



**MERYT**  
Catalysts & Innovation



# **MERYT** Catalysts Catalogue

## Catalysts

Catalysts are of vital importance in the refining and petrochemical processes because they help to save energy and make processes faster, safer, and easier. Any improvement in the design of traditional catalysts and/or in the development of new catalysts for the challenging energy transition means additional energy savings and reduction of emissions.

At MERYT Catalysts & Innovation we firmly believe that catalysts are the key players in the energy transition. In this sense, we are absolutely committed to deliver the most innovative catalysts for each process, developed in collaboration with the most advanced catalytic research centers.

We offer continuous technical service and support, provided by our internationally recognized experts, to maximize the value of our catalysts to the customers. We look forward to building strong, rewarding and enjoyable relationships, delivering superior products and services to our customers.

## Our Services

At MERYT Catalysts & Innovation we provide a comprehensive range of unique services to our customers. Our strengths are summarized as follows:

- Loading and unloading assistance to minimize downtime and bring the unit back on-line in the shortest time possible.
- Technical support for the start up of the unit.
- Close and constant technical support for the lifetime of the Catalyst.
- Operator training to ensure safe, reliable and profitable operation of catalytic units.
- We offer classes on catalysis and troubleshooting for personnel of all levels.

By selecting MERYT Catalysts & Innovation as your preferred partner for your catalytic needs, you will get:

- Innovative catalytic solutions for your process.
- Full service package (on-site technical service, technician and operator training).
- High quality catalysts with short delivery times.

Our experts are located close to our customers in Europe, Middle East, North Africa, and South America. Wherever our customers have operations, we are there to support them. We move our people where they are needed, and we recruit and train local people as the demands of each project require.

# MERYT Catalysts

## HYDROGEN – SYNGAS CATALYSTS

- MERYT PRE-10 Pre-reforming Catalyst
- MERYT PSR-30 Primary Steam Reforming Catalyst
- MERYT PSR-31 Primary Steam Reforming Catalyst
- MERYT PSR-32 Primary Steam Reforming Catalyst
- MERYT SSR-50 Secondary Steam Reforming Catalyst
- MERYT HTS-90 High Temperature Shift Catalyst
- MERYT MTS-100 Medium Temperature Shift Catalyst
- MERYT LTS-120 Low Temperature Shift Catalyst
- MERYT MTH-150 Methanation Catalyst
- MERYT LTM-180 Low Temperature Methanation Catalyst
- MERYT LTM-190 Low Temperature Methanation Catalyst

## OIL REFINING CATALYSTS

- MERYT SNR-11 Semi-Regenerative Naphtha Reforming Catalyst
- MERYT SNR-12 Semi-Regenerative Naphtha Reforming Catalyst
- MERYT HTA-15 Hydrogenation Catalyst for Aromatics
- MERYT NHT-29 Naphtha Hydrotreatment Catalyst
- MERYT NHT-30 Naphtha Hydrotreatment Catalyst
- MERYT DHT-33 Diesel Hydrotreatment Catalyst
- MERYT DHT-35 Diesel Hydrotreatment Catalyst
- MERYT RHT-39 Resid Hydrotreatment Catalyst
- MERYT HDO-17 Selective Hydrogenation Catalyst
- MERYT HT-510 Hydrotreating Catalyst
- MERYT SRU-TG-01 Low temperature catalyst for SRU exhaust gas hydro-treatment
- MERYT FCC-103 FCC Catalyst Maximum Propylene
- MERYT FCC-105 FCC Catalyst Maximum Gasoline
- MERYT FCC-107 FCC Catalyst Maximum Middle Distillates
- MERYT AFCC-60 Additive for FCC SO<sub>x</sub> Removal
- MERYT AFCC-65 Additive for FCC NO<sub>x</sub> Removal
- MERYT AFCC-70 Additive for FCC Metals Trap
- MERYT AFCC-80 Additive for FCC Boosting Gasoline Octane Number
- MERYT AFCC-85 Additive for FCC Gasoline Sulphur Removal
- MERYT ET-53 Etherification Catalyst

