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Catalysts for Gas Purification

Desulfurization

ActiSorb® S 2

Removal of hydrogen sulfide, mercaptans, carbonyl sulfides and organic sulfides from a variety of gas streams.

A Zinc Oxide based adsorbent is used for removal of Sulfur components from hydrocarbon feed streams for an achieved purity of less than 0.1 ppm wt. sulfur. ActiSorb® S 2 is the perfect solution when operating at high space velocities and elevated temperatures and is available in Extrusion shape.

Specification

product composition	Zinc
size	4,5 mm
shape	Extrusion



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Hydrodesulfurization

HDMax[®] 200 (C49)

HDMax[®] 200 is a cobalt-molybdenum-based catalyst for hydrodesulfurization of all types of hydrocarbon feedstock, such as naphtha, LPG, natural gas and off-gases. The catalyst is suitable for both liquid- and gas-phase applications.

- Highly active catalyst for converting all organic sulfur species to H₂S
- Also converts organic Cl species to HCl
- High thermal and mechanical stability leading to long catalyst lifetime

Specification

product composition	Co/Mo oxide
size	2.5 mm
shape	Extrusion



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Hydrodesulfurization

HDMax[®] 201 (C49 TRX)

Cobalt Molybdenum Dehydrodesulfurization Catalyst.

Saturation of olefinic hydrocarbons and conversion of organic sulfides to hydrogen sulfide

A cobalt-molybdenum-based catalyst for hydrodesulfurization of all types of hydrocarbon feedstock, such as naphtha, LPG, natural gas and off-gases. The catalyst is suitable for both liquid- and gas-phase applications.

Specification

product composition	Molybdenum, Nickel, Sodium, Oxide, Alumina
size	2.5 mm
shape	Extrusion



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CO Conversion

ShiftGuard® 200 Tab 4.8x4.8

Protection of Low Temperature Shift (LTS) ShiftGuard™ 200 powerfully adsorbs and retains chlorides so that the downstream LTS catalyst, such as ShiftMax® 217, is fully protected and can exhibit its superior activity and longevity. The chloride guard's proprietary mixed metal oxide formulation supports sustainability as it is chromium free.

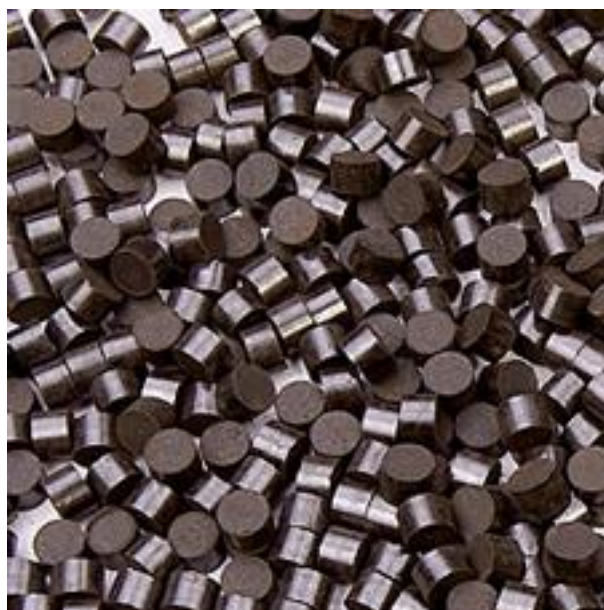
In addition to its outstanding mechanical strength, ShiftGuard 200 presents high initial CO shift activity with low methanol by-product formation, which strongly supports the LTS reaction in the main catalyst bed.

Benefits

- Sustainable 100% chromium-free chloride trap
- Supports the LTS reaction through active metals in the catalyst
- Superior chloride adsorption and excellent chloride retention
- Extremely high mechanical and hydrothermal stability
- High initial activity vs CO conversion
- No significant by-product formation under LTS conditions

Specification

product composition	Copper, Alumina, Manganese
size	4.8x4.8 mm
shape	Tablets



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Removal of HCl from hydrocarbons and hydrogen

ActiSorb® CI 2

Thanks to its high adsorption capacity, ActiSorb® CI 2 prevents in steam reforming units the poisoning of downstream catalysts, such as steam reforming and methanol synthesis catalysts. It also protects downstream units and equipment from fouling, deposits and corrosion. The hydrogen plant thus avoids unexpected shutdowns, and costly replacements. Moreover, through efficient, long-term removal of HCl, the chloride guard also helps to reduce harmful emissions.

Downstream CCR units ActiSorb CI 2 is used to remove HCl from the hydrogen rich gas streams.

Specification

product composition	Alumina based
size	2 - 5 mm
shape	Spheres



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Hydrogenation

ActiSorb® S 6

A zinc oxide/copper oxide-based adsorbent used for the removal of sulfur components such as hydrogen sulfide, mercaptans, and COS from hydrocarbon feed streams. ActiSorb® S 6 is a Copper-promoted Zinc Oxide, is placed in the bottom of the standard zinc oxide reactor and removes the remaining H₂S to a value < 10 ppb H₂S under a wide range of operating conditions. It is available in Extrusion shape.

