

# High performance chemicals

for advanced semiconductor applications



**SAFC** Hitech™  
| Enabling Technology

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Member of the Sigma-Aldrich Group



# SAFC Hitech

## Changing the face of materials technology

SAFC Hitech provides a unique chemistry service translating application understanding into performance materials. Through an integrated approach from research and development, process development and scale-up to commercial-scale manufacturing, we innovate and manufacture chemicals to enable your current and future technology needs.

### **Silicon semiconductor**

SAFC Hitech understands the rapidly changing needs of the silicon semiconductor industry and provides innovative chemistry, novel materials, commercial-scale manufacturing and supply chain expertise to enable current and future technologies.

We offer an integrated long-term collaborative partnership approach to research, development and commercial manufacturing that makes innovation possible and offers customers continued support throughout the product's life cycle. Key to our success is understanding customer-specific applications - enabling us to translate ideas into chemistry solutions that work for our customers' process technologies.



### **Compound semiconductor**

SAFC Hitech leads the industry in chemical manufacture, purity and delivery performance. Our objective is to provide chemistry solutions of the appropriate grade and delivery configuration to match customer-specific device application requirements for the compound semiconductor industry. As premier providers of TMG, TMI, Solution TMI™, TMA, TEG, DMZ and DEZ chemistries, we pioneer innovations as well as provide a solid chemical supply network to minimize risk. Our broad-based capabilities and resources allow us to offer global manufacturing with the strong local infrastructure support our customers have come to depend upon to meet their daily manufacturing requirements.

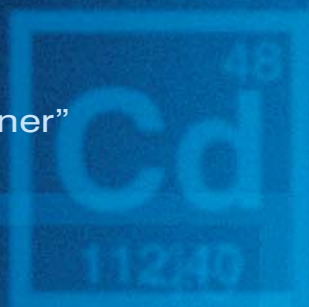




“Collaborative  
partnerships to  
make your  
ideas happen”

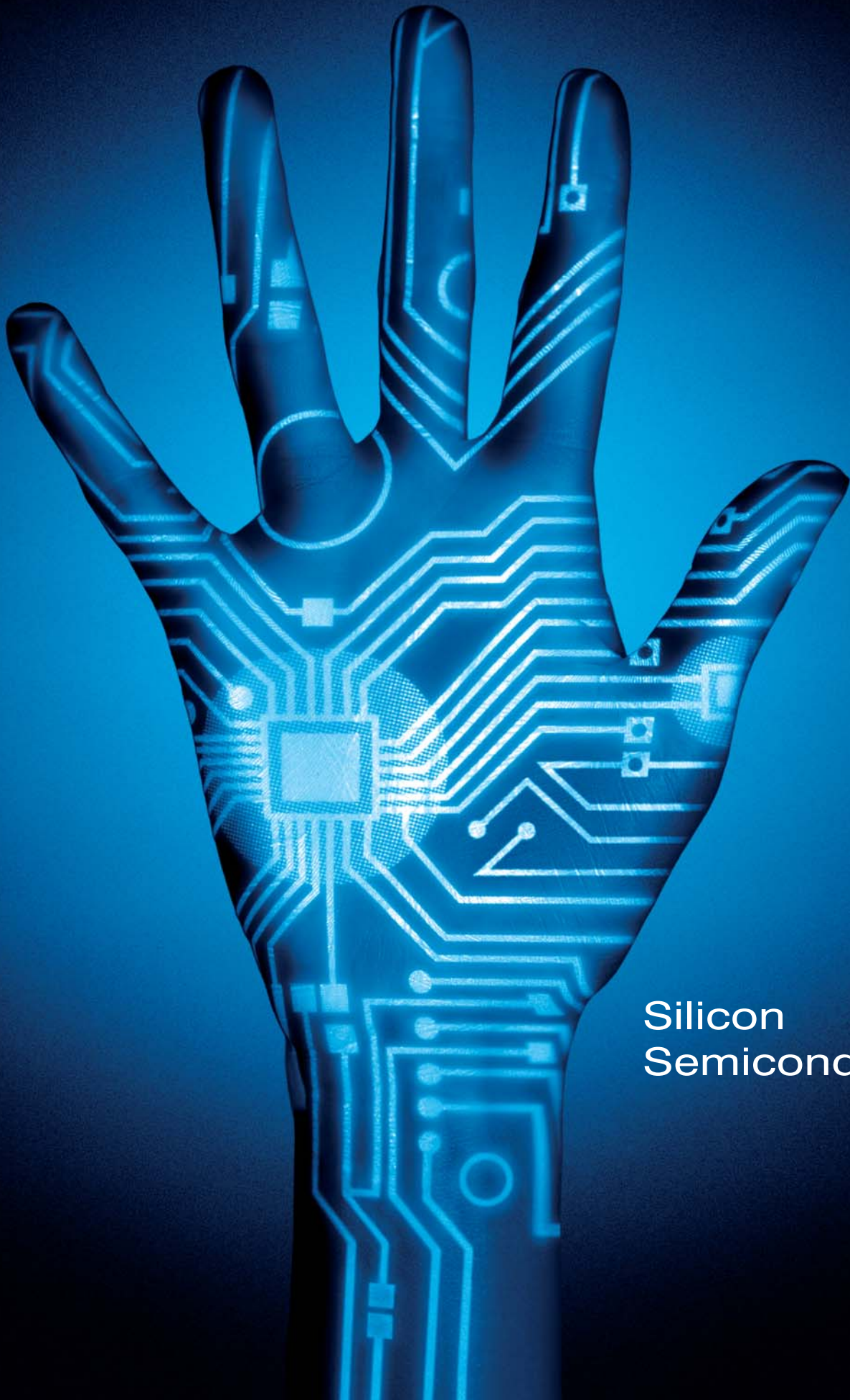


“A reliable and  
responsive partner”



“Enabling your  
current and future  
technology”





Silicon  
Semiconductor

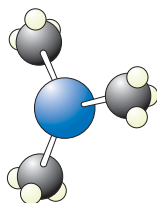
# ALUMINIUM

## Trimethylaluminium

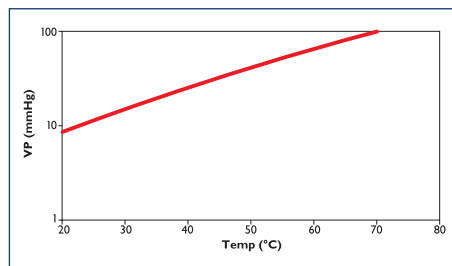
CAS Number 75-24-1

### $\text{Al}(\text{CH}_3)_3$

Formula Weight: 72.09  
Boiling Point: 127°C  
Melting Point: 15.4°C  
Density @ 20°C: 0.752 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.220 - 2134/T(\text{K})$   
Appearance: Colourless liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

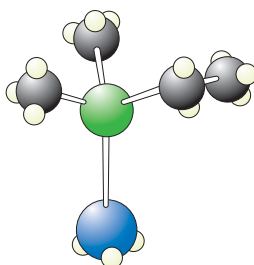
Code: TMAL  
Grades: EG, AG, EpiPure™

## Dimethylethylamine alane

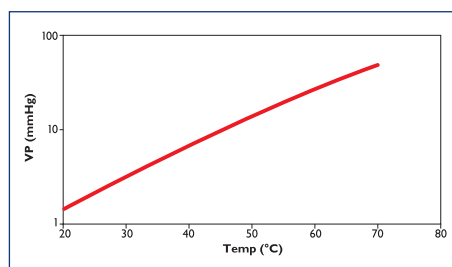
CAS Number 124330-23-0

### $\text{AlH}_3 \cdot \text{N}(\text{CH}_3)_2(\text{C}_2\text{H}_5)$

Formula Weight: 103.12  
Boiling Point : 50-55°C @ 0.052 mmHg  
Melting Point: 5°C  
Density @ 20°C: 0.780 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.70 - 3090/T(\text{K})$   
Appearance: Colourless liquid with smell of amine



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

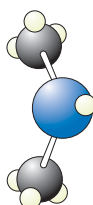
Code: DMEA  
Grades: AG

## Dimethylaluminium hydride

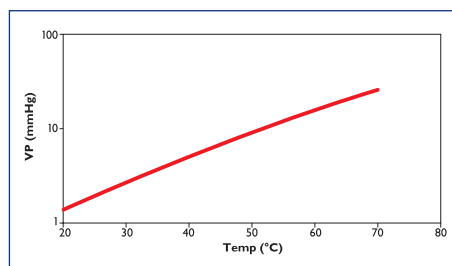
CAS Number 865-37-2

### $(\text{CH}_3)_2\text{AlH}$

Formula Weight: 58.1  
Boiling Point: 154°C  
Melting Point: 17°C  
Density @ 20°C: 0.750 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.920 - 2575/T(\text{K})$   
Appearance: Viscous liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

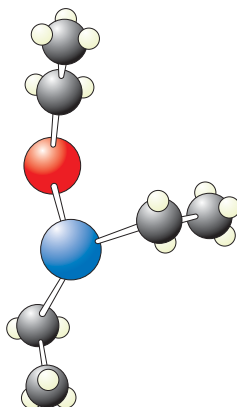
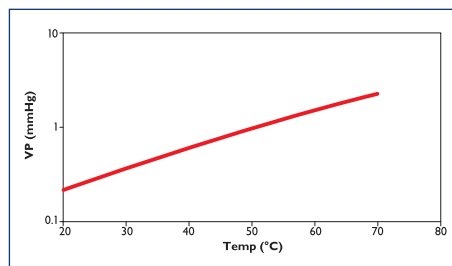
Code: DMAH  
Grades: EG, AG

**(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>Al(OC<sub>2</sub>H<sub>5</sub>)**

Formula Weight: 130.17  
 Boiling Point: 108-109°C @ 10 mmHg  
 Melting Point: 2.5-4.5°C  
 Density @ 20°C: 0.850 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 6.350 - 2054/T(\text{K})$   
 Appearance: Liquid

**ORDERING INFORMATION**

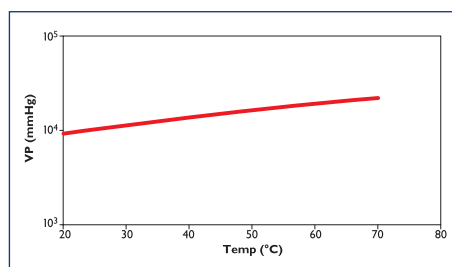
Code: DEAL  
 Grades: RE

**VAPOUR PRESSURE CURVE****ARSENIC****Arsine**

CAS Number 07784-42-1

**AsH<sub>3</sub>**

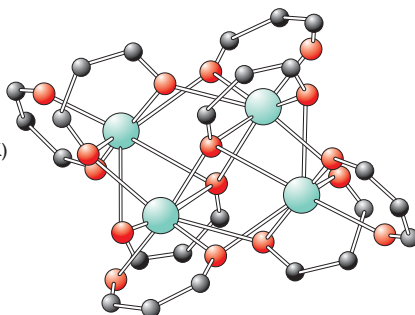
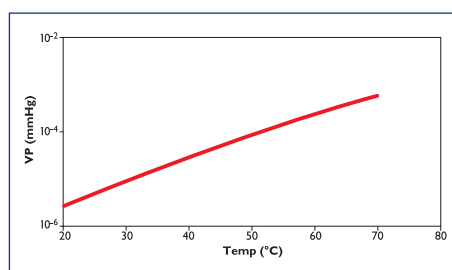
Formula Weight: 77.95  
 Boiling Point: -62.5°C  
 Melting Point: -117°C  
 Gas Density @ 15°C: 3.290 kg/m<sup>3</sup>  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 6.569 - 762.4/T(\text{K})$   
 Appearance: Colourless gas

**VAPOUR PRESSURE CURVE****BARIUM****Bis(2,2,6,6-tetramethylheptane-3,5-dionato)barium**

CAS Number 17594-47-7

**[Ba(C<sub>11</sub>H<sub>19</sub>O<sub>2</sub>)<sub>2</sub>]<sub>4</sub>**

Formula Weight: 2015.6 (tetramer)  
 Boiling Point: 225°C @ 0.05 mmHg (sub)  
 Melting Point: 175-185°C  
 Density: N/A  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.370 - 4710/T(\text{K})$   
 Appearance: White crystalline solid

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

Code: BATHD  
 Grades: EG

# BISMUTH

## Tris(1-methoxy-2-methyl-2-propoxy)bismuth

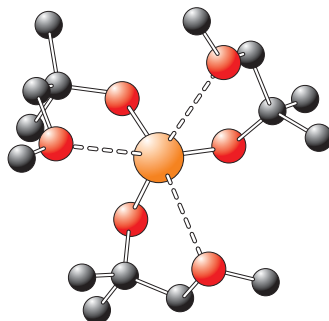
CAS Number N/A

### $\text{Bi}(\text{C}_5\text{H}_{11}\text{O}_2)_3$

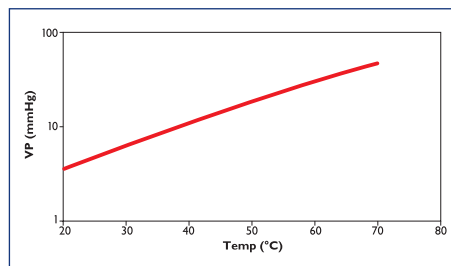
Formula Weight: 518.48  
Boiling Point: N/A  
Melting Point: 70°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.251 - 2257/T(\text{K})$   
Appearance: Pale yellow crystals

#### ORDERING INFORMATION

Code: BIMMP3  
Grades: RE



#### VAPOUR PRESSURE CURVE



## Tris(2,2,6,6-tetramethylheptane-3,5-dionato)bismuth

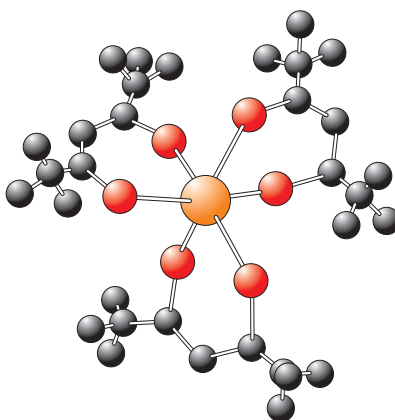
CAS Number 142617-53-6

### $\text{Bi}(\text{C}_{11}\text{H}_{19}\text{O}_2)_3$

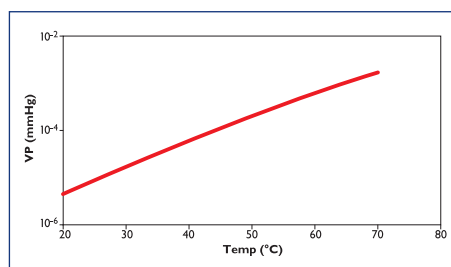
Formula Weight: 758.78  
Boiling Point: 150°C @ 0.5 mmHg (sub)  
Melting Point: 112-116°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.27 - 5199/T(\text{K})$   
Appearance: Off white solid

#### ORDERING INFORMATION

Code: BITHD  
Grades: RE



#### VAPOUR PRESSURE CURVE



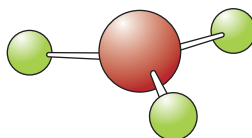
# BORON

## Boron trichloride

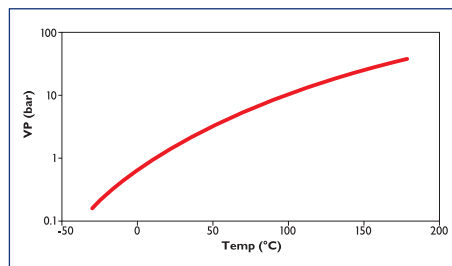
CAS Number 10294-34-5

### $\text{BCl}_3$

Formula Weight: 117.16  
Boiling Point:  $12.5^\circ\text{C}$   
Melting Point:  $-107^\circ\text{C}$   
Relative Density (gas): 4 (air = 1)  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.316 - 1266/T(\text{K})$   
Appearance: Colourless gas



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

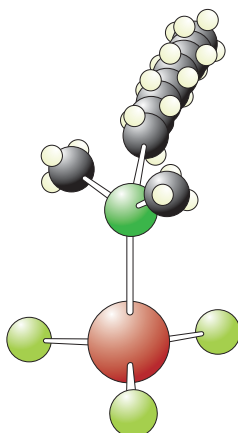
Code: BCL3  
Grades: 3N, 5N

## Boron trichloride dimethyloctylamine complex

CAS Number N/A

### $\text{BCl}_3(\text{CH}_3)_2\text{NC}_8\text{H}_{17}$

Formula Weight: 274.47  
Boiling Point: N/A  
Melting Point:  $25-28^\circ\text{C}$   
Density: N/A  
V.P. Equation: N/A  
Appearance: White to light brown waxy solid



#### ORDERING INFORMATION

Code: BOAM  
Grades: HP (99.5%)

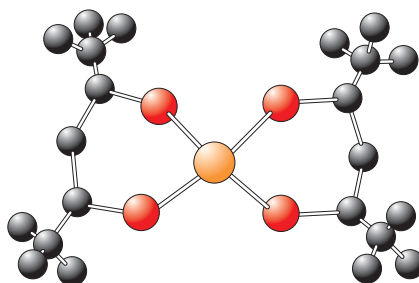
# COPPER

## Bis(2,2,6,6-tetramethylheptane-3,5-dionato)copper

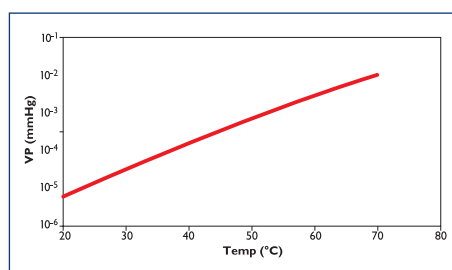
CAS Number 14040-05-2

### $\text{Cu}(\text{C}_{11}\text{H}_{19}\text{O}_2)_2$

Formula Weight: 430.05  
Boiling Point: N/A  
Melting Point:  $198^\circ\text{C}$  (dec)  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P = 17.00 - 6510/T(\text{K})$   
Appearance: Purple crystalline solid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: CUTHDS  
Grades: EG



