

Solder resist SD 2368 UV-SM

The solder resist **SD 2368 UV-SM** enables the so-called mass soldering along with simultaneous selective soldering.

- High definition application in screen printing
- through-curing even of thicker coatings
- for “print and etch”
- excellent adhesion
- generally compatible with lead-free processes
- suitable for Hot Air Levelling
- UL Recognised Component: best flame class V-0 acc. to UL 94, UL File No. E80315
- no embrittlement in case of multiple curing (e.g. subsequent prints)

Characteristics

Colour/appearance	green, silk-mat
Viscosity* at 20 °C [68 °F] ISO 3219	18 000 ± 2 000 mPas
Density at 20 °C [68 °F] ISO 2811-1	1.41 ± 0.05 g/cm ³

* measured with Haake RS 600, C 20/1°, D = 50 s⁻¹,
viscosity measuring unit supplied by Thermo Fisher Scientific, www.thermofisher.com

Indices: SD = screen printing, UV = UV curing, SM = silk mat

Physical and mechanical properties

Property	Test method	Result
Adhesion	IPC-SM-840E, 3.5.2.1	class H and T
Cross hatch	EN ISO 2409, ISO 2409 on copper on FR 4	GT 0 GT 0
Pencil hardness	IPC-SM-840E, 3.5.1 acc. to Wolff-Wilborn	3 H 3 H
Solvent resistance	IPC-SM-840E, 3.6.1.1	passed
Solder bath resistance	IPC-SM-840E, 3.7.1/3.7.2 IPC-TM-650, 2.6.8 UL 94	passed: 20 s at 265 °C [509 °F] passed: 10 s at 288 °C [550.4 °F] passed: 20 s at 288 °C [550.4 °F]*

* With a solder bath resistance of 20 s at 288 °C [550.4 °F] the solder resist **SD 2368 UV-SM** fulfils the required temperature resistance during the soldering process with lead-free solder.

Electrical properties

Property	Test method	Result
Dielectric strength	IPC-TM-650, 2.5.6.1	≥ 128 kV/mm
	IPC-SM-840E, 3.8.1	passed
Surface resistance	DIN EN 62631-3-2	≥ 2 x 10 ¹⁴ Ohm
Specific volume resistivity	DIN EN 62631-3-1	≥ 1.5 x 10 ¹⁵ Ohm x cm
Moisture and insulation resistance	IPC-SM-840E, 3.9.1	2.2 x 10 ⁹ Ohm class H and T
Comparative Tracking Index (CTI, Tracking resistance)*	DIN EN 60112 on FR 4 base material with CTI 225 with CTI 600	CTI ≥ 275* CTI ≥ 600*

* The CTI value of the coating depends, among others, on the tracking resistance values of the base material.

Optimum electrical insulation values can only be achieved when all flux residues are removed thoroughly from the printed circuit boards.

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](#) "Precognizing in the pcb fabrication process"

The solder resist **SD 2368 UV-SM** is applied by means of screen printing. Since UV curing inks do not contain any solvents there is no drying on the screen, but the presence of UV radiation (sun-light or fluorescent lamps) causes the ink to cure. Therefore the use of yellow light and/or yellow filters/UV protective foils is mandatory.



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.

Adjustment of viscosity

SD 2368 UV-SM 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 2 % max. of reactive thinner **VR 5006**

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

Auxiliary products recommended

- [ELPESPEC® anti-static spray HP 5500](#)
prevents and eliminates electrostatic discharge occurring during screen printing;
silicone- and grease-free
- [ELPESPEC® 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
- [ELPESPEC® cleaning agent R 5821](#)
- for the cleaning of equipment and work tools, high flash point (+32 °C [89.6 °F])
- [ELPESPEC® 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 mesh	Polyester 68-40 or 68-55 up to 100-37 or 100-40 (old nomenclature: 68-100 T or S) 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	75-80 Shore-A hardness, right angled profile
Squeegee angle	approx. 75 °

Drying/curing

The solder resist **SD 2368 UV-SM** is cured through UV radiation. High-pressure mercury vapour lamps with a power consumption of 80 - 100 Watt/cm arc length are suitable.

→ Cure the solder resist **SD 2368 UV-SM** using the following UV light energy:
2000-3000 mJ/cm²

The indicated light energy was measured with a Beltron UV Integrator*. Readings on equipment from other manufacturers may deviate from this value.

→ Since the emission spectrum of the UV lamps changes during their service life, it is mandatory to replace them regularly according to the manufacturer's instructions.

→ Install operation time counters in order to control the operating time.

*Beltron GmbH, Germany, www.beltron.de, info@beltron.de

Packaging

The packing units available are indicated in our offer which we will send you upon request.

Shelf life and storage conditions



Shelf life: In sealed original containers at least 9 months



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



Protect from UV light

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.

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