



>>Entry Name: Praseodymium(III) perchlorate

Synonym(s): Praseodymium triperchlorate

CAS Registry Number: 13498-07-2

Related CAS Registry Numbers(s): 39609-94-4 39758-81-1 51411-03-1

$\text{Pr}(\text{ClO}_4)_3$

Molecular Formula: $\text{Cl}_3\text{O}_{12}\text{Pr}$

Molecular Weight: 439.259

Accurate Mass: 437.753083

Percentage Composition: Cl 24.21%; O 43.71%; Pr 32.08%

Source/Synthesis: Synth. from $\text{Pr}_6\text{O}_{11} + \text{Cl}_2\text{O}_6$, followed by desolvation of resulting $\text{Pr}(\text{ClO}_4)_3 \cdot \text{Cl}_2\text{O}_6$ at 50°, or by dehydration of hydrates at 200-250° in Ar

Physical Description: Yellow-green solid

Solubility: Sol. H_2O

Other Data: Dec. to Pr_2O_3 at 295°. Fluorescent. Several hydrates known

Hazard & Toxicity: Potentially explosive

Aldrich: 44390-5

>>Derivative: Hexahydrate

Synonym(s): Hexaaquapraseodymium(3+) perchlorate

Molecular Formula: $\text{Cl}_3\text{H}_{12}\text{O}_{18}\text{Pr}$

Molecular Weight: 547.35

Accurate Mass: 545.816473

Percentage Composition: Cl 19.43%; H 2.21%; O 52.62%; Pr 25.74%

Physical Description: Hygroscopic green cryst.

Solubility: Sol. H_2O , EtOH

Other Data: Isomorphous with La analogue; contains 6-coord. $[\text{Pr}(\text{OH}_2)_6]^{3(+)}$ ions. Loses H_2O at 200° *in vacuo*

>>Derivative: Octahydrate

CAS Registry Number: 14692-23-0

Molecular Formula: $\text{Cl}_3\text{H}_{16}\text{O}_{20}\text{Pr}$

Molecular Weight: 583.38

Accurate Mass: 581.837603

Percentage Composition: Cl 18.23%; H 2.76%; O 54.85%; Pr 24.15%

Source/Synthesis: Synth. from $\text{Pr}_2(\text{SO}_4)_3$ and $\text{Ba}(\text{ClO}_4)_2$, or from Pr_2O_3 and HClO_4

Physical Description: Cryst.

Solubility: Sol. H_2O

Other Data: Loses H_2O on heating >68°

References:

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Krishnamurthy, V.N. *et al.*, *Z. Anorg. Allg. Chem.*, 1967, **349**, 220
Forsberg, J.H. *et al.*, *Inorg. Chem.*, 1969, **8**, 883, (*synth*)
Birnbaum, E.R. *et al.*, *Inorg. Chem.*, 1973, **12**, 379, (*synth*)
Gmelin Handbook Inorg. Chem., Syst. No. 39, 1977, **C5**, 83; 112, (*rev, bibl*)
Glaser, J. *et al.*, *Acta Chem. Scand., Ser. A*, 1981, **35**, 639, (*synth, struct*)
Pascal, J.L. *et al.*, *Can. J. Chem.*, 1994, **72**, 2044, (*synth, ir, exafs, Raman*)
Wickleder, M.S. *et al.*, *Z. Anorg. Allg. Chem.*, 1999, **625**, 309-312, (*synth, xrd, anhyd*)