



UNION INKS

Product Information

THERMAL MARKING INKS FPC SERIES

TIL NO: FPC

PROPERTIES

Two Components Epoxy - Based (FPC ink and FPC – C191 Hardener) screen printing thermal legend ink specifically formulated for flexible circuits. Available in White **FPC-W100** and Black **FPC-K100**. It features-

- Excellent adhesion on flexible circuits and Polyimide base materials.
- Excellent flexibility
- Fully withstands soldering fluxes and most aggressive solvents.
- Features exceptional print definition for its thixotropic properties.
- Withstand most aggressive solvents and fluxes.
- Grant outstanding mechanical properties (hardness, adhesion, resistance to shearing).

TECHNICAL DATA

- Viscosity: 160 – 200 poise (Brookfield RV7/50 @ 28° C)
- Specific weight: 1.30 - 1.40
- Flash point: 60° C (Tag closed cup)
- Solids content: 65-70 %
- Curing temperature: 150° C for 20-30 minutes air convection oven.
- Hardness of film: 2 - 3 H
- Solvent and flux resistance: Isopropyl alcohol, aromatic/aliphatic hydrocarbons, organic acid and most common fluxes.
- Shelf life: 12 months from manufacturing date at room temperature of 25° C.

SURFACE PREPARATION

Oxidation or other contaminants like grease or oil may lower ink adhesion. It is therefore necessary to clean the surface by wet mechanical brushing followed by thorough drying to get good ink adhesion. Boards have to be printed just a few hours after surface preparation.

SCREENS

Stencils may be either direct; indirect or direct/indirect with polyester monofilament 77 - 120T cm⁻¹. Preferably use type PET fabrics tensioned at angles between 22.5° and 45°. Mesh count affects ink deposit and consequently insulation properties.

CATALYST

Ink must be thoroughly mixed with Hardener FPC-C191 according to following weight ratio: **750 grams of inks to 250 grams of catalyst**. Pot life at ambient temperature varies between 6 - 8 hours.

THINNING

No thinning is normally required since ink viscosity is formulated to achieve maximum results. However, if necessary, Reducer 99-T40 can be added up to 5% to the already catalysed ink.

PRINTING

Carefully stir ink prior to use. Use well sharpened squeegees, 70 - 75 shore hardness. For even and sharp prints without ink lacks/skipping, following parameters should be considered:

- Set stencil or squeegee at an angle of 7° approx.
- Apply the lowest possible pressure over squeegee and a slow and constant progress speed.
- Flood-bar unit must flood ink uniformly without exerting pressure.

CURING

Curing is achieved in hot air, infrared or mixed hot air/infra-red dryers. Temperatures and dwell times depend on kind of dryer and circuit. Curing temperature must not be lower than 150° C approximate. In hot air oven, curing time is about 20-30 minutes @ 150° C.

In Infrared dryers, this process takes 3-5 minutes depending on the maximum temperature allowed by the kind of circuit board used.

WASHING UP

Uniwash 99-SW113 is recommended. Once printing is over or whenever breaks might occur, screen washing is necessary to avoid irreversible mesh clogging.

PRECAUTIONS FOR USE AND STORAGE

This material is not hazardous when used with a reasonable standard of hygiene and safe working practice. However, as with all chemicals, skin contact should be avoided and any contamination must be washed with plenty of water. In case of eye contamination, irrigate with plenty of water and seek medical advice. Store product in a cool place and shelf life is one year provided the product is stored in their original sealed containers.

WARNING

This information is given in good faith, but without any guarantee as the printing conditions of our inks are beyond our control. In the event of complaints, the ink supplier may replace free of charge the unused ink, declining any other responsibilities.