

PHOTO EMULSION MR-100

PURPOSE

The engraving of rotary nickel screens by direct emulsion method using heat curing.

PROPERTIES

High resolution emulsion for universal use. Easily processed standard emulsion with excellent resistance. Available in container size of 10 kg. & 30 kg. Blue color (White color available on request) with at least 6 months shelf life from the date of manufacturing. Storage to be done in dark place with temperature not exceeding 30°C.

APPLICATION & COATING

Proportionately sensitizer 1.000 gm Photo Emulsion MR-100 with 50 gm Sensitizer There are two ways of coating with Photo Emulsion: Hand Coating and Machine Coating Following steps needs to be followed under

HAND COATING:- (A) Round reinforcing rings should be inserted at each end of the cylinder, that should be placed in an up-right position The emulsion should be applied at an even speed, approx . 50cm/sec, using a circular rubber squeegee. The coating should be applied starting at the base and working up to the top of the cylinder.

(B) Depending on the screen mesh count. 2 or 3 additional coats should follow, with intermediate drying in between coats at a temperature of 20-30°C A drying cabinet with air circulation is recommended for this process.

(C) Particular attention should be given to the circular rubber squeegee, with regard to the thickness and quality of the applied coating the basic requirements for a good squeegee are material thickness and firmness of the rubber freedom from cracks and dirt and most importantly optimum circumference.

MACHINE COATING :- requires an emulsion layer to be applied to a rotary screen in a single coating action, the thickness of which equates to several hand coating layers. The viscosity of the photo emulsion may be adjusted to suit machine application on variable speed-coating machines by diluting a standard emulsion with approx. 20% distilled water

The coating of emulsion can be considered dry when it is no longer sticky to touch and when its milky appearance has turned semi-transparent the screen when dry is then ready

for exposure, but production requirements may not call for immediate use and the screens may have to be stored until required.

STORAGE & EXPOSURE

The coated rotary screens may be stored before exposure in a dry place for 7-10 hrs at a temperature of 20-25°C powder the surface of spring support with a good quality talcum to prevent the rotary screen sticking to the rubber of the mandrel. Place the screen on the mandrel and powder the emulsion surface to prevent sticking to the positive film.

Exposure times are dependent on any of the following combinations: cylinder-mesh emulsion coating thickness image-pattern UV-light absorption of film or positive and above all type of light source. Photo emulsions are extremely sensitive to UV-light and it is impossible to indicate precise exposure times for all conditions. However exposure times range from 6-20 minutes. Modern exposure equipment using xenon, metalhalide or similar lamps give optimum exposure within 2-3 min. During exposure the exposed areas of colorless emulsion should turn light brown while the pre-dyed emulsions will change from light green to dark green when in doubt a slightly longer exposure is preferable to a shorter one. It is essential for good results that the screen is not heated by the light source above a temperature of 40°C.

DEVELOPING & CURING

Immediately after exposure screens should be immersed in a bath of cool water (approx. 20°C) for at least 5-10 min (preferably longer) then agitate the cylinder gently until the unexposed areas of emulsion swim off. Then remove the screen and hose down with a low pressure cold water spray until the image is completely defined repeat this process on the inside of the screen after developing the rotary screens should be dried at room or slightly elevated temperature (not more than 40°C) until it is touch dry. Then CURING should follow for 1 hour at 170-180°C only this temperature range ensures complete resistance to almost all known printing pastes etc. it must be considered many curing ovens have wide temperature variations between the top and bottom. So it is absolutely essential to make sure that the required minimum temperature (not below 140°C) is achieved in the coolest part of the oven To eliminate these temperature variations the screen should be turned upside down after approx 30 min we have found that the main cause of temperature variations is insufficient air flow and hence heat loss. Evidence of this can be observed on the screen as the emulsion doesn't have uniform color over the length of the screen when a screen is under cured due to low temperatures the emulsion will not have optimum chemical resistance and when a screen is over cured the nickel may get damaged due to excessive temperatures.