



# FS-2400 and FS-2500

## Optically Clear Working Stamp Resins for Photo NIL Applications

### ADVANTAGES FEATURES:

- Fluorine free UV curable working stamps
- High Tg and high elastic modulus
- **Excellent Chemical Resistance** (high resistance to etching from imprint resins): minimize height gain for multiple imprints
- Excellent mechanical, and thermal stability
- **NO ANTI-STICK Layer is needed**
- Optically clear
- Solvent Free – ready to use
- Long shelf life at room temperature

**APPLICATIONS:** Working Stamp fabrication

**PRODUCT DESCRIPTION:** UV-curable acrylate material for radical polymerization

### GENERAL USAGE INFORMATION:

**Storage:** room temperature storage (15-30°C) in the original container is required.

### SAFETY AND HANDLING

The uncured adhesive can be cleaned with isopropyl alcohol (IPA), methyl ethyl ketone (MEK), acetone, or xylene. Avoid direct skin and eye contact. Use only in well ventilated areas. Use protective clothing, **gloves and safety goggles**. Read [Safety Data Sheet](#) before handling.

TDS updated: V1-112023

### APPLICATION NOTES:

#### Master Stamp or Master Mold preparation:

To protect the master Stamp/Mold surface the use of a release agent or antistick agent is recommended. The common anti-stick or release agent is perfluorooctyltrichlorosilane (CAS # 78560-45-9).

#### Substrate conditions:

To obtain the optimal performances for FS-2400 and FS-2500, plastic or glass substrates should be primed or should have adhesion promotor layer.

**Dispense process:** droplet dispense method for capillary flow, or casting method, or spin coating method are suitable for film forming

Suggested spin conditions for spin coating method for 10 micron layer thickness:

Speed: 3,000 to 3,500 rpm

Time: 25 to 35 seconds

Acceleration: 800 to 1,000 rpm/sec

A droplet dispense / Casting method can avoid excess use of working stamp resin

**Layer thickness:** 5 to 200 micron

### UV CURING CONDITIONS:

\*Metal halide / Mercury UV: UV-A (320-400 nm), intensity: 50-1,000 mW/cm<sup>2</sup>

Suggested curing conditions: 200 mW/ cm<sup>2</sup> x 50 sec

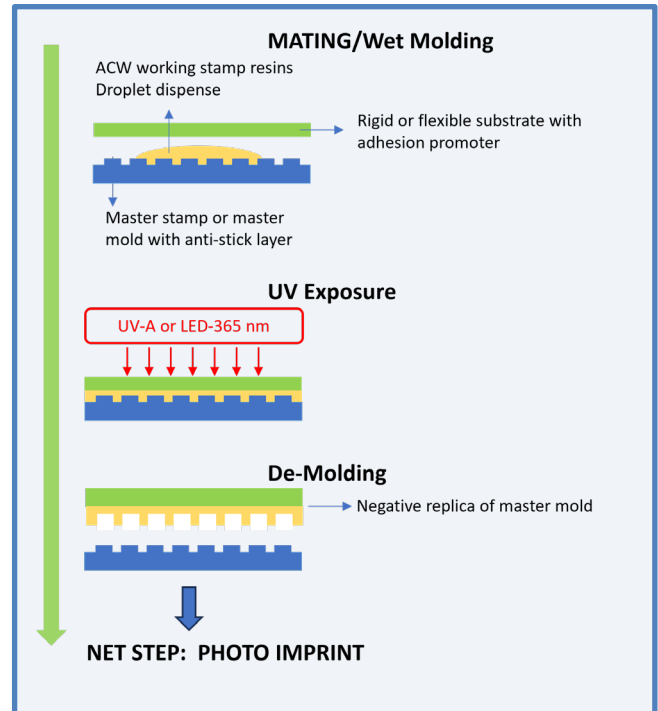
Atmosphere: cure between two substrates or in an inert atmosphere (oxygen-free)

\*or LED-365 nm, UV light intensity: 100 to 1,000 mW/ cm<sup>2</sup>

Suggested curing conditions: 200 mW/ cm<sup>2</sup> x 100 sec

Atmosphere: cure between two substrates or in an inert atmosphere (oxygen-free)

### WORKING STAMP PROCESS FLOW:



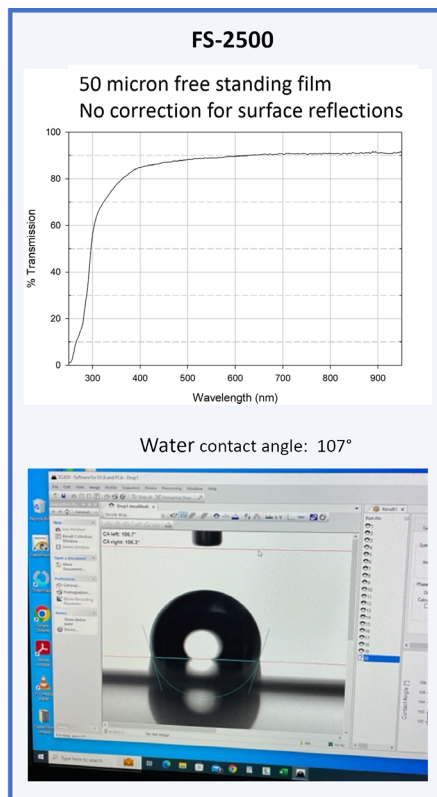
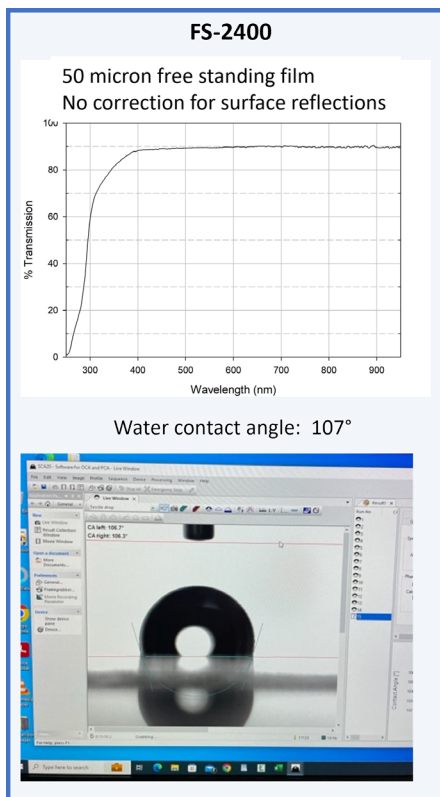


## FS-2400 and FS-2500 (continue)

**Processing environment:** process at temperature between 20 – 30 °C at relative humidity of 40-60% and process under yellow light.

### TYPICAL PROPERTIES:

Before cure (liquid)	FS-2400	FS-2500
Viscosity (cps, 25 °C)	600 - 700	850 - 950
Density (g/mL)	1.1	1.1
Shelf life (15 - 25 °C)	6 months	6 months
Working life (20 - 30 °C)	3 months	3 months
After curing - cured film	FS-2400	FS-2500
Volume shrinkage (%)	3-5	2-3
Tg (DMA, °C)	155	113
Young's Modulus (Gpa)	2.5	1.7
Elongation (%)	3	6
Contact angle of water in air (°)	107	107
% Transmission (400 to 900 nm)	>90	>90
Refractive index @ 589 nm	1.504	1.504



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