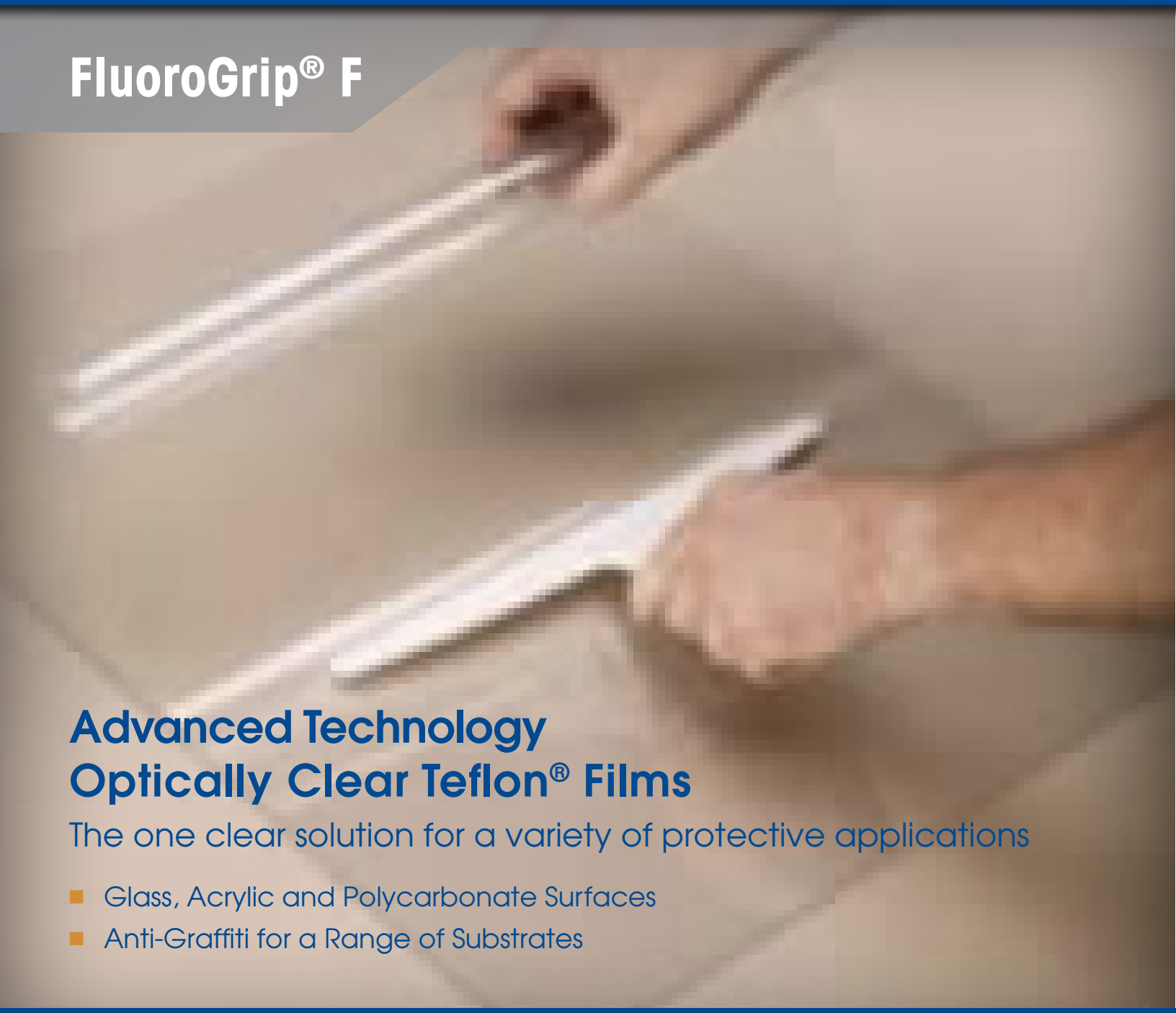
Integument

# FluoroGrip® F



## Advanced Technology
## Optically Clear Teflon® Films

The one clear solution for a variety of protective applications

- Glass, Acrylic and Polycarbonate Surfaces
- Anti-Graffiti for a Range of Substrates

# FluoroGrip® F

CLEAR

## FluoroGrip® F Optically Clear Teflon® Films

**FluoroGrip®** F Optically Clear Teflon® Films offer patented adhesive technology in a durable, see-through film specifically designed to protect glass, acrylic, polycarbonate and other flat surfaces. **FluoroGrip®** Films deliver distinct advantages over other protective coating systems including easy, peel-and-stick application, superior chemical resistance and outstanding reliability.

From the factory floor to lab environments to exterior signs and structures, **FluoroGrip®** F has it covered for clearly superior protection.

### Machinery and Equipment Glass

Glass, acrylic and polycarbonate surfaces on industrial machinery and processing systems are etched by corrosives, alcohols and other processing liquids, resulting in poor clarity and see-through visibility.

FluoroGrip® F protects glass and subtsrates from a variety of harsh chemicals and cleaning solvents found in today's manufacturing environments.

