



**□ - BASF**  
We create chemistry

**ENGELHARD**  
Materials Services

# Precious Metal Chemicals

# Your benefits

## Products

We offer a wide range of homogeneous catalysts and heterogeneous catalyst precursors for industrial applications.



## Development

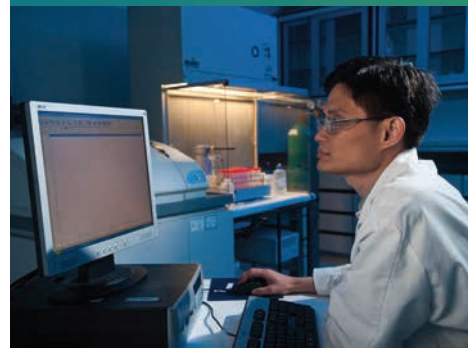
Can't find what you're looking for? Let us help – give us a call.

Tel: +1-800-336-8559



## Analytical Expertise

Our analytical laboratories around the world are working relentlessly to give you peace of mind. The quality of products supplied or the accuracy and transparency of spent catalyst settlements – we have you covered.



## Resource Recovery

At the end of your catalyst life cycle, you want your precious resources recovered quickly, and at competitive terms.

We can help with that – worldwide, at competitive rates and with sustainability in mind.



## Metal Trading

With our portfolio comes access to one of the world's largest precious metal trading organizations.

Buying, selling, hedging, leasing... find it all here.



## Global Presence

Globally operating companies need globally operating partners.

Wherever you go, chances are you will find us there, ready to help.





## High-quality chemical intermediates used in the synthesis of heterogeneous and homogeneous catalysts

Building on our core competencies in precious metals and catalysis, BASF offers a robust portfolio of PGM (Platinum Group Metals) chemical intermediates for use in a variety of industrial catalysis applications. Our innovative PGM compounds and solutions are manufactured at our ISO 9001 certified manufacturing facilities located at Seneca, SC, USA, and Rome, Italy.

### Gold Products

Product Number	Name	CAS Number	Formula	Metal %
PMC2101	Sodium Tetrachloroaurate Solution	15189-51-2	NaAuCl <sub>4</sub> (liq)	20.0%
PMC2102	Gold(III) Chloride Solution	16903-35-8	HAuCl <sub>4</sub> ·xH <sub>2</sub> O	20.0%

### Iridium Products

Product Number	Name	CAS Number	Formula	Metal %
PMC6101	Hydrogen Hexachloro Iridium(IV) Solution	16941-92-7	H <sub>2</sub> IrCl <sub>6</sub> (liq)	22.0%
PMC6201	Hydrogen Hexachloro Iridium(IV) Hydrate	16941-92-7	H <sub>2</sub> IrCl <sub>6</sub> ·xH <sub>2</sub> O	40.0%
PMC6202	Iridium Black	7439-88-5	Ir	99.0%
PMC6203	Ammonium Hexachloro Iridium(IV)	16940-92-4	(NH <sub>4</sub> ) <sub>2</sub> IrCl <sub>6</sub>	43.6%

Note: Metal % for solutions is the highest content we can supply.

## Palladium Products

Product Number	Name	CAS Number	Formula	Metal %
PMC4101	Sodium Tetrachloropalladium(II) Solution	13820-53-6	Na <sub>2</sub> PdCl <sub>4</sub>	15.0%
PMC4102	Tetraammine Pd(II) Nitrate Solution	13601-08-6	[Pd(NH <sub>3</sub> ) <sub>4</sub> ](NO <sub>3</sub> ) <sub>2</sub>	5.0%
PMC4103	Palladium Nitrate Solution	10102-05-3	Pd(NO <sub>3</sub> ) <sub>2</sub>	18.0%
PMC4104	Palladium Chloride Solution	7647-10-1	PdCl <sub>2</sub>	20.0%
PMC4105	Tetraammine Palladium(II) Hydroxide Solution	68413-68-3	(NH <sub>3</sub> ) <sub>4</sub> Pd(OH) <sub>2</sub>	10.0%
PMC4201	Palladium(II) Acetate	3375-31-3	Pd(OOCCH <sub>3</sub> ) <sub>2</sub>	47.5%
PMC4202	Sodium Tetrachloro Palladium(II) Crystals	13820-53-6	Na <sub>2</sub> PdCl <sub>4</sub>	36.2%
PMC4203	Pd Black high surface area (dry)	7440-05-3	Pd	99.0%
PMC4204	Pd Black high surface area (water wet)	7440-05-3	Pd	50.0%
PMC4205	Palladium(II) Oxide Hydrate	64109-12-2	PdO·xH <sub>2</sub> O	86.9%
PMC4206	Palladium(II) Chloride Crystals	7647-10-1	PdCl <sub>2</sub>	60.0%
PMC4207	Palladium(II) Oxide anhydrous	1314-08-5	PdO	86.0%
PMC4209	Bis(Acetonitrile)Pd(II)	14592-56-4	PdCl <sub>2</sub> (CH <sub>3</sub> CN) <sub>2</sub>	41.0%
PMC4210	Pd (dppf) Chloride(II)	72287-26-4	[(C <sub>5</sub> H <sub>4</sub> P(C <sub>6</sub> H <sub>5</sub> ) <sub>2</sub> ) <sub>2</sub> Fe]PdCl <sub>2</sub>	14.5%
PMC4211	Tetraamminepalladium Sulfate	13601-06-4	(NH <sub>3</sub> ) <sub>4</sub> PdSO <sub>4</sub>	39.3%
PMC4212	Palladium bis-dibenzilidene acetone Pd / Pd(dba) <sub>2</sub>	32005-36-0	(C <sub>6</sub> H <sub>5</sub> CH=CHCOCH=CHC <sub>6</sub> H <sub>5</sub> ) <sub>2</sub> Pd	18.5%
PMC4213	Pd(dppf) Dichloride CH <sub>2</sub> Cl <sub>2</sub> adduct	95464-05-4	C <sub>35</sub> H <sub>30</sub> Cl <sub>4</sub> FeP <sub>2</sub> Pd	13.0%
PMC4214	Tris(dibenzilideneacetone) Dipalladium(0)	52409-22-0	(C <sub>6</sub> H <sub>5</sub> CH=CHCOCH=CHC <sub>6</sub> H <sub>5</sub> ) <sub>3</sub> Pd <sub>2</sub>	23.0%
PMC4215	Palladium(II) Acetylacetonate	14024-61-4	Pd(C <sub>5</sub> H <sub>7</sub> O <sub>2</sub> ) <sub>2</sub>	34.9%
PMC4216	Tetrakis triphenylphosphine Palladium / "Pd TK"	14221-01-3	Pd[(C <sub>6</sub> H <sub>5</sub> ) <sub>3</sub> P] <sub>4</sub>	9.2%

## Rhodium Products

Product Number	Name	CAS Number	Formula	Metal %
PMC5101	Rhodium(III) Acetate Solution	26105-49-7	Rh(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub>	14.0%
PMC5102	Rhodium(III) Chloride Solution	20765-98-4	RhCl <sub>3</sub> ·xH <sub>2</sub> O	10.0%
PMC5103	Rhodium(III) Nitrate Solution	10139-58-9	Rh(NO <sub>3</sub> ) <sub>3</sub>	10.0%
PMC5201	Rhodium(III) Acetate Crystals	42204-14-8	Rh(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub>	36.8%
PMC5202	Rhodium(III) Chloride Hydrate	20765-98-4	RhCl <sub>3</sub> ·xH <sub>2</sub> O	40.0%
PMC5203	Rhodium(II) Octanoate	73482-96-9	[[CH <sub>3</sub> (CH <sub>2</sub> ) <sub>6</sub> CO <sub>2</sub> ] <sub>2</sub> Rh] <sub>2</sub>	26.4%
PMC5204	Chloro Tris (triphenylphosphine) Rhodium(I) (Wilkinson's Catalyst)	14694-95-2	Rh(ClCP(C <sub>6</sub> H <sub>5</sub> ) <sub>3</sub> ) <sub>3</sub>	11.1%
PMC5205	Rhodium (Acac)carbonyl, CARAC	14874-82-9	Rh(CO) <sub>2</sub> (C <sub>5</sub> H <sub>7</sub> O <sub>2</sub> )	39.9%
PMC5206	Rh(C <sub>5</sub> H <sub>7</sub> O <sub>2</sub> )(CO)P(C <sub>6</sub> H <sub>5</sub> ) <sub>3</sub> , ROPAC	25470-96-6	C <sub>24</sub> H <sub>22</sub> O <sub>3</sub> PRh	20.9%
PMC5207	Bis(norbornadiene)Rh(I) Tetrafluoroborate	36620-11-8	Rh(C <sub>7</sub> H <sub>8</sub> ) <sub>2</sub> BF <sub>4</sub>	27.5%
PMC5208	HRh(CO)(PPh <sub>3</sub> ) <sub>3</sub> ; RODRIDO	17185-29-4	RhH(CO)(P(C <sub>6</sub> H <sub>5</sub> ) <sub>3</sub> ) <sub>3</sub>	11.2%
PMC5209	Chloro (1,5-cyclooctadiene) Rhodium(I)	12092-47-6	RhCl(C <sub>8</sub> H <sub>12</sub> )	42.0%


