

Reduce Friction and Improve Performance for Elastomers with ModyGlide™

Elastomers such as NBR, HNBR, EPDM and silicones are key materials for numerous industries and applications. Elastomeric components are compressible, providing sealing and extending wear life for simple and very complex assemblies. In their service life, elastomeric seals and gaskets are used in static and dynamic conditions, often exposed to harsh temperatures, pressures, and chemicals.

Many elastomeric materials have high friction coefficients. Parts can easily get contaminated with dust, debris or particulates. In dynamic applications, increased frictions cause excessive heat and eventually reduce the useful life of articles, due to increased wear. Increased friction also slows down assembly operations resulting in production line downtime, lost productivity, material replacement and labor costs.

ModyGlide™ improves the surface properties of elastomers to reduce friction and increase durability. ModyGlide™ is a permanent modification to the surfaces of elastomeric articles, leading to a significant decrease in the coefficient of friction.

ModyGlide™ eliminates the need to source expensive, exotic materials.

ModyGlide™ eliminates the need to source expensive, exotic materials as well as the need for internal or external lubricants that can contaminate formulations. ModyGlide™ treated elastomeric parts can be subjected to repeated cleaning and sterilization cycles, retaining their low friction surface, due to the permanency of the treatment. It also improves chemical resistance, reduces swelling and fouling, prevents external contamination from dirt and prolongs service life.

Advantages of ModyGlide™

- Reduces friction coefficients leading to improved wear resistance
- Durable, resists swelling, fouling, and degradation
- Maintains cleaner elastomeric surfaces for hygiene and less contamination
- Uniform treatment on all exposed surfaces
- Permanent treatment that will not flake off, delaminate, or leach
- Eliminating lubricants that can lead to contamination
- Increased chemical resistance
- Cheaper alternative to highly engineered materials
- Does not affect bulk material properties

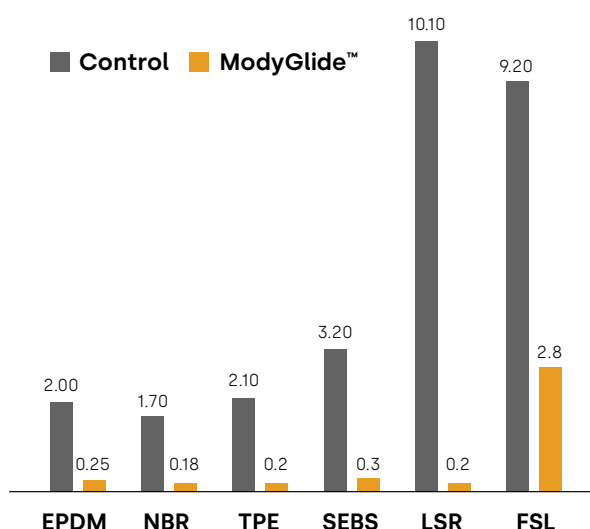


ModyGlide™

Applications

All elastomeric materials regardless of shape or size can be treated with ModyGlide™. It can treat o-rings, gaskets, seals and other elastomeric molded goods are used across many industries for various applications including:

- Transportation – Automotive, aerospace and locomotives
- Consumer goods – Health & beauty, lawn & garden
- Industrial – Electronics manufacturing, construction, oil & gas
- Healthcare – Medical equipment, prefilled syringes, pharmaceutical packaging



Coefficient of friction for various elastomers before and after ModyGlide™. Testing conducted per ASTM D1894-14.

Types of elastomers that can be modified:

- EPDM
- NBR/HNBR
- Butyl rubber
- Nitrile rubber
- TPE/TPV/TPU
- SEBS/SBS/SBR
- Liquid silicon rubber (LSR)
- Fluoroelastomers/fluorosilicones



ModyGlide™ offers peace of mind by selecting a better technology and by committing to making the world a better place in the process.

At Inhance Technologies, our focus is—and will always be—on using technology as a means to achieve a more sustainable future. As a global technology transformation partner specializing in plastics and chemicals, we believe in the science of better: innovating safer, environmentally friendly and more sustainable materials. Our sustainable manufacturing processes produce zero solids waste, zero water waste and zero emissions.

Inhance Technologies is an ISO9001:2015 and RC14001:2015 certified company.

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ModyGlide™ is a product in the Modyfy™ line of surface technologies.

Permanent Surface Activation of Plastics with ModyBond™

Plastics and composites are prized for structural integrity, low weight, and the superior design flexibility they bring to demanding applications. As more product assemblies rely on plastics, from medical devices to automobile components, effective bonding to plastics has become integral to many industries. 'Bond-ability' is the ability to adequately wet the surface, spread uniformly and adhere to the surface of the plastics and these needs to be maximized to ensure performance.

One of the major drawbacks of plastics is that they are difficult to adhere to, due to their low surface energy and need to be surface treated to enable paints, coatings, adhesives and other materials to bond to them. Technologies such as flame, plasma and corona treatments only work temporarily and are ineffective on many materials and shapes. Other solutions such as harsh solvent-based systems have significant environmental impacts and tend to be expensive to purchase and manage.