# MERYT Catalysts

## CHEMICAL CATALYSTS

- MERYT AH-22 Acetylene Hydrogenation Catalyst
- MERYT AH-23 Acetylene Hydrogenation Catalyst
- MERYT AH-24 Acetylene Hydrogenation Catalyst
- MERYT PDH-72 Propane Dehydrogenation Catalyst
- MERYT EOC-902 Ethylene Oxychlorination Catalyst
- MERYT FAL-51 Formaldehyde Catalyst
- MERYT STY-11 Styrene Catalyst
- MERYT PE-500 Polyethylene Catalyst
- MERYT MET-950 Methanol Catalyst
- MERYT HR-50 Hydrogen Removal Catalyst
- MERYT HR-51 Hydrogen Removal Catalyst
- MERYT OXR-18 Oxygen Removal Catalyst
- MERYT SRF-62 Methanol Decomposition Catalyst for Fuel Cell Application
- MERYT VCS-63 Vanadium Cesium Catalyst for Sulphuric Acid Production
- MERYT VPO-73 Vanadium Pentoxide Catalyst for Sulphuric Acid Production
- MERYT VPO-77 Vanadium Pentoxide Catalyst for Sulphuric Acid Production
- MERYT N2O-30 Secondary Abatement Catalyst for Nitrous Oxide
- MERYT DMC-20 Double Metal Cyanide Catalyst

## ENVIRONMENTAL CATALYSTS

- MERYT NOX-10 Selective Catalytic Reduction Catalyst for NOx removal
- MERYT VOC-20 Selective Catalytic Oxidation Catalyst
- MERYT VOC-21 Selective Catalytic Oxidation Catalyst
- MERYT VOC-22 VOC Abatement Catalyst

## INERT SUPPORTS

## HYDROGEN – SYNGAS CATALYSTS

### MERYT PRE-10 Pre-Reforming Catalyst

MERYT PRE-10 is a nickel-based catalyst for the reactor upstream of the primary reformer, in order to protect the steam reforming catalysts and tubes, increasing their lifetimes. MERYT PRE-10 has excellent thermal stability and is very flexible to operate with different feeds, from naphtha to natural gas and refinery off gases.

### MERYT PSR-30 Primary Steam Reforming Catalyst

MERYT PSR-30 is a nickel catalyst used for the production of hydrogen, syngas, and ammonia industries. It is installed in the primary reformer, using natural gas or naphtha as feedstock. Thanks to the extremely high dispersion of the nickel on the support, a microporous structure based on calcium aluminate, MERYT PSR-30 has very high activity at low temperature. The presence of rare-earth metals in its composition prevents the carbon formation.

### MERYT PSR-31 Primary Steam Reforming Catalyst

MERYT PSR-31 is a nickel catalyst promoted with potassium used for the production of hydrogen, syngas, and ammonia. It is designed to be installed in the primary tubular steam reformer. It can be used with hydrocarbon feedstocks from natural gas to LPG. MERYT PSR-31 presents a very high activity and low pressure drop, thanks to its multi-hole design shape. It is loaded on the top of the tubes, together with the catalyst MERYT PSR-32 on the bottom, and helps to avoid carbon formation in critical situations, thanks to its potassium-promoted technology.

### MERYT PSR-32 Primary Steam Reforming Catalyst

MERYT PSR-32 is a nickel based catalyst promoted with potassium used for the production of hydrogen, syngas, and ammonia. It is specially designed for the primary tubular steam reformer. It can be used with hydrocarbon feedstocks from natural gas to LPG.

MERYT PSR-32 presents an excellent high activity and very low pressure drop, thanks to its multi-hole design shape. It is especially efficient to reduce carbon formation when it is loaded at the bottom of the tubes together with the catalyst MERYT PSR-31, a nickel based potassium promoted catalyst, loaded at the top of the tubes.





