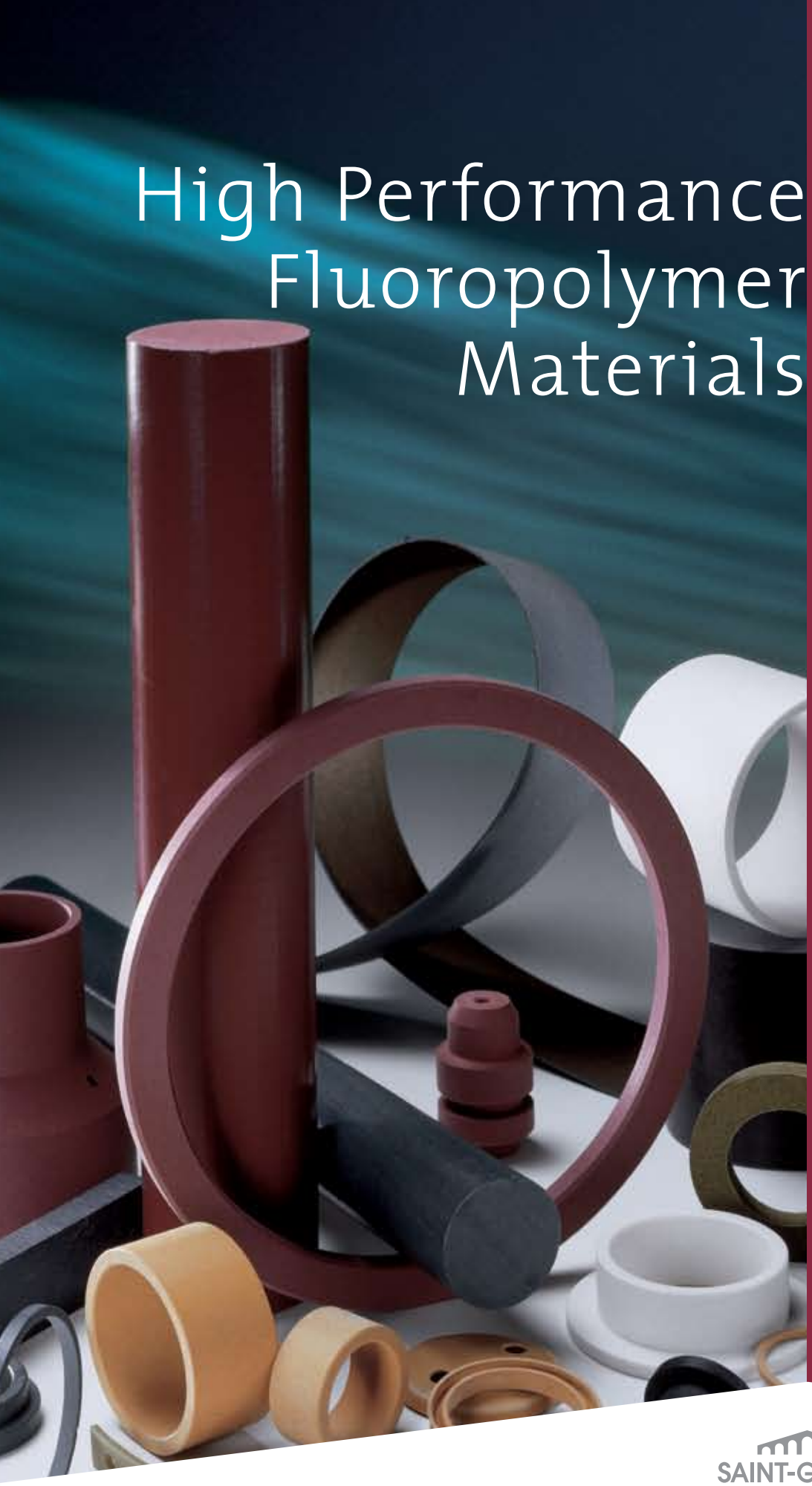

# High Performance Fluoropolymer Materials

# RULON®

*Shaping the Future of Industry Through Performance Plastics*

- Low Friction
- High Wear Life
- Chemical Resistance
- Low Maintenance

SAINT-GOBAIN
PERFORMANCE PLASTICS

# Saint-Gobain

Saint-Gobain is a worldwide group whose history spans more than three centuries.

Created in 1665 in France, Saint-Gobain launched its first industrial department with the production of mirrors, which adorn the famous Hall of Mirrors at Versailles.

Expansion beyond French borders began in the middle of the 19th century. An international pioneer, Saint-Gobain established a glass factory in Germany in 1857, another in Italy in 1889 and one in Belgium in 1904. The group moved toward the New World in 1937 with the opening of a plant in Brazil.

**Early Diversification**

Strongly established in flat glass production, Saint-Gobain began looking toward other activities at the beginning of the 20th century. The company entered the papermaking business in 1925, and the insulation business in 1936.

The 1970 addition of the company Pont-á-Mousson, the world leader in cast iron pipes, reinforced Saint-Gobain's position in the construction market.

Throughout the 1970s and 80s the Saint-Gobain Group continued to pursue both internal and external growth, which culminated with the 1990 acquisition of Norton Company, one of the world's leading abrasives and ceramics manufacturers.

Norton Performance Plastics in turn acquired Furon Company and created the new Saint-Gobain Performance Plastics, combining decades of experience and leadership in metal-backed and polymer bearings and components.

The Rulon® trademark had been acquired by Furon in the purchase of Dixon Industries Corporation, founded in 1876 by Ezra Dixon, specializing in self-lubricating bearings for the then emerging textile industry in the northeastern United States.