Specification

product composition	CuO, ZnO, Al ₂ O ₃
size	5 x 3 mm
shape	Tablet



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Simultaneous Hydrodesulfurization and H₂S Adsorption

ActiSorb® G 1

A copper promoted zinc oxide used for the purification of natural gas containing low concentrations of total sulphur. Simultaneous hydrosulphurisation and H₂S pick-up is a feature unique to ActiSorb G 1. Even when saturated it fully retains its hydrogenation capabilities.

- Highly active hydrogenation of sulfur compounds (hydrodesulfurization)
- Highly effective adsorption of hydrogen sulfide (H₂S)
- Retains hydrogenation capabilities when saturated with H₂S
- Does not require minimum sulfur content in feed gas
- Allows start-up of plant without additional hydrogen

Specification

product composition	ZnO, Cu/Mo, promoters
size	4,5 mm
shape	Extrusions



Dissociation of Ammonia

ReforMax[®] 117 RR

A nickel-based catalyst for the dissociation of ammonia in off-gas. The catalyst's ribbed rings provide great stability, protecting it from the extreme temperatures needed for dissociation. Due to its enhanced surface area, ReforMax 117 RR also offers outstanding activity.

Based on more than 60 years of expertise in catalysis, Clariant's ReforMax series of syngas catalysts is commercially proven to be highly effective for a variety of feed conditions and process designs.

- High mechanical stability
- High activity due to enhanced surface area of ribbed rings

Specification

product composition	NiO, MgO, alumina
size	30 x 28 x 11 mm
shape	Ribbed Rings



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Methanation Catalyst

METH 134[®] (C13-4-04)

Nickel catalyst on alumina used in gas streams for the conversion of carbon oxides to methane

Specification

Chemical / Physical Characteristics	Unit	Specifications	Test Method
540°C Calcined Basis			
Nickel*	% wt.	20.0 ± 1.0	WQC027
Alumina	% wt.	65.0 ± 3.0	ANYL102
Calcium Oxide	% wt.	5.0 ± 2.0	ANYL102
Sulfur	% wt	≤ 0.050	WQC030
Loss On Ignition at 540 °C	% wt.	≤ 10.0	WQC025



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Reforming

Steam Reforming for Ammonia, Hydrogen and Methanol Production

ReforMax[®] 210 LDP

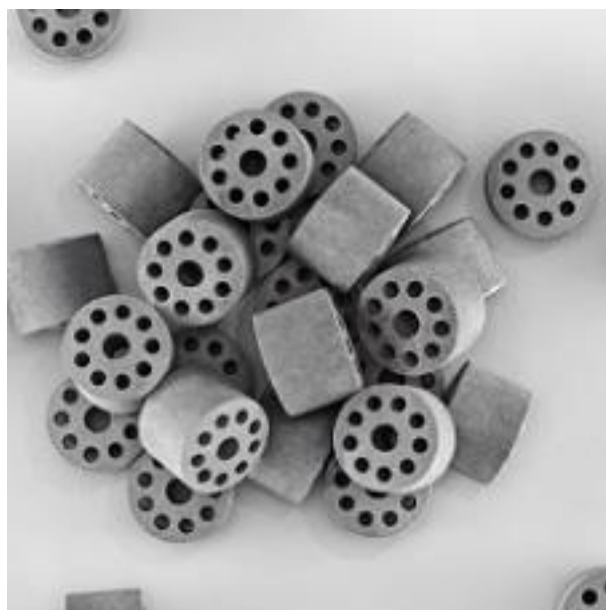
A potassium-promoted nickel-based catalyst for steam reforming of hydrocarbon feedstocks ranging from NG to LPG in the production of ammonia, hydrogen and methanol. The catalyst offers high activity and outstanding strength in a 10-hole ring shape that ensures low pressure drop.

ReforMax 210 LDP is typically loaded in the reformer tubes as the top layer (30-50%) on an un-promoted catalyst such as ReforMax 330 LDP. This way, the steam reforming catalyst provides added insurance against coking during plant startups, sudden feed changes, or other critical situations. Based on more than 60 years of expertise in catalysis, Clariant's ReforMax series of syngas catalysts is commercially proven to be highly effective for a variety of feed conditions and process designs.

- Low pressure drop due to 10-hole LDP shape
- High activity due to high geometric surface area
- Suppression of carbon formation due to potassium-promoted carrier
- Outstanding physical strength

Specification

product composition	NiO, K ₂ O, calcium, aluminate
size	19 x 12 mm
shape	10 Hole Rings



Steam Reforming of NG Feedstock for Ammonia, Hydrogen and Methanol Production

ReforMax[®] 330 LDP

A potassium-promoted nickel-based catalyst for steam reforming of NG (natural gas) in the production of ammonia, hydrogen and methanol. The catalyst offers high activity and outstanding stability in a 10-hole ring shape that ensures low pressure drop.

Syngas producers also benefit from the suppression of coke (carbon) formation, especially when ReforMax 330 LDP is combined with ReforMax 210 LDP. Based on more than 60 years of expertise in catalysis, Clariant's ReforMax series is commercially proven to be highly effective for a variety of feed conditions and process designs.

