



## Photo-curing Adhesive for Lens Focus Bonding

### Product Description

FR448-1 is photo-curing adhesive. This product can fast cure under ultraviolet light(365nm). Cured resin has toughness and thermal shock resistance. Good adhesion strength after passing environmental aging test. It is suitable for fixing and bonding materials between plastics and plastics, and can be rapidly cured under the visible light. It is especially suitable for the fixed illumination of the point light source after the lens and lens holder are focused.

### Features

1. This product has excellent toughness, good shock and thermal shock resistance.
2. This resin exhibits good weather and aging resistance.
3. This product has high adhesion strength to plastics.
4. This resin is able to be reworked without resin residue. It has strong cohesive force.
5. This product complies to the 2011/ 65/EU RoHS regulations.
6. This product complies to chlorine < 900ppm, bromine < 900ppm, chlorine + bromine < 1500ppm.

### Typical Uncured Properties

	FR448-1
Chemical composition	Acrylic resin
Appearance	Liquid
Color	Black
Viscosity* 25°C, S14 100rpm, cps	8,500
Thixotropic Index	>3.9
Specific Gravity@25°C	1.08
Solvent Content, %	0
Heavy Metal Content, %	0
*This value is for reference. Please refer to COA for the actual value.	

### Typical Curing Properties

Curing Equipment: Mercury Lamp / Halogen Lamp	
Recommended Wavelength, nm	310~420
Main Wavelength, nm	365
Minimum Light Intensity, mW/cm <sup>2</sup>	> 50
Minimum Light Energy, mJ/cm <sup>2</sup>	>5,000

Curing Equipment: LED Light	
Main Wavelength, nm	365/395
Minimum Light Intensity, mW/cm <sup>2</sup>	> 50
Minimum Light Energy, mJ/cm <sup>2</sup>	>5,000

### Direction of Use

1. It should be applied to a clean surface which is free of dirt, grease or mold release. In many cases, a simple solvent wipe is sufficient.
2. Cure time on the really part will depend upon factors such as part geometry, materials to be bonded, bondline thickness and efficiency of the UV light. Cure schedule should be confirmed with actual production parts and equipment.

3. Please standardize the UV lamp intensity and illumination. Over exposure will not affect the resin properties, but the resin properties will be changed if there is not enough exposure. The resin may have lower reaction rate and may not pass the environmental test experiments.
4. This product may cause skin irritation to sensitive personnel.
5. If stop using it for a long time, please remove the needle and put the plug to seal the hose after opening for use, so that it can be stored in the workshop environment for 7 working days.
6. When using the opened product again, be sure to remove the plug and drain off the 2ml of adhesive in the front section, then install a new needle before use. Please use it within seven days after opening.
7. It is recommended to use UV-resistant needles.

### Typical Cured Properties

Appearance	Matte black
Glass Transition Temp.,(TMA), °C	40.56
CTE* (<Tg), μm/m/°C	78.1
CTE* (>Tg), μm/m/°C	225
Durometer Hardness, ASTM D2240-03, Shore D	73
Volume Shrinkage, %	≤ 6%
Extension at break, %	144.15
Young's modulus, (DMA)	1.72
Water Absorption Ratio, %(Boiling water 2hr)	<2%

\*CTE: Coefficient of Thermal Expansion

### Storage and Shelf Life

This product should be kept without any possibility of light exposure. Replace the lid immediately after use. This product has one year minimum shelf life when stored in dark place below 14~34 °C in original, unopened containers.

### Caution

Some findings indicate a lack of potential for carcinogenicity with the compositions of this product by long term recurrent application to the skin. However, contact with skin is likely to produce mild transient reddening. It is important to remove adhesive from skin with soap and water thoroughly. DO NOT use solvents for cleaning hands. This product is of moderate acute toxicity by swallowing. If swallowed, call a physician. Avoid contact with eyes. In case of contact, flush with water for at least 15 minutes and get medical attention immediately. For specific information on this product, consult the Material Safety Data Sheet.