# Glossary of Materials

- **Rulon® AR** Maroon material for seals and applications requiring higher physical properties than Rulon LR
- **Rulon® LR** Maroon material with low deformation characteristics
- **Rulon® J** Dull gold polymer-filled material for lower abrasion and softer mating surfaces
- **Rulon® 641** White FDA compliant material for most mating surfaces
- **Rulon® W2** Excellent for fresh water applications
- **Rulon® 123** FDA compliant, low and consistent friction material for most mating surfaces
- **Rulon® 488** Inorganic filled material ideal for dry applications, compatible with most surfaces
- **Rulon® 957** Green speckled material, excellent bearing grade with noise dampening capability
- **Rulon® XL** Tan, low friction material, suitable for aluminum surfaces, with excellent outgassing capability for use in vacuum
- **Rulon® F** Green polymer-filled material with excellent anti-abrasion characteristics
- **Rulon® 142** Aqua colored low deformation material suitable for linear bearings and slides
- **Rulon® 945** Black very low deformation material suitable for high heat / impact applications
- **Rulon® 1045** Dull gold colored high elongation and moderate deformation material suitable for bearings, rings and seals
- **Rulon® 1337** Tan FDA compliant material with low frictional characteristics and excellent chemical resistance for most mating surfaces
- **Rulon® 1410** Gold colored material for use in applications requiring high elongation
- **Rulon® 1439** White FDA compliant material most suitable for submerged applications with low wear

# Processes

| | |
|---|---|
| Automatic Molding | • Custom bearings<br>• Components, near-net |
| Extrusion | • Rods & Tubes<br>• Specialty Profiles |
| Hand Molding | • Rod, Sheet, and Tube |
| Machining | • Custom Machined Parts |
| Skiving | • Tapes and Thin Sheet |
| Stamping / Forming | • Seals<br>• Washers<br>• Bearings & Glides |

# Products

## Bearings:
Sleeve, flanged, and thrust bearings are available in the standard materials, Rulon® LR, J, and 641, through our distribution channels. Please contact Saint-Gobain Performance Plastics customer service for the preferred distributor in your area, or for other material options.

## Rings:
Solid and split piston rings, featuring a full complement of joint configurations, can be manufactured to your custom specifications, or our applications engineers can work with you to design the optimal ring for your needs. Please contact the main number and you will be connected with the district sales manager for your area.

## Tapes:
Most materials can be skived (shaved) into sheets using state of the art equipment. These can be etched for bonding to other materials, or used as is in a wide assortment of applications where friction reduction is desired. FDA-compliant materials can be used as non-stick coating surfaces for food preparation.

## Formed Parts:
A wide assortment of cup seals is available, either hot-formed to hold a specific shape, or cold-formed to retain the natural memory of the materials. These produce a consistent hysteresis in dust sealing applications, as well as precision electronic applications. Please contact the main number and you will be connected with the district sales manager for your area.

## Basic Shapes:
Molded and extruded rods and tubes and molded sheets are available in most of the materials. Please contact Saint-Gobain Performance Plastics customer service for the preferred distributor in your area.

## Wear Components:
Wear components can take a variety of shapes and sizes, other than those described above. These can encompass things such as wear bands, pump bodies, and pistons for chemically and thermally demanding environments. These are usually manufactured to your specifications or SGPPL can assist you in the design. Please contact the main number and you will be connected with the district sales manager for your area.

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# Available Shapes

**Rod & Tube**
Extruded - Up to 10 ft. long (3.05m)
3" (76.2 mm) Max O.D.

Molded - Up to 12" long (304.8mm)
47" (1,193.8 mm) Max O.D.

Precision grinding or machining available for some sizes

**Sheet & Tape**
Tape - 38" (965.2mm) width*
Skived Up to 0.25" (6.35 mm) thick

Molded - Up to 24"x3"
(609.6 mm x 76.2 mm) thick
Max thickness 3" (w mm)

Precision grinding or machining available on thickness
*Other sizes available upon request

**Custom**
Contact District Sales Manager

Full machining capabilities available

## Materials Selection Guide

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rulon® Grades | Grade | AR | LR | J | 641 | W2 | 123 | 488 | 957 | XL | F | 142 | 945 | 1045 | 1337 | 1410 | 1439 |
| | Color | Maroon | Maroon | Gold | White | Black | Black | Turq. | Green | Tan | Green | Turq. | Black | Gold | Tan | Gold | White |
| Performance | Max Load "P" (psi) MPa | 1,000 6.9 | 1,000 6.9 | 750 5.2 | 1,000 6.9 | 1,000 6.9 | 1,000 6.9 | 1,000 6.9 | 1,000 6.9 | 1,200 8.3 | 1,000 6.9 | 1,000 6.9 | 1,200 8.3 | 1,000 6.9 | 1,000 6.9 | 750 5.2 | 1,000 6.9 |
| | Max Speed "V" (fpm) m/s | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 | 400 2.0 |
| | Max "PV" (psi-fpm) (MPa • m/s) | 10,000 0.35 | 10,000 0.35 | 7,500 0.26 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 10,000 0.35 | 7,500 0.26 | 10,000 0.35 |
| Mating Surface Steel & Stainless Steel | Rb 25 & higher | | | x | x | x | x | x | x | x | x | | | x | x | x | x |
| | Rc 35 & higher | x | x | | | | | | | | | x | x | | | | |
| | Painted metal and porcelain | | | | | | | x | x | | | | | | | | |
| | Aluminum | | | x | | | | | | x | | | | | | | |
| Environment | FDA compliant | | | | x | | x | | | | | | | | x | | x |
| | Steam | x | x | | x | x | x | x | x | x | | x | x | | x | x | x |
| | Wet | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x |
| | Dry | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| | Vacuum | x | x | x | x | | | x | x | x | x | x | | x | x | x | x |
| Relative Rating 1=Low, 5=High | Coefficient of friction | 4 | 4 | 1 | 1 | 2 | 2 | 3 | 2 | 1 | 2 | 2 | 5 | 1 | 1 | 1 | 3 |
| | Creep resistance | 3 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 2 | 2 | 2 | 4 |
| | Insulative prop. (Elec & Temp) | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| Comments | | Our Standard Rulon® seal material with higher physical properties | Our Standard Rulon® bearing grade. High Creep and Abrasion resistance | Lowest Coefficient of Friction of Rulon® series. Excellent insulator. | Widely used in the food process industry. | Very good operation in wet environments. | Good thermal and electrostatic dissipation. | Temperature (dry) oven bearings. Excellent abrasion | Low friction/wear against coated metal or porcelain surfaces. | The best Rulon® against aluminum surfaces. | Standard tape liner material for Rulon® composite bearings. | Extensively used in machine tool guide ways. | Extremely low deformation under load, and high impact | FDA compliant; Excellent chemical resistance. | A standard material for compressor piston flip seals. | A standard material for compressor piston flip seals. | Ideal for submerged applications. |