- Low pressure drop due to 10-hole LDP shape
- High activity due to enhanced geometric surface area
- Suppression of carbon formation, especially when ReforMax[®] 330 LDP is combined with ReforMax[®] 210 LDP
- Outstanding physical strength

Specification

product composition	NiO, calcium, aluminate
size	19 x 16 mm
shape	10 Hole Rings



Reforming of Syngas Production

ReforMax[®] 420 LDP

A extremely robust guard catalyst used in oxygen-fed autothermal reformers for syngas production. The catalyst acts as a heat shield, decreasing the catalyst bed temperature, which prevents evaporation of alumina from the top layer and its re-condensation further down the bed.

Oxygen-fed autothermal reforming requires a mixed load of catalysts consisting of approximately 5-10% ReforMax 420 on top of ReforMax 330 LDP.

Benefits

- Mechanically and thermally extremely stable guard catalyst for autothermal reforming
- Helps decrease catalyst bed temperature, thus preventing evaporation of alumina from the top layer and its re-condensation further down the bed

Specification

product composition	NiO, alumina
size	19 x 16 mm
shape	10 Hole Rings



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Reforming of Syngas Production

ReforMax® M

ReforMax® M is a catalyst designed for steam reforming of methanol to produce hydrogen and carbon monoxide. This syngas catalyst offers outstanding mechanical and thermal strength, which enables it to withstand the extreme operating conditions required for methanol to hydrogen reforming.

- Highly robust catalyst
- Able to withstand the operating conditions of MeOH reforming

Specification

product composition	Copper oxide, zinc oxide, alumina
size	4 x 6 mm
shape	Tablets



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Catalysts for CO-Conversion

High Temperature Water Gas Shift (HTS)

ShiftMax® 120 HCF

Hexavalent Chromium-Free - ShiftMax® 120 HCF is a high temperature shift (HTS) catalyst that combines high activity and thermal stability with extreme robustness, enabling it to withstand potential boiler leakages. With virtually no hexavalent chromium (Cr6+), it eliminates health or safety risks in handling or commissioning.

ShiftMax 120 HCF offers the same outstanding benefits as ShiftMax® 120, and performs identically after initial reduction. Both HTS syngas catalysts effectively prevent Fischer-Tropsch by-product formation at low steam-to-gas conditions.

- High activity, especially at lower temperatures
- High thermal stability leading to long lifetimes
- High physical robustness ensures high survival rate in case of boiler leakages
- High selectivity prevents Fischer-Tropsch by-product formation at low steam-to-gas conditions
- Essentially no hexavalent chromium, in full compliance with REACH regulations

Specification

product composition	Fe ₂ O ₃ , Cr ₂ O ₃ , CuO
size	6 x 6 mm, Other sizes on request
shape	Tablets



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Low Temperature Water Gas Shift (LTS)

ShiftMax® 210

ShiftMax® 210 is an extremely robust low temperature shift (LTS) catalyst with excellent copper dispersion, resulting in high activity and stability for water gas shift reactions. The syngas catalyst also offers high CO conversion over a long lifetime, high poison resistance, and superior strength.

ShiftMax 210 is successfully operated in numerous commercial LTS reactors worldwide, where it has demonstrated its outstanding performance and stability.

- Commercially proven catalyst with numerous references in ammonia plants worldwide
- Excellent mechanical stability in oxidized and reduced forms
- Outstanding activity and stability over entire lifetime

Specification

product composition	CuO, ZnO, Al ₂ O ₃
size	5 x 3 mm
shape	Tablets



Low Temperature Water Gas Shift (LTS)

ShiftMax® 217

ShiftMax® 217 is a promoted version of our high-performance ShiftMax®207 low temperature shift (LTS) catalyst. The special promoter minimizes methanol by-product formation without decreasing the catalyst's outstanding activity and stability for water gas shift reactions.

Both ShiftMax syngas catalysts also feature high CO conversion over their long lifetimes, excellent poison resistance and superior physical strength. Their unparalleled performance and stability have been proven in numerous commercial LTS reactors worldwide.

Commercially proven catalyst with numerous references in ammonia plants worldwide

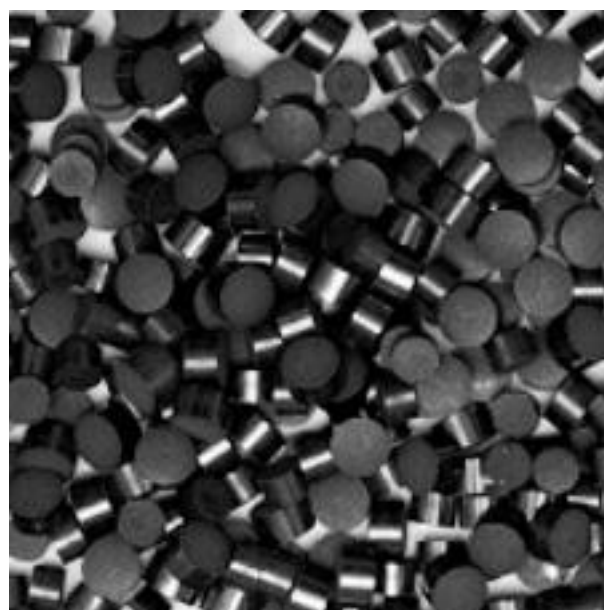
Excellent mechanical stability in oxidized and reduced forms

Outstanding activity and stability over entire lifetime

Effective suppression of methanol formation without compromising catalyst activity or stability

Specification

product composition	CuO, ZnO, Al ₂ O ₃
size	5 x 3 mm
shape	Tablets



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Zeolites

Molecular Sieve 3A

C&CS #678

C&CS #678 is commonly used for drying of gases and polar liquids (methanol, ethanol) and easily polymerizable substances, such as unsaturated hydrocarbons (ethylene, propylene, acetylene and butadiene).

