

OPTOOL DSX-F

Antifouling Agent

Water, Oil, and Stain Resistant Coating;
Reduced Finger Printing

Characteristics:

Fluorosolvent-borne modified PFPE.

Forms a durable bond with glass surfaces.

Effective on surfaces coated with SiO₂,
and many other surfaces.

Can be applied by physical vapor
deposition (PVD).

Can be applied by wet methods.

Markedly reduces static and kinetic
coefficients of friction of the substrate
surface.

Significantly reduces the surface free
energy of the substrate surface.

Creates an anti-stick or anti-adhesion
surface.

Applications:

Display, sensors, and shielding glass

Decorative metal parts

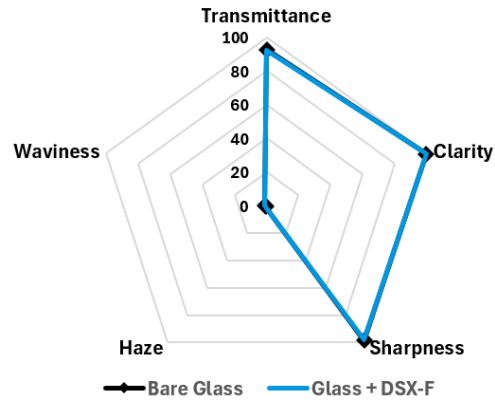
Precision optics

Mold release

Anti-smudge coatings for ophthalmic
lenses

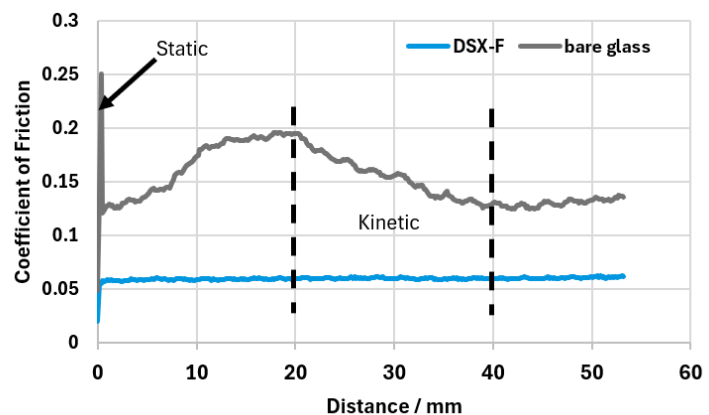
Optical Properties:

At approximately 10 to 15 nm thick, Optool DSX-F coatings will not distort the critical optical characteristics of the glass to which it is applied.



Permanent Thin-Film Lubricity:

Once cured, Optool DSX-F will not wipe off the treated surface. Optool DSX-F not only reduces the kinetic and static coefficients of friction, but also reduces or eliminates stick slip. The jagged appearance of the bare glass CoF curve is an indicator of stick slip. The Optool DSX-F substantially suppresses the amplitude of the stick slip or eliminates it, as seen in the nearly smooth, flat CoF curve for the Optool DSX-F treated glass surface.



Properties*	Optool DSX-F	Bare Glass
Water Contact Angle	115°	<10°
n-Hexadecane Contact Angle	69°	<10°
Fingerprint Mitigation	Excellent	Poor
Easy Clean	Excellent	Poor
Kinetic Coefficient of Friction	0.06	0.15
Steel Wool Abrasion Resistance	4000 cycles	--

*Typical values of reported properties are not suitable for specification purposes and are not guaranteed.

Application Methods*:

Wet Methods (Spray, Spin, Dip, Flow):

- Clean the substrate prior to treating with Optool
- Plasma, UV/Ozone, or chemical cleaning are generally effective
- Prepare a dilute Optool solution by diluting in hydrofluoroethers, perfluorohexane or other suitable fluorinated solvents
- Starting point dilution: reduce the Optool polymer to 0.1% by wt. (200-fold dilution)
- Apply the dilute solution evenly across the substrate surface
- Typical spray amount: 30-60 g/m²

Dry Methods (Physical Vapor Deposition):

- Optool can be "pelletized"; pellets are then heated in a PVD system to vaporize the Optool material
- For best results, an SiO₂ adhesion layer should be deposited on the substrate prior to applying the Optool

* Comply with all Federal, State, and Local regulations when selecting an application method for this material.

Post-Processing/Curing:

Low Temperature/Elevated Humidity

- 60°C, 90% relative humidity, 1 hour

Elevated Temperature/Ambient Humidity

- 150°C, 30 min

Curing is required for chemical bonding to the substrate

Excess uncured coating can be removed by wiping off or washing the surface with water, alcohol, or a fluorinated solvent after completion of the curing process

Handling:

- Read and understand SDS before using
- Work in a well-ventilated area
- Wear the appropriate PPE, including gloves and safety glasses
- Wash your hands thoroughly with soap and water after working with the material
- Hazardous decomposition products form by heating to high temperatures (continuously at 392 °F (200 °C) and above)

Storage:

- Tighten the cap after use to minimize evaporation and moisture exposure
- Before re-sealing the bottle, air in the head-space should be minimized or purged with inert, dry gas such as nitrogen or argon
- Store at a cool temperature 41 ~ 77 °F (5 – 25 °C) and avoid direct sunlight

Shelf-life:

- 20 months from the date of manufacture in the original, unopened container

Packaging:

- Product is available in 30 gram, 100 gram and 5 kilogram bottles
- Active polymer concentration: 15% - 25% by mass in solvent
- Appearance: Light yellow to clear, colorless liquid
- Density: ~1.4 g/cm³

Additional Notes:

Information herein is based on current knowledge and is intended as a general guide to product performance. All data were collected on research grade instrumentation with the intention of generating typical performance values. The information and data are not a warranty or specification, and users must determine that the product is suitable for their purpose before use.

For help with details for a specific application please reach out to your local Daikin representative.

For North American users please utilize the link here:

<https://daikin-america.com/contact/>