The list above is only a partial list of available formulations of Rulon.®
P or V data may be exceeded based on specific application requirements. Ask to speak to a Saint-Gobain Application Engineer.
RATINGS above are relative within Rulon® family ONLY.
For Rulon® materials, coefficient of friction decreases with increasing load, and wear decreases with increasing surface hardness.
For PTFE based materials, wear in steam and wet environments is higher than in dry environments.
Saint-Gobain offers enhanced Rulon® grades, which minimize this effect.
Most Rulon® products have excellent chemical compatability. Data available upon request.

# RULON® AR

Rulon® AR is a light maroon colored material best known as the current version of the first Rulon® introduced, namely Rulon® A.

It is somewhat more flexible than Rulon® LR, hence suitable for seals and bonded coating of slide surfaces. It has many decades of use in automotive shaft seals and fuel metering pump cups.

Rulon® AR has a practically universal chemical inertness like that of Rulon® LR and provides long life and reliabiltiy in continuous non-lubricated service.

It is capable of operating at PV values up to approximately 10,000. Higher PV values are possible for intermittent use applications.

## Design Criteria Rulon® AR

| | |
|---|---|
| Temperature - Typical Range ˚F (˚C ) | -400/+550 (-240/+288)* |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1000 (6.9)* |
| Maximum V - SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rc35 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.15 - 0.25 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Inert |
| Thermal Conductivity BTU/hr/sq. ft./˚F/in. (W/m•K) | 2.3 (0.33)* |
| Linear Coefficient of Thermal Expansion (78° - 300˚F (26° to 149 ˚C) x 10 -5 in/in ˚F (x 10 -5 m/m ˚C) | Diameter 4.8 (8.6)* Length 6.2 (11.1)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 175% |
| Tensile Strength ASTM D4894 (MPa) | 2000 psi (13.8)* |
| Deformation ASTM D621 | 5% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 2.22 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Skived sheet<br>• Piston/Piston rings<br>• Stamped/Machined formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Automotive<br>• Insulators<br>• Linear slides<br>• Pipe support<br>• Wear bands |

Rulon® LR is a maroon colored bearing material best known for its versatile design properties.

It is compatible with most hardened steel substrates. Mild steel is acceptable; harder running surfaces are better.

Rulon® LR has a practically universal chemical inertness. Of the chemicals encountered in commercial practice, only molten sodium and fluorine, at elevated temperatures and pressures, show any signs of attack.

For continuous non-lubricated service, Rulon® LR sleeve bearings are capable of operating up to 10,000 PV. Higher values are possible for intermittent service.

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Automotive<br>• Insulators<br>• Linear slides<br>• Pipe supports<br>• Wear bands<br>• Textile Industry |

## Design Criteria Rulon® LR

| | |
|---|---|
| Temperature - Typical Range °F (°C ) | -400/+550 (-240/+288)* |
| Maximum PV (continuous)(MPa•m/s) | |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | |
| Shaft Hardness - Minimum | Rc35 |
| Shaft finish recommended Ra µin(µm) | |
| Shaft Material | Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.15 - 0.25 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Inert |
| Thermal Conductivity BTU/hr/sq. ft./°F/in. (W/m•K) | 2.3 (0.33)* |
| Linear Coefficient of Thermal Expansion (78° to 300°F (26° to 149°C) x 10 -5 in/in °F (x 10 -5 m/m °C) | Diameter 5.1 (9.2)*<br>Length 5.9 (10.6)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 150% |
| Tensile Strength ASTM D4894 (MPa) | |
| Deformation ASTM D621 | 3% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

# RULON® J

Rulon® J is an all-polymeric reinforced, dull gold colored PTFE compound that operates exceptionally well against soft mating surfaces such as 316 stainless steel, aluminum, mild steel, brass and other plastics. The unique "shaft friendly" material is also low in friction and wear and self-lubricating.

Rulon® J has one of the lowest coefficients of friction of most reinforced PTFE materials. This makes it ideally suited for start/stop applications where stick-slip must be eliminated. The tribological properties of this material also make it suitable for both bearing and wear component applications.

## Design Criteria Rulon® J

| | |
|---|---|
| Temperature - Typical Range °F (°C ) | -400/+550 (-240/+288)* |
| Maximum PV (continuous)(MPa•m/s) | 7,500 (0.26)* |
| Maximum P - psi (static)(MPa) | 750 (5.2)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | 316 Stainless Steel and Non-Ferrous |
| **Engineering Information** | |
| Friction - static & dynamic | 0.12 - 0.20 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data Available |
| Thermal Conductivity BTU/hr/sq. ft./°F/in. (W/m•K) | 1.7 (0.24)* |
| Linear Coefficient of Thermal Expansion 78° to 300°F (26° to 149°C) x10-5 in/in °F (x10-5 m/m °C) | Diameter 5.2 (9.3)* Length 6.8 (12.2)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 180% |
| Tensile Strength ASTM D4894 (MPa) | 2000 psi (13.8)* |
| Deformation ASTM D621 | 3% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 1.95 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Printers<br>• Copiers<br>• Air Compressors<br>• Appliances<br>• Automotive<br>• Insulators<br>• Linear slides<br>• Anemometers<br>• Wear bands<br>• Solenoid valves<br>• Refrigeration valves<br>• Textile Industry |

Rulon® 641 is manufactured from FDA compliant (Reference Master File #MAF-288) materials which possess excellent load and wear characteristics.

It offers excellent, continuous non-lubricated service up to 10,000 PV – higher for intermittent service. While the load capacity of Rulon® 641 is generally limited to 1,000 psi (6.9 MPa) at room temperature, deformation is a function of wall thickness, temperature and load.

Its compatibility with a wide array of mating surfaces, including mild steel, 303 and 316 stainless steels, as well as harder materials, make it a good choice for most food and pharmaceutical bearing applications.

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Chute Liners<br>• Insulators<br>• Linear slides<br>• Shaft bearings<br>• Wear bands<br>• Seals |

## Design Criteria Rulon® 641

| | |
|---|---|
| Temperature - Typical Range °F (°C ) | -400/+550 (-240/+288)* |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Mild, 303 & 316 Stainless Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.10 - 0.30 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Inert |
| Thermal Conductivity BTU/hr/sq. ft./°F/in. (W/m•K) | 2.6 (0.37)* |
| Linear Coefficient of Thermal Expansion x 10 -5 in/in °F (x 10 -5 m/m °C) | 78° to 300°F (26° to 149°C) Diameter 4.2 (7.5)* Length 5.7 (10.2)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 175% |
| Tensile Strength ASTM D4894 (MPa) | 2000 psi (13.8)* |
| Deformation ASTM D621 | 4% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 2.25 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

# RULON® W2

Rulon® W2 is a black PTFE-based material developed for use in fresh-water applications. It exhibits low friction and excellent wear characteristics (one of the lowest wear rates in fresh water) as well as good thermal dissipation, preventing shaft distress. Its properties are enhanced when wet.

It is compatible with most metal substrates and soft mating surfaces. Rulon® W2 is a good alternative to Rulon® J when superior chemical resistance is needed. However, it should not be used on very soft mating surfaces or where electrical insulation is desired.

## Design Criteria Rulon® W2

| | |
|---|---|
| Temperature - Typical Range °F (°C) | -400/+550 (-240/+288)* |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Hard, mild and stainless steels |
| **Engineering Information** | |
| Friction - static & dynamic | 0.15 - 0.30 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Inert |
| Thermal Conductivity BTU/hr/sq. ft./°F/in. (W/m•K) | 4.5 (0.65)* |
| Linear Coefficient of Thermal Expansion (78° to 500°F (26° to 260°C) x 10 -5 in/in °F (x 10 -5 m/m °C) | Diameter 6.2 (11.1)* Length 8.6 (15.4)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 70% |
| Tensile Strength ASTM D4894 (MPa) | 1800 psi (12.4)* |
| Deformation ASTM D621 | 3% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 2.10 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Automotive<br>• Fresh water submerged<br>• Thrust bearings<br>• Plating tanks<br>• Wear bands<br>• Ovens |

# RULON® 123

Rulon® 123 is a glossy black non-abrasive compound for softer mating surfaces, such as stainless steel. This material has excellent chemical resistance and is FDA, USDA, and NSF compliant. It is less expensive than Rulon® J, but is slightly less flexible and higher in wear.

It has a high resistance to deformation, low coefficient of friction and good thermal and electrostatic dissipation. This material has a maximum operating temperature of 550˚F (288˚C).

Rulon® 123 releases black wear debris over time and should not be used in ultra-dry, vacuum applications, or where electrical insulation is desired.

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Automotive lip seals<br>• Liners<br>• Linear slides<br>• Pipe supports<br>• Wear bands<br>• Dust seals<br>• Solenoid valves<br>• TPS shaft seals<br>• EGR valves |

## Design Criteria Rulon® 123

| | |
|---|---|
| Temperature - Typical Range ˚F (˚C ) | -400/+550 (-240/+288)* |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4) |
| Shaft Material | Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.10 - 0.30 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Inert |
| Thermal Conductivity BTU/hr/sq. ft./˚F/in. (W/m•K) | 4.6 (0.66)* |
| Linear Coefficient of Thermal Expansion x10 -5 in/in ˚F (x10 -5 m/m ˚C) | 78˚ to 200˚F (26˚ to 93˚C)<br>Diameter 4.4 (7.9)*<br>Length 7.0 (12.6)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 150% |
| Tensile Strength ASTM D4894 (MPa) | 2500 psi (17.2)* |
| Deformation ASTM D621 | 2.5% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 2.12 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

# RULON® 488

Rulon® 488 is a dull turquoise material originally developed for use with painted surfaces. It has been used in veneer dryer bearings in the plywood industry.

Its excellent wear resistance, especially in extremely dry environments, make it a material of choice in hydrogen and natural gas compressors. Its almost universal chemical resistance enables it to withstand corrosives and acids sometimes present in trace amounts in these environments.

It has a higher load capacity than Rulon® J and better abrasion resistance than both Rulon® J and Rulon® 123.

## Design Criteria Rulon® 488

| | |
|---|---|
| Temperature - Typical Range °F (°C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Hard, mild and stainless steels |
| **Engineering Information** | |
| Friction - static & dynamic | 0.10 - 0.30 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Inert |
| Thermal Conductivity BTU/hr/sq. ft./°F/in. (W/m•K) | 2.6 (0.37)* |
| Linear Coefficient of Thermal Expansion x10-5 in/in °F (x10-5 m/m °C) | 78° to 300°F (26° to 149°C) Diameter 4.2 (7.5)* Length 5.7 (10.2)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 175% |
| Tensile Strength ASTM D4894 (MPa) | 2000 psi (13.8)* |
| Deformation ASTM D621 | 4% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 2.25 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Automotive<br>• Insulators<br>• Linear slides<br>• Pipe support<br>• Wear bands |

# RULON® 957

Rulon® 957 is a speckled green material that was developed specifically for noise dampening and abrasion resistance, such as in commercial or residential clothes dryers.

It provides low friction operation on softer mating surfaces at higher loads than Rulon® J.

This material also offers excellent performance on coated metals, particularly porcelain. Among its many benefits are an overall reduction of the weight of the finished product, vibration absorption, and cost reduction due to rapid manufacturing methods.

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped glides<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Clothes Dryers<br>• Mixers<br>• Compressors<br>• Ovens and Dryers<br>• Automotive<br>• Insulators<br>• Linear slides<br>• Sanders<br>• Wear bands |

## Design Criteria Rulon® 957

| | |
|---|---|
| Temperature - Typical Range ˚F (˚C ) | -400/+550 (-240/+288)* |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4) |
| Shaft Material | Hard, Mild and Stainless Steel and Porcelain coated |
| **Engineering Information** | |
| Friction - static & dynamic (Dynamic, 20 psi, 360 sfm) | 0.13 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data Available |
| **Physical Data** | |
| Elongation ASTM D4894 | 200% |
| Tensile Strength ASTM D4894 (MPa) | 2200 psi (15.2)* |
| Specific Gravity ASTM D792 | 1.96 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

# RULON® XL

Rulon® XL is a tan colored material that is best for use against aluminum (including anodized) substrates. Rulon® XL exhibits very low wear as compared with other Rulon® grades.

Other advantages offered by this unique material are that it combines low deformation under load with exceptionally good chemical resistance.

It is compatible with a wide range of mating surfaces, but is not recommended for use with alkalis. Its non-abrasive character enhances the frictional performance to prevent galling of softer mating surfaces.

It is the best material for vacuum service.

## Design Criteria Rulon® XL

| | |
|---|---|
| Temperature - Typical Range °F (°C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,200 (8.3)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | All Steels and aluminum |
| **Engineering Information** | |
| Friction - static & dynamic | 0.10 - 0.25 |
| Water Absorption ASTM D570 | 0% |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Inert |
| Thermal Conductivity BTU/hr/sq. ft./°F/in. (W/m•K) | 1.7 (0.24)* |
| Linear Coefficient of Thermal Expansion 78° to 400°F (26° to 204°C) x 10 -5 in/in °F (x 10 -5 m/m °C) | Diameter 6.4 (11.5)* Length 6.8 (12.2)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 160% |
| Tensile Strength ASTM D4894 (MPa) | 1700 psi (11.7)* |
| Deformation ASTM D621 | 1.4% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 1.97 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Vacuum Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Automotive<br>• Insulators<br>• Linear slides<br>• Shaft support<br>• Wear bands |

Rulon® F is a green material with excellent insulating properties and superior abrasion resistance.

It is used in a wide variety of wear component and bearing applications, and is currently used as the liner in one of our composite journal bearings.

Rulon® F exhibits excellent wear resistance, especially in dry conditions. This material suitably slides against a wide range of mating surfaces but is not recommended for contact with strong bases or steam.

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Clothes dryers<br>• Chute liners<br>• Compressors<br>• Appliances<br>• Automotive<br>• Insulators<br>• Linear slides<br>• Pipe supports<br>• Wear bands |

## Design Criteria Rulon® F

| | |
|---|---|
| Temperature - Typical Range °F (°C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Stainless and Hardened Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.12 - 0.20 |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data Available |
| Thermal Conductivity BTU/hr/sq. ft./°F/in. (W/m•K) | 1.8 (0.26)* |
| Linear Coefficient of Thermal Expansion (78° to 300°F (26° to 149°C) x10-5 in/in °F (x10-5 m/m °C) | Diameter 6.2 (11.1)*<br>Length 6.6 (11.8)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 160% |
| Tensile Strength ASTM D4894 (MPa) | 1200 psi (8.3)* |
| Deformation ASTM D621 | 3% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 1.89 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

# RULON® 142

Rulon® 142 is a specially formulated dull blue-green linear bearing material that exhibits low wear, high thermal dissipation, and good dimensional stability characteristics.

Among its many benefits are the virtual elimination of stick-slip, vibration dampening, self-lubrication, uniform friction, long life, ease of application and design diversity.

Rulon® 142 has excellent mechanical properties and is the ideal material for machine tool applications. Its low deformation characteristics limit the amount of misalignment that can occur with other bearing materials.

Strong acids and bases should be avoided, as they may attack the fillers.

