



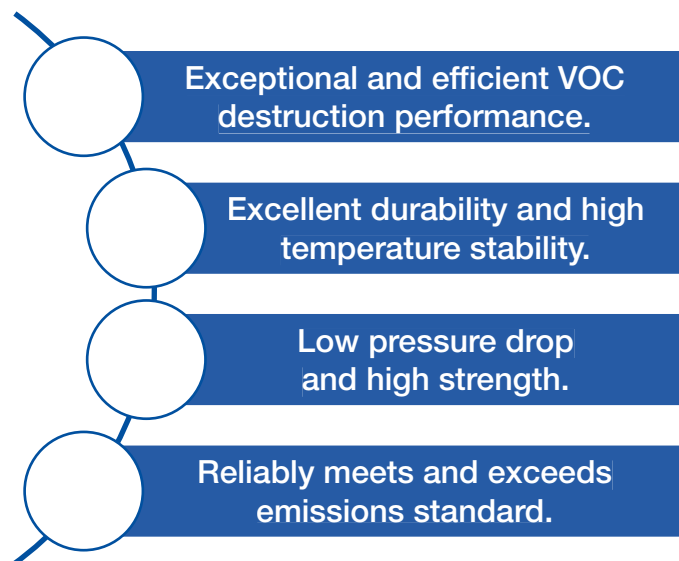
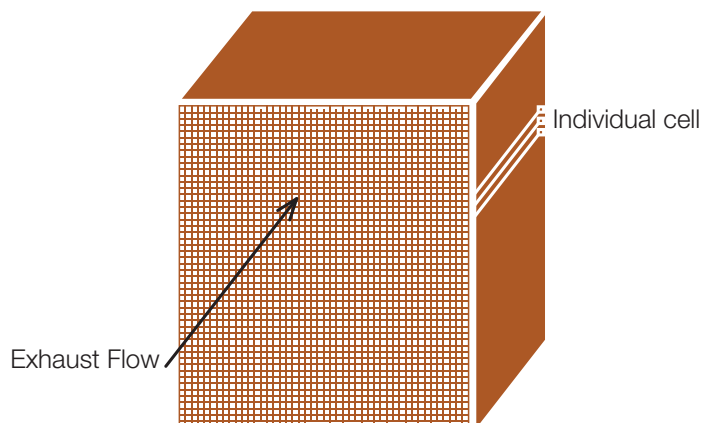
BASF

We create chemistry

VOC Abatement Catalysts

BASF VOCat™ ceramic honeycomb VOC catalyst technologies

Product Name	VOCat 300 Series	VOCat 310 ST	VOCat 350 HC	VOCat 360 PFC
Product use	Standard oxidation	Sulfur-tolerant standard oxidation	Chlorinated VOC (dioxin) oxidation	Flourinated VOC (freon) oxidation
Substrate	Ceramic honeycomb	Ceramic honeycomb	Ceramic honeycomb	Ceramic honeycomb
Typical cpsi	230	230	230	230
Typical space velocity (vHSV)	20,000 – 60,000	20,000 – 60,000	7,500	5,000
Typical design conversions (%)	90 – 99	90 – 97	99	99
Washable	Yes	Yes	No	No
Maximum use temperature (°F)	1,200	900	932	932
Maximum exposure temperature (°F)	1,475	932	950	950
Maximum operating temperature (°F)	700 – 1,000	700 – 900	900	900
Maximum use temperature (°F)	649	482	500	500
Maximum exposure temperature (°F)	802	500	510	510
Maximum operating temperature (°F)	370 – 538	370 – 482	482	482
Maximum sulfur tolerance (ppmv S)	50	500	10	10
Maximum chloride tolerance (ppmv Cl ₂)	1,000	2,500	5,000	5,000
Maximum conversion of chloride to Cl ₂ (%)	6	6	2	2
Maximum fluoride tolerance (ppmv F ₂)	25	25	500	500



Destination BASF

At BASF, we understand that our customers must not only comply with environmental standards, but also must keep their operations in service, readily and cost effectively. To successfully meet this challenge, BASF offers years of experience developing innovative solutions that deliver proven results.

Thousands of our high performance, low maintenance catalysts are in use around the world, helping industrial leaders reduce pollutants such as carbon monoxide(CO) and volatile organic compounds (VOC).

At BASF, we are committed to providing our customers with cost-effective solutions to the most complex emissions control problems. We are constantly developing new technologies to meet ever more stringent emission requirements.

Controlling VOC

BASF catalysts help control VOC and hydrocarbons (HC) by converting them into carbon dioxide and water. Running at lower operating costs than many other comparable technologies, BASF catalysts are also efficient and durable. They are available on ceramic and metallic honeycomb substrates.

