LET'S MAKE A DIFFERENCE IN REDUCING COMPLEXITY.

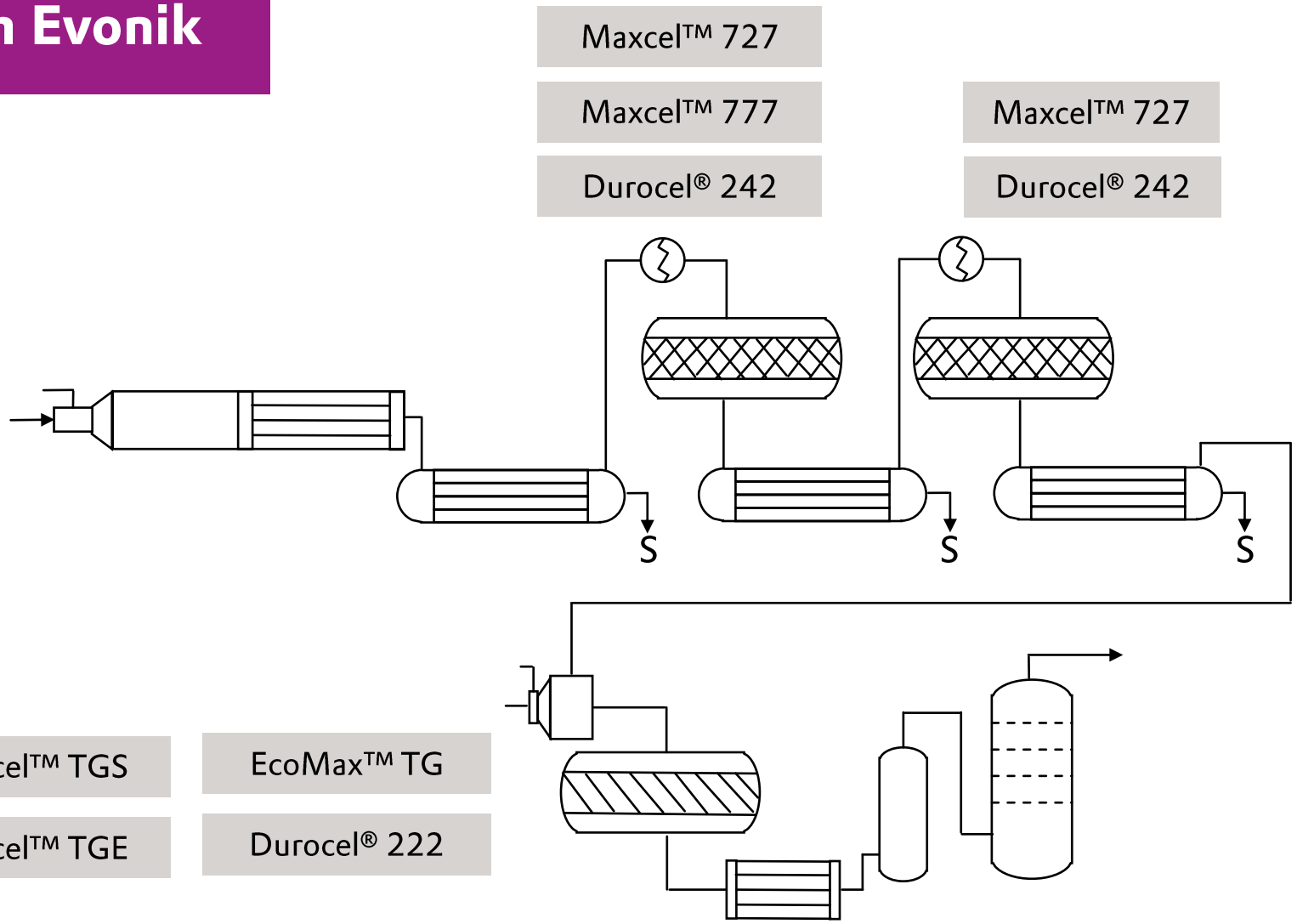
SULFUR RECOVERY with EVONIK.

EVONIK
Leading Beyond Chemistry

SULFUR RECOVERY with Evonik

Sulfur recovery is a crucial process in various industries, especially those involved in refining petroleum and natural gas. Sulfur-containing compounds in these raw materials can be harmful to the environment and pose health hazards. The Claus process, a time-tested and reliable method, effectively recovers sulfur from these sources, ensuring cleaner emissions and compliance with environmental regulations.

