



ALKY-ONE gasket in Hydrofluoric Acid

The Challenge

Hydrofluoric acid (HF) is one of the most difficult sealing challenges in modern refining. In addition to its potential to do bodily harm (NIOSH considers it dangerous at 30-ppm), it can corrode carbon steel flanges from the inside, leading to a condition called “taper corrosion”, which – when advanced – requires a costly repair or replacement of the flanges. With some gasket options, the repair/replacement fraction can run as high as 30%.

The Opportunity

In 2015, a Midwest refinery with a HF Alkylation unit was undergoing a major upgrade. To reduce the occurrence of taper corrosion, they chose to upgrade their HF flange gasket to the ALKY-ONE gasket, which was engineered to provide an ID-to-OD seal across the flange face. During their turnaround, they installed 3,119 ALKY-ONE gaskets. With assistance by ERIKS, the refinery put in place a 100% inspection/QC procedure to ensure that the proper protocols were followed at every flange. Upon startup, all flanges were leak free.

The Results

At the next turnaround in 2019, the refinery opened 1,320 flanges in which the ALKY-ONE gasket had been installed. A full inspection of each flange was performed, along with photographs of each flange. Each was in “great condition”, with no replacement or repair required. This 0% repair/replacement fraction is unprecedented, and speaks not only to the capability of the ALKY-ONE gasket, but to the excellent management of the installation/QC process instituted by the refiner. The combination of the right gasket, bolts, lubricant, training and procedures kept all 1,320 flanges in pristine condition over the course of four years.

A combination of the right gasket, bolts, lubricant, training, process and procedures kept 1,320 flanges in great condition over the course of four years.



FAST FACTS

Customer Profile:

An HF alkylation refinery with 6000 bpd of alkylate output.

Challenge:

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Opportunity:

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Results:

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