CHEMICAL PROCESSING

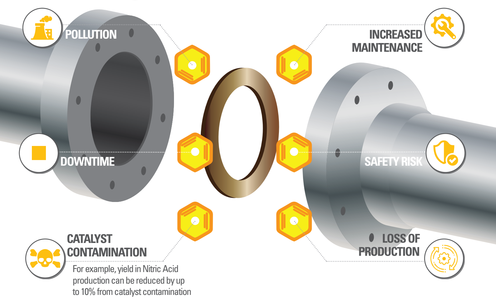
Flexitallic

Sealing Materials: Gaskets A HIDDEN OPPORTUNITY IN NITROGEN FERTILIZER APPLICATIONS

For over 823 nitrogen fertilizer plants globally, the smallest equipment could make a surprising difference. Often overlooked, sealing materials – specifically gaskets – can have a huge impact on plant operations, from reducing shutdowns to increasing safety and productivity.

Safety + Reliability + Efficiency = Savings

Choosing the wrong sealing material and gaskets can cause leaks and lead to:



For example, yield in Nitric Acid production can be reduced by up to 10% from catalyst contamination

Challenging environments are present in the production of fertilizers and intermediates like ammonia and nitric acid:

Oxidation
A highly oxidised environment can cause sealing materials to lose mass, severely compromising their performance.

Pressure
In combination with high temperature, high pressures place additional demands on equipment.

During Ammonia synthesis, pressures of up to 200 bar (2900 psi) place demands on piping components and gaskets.

In the secondary reformer of Ammonia production temperatures can reach between 1000°C -1200°C (1832°F-2192°F).

In the Nitric Acid process, temperatures can reach up to 930°C (1706°F) in the Ammonia burner.

Temperature
Extreme temperatures reached during various stages of production place significant demands on sealing materials.

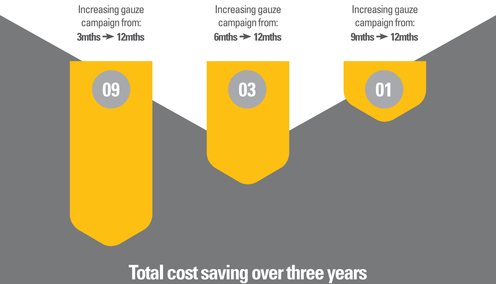
Thermal Cycling
Often caused by routine maintenance during the hazardous shutdown and start-up processes, the expansion and tightening of materials can have serious safety implications as gasketed joints struggle to cope with repeated expansion and contraction.

Let the length of your gauze campaign determine the frequency of your shutdowns not the inefficiency of your burner gaskets

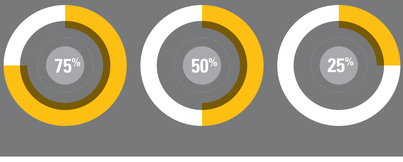
NITRIC ACID PRODUCTION

The impact of extending the time between shutdowns is significant:

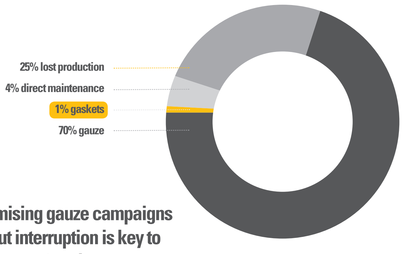
Shutdowns eliminated over three years



Total cost saving over three years



Plant shutdowns are expensive and include a range of costly factors. While the total amount varies by plant, gasket replacement is always only a tiny fraction of the overall cost.



Maximising gauze campaigns without interruption is key to creating cost savings.

Find out more about the hidden opportunity of gaskets and how to select the best sealing material to support the safety and efficiency of your plant.