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# Coatings

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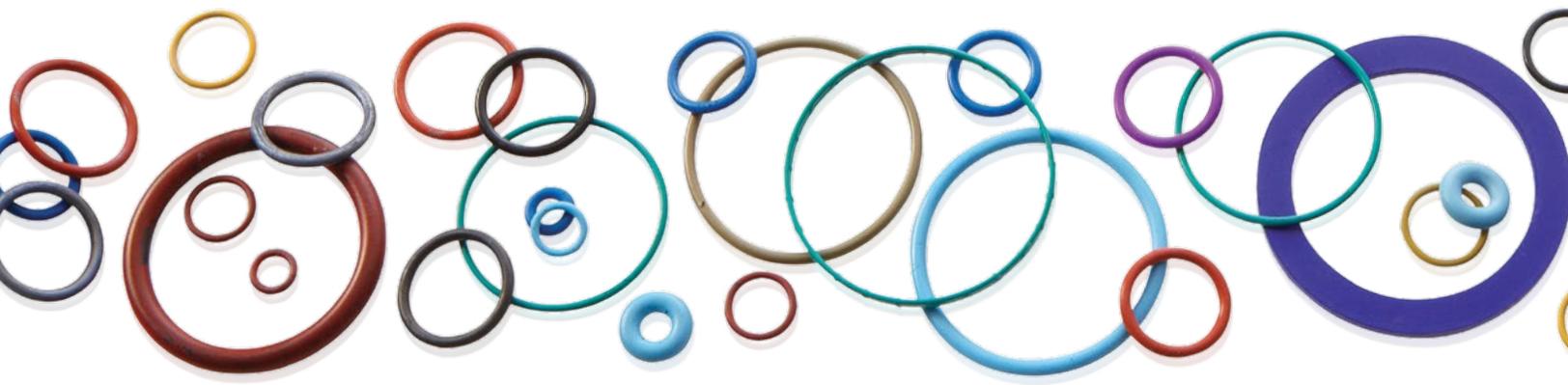




# We've got you covered!

High Performance Seals' coated parts selection decreases friction, facilitates assembly and helps identify parts. Dry (powder) coatings are primarily used to treat parts that are used in automatic assembly equipment. They include talc, powdered PTFE, mica, graphite and molybdenum disulfide. Wet coatings are commonly used to increase the efficiency of automatic assembly equipment. They include silicone emulsions and soap and water mixtures. Thin film coatings are essentially sprayed and baked for O-Rings and rubber parts. They're typically semi-permanent as they wear with abrasion. We also offer two surface treatments for permanent friction reduction and more.

For more information, quick quotations, expert consultation and responsive customer service call us at 877.796.0123 or visit [www.highperformanceseals.com](http://www.highperformanceseals.com).



## **POWDER COATINGS\***

Dry (powder) coatings are commonly used to inexpensively treat automatic assembly equipment parts. These coatings reduce the tendency of parts to stick together, forming clumps or masses. To counteract this, High Performance Seals offers dry powder coatings such as talc, powdered PTFE, mica, graphite and molybdenum disulfide. Each is similar in function, but can offer different performances depending upon application specifics, such as fluid compatibility or temperature.

Over time these coatings may foul assembly equipment, requiring downtime for cleaning, especially with sensitive automatic assembly equipment that utilizes photoelectric sensors.

## **WET FILM COATINGS\***

Like dry coatings, wet coatings are an inexpensive way increase the part installation efficiency of automatic assembly equipment. While wet coatings can be applied to all part sizes, they typically are for larger, hand installed parts with greater surface contact areas. Our primary wet film coatings are:

- a) Silicone emulsions (mixture of silicone and water)
- b) Soap and soap/water mixtures
- c) Vegetable oils or any other customer specified coatings

Wet coatings generally offer superior lubricity over dry coatings, but can be messy. Take care to prevent migration across the shop floor.

## **PTFE RESIN COATINGS (PTFE COATINGS)**

Not to be confused with PTFE powder coatings, PTFE resin coatings are aqueous colloids – acrylic resin binders mixed with PTFE powders and colorants. Heat dries off the water, leaving behind a PTFE/resin film on the part's surface. These coatings reduce friction and are "semi" permanent as they will not rub off with contact, but can be removed over time. Primarily used for automatic assembly, these coatings offer the best combination of lubricity, cleanliness and cost. Also, high value materials can be different colors for easy identification.

There are many types of PTFE resin coatings. Their chemical resistances can be improved by changing their solvent system and resin. For example PTFE may flake off in fuel, however we offer grades with increased fuel vapor resistance.

## **HISLIP COATING**

HiSlip is a proprietary High Performance Seals coating process that can be applied only at the time the part is manufactured. This coating offers friction reducing properties approaching PTFE resin coatings, but instead incorporates a silicone resin. The primary advantage of the HiSlip Coating is it tends to have better adhesion properties, and since it is applied in the manufacturing process, it can be slightly less expensive.

## WE OFFER THESE ADVANTAGES:

- > Dry coatings reduce the parts' tendency to stick together, which can form a clump or mass
- > Wet coatings offer superior lubricity over dry coatings
- > Dry film coatings provide the best lubricity and cleanliness
- > PTFE thin film coatings are colorable for easy part identification
- > High Performance Seals also offers our proprietary HiSlip thin film coating
- > High Performance Seals' proprietary CC12 surface treatment for NBR rubber permanently reduces the surface coefficient of friction

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Coatings

### PARYLENE COATINGS

Parylene is a vapor deposition coating. Poly(p-xylylene) based polymers are thermally deposited on the rubber part surface. The outer layer forms a composite structure with the rubber part as the core, and the parylene as the external jacket. Parylene coatings offer these advantages over other coatings:

- Permanent, FDA complaint coatings
- Reduced friction on par with PTFE coatings
- Added chemical resistance
- Reduced vapor transmission
- Hydrophobic

One drawback is cost, as parylene is applied in a batch process in a reactor chamber. Also, the parylene jacket is not as flexible as an elastomer and can delaminate or lack the same sealability as an untreated part.

### CC12 TREATMENT\*

High Performance Seals' proprietary CC12 surface treatment is a permanent surface modification in which NBR rubber is halogenated in a chlorinated solution. It makes the outer surface layer durometer harder, which permanently reduces the surface coefficient of friction. To be effective there must be unsaturated carbon to carbon bonds present in the polymer chain. Thus, these treatments are not for such materials as Viton™, EPDM, and silicone.

Performance-wise, the lubrication level is not as good as an internally lubricated material or a PTFE coating. However, CC12 offers some cost savings over these coatings and is cleaner than powder/wet film type assembly coatings.

### PERMAGLYDE® TREATMENT

PermaGlyde® treatment is similar to CC12 as it is essentially a surface halogenation treatment process. However, the halogenating element is fluorine instead of chlorine. Due to the high electronegativity of fluorine, PermaGlyde® will work on many materials that CC12 will not, for example Viton™. PermaGlyde® advantages include:

- Decreased friction for reduced abrasive wear, and increased life due to lower heat buildup
- Lasts the seal's lifetime
- Does not add impurities or system contamination
- Safe for medical and food applications

### URETHANE DYING

Not technically a coating, High Performance Seals can give urethane parts an alternate color if requested. Much like PTFE color capability, the colored urethane can be used to differentiate between similar parts on an assembly line or aid in automatic inspection of parts on machines equipped to look for color variation. Colored urethane can be custom manufactured, however High Performance Seals' dying process can be a cost saving step as we dye preexisting, stocked urethane materials. This greatly reduces the cost and lead time over manufacturing custom colored urethane.

\*These coatings are done on premise at RT Dygert.



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