ELPECAST®
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TR TECHNICAL REPORT

Casting compound Wepesil VU 4694 E

The casting compound **Wepesil VU 4694 E** protects and insulates electronic components and assemblies against extreme climatic influences and aggressive media.

- Base: silicone (SR)
- solvent-free/VOC free
- good flowability
- addition cross-linking
- high elasticity
- high tear resistance
- very low heat generation and very low shrinkage pressure when cured
- suitable for sensitive electronic components as it reduces material tensions under thermal shocks
- temperature range from **-65 to +200 °C [-85 °F to +394 °F]**
- possibility of short-term loading up to 250 °C [482°F]
- good thermal conductivity (approx. 0,8 W/mK)
- excellent resistance to chemicals and weathering
- dielectric properties are almost constant over a wide temperature and frequency range
- hardly flammable due to its chemical characterisation
- good resistance to corona and glowing
- good protection against shock, impact and vibration
- easy to remove for repair

LP 191507 E-4 / 301104e_001

Characteristics

Colour/ appearance		white
Viscosity* at 20 °C [68 °F] DIN EN ISO 3219	component A hardener (component B) mixture	4700 ± 500 mPas 30 ± 10 mPas 4000 ± 700 mPas
Density at 20 °C [68 °F] DIN EN ISO 2811-1	component A hardener (component B) mixture	1.45 ± 0.05 g/cm³ 0.97 ± 0.05 g/cm³ 1.42 ± 0.05 g/cm³
Pot life of mixture at 19–21 °C [66.2-69.8 °F] in acc. with DIN EN 14022, approx. 200 mL Double viscosity Tenfold viscosity		 55 ± 10 min 90 ± 10 min

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

Indices: VU = casting compound opaque, E = elastic

Physical and mechanical properties

These properties are reached after 14 days storage at room temperature (18-23°C [64.4-73.4°F]).

Property	Test method	Result
Shore-A hardness	DIN 53 505, after 8 days	40–50
	DIN ISO 7619-1, after 8 days	30–40
Water absorption	DIN EN ISO 62 (24 h/23 °C [73.4 °F])	< 0.1 %
Coefficient of thermal expansion (CTE)	DIN 53752, -40 to +180 °C [-40 to +356 °F]	≈ 250 ppm/°C
Tensile strength	in acc. with DIN 53504 S2	≈ 0.76 N/mm²
Elongation at break	in acc. with DIN 53504 S2	≈ 92 %
Temperature shock*	in acc. with IPC-TM-650, 2.6.7.1, -65 to +125 °C [-85 to +257 °F]	passed
Thermal class*	in acc. with DIN IEC 60 085	200 = 200 °C

* can be used in a temperature range of **-65 up to at least +200 °C** [-85 up to at least 392 °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.

Electrical properties

These properties are reached after 14 days storage at room temperature (18-23°C [64.4-73.4°F]).

Property	Test method	Result
Dielectric strength	VDE 0303, part 21 DIN EN 60243-1	≥ 44 kV/mm
Surface resistance	VDE 0303, part 30 DIN IEC 60093	≥ 2 x 10^{14} Ohm
Specific volume resistivity	VDE 0303, part 30 DIN IEC 60093	≥ 2,1 x 10^{14} Ohm x cm
Moisture and insulation resistance	IPC-TM-650, 2.6.3.4 (65 °C [149 °F]/90 % RH)	≥ 2.0 x 10^{10} Ohm

Property	Test method	Result
Moisture and insulation resistance	85/85 test; ramp formed storage at high air moisture and high temperature, amongst others 3 days at 85 °C [185 °F] and 85 % RH	≥ 3.0 x 10^9 Ohm
Resistance to condensation	based on DIN EN ISO 6270-2 (BIAS 12 V, 40 °C, 100% r. F.)	≥ 1.0 x 10^{10} Ohm
Comparative tracking index (CTI, tracking resistance)	DIN EN 60112	CTI > 600*

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 15/2 ”Selection criteria and processing instructions for casting compounds”
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“
TI	Technical information TI 15/18 “Handling of silicones“

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.

Safety recommendations

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

Mixing

CAUTION: The labels on our containers indicate both the volume [L] and weight [kg]. The mixing ratio applies to the weight. Version 07/2021

Stir component A before use

Component A : hardener (component B) = 100 : 4 (parts by weight)

Auxiliary products recommended

- ELPESPEC® grip coating G 4660
  promotes the adhesion of addition cross-linking **Wepesil** casting compounds

- ELPESPEC® sealing mastic EH 13.271
  solvent-free paste for sealing jobs in electronics and electrical engineering, self-adhesive and permelastic
- ELPESPEC® cleaning agent R 13.780
  for the cleaning of work place and tools; cleaning should be effected immediately after processing as cleaning becomes increasingly difficult the further the curing process progresses and is impossible after final curing

Drying/ curing

The following specifications for a quantity of 25 g serve as a guideline:

	Room temperature (18–23 °C) [64.4-73.4 °F]	**60 °C [140 °F]**	**125 °C [257 °F]**
Cured	24 h	approx. 30 min	approx. 10 min

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 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.

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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