## Design Criteria Rulon® 142

| | |
|---|---|
| Temperature - Typical Range °F (°C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum (continuous bonded) | 25,000 (0.88)* |
| Maximum P - psi (static)(MPa) | 1000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2) |
| Shaft Hardness - Minimum | Rc35 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Mild/Hardened Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.025 with oil |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data Available |
| Thermal Conductivity BTU/hr/sq. ft./°F/in. (W/m•K) | 4.8 (0.69)* |
| Linear Coefficient of Thermal Expansion x 10 -5 in/in °F (x 10 -5 m/m °C) | 78° to 200°F (26° to 93°C) Length 4.9 (8.8)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 200% mold direction |
| Tensile Strength ASTM D4894 (MPa) | 3100 psi (21.4)* |
| Deformation ASTM D621 | 3% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 3.11 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Packings<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped parts<br>• Extruded parts<br>• Machined parts<br>• Molded shapes<br>• Wear bands<br>• Seal rings | • Lathes<br>• Gibs, guideways<br>• Compressors<br>• Appliances<br>• Rotary tables<br>• Motor mounts<br>• Linear slides<br>• Pipe supports<br>• Hydraulic presses |

# RULON® 945

Rulon® 945 is a black PTFE-based material that has very low wear and deformation under load, making it ideally suited for demanding thermal applications. In fact, its deformation is the lowest of all Rulon® grades. It also possesses excellent chemical resistance and good dimensional stability.

Rulon® 945 is best suited for use against hard mating surfaces, like hardened steel substrates since it does have moderate abrasive qualities. It is not suitable in applications where electrically insulating properties are required.

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Automotive<br>• Insulators<br>• Linear slides<br>• Pipe supports<br>• Wear bands |

## Design Criteria Rulon® 945

| | |
|---|---|
| Temperature - Typical Range ˚F (˚C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,200 (8.3)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rc35 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.20 - 0.35 |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data Available |
| Linear Coefficient of Thermal Expansion (78˚ to 400˚F (26˚ to 204˚C) x10 -5 in/in ˚F (x10 -5 m/m ˚C) | Diameter 2.8 (5.0)*<br>Length 7.1 (12.7)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 20% |
| Tensile Strength ASTM D4894 (MPa) | 3000 psi (20.7)* |
| Deformation Astm D621 | 0.7% (1500 psi - 24 hr. RT) |
| | 1.4% (2000 psi - 24 hr .RT) |
| Specific Gravity ASTM D792 | 1.90 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

# RULON® 1045

Rulon® 1045 is a dull gold material that has an excellent ability to elongate in a flip seal application. Coupled with excellent frictional characteristics, it offers the added benefit of energy savings, as well as increased sealing efficiency.

This material is also resistant to many harsh chemicals found in the application environments where it is typically used. It is also compatible with most commercially available lubricants for additional reduction in friction.

Its low deformation properties allow it to be effective as a bearing or sliding surface.

## Design Criteria Rulon® 1045

| | |
|---|---|
| Temperature - Typical Range °F (°C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Stainless to Hardened Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.10 - 0.20 |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data available |
| Linear Coefficient of Thermal Expansion x10 -5 in/in °F (x10 -5 m/m °C) 78° to 200°F (26° to 93°C) | Diameter 5.2 (9.3)* Length 6.8 (12.2)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 450% |
| Tensile Strength ASTM D4894 (MPa) | 3900 psi (26.9)* |
| Specific Gravity ASTM D792 | 2.11 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings & flip seals<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • AC compressors<br>• Transmissions<br>• Air compressors<br>• Appliances<br>• Automotive<br>• Linear slides<br>• Fluid transfer systems<br>• Vacuum Pumps<br>• Valves |

# RULON® 1337

Rulon® 1337 is a tan material made entirely from FDA compliant components. It has excellent physical properties and is chemically compatible with most chemicals, except concentrated sulfuric acid. This offers much flexibility in wash-down environments of food and pharmaceutical processing environments.

It has a slightly lower coefficient of friction than Rulon® J, offering extended life and less abrasion with softer mating surfaces.

It is compatible with most commercially available natural lubricants for additional reduction in friction.

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Pumps<br>• Mixers<br>• Compressors<br>• Appliances<br>• Chute liners<br>• Insulators<br>• Linear slides<br>• Shaft bearings<br>• Wear bands<br>• Seals |

## Design Criteria Rulon® 1337

| | |
|---|---|
| Temperature - Typical Range °F (°C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2 - 0.4)* |
| Shaft Material | Stainless to Hardened Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.10 - 0.20 |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data Available |
| Linear Coefficient of Thermal Expansion 78° to 400°F (26° to 204°C) x 10 -5 in/in °F (x 10 -5 m/m °C) | Diameter 6.1 (10.9)*<br>Length 7.4 (13.3)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 175% |
| Tensile Strength ASTM D4894 (MPa) | 2500 psi (17.2)* |
| Deformation ASTM D621 | 3.38% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 1.95 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses.*

# RULON® 1410

Rulon® 1410 is a gold material with excellent elongation and tensile strength suitable for flip seal and other flexible sealing applications. Coupled with low frictional characteristics, it offers the added benefit of energy savings and/or increased sealing efficiency.

This material is also resistant to most harsh chemicals. It is also compatible with many commercially available lubricants for additional reduction in torque.

It can also be used as a liner material for substrates requiring any of the above characteristics.

## Design Criteria Rulon® 1410

| | |
|---|---|
| Temperature - Typical Range ˚F (˚C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 7,500 (0.26)* |
| Maximum P - psi (static)(MPa) | 750 (5.2)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Stainless to Hardened Steel & cast iron |
| **Engineering Information** | |
| Friction - static & dynamic | 0.10 - 0.20 |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data Available |
| Linear Coefficient of Thermal Expansion (78˚ to 500˚F (26˚ to 260˚C) x10-5 in/in ˚F (x10-5 m/m ˚C) | Length 8.6 (15.4)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 210% |
| Tensile Strength ASTM D64894 (MPa) | 2150 psi (14.8)* |
| Specific Gravity ASTM D792 | 2.20 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings & flip seals<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • AC compressors<br>• Transmissions<br>• Air compressors<br>• Appliances<br>• Automotive<br>• Linear slides<br>• Fluid transfer systems<br>• Vacuum pumps<br>• Valves |

# RULON® 1439

Rulon® 1439 is a white FDA compliant material that is suitable for immersed service with better wear characteristics than most other PTFE compounds. Its color makes it aesthetically pleasing for food and pharmaceutical applications.