ModyBond™ permanently activates plastics without impacting strength, flexibility or other critical performance properties.

Inhance Technologies' ModyBond™ permanently activates plastics without impacting strength, flexibility or other critical performance properties. ModyBond™ improves the bond-ability of plastic materials by permanently increasing surface energy. ModyBond™ imparts the highest surface energy and polarity to a plastic surface compared to other treatments, improving wettability, film formation and maximizing adhesion.

Plastics treated with ModyBond™ maintain high surface energies for years after treatment and are stable for long-term storage. It enables all types of plastics to be used, resulting in significant cost savings.

Advantages of ModyBond™

- Permanently increases surface energy
- Enables increased adhesion properties for paints, coatings and adhesives
- Complete design freedom of parts
- Allows for the use of water-based paints, coatings and adhesives, instead of solvent-based formulations
- Replaces expensive alternatives
- Eliminating primer layers and mechanical fasteners, enabling light-weighting



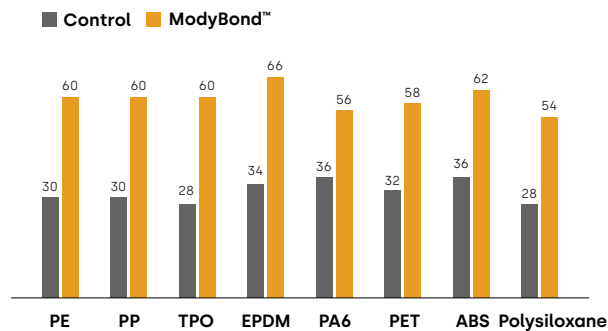
ModyBond™

Applications

ModyBond™ is effective on discrete parts, continuous films, sheets and fibers. The process ensures 360° coverage of parts, evenly treating every exposed surface, irrespective of part design and geometry, enabling complete design freedom. Flame, plasma and corona treatments have to be applied using robots which requires close contact with the surface, ModyBond™ can be applied to complex geometries as the treatment is line of sight independent. Surfaces with intricate designs, including deep grooves, cannot be surface activated by alternative technologies, because the treatment cannot get close enough to the surface that need to be activated. It does not subject the parts to any heat or other stress, which can disrupt delicate assemblies or impact haptics.

Inhance Technologies' ModyBond™ is used to treat plastics across many industries for various applications including:

- Transportation – Vehicle exterior and interior components
- Consumer goods – Health & beauty, sporting goods, appliances
- Industrial – Building & construction, packaging
- Healthcare – Medical device and equipment



Sample surface energy enhancements (dyne/cm) with Inhance Technologies ModyBond™. Testing conducted per ASTM D2578-84.



The bonding of parts treated with ModyBond™ often exceeds the strength of the materials bonded. ModyBond™ offers complete peace by choosing a better technology, but also committing to making the world a better place in the process.

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Increased Stain Resistance for Plastics with ModyClear™

Natural dyes and color bodies, flavors, oils and fats, detergents, cleaners and other materials can readily be absorbed into plastics causing the surfaces to become stained and discolored. Whether the plastic article is a food storage container, a durable appliance like a dishwasher or refrigerator, or packaging, staining reduces consumer appeal and product functionality. For food and beverage applications, absorption of flavor and color molecules can also negatively alter taste and odor. Stained food storage containers, appliance surfaces, cutting boards and other home goods imply poor quality and create dissatisfaction.

Inhance Technologies' ModyClear™ permanently modifies the surface of plastics, making them substantially more resistant to the penetration of stain, flavor and odor molecules. ModyClear™ is effective at blocking the absorption of the toughest stain-causing agents, including tomato sauce, mustard, and turmeric, while at the same time preventing migration of odor and flavor into the plastic.

ModyClear™ permanently modifies the surface of plastics, making them substantially more resistant to the penetration of stain, flavor and odor molecules.

ModyClear™ is effective in resisting stains under conditions such as microwaving and dishwashing. Unlike coatings, ModyClear™ will not wear off, even when used in extreme conditions and over repeated uses. This allows for durable stain proofing of all surfaces of plastic articles. In addition, ModyClear™ imparts quick-drying performance to containers, rapid draining of detergents in case of appliances such as dishwashers and prevents the formation of ice droplets in frozen food containers.