# GERMANIUM

## Tetraethoxygermanium

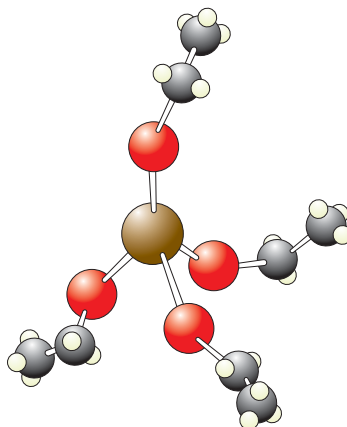
CAS Number 14165-55-0

### Ge(OC<sub>2</sub>H<sub>5</sub>)<sub>4</sub>

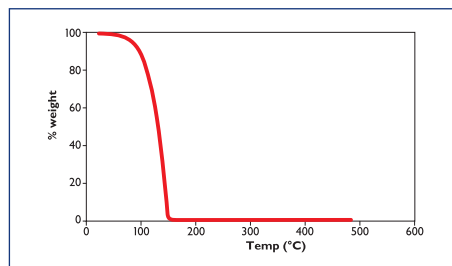
Formula Weight: 252.83  
Boiling Point: 168°C  
Melting Point: -72°C  
Density: 1.134 g/ml  
V.P. Equation: N/A  
Appearance: Colourless liquid

#### ORDERING INFORMATION

Code: GEET  
Grades: CG



#### THERMOGRAVIMETRIC ANALYSIS



## Germane 10% in Hydrogen

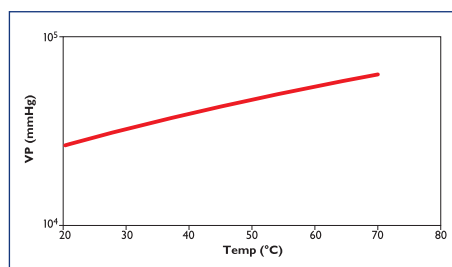
CAS Number 782-65-0 & 1333-74-0

### GeH<sub>4</sub> in H<sub>2</sub>

	germane	hydrogen
Formula Weight:	76.63	2.02
Boiling Point:	-88.4°C	-252.9°C
Melting Point:	N/A	N/A
Density:	N/A	N/A
V.P. Equation:	$\text{Log}_{10}P(\text{mmHg}) = 7.015 - 758.3/T(\text{K})$	
Appearance:	N/A	N/A



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

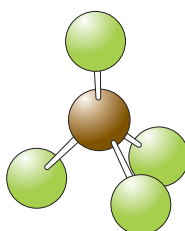
Code: GEH  
Grades: UHP

## Germanium tetrachloride

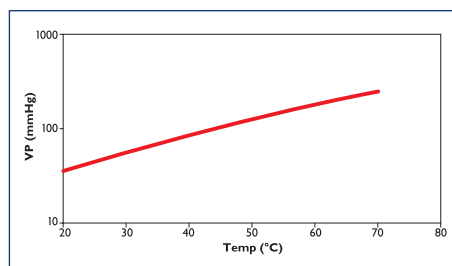
CAS Number 10038-98-9

### GeCl<sub>4</sub>

Formula Weight: 214.39  
Boiling Point: 82-84°C  
Melting Point: -49.5°C  
Density: 1.880 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.325 - 1690/T(\text{K})$   
Appearance: Colourless liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

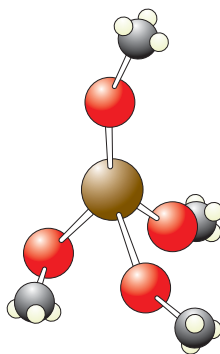
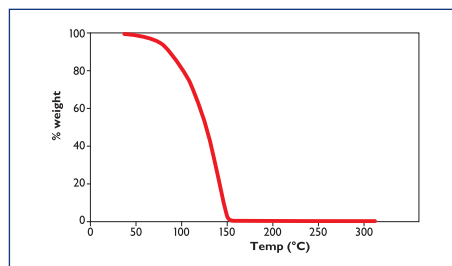
Code: GECL  
Grades: EG

**Ge(OCH<sub>3</sub>)<sub>4</sub>**

Formula Weight: 196.75  
 Boiling Point: 66-67°C @ 36 mmHg  
 Melting Point: -18°C  
 Density @ 20°C: 1.330 g/ml  
 V.P. Equation: N/A  
 Appearance: Colourless liquid

**ORDERING INFORMATION**

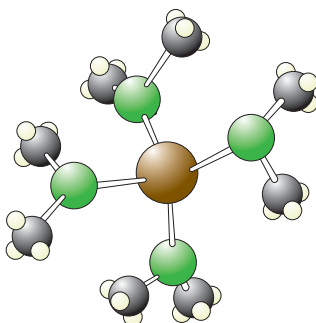
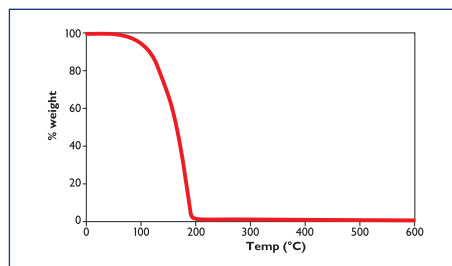
Code: GEME  
 Grades: EG

**THERMOGRAVIMETRIC ANALYSIS****Tetrakis(dimethylamino)germanium****Ge(N(CH<sub>3</sub>)<sub>2</sub>)<sub>4</sub>**

Formula Weight: 248.73  
 Boiling Point: 203°C @ 2 mmHg  
 Melting Point: 14°C  
 Density: N/A  
 V.P. Equation: N/A  
 Appearance: Colourless liquid

**ORDERING INFORMATION**

Code: GEDMA  
 Grades: RE

**THERMOGRAVIMETRIC ANALYSIS**

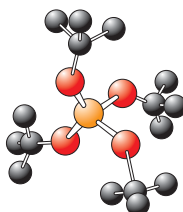
# HAFNIUM

## Tetrakis(tert-butoxy)hafnium

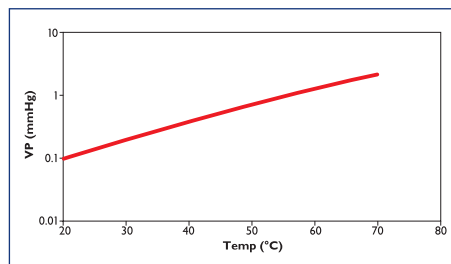
CAS Number 2172-02-3

### $\text{Hf}(\text{OC}(\text{CH}_3)_3)_4$

Formula Weight: 471.02  
Boiling Point: 90°C @ 5 mmHg  
Melting Point: N/A  
Density: 1.150 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.2277 - 2710.6/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

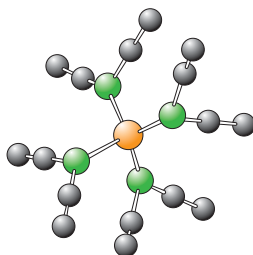
Code: HFTBUT  
Grades: EG

## Tetrakis(diethylamino)hafnium

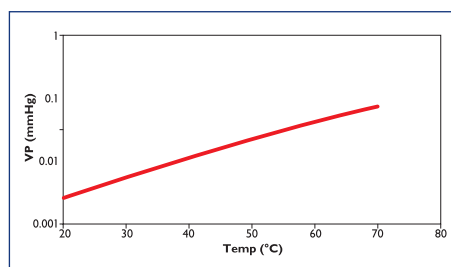
CAS Number 19824-55-6

### $\text{Hf}(\text{N}(\text{C}_2\text{H}_5)_2)_4$

Formula Weight: 467.1  
Boiling Point: 130°C @ 0.01 mmHg  
Melting Point: N/A  
Density: 1.220 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.3066 - 2896.1/T(\text{K})$   
Appearance: Yellow liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

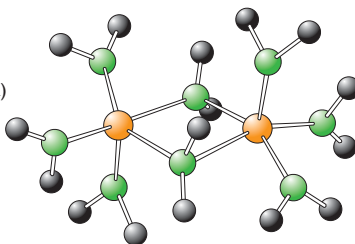
Code: HFDEA  
Grades: EG

## Tetrakis(dimethylamino)hafnium

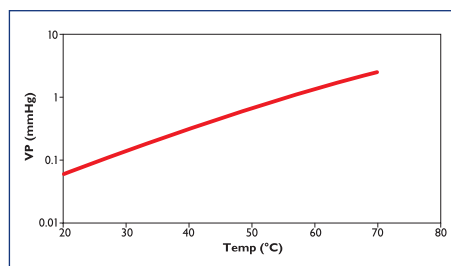
CAS Number 19782-68-4

### $[\text{Hf}(\text{N}(\text{CH}_3)_2)_4]_2$

Formula Weight: 354.79  
Boiling Point: 60°C @ 0.01 mmHg  
Melting Point: 26-29°C  
Density: 1.400 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 9.9457 - 3270.8/T(\text{K})$   
Appearance: Pale yellow solid



VAPOUR PRESSURE CURVE

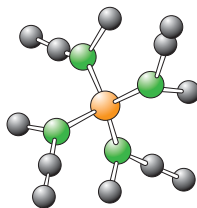


#### ORDERING INFORMATION

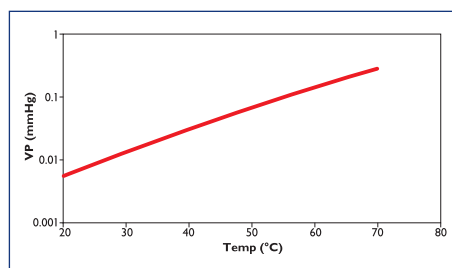
Code: HFDMA  
Grades: EG

**Hf(N(C<sub>2</sub>H<sub>5</sub>)(CH<sub>3</sub>))<sub>4</sub>**

Formula Weight: 410.98  
 Boiling Point: 79°C @ 0.1 mmHg  
 Melting Point: N/A  
 Density @ 25°C: 1.324 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 9.447 - 3432.3/T(\text{K})$   
 Appearance: Pale yellow liquid



VAPOUR PRESSURE CURVE



## ORDERING INFORMATION

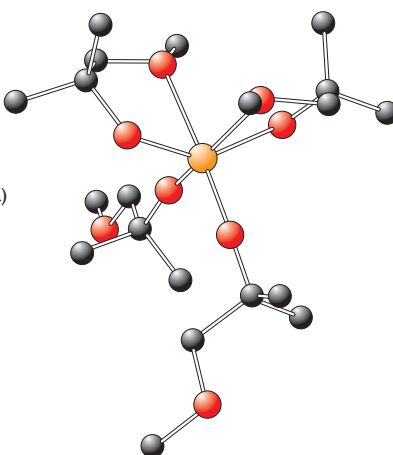
Code: HFEMA  
 Grades: EG

## Tetrakis(1-methoxy-2-methyl-2-propoxy)hafnium

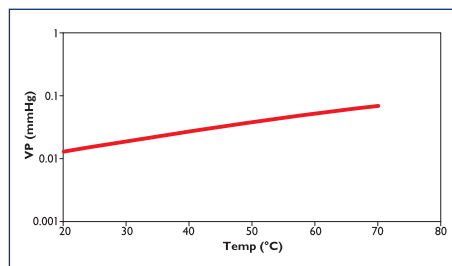
CAS 309915-48-8

**Hf(C<sub>5</sub>H<sub>11</sub>O<sub>2</sub>)<sub>4</sub>**

Formula Weight: 591.14  
 Boiling Point: 135°C @ 7.6 mmHg  
 Melting Point: 15°C  
 Density: 1.400 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 3.1171 - 1464/T(\text{K})$   
 Appearance: Colourless low melting solid



VAPOUR PRESSURE CURVE



## ORDERING INFORMATION

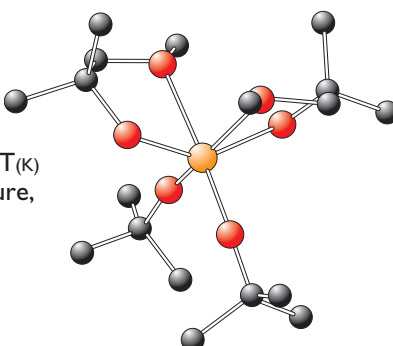
Code: HFMMP  
 Grades: RE

## Bis(tert-butoxy)bis(1-methoxy-2-methyl-2-propoxy)hafnium

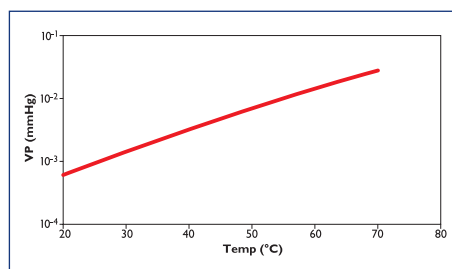
CAS Number N/A

**Hf(OC(CH<sub>3</sub>)<sub>3</sub>)<sub>2</sub>(C<sub>5</sub>H<sub>11</sub>O<sub>2</sub>)<sub>2</sub>**

Formula Weight: 531.08  
 Boiling Point: 115°C @ 0.2 mm Hg  
 Melting Point: 100-104°C  
 Density: N/A  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.2865 - 3374.2/T(\text{K})$   
 Appearance: White solid at room temperature, also supplied in solution



VAPOUR PRESSURE CURVE

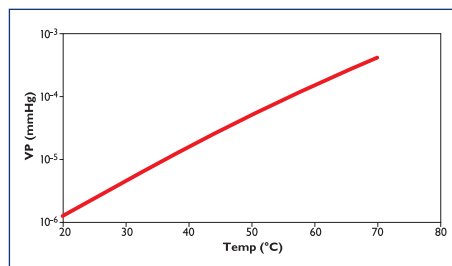


## ORDERING INFORMATION

Code: HFTBMM  
 Grades: RE

**HfCl<sub>4</sub>**

Formula Weight: 320.30  
 Boiling Point: 320°C (sub)  
 Melting Point: N/A  
 Density: N/A  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 11.50 - 5103/T(\text{K})$   
 Appearance: White solid (powder)

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

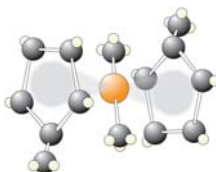
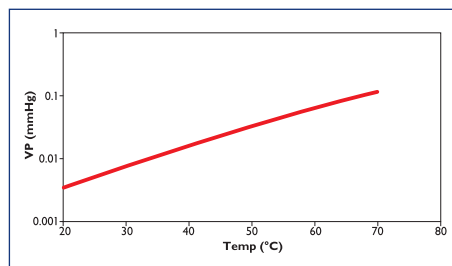
Code: HFCL4  
 Grades: EG

**Bis(methyl-η<sup>5</sup>-cyclopentadienyl)dimethylhafnium**

CAS Number N/A

**(CH<sub>3</sub>C<sub>5</sub>H<sub>4</sub>)<sub>2</sub>Hf(CH<sub>3</sub>)<sub>2</sub>**

Formula Weight: 366.86  
 Boiling Point: 80-120°C @ 0.3-0.5 mmHg  
 Melting Point: 60°C  
 Density: 1.60 ± 0.01 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.0218 - 3072.1/T(\text{K})$   
 Appearance: White wax-like solid

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

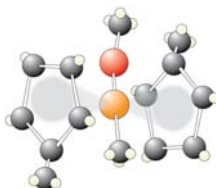
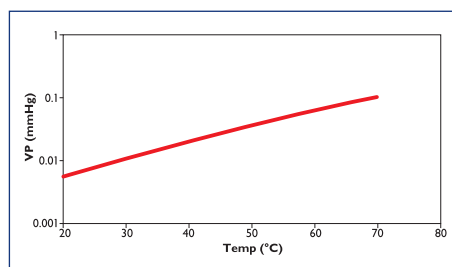
Code: (HfD-02) HFCMME  
 Grades: EG

**Bis(methyl-η<sup>5</sup>-cyclopentadienyl)methoxymethylhafnium**

CAS Number N/A

**(CH<sub>3</sub>C<sub>5</sub>H<sub>4</sub>)<sub>2</sub>Hf(OCH<sub>3</sub>)CH<sub>3</sub>**

Formula Weight: 382.86  
 Boiling Point: 105°C @ 0.3-0.4 mmHg  
 Melting Point: N/A  
 Density: 1.63 ± 0.01 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 6.4697 - 2555.9/T(\text{K})$   
 Appearance: Yellow liquid

