Catalog # 13-0050 Aluminum chloride, anhydrous (99.99+%-Al) PURATREM

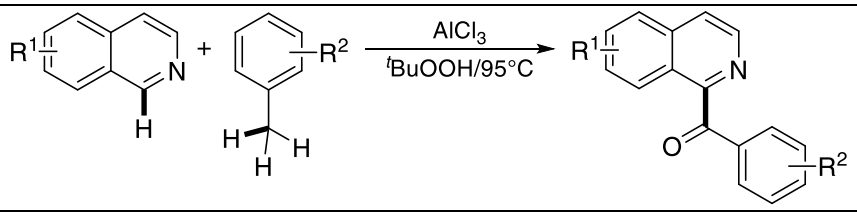
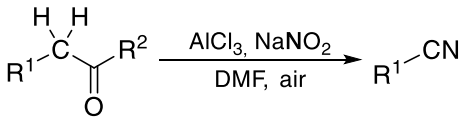
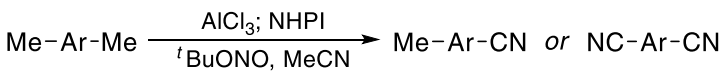
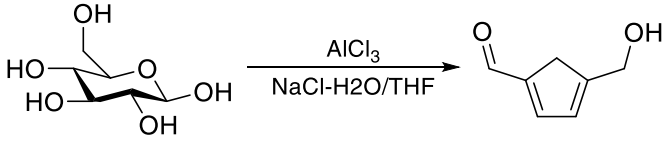
$AlCl_3$

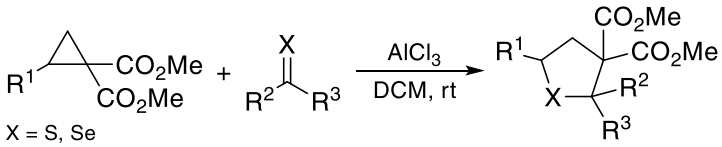
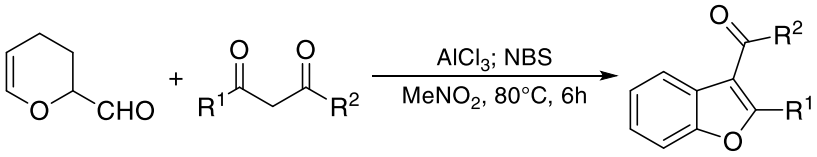
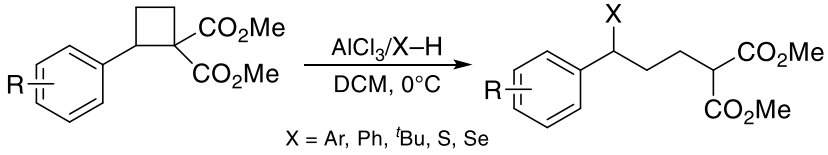
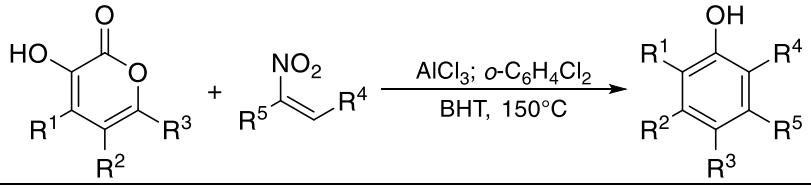
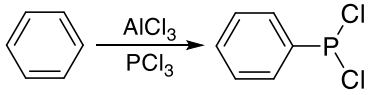
Catalysis Applications

$AlCl_3$ is a typical Lewis-acid catalyst for used in organic synthesis

Technical Notes:

1. Catalyst for regiospecific benzoylation of electron-deficient *N*-heterocycles with Methylbenzenes via a Minisci-type reaction
2. Used in transition-metal-free deacylative cleavage of unstrained C(sp^3)–C(sp^2) Bonds to generate aryl and aliphatic nitriles from ketones and aldehydes
3. Catalyst for microwave-assisted alcoholysis of furfural alcohol into alkyl levulinates
4. Catalyst for the transition metal- and cyanide-free one-step direct transformation of methylarenes into pharmaceutical-oriented aryl nitriles
5. Catalyst for the conversion of glucose to 5-hydroxymethylfurfural (HMF) in NaCl-H_2O/THF
6. Used in Lewis-acid-catalyzed reactions of 2-substituted cyclopropane 1,1-dicarboxylates with thioketones
7. Catalyst used for the synthesis of benzofurans and 4,5,6,7-tetrahydrobenzofurans from acrolein dimer and 1,3-dicarbonyls
8. Catalyst used in ring-opening reactions of donor-acceptor cyclobutanes with electron-rich arenes, thiols, and selenols
9. Catalyst for the synthesis of highly substituted phenols and benzenes with complete regiochemical control
10. Catalyst for the C-H phosphination of benzene

	**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)**
	**Tech Note (6)** **Ref. (6)**
	**Tech Note (7)** **Ref. (7)**
	**Tech Note (8)** **Ref. (8)**
	**Tech Note (9)** **Ref. (9)**

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CVD/ALD Applications

Thermal Behavior:

- Sublimation at 180°C
- Decomposition at 262°C

Technical Notes:

1. ALD precursor used for Al thin film deposition

Target Deposit	Deposition Technique	Delivery Temperature	Pressure	Co-reactants	Deposition Temperature	Ref.

Al	ALD	95°C	-	$AlH_2(^tBuN)(CH_2)_2(NMe_2)$	140°C	1
Al_2O_3	ALD	-	0.75 Torr	$Al(OEt)_3$	400°C	2
	ALD	80°C	0.75 Torr	$Al(O^iPr)_3$	150-375°C	3
	ALD	-	-	H_2O	300-800°C	4
	ALD	-	0.75 Torr	H_2O	250-300°C	5
	ALD	100°C	0.5 Torr		200°C	6
	ALD	100°C	-	O_3	300-450°C	7
Nb_2O_5:Al_2O_3	ALD	99°C	0.75 Torr	$Nb(OEt)_5$, H_2O	300°C	8
TiO_2:Al_2O_3	ALD	70°C	0.75 Torr	$TiCl_4$, H_2O	80-250°C	9
AlN	ALD	140°C	0.6 Torr	NH_3	500-550°C	10

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