

Case Study: GYLON® 3504 TUFF-RAIL® Fill Hatch Gasket - Chemical



INDUSTRY

Chemical Processing & Rail Transportation

BACKGROUND

Non-pressurized tank cars used for transporting sulfuric acid are unique in that they both load and unload through the top of the car via fill hatches that are manually opened and closed. There are no bottom outlet devices commonly found on most non-pressurized tank cars, only basic washout nozzles.

CHALLENGES FACED

Historically, the fill hatch at the top of the car was sealed with a B-type FKM (fluoroelastomer) rubber gasket. However, FKM is technically not rated for the lower temperature conditions that are common in the winter months in many parts of North America (as low as -40°F). Under these conditions the FKM gaskets become harder, brittle, split and stick to the fill hatch cover.

OPERATING CONDITIONS

Size: Various

Temperature: Ambient (-40°F to 120°F)

Application: Fill Hatch Cover

Media: Sulfuric Acid, 75-98%

Pressure: Atmospheric

SOLUTION AND BENEFITS

The hatch cover configuration presents installation challenges for standard gaskets. To properly seat a standard gasket, the ID of the gasket must be stretched over a raised area on the inside of the nozzle and down into a channel on the cover. The proprietary and patented GYLON® TUFF-RAIL® technology was deemed to be the best option for these unique application requirements. The highly engineered TUFF-RAIL® gasket not only provides the necessary chemical resistance and the ability to handle the temperature range, but it also provides stress optimization through the raised sealing rib features. The molded gasket was also designed with a “dual ID” feature that essentially creates tabs for ease of installation - flexible enough to fit over the raised area and into the hatch cover channel, yet rigid enough to “snap in place” and self-center.

The customer’s field evaluation of the product was well received by the installers, with incredibly positive feedback on how easily the gasket installed and how well it resealed when the hatch cover was opened and re-closed. Based on the results the customer is planning to adopt the design across their entire fleet.

For more information, please visit:

<http://www.garlock.com>

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