CASE STUDY

Chemraz® 605 extends productive up time for pressure tubes

Customer

Precision Glass Works (PGW) in Bangalore, India, is a leading manufacturer of laboratory glass ware, pressure tubes, chemistry and volumetric glassware. Their customer base consists of labs serving the Educational, Forensic, Medical and other Commercial industries.

Problem

PGW was utilizing FKM o-rings in their pressure tubes, but soon discovered that after only two reaction cycles, the o-rings were damaged, requiring customers to prematurely change out the o-rings. As a result, PGW required improved lifetime for the o-rings that also were compatible with process fluids which included Dihydrofolic acid (DHF), Dicholoromethane (DCM), Tetrahydrofuran (THF), Hydrogen Chloride (HCL) and amines.

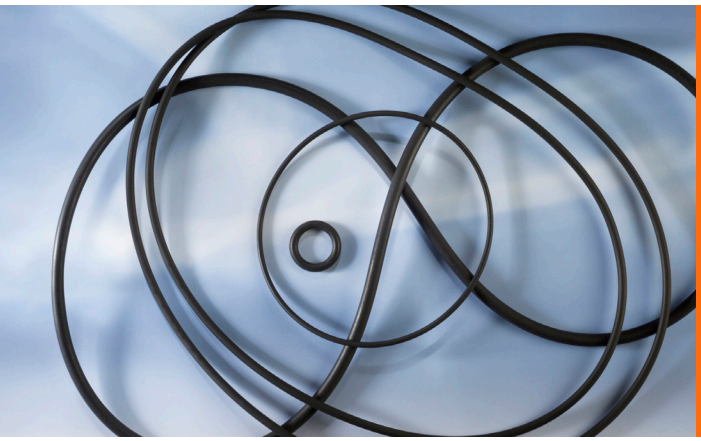
Solution

After evaluating the application, Greene Tweed recommended Chemraz® 605 for this application. Chemraz® 605, a perfluoroelastomer, is ideally suited for challenging fluid handling applications and has often been specified in laboratory applications. This FFKM compound combines superior compression set and chemical resistance to excel in demanding static and semi-dynamic applications. Chemraz® 605 has proven performance with hot amines, steam, and water and functions well in increased temperatures ranging from -4°F to 500°F (-20°C to 260°C).

Results

PGW sent their glassware with Chemraz® 605 o-rings for qualification testing at two independent laboratories: the Indian Institute of Science, Education and Research (IISER) in Kolkata, and the National Chemical Laboratory (NCL) in Pune. Both institutions tested the glassware and the Chemraz® 605 o-rings and reported that the o-rings had withstood multiple reaction cycles without damage.

Based on this feedback and performance, PGW standardized Chemraz® 605 o-rings for their pressure tube equipment.



Benefits

Customers were able to run their processes longer with the Chemraz® 605 o-rings installed compared to the incumbent FKM o-rings which were prematurely failing, causing loss of productivity. With the Chemraz® 605 o-rings, customers are now able to run more reactions, ensuring tests are completed on time and reliably.

CASE STUDY

Chemraz® 605

Perfluorolelastomer (FFKM)

Compound No./Material Name:	Rubber Classification:	Service Temperature Range:	Color:
Chemraz® 605	**FFKM**	**-4°F to 500°F (-20°C to 260°C)**	**Black**

Description	Typical
Original Properties (ASTM Standard)	
Specific Gravity (D792)	1.99
Hardness, Type A, Points (D2240)	80
Tensile Strength, psi [MPa] (D1414)	2,500 [17.2]
Elongation, % (D1414)	145
Modulus @ 50% Elongation, psi [MPa] (D1414)	420 [2.9]
Modulus @ 100% Elongation, psi [MPa] (D1414)	1,310 [9.0]
Compression Set @ 25% Deflection (ASTM Standard)	
70 Hours @ 400°F (204°C), in Air, % of Original Deflection, % (D1414)	22

Note: Unless otherwise noted, all tests performed on 214 o-rings.

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