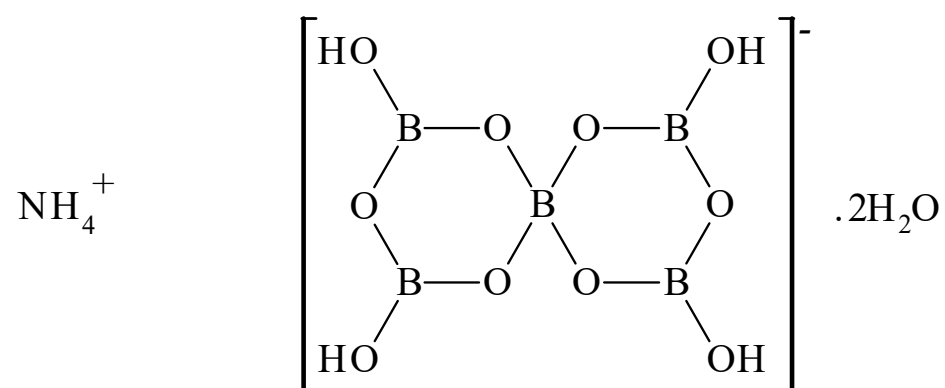




>>Entry Name: Ammonium pentaborate tetrahydrate, 10CI



CAS Registry Number: 12229-12-8

Molecular Formula: B₅H₁₂NO₁₂

Molecular Weight: 272.149

Accurate Mass: 273.082479

Percentage Composition: B 19.86%; H 4.44%; N 5.15%; O 70.55%

General Statement: Also formulated (NH₄)B₅O₈·4H₂O or (NH₄)₂O·5B₂O₃·8H₂O

Use/Importance: Used in flameproofing materials and in electrolytic capacitors. Has interesting optical props.

Physical Description: Colourless cryst. known in α- and β-forms

Solubility: Sol. H₂O

Other Data: Loses H₂O more easily than NH₃ on heating. At 50° about 75% H₂O is lost compared to <1% NH₃

>>Variant: Mineral-form

Synonym(s): Larderellite

Molecular Formula: B₅H₁₂NO₁₂

Molecular Weight: 272.149

Accurate Mass: 273.082479

Percentage Composition: B 19.86%; H 4.44%; N 5.15%; O 70.55%

General Statement: Has also been formulated (NH₄)B₅O₆(OH)₄

Source/Synthesis: Occurs in boric acid lagoon at Larderello, Italy

Physical Description: Microscopic white cryst.

References:

- Tolédano, P. *et al.*, *C. R. Hebd. Seances Acad. Sci. Ser. C*, 1968, **266**, 1155, (*synth*)
Janda, R. *et al.*, *Z. Naturforsch., B*, 1979, **34**, 1078, (*B-11 nmr*)
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Janda, R. *et al.*, *Spectrochim. Acta A*, 1980, **36**, 997, (*ir, Raman*)
Domenechea, M.V., *Acta Cryst. B*, 1981, **37**, 643, (*cryst struct*)
Solans, X. *et al.*, *J. Appl. Crystallogr.*, 1983, **16**, 637, (*optical props*)