Regeneration of C&CS #678 may be carried out by increasing the temperature and/or reducing the pressure or using a suitable purge gas, respectively.

Specification

product composition	0.45 K ₂ O, 0.55 Na ₂ O, Al ₂ O ₃ , 2 SiO ₂ , n H ₂ O
size	1.6 - 4 mm
shape	Beads



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Molecular Sieve 4A

C&CS #595

Molecular Sieve 4A is used as a desiccant in an array of industrial applications. 4A molecular sieve means the molecules with the pore size of 4Å or 4 angstroms are used for the adsorbing process. It simply signifies that molecules with the pores size larger than 4Å cannot be used for adsorption. Generally, they are the sodium forms of the Type A structure.

Type 4A has reliable adsorption speed, higher resistance quality, and stronger adsorption, which are enough to enhance product life. Such type of molecular sieve is perfect to remove the moisture from liquids and gases. It is a universal dehydrating agent used in polar and non-polar media. This type of molecular sieve is the perfect desiccant for low inlet, humidity, with the temperature below 30-35% RH.

Specification

product composition	0.45 K ₂ O, 0.55 Na ₂ O, Al ₂ O ₃ , 2 SiO ₂ , n H ₂ O
size	1.6 - 2.5 mm 8 x 12 mesh
shape	Beads



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Molecular Sieve 5A

C&CS #843

C&CS #843 - Molecular Sieve 5A - is commonly used for drying and desulfurization (H₂S) of natural gas, for the manufacture of protective gases and for the removal of CO₂. C&CS #843 - Molecular Sieve 5A - is also used for the separation of n-paraffins from branched and cyclic hydrocarbons.

Moreover, C&CS #843 - Molecular Sieve 5A - is used for the selective adsorption and separation of polar molecules from mixtures with absorbable but less polar molecules (e.g. preferred adsorption of H₂S in the presence of CO₂). In addition, C&CS #843 - Molecular Sieve 5A - is used for the selective separation of N₂ from air for O₂ generation.

Regeneration of C&CS #843 Molecular Sieve 5A may be carried out by increasing the temperature and/or reducing the pressure or using a suitable purge gas, respectively.

Specification

product composition	CaO. (1 – x) Na ₂ O. Al ₂ O ₃ . 2 SiO ₂ . n H ₂ O, x > 0.65
size	1.6 - 2.5 mm 8 x 12 mesh
shape	Beads



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Molecular Sieve 13X

C&CS #597

Removal of CO₂ and moisture from air (air pre-purification) and other gases. Separation of enriched oxygen from air. Removal of mercaptans and hydrogen sulfide from hydrocarbon liquid streams such as LPG, butane, propane etc.. Catalyst protection, removal of oxygen from hydrocarbons (olefin streams). Removal of n-chain compositions from aromatics.

Specification

product composition	Na ₂ O, Al ₂ O ₃ , (1.3 ~ 3.0) 2SiO ₂ , n H ₂ O
size	3 - 5 mm 8 x 12 mesh
shape	Beads



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Activated Carbon

Gas purification

C&CS #868

C&CS #868 is an activated carbon for removal of H₂S from O₂-free biogas/natural gas

Specification

product composition	activated carbon
size	approx.4 mm in diameter
shape	pellets
Apparent density	500 ± 30 kg/m ³
Water content, as packed	max. 10 %



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Catalogue 2023

Gas purification

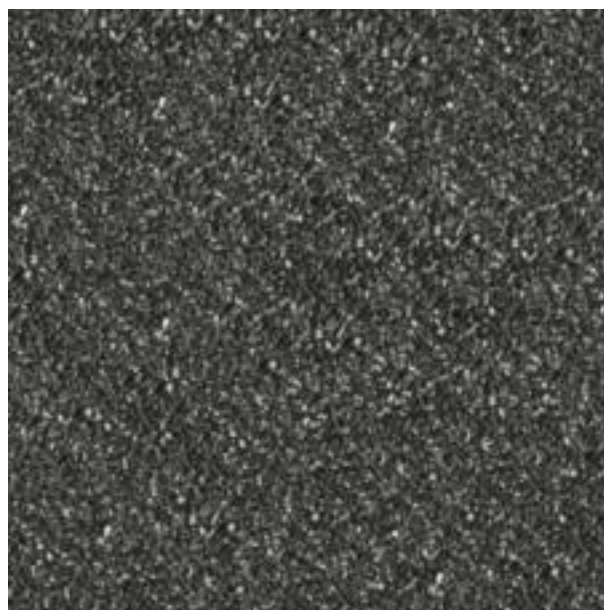
C&CS #674

Highly activated granular activated carbon, coal based, acid washed and neutralized.
C&CS #674 is used for oil purification.

