

# Etch and plating resist SD 2050 UV

The etch and plating resist **SD 2050 UV** is applied as a positive print and is resistant to acid and alkaline etching and plating baths up to pH 9.

- High definition application by screen printing
- enables the representation of 150 µm structures
- deep blue adjustment offers good contrast to the substrate
- can be stacked tack-free immediately after UV curing
- can be used to etch 400 µm copper
- excellent adhesion and high surface hardness
- alkaline strippable

## Characteristics

Colour/appearance	blue
Solids content	100 %
Viscosity* at 20 °C [68 °F], DIN EN ISO 3219	23 000 ± 4 000 mPas
Density at 20 °C [68 °F], DIN EN ISO 2811-1	1.25 ± 0.05 g/cm³

\* measured with Haake RS 600, C 20/1°, D = 100 s<sup>-1</sup>, viscosity measuring unit supplied by:  
Thermo Fisher Scientific, Dieselstraße 4, 76227 Karlsruhe, Germany  
Phone +49 721 4094-444, Fax +49 721 4094-300, [www.thermo.com](http://www.thermo.com)

Indices: SD = screen printing, UV = UV curing

## Processing



Please read this technical report and the publications listed below carefully before using the product. These sheets are enclosed with the first shipment of product or sample.

### MSDS

The corresponding material safety data sheet contains detailed information and characteristics on safety precautions, environmental protection, transport, storage, handling and waste disposal.

### TI

Technical information TI 15/3 "Protective measures when using chemicals including lacquers, casting compounds, thinners, cleaning agents"

### TI

Technical information TI 15/13 "Precleaning in the pcb fabrication process"

The etch and plating resist **SD 2050 UV** is applied by means of screen printing. Since UV curing inks do not contain solvents no drying on the screen takes place. However, the presence of UV radiation (sun light or UV lamps) causes the ink to cure. For this reason, it is indispensable to use yellow light and/or yellow filters/UV protective foils.



Protect from UV light

Since the many different permutations make it impossible to evaluate the whole spectrum (parameters, reactions with materials used, chemical processes and machines) of processes and subsequent processes in all their variations, the parameters we recommend are to be viewed as guidelines only that were determined in laboratory conditions. We advise you to determine the exact process limitations within your production environment, in particular as regards compatibility with your specific follow-up processes, in order to ensure a stable fabrication process and products of the highest possible quality.

The specified product data is based upon standard processing conditions/test conditions of the mentioned norms and must be verified observing suitable test conditions on processed printed circuit boards.

Feel free to contact our application technology department (ATD) if you have any questions or for a consultation.

### Safety recommendation

→ When using chemicals, the common precautions should be carefully noted.

### Viscosity adjustment

The etch and plating resist **SD 2050 UV** is adjusted in such a manner that it can normally be processed in the condition supplied. To reduce its viscosity for processing purposes

**DIL** dilute with max. 1 % of reactive thinner **VR 5006**

Since the reactive thinner **VR 5006** participates in the curing process it is not possible to choose any other thinner or solvent.

### Auxiliary products recommended

- **Anti-static spray HP 5500**  
prevents and eliminates electrostatic discharge occurring during screen printing; silicone- and grease-free
- **Defoamant HP 5914**  
for defoaming of alkaline baths with pH values > 10 (e.g. resist strippers such as caustic soda solution), silicone-free, biodegradable
- **Cleaning agent R 5899**  
for screen washing equipment, simply and safely to handle, no labelling in accordance with the German dangerous goods regulations required, extremely high flash point (> 100 °C [> 212 °F]), low vapour pressure < 0.1 hPa at 20 °C [68 °F], thus not affected by the EU-VOC regulation 1999/13/CE
  - **Cleaning agent R 5821**  
for screen washing equipment and the cleaning of work tools, high flash point (+32 °C [89.6 °F])
- **Cleaning agent R 5817**  
for the manual cleaning of screens and tools

## Screen printing

→ Ensure that the surface to be coated is clean, dry and grease-/oxide-free and that copper surfaces preferably have an average surface roughness of 2 µm.

