

Environmental Catalyst and Metal Solutions

 **BASF**

We create chemistry

ENGELHARD

Materials Services

Precious Metal Chemicals: Ashby & Karstedt Catalysts

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

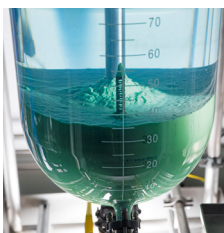
Precious Metal Services & Products

Recycling



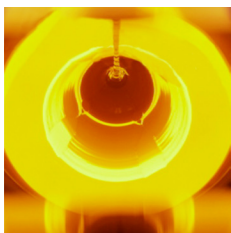
ECMS recycles chemical catalysts, catalytic converters and precious metal scrap. We partner with customers around the world to sample and assay their precious metals with accuracy and integrity using ISO accredited methods. The entire process is safe, secure, and transparent.

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 as they more efficiently produce specialty chemicals, catalysts, fuel cells and more.

Temperature Sensing



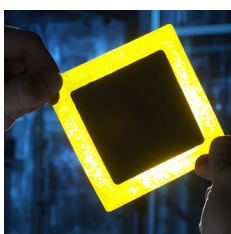
ECMS provides exceptionally high-quality temperature-sensing products and temperature sensor calibration services for customers in a wide range of industries including, semiconductor, glass, solar cell, chemical, crystal growth, heat treating, laser welding, power generation, and bio-medical, among others.

Trading

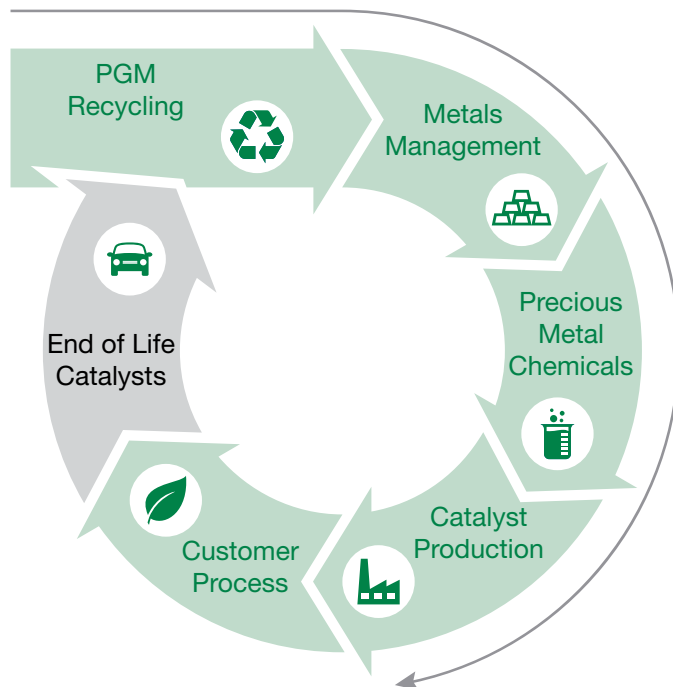


ECMS offers a full loop of price risk management services, globally trading in platinum, palladium, rhodium, iridium, ruthenium, gold, and silver.

Hydrogen



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



Ashby & Karstedt Catalysts

Catalyst	Pt Range	Dilutant	CAS Number
Karstedt 20%	19-21.5%	DVTMDS	68478-92-2
Karstedt 10%	9.7-10.3%	1,000 cSt	68478-92-2
Karstedt 3%	2.5-3.5%	1,000 cSt	68478-92-2
Karstedt 2%	1.8-2.2%	1,000 cSt	68478-92-2
Karstedt 2%	1.8-2.2%	Xylene	68478-92-2
Karstedt 1%	0.8-1.2%	1,000 cSt	68478-92-2
Ashby 2%	1.8-2.2%	TMVCTS	68585-32-0

Silicone rubber is an elastomer composed of silicone — itself a polymer — containing silicon together with carbon, hydrogen, and oxygen and was first described in 1901 by the British chemist Frederic S. Kipping. They are a common feature in many industries like adhesives, automotive, aerospace, cookware, dental, electronics, and many more.

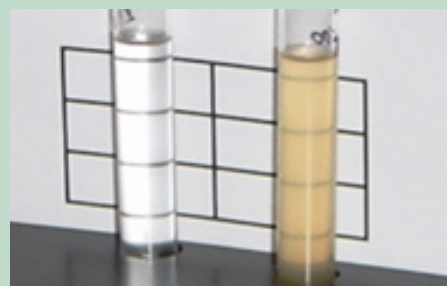
One of the various curing methods for silicones is hydrosilylation, utilizing vinyl containing silicones, hydrosilane materials, and platinum-based compounds as catalysts. A typical system for liquid silicone rubbers (LSR) requires the mixing of two separate components, often in combination with fillers, colorants, and further additives. The formulated, viscous but pumpable components can be used in extrusion or injection molding.

Curing can be completed in as little as a few seconds at temperatures between 120 and 200 °C. The most common curing agents for hydrosilylation are finely dispersed Pt(0), either as Karstedt's catalyst in a linear or as Ashby's catalyst in a circular siloxane matrix. Those catalysts are usually mixed into the final rubber components in a concentration range from 5 – 200 ppm depending on the desired curing rate and process speed.

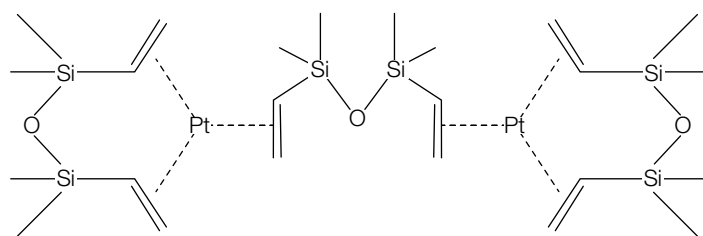
ECMS offers both Karstedt and Ashby catalysts in various concentrations and dilutants (e.g. various vinyl-terminated siloxanes, xylene, IPA), which can be optimized for your system. We consider it important to offer catalysts with an adjustable curing rate and minimal turbidity of the catalyst solutions to ensure that the customer can realize complete curing and the often-desired high transparency of their product. To achieve those qualities ECMS builds on its expertise in precious metal chemistry, a unified global product supply, and customer-oriented bottling and dispensing.

Benefits

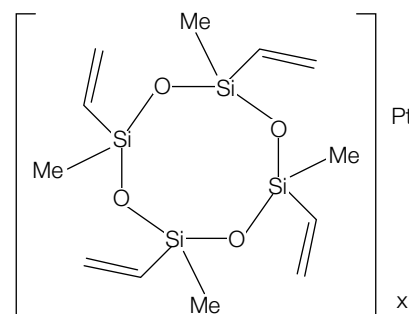
- Available in various concentrations and dilutants
- Adjustable curing rate
- Minimal turbidity of the catalyst solutions



ECMS process vs. standard process



Karstedt's Catalyst



Ashby's Catalyst

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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