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

Code: (HfD-04) HFCMMM  
 Grades: EG

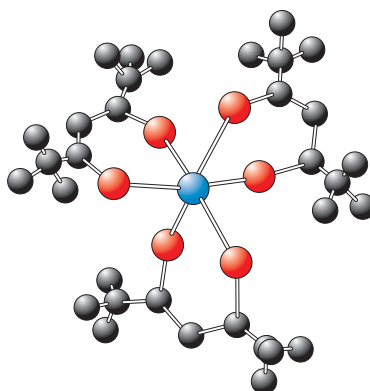
# LANTHANUM

## Tris(2,2,6,6-tetramethylheptane-3,5-dionato)lanthanum

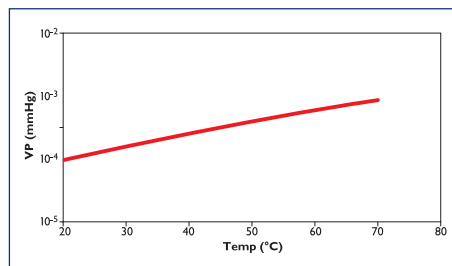
CAS Number 14319-13-2

### La(C<sub>11</sub>H<sub>19</sub>O<sub>2</sub>)<sub>3</sub>

Formula Weight: 688.8  
Boiling Point: 210°C @ 0.2 mmHg (sub)  
Melting Point: 227-231°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 2.4732 - 1903/T(\text{K})$   
Appearance: White crystalline solid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

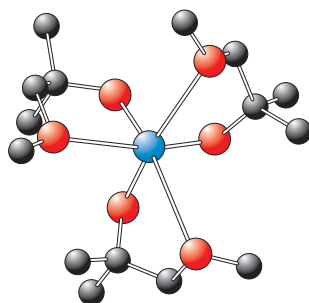
Code: LATHD  
Grades: CG

## Solution Tris(1-methoxy-2-methyl-2-propoxy)lanthanum tetraglyme adduct

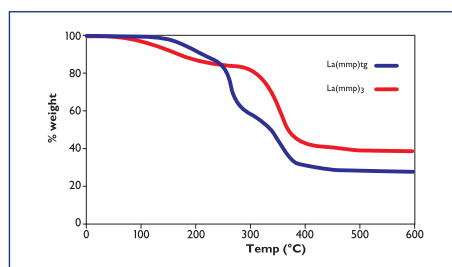
CAS Number N/A

### La(C<sub>5</sub>H<sub>11</sub>O<sub>2</sub>)<sub>3</sub> in CH<sub>3</sub>O(C<sub>2</sub>H<sub>5</sub>O)<sub>4</sub>OCH<sub>3</sub> & C<sub>10</sub>H<sub>22</sub>O<sub>5</sub>

Formula Weight: N/A  
Boiling Point: N/A  
Melting Point: N/A  
Density: N/A  
V.P. Equation: N/A  
Appearance: Saturated solution



#### THERMOGRAVIMETRIC ANALYSIS



#### ORDERING INFORMATION

Code: LAMMP3  
Grades: RE

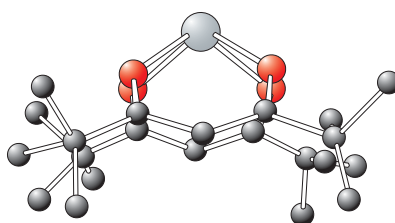
# LEAD

## Bis(2,2,6,6-tetramethylheptane-3,5-dionato)lead

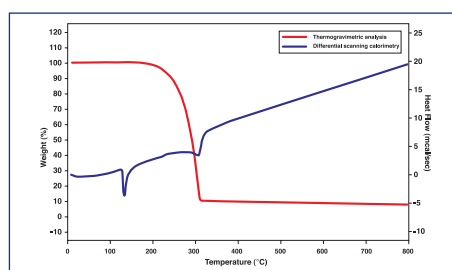
CAS Number 21319-43-7

### Pb(C<sub>11</sub>H<sub>19</sub>O<sub>2</sub>)<sub>2</sub>

Formula Weight: 573.8  
Boiling Point: 140°C @ 0.02 mmHg (sub)  
Melting Point: 130°C  
Density: N/A  
V.P. Equation: N/A  
Appearance: White crystalline solid



#### THERMOGRAVIMETRIC ANALYSIS



# NIOBIUM

## Pentakis(ethoxy)niobium

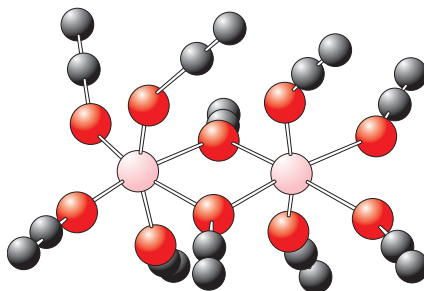
CAS Number 3236-82-6

### $\text{Nb}(\text{OC}_2\text{H}_5)_5$

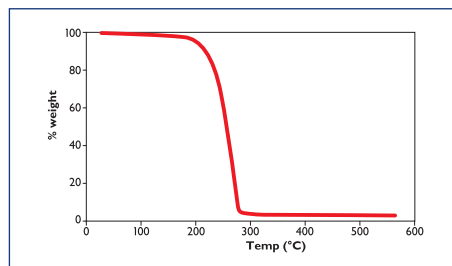
Formula Weight: 318.21  
Boiling Point: 140-142°C @ 0.1 mmHg  
Melting Point: 6°C  
Density: 1.260 g/ml  
V.P. Equation: N/A  
Appearance: Clear light yellow liquid

#### ORDERING INFORMATION

Code: NBET4N  
Grades: EG



#### THERMOGRAVIMETRIC ANALYSIS



## Pentakis(butoxy)niobium

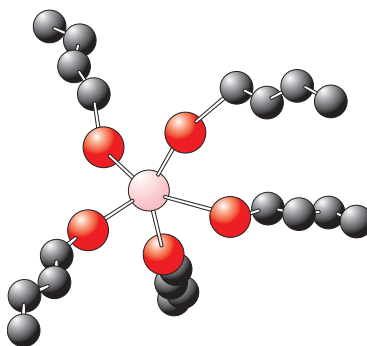
CAS Number 51030-47-8

### $\text{Nb}(\text{OC}_4\text{H}_9)_5$

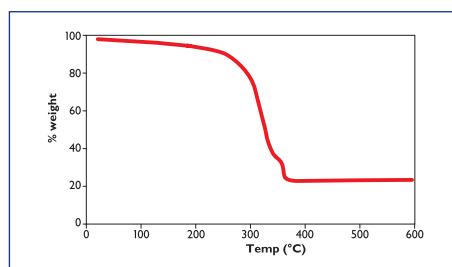
Formula Weight: 458.56  
Boiling Point: N/A  
Melting Point: N/A  
Density: 1.120 g/ml  
V.P. Equation: N/A  
Appearance: Light yellow liquid

#### ORDERING INFORMATION

Code: NBNBUT  
Grades: RE



#### THERMOGRAVIMETRIC ANALYSIS



# RUTHENIUM

## Bis(2,4-dimethylpentadienyl)ruthenium

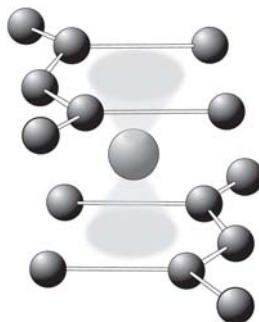
CAS Number 85908-78-7

### $\text{Ru}((\text{CH}_3)_2\text{C}_5\text{H}_5)_2$

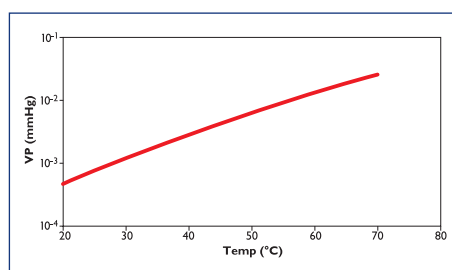
Formula Weight: 291.43  
Boiling Point: N/A  
Melting Point: 85°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.619 - 3502/T(\text{K})$   
Appearance: Yellow solid

#### ORDERING INFORMATION

Code: DMRU  
Grades: EG, AG, EpiPure™



#### VAPOUR PRESSURE CURVE

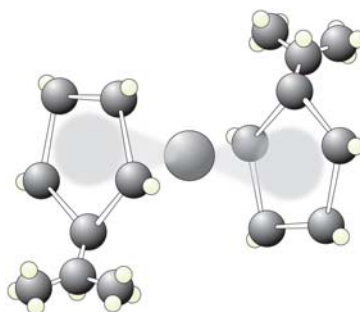




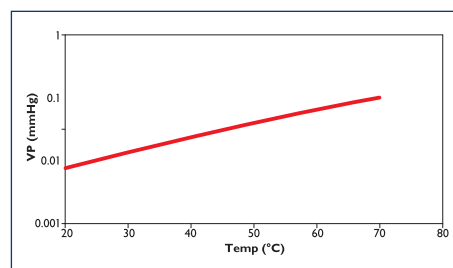
Formula Weight: 315.45  
 Boiling Point: 115-135°C  
 Melting Point: N/A  
 Density: N/A  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 5.6004 - 2263.7/T(\text{K})$   
 Appearance: Yellow liquid

## ORDERING INFORMATION

Code: RUIPCP  
 Grades: RE



## VAPOUR PRESSURE CURVE



## Ruthenium carbonyl

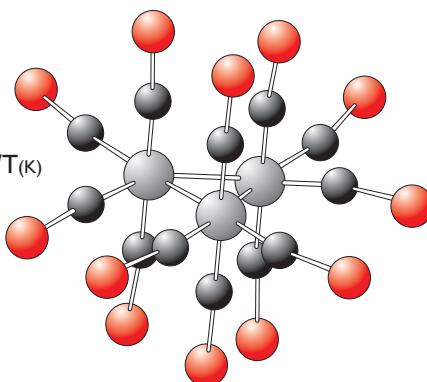
CAS Number 15243-33-1



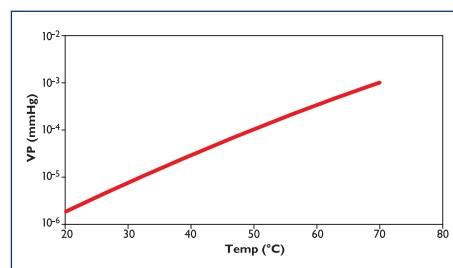
Formula Weight: 639.34  
 Boiling Point: N/A  
 Melting Point: 150°C  
 Density: N/A  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 13.00 - 5490/T(\text{K})$   
 Appearance: Orange solid

## ORDERING INFORMATION

Code: RUCO  
 Grades: RE



## VAPOUR PRESSURE CURVE



## SCANDIUM

## Tris(2,2,6,6-tetramethylheptane-3,5-dionato)scandium

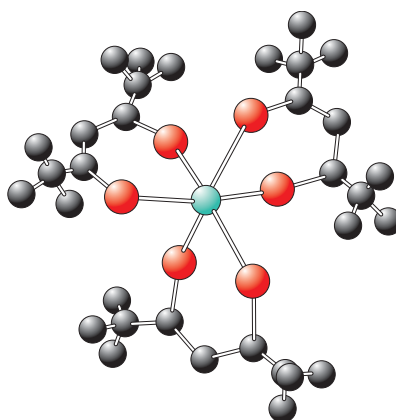
CAS Number 15492-49-6



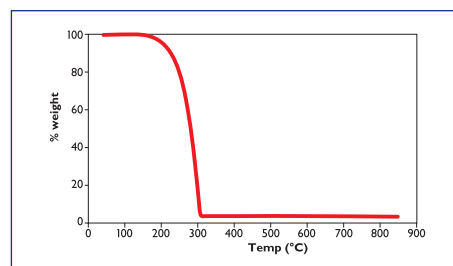
Formula Weight: 594.86  
 Boiling Point: 275°C (dec)  
 Melting Point: 152-155°C  
 Density: N/A  
 V.P. Equation: N/A  
 Appearance: White crystalline solid

## ORDERING INFORMATION

Code: SCTHD  
 Grades: RE



## THERMOGRAVIMETRIC ANALYSIS





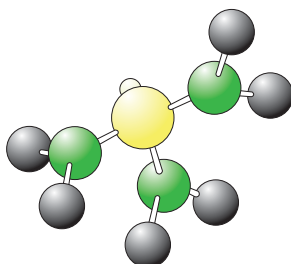
# SILICON

## Tris(dimethylamino)silane

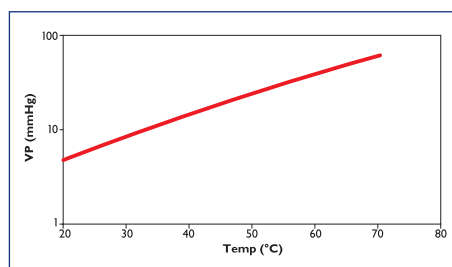
CAS Number 15112-89-7



Formula Weight: 161.37  
Boiling Point: 145°C  
Melting Point: N/A  
Density: 0.840 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.220 - 2210/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



### ORDERING INFORMATION

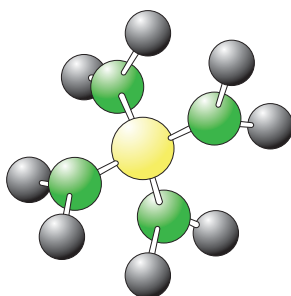
Code: SIDMAH  
Grades: CG

## Tetrakis(dimethylamino)silane

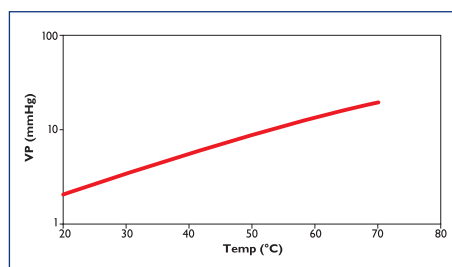
CAS Number 1624-01-7



Formula Weight: 204.45  
Boiling Point: 196°C  
Melting Point: 16-18°C  
Density: 0.880 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.037 - 1969.5/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



### ORDERING INFORMATION

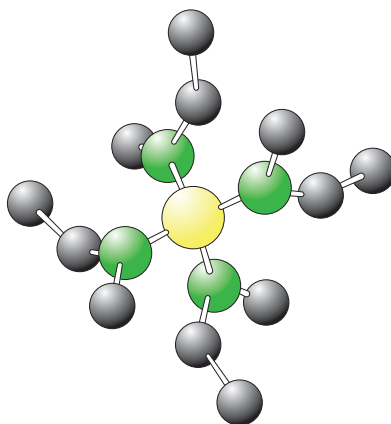
Code: T4DMAS  
Grades: RE

## Tetrakis(ethylmethylamino)silane

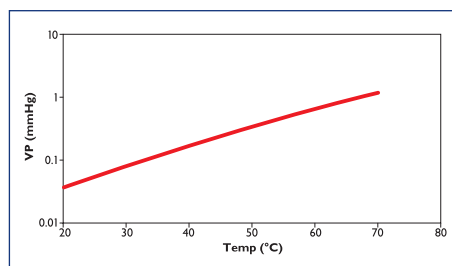
CAS Number 477284-75-6



Formula Weight: 260.57  
Boiling Point: N/A  
Melting Point: N/A  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.890 - 3029/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



### ORDERING INFORMATION

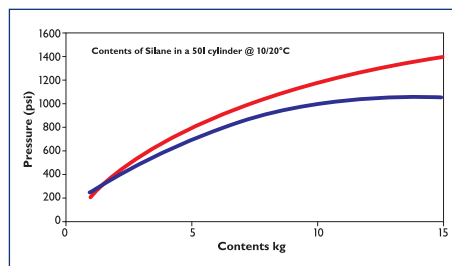
Code: TEMASI  
Grades: RE

**SiH<sub>4</sub>**

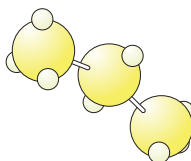
Formula Weight: 32  
 Boiling Point: -111°C  
 Melting Point: -186°C  
 Gas Density @ 15°C: 1.350 kg/m<sup>3</sup>  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.060 - 680.4/T(\text{K})$   
 Appearance: Colourless gas

**ORDERING INFORMATION**

Code: SIL  
 Grades: Semiconductor

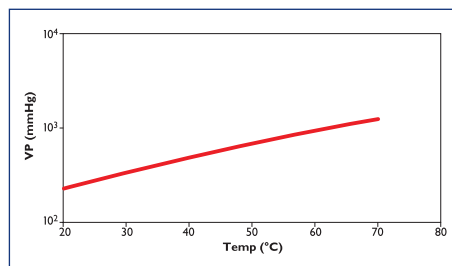
**VAPOUR PRESSURE CURVE****Trisilane (Silcore®)****Si<sub>3</sub>H<sub>8</sub>**

Formula Weight: 92.35  
 Boiling Point: 52.9°C  
 Melting Point: -117.4°C  
 Density: 0.743 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.434 - 1489/T(\text{K})$   
 Appearance: Colourless liquid

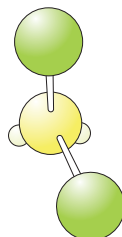
**ORDERING INFORMATION**

Code: SILCO  
 Grades: 4N

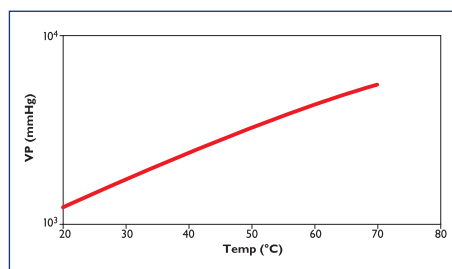
Silcore® is a registered trademark of ASM International NV

**VAPOUR PRESSURE CURVE****Dichlorosilane****SiCl<sub>2</sub>H<sub>2</sub>**

Formula Weight: 101.01  
 Boiling Point: 8.3°C  
 Melting Point: -122°C  
 Gas Density @ 15°C: 4.270 kg/m<sup>3</sup>  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.599 - 1323/T(\text{K})$   
 Appearance: Gas

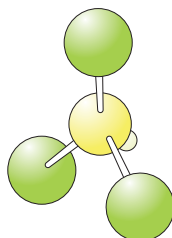
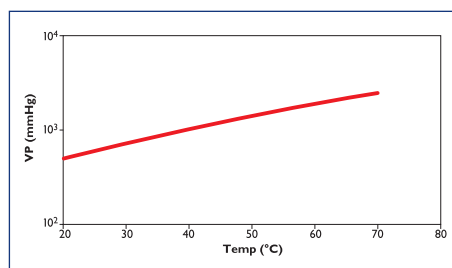
**ORDERING INFORMATION**

Code: DCS  
 Grades: HP

**VAPOUR PRESSURE CURVE**

**SiCl<sub>3</sub>H**

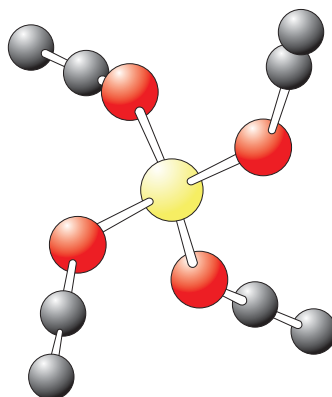
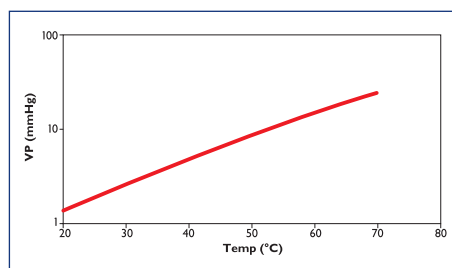
Formula Weight: 135.45  
 Boiling Point: 32-34°C  
 Melting Point: -127°C  
 Density: 1.341 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.465 - 1397/T(\text{K})$   
 Appearance: Low boiling liquid (colourless liquid)

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

Code: TCS  
 Grades: HP

**Tetraethylorthosilicate****Si(OC<sub>2</sub>H<sub>5</sub>)<sub>4</sub>**

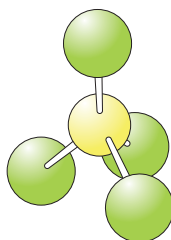
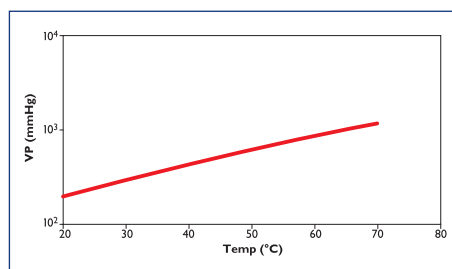
Formula Weight: 208.37  
 Boiling Point: 167°C  
 Melting Point: -77°C  
 Density: 0.940 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.742 - 2522/T(\text{K})$   
 Appearance: Colourless liquid

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

Code: TEOS  
 Grades: HP

**Silicon tetrachloride****SiCl<sub>4</sub>**

Formula Weight: 169.89  
 Boiling Point: 58°C  
 Melting Point: -70°C  
 Density: 1.483 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.620 - 1562/T(\text{K})$   
 Appearance: Colourless liquid

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

Code: SICL4  
 Grades: HP

# STRONTIUM

## Bis[pentakis(ethoxy)dimethylaminoethoxy)tantalum]strontium

CAS Number 220057-73-8



Formula Weight: 1076.42

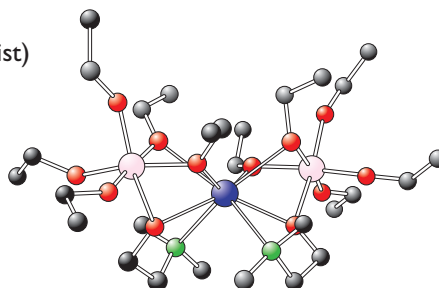
Boiling Point: 90-100°C @ 0.2 mmHg (dist)

Melting Point: N/A

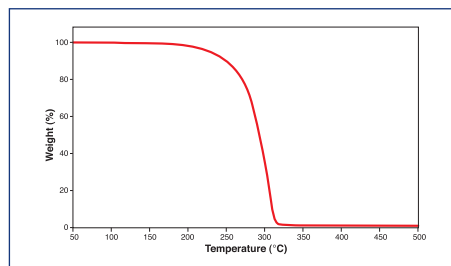
Density: 1.250 g/ml

V.P. Equation: N/A

Appearance: Pale yellow liquid



### THERMOGRAVIMETRIC ANALYSIS



### ORDERING INFORMATION

Code: STEDMA

Grades: RE

## Bis(2,2,6,6-tetramethylheptane-3,5-dionato)strontium

CAS Number 36885-30-0



Formula Weight: 1362.48

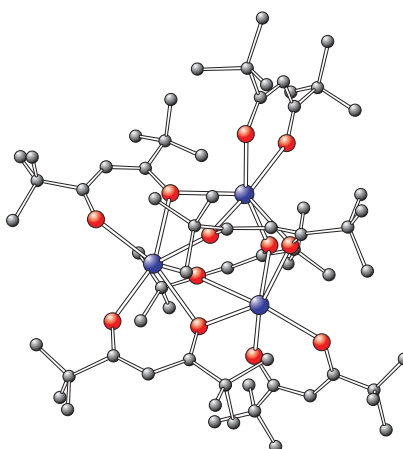
Boiling Point: 230°C @ 0.7 mmHg (sub)

Melting Point: 200°C

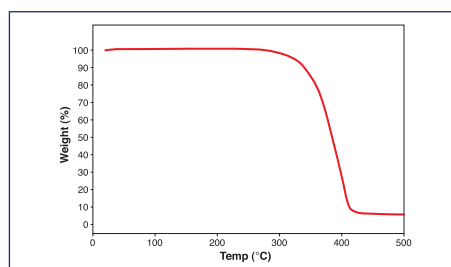
Density: N/A

V.P. Equation: N/A

Appearance: White crystalline powder



### THERMOGRAVIMETRIC ANALYSIS



### ORDERING INFORMATION

Code: SRTHD

Grades: EG

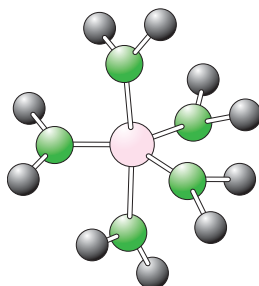
# TANTALUM

## Pentakis(dimethylamino)tantalum

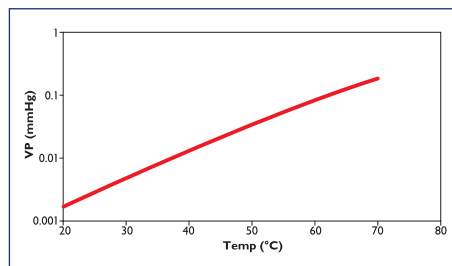
CAS Number 19824-59-0

### Ta(NC<sub>2</sub>H<sub>6</sub>)<sub>5</sub>

Formula Weight: 401.35  
Boiling Point: 150-180°C  
Melting Point: 90°C @ 0.8 mmHg (sub)  
Density: 1.252 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 11.30 - 4125/T(\text{K})$   
Appearance: Pale yellow solid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

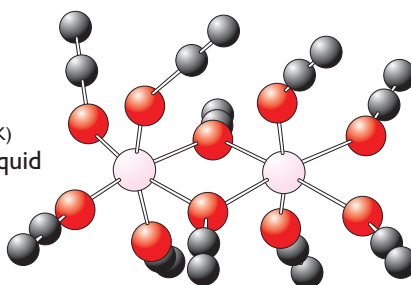
Code: PDMAT  
Grades: EG, AG, EpiPure™

## Pentakis(ethoxy)tantalum

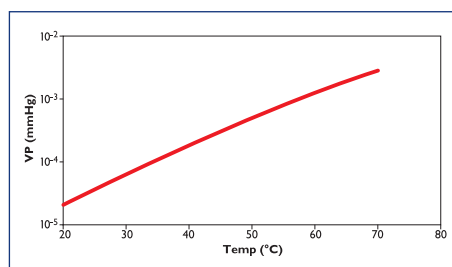
CAS Number 6074-84-6

### [Ta(OC<sub>2</sub>H<sub>5</sub>)<sub>5</sub>]<sub>2</sub>

Formula Weight: 406.25  
Boiling Point: 140°C @ 0.1 mmHg  
Melting Point: 21°C  
Density: 1.560 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 9.966 - 4288/T(\text{K})$   
Appearance: Colourless or slightly yellow liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

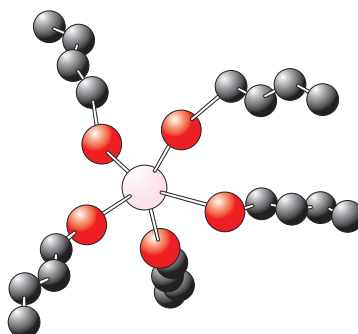
Code: TAET  
Grades: EG, AG, EpiPure™

## Pentakis(butoxy)tantalum

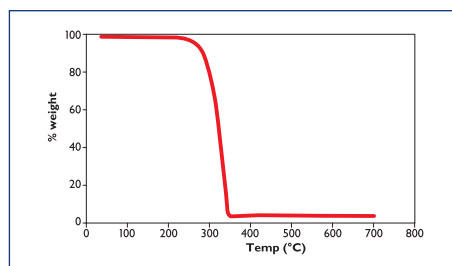
CAS Number 51094-78-1

### Ta(OC<sub>4</sub>H<sub>9</sub>)<sub>5</sub>

Formula Weight: 546.52  
Boiling Point: 118°C  
Melting Point: N/A  
Density: 1.340 g/ml  
V.P. Equation: N/A  
Appearance: Very pale yellow liquid



#### THERMOGRAVIMETRIC ANALYSIS



#### ORDERING INFORMATION

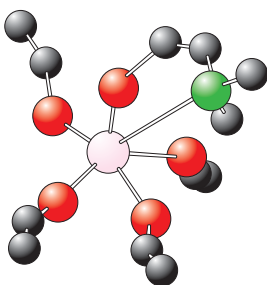
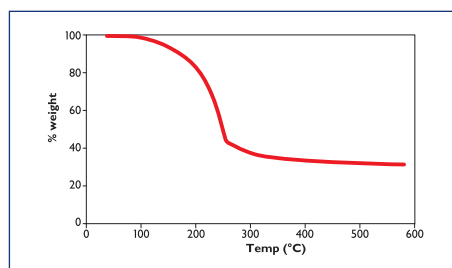
Code: TANBUT  
Grades: RE

**Ta(OC<sub>2</sub>H<sub>5</sub>)<sub>4</sub>(OC<sub>2</sub>H<sub>4</sub>N(CH<sub>3</sub>)<sub>2</sub>)**

Formula Weight: 449.33  
 Boiling Point: 95°C @ 0.2 mmHg  
 Melting Point: <0°C  
 Density: 1.400 g/ml  
 V.P. Equation: N/A  
 Appearance: Pale yellow liquid

**ORDERING INFORMATION**

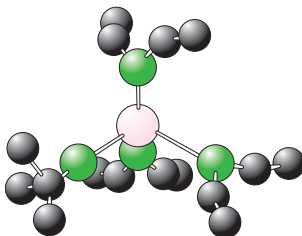
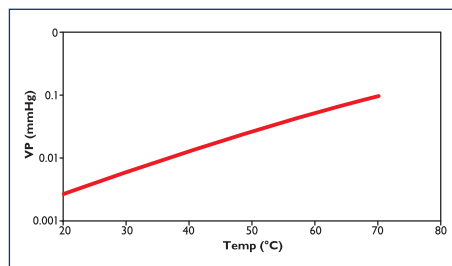
Code: TATDMA  
 Grades: CG

**THERMOGRAVIMETRIC ANALYSIS****Tris(diethylamino)(tert-butylimido)tantalum****Ta(N(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>)<sub>3</sub>NC(CH<sub>3</sub>)<sub>3</sub>**

Formula Weight: 468.45  
 Boiling Point: 95°C @ 0.5 mmHg  
 Melting Point: N/A  
 Density: 1.200 g/ml  
 V.P. Equation: N/A  
 Appearance: Yellow, orange liquid

**ORDERING INFORMATION**

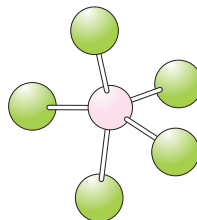
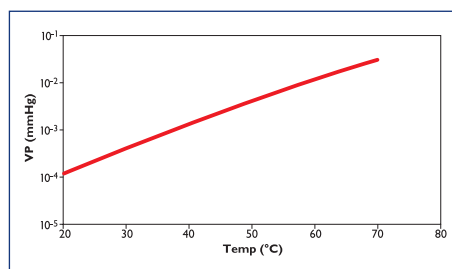
Code: TBTDET  
 Grades: CG

**VAPOUR PRESSURE CURVE****Tantalum pentachloride****TaCl<sub>5</sub>**

Formula Weight: 358.21  
 Boiling Point: 242°C  
 Melting Point: 221°C  
 Density: 3.680 g/ml  
 V.P. Equation:  $\text{Log}_{10}P_{(\text{mmHg})} = 12.734 - 4890/T(\text{K})$   
 Appearance: White solid (powder)

**ORDERING INFORMATION**

Code: TAACL  
 Grades: RE

**VAPOUR PRESSURE CURVE**

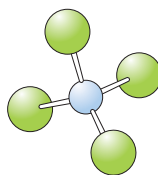
# TITANIUM

## Titanium tetrachloride

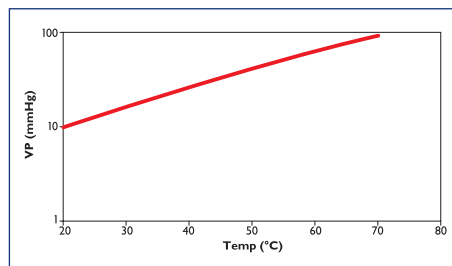
CAS Number 7550-45-0

### TiCl<sub>4</sub>

Formula Weight: 189.68  
Boiling Point: 137°C  
Melting Point: -24°C  
Density @ 20°C: 1.726 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.640 - 1947/T(\text{K})$   
Appearance: Colourless liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

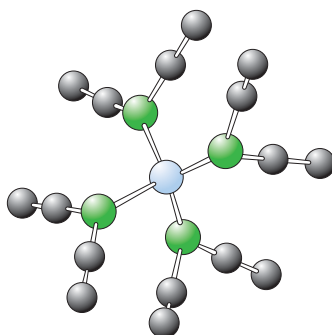
Code: TICL  
Grades: EG, AG

## Tetrakis(diethylamino)titanium

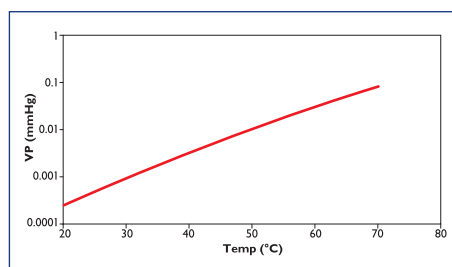
CAS Number 4419-47-0

### Ti(NC<sub>4</sub>H<sub>10</sub>)<sub>4</sub>

Formula Weight: 336.42  
Boiling Point: 85-90°C @ 0.1 mmHg  
Melting Point: -28°C  
Density: 0.930 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 13.67 - 5065/T(\text{K})$   
Appearance: Dark red liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

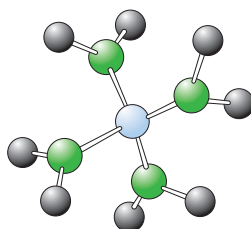
Code: TDEAT  
Grades: EG

## Tetrakis(dimethylamino)titanium

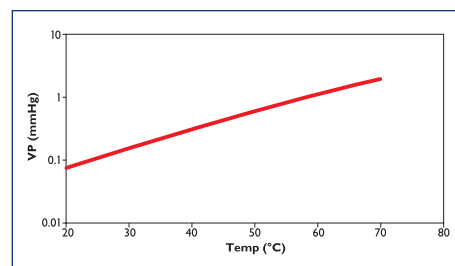
CAS Number 3275-24-9

### Ti(NC<sub>2</sub>H<sub>6</sub>)<sub>4</sub>

Formula Weight: 224.24  
Boiling Point: 50°C @ 0.5 mmHg  
Melting Point: -30°C  
Density: 0.960 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.600 - 2850/T(\text{K})$   
Appearance: Yellow liquid

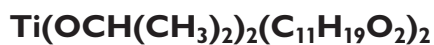


#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

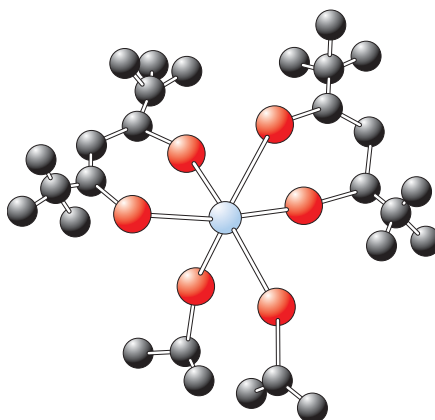
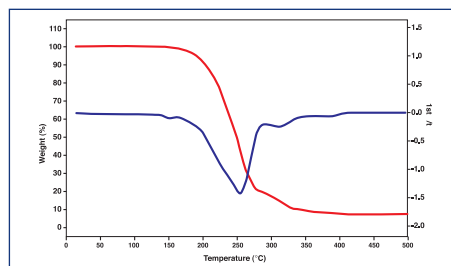
Code: TDMAT  
Grades: EG



Formula Weight: 532.58  
 Boiling Point: 150°C @ 10<sup>-2</sup> mmHg (sub)  
 Melting Point: 170°C  
 Density: N/A  
 V.P. Equation: N/A  
 Appearance: White crystalline powder

**ORDERING INFORMATION**

Code: TI-2-2  
 Grades: CG

**THERMOGRAVIMETRIC ANALYSIS****Tetrakis(tert-butoxy)titanium**

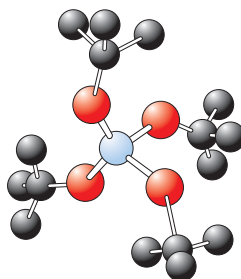
CAS Number 3087-39-6



Formula Weight: 340.34  
 Boiling Point: 160-165°C @ 15 mmHg  
 Melting Point: 4°C  
 Density: 0.890 g/ml  
 V.P. Equation: N/A  
 Appearance: Colourless liquid

**ORDERING INFORMATION**

Code: TITBUT  
 Grades: RE

**Tetrakis(1-methoxy-2-methyl-2-propoxy)titanium**

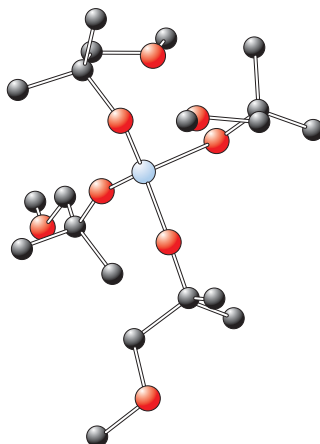
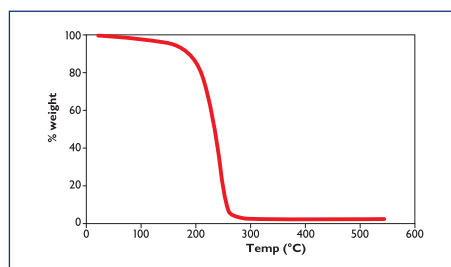
CAS Number N/A



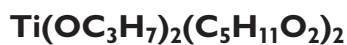
Formula Weight: 460.44  
 Boiling Point: N/A  
 Melting Point: N/A  
 Density: N/A  
 V.P. Equation: N/A  
 Appearance: Yellow oil

**ORDERING INFORMATION**

Code: TIMMP4  
 Grades: RE

**THERMOGRAVIMETRIC ANALYSIS**

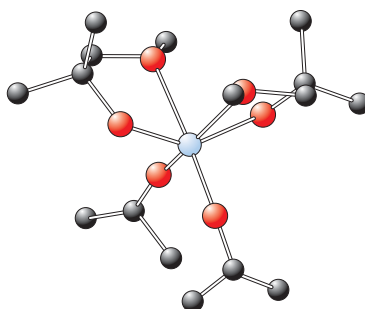
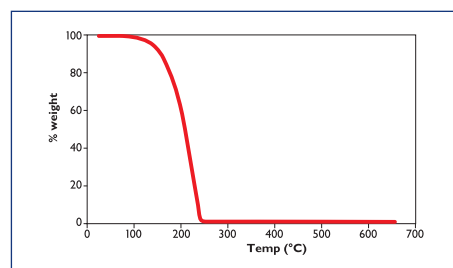




Formula Weight: 372.4  
 Boiling Point: N/A  
 Melting Point: N/A  
 Density: N/A  
 V.P. Equation: N/A  
 Appearance: White crystalline solid

**ORDERING INFORMATION**

Code: TIIPMM  
 Grades: RE

**THERMOGRAVIMETRIC ANALYSIS****TUNGSTEN****Tungsten hexafluoride**

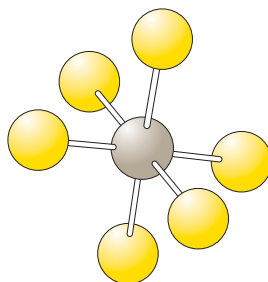
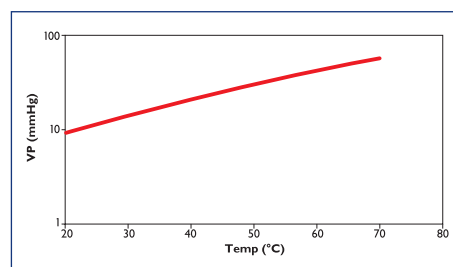
CAS Number 7783-82-6



Formula Weight: 297.84  
 Boiling Point: 17°C  
 Melting Point: 2.3°C  
 Gas Density: 1.125 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.467 - 1612/T(\text{K})$   
 Appearance: Colourless gas

**ORDERING INFORMATION**

Code: WF63N  
 Grades: 6N

**VAPOUR PRESSURE CURVE****Tungsten hexacarbonyl**

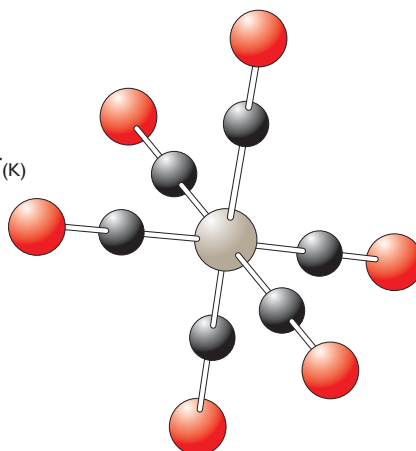
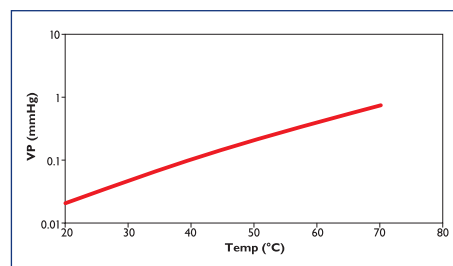
CAS Number 14040-11-0



Formula Weight: 351.91  
 Boiling Point: N/A  
 Melting Point: 150°C  
 Density: 2.650 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 9.046 - 3145/T(\text{K})$   
 Appearance: White powder

**ORDERING INFORMATION**

Code: WCO6  
 Grades: HP

**VAPOUR PRESSURE CURVE**

# YTTRIUM

## Tris(2,2,6,6-tetramethylheptane-3,5-dionato)yttrium

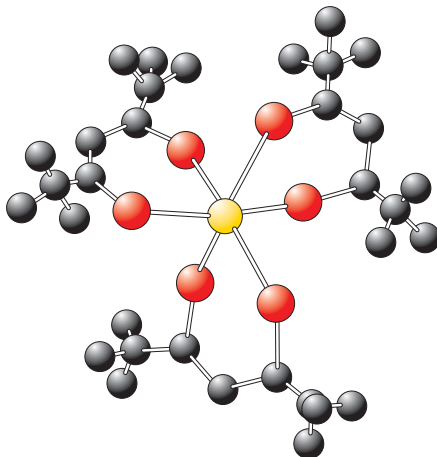
CAS Number 15632-39-0



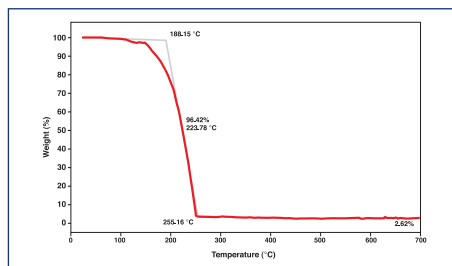
Formula Weight: 638.71  
Boiling Point: 290°C (del)  
Melting Point: 175°C  
Density: N/A  
V.P. Equation: N/A  
Appearance: White crystalline solid

### ORDERING INFORMATION

Code: YTHDSB  
Grades: EG



### THERMOGRAVIMETRIC ANALYSIS



## Tris(1-methoxy-2-methyl-2-propoxy)yttrium

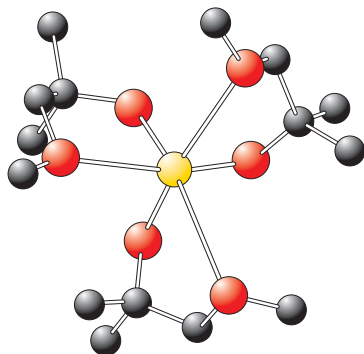
CAS Number N/A



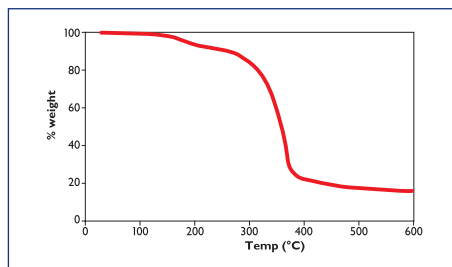
Formula Weight: 398.4  
Boiling Point: N/A  
Melting Point: N/A  
Density: N/A  
V.P. Equation: N/A  
Appearance: White solid

### ORDERING INFORMATION

Code: YMMP  
Grades: RE



### THERMOGRAVIMETRIC ANALYSIS



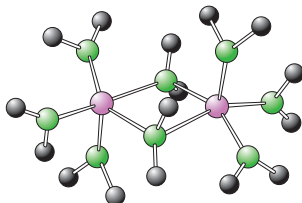
# ZIRCONIUM

## Tetrakis(dimethylamino)zirconium

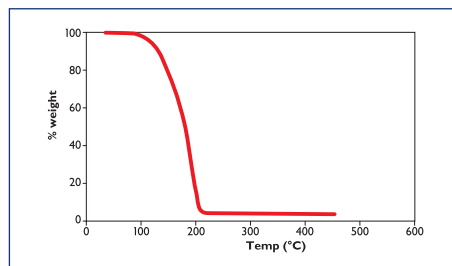
CAS Number 19756-04-8



Formula Weight: 535.16  
Boiling Point: N/A  
Melting Point: 57-60°C  
Density: N/A  
V.P. Equation: N/A  
Appearance: Pale yellow solid



### THERMOGRAVIMETRIC ANALYSIS



### ORDERING INFORMATION

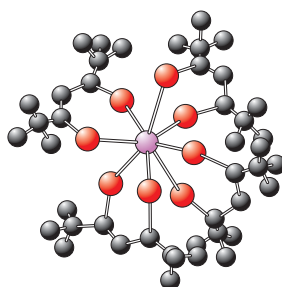
Code: ZRDMA  
Grades: CG

## Tetrakis(2,2,6,6-tetramethylheptane-3,5-dionato)zirconium

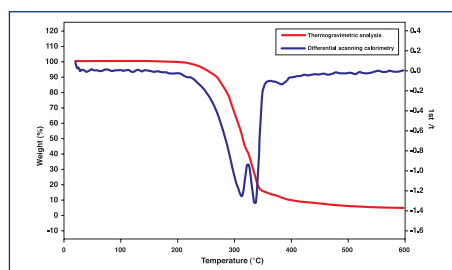
CAS Number 18865-74-2



Formula Weight: 824.29  
Boiling Point: 180°C @ 0.1 mmHg (sub)  
Melting Point: 308°C  
Density: N/A  
V.P. Equation: N/A  
Appearance: White crystalline solid



### THERMOGRAVIMETRIC ANALYSIS



### ORDERING INFORMATION

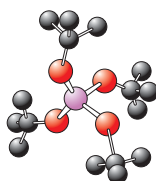
Code: ZRTHD  
Grades: EG

## Tetrakis(tert-butoxy)zirconium

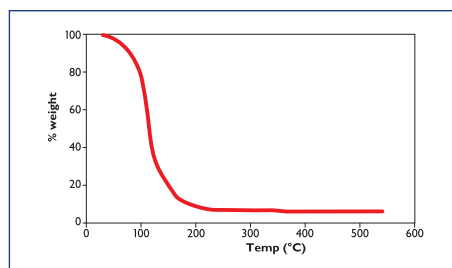
CAS Number 2081-12-1



Formula Weight: 383.74  
Boiling Point: 81°C @ 3 mmHg  
Melting Point: 3°C  
Density: 0.960 g/ml  
V.P. Equation: N/A  
Appearance: Clear colourless liquid



### THERMOGRAVIMETRIC ANALYSIS



### ORDERING INFORMATION

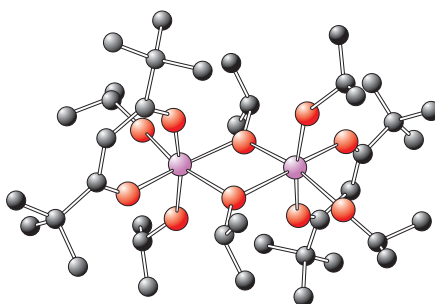
Code: ZRTBUT  
Grades: RE



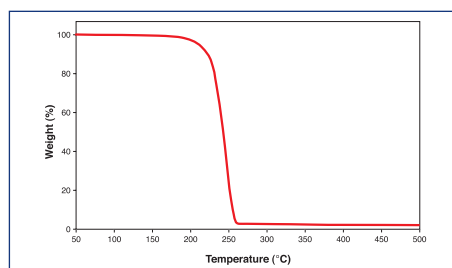
Formula Weight: 903.64  
 Boiling Point: N/A  
 Melting Point: 160-163°C  
 Density: N/A  
 V.P. Equation: N/A  
 Appearance: White crystalline solid

**ORDERING INFORMATION**

Code: ZRISTH  
 Grades: CG



**THERMOGRAVIMETRIC ANALYSIS**



**Tetrakis(ethylmethylamino)zirconium**

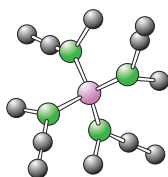
CAS Number 175923-04-3



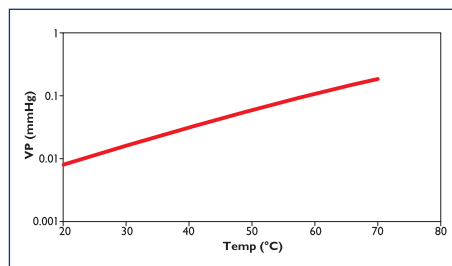
Formula Weight: 323.63  
 Boiling Point: 81°C @ 0.1 mmHg  
 Melting Point: N/A  
 Density: 1.049 g/ml  
 V.P. Equation:  $\log_{10}P(\text{mmHg}) = 7.3218 - 2759.9/T(\text{K})$   
 Appearance: Yellow liquid

**ORDERING INFORMATION**

Code: ZREMA  
 Grades: EG



**VAPOUR PRESSURE CURVE**



**Tetrakis(diethylamino)zirconium**

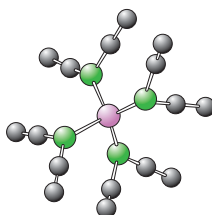
CAS Number 13801-49-5



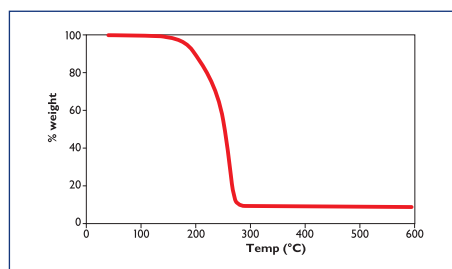
Formula Weight: 379.73  
 Boiling Point: 112°C @ 0.1 mmHg  
 Melting Point: N/A  
 Density: N/A  
 V.P. Equation: N/A  
 Appearance: Yellow liquid

**ORDERING INFORMATION**

Code: ZRDEA  
 Grades: CG

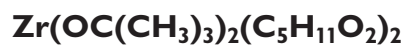


**THERMOGRAVIMETRIC ANALYSIS**

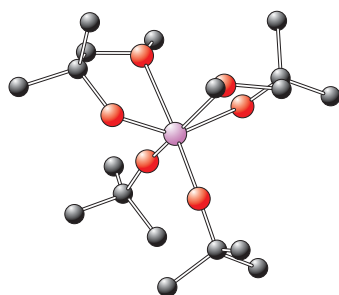
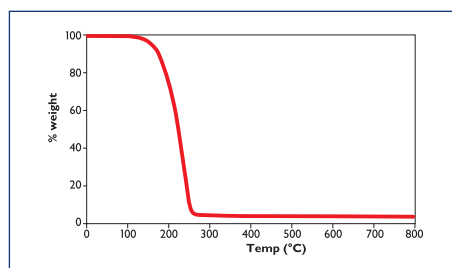


**Bis(tert-butoxy)bis(1-methoxy-2-methyl-2-propoxy)zirconium**

CAS Number 413569-99-7



Formula Weight: 443.8  
Boiling Point: N/A  
Melting Point: 96-101°C  
Density: N/A  
V.P. Equation: N/A  
Appearance: White solid

**THERMOGRAVIMETRIC ANALYSIS****ORDERING INFORMATION**

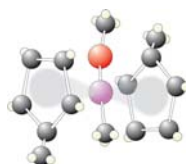
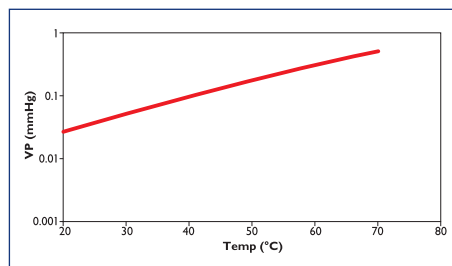
Code: ZRTBMM  
Grades: RE

**Bis(methyl- $\eta^5$ -cyclopentadienyl)methoxymethylzirconium**

CAS Number N/A



Formula Weight: 295.5  
Boiling Point: 110°C @ 0.5 mmHg  
Melting Point: N/A  
Density: 1.27 ± 0.01 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.2474 - 2586.4/T(\text{K})$   
Appearance: Colourless liquid

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

Code: (ZrD-04) ZRCMMM  
Grades: EG



Compound  
Semiconductor

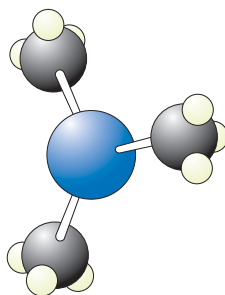
# ALUMINIUM

## Trimethylaluminium

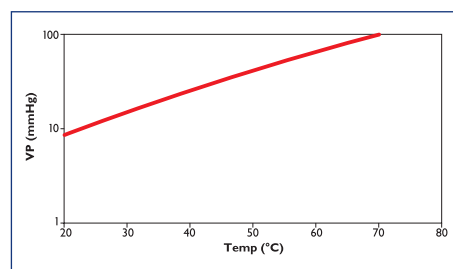
CAS Number 75-24-1

### $\text{Al}(\text{CH}_3)_3$

Formula Weight: 72.09  
Boiling Point: 127°C  
Melting Point: 15.4°C  
Density @ 20°C: 0.752 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.220 - 2134/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

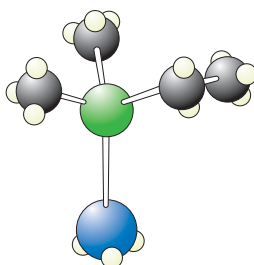
Code: TMAL  
Grades: EG, AG, EpiPure™

## Dimethylethylamine alane

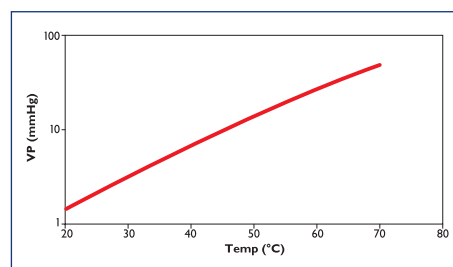
CAS Number 124330-23-0

### $\text{AlH}_3 \cdot \text{N}(\text{CH}_3)_2(\text{C}_2\text{H}_5)$

Formula Weight: 103.12  
Boiling Point: 50-55°C @ 0.052 mmHg  
Melting Point: 5°C  
Density @ 20°C: 0.780 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.70 - 3090/T(\text{K})$   
Appearance: Colourless liquid with smell of amine



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

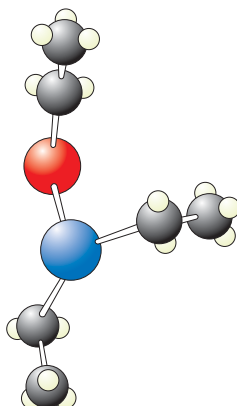
Code: DMEA  
Grades: AG

## Diethylaluminium ethoxide

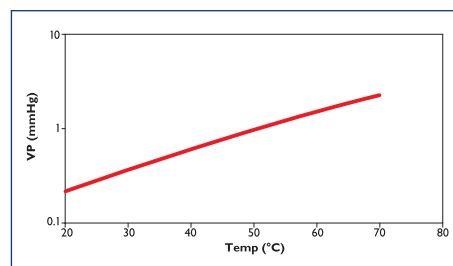
CAS Number 1586-92-1

### $(\text{C}_2\text{H}_5)_2\text{Al}(\text{OC}_2\text{H}_5)$

Formula Weight: 130.17  
Boiling Point: 108-109°C @ 10 mmHg  
Melting Point: 2.5-4.5°C  
Density @ 20°C: 0.850 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 6.350 - 2054/T(\text{K})$   
Appearance: Liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: DEAL  
Grades: RE

# ANTIMONY

## Tris(dimethylamino)antimony

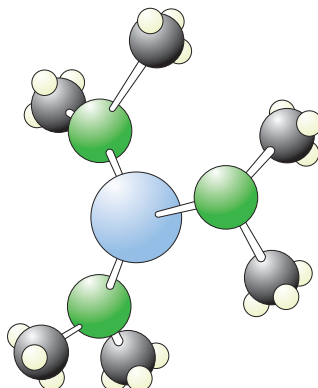
CAS Number 7289-92-1

### $\text{Sb}(\text{N}(\text{CH}_3)_2)_3$

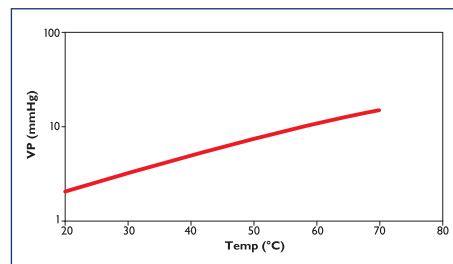
Formula Weight: 253.81  
Boiling Point: 57°C @ 2 mmHg  
Melting Point: N/A  
Density @ 20°C: 1.300 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 6.230 - 1734/T(\text{K})$   
Appearance: Colourless, light sensitive liquid

#### ORDERING INFORMATION

Code: AMSB  
Grades: EG, AG



#### VAPOUR PRESSURE CURVE



## Triethylantimony

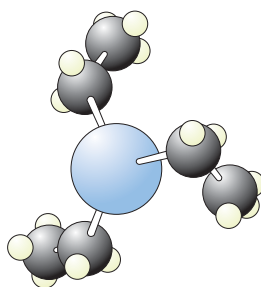
CAS Number 617-85-6

### $\text{Sb}(\text{C}_2\text{H}_5)_3$

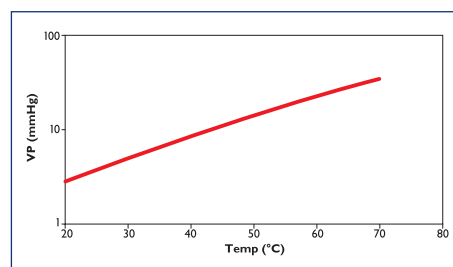
Formula Weight: 208.94  
Boiling Point: 159.5°C  
Melting Point: -29°C  
Density @ 20°C: 1.324 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.900 - 2183/T(\text{K})$   
Appearance: Colourless liquid

#### ORDERING INFORMATION

Code: TESB  
Grades: EG, AG



#### VAPOUR PRESSURE CURVE



## Trimethylantimony

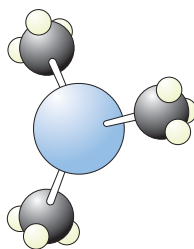
CAS Number 594-10-5

### $\text{Sb}(\text{CH}_3)_3$

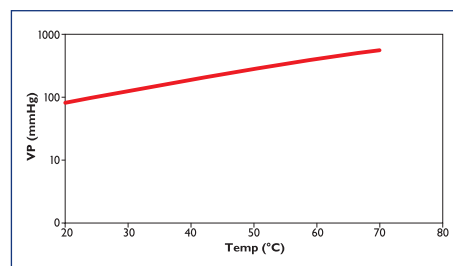
Formula Weight: 166.85  
Boiling Point: 80.6°C  
Melting Point: -87.6°C  
Density @ 20°C: 1.528 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.730 - 1709/T(\text{K})$   
Appearance: Colourless liquid

#### ORDERING INFORMATION

Code: TMSB  
Grades: EG, AG



#### VAPOUR PRESSURE CURVE





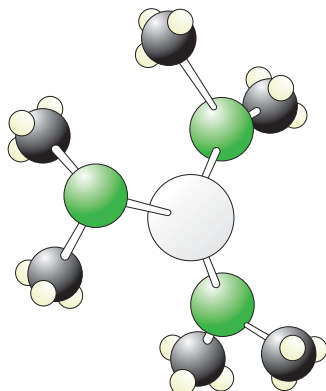
# ARSENIC

## Tris(dimethylamino)arsine

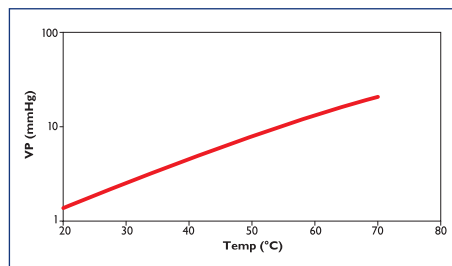
CAS Number 6596-96-9

### As(N(CH<sub>3</sub>)<sub>2</sub>)<sub>3</sub>

Formula Weight: 207.19  
Boiling Point: 55-57°C @ 10 mmHg  
Freezing Point: -53°C  
Density @ 23°C: 1.248 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.290 - 2391/T(\text{K})$   
Appearance: Colourless liquid with strong smell of amine



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: AMAS  
Grades: EG

## Arsine

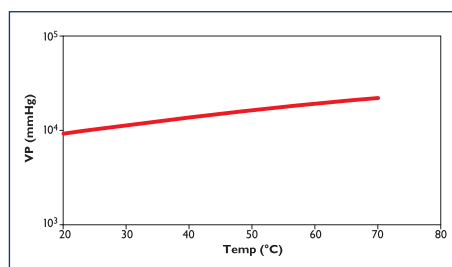
CAS Number 07784-42-1

### AsH<sub>3</sub>

Formula Weight: 77.95  
Boiling Point: -62.5°C  
Melting Point: -117°C  
Gas Density @ 15°C: 3.290 kg/m<sup>3</sup>  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 6.569 - 762.4/T(\text{K})$   
Appearance: Colourless gas



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: ASH3  
Grades: UHP, 6N

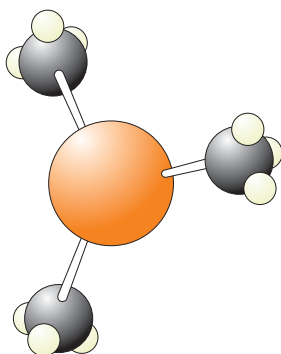
# BISMUTH

## Trimethylbismuth

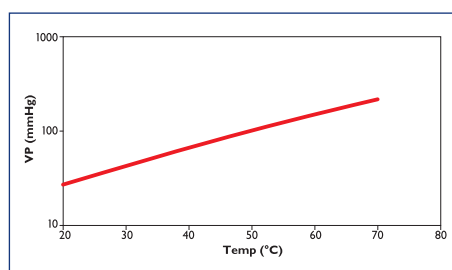
CAS Number 593-91-9

### Bi(CH<sub>3</sub>)<sub>3</sub>

Formula Weight: 254.08  
Boiling Point: 110°C  
Melting Point: -86°C  
Density @ 20°C: 2.300 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.628 - 1816/T(\text{K})$   
Appearance: Liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: TMBI  
Grades: RE

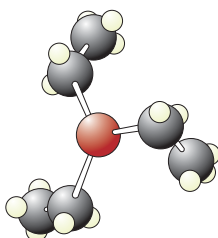
# BORON

## Triethylboron

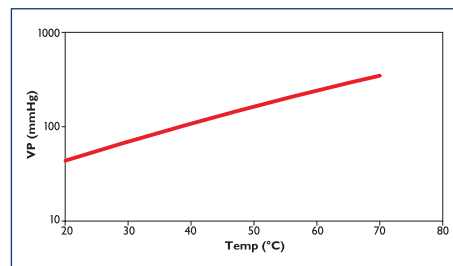
CAS Number 97-94-9

### $B(C_2H_5)_3$

Formula Weight: 98.00  
Boiling Point: 95°C  
Melting Point: N/A  
Density: 0.6961 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.812 - 1814/T(K)$   
Appearance: Colourless liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: ET3B  
Grades: RE

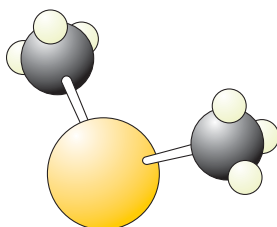
# CADMIUM

## Dimethylcadmium

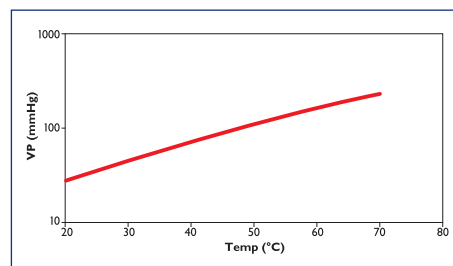
CAS Number 506-82-1

### $Cd(CH_3)_2$

Formula Weight: 142.9  
Boiling Point: 105.5°C  
Melting Point: -4.5°C  
Density @ 20°C: 1.985 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.760 - 1850/T(K)$   
Appearance: Colourless liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: DMCD  
Grades: EG, AG

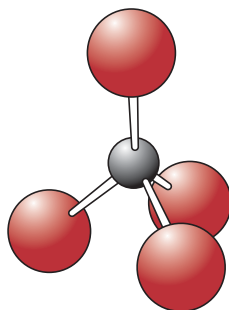
# CARBON

## Carbon tetrabromide

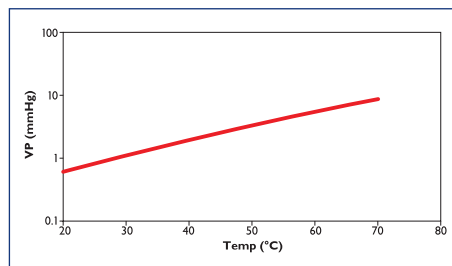
CAS Number 558-13-4

### $\text{CBr}_4$

Formula Weight: 331.6  
Boiling Point:  $190^\circ\text{C}$   
Melting Point:  $88-90^\circ\text{C}$   
Density @  $20^\circ\text{C}$ : 3.420 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.780 - 2346/T(\text{K})$   
Appearance: White solid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

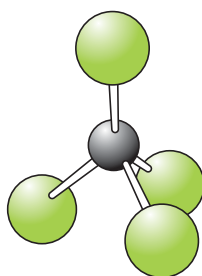
Code: CBR4  
Grades: EG, AG

## Carbon tetrachloride

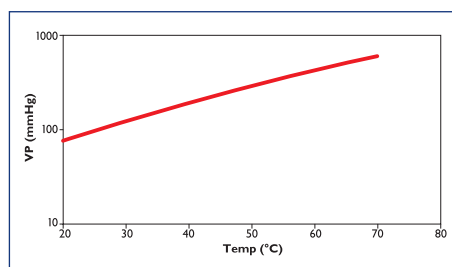
CAS Number 56-23-5

### $\text{CCl}_4$

Formula Weight: 153.82  
Boiling Point:  $77^\circ\text{C}$   
Melting Point:  $-23^\circ\text{C}$   
Density @  $20^\circ\text{C}$ : 1.590 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.050 - 1807.5/T(\text{K})$   
Appearance: Colourless liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

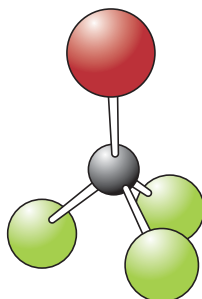
Code: CCL4  
Grades: EG, AG

## Carbon trichlorobromide

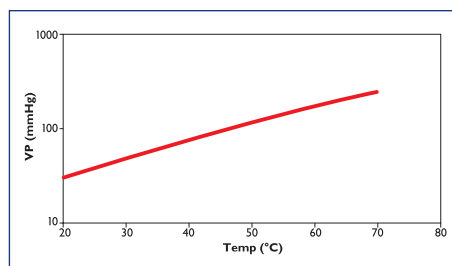
CAS Number 75-62-7

### $\text{CCl}_3\text{Br}$

Formula Weight: 198.26  
Boiling Point:  $100-105^\circ\text{C}$   
Melting Point:  $-6^\circ\text{C}$   
Density @  $20^\circ\text{C}$ : 2.012 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.730 - 1832/T(\text{K})$   
Appearance: Colourless liquid



#### VAPOUR PRESSURE CURVE

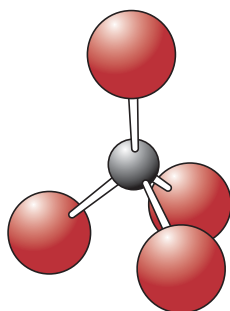
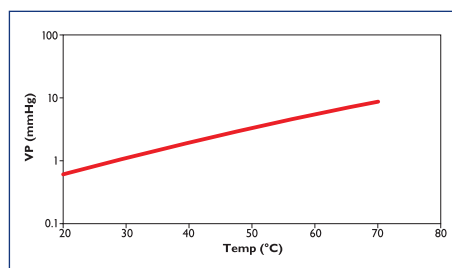


#### ORDERING INFORMATION

Code: BTCM  
Grades: RE

**CBr<sub>4</sub> in CH<sub>3</sub>(CH<sub>2</sub>)<sub>14</sub>CH<sub>3</sub>**

Formula Weight: 331.6  
 Boiling Point: 190°C  
 Melting Point: 88-90°C  
 Density @ 20°C: 3.420 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.780 - 2346/T(\text{K})$   
 Appearance: Saturated colourless solution

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

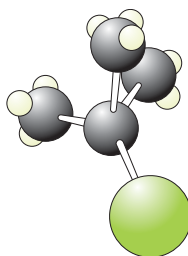
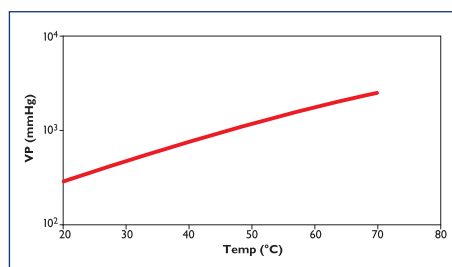
Code: CBRS  
 Grades: EG, AG, EpiPure™

**CHLORINE****Tert-butylchloride**

CAS Number 507-20-0

**C(CH<sub>3</sub>)<sub>3</sub>Cl**

Formula Weight: 92.58  
 Boiling Point: 51°C  
 Melting Point: -26°C  
 Density @ 20°C: 0.840 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.995 - 1916/T(\text{K})$   
 Appearance: Liquid

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

Code: TBCL  
 Grades: RE

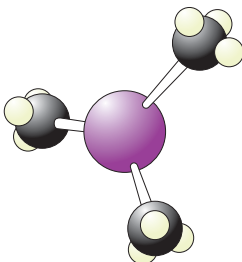
# GALLIUM

## Trimethylgallium

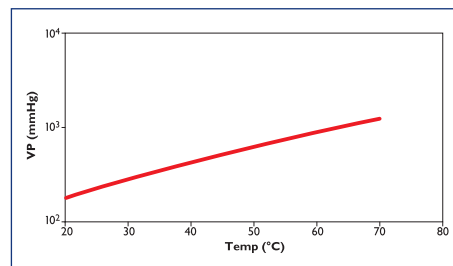
CAS Number 1445-79-0

### $\text{Ga}(\text{CH}_3)_3$

Formula Weight: 114.82  
Boiling Point: 55.7°C  
Melting Point: -15.8°C  
Density @ 20°C: 1.151 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.070 - 1703/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

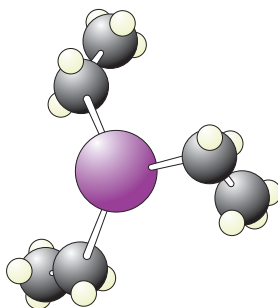
Code: TMGA  
Grades: EG, AG, EpiPure™

## Triethylgallium

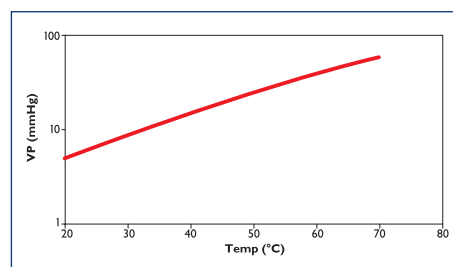
CAS Number 1115-99-7

### $\text{Ga}(\text{C}_2\text{H}_5)_3$

Formula Weight: 156.91  
Boiling Point: 143°C  
Melting Point: -82.3°C  
Density @ 15°C: 1.060 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.080 - 2162/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: TEGA  
Grades: EG, AG, EpiPure™

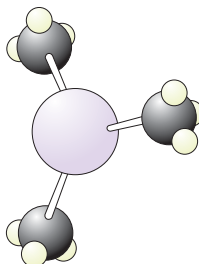
# INDIUM

## Trimethylindium

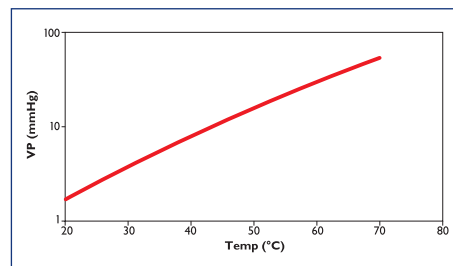
CAS Number 3385-78-2

### $\text{In}(\text{CH}_3)_3$

Formula Weight: 159.93  
Boiling Point: 133.8°C  
Melting Point: 88.4°C  
Density @ 20°C: 1.568 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.52 - 3014/T(\text{K})$   
Appearance: White, crystalline solid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

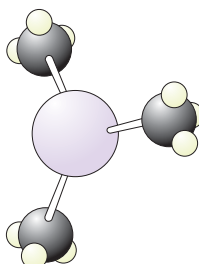
Code: TMIN  
Grades: EG, AG, EpiPure™

## Solution TMI™

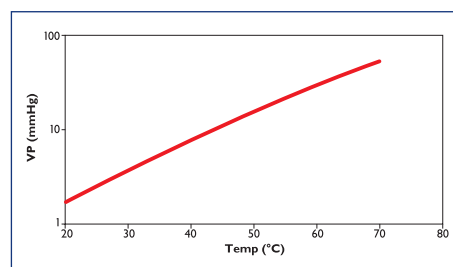
CAS Number 3385-78-2 & 112-18-5

### $\text{In}(\text{CH}_3)_3$ & $(\text{CH}_3)_2\text{NC}_{12}\text{H}_{25}$ Trimethylindium

Formula Weight: 159.93  
Boiling Point: 133.8°C  
Melting Point: 88.4°C  
Density @ 20°C: 1.568 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.52 - 3014/T(\text{K})$   
Appearance: White slurry



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: TMIS  
Grades: EG, AG, EpiPure™

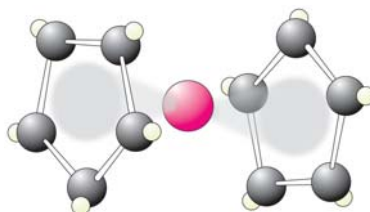
# IRON

## Bis( $\eta^5$ -cyclopentadienyl)iron

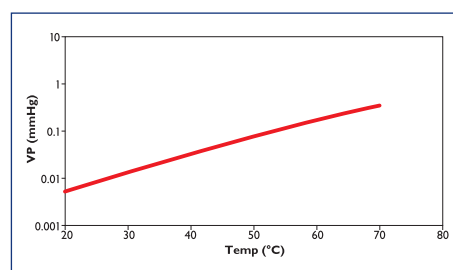
CAS Number 102-54-5

### $\text{Fe}(\text{C}_5\text{H}_5)_2$

Formula Weight: 185.85  
Boiling Point: 249°C  
Melting Point: 171°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.27 - 3680/T(\text{K})$   
Appearance: Red/orange solid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: CPFE  
Grades: EG, AG

# MAGNESIUM

## Bis( $\eta^5$ -cyclopentadienyl)magnesium

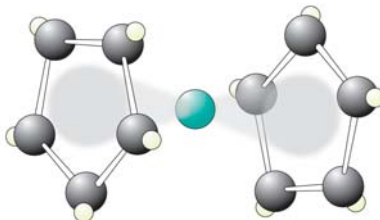
CAS Number 1284-72-6

### $Mg(C_5H_5)_2$

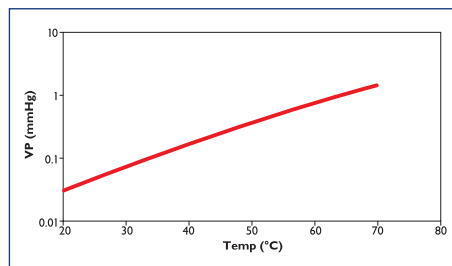
Formula Weight: 154.49  
Boiling Point: 290°C  
Melting Point: 176°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.00 - 3372/T(\text{K})$   
Appearance: White solid

#### ORDERING INFORMATION

Code: CPMG  
Grades: EG, AG



#### VAPOUR PRESSURE CURVE



## Solution Bis( $\eta^5$ -cyclopentadienyl)magnesium

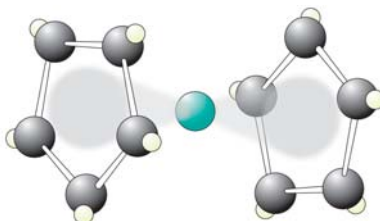
CAS Number 1284-72-6 & 111-01-3

### $Mg(C_5H_5)_2$ in $C_{30}H_{62}$

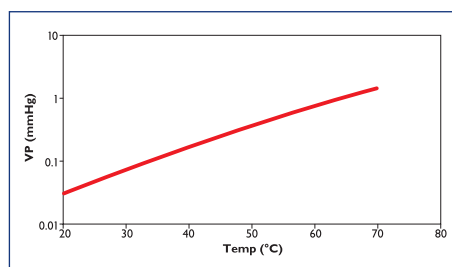
Formula Weight: 154.49  
Boiling Point: 290°C  
Melting Point: 176°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.00 - 3372/T(\text{K})$   
Appearance: White slurry

#### ORDERING INFORMATION

Code: CPMS  
Grades: EG, AG



#### VAPOUR PRESSURE CURVE



## Bis(methyl- $\eta^5$ -cyclopentadienyl)magnesium

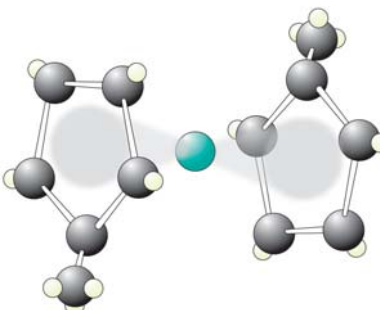
CAS Number 40672-08-0

### $Mg(CH_3C_5H_4)_2$

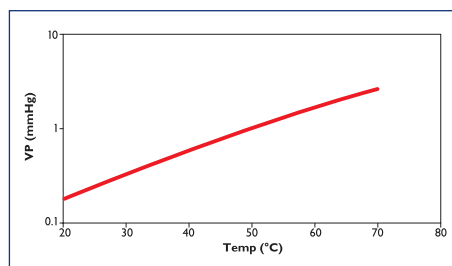
Formula Weight: 182.55  
Boiling Point: 56-60°C @ 0.3 mmHg  
Melting Point: 29°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.300 - 2358/T(\text{K})$   
Appearance: White solid

#### ORDERING INFORMATION

Code: CPMM  
Grades: EG, AG



#### VAPOUR PRESSURE CURVE



# MANGANESE

## Bis(methyl- $\eta^5$ -cyclopentadienyl)manganese

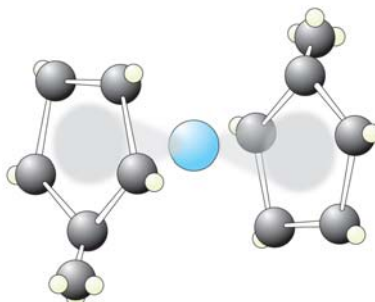
CAS Number N/A

### $\text{Mn}(\text{CH}_3\text{C}_5\text{H}_4)_2$

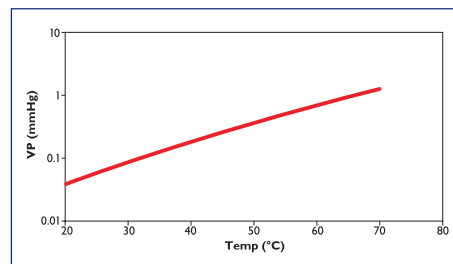
Formula Weight: 213.2  
Boiling Point: N/A  
Melting Point: 63°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 9.000 - 3050/T(\text{K})$   
Appearance: Orange/red solid

#### ORDERING INFORMATION

Code: MECPMN  
Grades: RE



#### VAPOUR PRESSURE CURVE



# NITROGEN

## Tert-butylamine

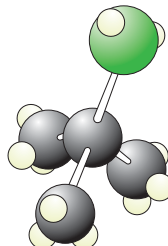
CAS Number 75-64-9

### $(\text{CH}_3)_3\text{CNH}_2$

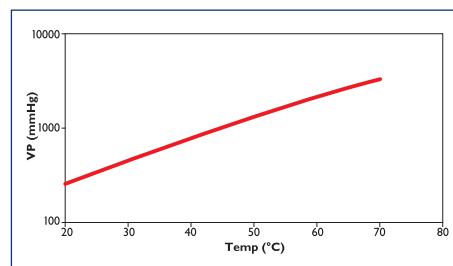
Formula Weight: 73.04  
Boiling Point: 45.2°C  
Melting Point: -67.5°C  
Density @ 20°C: 0.700 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 10.06 - 2243/T(\text{K})$   
Appearance: Colourless liquid with very unpleasant ammonia-like smell

#### ORDERING INFORMATION

Code: TBAM  
Grades: AG



#### VAPOUR PRESSURE CURVE



## 1,1-Dimethylhydrazine

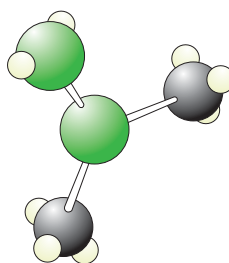
CAS Number 57-14-7

### $(\text{CH}_3)_2\text{NNH}_2$

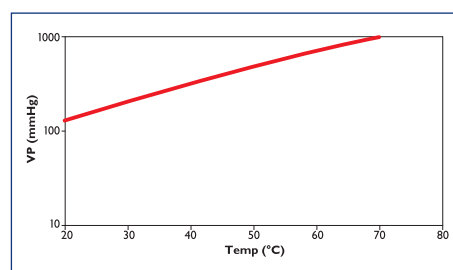
Formula Weight: 60.10  
Boiling Point: 62-64°C @ 753 mmHg  
Melting Point: -58°C  
Density @ 20°C: 0.791 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.190 - 1780/T(\text{K})$   
Appearance: Colourless liquid

#### ORDERING INFORMATION

Code: DMHZ  
Grades: AG, EpiPure™



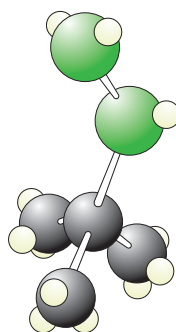
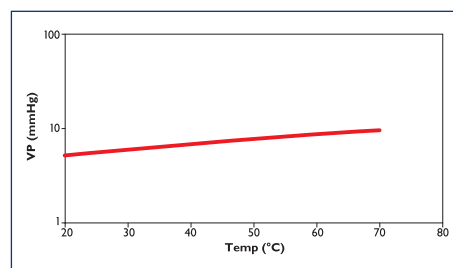
#### VAPOUR PRESSURE CURVE





**(CH<sub>3</sub>)<sub>3</sub>CNHNH<sub>2</sub>**

Formula Weight: 88.18  
 Boiling Point: 109°C  
 Melting Point: N/A  
 Density: N/A  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 2.5346 - 531.0/T(\text{K})$   
 Appearance: Colourless liquid

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

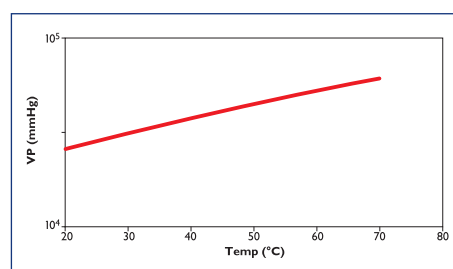
Code: TBHZ  
 Grades: RE

**PHOSPHORUS****Phosphine**

CAS Number 7803-51-2

**PH<sub>3</sub>**

Formula Weight: 34.0  
 Boiling Point: -87°C  
 Melting Point: -134°C  
 Gas Density @ 15°C: 1.450 kg/m<sup>3</sup>  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 6.984 - 754.1/T(\text{K})$   
 Appearance: Gas

**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

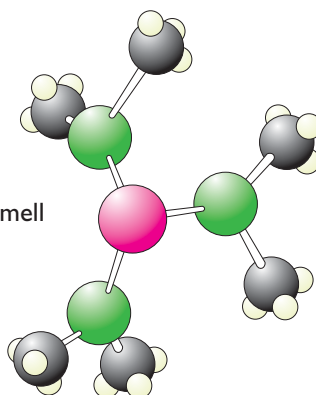
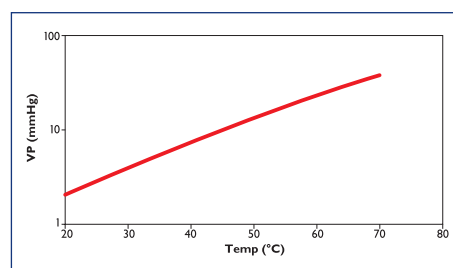
Code: PH3  
 Grades: UHP

**Tris(dimethylamino)phosphine**

CAS Number 1608-26-0

**P(N(CH<sub>3</sub>)<sub>2</sub>)<sub>3</sub>**

Formula Weight: 162.97  
 Boiling Point: 150°C  
 Melting Point: -44°C  
 Density @ 20°C: 0.750 g/ml  
 V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 9.0326 - 2558/T(\text{K})$   
 Appearance: Colourless liquid with ammonia-like smell

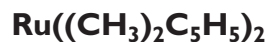
**VAPOUR PRESSURE CURVE****ORDERING INFORMATION**

Code: AMPH  
 Grades: EG

# RUTHENIUM

## Bis(2,4-dimethylpentadienyl)ruthenium

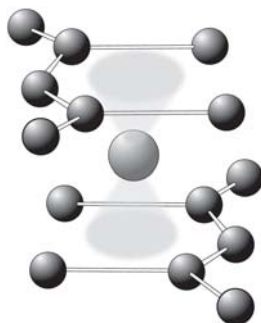
CAS Number 85908-78-7



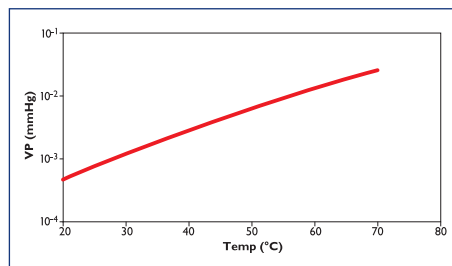
Formula Weight: 291.43  
Boiling Point: N/A  
Melting Point: 85°C  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.619 - 3502/T(\text{K})$   
Appearance: Yellow solid

### ORDERING INFORMATION

Code: DMRU  
Grades: EG, AG, EpiPure™



### VAPOUR PRESSURE CURVE



## Bis(isopropyl-η<sup>5</sup>-cyclopentadienyl)ruthenium

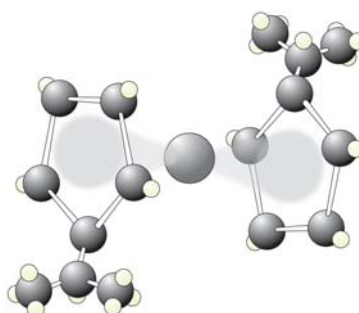
CAS Number N/A



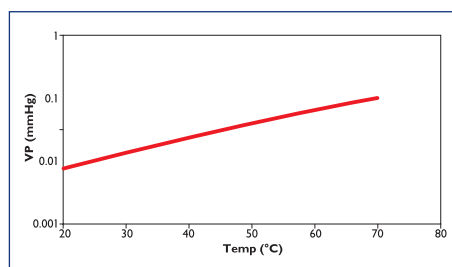
Formula Weight: 315.45  
Boiling Point: 115-135°C  
Melting Point: N/A  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 5.6004 - 2263.7/T(\text{K})$   
Appearance: Yellow liquid

### ORDERING INFORMATION

Code: RUIPCP  
Grades: RE



### VAPOUR PRESSURE CURVE



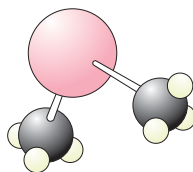
# SELENIUM

## Dimethylselenide

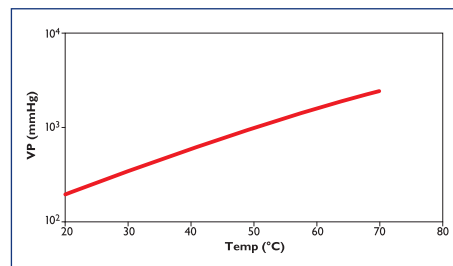
CAS Number 593-79-3

### Se(CH<sub>3</sub>)<sub>2</sub>

Formula Weight: 109.03  
Boiling Point: 52.8°C  
Melting Point: N/A  
Density @ 20°C: 1.4077 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 9.872 - 2224/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

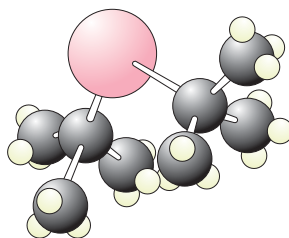
Code: DMSE  
Grades: EG

## Ditert-butylselenide

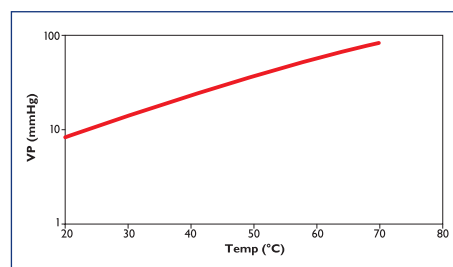
CAS Number 34172-60-6

### Se(C<sub>4</sub>H<sub>9</sub>)<sub>2</sub>

Formula Weight: 193.19  
Boiling Point: 123°C  
Melting Point: N/A  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.870 - 2040/T(\text{K})$   
Appearance: Pale yellow liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: DTSE  
Grades: EG

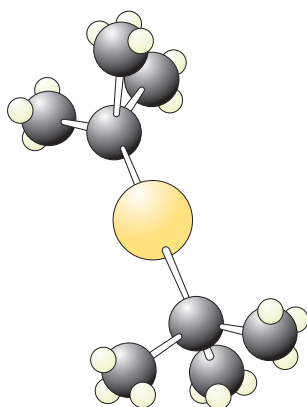
# SULPHUR

## Ditert-butylsulphide

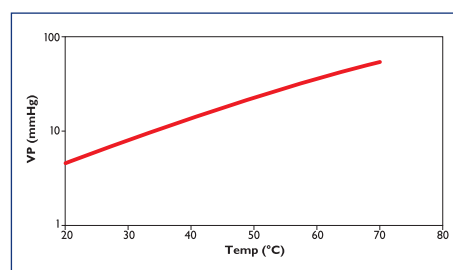
CAS Number 107-47-1

### S(C<sub>4</sub>H<sub>9</sub>)<sub>2</sub>

Formula Weight: 146.29  
Boiling Point: 147-151°C  
Melting Point: N/A  
Density @ 20°C: 0.815 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.010 - 2152/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: DBSU  
Grades: RE

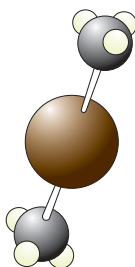
# TELLURIUM

## Dimethyltelluride

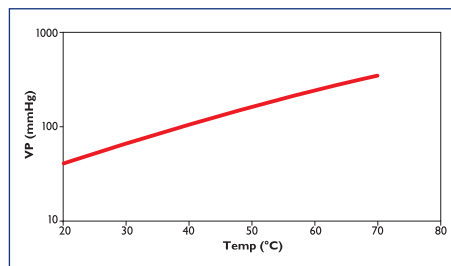
CAS Number 593-80-6

### Te(CH<sub>3</sub>)<sub>2</sub>

Formula Weight: 157.68  
Boiling Point: 82°C  
Melting Point: -10°C  
Density: 1.960 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.970 - 1865/T(\text{K})$   
Appearance: Pale yellow liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

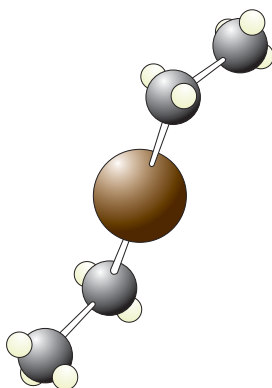
Code: DMTE  
Grades: EG

## Diethyltelluride

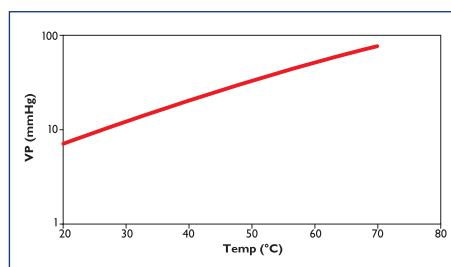
CAS Number 627-54-3

### Te(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>

Formula Weight: 185.68  
Boiling Point: 137°C  
Melting Point: N/A  
Density @ 20°C: 1.599 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.990 - 2093/T(\text{K})$   
Appearance: Amber liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

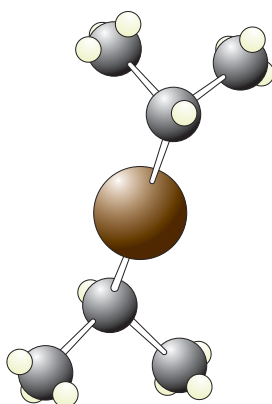
Code: DETE  
Grades: EG

## Diisopropyltelluride

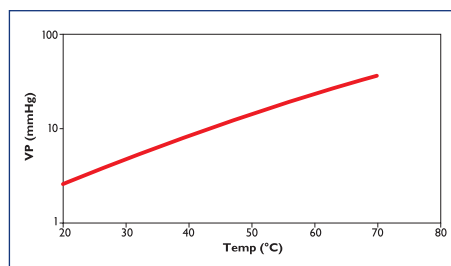
CAS Number 51112-72-2

### Te(C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>

Formula Weight: 213.77  
Boiling Point: 49°C @ 14 mmHg  
Melting Point: N/A  
Density: 1.365 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.290 - 2309/T(\text{K})$   
Appearance: Light yellow to orange liquid



#### VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: DIPT  
Grades: EG

# TIN

## Tetramethyltin

CAS Number 594-27-4

### $\text{Sn}(\text{CH}_3)_4$

Formula Weight: 178.83

Boiling Point: 78°C

Melting Point: -53°C

Density @ 20°C: 1.315 g/ml

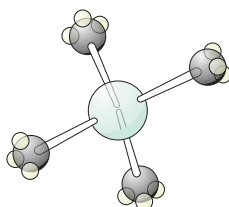
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.500 - 1620/T(\text{K})$

Appearance: Colourless liquid

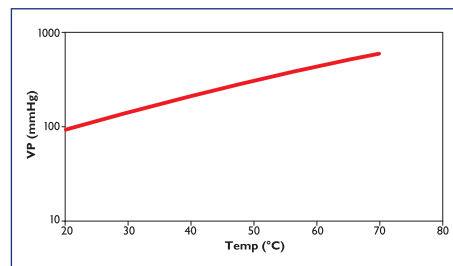
#### ORDERING INFORMATION

Code: TMSN

Grades: EG



#### VAPOUR PRESSURE CURVE



## Tetraethyltin

CAS Number 597-64-8

### $\text{Sn}(\text{C}_2\text{H}_5)_4$

Formula Weight: 234.94

Boiling Point: 181°C

Melting Point: -112°C

Density @ 20°C: 1.187 g/ml

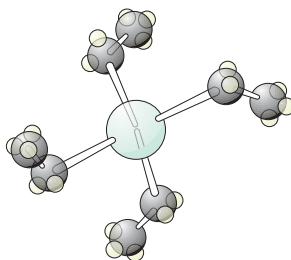
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.900 - 2739/T(\text{K})$

Appearance: Colourless liquid

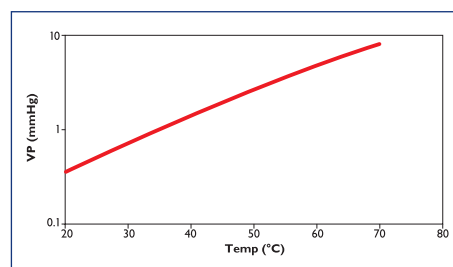
#### ORDERING INFORMATION

Code: TESN

Grades: EG



#### VAPOUR PRESSURE CURVE



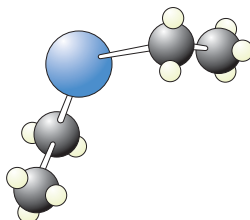
# ZINC

## Diethylzinc

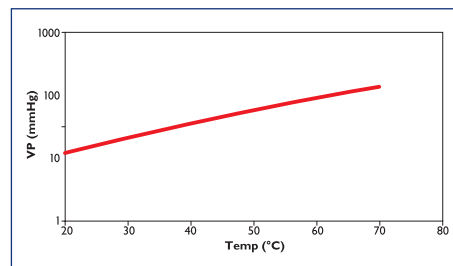
CAS Number 557-20-0

### Zn(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>

Formula Weight: 123.49  
Boiling Point: 118°C  
Freezing Point: -28°C  
Density @ 20°C: 1.200 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.280 - 2109/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

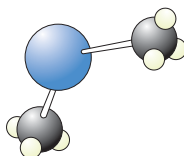
Code: DEZN  
Grades: EG, AG, EpiPure™

## Dimethylzinc

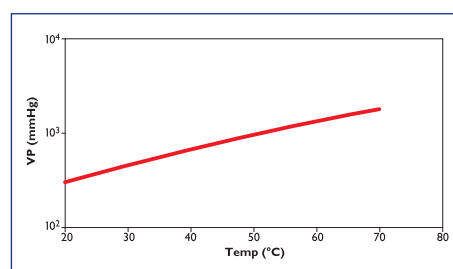
CAS Number 544-97-8

### Zn(CH<sub>3</sub>)<sub>2</sub>

Formula Weight: 95.44  
Boiling Point: 46°C  
Melting Point: -42°C  
Density @ 10°C: 1.386 g/ml  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 7.800 - 1560/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

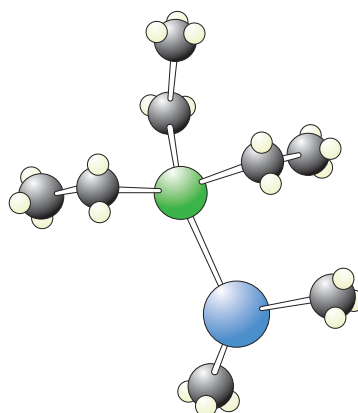
Code: DMZN  
Grades: EG, AG, EpiPure™

## Dimethylzinc triethylamine adduct

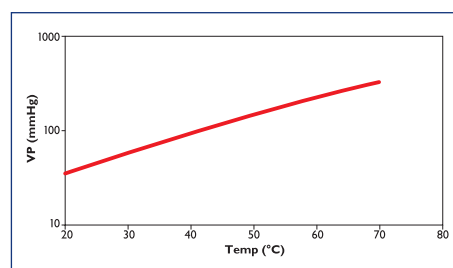
CAS Number 88029-05-4

### Zn(CH<sub>3</sub>)<sub>2</sub>[N(C<sub>2</sub>H<sub>5</sub>)<sub>3</sub>]

Formula Weight: 196.4  
Boiling Point: 95°C  
Melting Point: N/A  
Density: N/A  
V.P. Equation:  $\text{Log}_{10}P(\text{mmHg}) = 8.270 - 1970/T(\text{K})$   
Appearance: Colourless liquid



VAPOUR PRESSURE CURVE



#### ORDERING INFORMATION

Code: ZNAM  
Grades: AG

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3 <b>Li</b> 6.94	4 <b>Be</b> 9.01											5 <b>B</b> 10.81	6 <b>C</b> 12.01	7 <b>N</b> 14.01	8 <b>O</b> 16.00	9 <b>F</b> 19.00	10 <b>Ne</b> 20.17	
11 <b>Na</b> 22.99	12 <b>Mg</b> 24.31	3 IIIB	4 IVB	5 VB	6 VIB	7 VIIB	8 -----VIII B-----	9	10	11 IB	12 IIB	13 <b>Al</b> 26.98	14 <b>Si</b> 28.09	15 <b>P</b> 30.97	16 <b>S</b> 32.07	17 <b>Cl</b> 35.45	18 <b>Ar</b> 39.95	
19 <b>K</b> 39.10	20 <b>Ca</b> 40.08	21 <b>Sc</b> 44.96	22 <b>Ti</b> 47.88	23 <b>V</b> 50.94	24 <b>Cr</b> 52.00	25 <b>Mn</b> 54.94	26 <b>Fe</b> 55.85	27 <b>Co</b> 58.47	28 <b>Ni</b> 58.69	29 <b>Cu</b> 63.55	30 <b>Zn</b> 65.39	31 <b>Ga</b> 69.72	32 <b>Ge</b> 72.59	33 <b>As</b> 74.92	34 <b>Se</b> 78.96	35 <b>Br</b> 79.90	36 <b>Kr</b> 83.80	
37 <b>Rb</b> 85.47	38 <b>Sr</b> 87.62	39 <b>Y</b> 88.91	40 <b>Zr</b> 91.22	41 <b>Nb</b> 92.91	42 <b>Mo</b> 95.94	43 <b>Tc</b> 98.91	44 <b>Ru</b> 101.07	45 <b>Rh</b> 102.91	46 <b>Pd</b> 106.40	47 <b>Ag</b> 107.87	48 <b>Cd</b> 112.40	49 <b>In</b> 114.80	50 <b>Sn</b> 118.70	51 <b>Sb</b> 121.80	52 <b>Te</b> 127.60	53 <b>I</b> 126.90	54 <b>Xe</b> 131.30	
55 <b>Cs</b> 132.91	56 <b>Ba</b> 137.30	57 <b>La</b> 138.90	72 <b>Hf</b> 178.50	73 <b>Ta</b> 180.90	74 <b>W</b> 183.90	75 <b>Re</b> 186.21	76 <b>Os</b> 190.20	77 <b>Ir</b> 192.22	78 <b>Pt</b> 195.10	79 <b>Au</b> 196.97	80 <b>Hg</b> 200.59	81 <b>Tl</b> 204.37	82 <b>Pb</b> 207.20	83 <b>Bi</b> 209.00	84 <b>Po</b> (209)	85 <b>At</b> (210)	86 <b>Rn</b> (222)	
87 <b>Fr</b> (223)	88 <b>Ra</b> 226.03	89 <b>Ac</b> (227)	104 <b>Rf</b> (261)	105 <b>Db</b> (262)	106 <b>Sg</b> (263)	107 <b>Bh</b> (262)	108 <b>Hs</b> (265)	109 <b>Mt</b> (266)	110 <b>Ds</b> (269)									

58 <b>Ce</b> 140.12	59 <b>Pr</b> 140.91	60 <b>Nd</b> 144.24	61 <b>Pm</b> (145)	62 <b>Sm</b> 150.40	63 <b>Eu</b> 151.96	64 <b>Gd</b> 157.25	65 <b>Tb</b> 158.93	66 <b>Dy</b> 162.50	67 <b>Ho</b> 164.93	68 <b>Er</b> 167.26	69 <b>Tm</b> 168.93	70 <b>Yb</b> 173.04	71 <b>Lu</b> 174.96
90 <b>Th</b> 232.04	91 <b>Pa</b> 231.04	92 <b>U</b> 238.03	93 <b>Np</b> 237.05	94 <b>Pu</b> (244)	95 <b>Am</b> (243)	96 <b>Cm</b> (247)	97 <b>Bk</b> (247)	98 <b>Cf</b> (251)	99 <b>Es</b> (254)	100 <b>Fm</b> (257)	101 <b>Md</b> (258)	102 <b>No</b> (259)	103 <b>Lr</b> (260)

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This catalogue contains SAFC Hitech's current major products however it is not an exhaustive list of precursors that we can supply. Due to the nature of SAFC Hitech's business the product range is continuously evolving with new, improved chemicals emerging from our active research department.

If you have a query about any precursor that does not appear in this catalogue, or wish to discuss our latest product range, then please contact your account manager, or email us at [hitechinfo@sial.com](mailto:hitechinfo@sial.com).

## Key to grades

SAFC Hitech offer a wide range of grades suited to the various customer application requirements. In general we will advise on which purity is best matched to the performance demanded by users, be it 99.99% for protective coatings to 99.9999% or better for highly specialised optoelectronic devices. Specifications are available for each standard quality level and we can also offer customer specific grades. Particular proprietary purification techniques have given rise to the named grades "Adduct grade" and "EpiPure™ grade". Adduct grade uses methods pioneered at SAFC Hitech to give products free from metallic impurities whilst EpiPure™ grade builds on these processes to yield metal and oxygen free compounds to the most stringent specifications available.

AG	Adduct Grade
EG	Electronic Grade
RE	Research Grade
EpiPure™	EpiPure™ Grade
CG	Chemical Grade
3-6N	99.9 – 99.9999%
4N	99.99%
5N	99.999%
6N	99.9999%
UHP	Ultra High Purity
HP	High Purity

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