Applications include:

- Lab equipment, fume hoods and glove boxes
- Critical clean and etch
- Post-ash clean/photoresist strip
- Chemical processing
- Semiconductor
- Cleanroom – walls and windows
- General industrial
- Food processing (Meets requirements to comply with the FDA's Register of Food Additive Regulations)

### Anti-Graffiti Protection

FluoroGrip® F films protect against surface damage caused by graffiti and other environmental factors in a wide variety of commercial and industrial applications. The films stand up to paints, inks, acids, dirt and grime and other stains and they are easy to clean and repair. Applications include:

- Road and traffic signs
- Steel and other structures
- Equipment and enclosures
- Glass, plastic and other surfaces
- Walls, interior and exterior
- Transit shelters
- Bathroom stalls
- Mail boxes, garbage bins, light standards
- Buses, trucks, subway and rail cars
- Any painted or unpainted surface


## Superior Performance in Any Application

FluoroGrip® F films withstand a wide variety of stresses such as extreme temperature cycling, UV rays, and a wide range of aggressive chemicals, paints and acids:

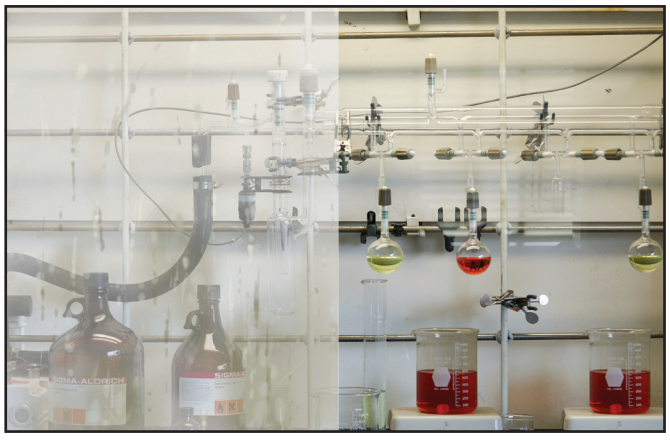
- Easy to install, clean, inspect and repair
- Can be field applied by hand or laminated in the shop
- Exceptional weatherability for outdoor environments
- Permanently UV stable
- Anti-corrosion protection extends service life

# Durable Bond Ensures Long-Lasting Protection

FluoroGrip® F films offer a permanent alternative to conventionally etched films due to a patented plasma surface modification. The process creates a permanent, chemical covalent bond between the Teflon® film and adhesive while retaining the full transparency of the film. The bond is permanent enabling it to be used in surface protection applications where currently available film products may fail within 2 to 3 years of use.

## Easy To Use and Safe

- Solid sheet design for consistent quality and thickness
- Easy to store and handle
- No VOCs
- Safe for environment and personnel
- No pollutant by-products
- Excellent dielectric strength – protects personnel from stray current



## Optically Clear Adhesive Properties

| | |
|---|---|
| Thickness, mils | 1.7 |
| Quick Tack, lb/sq. on SS | 3.8 |
| Peel, lb/inch | |
| SS (30 minutes) | 3.5 |
| Acrylic | 4.3 |
| Glass | 3.6 |
| Polycarbonate | 3.7 |
| Optical Clarity | >98% |
| Haze | <0.2% |
| **Temperature Range Guidelines** | |
| Application | 50° F to 120° F |
| End Use | -20° F to 200° F |

## Reflectivity Film Testing

Reflectivity was testing using test methods outlined in FTMS 370, ASTM D1709 and ASTM D4061. Minimum required values taken from MUTCD Table 2A.3 – Minimum Maintained Reflectivity Levels.

| **Control Sign** | **RL Measured** | **RL Minimum Req.** |
|---|---|---|
| White area | 91.46 | 35 |
| Red area | 6.58 | 7 |
| Contrast ratio | 13.90:1 | 3:1 |
| **Coated Sign 5 mil** | **RL Measured** | **RL Minimum Req.** |
| White area | 93.36 | 35 |
| Red area | 17.58 | 7 |
| Contrast ratio | 5.31:1 | 3:1 |
| **Coated Sign 3 mil** | **RL Measured** | **RL Minimum Req.** |
| White area | 93.90 | 35 |
| Red area | 7.18 | 7 |
| Contrast ratio | 13.08: 1 | 3:1 |

## Accelerated Weather Testing (QUV)

Stop signs were exposed to QUV for 2,000 hours in accordance with ASTM D4587.

| | **Hrs. of Exposure** | **Color** | **ΔE** | **Color** | **ΔE** |
|---|---|---|---|---|---|
| **Control Sign** | 500 | White | 3.66 | Red | 2.57 |
| | 1000 | White | 4.54 | Red | 5.17 |
| | 1500 | White | 5.33 | Red | 3.91 |
| | 2000 | White | 4.57 | Red | 5.51 |
| **Coated Sign 5 mil** | **Hrs. of Exposure** | **Color** | **ΔE** | **Color** | **ΔE** |
| | 500 | White | 1.15 | Red | 2.20 |
| | 1000 | White | 1.33 | Red | 1.30 |
| | 1500 | White | 1.42 | Red | 1.84 |
| | 2000 | White | 1.82 | Red | 2.12 |
| **Coated Sign 3 mil** | **Hrs. of Exposure** | **Color** | **ΔE** | **Color** | **ΔE** |
| | 500 | White | 0.88 | Red | 0.60 |
| | 1000 | White | 1.12 | Red | 1.87 |
| | 1500 | White | 1.31 | Red | 1.69 |
| | 2000 | White | 1.41 | Red | 2.78 |

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