

Hybrid Plastics®

Superior Technology for Superior Products

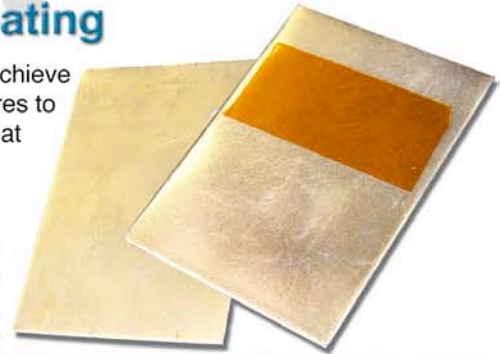
POSS® ImiClear

A Colorless, Transparent Polyimide Coating

POSS® ImiClear utilizes POSS® Nanostructured® chemical technology to achieve a transparent, clear, tough, ultra-hydrophobic polyimide coating that adheres to most common substrates. ImiClear is a one-step, spray-applied coating that affords reliable durability and repair.

ABOUT NANOSTRUCTURED® POSS® MOLECULES

Polyhedral oligomeric silsesquioxane (POSS®) molecules are a unique class of chemicals that have a hybrid organic-inorganic composition with a hollow internal inorganic cage core and eight peripheral organic groups. The inorganic cage provides thermal and chemical stability while the organic substitutes provide resin and surface compatibility and desired functionality. All POSS® molecules are nanoscopic in size (1-3 nanometers).



Uncoated metal plate (left) and identical plate coated with POSS® ImiClear (right). Amber strip is standard polyimide (included for comparison)

HOW POSS® IMICLEAR WORKS

Polyimides are well known for their exceptional durability and high temperature properties but they require high temperature post-cure treatment. POSS® ImiClear, however, is fully imidized and does not require a post cure heat treatment. The incorporation of POSS® into the polyimide backbone renders solubility and the convenience of aerosol spray, brush, and dip coating application.

POSS® incorporation also renders a completely colorless and transparent polyimide coating. Conventional polyimides have a characteristic yellow-orange color, which is highly undesirable for optical applications and uses where visual inspection is desired. POSS® ImiClear provides an excellent barrier against environmental damage from moisture, VUV, UV, proton and electron radiation. It also meets the very stringent out-gassing requirements for space applications. It is suitable for application to wood, metal, composite and polar polymer surfaces.



APPLICATION METHOD

1. A dirt and oil free surface is required.
2. Any common coating method may be used - spray, brush, roll or dip.
3. Touch dry in 5 minutes. Thoroughly dry in 30 minutes.
4. Apply second coat if needed. Typically 1 L of POSS® ImiClear covers approximately 5.3 m² at a 3-5 micron thickness.

To remove coating, wet the surface with methyl ethyl ketone and wipe clean.

PHYSICAL PROPERTIES

Tensile Strength	74 MPa
Tensile Modulus	2.13 Gpa
Elongation	8.0 %
Tg	266 °C
CTE	68 µm/m/°C
50% UV Cut-Off	350 nm @ 3-5 µm
Moisture Permeation	0.38 g/cm/m ² day

AVAILABILITY

POSS® ImiClear is available as a solution: 0.5 gal - \$581, 1 gal - \$970 (1L - \$307, 5L - \$1281). For bulk pricing please specify volume and request a quote via info@hybridplastics.com

WARRANTY

The information contained herein is believed to be accurate and reliable. However, the user is responsible for determining the suitability and use of the final formulations/products. Hybrid Plastics® warrants that its products will meet specifications, but not merchantability or fitness for use.

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