



## TECHNICAL DATA SHEET

### UV-772 ULTRAVIOLET CURABLE FLUORESCING DIELECTRIC

#### DESCRIPTION

- Under low energy UV light (black light), UV-772 fluoresces both before and after the curing process so that completeness of coverage can be quickly determined.
- Cured films of UV-772 exhibit excellent adhesion to glass, metal, indium tin oxide (ITO), polyester, and most other plastic substrates.
- Exceptional moisture resistance
- Maintains its electrical integrity over a wide temperature and frequency range, making it suitable for high temperature applications and will withstand continuous exposure up to 155°C. Cured films will withstand extreme thermal shock from +200°C to well below -60°C.
- The excellent pot life and UV cure mechanism allow for heating of the material to precisely control viscosity for consistent application weights.
- Excellent as a protective barrier on silver ink bus bars and will not fracture off ITO substrates when die cut or sheared

UV- 772 is compatible with all of our silver conductive inks, carbon resistive inks, silver conductive epoxy adhesives, UV curable encapsulants and conformal coatings.

UV-772 is designed for use as a **printable insulating layer** for manufacturing applications **where visual inspection** is required to ensure complete and consistent coverage.

#### TYPICAL PROPERTIES

Appearance	Straw colored liquid
Viscosity, Brookfield SC4-14 @ shear 40	<2,500 cps
Weight Per Gallon @ 25°C	9.7 lbs.
Specific Gravity @ 25°C	1.17
Flash Point, PMCC	340°F (171°C)
Shelf Life @ 25°C	6 months

#### PHYSICAL PROPERTIES AFTER CURE (Free Films)

Shrinkage on Cure	2.2%
Elongation to Break	4.0%
Tensile Strength at Break	7,600 psi
Glass Transition Temperature (DMA)	157°C
Volume Resistivity @ 25°C	3.3 x 10 <sup>14</sup> Ω-cm
Surface Resistivity @ 25°C	2.9 x 10 <sup>13</sup> Ω/square

# UV-772 ULTRAVIOLET CURABLE FLUORESCING DIELECTRIC

Guidelines are intended to provide a starting point for evaluation. Applied Ink Solutions recognizes that each customer's manufacturing process is unique, and we are available to provide technical assistance to resolve your processing issues. Call us to discuss your application in more detail.

The properties are accurate to the best of our knowledge and Applied Ink Solutions makes no guarantees for customer specifications established in applications where this product is used. Customer assumes responsibility for determining fitness of use in their particular application.

## Application Guidelines

UV-772 can be applied by all conventional methods including screen, gravure and pad printing, dip, roll, knife over roll and curtain coating. The excellent pot life and UV cure mechanism allow for heating of the material to precisely control viscosity for consistent application weights. Fluorescing of the ink can be observed by exposing it to low energy UV light sources, such as "black lights". UV-772 will not fluoresce under ambient light conditions.

## Screening

Use stainless steel or monofilament polyester screens from 305 to 390 mesh, with an emulsion thickness from .001" to .003". For thicker coatings, use smaller mesh sizes and thicker emulsions. A polyurethane squeegee with a Shore 'A' durometer between 60 and 70 is recommended.

## Curing

UV-772 must be exposed to ultraviolet light of the proper wavelength to activate the curing mechanism. Curing can be achieved with any ultraviolet light source, which puts out wavelengths of <350 nanometers. The most common commercial light source is the medium pressure mercury vapor (MPMV lamps), electrode or microwave activated arc, with or without spectral enhancement (doped). Cure can also be accomplished with xenon or carbon arc lamp sources, UV lasers or electron beam sources. These sources are available in increasing arc lengths and varying intensities for specific applications from a large number of manufacturers. It is highly recommended that a radiometer be used to verify energy levels in any UV curing system.

As a general guideline, lamp input power settings should be at the highest level (300 watts in most systems), and the belt speed should be adjusted until a reading of between 600 and 900 millijoules/square centimeter ( $\text{mj}/\text{cm}^2$ ) is obtained on the radiometer. Keep in mind that some systems may require values outside of this range in order to completely cure UV materials. Always verify curing completeness of UV materials in an initial process capability study, and then use the optimal curing energy readings as a set up parameter each time the UV line is set up to run production.

## Health & Safety

Products manufactured by Applied Ink Solutions are intended for use in an industrial environment by trained personnel. Please follow proper health/safety processes regarding storage, handling and processing of the products.