## Platinum Products

Product Number	Name	CAS Number	Formula	Metal %
PMC3101	Platinum Ethanolamine Solution (Platinum A Solution)	68133-90-4	$(\text{HOCH}_2\text{CH}_2\text{NH}_2)_3\text{Pt}(\text{OH})_6$	12.0%
PMC3102	Tetraammine Platinum(II) Chloride Solution	13933-32-9	$[\text{Pt}(\text{NH}_3)_4]\text{Cl}_2 \cdot x\text{H}_2\text{O}$	6.0%
PMC3103	Chloroplatinic Acid (CPA) Solution	16941-12-1	$\text{H}_2\text{PtCl}_6$	30.0%
PMC3104	Potassium Tetrachloro Pt(II) Solution	10025-99-7	$\text{K}_2\text{PtCl}_4$	3.0%
PMC3105	Tetraammine Pt Nitrate Solution	20634-12-2	$[\text{Pt}(\text{NH}_3)_4](\text{NO}_3)_2$	3.0%
PMC3106	Tetraammine Pt Hydroxide Solution	15651-37-3	$[\text{Pt}(\text{NH}_3)_4](\text{OH})_2$	10.0%
PMC3107	Pt-Nitrate Solution	18496-40-7	$\text{Pt}(\text{NO}_3)_2$	30.0%
PMC3201	Platinum(IV) Oxide Hydrate (Adam's Catalyst)	12137-21-2	$\text{PtO}_2 \cdot x\text{H}_2\text{O}$	81.0%
PMC3202	$\text{PtO}_2$ (Adam's Catalyst) 50% Moist	1314-15-4	$\text{PtO}_2$	81.0%
PMC3203	Dihydrogen Hexahydroxyplatinum(IV)	52438-26-3	$\text{H}_2\text{Pt}(\text{OH})_6$	65.2%
PMC3204	Pt Black (fuel cell grade)	7440-06-4	Pt	99.0%
PMC3205	Pt Black (low surface area)	7440-06-4	Pt	99.0%
PMC3206	Pt Black (low bulk density)	7440-06-4	Pt	99.0%
PMC3207	Potassium Tetrachloro Platinatate(II)	10025-99-7	$\text{K}_2\text{PtCl}_4$	47.0%
PMC3208	Potassium Hexachloro Platinum	16921-30-5	$\text{K}_2[\text{PtCl}_6]$	40.1%
PMC3209	1,3 Divinyl-1,1,3,3, Tetramethyldisiloxane Platinum(0) Karstedt's Catalyst	68478-92-2	$\text{C}_{24}\text{H}_{54}\text{O}_3\text{Pt}_2\text{Si}_6$	2.0%
PMC3210	Dinitrodiammineplatinum(II) in $\text{NH}_3$ ("P-Salt")	14286-02-3	$(\text{NH}_3)_2\text{Pt}(\text{NO}_2)_2$	15.0%
PMC3211	Tetramethyl Tetravinyl Cyclotetrasiloxane Platinum(0) Ashby's Catalyst	68585-32-0	$\text{Pt}[(\text{C}_3\text{H}_6\text{SiO})_4]_x$	2.0%
PMC3212	Platinum(II) Acetylacetonate	15170-57-7	$\text{Pt}(\text{C}_5\text{H}_7\text{O}_2)_2$	49.6%
PMC3213	Platinum(II) Chloride Powder	10025-65-7	$\text{PtCl}_2$	73.3%

## Ruthenium Products

Product Number	Name	CAS Number	Formula	Metal %
PMC7101	Sodium Ruthenate Solution	17001-79-5	$\text{NaRuO}_4$	5.0%
PMC7102	Ruthenium(III) Chloride Solution	10049-08-8	$\text{RuCl}_3 \cdot x\text{H}_2\text{O}$	20.0%
PMC7201	Ruthenium Oxide Hydrate	32740-79-7	$\text{RuO}_2 \cdot x\text{H}_2\text{O}$	76.0%
PMC7202	Ruthenium Acetylacetonate or Tris (2,4-Pentanedionato) Ruthenium(III)	14284-93-6	$\text{Ru}(\text{C}_5\text{H}_7\text{O}_2)_3$	25.4%
PMC7203	Ruthenium(II) Chloride Cymene	52462-29-0	$[\text{Ru}(\text{p-cymene})\text{Cl}_2]_2$	33.0%
PMC7204	Ruthenium(III) Chloride Crystals	14898-67-0	$\text{RuCl}_3$	37.0%

