

Technical Datasheet	MS10100050
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Thermally Dried Etching Resist Ink

X-77

1. Features

X-77 is thermally-dried alkaline-removable etching resist ink, with excellent printability.

2. General specifications

Color	Black
Viscosity	120 dPa-s (cone plate viscometer, 5 min ⁻¹ /25 °C)
Specific gravity	1.4
Standard curing condition	Hot air convection oven, 10 to 20 minutes at 60 °C, or 3 to 7 minutes at 100 °C
Product life	8 months after the production date, stored in dark place with the temperature less than 25 °C.



3. Process

	Control Range
Board:	FR-4, 1.6 mm thick
Pretreatment:	Acid cleaning- Buff scrubbing (#600 + #1000)
Printing:	300 mesh, polyester screen
Dry:	Hot air convection oven, 100 °C, 4 minutes
	225 to 300 mesh
	100 °C, 3 to 7 minutes

4. Process recommendations

- Recommended operation environment is a clean room of 20 to 25 °C temperature and 50 to 60 % RH.
- First let the temperature of the ink to reach the room temperature, then open the can and stir sufficiently before use.
- The optimum coating thickness is 12 to 15 μm, as measured after drying on the copper foil surface. Thinner coating tends to lower resistance to etchant. Thicker coating tends to lower drying property and resistance to etchant.
- Curing condition varies, depending on the coating thickness and the type of the drying oven. Verification tests should be conducted to define the operating conditions.
- Screen can be cleaned with ether-based or ester-based solvent cleaners.
- The ink should be used as it is. If the printing is difficult due to high viscosity, the ink can be diluted with Reducer B. However the reducer amount should be less than 2 wt %, since the excessive dilution can reduce the end properties.

5. Handling instructions of this chemical

All kind of chemicals should be handled with extreme care, since any chemicals can have unknown harmfulness prior to use this material, you should refer to the related material safety data sheet (MSDS) and usage instruction manual for the necessary instructions for handling this material.

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6. End properties

Test Item	Test Condition	Results
Adhesion	Crosscut test by JIS D0202	100/100
Resistance to etching solution	Cupric chloride 200 g/l Concentrated HCl 150 g/l Peel test after immersion for 20 minutes at 50 °C	Pass
Stripping property	Immersion method, 1 % NaOH solution, 40 °C	15 seconds

Remarks:

- The contents of this technical datasheet are based on the results of our extensive experiments.