989, **85**, 1963, (*Raman*)

Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2519

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, DXF800