For standard applications, BASF offers these VOC catalysts:

- VOCat™ ceramic
- Camet® metallic

For more challenging applications, specialty catalysts include:

- VOCat PTA - Purified Terephthalic Acid
- VOCat Type III - Naphthalene-based Phthalic Anhydride

Solutions You Need...Experience You Can Trust...Reliability You Require!

Tailored Catalytic Solutions For Your Application

General VOC

Sulfur-containing VOC

Nitrogen-bearing VOC

Chlorinated VOC

Fluorinated VOC

Phthalic Anhydride

PTA

VOCat 300 Series

VOCat 310 ST

VOCat and NOxCat™

VOCat 350 HC

VOCat 360 PFC

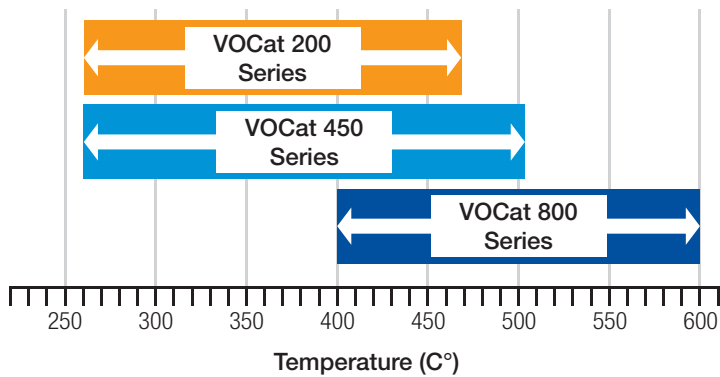
VOCat 300 and VOCat Type III

VOCat 200, 450 and 800 Series



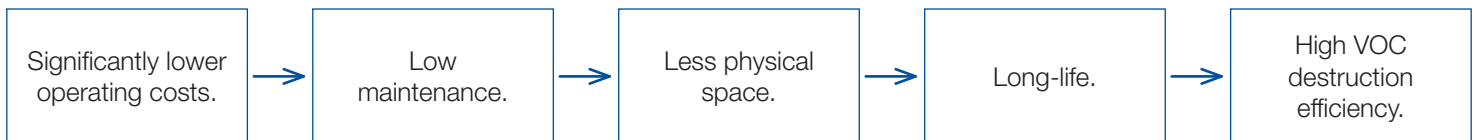
BASF VOCat™ PTA applications

Product Name - Catalyst	VOCat 450 Series	VOCat 200 Series	VOCat 800 Series
Catalytic ingredients	Precious metal	Base metal	Precious metal
Product use	PTA	PTA	PTA
Substrate	Ceramic honeycomb	Ceramic honeycomb	Ceramic honeycomb
Typical cpsi	400	400	400
Typical design conversion (%)	95 – 99	95 – 99	95 – 99
Recommended minimum catalyst outlet temperature °C (°F)	325 – 350 (617 – 662)	374 – 400 (705 – 752)	375 – 425 (707 – 797)
Recommended maximum catalyst outlet temperature °C (°F)	500 (932)	475 (887)	600+ (1,112+)

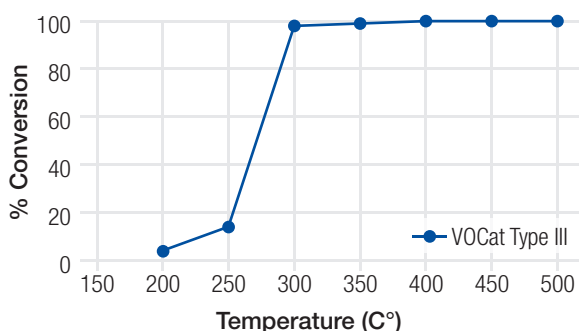


Benefits

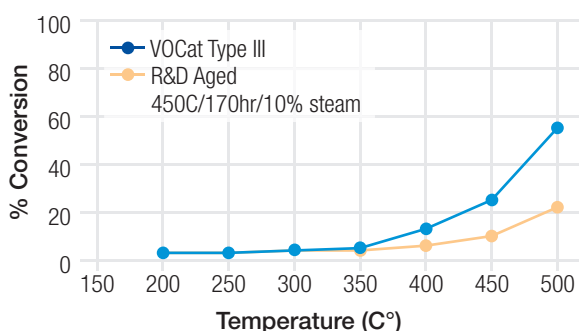
- Designed to achieve greater than 98% CO/VOC conversions over broad temperature range.
- Low temperature applications down to 325°C (617°F).
- High temperature applications of 600°C (1,112°F) and more.
- Low maintenance and long life.
- Optimum use of base and precious metal catalysts for most cost-effective solution.



