

## UVX™

### Technical Data Sheet

UVX is a PFPE / polyurethane blended Nano-coating that displays exceptional hardness, heat and chemical resistance, and repels moisture.

It has been utilized well on many substrates including glass, metal and plastics that rely on both its hydrophobic nature ( $>110^\circ$  in water) and hardness.

This means it works exceptionally well with smart phones, tablets, monitors, screens and other forms of telecommunications.

Films and coatings may be expected to provide long-lasting, anti-fouling and easy cleaning on devices for fingerprints and other contaminants.

#### Performance properties of UVX

- Used on all substrates (glass, metal, plastic).
- UV-curable, also heat or air-dry.
- High impact resistance
- Hydrophobic water repellent ( $>110^\circ$  in water)
- High resistance to heat and chemicals
- Compatible with markers and pigments
- Optimized properties at 25um
- Can be applied to monitors and screens, electronics, photoresists, aircraft, automotive surfaces
- Transparent, with low refractive index
- Coating can be modified for increased hardness, scratch resistance, and/or adhesion strength to multiple substrates

#### Why use UV cure fluoropolymer coatings?

The UV cure process ensures excellent hardness, adhesion and cure properties of the coating almost immediately.

This ensures fast processing for high volume products like tablets, mobile phones and other consumable products.

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**Properties:**

Chemical composition:	Perfluoropolyether
Functional Group:	Acrylate
Functionality:	~ 6
Specific Gravity (25°C):	~ 1.7 g/cc
Flash Point:	None
Solubility in Water:	Nil
Viscosity:	~ 200,000 cps
Appearance:	Clear liquid
Odor:	Slight acrylate
Flash Point:	None
Boiling Point:	Decomposes above 300°C
Density:	1.4 g/ml
Surface Energy:	~ 14 dyne/cm <sup>2</sup> (cured film)
Surface Energy:	13 to 15 dyne/cm <sup>2</sup>
Refractive index:	1.32 (neat) 1.35 to 1.37 (50% HDDA )
Contact angles to water:	> 105 degrees
Roll off angle to water:	< 7 degrees
Contact angles to mineral oil:	72 to 78 degrees
Roll off angle to mineral oil:	1 to 3 degrees
Contact angles to PEG:	90 to 95 degrees
Roll off angle to PEG:	1-3 degrees
MEK resistance:	>200 double rub cycles
Stain resistance (5 = no stain):	5, 5, 5, 3 (tea, coffee, water, iodine)
Magic Marker resistance:	beads up, easily removed
Chemical resistance (5 = no effect):	5, 5, 5, 3 (8N NaOH, 30% HCl, 30% H <sub>2</sub> O <sub>2</sub> , 10% Ammonia)
Pencil hardness:	>4H (hardness may be increased with TMPA)
Rubs to 10% hazing loss:	124 (neat); 190 (TMPA) with #0000 Steel Wool at 500 grams
Rubs to wear through:	2600 (neat); 3100 (TMPA) with #0000 Steel Wool at 500 grams
Elongation to failure:	11% (neat); 14% (HDDA)

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	<b>Refractive Index</b>	<b>% Reflectance</b>
UVX™	1.32	2.5%
Glass	1.52	4.4%
Polymethyl methacrylate	1.49	4.1%
Polycarbonate	1.59	5.2%
Polyethylene terephthalate (PET)	1.66	6.2%

**Health and Safety** - The potential hazards associated with this product should be understood before use to ensure that they are used properly. Please review MSDS before working with these materials.

Most oligomers tend to have low skin and eye irritation, and skin absorption, ingestion and inhalation hazards are minimal because of their higher molecular weight compared to solvents and monomers.

However, this product may be supplied as blends with monomers or solvents, and safety procedures guidelines of these additives may be applicable.

**Fire** - In the event of fire, this product, as with all fluorinated materials, can become an inhalation hazard or uncontrolled polymerization may occur. Fire fighters should wear self-contained breathing apparatus, in addition to eye, face and body protection. Extinguish fires with dry chemical, foam, carbon dioxide, or water fog and spray from a safe distance or protected location. Keep containers cool.

**Handling and Storage** - It is important to prevent exposure through the use of protective clothing and equipment, good work practices, and proper engineering controls. Do not handle this product in light containing UV, as it is highly reactive.

Store containers at temperatures above 45°F and below 80°F. Recommended bulk storage temperatures should remain within the 45-80°F range. Material allowed to freeze should be heated to 100 °F and mixed thoroughly with low shear to disperse inhibitors and other additives. Store out of direct light in non-transparent containers.

**Disposal** - Shelf life and disposal - This product should be used within six months of receipt for optimum product performance. The HQ and MEHQ that have been added to enhance shelf life stability.

All safety guidelines should be followed. See 40 CFR 261 for further instructions on proper disposal. Disposal must comply with federal, state and local regulations.

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