Advantages of ModyClear™

- Improves stain resistance to a wide variety of ingredients
- Protective barrier against odor and flavor barrier
- Prevents flavor contamination in durable food packaging
- Ensures good flavor retention in stored food
- Durable long-lasting effect, even when exposed to harsh conditions
- Speeds drying of plastic articles after hand or dishwashing
- Ensuring high printing quality on plastics substrates
- Free of BPA, phthalates and PVC

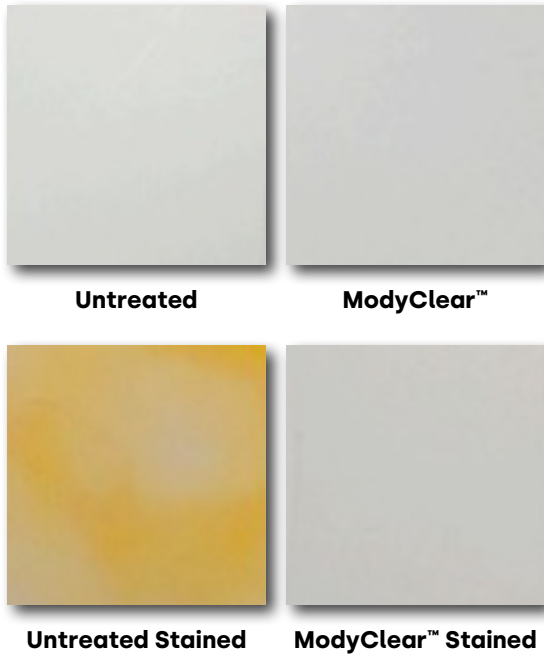


ModyClear™

Applications

ModyClear™ is most effective on polyolefins such as PE and PP, but can also be used on other plastics materials. It is used to treat plastic articles across many industries for various applications including:

- Consumer goods – Health & beauty, appliances, food storage, water filtration
- Industrial – Filtration membranes, commercial dishwasher, commercial washing machines



ModyClear™ offers our customers peace of mind that they are not only choosing a better technology but also committing to making the world a better place in the process.

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Improve wettability of plastics with ModySplash™

Plastics are used in many applications where water wettability is critical to the performance of products. Most plastics are water repellent, which is also called hydrophobic, because of their low surface energy. The ability of a surface to “wet” is highly dependent on the polarity, or energy, of the surface. While several options to increase the surface energy of plastic materials, including dip or chemical coating, are available to product designers or engineers, these techniques do not perform well enough and have a negative effect on product efficacy.

Inhance Technologies wettability control technologies improve materials for a wide range of markets and applications. ModySplash™ improves the wettability of plastics by permanently increasing surface energy. ModySplash™ creates a hydrophilic, highly wettable surface, which not only aids thin film formation but also enables wet-out, absorption, and quick-drying characteristics.

ModySplash™ improves the wickability of plastics up to 75% faster* than alternatives such as topical surfactants or chemical treatments.

ModySplash™ improves the wickability of plastics up to 75% faster* than alternatives such as topical surfactants or chemical treatments. ModySplash™ is also durable, surviving repeated washings, scuffs or wear.

*NWSP 70.3 and NWSP 70.7
(NonWovens Standards Procedures)

Advantages of ModySplash™

- Improves wettability
- Permanently increasing the surface energy of plastics and nonwovens
- Enables quicker and faster absorption of liquids
- Thin film formation ensures results are quick drying
- High printing quality on plastic substrates
- Durable
- Environmentally friendly choice



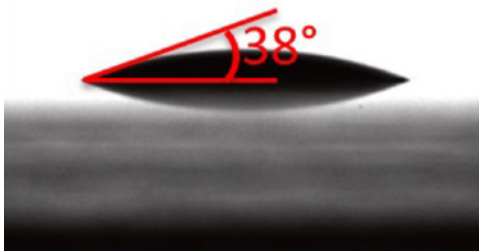
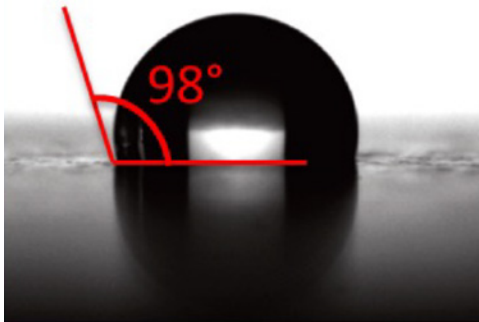
ModySplash™

Applications

ModySplash™ is used to activate plastic films, nonwovens and molded articles across many industries for various applications. Applicators for cosmetics, wound dressings, personal care articles and water purification filters are just a small list of examples where wettability is vital to product performance.

- Consumer goods – Cosmetics, personal care, kitchenware, DIY
- Industrial – Filtration membranes and cartridges, applicators
- Healthcare – Wound care, incontinence products

ModySplash™ can be used to treat discrete parts as well as continuous roll goods and fibers.



Increased surface energy of PP non-woven fabric treated by Inhance Technologies' ModySplash™ (on the top, surface energy is 28 dyne/cm (contact angle 98°), on the bottom, surface energy is 60 dyne/cm (contact angle 38°). Testing conducted per ASTM D7490-13.



Inhance Technologies ModySplash™ can be applied to a number of industries to improve performance and suitability. ModySplash™ offers peace of mind by not only offering better technology, but also committing to making the world a better place in the process.

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