



>>Entry Name: Neodymium(III) chloride (NdCl₃)

Synonym(s): Neodymium trichloride

CAS Registry Number: 10024-93-8

NdCl₃

Molecular Formula: Cl₃Nd

Molecular Weight: 250.598

Accurate Mass: 246.814275

Percentage Composition: Cl 42.44%; Nd 57.56%

Physical Description: V. hygroscopic rose-violet cryst.

Melting Point: Mp 784° (758°)

Boiling Point: Bp 1600° (1690°)

Solubility: Sol. H₂O, EtOH

Other Data: Magnetically ordered <0.5K. Obeys Curie-Weiss Law 77-480K

Aldrich: 44994-6

>>Derivative: Hexahydrate

Synonym(s): Hexaaquadichloroneodymium(1+) chloride

CAS Registry Number: 13477-89-9

Molecular Formula: Cl₃H₁₂NdO₆

Molecular Weight: 358.689

Accurate Mass: 354.877665

Percentage Composition: Cl 29.65%; H 3.37%; Nd 40.21%; O 26.76%

Physical Description: Rose-pink rhombic cryst.

Melting Point: Mp 127° (124°)

Solubility: Sol. H₂O, EtOH

Other Data: Formulated as [NdCl₂(OH₂)₆]⁽⁺⁾Cl⁽⁻⁾, but struct. may change in soln.

Aldrich: 28918-3

Fluka: 72110

>>Derivative: Bis-THF complex

Synonym(s): Trichlorobis(tetrahydrofuran)neodymium, 12Cl

CAS Registry Number: 81009-70-3

Molecular Formula: C₈H₁₆Cl₃NdO₂

Molecular Weight: 394.811

Accurate Mass: 390.929305

Percentage Composition: C 24.34%; H 4.08%; Cl 26.94%; Nd 36.53%; O 8.10%

Source/Synthesis: Synth. from Nd and C₂Cl₆ in THF under ultrasonic irradiation, or by extraction of NdCl₃ with THF

Use/Importance: Soluble form of NdCl₃ useful in synth. Used in catalyst systems for stereospecific polym. of butadiene and isoprene

Physical Description: Moisture-sensitive bright violet cryst.

Other Data: Loses 1.5 THF at 60-80°

>>Derivative: Tetrakis-THF complex

Synonym(s): Trichlorotetrakis(tetrahydrofuran)neodymium

CAS Registry Number: 110752-61-9

Molecular Formula: C₁₆H₃₂Cl₃NdO₄

Molecular Weight: 539.025

Accurate Mass: 535.044335

Percentage Composition: C 35.65%; H 5.98%; Cl 19.73%; Nd 26.76%; O 11.87%

Use/Importance: Enables purification from oxychloride. Useful starting material. Diene polym. catalyst (in conjunction with Al alkyls)

Physical Description: Purple cryst.

Solubility: Sol. THF

Other Data: 7-Coord. pentagonal bipyrimidal struct. Also reported as 2:1 complex. Loses THF on heating at *ca.* 100°

References: