



# Specialty Chemicals

Your Partner for Custom and  
Specialty Chemicals for  
Industrial Applications

## *Unparalleled Expertise in Complex Chemistries*

*Entegris enables  
next-generation  
technologies  
with expertise  
that includes*

- Metallocene and organophosphorus chemistries
- Understanding specialty chemical requirements
- Development and scaleup
- High-quality, consistent manufacturing
- Rapid identification of synthesis routes
- Process engineering
- Quality control
- Proactive supply chain management
- Protecting customers' trade secrets



## Metallocene Catalysts

As experts in catalyst development and production, we offer a variety of catalysts and catalyst components used in many industrial applications. Uses include polymer production where metallocene and single-site catalysts are used for polymerization of polyolefins and other thermoplastics, and for hydroformylation and selective hydrogenation. We also offer organophosphorus compounds such as those that are used for the catalytic stabilization of isocyanates.

At Entegris, we

- Deliver expertise in a wide variety of metallocene structures
- Enable air- and moisture-sensitive chemistries
- Offer unique methods to combine ligands and transition metals into ultra-high purity catalysts
- Support high quality and high purity with an ISO 9001 framework

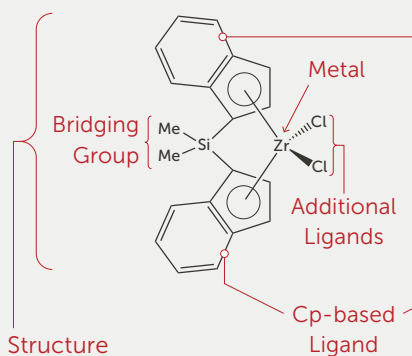
## Silanes

We excel in the development and manufacturing of high-quality silanes for a range of industrial and chemical processes. Silanes function as surface modifiers, cross-linkers, adhesion promoters, and moisture scavengers for coatings, inks, and adhesives and organic synthesis in chemical manufacturing processes and analytical R&D.

## Specialty Acrylates and Methacrylates

At Entegris, we provide high-quality chemical building blocks essential for manufacturing copolymers used in medical devices and industrial applications. Our specialty acrylates and methacrylates are designed to address a wide range of chemical transformations and substrate compatibilities, ensuring optimal performance across various industrial processes.

### Generalized metallocene catalyst structure



#### METAL

Ti  
Hf  
Zr  
Fe

#### LIGAND

Cp  
Cp Precursor  
Flu  
Flu Precursor  
Indene  
Indene Precursor  
Borate  
Hydrazine  
N-based  
Organic Precursor  
Other

#### STRUCTURE

Cp & L  
Cp & Pendant L (CGC)  
Cp p-imido  
Sandwich  
Tripod (half-sandwich)  
Other

#### BRIDGING GROUP

Non-bridged  
Si bridged  
Methylene bridged  
Ethylene bridged  
BiPh bridged  
Amide pendant  
Phosphonoimide

## Offerings for Industrial Applications

### Catalysts, Ligands and Their Components

MATERIAL NUMBER	DESCRIPTION	SHORT NAME	CAS NUMBER
DIE0962	Diethylphosphoramidous dichloride		1069-08-5
9608	Bis(indenyl) zirconium dichloride		12148-49-1
TRI1691	Tri(tert-butylphosphonium)tetrafluoroborate		131274-22-1
9161	2,3,4,5-Tetramethylcyclopentadienedimethylsilyl-tert-butylamido titanium dichloride	CpSA TiCl <sub>2</sub>	135072-61-6
BIS0303	1,2-[Bis(diphenylphosphino)ethane]nickel(II) chloride		14647-23-5
9682	Bis(1-butyl-3-methylcyclopentadienyl) ZrCl <sub>2</sub>	Ecat	151840-68-5
DIM2683	9,9-Dimethyl-4,5-bis(diphenylphosphino)xanthene	Xantphos	161265-03-8
BIS1650	Bis(2-diphenylphosphinophenyl) ether	DPEphos	166330-10-5
BUT2243	n-Butyldi(tert-butyl)phosphonium tetrafluoroborate		1816254-91-7
9164-CHR	6,6-Diphenylfulvene	DPV	2175-90-8
TRI0907	Tricyclohexylphosphine	TCHP	2622-14-2
TRI2027	Tricyclohexylphosphine, 20% solution in toluene		2622-14-2
TRI2110	Tris(dimethylamino)zirconium cyclopentadienylide		33271-88-4
9474	1,2,3,4,5-Pentamethylcyclopentadiene	Cp*	4045-44-7
9061	1,2,3,4-Tetramethylcyclopentadiene ≥90%	TMCP 90%	4249-10-9
9393	1,2,3,4-Tetramethylcyclopentadiene ≥95%	TMCP 95%	4249-10-9
9459	1,2,3,4-Tetramethylcyclopentadiene ≥93%	TMCP 93%	4249-10-9
DIP1442	2-(Diphenylphosphino)ethylamine	DPPEA	4848-43-5
DIA2171	Diamyl amylphosphonate	DAP	6418-56-0
BIS0212	1,3-Bis(diphenylphosphino)propane	DPPP	6737-42-4
MET0525	3-Methyl-1-phenyl-2-phospholene-1-oxide	MPPO	707-61-9
BIS0631	Bis(3,5-dimethylphenyl)phosphine		71360-06-0
9394	Bis(n-butylcyclopentadienyl)ZrCl <sub>2</sub>	B Cat	73365-10-0
BIS0763	Bis(3,5-dimethylphenyl)chlorophosphine		74289-57-9
BIS0509	(2R,3R)-(+)-Bis(diphenylphosphino)butane	R,R-Chiraphos	74839-84-2
BIS0325	(R)-(+)-2,2'-Bis(diphenylphosphino)-1,1'-binaphthyl	R-BINAP	76189-55-4
BIS2674	(S)-(-)-2,2'-Bis(diphenylphosphino)-1,1'-binaphthyl	S-BINAP	76189-56-5
BIS2549	1,4-Bis(diphenylphosphino)butane	DPPB	7688-25-7
TRI0702	Tributylphosphine oxide	TBO	814-29-9
DIP0312	Diphenylphosphine, 98%		829-85-6
DIP2069	Diphenylphosphine, 10% solution in THF		829-85-6
DIP2223	Diphenylphosphine, 99%		829-85-6
BIP2047	5-[Bis(tert-butyl)phosphino]-1',3',5'-triphenyl-1,4'-bi-1H-pyrazole	BippyPhos	894086-00-1
DII0616	Diisopropylphosphoramidous dichloride		921-26-6
BIS2060	Di-tert-butyl(4-dimethylaminophenyl)phosphine	A-Phos; AmPhos	932710-63-9
BIS0758	2,2'-Bis(diphenylphosphino)-1,1'-binaphthyl	rac-BINAP	98327-87-8

## Catalysts, Ligands and Their Components

*Buchwald Ligands*

MATERIAL NUMBER	DESCRIPTION	SHORT NAME	CAS NUMBER
DIT1256	2-(Di-tert-butylphosphino)biphenyl	JohnPhos	224311-51-7
DIC2691	2-Dicyclohexylphosphino-2',4',6'-tri-i-propyl1, 1'-biphenyl	XPhos	564483-18-7
DIT2119	2-Di-tert-butylphosphino-2',4',6'-tri-i-propyl1, 1'-biphenyl	tBuXPhos	564483-19-8
DIC2051	2-Dicyclohexylphosphino-2',6'-dimethoxy1, 1'-biphenyl	SPhos	657408-07-6
DIC2184	2-Dicyclohexylphosphino-2',6'- diisopropoxybiphenyl	RuPhos	787618-22-8

