



>>Entry Name: Tetraammineplatinum(II)(2+)

CAS Registry Number: 16455-68-8

$[\text{Pt}(\text{NH}_3)_4]^{2(+)}$

Molecular Formula: $\text{H}_{12}\text{N}_4\text{Pt}^{2(+)}$

Molecular Weight: 263.202

Accurate Mass: 263.070962

Percentage Composition: H 4.60%; N 21.29%; Pt 74.12%

>>Derivative: Dichloride

CAS Registry Number: 13933-32-9

Extra CAS Registry Numbers(s): 13933-33-0

Molecular Formula: $\text{Cl}_2\text{H}_{12}\text{N}_4\text{Pt}$

Molecular Weight: 334.107

Accurate Mass: 333.008666

Percentage Composition: Cl 21.22%; H 3.62%; N 16.77%; Pt 58.39%

Source/Synthesis: Synth. from H_2PtCl_6 , SO_2 , NH_3 and HCl

Physical Description: Colourless cryst. + $1\text{H}_2\text{O}$ (H_2O), stable at r.t.

Solubility: Mod. sol. H_2O

>>Derivative: Dinitrate

Synonym(s): Tetraammineplatinum(II) nitrate

CAS Registry Number: 20634-12-2

Aldrich: 27872-6

>>Derivative: Tetrachloroplatinate, green-form

Synonym(s): Magnus' green salt

CAS Registry Number: 13820-46-7

Molecular Formula: $\text{Cl}_4\text{H}_{12}\text{N}_4\text{Pt}_2$

Molecular Weight: 600.092

Accurate Mass: 597.911136

Percentage Composition: Cl 23.63%; H 2.02%; N 9.34%; Pt 65.02%

Source/Synthesis: Synth. from K_2PtCl_4 and $\text{Pt}(\text{NH}_3)_4\text{Cl}_2$ (can also give pink modification, no specific method for either modification)

Physical Description: Dark green cryst.

Solubility: Generally v. insol.

Other Data: Consists of alternate sq. planar anions and cations stacked one above the other, unusual spectral props., anisotropic electrical and photoconductivity presumably due to metal-metal bonding

Aldrich: 46476-7

>>Derivative: Tetrachloroplatinate, pink-form

Source/Synthesis: Synth. as for green-form

Physical Description: Pink cryst.

Other Data: Converts into green modification on boiling with H_2O , cryst. struct. and chemical props. same as green modification

>>Derivative: Double salt with *catena*-tetraammine- μ -dibromoplatinum(2+) tetrakis(hydrogen sulfate)

>>Derivative: Double salt with tetraamminedichloroplatinum(IV) (2+)

References:

Gmelin Handbook Inorg. Chem., Syst. No. 68, 1957, 44, (synth, props, cryst struct)

Miller, J.R., Proc. Chem. Soc., London, 1960, 318, (props, $\text{PtCl}_4^{2(-)}$ salt)

Day, P. et al., J. Chem. Phys., 1965, **42**, 1973, (uv, $\text{PtCl}_4^{2(-)}$ salt)

Interrante, L.V. et al., Chem. Comm., 1970, 584, (uv, cryst struct, $\text{PtCl}_4^{2(-)}$ salt)

Adams, D.M. et al., J.C.S. Dalton, 1973, 1450, (ir, Raman, $\text{PtCl}_4^{2(-)}$ salt)

Clark, R.J.H. et al., J.C.S. Dalton, 1982, 2505, (synth, props, uv, ir, cryst struct, mixed valence deriv)