

Environmental Catalyst and Metal Solutions

 **BASF**
We create chemistry

ENGELHARD
Materials Services

Precious Metal Chemicals

BASF Environmental Catalyst and Metal Solutions (ECMS)

Metals are our passion. By leveraging our deep expertise as the global leader in precious metals and catalysis, we develop innovative and circular solutions for our customers to create a cleaner, more sustainable world.

Learn more at: www.basf.com/ecms

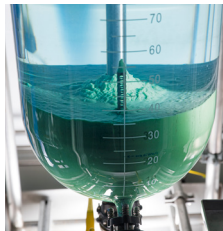
Precious Metal Services & Products

Recycling



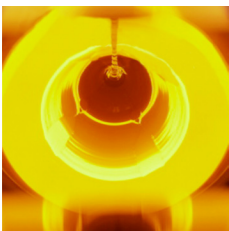
ECMS recycles chemical catalysts, catalytic converters and precious metal scrap. We partner with customers around the world to sample and assay their precious metals with accuracy and integrity using ISO accredited methods. The entire process is safe, secure, and transparent.

Precious Metal Chemicals



ECMS has extensive capabilities to produce Precious Metal Chemicals (PMC). These precious metal salts and solutions play a vital role in further manufacturing processes in several industrial applications including the manufacture of specialty chemicals, development and application of emission control technologies, green energy, and more.

Temperature Sensing



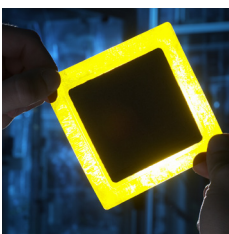
ECMS provides exceptionally high-quality temperature-sensing products and temperature sensor calibration services for customers in a wide range of industries including, semiconductor, glass, solar cell, chemical, crystal growth, heat treating, laser welding, power generation, and bio-medical, among others.

Trading

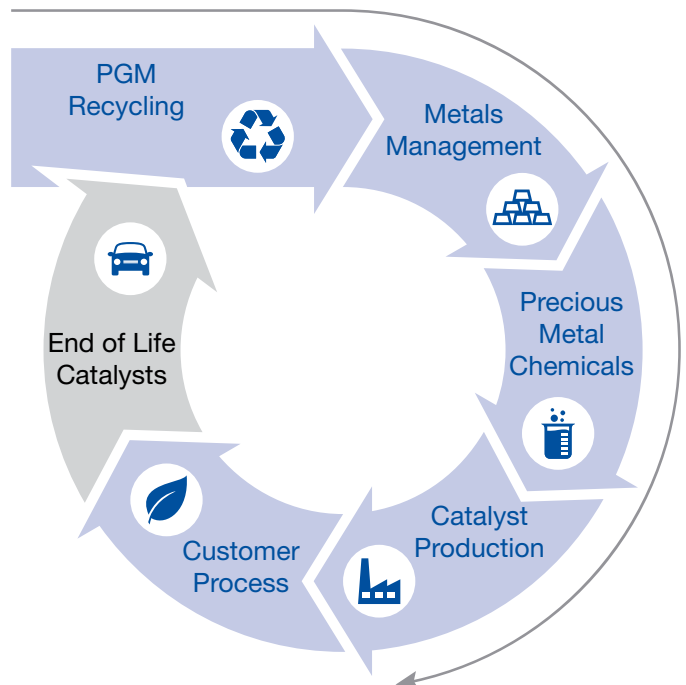


ECMS offers a full loop of price risk management services, globally trading in platinum, palladium, rhodium, iridium, ruthenium, gold, and silver.

Hydrogen



ECMS offers solutions on both ends of the hydrogen value chain – hydrogen production via water electrolysis and hydrogen use in fuel cell vehicles.



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 PGM compounds and solutions are manufactured in two facilities located at Seneca, SC, USA (ISO 9001 certified) and Rome, Italy (ISO 9001 and 14001 certified).

Platinum Products

Name	Formula	CAS	Metal Range %	Product Availability	
				Americas	EMEA
CPA	H ₂ PtCl ₆	16941-12-1	2.18-2.38%		✓
			15-25%		✓
			28-36%	✓	
Colloidal Pt Solution	Pt	141-43-5 7440-06-4	1.8-2.5%		✓
Pt(II) Nitrate Solution	Pt(NO ₃) ₂	18496-40-7	10-15%	✓	
			13-16%		✓
Tetraammine Pt Nitrate Solution	[Pt(NH ₃) ₄](NO ₃) ₂	20634-12-2	3-5%	✓	
Tetraammine Pt Hydroxide Solution	[Pt(NH ₃) ₄](OH) ₂	15651-37-3	3-5%	✓	
Pt Black (fuel cell grade)	Pt	7440-06-4	97-100%	✓	
Dihydrogen Hexahydroxiplatinum(IV)	H ₂ Pt(OH) ₆ xH ₂ O	52438-26-3	62-95%		✓
Platinum Ethanolamine Solution (Platinum A Solution)	(HOCH ₂ NH ₂) ₂ Pt(OH) ₆	68133-90-4 52438-26-3	10-20%	✓	✓
Pt(IV) Nitrate Solution	Pt(NO ₃) ₄	10102-09-7	7-15%		✓
Karstedt	C ₂₄ H ₅₄ O ₃ Pt ₂ Si ₆	68478-92-2	0.8-3.5%		✓
			9.7-10.3%		✓
			19-21.5%		✓
Ashby	Pt[(C ₃ H ₆ SiO) ₄] _x	68585-32-0	1.8-2.2%		✓
Platinum(IV) Oxide Hydrate	PtO ₂	1314-15-4	80-87%		✓

