

# 6061-404 One Pot High Build Emulsion

## Technical Data Sheet

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**One Pot High Build Emulsion 404** is a Pre-sensitized emulsion, specifically formulated for screen printing applications requiring a thick stencil build-up. It is specifically designed for the production of PCB solder masks for applications which require high build because of its very high viscosity and high solids.

- Excellent resolution and definition
- Fast exposure time (Depends on thickness)
- Very good mesh bridging/ Excellent mesh bridging

When printing with water-based or discharge inks, use Screen Hardener 6050-101 (supplied separately upon request) for maximum resistance.

### PHYSICAL DATA:

Ink resistance:	Solvent-based and Plastisol
Colour:	Light Blue
Consistency:	Liquid
Viscosity:	140-160 at 25°C (Spindle 4 / Speed 5)
Solid Content:	44-46 %
Coated screen life:	1 week at 20°C
Emulsion life:	1 year at 20°C
Exposure time:	40-60 seconds (3000w metal halide lamp at 1.2m)

NOTE: Screens coated in advance will last for approximately 1 week if stored at 20°C 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.

### INSTRUCTIONS FOR USE:

Handling of **One Pot High Build Emulsion** should be carried out in light of low blue and ultra violet content. A photographic safelight is not essential, but it is advisable to use yellow or weal tungsten illumination. A useful form of light for the workroom is provided by gold fluorescent tubes and daylight should be excluded or filtered by a yellow lacquer coating or film over the windows.

### PREPARING THE SCREEN:

When degreasing and abrading new mesh by hand, use Mesh Preparation 6050-300. Mesh must be free of dirt, dust, ink residues and ghost images. Wet the screen and apply on a sponge or brush and then rub the mesh in a light circular motion. Ensure that both sides of the screen are thoroughly treated. Leave to stand for a few minutes and rinse with cold water to remove all traces of 6050-300. Allow the mesh to dry before coating.

### COATING PROCEDURE:

Stand the screen on edge slightly inclined away from the operator and process the screen as follows: Using a coating trough, apply one or two coats, wet on wet, on the print side of the screen and then apply extra coats on the squeegee side of the screen depending on the stencil build required.

### DRYING OF THE COATED SCREEN:

Dry the screen in a horizontal position, squeegee side up, in darkness or subdued yellow light. A warm air fan or well ventilated heated cupboard (up to 40°C) may be used but care should be taken not to blow dust on to the drying screen. Avoid humidity levels above 60% or below 20%. Ensure the screen is thoroughly dried before exposure for maximum print durability.

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### EXPOSURE:

Before exposing the screen, ensure that the surfaces, emulsion, film and glass are free of dust to minimize pinholes. Place the screen in a suitable vacuum frame and expose. Exposure time varies depending upon mesh type used, light source, distance from lamp to mesh and coating thickness. Performing an exposure test to determine correct exposure time for a complete cure can be done by:

1. Using exposure calculator.
2. Placing a fine detail positive film over a coated screen and giving it a series of stepped exposures using black paper mask. The exposure time is usually doubled from one step to the next. The correct exposure is the longest exposure that can be given whilst still obtaining optimum stencil resolution and definition after washout. Over-exposed areas would result in loss of detail, whilst under-exposed areas may result in weak, thin stencils. Position the positive, emulsion side in contact with the **One Pot High Build Emulsion 404** coating, on the underside of the dry screen, securing with tape. Then place the complete screen into the vacuum print down frame and ensure perfect contact before exposing to light. The length of exposure time depends on the light source, the thickness of the **One Pot High Build Emulsion 404** coating, the fineness and colour of the mesh, and the transparency of the background of the positive.

### DEVELOPING:

Gently spray both sides with cold or warm water. Continue washout from print side, using increased water pressure after one minute, if necessary. Continue developing until all parts of the image appear clean and sharp. Screens with a thick emulsion coating can benefit from being left to stand wet for a few minutes prior to washout. Dry the screen completely in a drying cabinet or with the aid of a warm air fan.

### SPOTTING AND MASKING OUT:

Spotting out with a brush using Screen Filler (6050-001) can fill in any small blemishes or pinholes in the stencil. The same filler is recommended for blocking out between the edges of the stencil and the frame.

### RECLAIMING THE SCREEN:

Ensure the screen is completely cleaned of ink residues before decoating. Remove ink residues using cleaning agent (Stain Remover 6070-001), rinse the screen with water and then apply diluted decoating powder (Stripping Powder 6070-200) to both sides of the stencil. Scrub area with a stiff nylon brush to ensure entire surface is wet. Leave for a few minutes but don't allow the stencil remover to dry on the screen. The stencil can then be easily removed using a high pressure water gun. For ghost images, use the manufacturer's recommended chemical (Ghost Remover 6070-100).

### HANDLING AND STORAGE:

- It is recommended to wear suitable protective goggles and gloves. Take particular care to avoid splashes into the eyes and skin contact. If this does occur, rinse immediately with plenty of water. In case of splashes into the eyes, seek medical advice.
- Comprehensive information on the safety and handling of **6061-404 screen emulsion** is given on the appropriate Smiley Material Safety Data Sheet (MSDS), which are available upon request.
- **6061-404 One Pot High Build Emulsion** should be kept in a cool area between 18-25°C, away from heat, light and organic matters (food, drinks, etc.).
- Containers should be tightly closed immediately after use.
- Unsensitized emulsion can be stored for 1 year under these conditions. Sensitizer should be stored under similar conditions and can last for 1 year.

### ENVIRONMENTAL INFORMATION:

This product is not considered hazardous in general. The working solution can generally be emptied into the drains however larger quantities should be disposed of according to local regulations.

### PRODUCT OFFERING:

**Packaging: 6061-404 is available in 1 kilo, 5 kilos and 20 kilos containers.**

### ADDITIONAL INFORMATION

For additional product information, please visit our website at <http://www.smiley.co.th>. For further information, please contact SPS personnel at [medhi@smiley.co.th](mailto:medhi@smiley.co.th).

Thank you for choosing **SMILEY**.

Smiley Printing Solution Co., Ltd. (SPS), abides by the quality of this product. The information and recommendations that embody this Technical Data Sheet along with the technical advice are based solely on our knowledge and therefore confident to be precise. This product has been specifically formulated for screen printing. SPS cannot guarantee the precision for other possible application for the reason that manufacturing methods and other materials vary. Any liability amalgamated with the use and application of these products, users are the sole bearer of responsibility for choosing appropriate product for end-users' requirement. This Technical Data Sheet is provided for the technical purpose in the usage of this product and users are expected to follow current recommendation.

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