



>>Entry Name: Lanthanum nitrate

Synonym(s): Trinitratolanthanum

CAS Registry Number: 10099-59-9

Related CAS Registry Numbers(s): 10277-43-7 36788-95-1 68811-97-2

$\text{La}(\text{NO}_3)_3$

Molecular Formula: LaN_3O_9

Molecular Weight: 324.92

Accurate Mass: 324.869804

Percentage Composition: La 42.75%; N 12.93%; O 44.32%

Physical Description: Hygroscopic white solid

Solubility: Sol. H_2O , EtOH

Other Data: Usually forms hexahydrate. Tetra- and pentahydrates also reported

>>Derivative: Hexahydrate

Synonym(s): Lanthanum nitrate hexahydrate

CAS Registry Number: 10277-43-7

Molecular Formula: $\text{H}_{12}\text{LaN}_3\text{O}_{15}$

Molecular Weight: 433.011

Accurate Mass: 432.933194

Percentage Composition: H 2.79%; La 32.08%; N 9.70%; O 55.42%

Use/Importance: Commercially available

Physical Description: Deliquescent colourless cryst.

Melting Point: Mp 40° (66.5°)

Boiling Point: Bp 126° dec.

Solubility: Sol. H_2O , EtOH, Me_2CO

Other Data: 11-Coord., contains $\text{La}(\text{NO}_3)_3(\text{H}_2\text{O})_5$ molecules; isostructural with Ce analogue

Aldrich: 33193-7

Fluka: 61520

Sigma: L2388

>>Derivative: Tris(hexamethylphosphoric triamide-O) complex

CAS Registry Number: 81448-71-7

Molecular Formula: $\text{C}_{18}\text{H}_{54}\text{LaN}_{12}\text{O}_{12}\text{P}_3$

Molecular Weight: 862.524

Accurate Mass: 862.226051

Percentage Composition: C 25.07%; H 6.31%; La 16.10%; N 19.49%; O 22.26%; P 10.77%

Source/Synthesis: Synth. from the tetrahydrate and HMPA, followed by addn. of Et_2O

Use/Importance: Catalyses oxidn. of alkenes to hydroperoxides

Physical Description: Colourless cryst.

Melting Point: Mp 213-214° (193-194°)

Solubility: Sol. toluene

Other Data: 9-Coord. tricapped trigonal prismatic La. Can also be obt. as 4:1 complex. Diamagnetic

References:

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 1242C, (ir)

De Marignac, J.C.G., *Ann. Chim. Phys.*, 1873, **30**, 67, (synth)

Marsh, J.K., *J.C.S.*, 1941, 561, (synth)

Wendlandt, W.W., *Anal. Chim. Acta*, 1956, **15**, 435, (synth, dta)

Inorg. Synth., 1957, **5**, 37, (synth)

Walker, A. *et al.*, *J. Chem. Phys.*, 1965, **43**, 2689, (ir)

Mironov, K.E. *et al.*, *Russ. J. Inorg. Chem. (Engl. Transl.)*, 1969, **14**, 165, (synth)

Sylvanovich, J.A. *et al.*, *J. Inorg. Nucl. Chem.*, 1972, **34**, 1675, (synth, ir, Raman, deriv)

Brauer, G., *Handbuch Prap. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **2**, 1109, (synth)

Sinha, S.P., *Z. Anorg. Allg. Chem.*, 1977, **434**, 277, (synth, HMPA complex)

U.S. Pat., 1978, 4 104 312; *CA*, **90**, 54548, (use, deriv)

Eriksson, B. *et al.*, *Inorg. Chem.*, 1980, **19**, 1207, (synth, cryst struct)

Tsintsadze, G.V. *et al.*, *Koord. Khim.*, 1982, **8**, 367; *Sov. J. Coord. Chem. (Engl. Transl.)*, 1982, **8**, 195, (cryst struct, HMPA complex)

Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1984, **11**, 283, (use)

Skopenko, V.V. *et al.*, *Koord. Khim.*, 1985, **11**, 182; *Sov. J. Coord. Chem. (Engl. Transl.)*, 1985, **11**, 95, (synth, ir, deriv)

Barr, D. *et al.*, *Angew. Chem., Int. Ed.*, 1990, **29**, 285, (synth, struct, deriv)