Evonik is a complete-package SRU & TGTU catalyst supplier. We manufacture and supply the Claus and Tail Gas catalysts needed to achieve and maintain high sulfur recovery efficiency. Evonik leads in sustainability for sulfur recovery catalysts, providing two tail gas catalysts with carbon footprints significantly smaller than competitive tail gas catalysts.

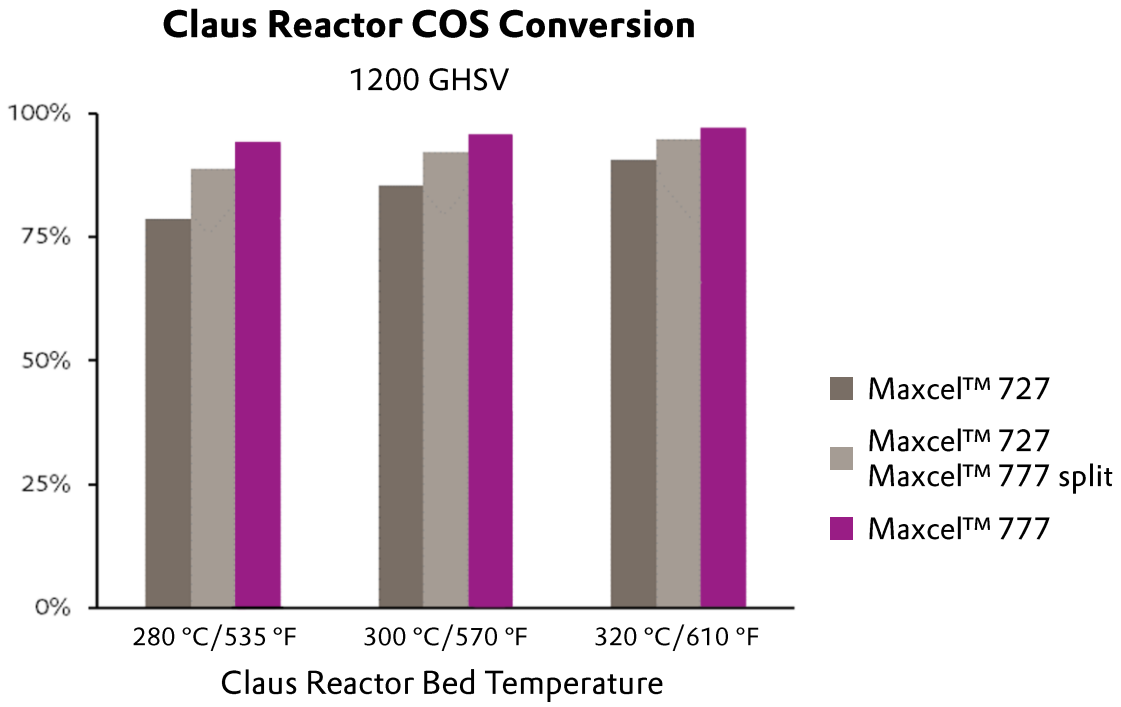


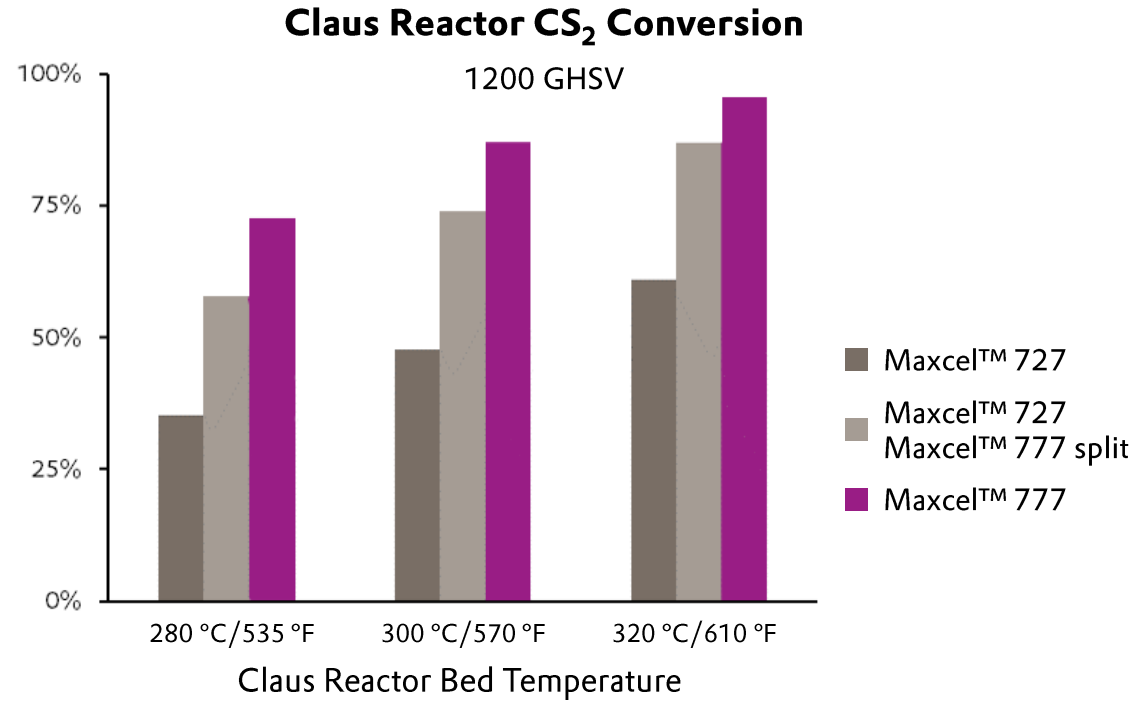
EVONIK Leading Beyond Chemistry

CLAUS CATALYSTS

Claus Catalysts are an important part of the Claus process. They are essential in promoting the chemical reactions required for efficient sulfur recovery. These catalysts act as agents to accelerate the conversion of hydrogen sulfide (H_2S) and sulfur dioxide (SO_2) into elemental sulfur (S_8), a valuable and safe byproduct.

Evonik's **Maxcel™** Claus catalysts are recognized around the world for reliability and activity. Our catalysts have been installed in more than 250 sulfur recovery units