## Silanes and Silylated Products

MATERIAL NUMBER	DESCRIPTION	CAS NUMBER
S1390	Octadecyltrichlorosilane	112-04-9
S1893	n-Octylmethyldichlorosilane	14799-93-0
S1892	3-(Pentafluorophenyl)propyldimethylchlorosilane	157499-19-9
S1955	Phenethyldimethylchlorosilane	17146-08-6
S1900	n-Butylmethyldichlorosilane	18147-23-4
S1063	3-Cyanopropyldimethylchlorosilane	18156-15-5
S1615	Octadecyldimethylchlorosilane	18643-08-8
S1616	Octadecyldimethylchlorosilane (95+% n-isomer)	18643-08-8
S1032	1,3-Bis(3-aminopropyl)tetramethyldisiloxane	2469-55-8
S2026	Bis(3-trimethoxysilylpropyl) fumarate	3371-62-8
S1605	Di-n-butyldichlorosilane	3449-28-3
S1980	Octadecylmethyldichlorosilane	5157-75-5
S2126	6-Aminohexyl-3-aminopropyltrimethoxysilane	51895-58-0
S1395	n-Octyltrichlorosilane	5283-66-9
S2327	3-(Trihydroxysilyl)-1-propanesulfonic acid	70942-24-4
S1277	Triethylchlorosilane	994-30-9
S1180	Hexamethyldisilazane	999-97-3

## Acrylates

MATERIAL NUMBER	DESCRIPTION	CAS NUMBER
8811	Sorbitol acrylate	140-88-5
C726	Sorbitol acrylate (50% in water)(mixture	140-88-5
9426	Methyl methacrylate-methacrylic acid copolymer	25086-15-1
7969	Polyethylene glycol 200 dimethacrylate	25852-47-5
7687HP	2,2,2-Trifluoroethyl acrylate (HP)	407-47-6
7692-MPD	3,5,5-Trimethylhexyl acrylate	45125-03-9
7530-MPD	Ethylene glycol dimethacrylate, 98%	97-90-5

## Additives and Other

MATERIAL NUMBER	DESCRIPTION	CAS NUMBER
6157-CHR	Allyl bromide	106-95-6
9133	2-4 Dihydroxybenzophenone	131-56-6
9343	Dibutylchlorendate	1770-80-5
9091	Hydroxy-4-allyloxybenzophenone	2549-87-3
5712-MPD	Poly vinyl sulfate, potassium salt	26837-42-3
9538	2,2'-Azobis(2-amidinopropane) dihydrochloride	2997-92-4
9304	Bis (2-ethylhexyl) chlorendate	4827-55-8
9412	Trimellitic anhydride solution in acetone	552-30-7

› For products suitable for medical, pharmaceuticals, or semiconductor applications, please visit [entegris.com/specialty-chemicals](https://entegris.com/specialty-chemicals)

## Providing Process Development, Scaleup, and Manufacturing Capabilities for Your Most Demanding Applications

*We specialize in developing and scaling chemistry processes from bench scale to commercial scale. Our expertise ensures seamless scalability, cost optimization, and consistent production to meet your specifications and needs. Partner with us to leverage our expertise and elevate your production capabilities with our advanced chemical solutions.*



### BENCH SCALE (1 gm – 1 kg)

- Developing the chemistry that fulfills your vision
- Choosing appropriate processes that will scale easily to higher volumes
- Minimizing isolations and waste (cost optimization)
- Proof of concept



### PILOT SCALE (1 kg – 60 kg)

- Scale up of proven R&D process
- Optimization of process parameters
- Develop cost model for commercial process
- Proof of scalability



### COMMERCIAL SCALE (60 kg – >10 MT)

- Ramp up of pilot scale process
- Final optimization to guarantee target yield and meet specs
- Ongoing production to fulfill needs
- Proof of manufacturability



## Why Entegris?

When selecting a partner to support high quality, complex analytical requirements, and fast development timelines, Entegris is the right partner. We offer a global infrastructure with local R&D, sophisticated manufacturing capabilities, and trusted suppliers around the world. When you need to scale your chemistries from the benchtop to commercial production, Entegris is your trusted partner, helping you usher in new chemicals at the apex of quality and performance.

## Markets We Serve

- Pharmaceutical
- Life Sciences
- Fragrances and Personal Care
- Eye Care (Ophthalmology)
- Wound Care
- Dental
- Medical Devices
- Polymer Catalysts
- Coatings and Additives
- Organic Synthesis
- ALD and CVD Precursors
- Electronic Materials



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