

Conformal coating spray

ELPEGUARD® SL 1307 FLZ/S

The conformal coating spray **ELPEGUARD® SL 1307 FLZ/S** is used to protect and insulate assembled pcbs so that they can fulfil higher requirements regarding reliability and service life. Owing to their very good resistance against moisture and condensation an excellent protection against corrosion (such as electro corrosion and migration) is possible.

- Base: acrylate resins (AR)
- fast physical drying
- practical spray can: ideal for pilot and low-volume series or for repair
- SL 1307 FLZ/& tested by Trace Laboratories-East acc. to **IPC-CC-830B** and **MIL-I-46058C**
- UL approval of SL 1307 FLZ/& acc. to **UL 94** and **UL 746E** (UL file no. E80315)
- can be soldered through at soldering iron temperature for repair or removed with the help of thinner **V 1307 FLZ** and reapplied afterwards
- used by leading suppliers of the automotive industry
- very good ageing and yellowing resistance
- temperature range from -65 to at least +125 °C [-85 to at least +257 °F]
- very good TCT (thermal cycling test) resistance:
-40 to +150 °C [-40 °F to +302 °F] or -65 to +125 °C [-85 to +257°F]
- mould resistant acc. to IPC-TM-650, 2.6.1.1., coefficient of growth: 0
- resistant to the 4-part noxious gas test acc. to DIN EN 60068-2-60 and BMW GS 95003-4
- suitable for coating flexible circuits ("flex-to-install", exposure to bend stress limited to time of assembly)
- suitable for lighting electronics/LED technology provided that the fluorescent agent does not interfere

Characteristics

Colour/aspect: colourless, fluorescent

Indices: SL = conformal coating, FLZ = fluorescent, /S = spray can

Physical and mechanical properties

Property	Test method	Result
Flexibility	IPC-CC-830B, 3.5.5	passed
Glass transition temperature T _g	DMA TMA	≈ -4 °C [24.8 °F] ≈ 45 °C [113 °F]
Coefficient of thermal expansion (CTE)	TMA	≈ 160 ppm/°C ≤ RT

Electrical properties

These values are reached after 7 days' storage at room temperature.

Property	Test method	Result
Dielectric strength	IPC-TM-650, 2.5.6.1 DIN EN 60243-1	60 kV/mm
Dielectric strength	IPC-CC-830B, 3.6.1	passed
Specific volume resistivity	VDE 0303, part 30/DIN IEC 60093 IPC-TM-650, 2.5.17.1	4.3 x 10 ¹⁴ Ohm x cm
Surface resistance	VDE 0303, part 30/DIN IEC 60093 IPC-TM-650, 2.5.17.1	2.0 x 10 ¹⁴ Ohm
Moisture and insulation resistance	IPC-CC-830B, 3.7.1 (65 °C [149 °F]/90 % R. H.)	passed
	85/85 test (3 d, 85 °C [185 °F], 85 % R.H.)	1.0 x 10 ⁹ Ohm
Thermal shock	IPC-CC-830B, 3.7.2 -65 to +125 °C [-85 to 257 °F]	passed
Hydrolytic stability	IPC-CC-830B, 3.7.3	passed
Comparative Tracking Index (CTI, tracking resistance)	DIN EN 60112 on FR4 base material with CTI 250 CTI 600	CTI > 600 CTI > 600
Resistance to condensation	based on ISO 6270-2 (BIAS 12 V, 40 °C [104 °F], 100% R. H.)	1.0 x 10 ⁹ Ohm
Salt spray test	BMW GS 95003-4	passed
Permittivity ε _r	VDE 0303, part 4	50 Hz: 3.8 1 MHz: 3.2
Dielectric loss factor tan δ	VDE 0303, part 4	50 Hz: 0.052 1 MHz: 0.036
TI (temperature index)	DIN EN 60216 (IEC 60216) issue 2001	125 °C [257 °F] (20 000 h)* 150 °C [302 °F] (5 000 h)*

* can be used in a temperature range of **-65 up to at least +125 °C** [-85 up to at least 257 °F]. Both at the lower and upper ends of this range the performance and reliability of the material can be negatively affected in some applications. In these cases, additional pre-trials and tests are required. Limit values for the classification of the TI were a 25 % loss in mass and/or dielectric strength in comparison to the appropriate reference values.

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.
AI	Application information AI 1/1 "Processing instructions for ELPEGUARD® conformal coatings (thin film coatings)"
TI	Technical information TI 15/3 "Protective measures when using chemicals including lacquers, casting compounds, thinners, cleaning agents"

→ Follow the instructions given on the spray can.

The yield of the conformal coating spray **ELPEGUARD® SL 1307 FLZ/S** depends on the population density of the printed circuit board and the thickness of the coating layer applied; experience has shown that one spray can is sufficient for coating 3-3.5 m².

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 recommendations

- When using chemicals, the common precautions should be carefully noted.
- Ensure that extractor units of workplace ventilation arrangements are positioned at solvent source level.
- Please also pay attention to national guidelines or directives concerning operating safety such as the German TRBS (technical rules for operating safety) and those concerning the handling of flammable liquids as for example the German TRbF (technical rules for flammable liquids) or European directives.

Auxiliary products recommended

- **Thinner V 1307 FLZ**
for removing the coating within repair
- **Cleaning agent R 5817**
for the cleaning of work place and tools/equipment

Drying/curing

Drying is finished after complete evaporation of the solvents. The drying parameters depend, amongst others, on the geometry of the assemblies, the population and ink layer thickness. In case of oven drying it depends on the oven loading, etc. The following data serves as a guideline:

	At room temperature (approx. +23 °C [73.4 °F])	In circulating hot air units
Drying (tack-free) acc. to DIN EN 60464 (IEC 60464)	approx. 25 min	—
Drying time prior to packaging	1-2 h	5-20 min at 50-80 °C [122–176 °F]

Standard packaging

12 spray cans of 400 mL. Partial lots of the selling unit available against surcharge.

Shelf-life and storage conditions



Shelf life: In sealed original containers at least 12 months



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



Protect against humidity

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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