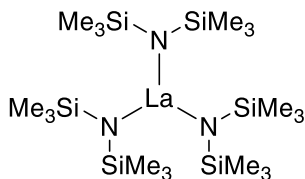


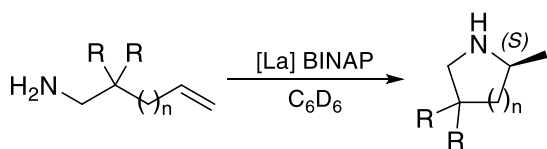
Catalog # 57-0510 Tris(N,N-bis(trimethylsilyl)amide)lanthanum(III), min. 98% (99.9%-La) (REO)



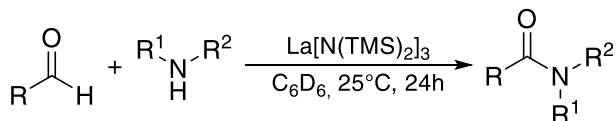
Catalysis Applications

Technical Notes:

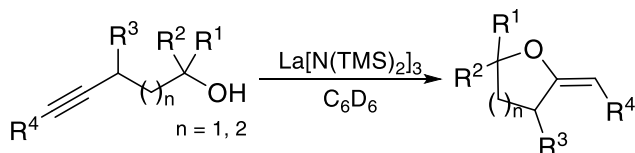
1. Catalyst for asymmetric hydroamination/cyclization of aminoalkenes.
2. Catalyst for mild amidation of aldehydes with amines.
3. Catalyst for intramolecular hydroalkoxylation/cyclization of alkynyl alcohols.
4. Catalyst for ring-opening copolymerization of naturally renewable α -methylene- γ -butyrolactone into unsaturated polyesters.
5. Catalyst used for hydroboration of ketones and aldehydes with HBpin.
6. Polymerization catalyst used for synthesis of polymer system based on γ -butyrolacton (GBL) with a transring fusion at the α and β positions at room temperature and under solvent-free conditions to yield a high-molecular weight polymers with repeatable chemical recyclability.
7. Catalyst used for guanylation/cyclization of amino acid esters and carbodiimides
8. Catalyst used for the reduction of ester [8] and amides [9] with pinacolborane.



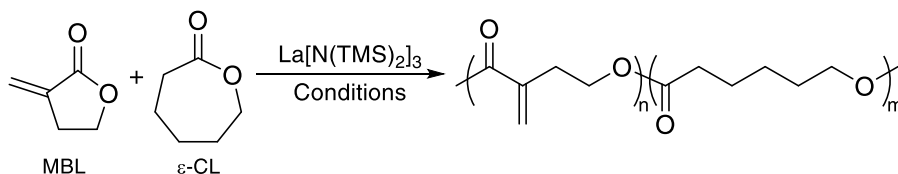
Tech Note (1)
Ref. (1)



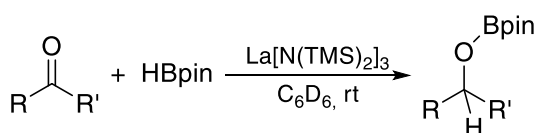
Tech Note (2)
Ref. (2)



Tech Note (3)
Ref. (3)

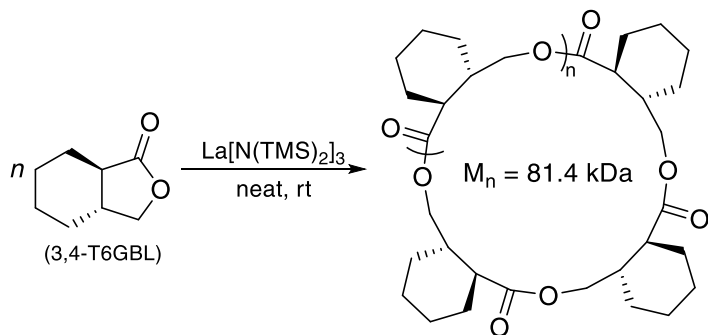


Tech Note (4)
Ref. (4)

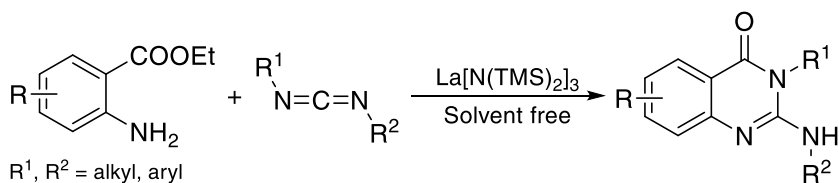


Tech Note (5)
Ref. (5)

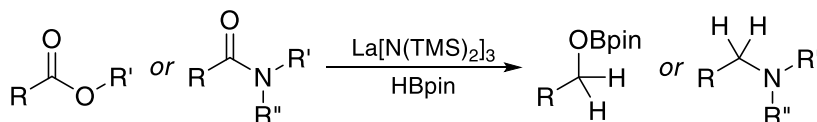
R = Alkyl, Aryl; R' = H, Alkyl, Aryl



Tech Note (6)
Ref. (6)



Tech Note (7)
Ref. (7)



Tech Note (8)
Ref. (8)

References:

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3. [J. Am. Chem. Soc. 2009, 131, 263.](#)
4. [Macromolecules 2014, 47, 3614.](#)
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CVD/ALD Applications

Thermal Behavior:

- Boiling point: 100-102°C/1 mTorr [1]
- Melting point: 145-149°C [1]

Technical Notes:

1. ALD/CVD precursor for lanthanum containing thin film deposition.

Target Deposit	Deposition Technique	Delivery Temperature	Pressure	Co-reactants	Deposition Temperature	Ref.
La ₂ O ₃	CVD or ALD	-	1 Torr	H ₂ O	250-350°C	2
	ALD	110°C	<0.1 Torr	H ₂ O	250°C	3
	ALD	-	-	H ₂ O	275°C	4
(La ₂ O ₃)(SiO ₂) _x	CVD or ALD	-	1 Torr	(^t BuO) ₃ Si	250-350°C	2

LaAl _x O _y	ALD	140°C	-	AlMe ₃ , H ₂ O	225°C	5
HfLa _x O _y	ALD	150°C		Hf[NMeEt] ₄ , H ₂ O	250°C	6

References:

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2. [Chem. Mater. 2001, 13, 2463.](#)
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7. [Chem. Mater. 2010, 22, 3798.](#)