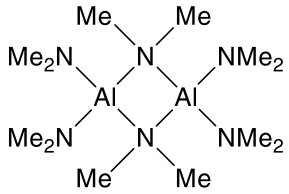
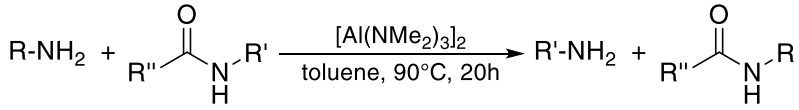
Catalog # 13-4500 Hexakis(dimethylamino)dialuminum 98% (99.9%-Al) TDMAA



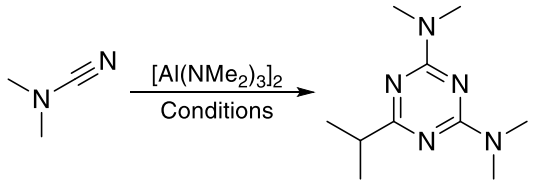
Catalysis Applications

Technical Notes:

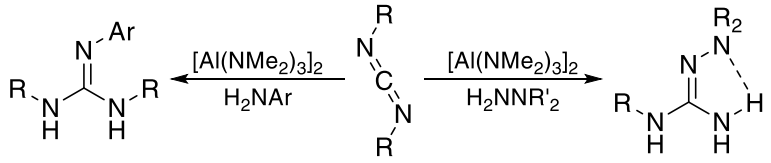
1. Catalyst used in transamidation of N-alkyl heptanamide with primary alkyl amines.
2. Catalyst used for cyclotrimerization of dimethylcyanamide to form hexamethylmelamine.
3. Catalyst for the hydro-amination/-hydrazination of carbodiimides.
4. Used in Al-catalyzed ring-opening polymerization of cyclic carbonates, lactones, and lactides.
5. Catalytic reagent used in dehydrogenic Si–N bond formation using amines and silanes.



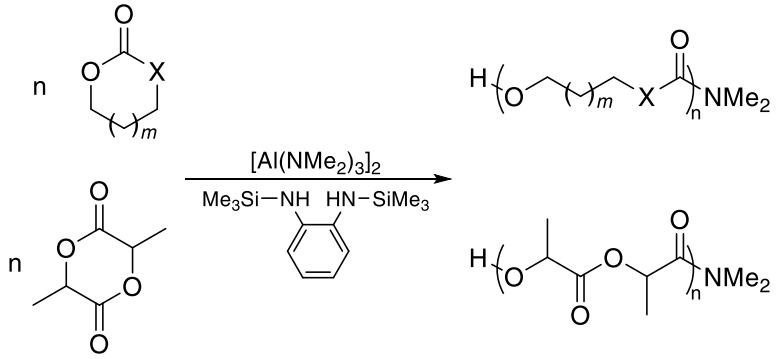
Tech Note (1)
Ref. (1)



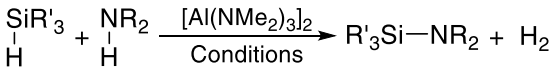
Tech Note (2)
Ref. (2)



Tech Note (3)
Ref. (3)



Tech Note (4)
Ref. (4)



Tech Note (5)
Ref. (5)

References:
1. *J. Am. Chem. Soc.* **2003**, *125*, 3422.
2. *Chem. Commun.*, **2008**, 3645.
3. *Organometallics* **2010**, *29*, 5946.
4. *Organometallics* **2011**, *30*, 3217.
5. *Dalton Trans.*, **2015**, *44*, 12112.

CVD/ALD Applications

Thermal Behavior:

- Melting point: 88-89°C [1]
- Sublimation: 70-80°C/10^{-2} Torr [2]
- Vapor Pressure: 1 Torr/78°C [3]
- TGA diagram and data is available in [3]

Technical Notes:
1. ALD/CVD precursor for Aluminum thin film deposition

Target Deposit	Deposition Technique	Delivery Temperature	Pressure	Co-reactants	Deposition Temperature	Ref.
Al_2O_3	ALD	90°C	-	H_2O	250°C	3
AlN_x	PEALD CVD ALD ALD	90°C 80°C 110°C 110°C	- - - 0.9 Torr	$^{PL}N_2$ NH_3 NH_3 NH_3	250°C 400°C 100-400°C 200-250°C	3 4 5 6
$AlNO_x$	ALD	110°C	0.9 Torr	H_2O, NH_3	200°C	6
AlS_x	ALD	80°C	1 Torr	H_2S	100-250°C	7

References:
1. *Polyhedron* **1990**, *9*, 257.
2. *J. Vac. Sci. Technol. A*, **1996**, *14*, 306.
3. *J. Vac. Sci. Technol. A*, **2017**, *35*, 01B128.
4. *ACS Appl. Mater. Interfaces* **2017**, *9*, 27036.
5. *ECS Trans*. **2011**, *41*, 219.
6. *Russ. J. Gen. Chem*. **2018**, *88*, 1699.
7. *Chem. Mater.* **2017**, *29*, 9043.