



>>Entry Name: **Iron(III) nitrate (Fe(NO₃)₃)**

Synonym(s): Ferric nitrate

CAS Registry Number: 10421-48-4

Related CAS Registry Numbers(s): 14104-77-9 60803-54-5

Fe(NO₃)₃

Molecular Formula: FeN₃O₉

Molecular Weight: 241.862

Accurate Mass: 241.898396

Use/Importance: Catalyst. Mordant; reagent, corrosion inhibitor; fertiliser

>>Derivative: Hexahydrate

Synonym(s): Hexaaquairon(3+) nitrate. Ferric nitrate hexahydrate

CAS Registry Number: 13476-08-9

Molecular Formula: FeH₁₂N₃O₁₅

Molecular Weight: 349.953

Accurate Mass: 349.961786

Percentage Composition: Fe 15.96%; H 3.46%; N 12.01%; O 68.58%

Source/Synthesis: Synth. from Fe₂O₃.*n*H₂O + HNO₃

Physical Description: Violet cubic cryst., aq. solns. usually brown

Melting Point: Mp 35°

Solubility: V. sol. H₂O

Other Data: Dec. at Bp

>>Derivative: Nonahydrate

Synonym(s): Hexaaquairon(3+) nitrate trihydrate. Ferric nitrate nonahydrate

CAS Registry Number: 7782-61-8

Molecular Formula: FeH₁₈N₃O₁₈

Molecular Weight: 403.999

Accurate Mass: 403.993481

Percentage Composition: Fe 13.82%; H 4.49%; N 10.40%; O 71.28%

Source/Synthesis: Obt. by action of conc. HNO₃ on Fe, or iron oxides

Use/Importance: Commercially available. Used in dyeing; tanning; analytical chem., as an oxidising agent

Physical Description: Colourless to pale violet deliquescent cryst. (H₂O); gives brown soln.

Melting Point: Mp 47.2°

Solubility: Sol. H₂O, EtOH, Me₂CO; sl. sol. HNO₃. Source of [Fe(OH₂)₆]³⁽⁺⁾ in aq. soln.

Other Data: Dec. at 125°

Hazard & Toxicity: Irritant; oxidant. Fire risk when in contact with organic chemicals

Aldrich: 21682-8

Fluka: 44952

Sigma: F8508

>>Derivative: N₂O₄ complex

>>Derivative: Pentakis(tetrathiafulvalene) complex

Source/Synthesis: Synth. from Fe(NO₃)₃.9H₂O in MeOH and excess tetrathiafulvalere

Use/Importance: Charge transfer compd.

Physical Description: Dark purple solid

Other Data: μ_{eff} 0.62μ_B (300K), 0.34μ_B (80K); low spin Fe^{II}. Conductivity (r.t.) 77 S cm⁻¹

References: