



Silk Screen Inks

Products Information

www.sabinecolors.com



Diazol U99HB

PROPERTIES

Diazol U99HB is a Diazo sensitized, two-pack photopolymer emulsion. This light blue, dual cure emulsion is designed for the production of PCB solder masks or for applications where very high builds are required.

INSTRUCTIONS FOR USE

Safelighting

Diazol U99HB should be handled in a room with low ultraviolet light. Special safelight is not essential, but yellow or weak illumination is desirable. When used in the general workroom, it is recommended that gold fluorescent tubes be used and daylight be excluded or filtered by a yellow lacquer coating or film applied over the windows. To check whether the light in the workroom is suitable for the handling of sensitized emulsions, coat the screen with the emulsion and then dry. Cover half of the screen with black paper and leave the screen inside the room for at least 20 minutes before rinsing with water. If there is no emulsion stain left on either side of the screen the light in the workroom is suitable.

Sensitizing

Diazol HB is supplied as a two-pack system consisting of the following:

Part A – Emulsion

Part B – Diazo Sensitizer powder

These two parts should be mixed as follows:

1. Empty the contents of the foil sachet into the bottle provided.
2. Add water until the bottle is approximately **2/3** full.
3. Replace the cap and shake the bottle well until the contents have dissolved.

For customers who like to use the emulsion at higher or lower viscosity, the sensitizer can be added directly to the emulsion or dissolved in a full sensitizer bottle of water depending on individual preferences.

When adding the sensitizer powder directly to the emulsion care must be taken to ensure the product is thoroughly mixed.

Preparing the Screen

When degreasing the screen use DEGREASER P-6419. Wet the screen with water and apply DEGREASER with a sponge or brush in a light circular motion to ensure that both sides of the screen are thoroughly treated. Leave the screen to stand for a few minutes and then rinse with cold water to remove all traces of DEGREASER. Allow the mesh to dry before coating. New screens should be braded with SCREENPREP (SPR034) before use for optimum stencil durability.

Coating

Manual

Set the screen on edge slightly inclined away from the operator and then follow this procedure:

1. Apply one or two coats of Diazol U99HB, wet on wet, to the print side of the screen.
2. Apply one or two coats of this emulsion, wet on wet, to the squeegee side of the screen.
3. If a higher build of Diazol U99HB is required extra coats should be applied, wet on wet, to the squeegee side.
4. Ensure that a suitable coating trough is used to deposit an accurate and consistent coating of emulsion.

Automatic

When using an automatic coating machine, a simultaneous single coat on each side of the screen is recommended.

If higher builds are required, extra coats should be applied to the squeegee side of the screen.

Drying

The wet screen must be dried in darkness or subdued yellow light, ideally in a horizontal position, squeegee side up. Warm air or a well-ventilated heated cupboard (up to 40oC/105oF) may be used, however, special care should be taken not to blow the dust onto the drying screen. Ensure the screen is thoroughly dry before exposure for maximum print durability.

Positioning the Positive Film

1. Position the positive, emulsion side in contact with the Diazol U99HB coating on the print side of the dry screen, securing it with small pieces of clear tape.
2. Place the complete screen into vacuum frame and ensure perfect contact before exposure.

Exposure

Correct exposure is the most important factor in obtaining optimum resolution, definition and stencil life. To set the correct exposure time with an unfamiliar emulsion or light source the use of an exposure test scale is recommended. This can be done in two ways as follows

1. Place a on the print side of the emulsion and then expose for a suitable time depending on the type of mesh; the distance between the screen and the light source; and the light intensity (the ideal test exposure would be double the correct exposure). After exposure, develop the stencil so that the appropriate exposure values can be determined. The correct exposure is the longest exposure that can be given whilst still obtaining optimum stencil resolution.
2. Place a strip of fine detail positive film over a coated screen and use a black paper mask to give it a series of stepped exposures. The exposure time is doubled from one step to the next. The correct exposure is the longest exposure given while still obtaining optimum stencil resolution after development.

Comments: The exposure time depends on a number of factors including, the type of light source, the mesh count, the emulsion thickness, the detail required and the color of the screen mesh as well as the transparency of the positive film and the glass clarity of the vacuum frame.

Table of Exposure Guide
Using 62-64 White Screen Mesh with both sides coated twice with sensitized emulsion

Light Source	Distance	Length of Exposure Time (Seconds)
125W HPR Mercury Vapour Lamp	50 cm	585 - 565
50 Amp Open Carbom Arc	120 cm	1000 - 1300
1000W Metal Halide	120 cm	585 - 565
2000W Metal Halide	120 cm	285 - 335
3000W Metal Halide	120 cm	190 - 300
5000W Metal Halide	120 cm	115 - 135
6000W Metal Halide	120 cm	95 - 115

Comments: the exposure values quoted are the time needed for full curing and therefore complete hardening of the sensitized emulsion on 62-64 White screen mesh, coated twice on both sides. For multifilament, stainless steel, colored mesh and heavily coated stencils, longer exposure is required. Very high coating weights will have a significant effect on the exposure time-see table below.

Table of Comparison between Thickness and Exposure Time for U99HD

	Average thickness of emulsion (microns)
Exposure time*	Polyester 24-120 W
50 seconds	80
100 seconds	160
150 seconds	230
200 seconds	300

Exposed using 3000W Metal Halide light source at 120 cm.

Developing and Final Drying

Place the screen in a washout booth and gently spray both sides with cold or warm water (not over 40oC/105oF). After one or two minutes, increase the spray pressure slightly. Continue developing until all parts of the image appear clean and sharp. With thick or heavily coated stencils, leave to stand wet for a few minutes before starting spray development. After spray development is completed, dry the screen with the aid of a warm air fan or drying cabinet.

Spotting

Place the screen in front of a white or yellow light source and check for pinholes or blemishes. These are usually caused by dust specks or spots on the positive film or vacuum frame glass. Spot out with suitable filler.

Reclaiming the Screen

Remove ink residues by applying Screensolve (SS0038) and then rinse the screen with water. Apply Screenstrip (SSP-150) or Screenstrip Gel (SSG-155) thoroughly to both sides of the stencil. Leave for a few minutes and use a strong water jet or high-pressure water gun to remove the stencil.

Ghost Image Removal

Stains on the mesh can be removed by using either a combination of Screensolve (SSO038) Please refer to the appropriate product information sheet for correct use.

STORAGE

Unsensitized U99HB should be stored in as cool a temperature as possible not below 0oC/32oF or over 35oC/95oF U99HB be stored for up to 4 years under this condition. Diazo sensitiser should be stored under similar conditions and can be stored for 1 year. Ideally, sensitiser should be stored in a refrigerator at 4-6oC for optimum shelf life. Sensitized U99HB Id be stored under similar conditions has a shelf life of 4 weeks. Screens coated in advance will last for approximately 4 weeks if stored at 20oC and in complete darkness. With longer storage of pre-coated screen, the emulsion can absorb moisture from the environment. It is therefore advisable to dry again prior to exposing.

SAFETY AND HANDLING

Diazol U99HB Emulsion should be used with care. Wear suitable PPE, for example, appropriate gloves and safety glasses.

Diazol HB Emulsion:

Is free from any toxic, carcinogenic, mutagenic and reprotoxic chemicals
Does not have a flashpoint and is, therefore, exempt from the Highly Flammable Liquid Regulations

TECHNICAL SERVICE AND INFORMATION

For further information or other relevant data, please do not hesitate to contact us. Sabinecolors has a team of well-trained personnel who are ready to give help and advise regarding product information and application.