around the world, spanning the last 25+ years. Our catalysts are proven in sulfur recovery units in North and South America, Europe, Middle East, Africa, Asia Pacific North and South.





Maxcel™ 727 is Evonik's standard activated alumina Claus catalyst. For units requiring higher activity, **Maxcel™ 777** can be used to boost COS/CS_2 conversion or to save energy by lowering Claus reactor temperatures.

Evonik also offers Claus catalyst bed supports and specialty Claus catalysts, such as **Maxcel™ 740** (iron oxide-promoted oxygen scavenger) and **Maxcel™ SD-A** (activated alumina for sub-dew point Claus applications).

TAIL GAS CATALYSTS

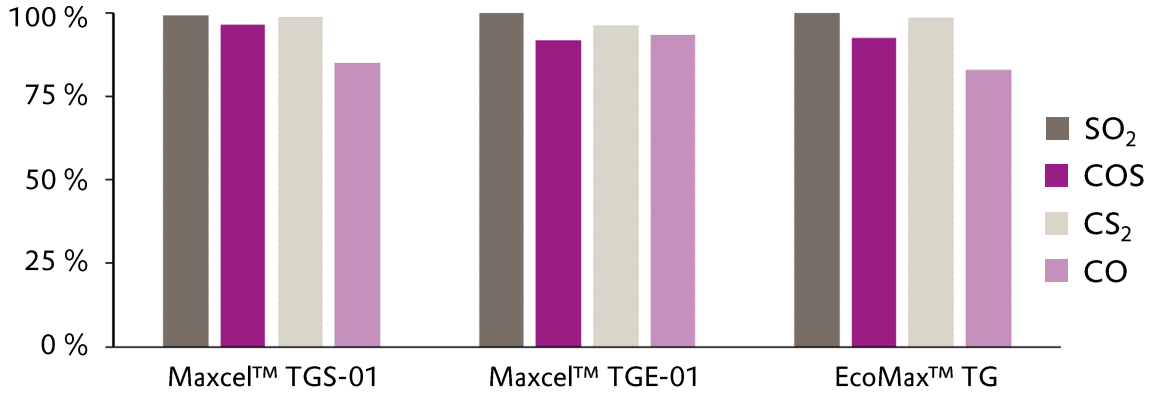
For detailed product information about Maxcel™ and access to the technical product data sheets please visit us here

Maxcel™ TGS-01 a premier tail gas catalyst and is often used in conventional temperature tail gas reactors offering the lowest pressure drop of any tail gas catalyst in the industry.