Specification

Chemical / Physical Characteristics	Unit	Specifications	Typical values
Water content, as packed	%	5 max.	3
Ash content	%	10 max.	8
Iodine number	mg/g	950	960
Methylene blue adsorption		> 20 g / 100 g	24 g / 100 g
pH-Value		5 - 8	6

Physical Properties	Unit	Specifications	Typical values
Form / Shape		Granule	
		12 x 40 mesh	
		0,4 - 1,7 mm	
Bulk Density	kg/m ³	440 ± 25	440 kg/m ³
Specific surface area	m ² /g	approx. 1.000	



Pelletized Activated Carbon

C&CS #643

Activated carbon used for feed gas purification. Off gas purification. Oil removal from feed gas and hydrogen purification.

Specification

Physical Properties	Unit	Specifications
Form / Shape		4 mm Pellets
Hardness Number	%	> 95
Shipping Density*	kg/L	0.45 ± 0.025
Iodine Number*	mg/g	> 1050
Surface Area	m ² /g	1100 ± 100
Residual Water Content	wt. %	< 6
Methylene blue adsorption	wt. %	> 20.0

Siloxane removal

C&CS #1019

C&CS #1019 is an extruded activated carbon with high mechanical resistance based on charcoal for the removal of siloxanes in biogas.

Handling Precautions

Wet activated carbons reduce the oxygen content in air, which causes a severe hazard to workers inside activated carbon vessels and enclosed or confined spaces. Before entering such areas, the corresponding Material Safety Data Sheet is to be considered.

Specification

Physical Properties	Unit	Specification
Form / Shape		Extrudate
Diameter	[mm]	approx. 4 (> 3.38 mm: min.
BET surface	[m ² /g]	850
Benzene adsorption	[%]	min. 25 (at c = 32 g/m ³)
Water content	[%]	max. 8
Bulk density	[kg/m ³]	490 ± 30
Ash content	[%]	10
Attrition resistance	[%]	97



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Nobel Metal Catalysts

Hydrogenation and Oxidation Catalyst

ActiSorb® O3 (G-133 C)

ActiSorb® O (Palladium on Alumina) is a catalyst designed for effective oxygen (O₂) removal in syngas. The catalyst is suitable for the purification of all types of hydrocarbon feedstocks, and capable of reducing oxygen to non-detectable levels.

- Highly effective catalyst for oxygen (O₂) removal
- Able to reduce oxygen to non-detectable levels

Specification

Physical Properties	Unit	Specifications	Test Method
Form / Shape		3 - 5 mm Spheres	
Average Crush Strength	N	≥ 50.0	Q_SH0897
Shipping Density	kg/L	0.65 ± 0.05	Q_SH0489
Surface Area	m ² /g	160 ± 20	Q_SH0847



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Hydrogenation

HyMax Series

HyMax® 200 R i-Dec

Copper chromium catalyst in iso-decanol. Catalyst for carbonyl group hydrogenation.

Specification

Physical Properties	Unit	Specifications	
Form / Shape		4.5 x 4.5 mm Tablets	
Wet Shipping Density	kg/L	1.70 ± 0.10	Q_SH0751
Average Crush Strength	N	100 ± 30	Q_SH0743



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Catalogue 2023

HyMax-Series

HyMax® 220 Rn-OCT/DEC Tab 3x3

Promoted copper c

Specification

Physical Properties	Unit	Specifications	
Form / Shape		3x3 mm Tablets	
Average Crush Strength	N	125 ± 30	Q_SH1348
Wet Bulk Density	g/L	1800 ± 100	Q_SH0751
°Dry Bulk Density	g/L	1700 ± 100	Q_SH0489
Surface Area	m ² /g	32.0 ± 5.0	Q_SH0847



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Catalogue 2023

NiSAT[®] Series

NiSAT[®] 720 RS POW 10x10

Nickel/Nickel oxide on kieselguhr in powder form designed for the hydrogenation of various organic compounds

Specification

Physical Properties

Unit

Specifications



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Catalogue 2023

NiSAT® Series

HySat® 200 Tab 3x3

Chromium-free copper Manganese catalyst.

Specification

Physical Properties	Unit	Specifications	
Form / Shape		3x3 mm Tablets	
Average Crush Strength	N	85 ± 10	Q_SH0489
Shipping Density	g/L	1500 ± 100	Q_SH1348
Surface Area	m ² /g	50 ± 10	Q_SH0847



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NiSAT® Series

HySat® 200 Pow

Chromium-free copper Manganese catalyst.

Specification

Physical Properties	Unit	Specifications	
Form / Shape		3x3 mm Tablets	
Average Crush Strength	N	85 ± 10	Q_SH0489
Shipping Density	g/L	1500 ± 100	Q_SH1348
Surface Area	m ² /g	50 ± 10	Q_SH0847



Iodine Absorbents

DSM-series

DSM 11

DSM 11 catalysts are designed for selective adsorption of inorganic radioactive iodine in the presence of organic iodine compounds. They are ideally combined with AC 6120 catalysts for use in nuclear power plants, nuclear waste reprocessing plants and nuclear off-gas or air monitoring systems.

