

# Case Study: THERMa-PUR® Oil & Gas - Petroleum Refinery



## INDUSTRY

Oil and Gas

## CUSTOMER

Petroleum Refinery

## BACKGROUND

In a petroleum refinery, fluid catalytic cracking (FCC) is one of the most important conversion processes used. The pre-heated long chain feed stock is brought into contact with a very high temperature powder catalyst. This breaks the long chains of high boiling hydrocarbons into shorter chains, such as more valuable gasoline.

## CHALLENGES FACED

Due to the high temperature required for the catalyst to work in the FCC process, finding sealant materials that handle the temperature can be difficult. The previous gasket used was a graphite and asbestos filled spiral wound. When temperatures rise above 842°F (450°C), and are exposed to oxygen, the graphite will oxidize over time. This resulted in a very short service life of 1-2 months and low system reliability leading to dangerous retorques.

## OPERATING CONDITIONS

Temperature: 1274°F - 1346°F (690°C - 730°C)

Application: Non-standard flanges for CCU (catalytic cracking unit)

Media: High temperature fume and exhaust

Pressure: 2 bar

## SOLUTION AND BENEFITS

Garlock THERMa-PUR® filled spiral wound gaskets are made of an inorganic material that, unlike graphite, has significantly lower levels of oxidation when exposed to high temperature oxygen. Due to the thermal integrity of THERMa-PUR® (up to 1832°F (1000°C)), the seal life is significantly improved when compared to the graphite gasket. After 6 months of operation, the THERMa-PUR® gasket showed no signs of premature failure and there were no signs of bolt loosening or leakage.

For more information, please visit:  
<http://www.garlock.com>

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