## MERYT SSR-50 Secondary Steam Reforming Catalyst

MERYT SSR-50 is a nickel catalyst used for the production of hydrogen, syngas, and ammonia, installed in the secondary reformer. Thanks to its design and composition, MERYT SSR-50 presents very high activity, low pressure drop, very good heat resistance and long life cycle.

## MERYT HTS-90 High Temperature Shift Catalyst

MERYT HTS-90 is an iron and chromium based catalyst used in hydrogen, syngas and ammonia plants, to carry out the conversion of carbon monoxide into carbon dioxide. Thanks to its high activity and physical stability, reliable and long life cycles are achieved. It is especially designed to effectively prevent the Fischer-Tropsch reaction by-products formation, when operating at low steam to gas conditions.



## MERYT MTS-100 Medium Temperature Shift Catalyst

MERYT MTS-100 is a copper-zinc catalyst with excellent activity and stability for the isothermal or adiabatic medium temperature shift reactor.

## MERYT LTS-120 Low Temperature Shift Catalyst

MERYT LTS-120 is a zinc-copper catalyst used in hydrogen, syngas and ammonia plants, to carry out the low temperature shift reaction for the conversion of the carbon monoxide into carbon dioxide. MERYT LTS-120 presents very high conversion rate and long cycle life, with excellent hydrothermal stability, low pressure drop and very high resistance to sulphur poisoning.

## MERYT MTH-150 Methanation Catalyst

MERYT MTH-150 is a high content nickel catalyst used in hydrogen, syngas and ammonia plants, to hydrogenate the carbon monoxide and carbon dioxide into methane. MERYT MTH-150 presents very high activity at low temperature, with excellent thermal stability and high resistance to attrition. This catalyst can be supplied in oxidized or reduced form.

## MERYT LTM-180 Low Temperature Methanation Catalyst

MERYT LTM-180 is a low content ruthenium catalyst for the methanation reaction, specially designed to operate at low temperatures, to remove carbon monoxide in syngas or ammonia production.

## MERYT LTM-190 Low Temperature Methanation Catalyst

MERYT LTM-190 is a catalyst with a higher ruthenium content for the methanation reaction specially designed to operate also at low temperatures in order to eliminate carbon monoxide in the production of syngas or ammonia.



# OIL REFINING CATALYSTS

## MERYT SNR-11 Semi-Regenerative Naphtha Reforming Catalyst

MERYT SNR-11 is a catalyst containing platinum and rhenium specially designed for the semi-regenerative catalytic naphtha reforming process, to produce high-octane gasoline. MERYT SNR-11 is usually loaded in the two first reactors due to its high tolerance to impurities.

## MERYT SNR-12 Semi-Regenerative Naphtha Reforming Catalyst

MERYT SNR-12 is a catalyst containing platinum and rhenium specially designed for the semi-regenerative catalytic naphtha reforming process, to produce high-octane gasoline. Thanks to its good resistance to coke formation, it is installed in the third reactor.

## MERYT HTA-15 Hydrogenation Catalyst for Aromatics

MERYT HTA-15 is a nickel based catalyst designed for the saturation of aromatic ring structures of low sulphur aromatic feedstocks as kerosene, diesel, white oils and base oils. MERYT HTA-15 effectively removes olefins, aromatics and also carbonyl, sulphur and nitrogen compounds. It is available in reduced form for shorter start-up time.

## MERYT NHT-29 Naphtha Hydrotreatment Catalyst

MERYT NHT-29 is a high performance cobalt-molybdenum catalyst for the hydrotreatment of naphtha straight run, with excellent desulphurization activity and high resistance to contaminants.

## MERYT NHT-30 Naphtha Hydrotreatment Catalyst

MERYT NHT-30 is a nickel-tungsten catalyst for the pretreatment of catalytic reformer naphtha to protect the main catalyst and maintain optimum operating conditions. This catalyst is specially designed to convert sulphur and nitrogen compounds to the minimum required level at low temperature, with very high resistance to coke formation.

## MERYT DHT-33 Diesel Hydrotreatment Catalyst

MERYT DHT-33 is a cobalt-molybdenum catalyst for the hydrotreatment of kerosene and diesel. It is specially designed to obtain ULSD in units operating under low-moderate pressure, to minimize hydrogen consumption.