- Proven for decades to effectively remove radioactive iodine
- Adsorber optimized for removal of inorganic iodine in presence of organic iodine compounds (e.g. methyl iodine)
- Ideally combined with AC 6120 (adsorbs inorganic iodine and iodine bound in organic compounds)
- Due to catalysts' special composition, noble gases will not be absorbed

Specification

Physical Properties

Form / Shape

Product composition

Specifications

1,2 – 2,4 mm Spheres

Potassium iodide, supported by acid resistant carriers



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AC-Series: Silver alumina based AC-Series

AC 6120 - 7%

AC 6120 catalysts are designed for the removal of radioactive inorganic iodine as well as iodine bound in organic compounds such as methyl iodine (iodomethane). The absorbers are commonly used in nuclear power plants, nuclear waste reprocessing plants, and nuclear off-gas or air monitoring systems.

Benefits

- Proven for decades to effectively remove radioactive iodine
- Designed for adsorption of iodine bound in organic compounds
- Due to the catalysts' special composition, noble gases will not be absorbed

Specification

Physical Properties

Form / Shape

Product composition

Specifications

1,2 – 2,4 mm Spheres

Silver, supported by acid resistant carriers



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AC-Series: Silver alumina based AC-Series

AC 6120 – 12%

AC 6120 catalysts are designed for the removal of radioactive inorganic iodine as well as iodine bound in organic compounds such as methyl iodine (iodomethane). The absorbers are commonly used in nuclear power plants, nuclear waste reprocessing plants, and nuclear off-gas or air monitoring systems.

Benefits

- Proven for decades to effectively remove radioactive iodine
- Designed for adsorption of iodine bound in organic compounds
- Due to the catalysts' special composition, noble gases will not be absorbed

Specification

Physical Properties
Form / Shape
Product composition

Specifications
1,2 – 2,4 mm Spheres
Silver, supported by acid resistant carriers



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Environmental Catalysts

Envicat[®]-series for air and gas purification

EnviCat[®] 55068

High performance catalyst for the total oxidation of VOC (volatile organic compounds).

Specification

Physical Properties
Form / Shape
Product composition

Specifications
4 - 6 mm, Alumina spheres
Palladium and Platinum



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Envicat®-series for air and gas purification

Envicat® 55040

High performance catalyst for the total oxidation of VOC (volatile organic compounds).

Specification

Physical Properties
Form / Shape
Product composition

Specifications
2 - 4 mm, Alumina spheres
Palladium and Platinum



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Envicat®-series for air and gas purification

Envicat® HHC-5557

High performance catalyst for total oxidation of halogenated (chlorinated) VOC (volatile organic compounds). Typical applications: soil remediation, waste water stripping, chemical and pharmaceutical industry.

Specification

Physical Properties
Form / Shape
Product composition

Specifications
2 - 4 mm, Alumina spheres
Palladium and Platinum



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Envicat®-series for air and gas purification

Envicat® VOC-1544

High performance catalyst for total oxidation of oxygenated VOC (volatile organic compounds) (e.g. alcohols, aldehydes, ketones, etc.) with increased silicon resistance.

Specification

Physical Properties
Form / Shape
Product composition

Specifications
4 - 6 mm, Alumina spheres
Copper-manganese oxides



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Envicat®-series for air and gas purification

Envicat® 50300

High performance catalyst for the total oxidation of VOC (volatile organic compounds) and CO.

Specification

Physical Properties

Form / Shape

Cell density

Diameter of cylindrical metal honeycombs

Dimensions of rectangular metal honeycombs

Matrix depth of metal honeycombs

L x W x D of cordierite honeycombs

Product composition

Specifications

Stainless steel or cordierite honeycombs

50 - 600 cpsi

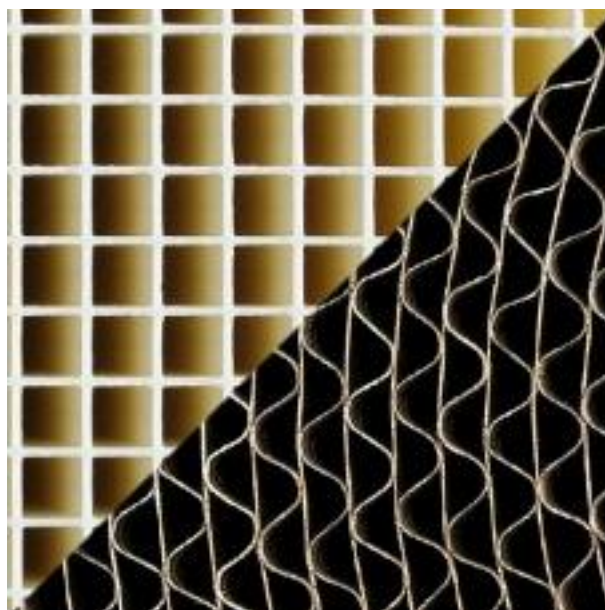
up to \varnothing 1300 mm

up to 600 x 600mm

50, 75, 90, 120, 150 mm

150 x 150 x 50/75/100/150 mm

Platinum and Palladium



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Envicat®-series for air and gas purification

Envicat® 2520

High performance catalyst for the total oxidation of carbon monoxide (CO), formaldehyde, ethylene and other VOC (volatile organic compounds).

