



## The Problem:

Anhydrous Hydrogen Fluoride (AHF) is used as a chemical catalyst in the reaction that combines C3 and C4 olefins and isobutane to produce alkylates, an important component of gasoline. AHF readily reacts with any available moisture to create the corrosive and toxic Hydrofluoric Acid.

**Hydrofluoric Acid, aqueous**

Clear, colorless liquid. Corrosive, causes severe burns to eyes/skin/respiratory tract. Toxic! Pain may not be immediate, but begins as hydrogen fluoride penetrates deep to the bone. Chronic exposure can cause irreversible bone damage.

CAS No. 7664-39-3

So hazardous is this material to humans that OSHA lists the Permissible Exposure Limit (PEL) to 3-ppm averaged over an 8-hour shift, while the National Institute for Occupational Safety and Health (NIOSH) lists the IDLH (Immediately Dangerous to Life or Health) concentration at 30-ppm. In and of itself, this hazard level arguably makes HF Acid Alkylation Units the single most dangerous sealing application in modern refining.

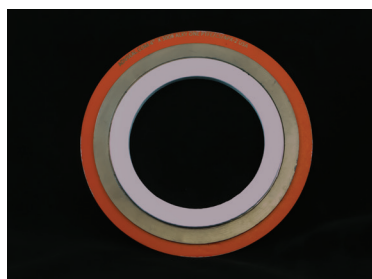
In view of this hazard, the first requirement of a gasket for HF units must be the ability to provide a tight, positive seal to prevent the leakage of HF.

## The Solution:

A year-long research and development project that established a menu of “ideal” characteristics for HF alky gaskets by drawing upon years of experience, trial and error, refinement and mathematical analysis. The result of all of this is in the ALKY-ONE™ gasket, a gasket that is uniquely designed for HF Acid Alkylation.

Subsequent comparison testing to other gaskets confirm:

- Five times as much deformation of the barrier pillow, giving better conformance to the flanges to eliminate flange corrosion.
- Seals with half the bolt load required by other gaskets.
- Nearly three times as much gasket seating stress at full bolt loads.



The ALKY-ONE™ gasket is specifically designed to reduce your flange replacement costs, reduce your leakage rate and enhance the safety of your workers.

***For solutions that impact your plant, contact Advanced Sealing or your nearest ERIKS North America location:***

***Sealing, Reliability, Solutions***



**Advanced Sealing**

An **ERIKS** Company

[www.advseal.com](http://www.advseal.com)

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[www.eriksna.com](http://www.eriksna.com)



## SOLUTION FOR: Flange Erosion and Corrosion in Hydrofluoric Service<sup>(1)</sup>

ERIKS North America is proud to present Advanced Sealing's latest breakthrough in sealing technology for Alkylation units - the ALKY-ONE gasket. The unique, patent-pending features of this gasket ensure that it will seal quicker and tighter than any other Alky-service gasket. The unique, integrally-attached Barrier Pillow - made from 100% Expanded PTFE - prevents acid intrusion and pooling on flange faces, reducing or eliminating the need to replace eroded flanges.

### PROPRIETARY SEALING ELEMENT FEATURES:

- Standard Monel 400 construction.
- Other metallurgy per customer request.
- KAG™ design with the lowest recorded leak rate.<sup>(2)</sup>
- Polycarbon APX2 flexible graphite facings with the lowest oxidation rates.<sup>(3)</sup>
- Specifically designed to exceed spiralwound seating stresses for a tighter seal.
- Recommended torque values generate nearly 25,000-psi seating stress!<sup>(4)</sup>
- Normal service temperature range from cryogenic to 550F.
- Proven Fire-Safe to API 6FB by Yarmouth Research Lab<sup>(2)</sup>
- Available for 150# and 300# ANSI flanges - up to 24" .
- Attachment Ring assures permanent retention of the Barrier Pillow.

(1) Patent Pending

(2) Yarmouth Research - Document available on request

(3) Polycarbon - Document available on request

(4) In most cases. Stress chart available on request

The properties and application parameters shown throughout this data sheet are typical. Your specific application should not be undertaken without independent study and evaluation for suitability. For specific application recommendations consult Advanced Sealing and Supply Company. Failure to select proper sealing products could result in property damage and/or serious personal injury.

### Now Available – ALKY-ONE™ Heat Exchanger Gaskets

Flange not using ALKY-ONE

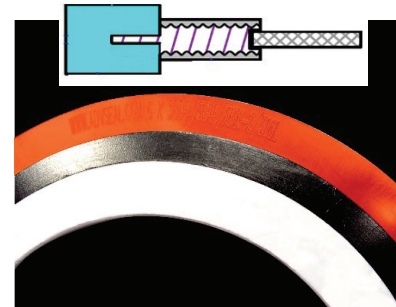


Severe Flange Corrosion

Flange using the ALKY-ONE



No Corrosion with ALKY-ONE



100% Expanded PTFE Barrier Pillow prevents chemical intrusion and pooling

**For solutions that  
impact your plant,  
contact Advanced  
Sealing or your  
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America location:**



ISO 9001:2008 Certified

**Sealing, Reliability, Solutions**



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