## MERYT DHT-35 Diesel Hydrotreatment Catalyst

MERYT DHT-35 is a high performance nickel-molybdenum catalyst for the hydrotreatment of kerosene and diesel. It is specially designed to obtain ULSD in units operating under moderate/high pressure.

## MERYT RHT-39 Resid Hydrotreatment Catalyst

MERYT RHT-39 is a high performance nickel catalyst specially designed for hydrodemetallization of atmospheric and vacuum residues.

## MERYT MERYT HDO-17 Selective Hydrogenation Catalyst

MERYT HDO-17 is a specialised selective hydrogenation catalyst that is specifically designed for the removal of butadiene or vinylacetylene in C4 and C5 liquid feeds. The catalyst offers high selectivity and improves operational efficiency by minimizing operational problems. It enables complete saturation of C4 and/or C5 streams, resulting in improved operating time and enhanced process performance.

## MERYT HT-510 Hydrotreating Catalyst

MERYT HT-510 is a cobalt-molybdenum hydrotreating catalyst suitable for hydrodesulfurization of various hydrocarbons, including naphtha, LPG, natural gas, and off-gases. It has excellent thermal and mechanical stability, providing long operating cycles, and is active in converting organic sulfur compounds to H<sub>2</sub>S and organic chloride compounds to HCl.

## MERYT SRU-TG-01 Low Temperature Catalyst for SRU Exhaust Gas Hydro-Treatment

MERYT SRU TG-01 is a highly active cobalt-molybdenum based hydroprocessing catalyst used to remove sulfur from exhaust gases in Claus process plants. Thanks to its high activity this catalyst efficiently converts COS and SO<sub>x</sub> compounds to H<sub>2</sub>S, even at low temperatures. Its excellent performance and long operational life make it ideal for sulfur recovery units in refineries and petrochemical plants.

## MERYT FCC-103 FCC Catalyst Maximum Propylene

MERYT FCC-103 is a specialized FCC catalyst that uses a unique combination of Y-zeolite and ZSM-5 to maximize the production of light olefins, particularly propylene. This catalyst offers high selectivity for coke, activity, and LPG olefin yields, and also improves the gasoline octane number. It is ideal for units that require high coke selectivity for maximum conversion while minimizing the bottom to coke ratio.

## MERYT FCC-105 FCC Catalyst Maximum Gasoline

MERYT FCC-105 is a high-performance catalyst specifically designed to maximize the production of gasoline in FCC units, with excellent hydrothermal stability. Thanks to its high Y-zeolite content and its high surface area, this catalyst achieves the maximum conversion with improved yields in isomerization and alkylation reactions, that contributes to gasoline RON.

## MERYT FCC-107 FCC Catalyst Maximum Middle Distillates

MERYT FCC-107 is a high performance catalyst specifically designed to maximize the production of middle distillates in FCC units. This catalyst provides excellent selectivity to LCO, with maximum bottoms conversion and high resistance to metals.

## MERYT AFCC-60 Additive for FCC SO<sub>x</sub> Removal

MERYT AFCC-60 is an additive, based on magnesium oxide, specially designed to reduce SO<sub>x</sub> emissions from the FCC unit's flue gas.

## MERYT AFCC-65 Additive for FCC NO<sub>x</sub> Removal

MERYT AFCC-65 is a specially designed additive to capture NO<sub>x</sub> emissions, by converting precursors of NO<sub>x</sub> to nitrogen.

## MERYT AFCC-70 Additive for FCC Metals Trap

MERYT AFCC-70 is an additive, based on magnesium oxide, specially designed to trap metal contaminants present in the FCC unit as are vanadium, nickel, iron and sodium.





## **MERYT AFCC-80 Additive for FCC Boosting Gasoline Octane Number**

MERYT AFCC-80 is an additive based on zeolites, specially designed to increase the gasoline octane number, and to reduce the cracking of gasoline to LPG.