Specification

Physical Properties

Form / Shape

Cell density

Diameter of cylindrical metal honeycombs

Dimensions of rectangular metal honeycombs

Matrix depth of metal honeycombs

L x W x D of cordierite honeycombs

Product composition

Specifications

Stainless steel or cordierite honeycombs

50 - 600 cpsi

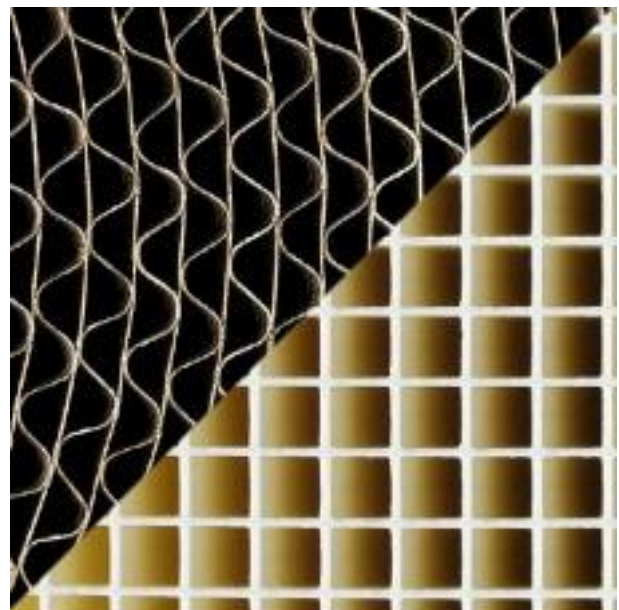
up to \varnothing 1300 mm

up to 600 x 600mm

50, 75, 90, 120, 150 mm

150 x 150 x 50/75/100/150 mm

Platinum and Palladium



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Envicat®-series for air and gas purification

Envicat® 20019-CH

High performance catalyst for DeNO_x and DeN₂O

Specification

Physical Properties

Form / Shape

L X W X D of cordierite

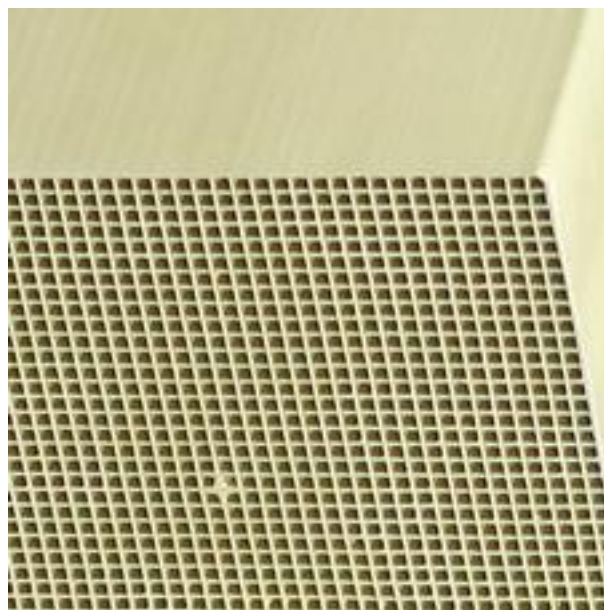
Product composition

Specifications

Cordierite honeycombs

150x150x100/150 100/200/400c

Fe-zeolite and silicon dioxide



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Inert Material

Silica/alumina based

CS 222 – Spheres

Silica / Alumina based inert spheres.

Specification

Physical Properties	Unit	Specifications
Form / Shape		6- 8 mm Spheres
Crush Strength(DIN EN 993-5)	kg	55
Shipping Density	kg/L	1,35 ± 0.05
Free volume	%	40-45
Water adsorption (DIN EN 993-1)	%	wt. < 3
Hardness	Mohs Scale	8
Specific heat	kg/kgK	0,8
Thermal conductivity	kJ/mhK	6
Thermal expansion	(1/K*10-6)	5
max. Application temp.	°C	1000



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Alumina based

CS 346 - Spheres

Alumina based inert spheres.

Specification

Physical Properties	Unit	Specifications
Form / Shape		6- 8 mm Spheres
Crush Strength (DIN EN 993-5)	kg	220
Shipping Density	kg/L	2.1 ± 0.1
Free volume	%	40-45
Water adsorption (DIN EN 993-1)	% wt.	max. 6
Hardness	Mohs Scale	9
Specific heat	kg/kgK	1,1
Thermal conductivity	kJ/mhK	15
Thermal expansion	(1/K*10-6)	7
max. Application temp.	°C	1800



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Chemical specialties

Paint removal / cold stripper

C&CS#754

Specification

Physical Properties	Unit	Specifications
Form	Liquid	cold paint remover in the bath
Color		transparent
Smell	yes	pungent
Melting point/Melting range	-23 °C	component: acetylacetone
Boiling point/Boiling range	139 °C	component: acetylacetone
Flash point	34 °C	component: acetylacetone
Ignition temperature	340 °C	component: acetylacetone



Metal coated particles

Silver coated glass powder

Silver coated Glass powder (**Glass@Ag**)

Fiber type(C-GB series)