# Over 100 years of precious metals expertise

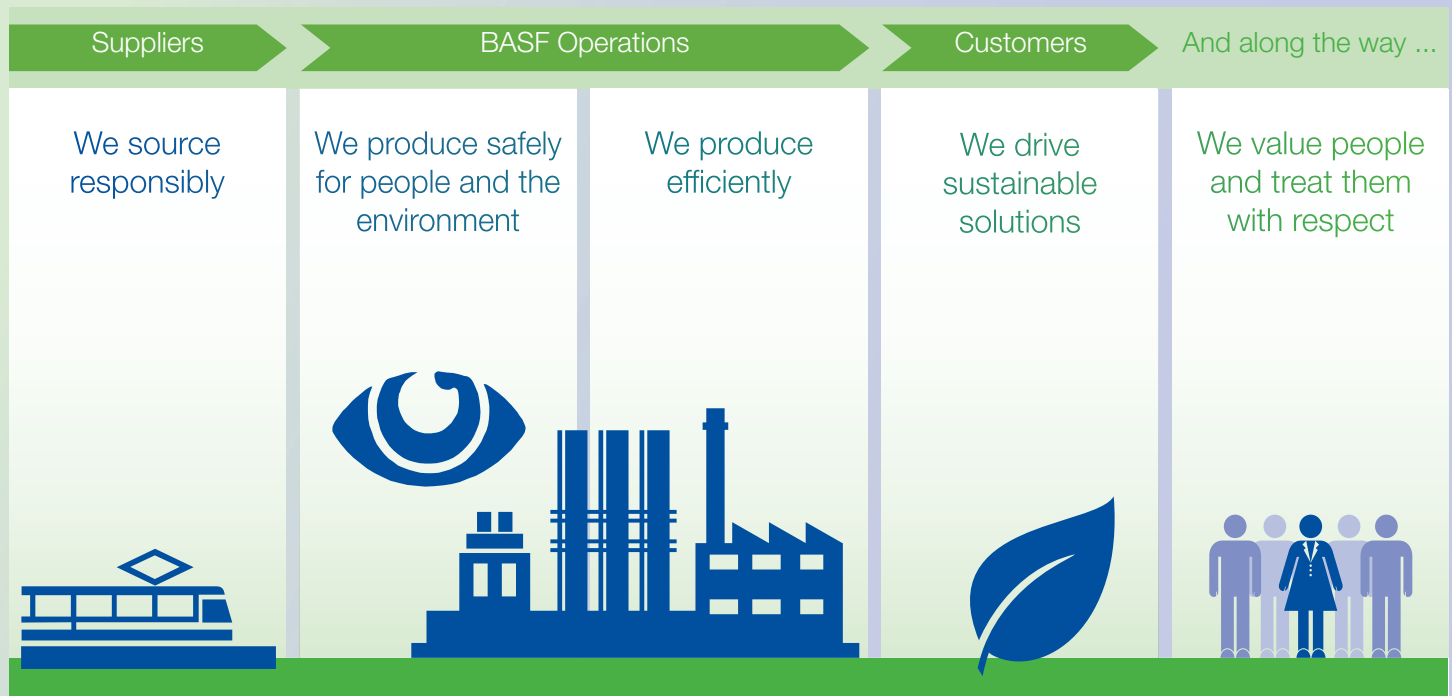
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- 1902 Engelhard was started by Charles W. Engelhard, Sr. when he purchased the Charles F. Croseilmire Company in Newark, New Jersey, USA.
  - 1905 With the purchase of Hanovia Chemical and Manufacturing Company, Engelhard officially became the world's largest refiner and fabricator of Platinum, Gold and Silver.
  - 1920s Became Inco's exclusive dealer of platinum in the United States.
  - 1930s Created a research-and-development department to pioneer new uses for platinum.
  - 1960 Opened precious metals facility in Rome, Italy.
  - 1962 Opened precious metals facility in Cinderford, UK.
  - 1970s Wall Street Journal started publishing EIB (Engelhard Industrial Bullion) prices.
  - 1974 Engelhard introduced the modern TWC (Three-Way Catalyst) for cars.
  - 1985 Opened precious metals facility in Seneca, SC.
  - 1992 Opened precious metals recycling site in Lincoln Park, MI.
  - 2006 BASF purchased Engelhard.
  - 2012 Opened precious metals facility in Shanghai, China.
  - 2015 Installed State-of-Art Autocat Preparation plant in Cinderford, UK.
  - 2017 Doubled precious metals milling and sampling capacity at Seneca site.

# We create chemistry for a sustainable future

We want to contribute to a world that provides a viable future with enhanced quality of life for everyone. We do so by creating chemistry for our customers and society and by making the best use of available resources. Sustainability is at the core of what we do, a driver for growth as well as an element of our risk management.



Our Corporate Commitments cover every part of our value chain and operations to deliver long-term business success.



## About Us

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

BASF – We create chemistry

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