## **MERYT AFCC-85 Additive for FCC Gasoline Sulphur Removal**

MERYT AFCC-85 is a specially designed additive to reduce the sulphur content in the FCC gasoline, including mercaptans, sulphides, disulphides, thiophenes and benzothiophenes.

## **MERYT ET-53 Etherification Catalyst**

MERYT ET-53 is an acidic cation resin, macroporous type, with a very high catalytic activity. Thanks to its specific surface area and suitable pore structure, it is excellent to perform etherification reactions, to obtain ETBE or MTBE. MERYT ET-53 presents high isobutylene conversion rate, very good selectivity and excellent stability.

# CHEMICAL CATALYSTS

## MERYT AH-22 Acetylene Hydrogenation Catalyst

MERYT AH-22 is a palladium-based catalyst with specific functionality optimized for the removal of trace amounts of acetylene from ethylene streams. The catalyst is formulated to reduce acetylene to undetectable levels, providing protection to ethylene polymerization catalysts from deactivation due to acetylene poisoning.

## MERYT AH-23 Acetylene Hydrogenation Catalyst

MERYT AH-23 is a reduced content palladium catalyst specially designed for the purification of ethylene by hydrogenation of traces of acetylene to levels below of detectable, in order to protect ethylene polymerization catalysts.

## MERYT AH-24 Acetylene Hydrogenation Catalyst

MERYT AH-24 is a palladium and silver-based catalyst specially engineered for the hydrogenation of acetylene to ethylene. The catalyst exhibits exceptional selectivity and stability, offering extended cycle lengths and low green oil formation. It is highly efficient, reducing hydrogen consumption and enabling operation under various conditions.

## MERYT PDH-72 Propane Dehydrogenation Catalys

MERYT PDH-72 is a catalyst based on platinum and tin used for the obtention of propylene by the dehydrogenation of propane, with excellent selectivity. It is also used for the reaction of dehydrogenation of iso-butane to obtain iso-butylene and for the obtention of n-butenes from n-butane.

## MERYT EOC-902 Ethylene Oxychlorination Catalyst

MERYT EOC-902 is a copper catalyst specifically designed for the production of ethylene dichloride (EDC), with maximum yield and very high stability and selectivity.





## MERYT FAL-51 Formaldehyde Catalyst

MERYT FAL-51 is a molybdenum iron catalyst for the production of formaldehyde by oxidation of methanol in tubular reactor.

## MERYT STY-11 Styrene Catalyst

MERYT STY-11 is a specialised catalyst designed for the production of styrene from ethylbenzene through dehydrogenation. Its unique formulation and properties, including high conversion rates, selectivity, mechanical strength, and longevity, make it a valuable choice for industrial processes in the styrene production industry.

## MERYT PE-500 Polyethylene Catalyst

MERYT PE-500 is a catalyst that contains chromium specially designed for ethylene polymerization in gas phase, for loop slurry process, to produce HDPE.

## MERYT MET-950 Methanol Catalyst

MERYT MET-950 is a catalyst for the production of methanol based on copper with very high activity and excellent selectivity at low temperature. It is suitable for different feedstocks, from natural gas, to syngas or refinery off gas.

## MERYT HR-50 Hydrogen Removal Catalyst

MERYT HR-50 is a catalyst based on palladium for the removal of hydrogen from carbon dioxide. It is commonly used in the urea industry.

## MERYT HR-51 Hydrogen Removal Catalyst

MERYT HR-51 is a catalyst based on palladium for the removal of hydrogen. It is commonly used in the production of inert gases as nitrogen and helium.

## MERYT OXR-18 Oxygen Removal Catalyst

MERYT OXR-18 is a catalyst based on palladium specially designed for the removal of oxygen from hydrogen, nitrogen and synthesis gas.

## MERYT SRF-62 Methanol Decomposition Catalyst for Fuel Cell Application

MERYT SRF-62 catalyst is a catalyst designed for the decomposition of methanol into hydrogen and carbon oxides. This type of catalyst is commonly used in fuel cell applications, where hydrogen is a valuable fuel source.