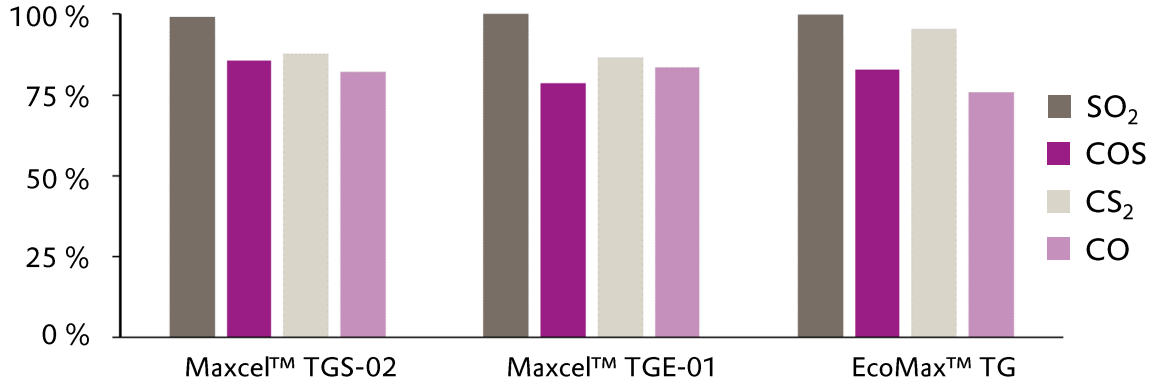
Maxcel™ TGS-02 a low-temperature, high-activity spherical tail gas catalyst. For facilities that want to operate at low temperature (<240°C /<465°F reactor inlet temperature), Maxcel TGS-02 offers excellent activity.

Maxcel™ TGE-01 a fresh extruded tail gas catalyst manufactured with sustainable raw materials. Compared to the typical raw materials and manufacturing methods, Maxce™I TGE-01 has a carbon footprint which is smaller by 30%.

Conversion in Tail Gas Reactor - Conventional -
1200 GHSV / 280°C bed temperature



Conversion in Tail Gas Reactor - Low Temperature -
1200 GHSV / 240°C bed temperature



EcoMax™ TG a tail gas catalyst sourced from recycled hydroprocessing catalyst. This reduces catalyst waste, shrinks the carbon footprint of tail gas catalysts, delivers higher performance than many fresh tail gas catalysts, and offers significant cost savings.

Evonik also offers tail gas catalyst pre-sulfurization with **actiCAT® TG**, and pre-activation (full sulfiding) with **UltraCAT® TG**.

These treatments may be performed at the same facilities which manufacture tail gas catalysts, reducing transportation and intermediate packaging costs.

FIRST SUSTAINABLE TAIL GAS CATALYST

Maxcel™ TGE-01

- **Spherical cobalt-molybdenum (CoMo) on activated alumina** catalyst for use in **Claus tail gas treating** units that contain a hydrogenation reactor (e.g. SCOT tail gas units).
- Optimized catalyst support structure provides **high conversion of SO_2, COS, CS_2**, and elemental sulfur in Claus tail gas with very **low pressure drop**.
- Also **facilitates water-gas shift reaction** in the hydrogenation reactor to reduce CO emissions from tail gas incinerator, producing additional hydrogen for reduction.
- Designed for **use in tail gas units with a reactor inlet temperature of at least 500 °F (260 °C)**.
- Maxcel™ TGS-01 can be treated with actiCAT® TG presulfurization or UltraCAT® TG preactivation for simple and fast tail gas unit startup.

Traditional TG Catalysts

Maxcel™ TGE-01

- Fresh CoMo/Al tail gas catalyst
- Patented method of incorporating recovered metals from spent catalysts
- Same performance
- Lower cost
- Reduced environmental impact

* kg CO_2e per kg catalyst

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