



>>Entry Name: Disodium phosphorofluoridate, 9Cl, 8Cl

Synonym(s): Sodium monofluorophosphate(V). Disodium fluorotrioxophosphate(V)

CAS Registry Number: 10163-15-2

Extra CAS Registry Numbers(s): 7631-97-2

$\text{Na}_2[\text{P}(\text{O})_3\text{F}]$

Molecular Formula: $\text{FNa}_2\text{O}_3\text{P}$

Molecular Weight: 143.95

Accurate Mass: 143.936444

Percentage Composition: F 13.20%; Na 31.94%; O 33.34%; P 21.52%

Source/Synthesis: Synth. from $\text{HF} + \text{NaPO}_3$, or $\text{Na}_4\text{P}_2\text{O}_7$; or from $\text{NaF} + \text{NaPO}_3$ or $\text{Na}_3\text{P}_3\text{O}_9$; or from $\text{Ag}_2\text{PO}_3\text{F} + \text{NaCl}$

Use/Importance: Caries inhibiting component in toothpaste

Melting Point: $\text{Mp } 625^\circ$

Solubility: Sol. H_2O (4 g per 100 cm^3). Insol. EtOH, Et_2O

Other Data: In H_2O at *ca.* $400^\circ \rightarrow \text{HF} + \text{diphosphate}$

Aldrich: 34444-3

Fluka: 71528

>>Derivative: Decahydrate

Source/Synthesis: Formed from aq. solns. at $0-5^\circ$

>>Variant: α -form

Molecular Formula: $\text{FNa}_2\text{O}_3\text{P}$

Molecular Weight: 143.95

Accurate Mass: 143.936444

Percentage Composition: F 13.20%; Na 31.94%; O 33.34%; P 21.52%

General Statement: Orthorhombic

Source/Synthesis: Synth. by dehydration of hydrate

>>Variant: β -form

Molecular Formula: $\text{FNa}_2\text{O}_3\text{P}$

Molecular Weight: 143.95

Accurate Mass: 143.936444

Percentage Composition: F 13.20%; Na 31.94%; O 33.34%; P 21.52%

General Statement: Orthorhombic. The Na coordination polyhedron is a distorted octahedron. Struct. contains two types of PO_3F tetrahedra

Source/Synthesis: Synth. by cryst. from aq. soln. at $<20^\circ$

References:

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Kirillov, S.A. *et al.*, *Zh. Neorg. Khim.*, 1982, **27**, 25; *Russ. J. Inorg. Chem. (Engl. Transl.)*, 1982, **27**, 14, (*ir, Raman*)

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