



>>Entry Name: Tris(2,2,6,6-tetramethyl-3,5-heptanedionato-*O,O'*)yttrium

Synonym(s): Tris(dipivaloylmethanido)yttrium. Yttrium(*III*) dipivaloylmethanide. Y(thd)₃

CAS Registry Number: 15632-39-0

As Tris(2,2,6,6-tetramethyl-3,5-heptanedionato-*O,O'*)chromium(*III*), [HXL76-F](#) with
M = Y

Molecular Formula: C₃₃H₅₇O₆Y

Molecular Weight: 638.716

Accurate Mass: 638.321364

Percentage Composition: C 62.06%; H 8.99%; O 15.03%; Y 13.92%

Source/Synthesis: Obt. on dehydration of hydrate on subl. *in vacuo*

Use/Importance: Commercially available. Used to deposit luminescent films from vapour phase. Tested as potential antiknock agent

Physical Description: White cryst.

Melting Point: Mp 169-172.5°. Mp 168.4°

Boiling Point: Subl._{0.05} 95°

Solubility: Sol. C₆H₆, Me₂CO

Other Data: Dec. >290°. Monomeric in C₆H₆ (cryst.)

Aldrich: 37382-6

Other: Gelest AKY932

>>Derivative: Dimer

Molecular Formula: C₆₆H₁₁₄O₁₂Y₂

Molecular Weight: 1277.431

Accurate Mass: 1276.642728

Percentage Composition: C 62.06%; H 8.99%; O 15.03%; Y 13.92%

Physical Description: Cryst.

Other Data: 7-Coord. Y with two bridging oxygens (Y-Y 382 pm)

>>Derivative: Dimer, dihydrate

Molecular Formula: C₆₆H₁₁₈O₁₄Y₂

Molecular Weight: 1313.462

Percentage Composition: C 60.35%; H 9.05%; O 17.05%; Y 13.54%

Source/Synthesis: Synth. from ligand, NaOH and Y(NO₃)₃·3.5H₂O in aq. EtOH

Physical Description: White cryst.

Melting Point: Mp 170.9°

Solubility: Sol. hexane, C₆H₆

Other Data: Contains 7-coord. Y with approx. monocapped trigonal antiprismatic geometry

References:

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 755C, (*nmr*)

Eisentraut, K.J. *et al.*, *J.A.C.S.*, 1965, **87**, 5254, (*synth, pmr*)

Inorg. Synth., 1968, **11**, 94; 1997, **31**, 302-306, (*synth, ir, uv, pmr, cmr, ms*)

Fr. Pat., 1975, 2 256 164; *CA*, **84**, 92568b, (*use*)

U.S. Pat., 1975, 3 894 164; *CA*, **83**, 124957a, (*use*)

Shibata, S. *et al.*, *J. Mol. Struct.*, 1986, **144**, 181, (*ed*)

Gleizes, A., *Inorg. Chim. Acta*, 1993, **209**, 47-53, (*synth, cryst struct*)

Gromilov, S.A. *et al.*, *Zh. Strukt. Khim.*, 1993, **34**, 163; *CA*, **119**, 128857c, (*dimer, cryst struct*)

Luten, H.A. *et al.*, *Chemical Vapour Deposition*, 1996, **2**, 149, (*synth, hydrate, cryst struct, ms, pmr, cmr, ir, uv-vis*)