NOx and N₂O removal reduces your greenhouse gas footprint, resulting in significant savings from day one.

Removing N₂O with a secondary catalyst is less than 90% efficient.

Typically, you’ll see N₂O emissions increasing over the gauze campaign as catalyst performance declines. As a consequence, N₂O intensity levels can reach into hundreds of ppm's. If this happens, your nitric acid plant could face additional CO₂ market costs.

Preventing this risk is easy. With the tertiary catalyst TertiNOx™ from Topsoe.

Remove N₂O up to 99%

Unlike pellet catalysts and complex reactor designs, TertiNOx™ is a high-activity monolith catalyst that removes up to 99% of N₂O. It will fit into your current reactor or even a smaller, simpler one.

You’ll find the results impressive. For example, at a CO₂ price of 25 EUR/ton CO₂ eq., a 1000 MTPD nitric acid plant will annually save more than EUR 1.5 million per 100 ppm N₂O emission reduction - from day one.
Topsoe value-adding solutions

N₂O polisher for working secondary catalysts
The compact TertiNOx™ reactor functions as a N₂O polisher to enhance N₂O removal. The CO₂ equivalent savings can be substantial and the payback time short. If the secondary catalyst volume and DeNOx reactors are optimized, you can expect even faster payback times. The small footprint, high design flexibility, combined NOx and N₂O removal and high catalytic activity means that a TertiNOx™ solution can be designed to replace your existing SCR installation.

N₂O abatement with TertiNOx™ catalysts
TertiNOx™ tertiary monolith catalysts remove up to 99% N₂O when installed in the tail gas. Its compact reactor design (fig 1) gives you dual DeNOx and N₂O removal performance already from 350°C/660°F. We can also customize an installation for your plant. No matter what your choice, you can depend on a long life of high activity and low-pressure drop.

Savings payment solution
Within the EU-ETS system, a TertiNOx™ installation will result in significant savings due to reduced N₂O emissions. But it can be difficult to realize revamp projects due to the initial investment. Topsoe offer TertiNOx™ catalyst on a savings payment solution, you only pay with a fraction of the actual achieved savings of the TertiNOx™ installation with no additional payments for NOx emissions.

NH₃ slip management
The nitric acid process is especially sensitive to NH₃ slip. This means that large tertiary catalyst volumes are needed to get high performance. With TertiNOx™ slip solution, a dedicated NH₃ oxidation catalyst is installed as bottom layer. The result is high performance with less catalyst volume, providing a compact and competitive overall solution.

This solution significantly reduce CAPEX and financial risks of the project, making it easier to realize the project internally. Further, Topsoe will monitor performance of your installation, ensuring optimal performance and replacing catalyst when needed.

Get in touch today

topsoe.com/tertinox