



The next generation of sealing materials

MATERIAL DESCRIPTION

Parofluor ULTRA materials are high-performance perfluorinated elastomers designed specifically for use in harsh operating environments where superior thermal stability, chemical resistance and ultra-high purity are required.

Parofluor ULTRA materials incorporate new elastomer polymer technology to offer maximum resistance to a broad range of process chemistries. These materials are formulated to retain their physical properties at extremely high temperatures and reduce system contamination (see figures 1-5 on reverse).

Seals made with Parofluor ULTRA materials are recommended for use in semiconductor fabrication equipment and in other critical applications where mean time between failure (MTBF) must be maximized.

When used in plasma applications, seals made with Parofluor ULTRA materials offer improved plasma resistance and increased retained resiliency for longer seal life. In vacuum applications, Parofluor ULTRA materials have lower outgassing, lower permeation and lower weight loss, providing higher yields and productivity. In thermal applications, these materials provide improved stability at higher temperatures with low outgassing and extended seal force retained resiliency.

AVAILABLE COMPOUNDS

Ultra High Temperature:

ULTRA FF200-75 is ideal for applications that reach up to 320°C (608°F) continuous. It is a 75 durometer black low compression set compound, with excellent chemical resistance, very low permeability, low outgassing and weight loss characteristics and good mechanical properties.



Ultra High Purity:

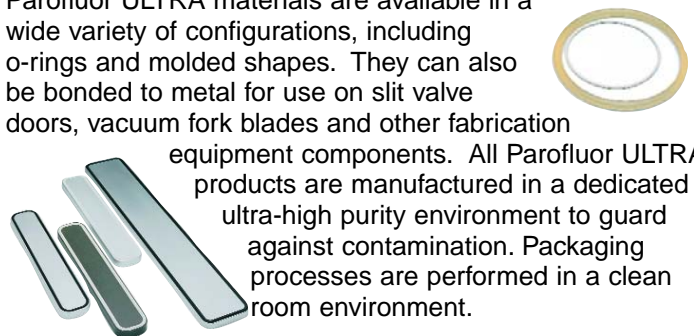
ULTRA FF350-75 is a 75 durometer white ultra-high purity compound with very low weight loss and low particle generation. It has excellent retained resiliency at temperatures up to 316°C (600°F), excellent chemical resistance and good mechanical properties.

Ultra Broad Chemical Resistance:

ULTRA FF500-75 is a 75 durometer black compound that offers outstanding performance in the widest possible range of chemicals and temperatures, up to 275°C (527°F) continuous. This material is suitable for use in acids, bases, amines, steam, ethylene oxide, and many other aggressive chemicals.

PRODUCTS

Parofluor ULTRA materials are available in a wide variety of configurations, including o-rings and molded shapes. They can also be bonded to metal for use on slit valve doors, vacuum fork blades and other fabrication equipment components. All Parofluor ULTRA products are manufactured in a dedicated ultra-high purity environment to guard against contamination. Packaging processes are performed in a clean room environment.



DESIGN ASSISTANCE

Parker O-Ring Division offers a dedicated applications engineering staff, Finite Element Analysis (FEA) assisted design, and many other services to assist in the specification of the right Parofluor ULTRA material. For more information, please our applications engineering department at (859) 269-2351.

Figure 1. - Physical properties*

Compounds	FF200-75	FF500-75	FF350-75
Color	Black	Black	White
High Temperature	320°C (608°F)	275°C (525°F)	316°C (600°F)
Hardness (Shore A)	75	75	74
100% Modulus psi MPa	1100 7.6	1070 7.4	1368 9.4
Tensile Strength at Break psi MPa	2410 16.6	2275 15.7	2364 16.3
Elongation at Break, %	130	145	125
Compression Set, %(70 hrs. at 260°C/500°F)	21	58	26

* Note: Compression set test was performed with 2-214 o-rings.

Figure 2. - Chemical resistance properties

Chemical Family	FF500-75	FF200-75	Competitive FFKM
Organic Acids	1	1	1
Inorganic Acids	1	1	1
Bases	1	2	3
Amines	1	3	4
Steam / Hot Water	1	2	3
Ketones	1	1	1
Aldehydes	1	2	4

1= Excellent, 2= Satisfactory, 3= Doubtful, 4= Not recommended



For detailed test reports on specific Parofluor ULTRA materials, please contact the O-Ring Division.

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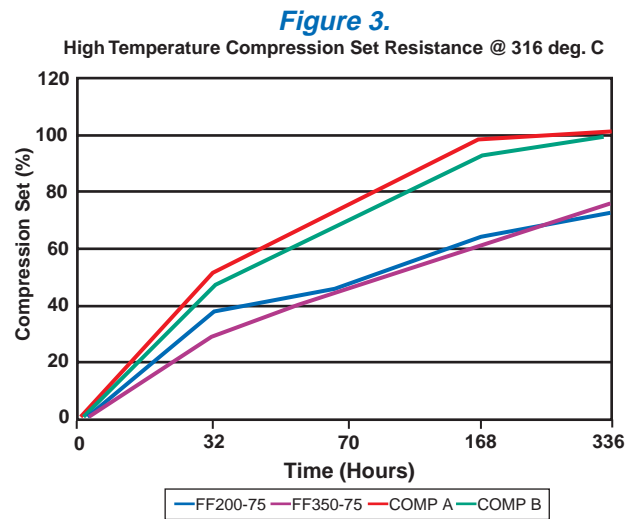


Figure 4.
Sealing Force Retention of Parofluor ULTRA Compounds @ 200 deg. C

