

TEADIT®2238-OX CASE HISTORY

INDUSTRIAL SEGMENT

Petrochemical

APPLICATION

Media: Oxygen

Temp: Cryogenic up to 280°C (536 °F)

Pressure: up to 85 Bar (1232 psi)

Equipment

Gate Valves

SCENARIO

A major oil and gas company had an accident at a gas separation facility in the Middle East in a system in oxygen service. This is a critical service which poses a large safety risk to the facility and requires very careful selection of materials and extreme cleanliness standards. After the incident the customer initiated the process of re-evaluating the materials, including sealing products, that they were utilizing in this extremely critical service. The customer began searching for the best technical solution for packing material to equip all their on/off valves in the plant with. The problem with traditional packing materials is that traditional cleaning methods are only able to remove contamination from the outside of the finished product, but as the product is braided it is difficult to ensure cleanliness of the entire part. They required a material that was safe for the critical service and that could handle the extremes of their applications which includes temperatures between cryogenic and 500+ °F as well as pressures up to 1200+ psi.

SOLUTION

The customer reached out to Teadit's technical team to find a product that would be suitable for their critical application. After a thorough analysis of the market between Teadit and the customer and it was discovered that a packing that met the strict requirements of the service was not available in the marketplace. Teadit's R&D department has industry leading capabilities and experts which led the customer's global engineering group to begin working with Teadit's R&D department to try and develop a solution. The required parameters and testing requirements were determined with the customer. Teadit was able to develop style 2238-OX packing that met and exceeded the requirements for the customers application. Teadit style 2238-OX is manufactured from high purity flexible graphite yarn with an Inconel wire mesh jacket. It is often believed that PTFE is the ideal product for oxygen service, but testing has shown that graphite is a superior sealing material in oxygen service, especially at elevated temperatures and pressures. BAM testing was performed on the final product to confirm its suitability for use in oxygen applications. One of the biggest challenges for a packing material in oxygen service is the extreme cleanliness required for that service. In order to overcome this challenge, Teadit constructed a dedicated clean room at our manufacturing facility where the entire 2238-OX process is maintained from the yarn to the finished product.



CUSTOMER GAINS

The customer performed their own testing and approved the TEADIT 2238-OX. The 2238-OX was delivered in multiple cross sections and lengths for the planned plant shut down in the Middle East in February 2016. A service partner cut and installed the rings on site successfully without any problems. The plant started operation as scheduled, and the customer was able to achieve their 1 year lifetime expectation with no issues. The development of Teadit style 2238-OX has not only allowed the customer to run longer without interruption leading to economic gains due to improved uptime but has also increased safety at the plant by reducing the risk of an accident in this hazardous service. Teadit 2238-OX has provided great benefits to the customer and as also provided the industry with an excellent sealing solution for oxygen service valves.