**Conversion of O-Xylene
VOCat™ III – 230 CPSI – 35,000 VHSV**

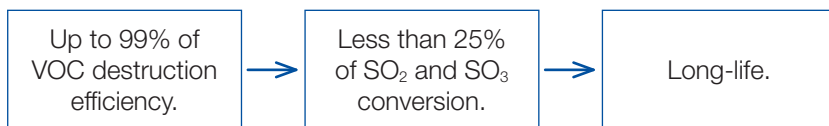


**Minimal SO₂ to SO₃ Conversion SO_x
VOCat™ Type III – 230 CPSI – 35,000 VHSV**



BASF VOCat™ PA applications

Product Name - Catalyst	VOCat 300S	VOCat Type III
Catalytic ingredients	Ceramic	Ceramic
Product use	Xylene-based PA production	Naphthalene-based PA production
Substrate	Ceramic honeycomb	Ceramic honeycomb
Typical cpsi	230	230
Typical space velocity (vhsv)	20,000 – 60,000	20,000 – 60,000
Typical design conversion (%)	90 – 99	90 – 99
Maximum use temperature °C (°F)	649 (1,200)	500 (932)
Maximum exposure temperature °C (°F)	802 (1,475)	802 (1,475)
Typical operating temperature °C (°F)	370 – 538 (700 – 1,000)	350 – 480 (800 – 900)

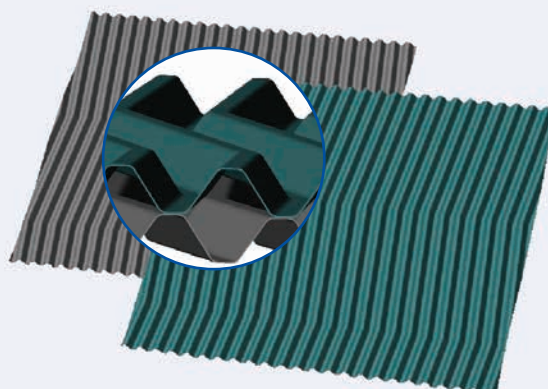


BASF Camet® metallic VOC catalyst technologies

Product Name - Catalyst	Camet
Catalytic ingredients	Platinum group metals
Product use	Oxidation or 3-way specialty application
Substrate	Metallic - foil
Typical cpsi	45 – 320
Typical space velocity (vhsv)	20,000 – 60,000
Typical design conversion (%)	90 – 99
Washable	Yes
Maximum use temperature °C (°F)	677 (1,250)
Maximum exposure temperature °C (°F)	802 (1,475)
Typical operating temperature °C (°F)	260 – 538 (500 – 1,000)
Minimum inlet temperature °C (°F)	260 (500)
Maximum sulfur tolerance (ppmv S)	50
Maximum chloride tolerance (ppmv Cl ₂)	10
Maximum fluoride tolerance (ppmv F ₂)	10

Benefits

- Patented corrugation patterns for stable and stronger stacking for catalytic abatement applications.
- Herringbone and skew corrugation patterns provide efficiency with minimal pressure drop.
- Angled-channels that create turbulence and a tortuous gas path that promotes mixing.
- Wider cell opening to minimize blocking.
- Contact points between foil layers – prevents nesting of catalyst.



Sustainability is at the core of BASF's purpose:

"We create chemistry for a sustainable future."

One way BASF contributes is by providing innovative solutions that help its customers make their products more sustainable. By reconciling profitability with social responsibility and environmental protection, we are unlocking sustainable benefits for our customer and for BASF. Our solutions are enabling high performance and continuous operational improvements while minimizing environmental impact. At BASF, we combine applications engineering expertise with innovative design and chemistry. This create a more sustainable operation and environment for our customers and along the value chain.

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.

About BASF's Clean Air Solutions

Building on our extensive technology expertise in emissions control, we are expanding our capabilities to provide solutions to enable clean air for a sustainable future.

As a pioneer in the clean air industry, we have a broad range of competencies to meet customer requirements for air quality and regulatory compliance, including greenhouse gas abatement. We are now expanding our focus to address a wider scope of applications that can positively affect health, manufacturing, equipment operation, and odor control.

We can leverage our expertise to help customers find solutions to improve air quality wherever needed, including confined spaces such as buildings, manufacturing facilities, and residential housing.

Visit www.catalysts.basf.com/patents for a list of our product patents.

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