ALDRICH Materials Science

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

Percursors 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	$Si(OC_2H_5)_4$	759414
2,4,6,8-Tetramethylcyclotetrasiloxane	TMCTS	$(HSiCH_3O)_4$	760293
(3-Aminopropyl)triethoxysilane	APTS	$Si((CH_2)_3NH_2)(OC_2H_5)_3$	706493
Silicon tetrachloride	STC	$SiCl_4$	688509
Tris(*tert*-butoxy)silanol	TBS	$Si(OH)(OC(CH_3)_3)_3$	697281
Tris(*tert*-pentoxy)silanol	TPS	$Si(OH)(OC(CH_3)_2(C_2H_5))_3$	697303
Tetrakis(diethylamido)titanium(IV)	TDEAT	$Ti(N(C_2H_5)_2)_4$	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	$Zn(C_2H_5)_2$	668729
Triethylgallium	TEG/TEGa	$Ga(C_2H_5)_3$	730726
Trimethylgallium	TMG/TMGa	$Ga(CH_3)_3$	730734
Tris[*N*,*N*-bis(trimethylsilyl)amide] yttrium	YTDTMSA	$Y(N(CH_3)_3Si)_3$	702021
Zirconium(IV) *tert*-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	$Zr(CH_3C_5H_4)_2CH_3OCH_3$	725471
Tetrakis(dimethylamido)zirconium(IV)	TDMAZ	$Zr(N(CH_3)_2)_4$	669016
Tetrakis(ethylmethylamido) zirconium(IV)	TEMAZ	$Zr(N(CH_3)(C_2H_5))_4$	725528
Niobium(V) ethoxide	NbOEt	$Nb(OCH_2CH_3)_5$	760412
Bis(ethylcyclopentadienyl) ruthenium(II)	Ru(EtCp)2	$Ru(C_5H_4(C_2H_5))_8$	679798
Bis(methyl-η^5-cyclopentadienyl) dimethylhafnium	HFCMME/ HfD-CO2	$Hf[C_5H_4(CH_3)]_2(CH_3)_2$	725501
Bis(methyl-η^5-cyclopentadienyl) methoxymethylhafnium	HfD-CO4	$HfCH_3(OCH_3)[(C_2H_5(CH_3)]_2$	725498
Tetrakis(dimethylamido)hafnium(IV)	TDMAH	$Hf(N(CH_3)_2)_4$	666610
Tetrakis(ethylmethylamido) hafnium(IV)	TEMAH	$Hf(N(CH_3(C_2H_5))_4$	725544
Tris(diethylamido)(*tert*-butylamido) tantalum(V)	TBTDET	$Ta(NC(CH_3)_3][N(C_2H_5)_2]_3$	668990
Bis(*tert*-butylamido) bis(dimethylamino)tungsten(VI)	BTBMW	$W(N(CH_3)_2)_2(NC(CH_3)_3)_2$	668885
Trimethyl(methylcyclo-pentadienyl) platinum(IV)	MeCpPtMe3	$Pt(C_5H_4CH_3)(CH_3)_3$	697540

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