ELPEGUARD®
peters

PTR PRELIMINARY TECHNICAL REPORT

Ultra-thin film coating ELPEGUARD® UTC 1507 FLZ/1 (SEP)

The ultra-thin film coating **ELPEGUARD® UTC 1507 FLZ/1 (SEP)** is a conformal coating based on synthetic rubber used for the coating of electronic assemblies. It is distinguished by very good crack resistance in thermal shock tests from -65 up to +150 °C [-85 to 302 °F] and high insulation resistance at high temperatures and high moisture (85 °C [185 °F] / 85 % RH).

The SEP product enables optimum conformal coating of assembled components and excellent edge coverage on sharp-edged components (sharp edge protection) for a high resistance in extreme climatic conditions.

- Base: synthetic rubber
- physical drying
- can be soldered-through at soldering iron temperature for repair purposes or removed with the help of thinner **V 1507 FLZ** and reapplied after repair
- very good ageing resistance
- temperature range from –65 up to +150 °C [-85 up to 302 °F]
- suitable for coating flexible circuit boards („flex-to-install“, exposure to bend stress limited to the time of assembly)

Characteristics

Colour/appearance	colourless, fluorescent
Solids content, DIN EN ISO 3251, 1 h, 125 °C, 1 g	18 ± 2 %
Viscosity* at 20 °C, DIN EN ISO 3219	1100 ± 200 mPas
Density at 20 °C, DIN EN ISO 2811-1	0.81 ± 0.05 g/cm³

* Rotational viscometer from Thermo Fisher Scientific, C 20/1°, D = 50 s^{-1}, www.thermofisher.com

Indices: UTC = ultra-thin film coating, FLZ = fluorescent, SEP = Sharp Edge Protection

Physical and mechanical properties

Property	Test method	Result
Flexibility	IPC-CC-830C, 3.5.5	passed
Thermal shock	IPC-CC-830C, 3.7.2 -65 to +125 °C [-85 to 257 °F]	passed

LP 262611 E-2 / 301611e_001

Electrical properties

Property	Test method	Result
Dielectric strength	IPC-TM-650, 2.5.6.1	≥ 70 kV/mm
	IPC-CC-830C, 3.6.1	passed
Specific volume resistivity	DIN EN 62631-3-1	≥ 1.0 x 10^{16} Ohm x cm
Surface resistance	DIN EN 62631-3-2	≥ 1.0 x 10^{14} Ohm
Moisture and insulation resistance	IPC-CC-830C, 3.7.1 (65 °C [149 °F]/90 % r. h.)	passed
	85/85 test (1000 h, 85 °C [185 °F], 85 % R.H.)	≥ 1.0 x 10^{10} Ohm
Comparative tracking index (CTI)	DIN EN 60112 on FR4 base material with CTI 275 CTI 600	 CTI ≥ 600 CTI ≥ 600
Resistance to condensation	according to DIN EN ISO 6270-2 (BIAS 12 V, 40 °C [104 °F], 100% r. h.)	≥ 1.0 x 10^{9} Ohm
TI (temperature index)	DIN EN 60216 (IEC 60216)	≈ 140 °C [284 °F] (20 000 h)* ≈ 155°C [311 °F] (5 000 h)*

* can be used in a temperature range of **-65 up to at least + 150 °C** [-85 up to at least 302 °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 classification were a 50 % loss in mass and/or 25 % 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“
TI	Technical information TI 15/10 “Processing of 2-pack systems“

The conformal coating **ELPEGUARD® UTC 1507 FLZ/1 (SEP)** can be applied by all common atomising spray-coating methods. It can also be applied by means of a dispenser, in order to reach targeted high layer thicknesses when dried.

Due to the thixotropic adjustment, processing is subject to the following restrictions:

Application by film coater is only suitable under certain conditions, as a constant curtain cannot be ensured.

Dipping application is only suitable to a limited extent: If the system is at rest for a longer time, the apparent viscosity is significantly higher than in the moving (stirred) system.

Generally, a high layer build-up occurs during dipping.

When processing automatically, regular stirring in the storage container is recommended.



Stir before use

For stirring we recommend using mechanical stirring equipment. Our **Technical Information sheet TI 15/10: "Processing of 2-pack systems"** gives detailed advice.

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 if necessary while observing suitable test conditions on processed products.

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

Viscosity adjustment

The **ELPEGUARD®** conformal coatings of the series **UTC 1507 FLZ** are adjusted in such a manner that they can normally be processed in the condition supplied. To reduce the viscosity for processing purposes:

DIL dilute with thinner **V 1507 FLZ**

Auxiliary products recommended

- **Thinner V 1507 FLZ**
  for removing the conformal coating within repair jobs
- **ELPESPEC® cleaning agent R 5817**
  for the cleaning of work place and tools/equipment
- **ELPESPEC® cleaning agent R 5888**
  water-soluble, biodegradable cleaning agent for product carriers and tools

Double coating

The conformal coatings of the series **ELPEGUARD® UTC 1507 FLZ** are suitable for double coating to a limited extent since they are dissolved by the solvent contained in the lacquer.

Drying/curing

Drying is finished after complete evaporation of the solvents. The drying parameters depend, among others, on the geometry of the assemblies, the population and ink layer thickness. In case of oven drying they depend on the oven loading etc.

We recommend oven curing for 15-30 min at 60-80 °C [140-176 °F] for a dry film thickness of 15-35 µm.

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]

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.

ATTENTION! For new products, according to preliminary technical reports, adequate practical results are not always available which would permit a comprehensive assessment of such a product. It is therefore imperative to exercise particular care in the testing of such products with regard to the application intended!

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

Lackwerke Peters GmbH & Co. KG
Hooghe Weg 13, 47906 Kempen
Germany

Internet: www.peters.de
E-Mail: peters@peters.de
Phone: +49 2152 2009-0

peters
Coating Innovations for Electronics