



>>Entry Name: Ammonium iron(III) sulfate ((NH₄)Fe(SO₄)₂)

Synonym(s): Ferric ammonium sulfate. Iron(III) ammonium sulfate

CAS Registry Number: 10138-04-2

Fe(NH₄)(SO₄)₂

Molecular Formula: FeH₄NO₈S₂

Molecular Weight: 266.013

Accurate Mass: 265.872773

Percentage Composition: Fe 20.99%; H 1.52%; N 5.27%; O 48.12%; S 24.11%

General Statement: Formulated as (NH₄)₂SO₄·Fe₂(SO₄)₃

Use/Importance: Polym. catalyst. Chemical analyte

Physical Description: White cryst.

Solubility: Sol. H₂O

Other Data: $\mu_{\text{eff}} = 5.8\mu_{\text{B}}$ (29K). Dec. at 420°

>>Derivative: Dodecahydrate

Synonym(s): Iron alum. Alum. Ferric ammonium alum. Ammonio ferric sulfate

CAS Registry Number: 7783-83-7

Molecular Formula: FeH₂₈NO₂₀S₂

Molecular Weight: 482.195

Accurate Mass: 481.999553

Percentage Composition: Fe 11.58%; H 5.85%; N 2.90%; O 66.36%; S 13.30%

Use/Importance: Convenient commercial Fe(III) source; mordant; analytical reagent; styptic, astringent; fireproofing agent

Physical Description: Lilac to violet, efflorescent cryst. (H₂O); yellow when aged

Melting Point: Mp 39-41°

Solubility: Sol. H₂O; insol. EtOH; aq. soln. turns brown due to hydrolysis

Other Data: $\mu_{\text{eff}} = 5.89\mu_{\text{B}}$. Formulated as [Fe(OH₂)₆](NH₄)(SO₄)₂·6H₂O. Loses 12H₂O at 230°

Aldrich: 22126-0

Fluka: 9731

Sigma: F8884

References:

Gmelin Handbook Inorg. Chem., Syst. No. 59, 1929, 1014, (rev, bibl)

Figgis, B.N. *et al.*, *Prog. Inorg. Chem.*, 1964, **6**, 168, (magnetism)

Roch, J. *et al.*, *Rev. Phys. Appl.*, 1971, **6**, 247, (epr)

Dezsi, I. *et al.*, *J. Phys. (Paris)*, 1974, 449, (magnetism, Mössbauer)

Moerup, S., *J. Phys. (Paris)*, 1974, 683, (Mössbauer)

Belyakova, E.P. *et al.*, *Ukr. Khim. Zh. (Russ. edn.)*, 1974, **40**, 44; *CA*, **80**, 122879, (thermal hydrol)