### Screen printing parameters recommended

Screen fabric	Polyester 100–40 to 120–34 (old nomenclature: 100–120 T or HD) or corresponding steel fabric
Screen tension	at least 25 N/cm or as specified by the screen mesh manufacturer
Snap-off	as low as possible
Squeegee hardness	75 - 80 Shore-A, right-angled
Squeegee angle	70–75°

## Drying/curing

The etch and plating resist **SD 2050 UV** cures under the influence of UV radiation. High-pressure mercury lamps with a power consumption of 80 - 100 Watt/cm of arc length are suitable for this purpose.

→ Cure the etch and plating resist **SD 2050 UV** by applying 1 600–2 000 mJ/cm<sup>2</sup> of UV light energy.

The indicated light energy was measured with a Beltron\* UV Integrator. Equipment of other manufacturers may show different results.

→ Replace the UV lamps regularly acc. to the manufacturer's instructions as the emission spectrum of the lamps changes in the course of their life span.

→ Install operating time counters to control the life span.

\* Beltron GmbH, Siemensstraße 6-8, 63322 Rödermark, Germany  
Phone +49 6074 89199-0, Fax +49 6074 89199-29  
[www.beltron.de](http://www.beltron.de), [info@beltron.de](mailto:info@beltron.de)

## Etching/plating

Acid and alkaline etching and plating baths up to pH 9 can be used.

Besides on the thickness of the copper layer, the length of etch time depends on the type, the concentration and temperature of the etch medium. Long etch times may impair the etch resistance and the etch result.

On account of the large variety of plating baths available on the market, pre-trials are recommended to verify the suitability of the bath. In this context, pre-cleaning steps have to be checked in particular.

## Stripping of the etch and plating resist

→ Strip **SD 2050 UV** at approx. 50 °C [122 °F] in 3–5% NaOH or KOH solution.

The etch and plating resist **SD 2050 UV** decomposes completely when stripped.

## Standard packaging

	Packaging	Selling unit
SD 2050 UV	2 buckets of 6 kg	12 kg
VR 5006	can of 15 kg	15 kg

Partial lots of the selling unit / smaller quantities available against surcharge.

## Shelf life and storage conditions

Shelf life and storage conditions of the etch and plating resist **SD 2050 UV**:



Shelf life: In sealed original containers at least 6 months



Storage conditions: +5 °C to +25 °C [+41 °F to +77 °F]



Protect from UV light

Shelf life and storage conditions of the reactive thinner **VR 5006**:



Shelf life: In sealed original containers at least 6 months



Storage conditions: +5 °C to +25 °C [+41 °F to +77 °F]

For warehousing reasons, isolated cases may occur where the shelf life upon shipment is less than the shelf life indicated in this technical report. However, it is ensured that our products have **at least** two-thirds of their shelf life remaining when they leave our company. Labels on containers show shelf life and storage conditions.

## Disclaimer

All descriptions and images of our goods and products contained in our technical literature, catalogues, flyers, circular letters, advertisements, price lists, websites, data sheets and brochures, and in particular the information given in this literature are non-binding unless expressly stated otherwise in the Agreement. This shall also include the property rights of third parties if applicable.

The products are exclusively intended for the applications indicated in the corresponding technical data sheets. The advisory service does not exempt you from performing your own assessments, in particular as regards their suitability for the applications intended. The application, use and processing of our products and of the products manufactured by you based on the advice given by our Application Technology Department are beyond our control and thus entirely your responsibility. The sale of our products is effected in accordance with our current terms of sale and delivery.

Any questions?

We would be pleased to offer you advice and assistance in solving your problems. Samples and technical literature are available upon request.

**peters**  
Coating Innovations  
for Electronics