

Precursors for Atomic Layer Deposition

High-Tech Solutions for Your Research Needs

Nano-layers of metals, semiconducting and dielectric materials are crucial components of modern electronic devices, high-efficiency solar panels, memory systems, computer chips and a broad variety of high-performance tools.

The technique of choice for depositing nano-films on various surfaces is Atomic Layer Deposition (ALD), which is a versatile tool for nanostructuring and uses consecutive chemical reactions on a material's surface to create nanostructures with predetermined thickness and chemical composition.¹

Aldrich Materials Science offers high-quality precursors for ALD safely packaged in steel cylinders suitable for use with a variety of deposition systems.

We continue to expand our portfolio of ALD precursors to include new materials. For an updated list of our deposition precursors, visit aldrich.com/aldprecursors

References:

1. Knez, M. *Material Matters* **2008**, 3(2), 28.



Precursors Packaged for Deposition Systems

Precursors are ordered by atomic number of the metallic element.

Description	Acronym	Molecular Formula	Prod. No.
Water packaged for use in deposition systems	-	OH ₂	697125
Trimethylaluminum	TMA	Al(CH ₃) ₃	663301
Tris(dimethylamino)silane	TDMAS	SiH(N(CH ₃) ₂) ₃	759562
Tetraethyl orthosilicate	TEOS	Si(OC ₂ H ₅) ₄	759414
2,4,6,8-Tetramethylcyclotetrasiloxane	TMCTS	(HSiCH ₃ O) ₄	760293
(3-Aminopropyl)triethoxysilane	APTS	Si((CH ₂) ₃ NH ₂)(OC ₂ H ₅) ₃	706493
Silicon tetrachloride	STC	SiCl ₄	688509
Tris(<i>tert</i> -butoxy)silanol	TBS	Si(OH)(OC(CH ₃) ₃) ₃	697281
Tris(<i>tert</i> -pentoxy)silanol	TPS	Si(OH)(OC(CH ₃) ₂ (C ₂ H ₅) ₃) ₃	697303
Tetrakis(diethylamido)titanium(IV)	TDEAT	Ti(N(C ₂ H ₅) ₂) ₄	725536
Tetrakis(dimethylamido)titanium(IV)	TDMAT	Ti(N(CH ₃) ₂) ₄	669008
Titanium tetrachloride	TTC	TiCl ₄	697079
Titanium(IV) isopropoxide	TTIP	Ti(OCH(CH ₃) ₂) ₄	687502
Vanadium(V) oxytriisopropoxide	VTIP	V(O)(OCH(CH ₃) ₂) ₃	736007
Diethylzinc	DEZ/DEZn	Zn(C ₂ H ₅) ₂	668729
Triethylgallium	TEG/TEGa	Ga(C ₂ H ₅) ₃	730726
Trimethylgallium	TMG/TMGa	Ga(CH ₃) ₃	730734
Tris[<i>N,N</i> -bis(trimethylsilyl)amide] yttrium	YTDMSA	Y(N(CH ₃) ₃ Si) ₃	702021
Zirconium(IV) <i>tert</i> -butoxide	ZTB	Zr(OC(CH ₃) ₃) ₄	759554

Description	Acronym	Molecular Formula	Prod. No.
Bis(methyl-η ⁵ -cyclo-pentadienyl) methoxymethylzirconium	ZRCMMM/ ZRD-CO4	Zr(CH ₃ C ₅ H ₄) ₂ CH ₃ OCH ₃	725471
Tetrakis(dimethylamido)zirconium(IV)	TDMAZ	Zr(N(CH ₃) ₂) ₄	669016
Tetrakis(ethylmethylamido) zirconium(IV)	TEMAZ	Zr(N(CH ₃)(C ₂ H ₅) ₂) ₄	725528
Niobium(V) ethoxide	NbOEt	Nb(OCH ₂ CH ₃) ₅	760412
Bis(ethylcyclopentadienyl) ruthenium(II)	Ru(EtCp)2	Ru(C ₅ H ₄ (C ₂ H ₅) ₂) ₂	679798
Bis(methyl-η ⁵ -cyclopentadienyl) dimethylhafnium	HFCMME/ HfD-CO2	Hf(C ₅ H ₄ (CH ₃) ₂) ₂ (CH ₃) ₂	725501
Bis(methyl-η ⁵ -cyclopentadienyl) methoxymethylhafnium	HfD-CO4	Hf(CH ₃ (OCH ₃)) ₂ [(C ₅ H ₄ (CH ₃) ₂) ₂	725498
Tetrakis(dimethylamido)hafnium(IV)	TDMAH	Hf(N(CH ₃) ₂) ₄	666610
Tetrakis(ethylmethylamido) hafnium(IV)	TEMAH	Hf(N(CH ₃)(C ₂ H ₅) ₂) ₄	725544
Tris(diethylamido)(<i>tert</i> -butylamido) tantalum(V)	TBTDET	Ta(NC(CH ₃) ₃)[N(C ₂ H ₅) ₂] ₃	668990
Bis(<i>tert</i> -butylamido) bis(dimethylamino)tungsten(VI)	BTBMW	W(N(CH ₃) ₂) ₂ (NC(CH ₃) ₃) ₂	668885
Trimethyl(methylcyclo-pentadienyl) platinum(IV)	MeCpPtMe3	Pt(C ₅ H ₄ CH ₃)(CH ₃) ₃	697540

For additional vapor deposition precursors prepacked in cylinders, please contact us by email at matsci@sial.com.