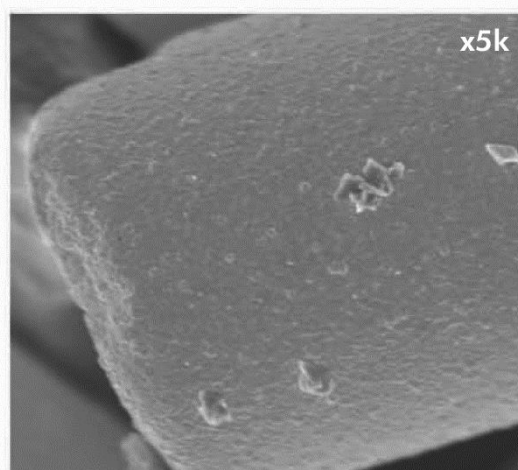
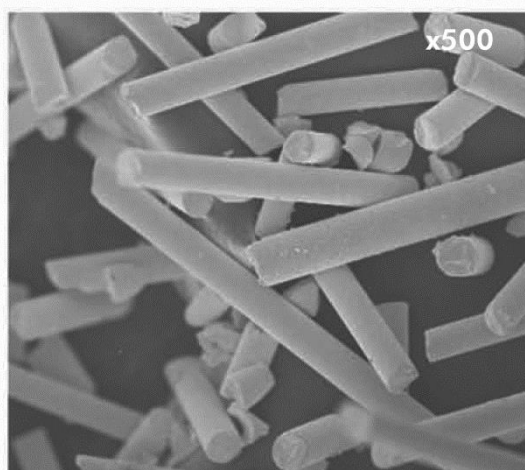
MODEL	C-GB-S20
Core Glass	Fiber
Size (D50, μm)	85.0 ± 6.0
Ag content (%)	10 / 20 (customer specified)

Key features

- Lower specific gravity → Good processability
- Excellent and uniform conductivity

Application

- Conductive adhesive
- Conductive paste
- Filler for liter powder replace with Nickel powder



Silver coated polymer speres PMMA@Ag

Silver coated Polymer powder (PMMA@Ag)

General polymer type (C-PM-S series)

MODEL	C-PM30-S	C-PM50-S	C-PM100-S	C-PM200-S	C-PM300-S
SEM					
Size(D50, μm)	3.5 ± 0.5	5.5 ± 1.5	10.0 ± 2.5	15.0 ± 3.0	30.0 ± 4.0
Core	PMMA				
Ag thickness (μm)	0.07~0.2 (customer specified)				

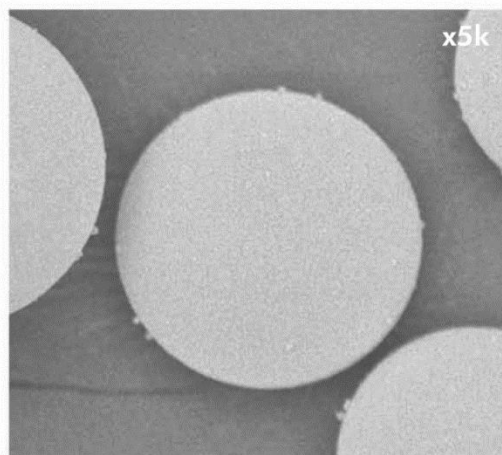
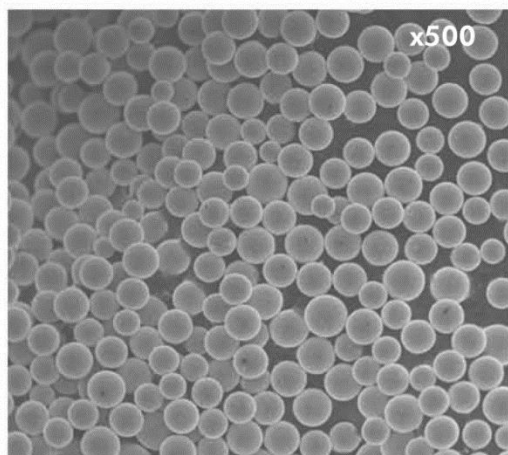
※ Other size : 15,25,40,50 μm

Key features

- Lower specific gravity → Good processability
- Excellent and uniform conductivity
- Narrow size distribution and Various size selection

Application

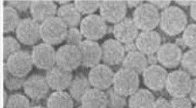
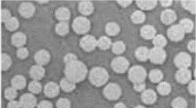
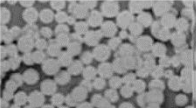
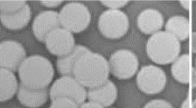
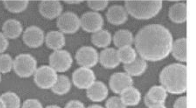
- Conductive PSA adhesive
- Conductive paste



Nickel coated Polymer powder

Nickel coated Polymer powder (PMMA@Ni)

General polymer type (C-PM-N series)

MODEL	C-PM30-N	C-PM50-N	C-PM100-N	C-PM200-N	C-PM300-N
SEM					
Size(D50, μm)	3.5 ± 0.5	5.5 ± 1.5	10.0 ± 2.5	20.0 ± 4.0	30.0 ± 4.0
Core	PMMA				
Ni thickness (μm)	0.07~0.2 (customer specified)				

※ Other size : 15,25,40,50 μm

Key features

- Lower specific gravity → Good processability
- Excellent and uniform conductivity
- Narrow size distribution and Various size selection

Application

- Conductive PSA adhesive
- Conductive paste