This material is also resistant to many harsh chemicals found in the application environments where it is typically used. It is compatible with most commercially available lubricants for additional reduction in friction.

Its properties allow it to be effectively utilized as a bearing or sliding surface.

## Typical Product and Application Description

| Products | Applications |
|---|---|
| • Automatically molded bearings & components<br>• Sleeve, flanged and thrust bearings<br>• Piston rings<br>• Stamped and formed seals<br>• Extruded shapes<br>• Machined parts<br>• Molded shapes | • Transmissions<br>• Air Compressors<br>• Appliances<br>• Pillow Blocks<br>• Linear slides<br>• Fluid transfer systems<br>• Vacuum Pumps<br>• Valves<br>• Food Processing Equipment |

## Design Criteria Rulon® 1439

| | |
|---|---|
| Temperature - Typical Range °F (°C) | -400/+550 (-240/+288) |
| Maximum PV (continuous)(MPa•m/s) | 10,000 (0.35)* |
| Maximum P - psi (static)(MPa) | 1,000 (6.9)* |
| Maximum V -SFM (no load)(m/s) | 400 (2)* |
| Shaft Hardness - Minimum | Rb25 |
| Shaft finish recommended Ra µin(µm) | 8 - 16 (0.2-0.4)* |
| Shaft Material | Stainless to Hardened Steel |
| **Engineering Information** | |
| Friction - static & dynamic | 0.15 - 0.25 |
| Flammability ASTM D635 | Non-Flammable |
| Chemical Resistance | Data Available |
| Linear Coefficient of Thermal Expansion x 10 -5 in/in °F (x 10 -5 m/m °C) | 78° to 400°F (26° to 204°C)<br>Diameter 4.8 (8.6)*<br>Length 5.7 (10.2)* |
| **Physical Data** | |
| Elongation ASTM D4894 | 190% |
| Tensile Strength ASTM D4894 (MPa) | 1800 psi (12.4)* |
| Deformation ASTM 621 | 2% (1500 psi - 24 hr. RT) |
| Specific Gravity ASTM D792 | 2.60 |

*A more complete data sheet is available upon request.*
**Metric data in parentheses*

| Bearings | Applications |
|---|---|
| • Wide range of materials<br>• Various mating surfaces<br>• Food and pharmaceutical<br>• Chemical resistance<br>• Standard sizes available | • Mixers<br>• Pumps<br>• Compressors<br>• Ovens, Toasters |

| Piston Cups & Flip Seals | Applications |
|---|---|
| • Wide range of materials<br>• Various mating surfaces<br>• Long life materials<br>• Chemical resistance<br>• Economical alternative | • Fuel metering pumps<br>• AC compressors<br>• Oxygen compressors<br>• Automotive transmissions<br>• Pneumatic tools |

# RULON® PRODUCTS

| Formed Seals | Applications |
|---|---|
| • Low friction<br>• Various surface compatability<br>• Long life materials<br>• Chemical resistance<br>• Consistent hysteresis | • TPS shaft seals<br>• Emmissions controls<br>• Dust Seals<br>• Automotive<br>• Medical pumps<br>• Refrigeration valves |

| Piston/Seal Rings | Applications |
|---|---|
| • Molded or machined<br>• Solid or custom joints<br>• Long life materials<br>• Chemical resistance<br>• Low friction | • Pumps<br>• Transmissions<br>• Face seals<br>• Automotive<br>• Medical pumps<br>• Solenoid valves<br>• Air Compressors |

| Wear Components | Applications |
|---|---|
| • Low friction<br>• Painted and plastic surfaces<br>• Long life materials<br>• Chemical resistance<br>• High volume-manufacturing | • Mixers<br>• Pumps<br>• Compressors<br>• Ovens, toasters |

NOTES

# Notes

# Saint-Gobain Performance Plastics Corporation
# Application Inquiry Form

## Customer Information

| | |
|---|---|
| Company: | |
| Street: | |
| City, St, Zip: | |
| Engineering Contact: | Fax Number: |
| Telephone Number: | |
| Purchasing Contact: | Fax Number: |
| Telephone Number: | |

| Action Required | | Date Needed | Quotation Generalities | |
|---|---|---|---|---|
| Material Recommendation | ☐ | | Quote Production | |
| Provide Tech Data on Material | ☐ | | Quantities of: | |
| Part Design Recommendation | ☐ | | Send Quote to: | |
| Produce prototypes | ☐ | | Quote Due Date: | |

## Production Information (Attach Drawing or Sketch if Available)

| | | | | | |
|---|---|---|---|---|---|
| Design: | New ☐ Existing ☐ | Bearing* Size (Units): | In. ☐ mm. ☐ | | |
| | | *For non bearing application, attach drawing | | | |
| If Existing: | | | | | |
| Type/Brand: | | ID: | | OD: | |
| Material: | | Length: | | Flange OD: | |
| Part/Drawing #: | | Flange Thickness: | | | |
| Describe End Uses: | | Other Dimensions: | | | |

Desired Characteristics:

Other Comments:

**Saint-Gobain Performance Plastics**
386 Metacom Avenue
Bristol, RI 02809
Toll Free: 800-223-4966
Fax: 401-253-8211

SAINT-GOBAIN
PERFORMANCE PLASTICS
www.rulon-meldin.com

# Saint-Gobain Performance Plastics Corporation
# Application Inquiry Form

## Part Installation

| | |
|---|---|
| Press Fit on OD: | ☐ |
| Shrink Fit on ID: | ☐ |
| Mechanical Means: | ☐ |
| Slip Fit: | ☐ |
| Bonding: | ☐ |
| Other (list): | ☐ |

