

# Surface Modification

## Preparing Polymer Substrates for Bonding

■ A partnership with TriStar gives you a competitive edge.



### Cleaning and Functionalization of Polymer Substrates for Bonding, Painting, Coating, or Overmolding Applications

Due to the hydrophobic (non-wettable) properties of plastic, post-molding or post-machining applications such as bonding, painting, or coating can be a significant challenge to manufacturers. Traditional mechanical abrasion or aggressive solvents and primers are generally effective, but can be expensive, time consuming, and impractical.

Low-pressure (vacuum) plasma treatments have been a proven alternative to manual and chemical pre-treatment of plastic devices.

#### Why Plasma?

In addition to removing all trace organic contamination, specific functional groups can be attached to the molecular structure of the substrate; these functional groups increase the wettability of the substrate and increase the bond-strength of the applied adhesive, paint, or coating.

#### Advantages

- Plasma treatments offer a level of uniformity, consistency, and repeatability that is difficult or impossible to achieve via mechanical abrasion or wet-chemical processes.
- All processes are optimized to eliminate potential for thermal deformation or changes in tolerance, color, or surface texture.
- Because there are no wet chemicals involved, the lot-to-lot consistency of plasma treating can dramatically increase yield. This reduces the potential for in-field failures.
- Low-pressure plasma processes can provide significantly longer treatment lifetime than can be achieved via atmospheric plasma treatments.

#### Applications:

- Over-molding
  - ▶ device handles
  - ▶ aircraft components
  - ▶ specialty gaskets
  - ▶ military/police/fire
- Painting
  - ▶ Offers a better finish & less chance for delamination.
  - ▶ Reduces or eliminates the need for solvent primers.
- Coating
  - ▶ Better adhesion of lubricious and/or conformal coatings such as parylene.

We're ready to put our engineering expertise to work for you from prototype to production.

Engineering | Custom Fabrication | Manufacturing



## CJ Composite

- Self-Lubricating
- Low weight | High Strength
- Chemical Resistance
- Direct replacement for Bronze



## Ultracomp<sup>®</sup>

- Self-Lubricating
- High Load | Low Speed
- 54,400 PSI Compressive Strength
- Exceptional Resistance to Vibration and Impact



## TriSteel<sup>™</sup>

- Self-Lubricating
- High Load | High Speed
- Metal Backed Bearing System
- 100% Lead Free



## Rulon<sup>®</sup>

- Self-Lubricating
- Low weight | High Strength
- Low Coefficient of Friction
- Chemically Resistant



# TriStar



Engineered Plastic Solutions<sup>™</sup>

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