Palladium Products

Name	Formula	CAS	Metal Range %	Product Availability	
				Americas	EMEA
Tetraammine Pd(II) Nitrate Solution	[Pd(NH ₃) ₄](NO ₃) ₂	13601-08-6	4-5%	✓	
			10-15%		✓
Palladium(II) Nitrate Solution	Pd(NO ₃) ₂	10102-05-3	17-23%	✓	✓
			28-29%	✓	
Palladium(II) Oxide Hydrate	PdO·xH ₂ O	64109-12-2	74-78%	✓	
			74-80%		✓
Palladium(II) Dichloride Crystals	PdCl ₂	7647-10-1	59-61%	✓	✓
Palladium(II) Oxide Anhydrous	PdO	1314-08-5	85-87%	✓	
Palladium(II) Acetate	Pd(OOCCH ₃) ₂	3375-31-3	46.40-48.60%		✓
Palladium(II) Chloride Solution	PdCl ₂	7647-10-1	8-12%	✓	
			16-22%		

Rhodium Products

Name	Formula	CAS	Metal Range %	Product Availability	
				Americas	EMEA
Rhodium(III) Acetate Crystals	Rh(C ₂ H ₃ O ₂) ₃	42204-14-8	34-40%		✓
Rhodium(III) Chloride Hydrate	RhCl ₃ ·xH ₂ O	20765-98-4	33-43%		✓
			38-44%	✓	
Rhodium(III) Acetate Solution	Rh(C ₂ H ₃ O ₂) ₃	26105-49-7	4.75-5.25%	✓	
			4.75-15%		✓
Rhodium(III) Nitrate Solution	Rh(NO ₃) ₃	10139-58-9	6-12%	✓	✓
Chloro(1,5-cyclooctadiene)rhodium(I) dimer – [RhCl(COD)] ₂	RhCl(C ₈ H ₁₂)	12092-47-6	40.1-42.1%		✓
Rhodium(III) Chloride Solution	RhCl ₃ ·xH ₂ O	20765-98-4	7-12%		✓
Rhodium (2-ethylhexanoate) – Rh 2-EH	Rh(C ₈ H ₁₅ O ₂) ₃	20845-92-5	1.5-2.5%		✓
Rhodium (Acac)Carbonyl - CARAC	Rh(CO) ₂ (C ₅ H ₇ O ₂)	14874-82-9	37-40.5%		✓



Iridium Products

Name	Formula	CAS	Metal Range %	Product Availability	
				Americas	EMEA
Iridium Black - Powder	Ir	7439-88-5	98.5-99.6%		✓
Iridium Black - Wet	Ir	7439-88-5	90-96%		✓
Iridium Dioxide	IrO ₂	12030-49-8	80-86%		✓
Chloroiridic Acid Solution (CIA)	H ₂ IrCl ₆	16941-92-7	20-25%		✓

Ruthenium Products

Name	Formula	CAS	Metal Range %	Product Availability	
				Americas	EMEA
Ruthenium(III) Chloride Solution	RuCl ₃ ·xH ₂ O	10049-08-8	17-25%		✓
H0-60	RuO ₂ : H ₂ O	12036-10-1 32740-79-7	5-11%		✓
Ruthenium Oxide Hydrate	RuO ₂	12036-10-1 32740-79-7	53-75%		✓
Ruthenium(III) Chloride Crystals	RuCl ₃	14898-67-0	36-44%		✓

Over 100 years of precious metals expertise

1902

Engelhard was started by Charles W. Engelhard, Sr. when he purchased the Charles F. Croselmirre 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.



1974

Engelhard introduced the modern TWC (Three-Way Catalyst) for cars.



1985

Opened precious metals facility in Seneca, SC.



2006

BASF purchased Engelhard.



2012

Opened precious metals facility in Shanghai, China.



2017

Doubled precious metals milling and sampling capacity at Seneca, SC site.



2023

Established BASF Environmental Catalyst and Metal Solutions



2024

Commenced joint venture with Heraeus in Pinghu, China & Opened new refinery at Seneca, SC site



Why Partner with Us



..... Safe, Secure, Sustainable

We have a stable and secure presence with financial strength and a credit rating better than most banks.



..... Global Trading

Our team of experts help you confidently navigate the PGM market with 24/7 access and a variety of settlement options.



... Circularity

Our value chain and expertise in metal services allow us to develop circular solutions for precious metal supply with lower CO₂ footprint.



... Commitment to Customer Service

We take pride in working as your business partner and responding quickly to your needs.



..... World-Renowned Assay Lab

We are one of the few refiners to receive ISO 17025/17043 certifications for our labs, adhering to an international standard of excellence of PGM determinations.



..... Precious Metal Refining Services

With our advanced recycling equipment and precise analytical process, we provide you with the ability to recycle your end-of-life precious metal catalysts and scrap with best-in-class metal returns.

About BASF Environmental Catalyst and Metal Solutions

Leveraging its deep expertise as a global leader in catalysis and precious metals, BASF Environmental Catalyst and Metal Solutions (ECMS) serves customers in many industries including automotive, aerospace, indoor air quality, semiconductors and hydrogen economy, and provides full loop services with its precious metals trading and recycling offering. With a focus on circular solutions and sustainability, ECMS is committed to helping our customers create a cleaner, more sustainable world. Protecting the elements of life is our purpose and this inspires us to ever-new solutions. ECMS operates globally in 16 countries with over 4,500 employees and 21 production sites.

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