



Chemraz® 541

Sealing Solutions

Greene Tweed's Chemraz® 541 is a universal, high-strength black compound designed for demanding applications. It boasts excellent chemical and compression set resistance and operates at temperatures up to 446°F/230°C.

Thanks to its broad chemical compatibility, temperature range, and shape versatility, Chemraz® 541 is an ideal choice for demanding environments and processes. Chemraz® 541 maintains its properties when exposed to acids, acrylates, alcohols, aldehydes, amines, aromatics, esters, ethers, halogens, ketones, hot water, and steam.

We leverage compounding experience, manufacturing expertise, and engineering knowledge to ensure customers receive the optimal material and design for their application.

Greene Tweed's scientists and engineers are careful and methodical in the development of new compounds, undertaking numerous studies of processing variability to ensure our manufacturing team can deliver a consistent, quality product.

Applications

- Mechanical seals
- Compressors
- Valves
- Mixers/agitators
- Centrifuge
- Controls/instrumentation
- Reactors
- Pumps

Recommended Media Applications

- Acids
- Acrylates
- Alcohols
- Aldehydes
- Amines
- Esters
- Ethers
- Halogens
- Hot water & steam
- Olefinic oxides



Features and Benefits

- Excellent chemical resistance and maximum temperature operation to 446°F/230°C
- Low-temperature capabilities 3°F/-16°C
- High strength and good compression set resistance for tough industrial applications
- Improved chemical resistance, especially in acids, amines, and steam
- Improved tensile strength and modulus should allow for better performance in dynamic applications and those requiring higher loads
- For Semiconductor applications, reduced outgassing for 14 nm and smaller, which helps to reduce the risk of pump down time and minimize process impact
- High elongation values ensure easy installation of o-rings
- Custom geometry availability upon request
- Global manufacturing capabilities
- Available as o-rings and slabs; other geometries upon request



Chemraz® 541 Typical Properties

Universal Perfluoroelastomer (FFKM)

| | | | |
|--|---------------------------------------|--|------------------------|
| Compound No./Material Name: Chemraz® 541 | Rubber Classification: FFKM | Service Temperature Range: 3°F to 446°F (-16°C to 230°C) | Color: Black |
|--|---------------------------------------|--|------------------------|

| Description | | ASTM Method | Unit | Typical |
|---|---------------------------------|-------------|-------------------|---------|
| Original Properties | | | | |
| Specific Gravity | | D297 | - | 2 |
| Hardness, Type A | | D1414 | points | 76 |
| Tensile Strength | | D1414 | psi | 3009 |
| Elongation | | D1414 | % | 183 |
| Modulus @ 100% Elongation | | D1414 | psi | 1133 |
| Modulus @ 50% Elongation | | D1414 | psi | 410 |
| Compression Set | | | | |
| 22 Hours @ 392°F (200°C), in Air, @ 25% deflection | | D1414 | % of Original Def | 23 |
| 70 Hours @ 400°F (204°C) in Air @ 25% deflection | | D1414 | % of Original Def | 27 |
| 22 Hours @ 392°F (200°C) in Air @ 25% deflection | | D395 | % of Original Def | 8 |
| Coefficient of Thermal Expansion (CTE) | | | | |
| 20 to 120°C | | E831 | µm/(m.°C) | 302 |
| 120 to 220°C | | E831 | µm/(m.°C) | 349 |
| Fluid Aging | | | | |
| 70 hours @ 347°F (175°C) in Mobil Jet Oil II | Hardness Change, Type A, Button | D471 | Points | -1 |
| | Tensile Strength | D471 | % | 3.3 |
| | Elongation | D471 | % | 6.6 |
| | Volume Change | D471 | % | 0 |
| 70 hours @ Room Temperature in ASTM Ref. Fuel B | Hardness Change, Type A, Button | D471 | Points | -1 |
| | Tensile Strength | D471 | % | 2.3 |
| | Elongation | D471 | % | 3.5 |
| | Volume Change | D471 | % | 0 |
| 70 hours @ 250°F (121°C) in Distilled Water | Hardness Change, Type A, Button | D471 | Points | 0 |
| | Tensile Strength | D471 | % | -5.2 |
| | Elongation | D471 | % | 5.5 |
| | Volume Change | D471 | % | 1 |



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| Description | | ASTM Method | Unit | Typical |
|--|---------------------------------|-------------|--------|---------|
| Fluid Aging | | | | |
| 70 hours @ 250°F (121°C) in Steam | Hardness Change, Type A, Button | D471 | Points | -1 |
| | Tensile Strength | D471 | % | -8.8 |
| | Elongation | D471 | % | 2.9 |
| | Volume Change | D471 | % | 1 |
| 168 hours @ 250°F (121°C) in Reagent Grade Sulfuric Acid | Hardness Change, Type A, Button | D471 | Points | -4 |
| | Tensile Strength | D471 | % | 2.5 |
| | Elongation | D471 | % | -0.2 |
| | Volume Change | D471 | % | 9 |
| 168 hours @ 302°F (150°C) in Diglycolamine | Hardness Change, Type A, Button | D471 | Points | -2 |
| | Tensile Strength | D471 | % | -1 |
| | Elongation | D471 | % | 31 |
| | Volume Change | D471 | % | 6 |
| Outgassing | | | | |
| Outgassing @ 212°F (100°C) | Low Boilers C7 - C10 | TD-GC-MS | ppmw | 0 |
| | Medium Boilers >C10 - C20 | TD-GC-MS | ppmw | 0 |
| | High Boilers >C20 | TD-GC-MS | ppmw | 0 |
| | Sum >=C7 | TD-GC-MS | ppmw | 0 |
| Outgassing @ 392°F (200°C) | Low Boilers C7 - C10 | TD-GC-MS | ppmw | 0.70 |
| | Medium Boilers >C10 - C20 | TD-GC-MS | ppmw | 6.20 |
| | High Boilers >C20 | TD-GC-MS | ppmw | 1.20 |
| | Sum >=C7 | TD-GC-MS | ppmw | 8.1 |

Greene Tweed

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