## Shaft Specifications

| | |
|---|---|
| Diameter (& Tolerance): | |
| Material Type: | |
| Surface Finish: | |
| Hardness: | |

## Housing Specifications

| | |
|---|---|
| Diameter (& Tolerance): | |
| Material Type: | |
| Length (& Tolerance): | |

## Temperature

| | | |
|---|---|---|
| Typical: | °F ☐ | °C ☐ |
| Maximum: | °F ☐ | °C ☐ |
| Duration: | Min. ☐ | Hrs. ☐ |
| Minimum: | °F ☐ | °C ☐ |
| Duration: | Min. ☐ | Hrs. ☐ |

## Load

| | | | | |
|---|---|---|---|---|
| Radial | ☐ | Thrust | ☐ | |
| Units: lb | ☐ | psi | ☐ | $N/mm^2$ ☐ Other: ☐ |
| Cantilevered | ☐ | Impact | ☐ | |

| | |
|---|---|
| Typical: | |
| Maximum: | |
| Duration: | |
| Minimum: | |
| Duration: | |

## Velocity

| | |
|---|---|
| Units: | rpm ☐ ft/min ☐ m/sec ☐ |
| Linear/Stroke Length: | |
| Number of Strokes/Min: | |
| Rotary: | |
| Degree of Oscillation: | |
| Number of Cycles/Min: | |
| Other: | |
| Running Surface: | ID ☐ OD ☐ Face ☐ |

## Environment

| | | |
|---|---|---|
| Dry ☐ | Water ☐ | Lubricated ☐ |
| Clean ☐ | Dirt ☐ | Vacuum ☐ |

Chemicals: Specify

Gases: Specify

Oil: (Type)

## Service Life

| | |
|---|---|
| Current: | |
| Desired: | |

## Production Validation

| | |
|---|---|
| Bench: | |
| Field: | |
| Both: | |

## Product Testing

| | |
|---|---|
| Test Start Date: | |
| Test Duration: | |

**Saint-Gobain Performance Plastics**
386 Metacom Avenue
Bristol, RI 02809
Toll Free: 800-223-4966
Fax: 401-253-8211

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PERFORMANCE PLASTICS
www.rulon-meldin.com

# Other Saint-Gobain Performance Plastics Catalogs

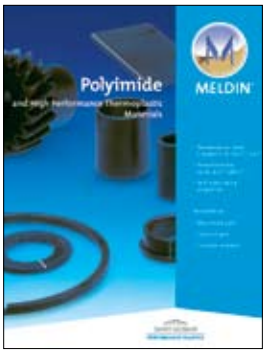

## RULON® Bearings

**RULON® LR** – The best chemical resistance for mild to hardened steel shafting and counterfaces. Low deformation and self-lubricating bearings.

**RULON® J** – The lowest coefficient of friction and highest life for stainless steel and other soft mating surfaces down to Rb25 hardness. Good chemical resistance.

**RULON® 641** – FDA compliant material suitable for stainless steel and soft mating surfaces down to Rb25 hardness. Excellent Chemical resistance.

**RULON®** – Rulon® is also available in a full complement of materials currently used in demanding applications.

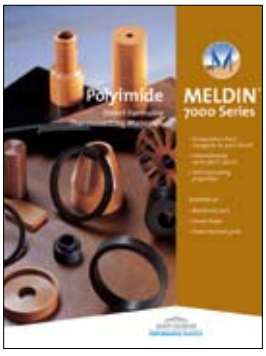



## Meldin®

**Meldin® 1000** – Injection moldable thermoplastic material used in temperatures of 400˚F (204˚C) or lower, where more demanding chemical resistance is needed.

**Meldin® 2000** – Thermosetting polyimide product for use in continuous temperatures of up to 600˚F (316˚C) in structural and bearing applications. Available in rod and sheet or machined parts.

**Meldin® 5000** – Injection moldable thermoplastic material used in temperatures of 550˚F (288˚C) or lower, where more demanding chemical resistance is needed.




## Meldin® 7000

Premium polyimide direct formable materials suitable for high volume production, for use in 600˚F (316˚C) or lower applications. Available in custom finished parts only, except as noted.

| | | INJECTION MOLDING | NORGLIDE® BEARINGS | NORSLIDE® | OMNILIP™ | OMNISEAL® | MELDIN® | RULON® | RAM EXTRUSION | HIGH PURITY PRODUCTS | MACHINED & MOLDED COMPONENTS |
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| * Saint-Gobain Performance Plastics Corporation<br>Bristol, Rhode Island • USA | Phone: (1) 401-253-2000<br>Fax: (1) 401-253-1755 | • | | | | | • | • | • | | • |
| * Saint-Gobain Performance Plastics Corporation<br>Mundelein, Illinois • USA | Phone: (1) 847-949-0850<br>Fax: (1) 847-949-0198 | | | | | | | • | | | • |
| * Saint-Gobain Performance Plastics Corporation<br>Garden Grove, California • USA | Phone: (1) 714-630-5818<br>Fax: (1) 714-688-2614 | | | | • | • | | | | • | • |
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| * Saint-Gobain Performance Plastics N.V.<br>Kontich • Belgium | Phone: (32) 34 58 28 28<br>Fax: (32) 34 58 26 69 | | | | • | • | • | • | | | • |
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| * Grindwell Norton Ltd.<br>Bangalore • India | Phone: (91) 80 847 2900<br>Fax: (91) 80 847 2905 | | • | • | • | • | • | • | | | |
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