## MERYT VPO-73 Vanadium Pentoxide Catalyst for Sulphuric Acid Production

MERYT VPO-73 is a catalyst of vanadium pentoxide as an active agent that presents excellent properties of surface area and porosity, used for the production of sulphuric acid. This catalyst has a very high activity that allows to reduce loading quantity, pressure drop and energy costs. Additionally, its increased service life can also be helpful to achieve longer operating cycles and reduced emissions.

MERYT VPO-73 is specifically designed for the condition of upper passes, being able to resist the tough condition of pass 1 and pass 2 in the converter.





## MERYT VPO-77 Vanadium Pentoxide Catalyst for Sulphuric Acid Production

MERYT VPO-77 is a catalyst of vanadium pentoxide as an active agent, specially recommended to operate under low temperature and under conditions of high  $\text{SO}_3$  and low oxygen concentrations, in the production of sulphuric acid. Therefore, it is mostly used in the third pass of the 3+1 process or the third and fifth pass of the 3+2 process. The special formulation and processing technology of MERYT VPO-77 can not only provide higher activity for long-time operation but also well solve the conflict between catalyst activity and crush resistance, which makes the screening loss much lower.

## MERYT N2O-30 Secondary Abatement Catalyst for Nitrous Oxide

MERYT N2O-30 is a catalyst based on manganese and cobalt that converts nitrous oxide ( $\text{N}_2\text{O}$ ) into nitrogen and oxygen. It is commonly installed in the ammonia oxidation reactor, before the primary precious metal catalyst, to increase the yield in the nitric acid plants.

## MERYT DMC-20 Double Metal Cyanide Catalyst

MERYT DMC-20 is a double metal cyanide catalyst specifically developed for the production of high-quality polyols with low unsaturation and narrow molecular weight distribution. The catalyst displays superior performance, requiring a lower amount of catalyst and shorter reaction time compared to conventional catalysts. It is compatible with standard epoxide polymerization reactors that utilize both stirring and cycling systems.

# ENVIRONMENTAL CATALYSTS

## MERYT NOX-10 Selective Catalytic Reduction Catalyst for NOx Removal

MERYT NOX-10 is a honeycomb vanadium titanium catalyst designed to very effectively reduce nitrogen oxides in process gases.

## MERYT VOC-20 Selective Catalytic Oxidation Catalyst

MERYT VOC-20 is a noble metals coated catalyst on honeycomb ceramic designed for controlling hydrocarbons and volatile organic compounds (VOCs) in industrial processes. It effectively oxidizes organic compounds containing carbon, hydrogen, and sulfur at low temperatures, reducing energy costs and minimizing NO<sub>x</sub> emissions.

## MERYT VOC-21 Selective Catalytic Oxidation Catalyst

MERYT VOC-21 is a honeycomb platinum palladium catalyst specially designed to very effectively remove CO, hydrocarbons and other volatile organic compounds from process gases.

## MERYT VOC-22 VOC Abatement Catalyst

MERYT VOC-22 is a catalyst formulated with manganese and copper to efficiently convert volatile organic compounds (VOCs) into carbon monoxide and water vapor through oxidation. This catalyst is specifically designed for effective VOC elimination, providing optimized performance in industrial processes.



ENVIRONMENTAL CATALYSTS



## INERT SUPPORTS

### INERT SUPPORTS

Inert supports are materials needed in chemical reactors to help to distribute the flow and to avoid loss of catalyst downstream the reactor. Normally are loaded in the bottom of the reactor and above the catalyst bed. And is normal to do a grading of the sizes of the different materials in order to reduce pressure drop and avoid losses of catalyst particles downstream the reactor.

At MERYT, we provide different inert supports, such as ceramic balls, alumina balls, and high alumina balls. These materials are widely used for their inertness and stability in high-temperature and corrosive environments. They are very well designed to optimize reactor characteristics such as pressure drop, flow distribution, and heat transfer.



For additional information about any of these catalysts or any other catalyst not detailed in this catalogue, please, contact us, we will be very happy to help you.

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