

Technical Datasheet

Structalit® 5859



Product Description

Modified epoxy | 1 part | solvent-free | heat-curing

- ▶ Magnet bonding
- ▶ Stator bonding
- ▶ Structural bonding
- ▶ Very good adhesion to metal
- ▶ High glass transition temperature
- ▶ High temperature resistance

Curing Properties

This adhesive must be cured with heat. The typical curing temperature is listed in the table below.

Temperature	Time
120°C	25 min
150°C	15 min

The heat cure times are only provided as a guideline. They are derived from curing a 2g adhesive sample without affixed substrates in a laboratory environment. Actual cure times can vary based on part size, configuration, adhesive volume, temperature control, and the time required for the component substrates to attain oven temperature.

The final bond strength of the adhesive is achieved no sooner than 24 h after the bonded components are removed from the oven.

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Resin	Epoxy
Appearance	Opaque, white
Filler	Polymer
Filler - weight [%]	2
Particle size D50 [μm]	110

Uncured Material

Viscosity [mPas] (Kinexus Rheometer, 25 °C, 10s ⁻¹) <i>PE-Standard 064</i>	400,000
Thixotropic index [1/10] <i>PE-Standard 064</i>	1.0
Density [g/cm ³] <i>PE-Standard 004</i>	1.17
Working life [days] <i>@ room temperature</i>	7

Cured Material

Hardness shore D <i>150°C, 15min</i> <i>PE-Standard 006</i>	80
Temperature resistance [°C]	-40 – 200
Water absorption [wt%] <i>150°C, 15min</i> <i>PE-Standard 016</i>	0.9

Glass transition temperature - DMA [°C] <i>150°C, 15min</i> <i>PE-Standard 022</i>	145
Coefficient of thermal expansion [ppm/K] below Tg <i>100°C, 1h</i> <i>PE-Standard 017</i>	62
Coefficient of thermal expansion [ppm/K] above Tg <i>100°C, 1h</i> <i>PE-Standard 017</i>	200

Thermal conductivity [W/m*K] <i>100°C, 1h</i> <i>PE-Standard 062</i>	0.2
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Young's modulus – Tensile test [MPa] <i>150°C, 15min</i> <i>PE-Standard 056</i>	3,000
Tensile strength [MPa] <i>150°C, 15min</i> <i>PE-Standard 014</i>	50
Elongation at break [%] <i>150°C, 15min</i> <i>PE-Standard 014</i>	2

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Lap shear strength (steel/steel) [MPa] <i>150°C, 15min</i> <i>PE-Standard 013</i>	18
Lap shear strength at 100°C (steel/steel) [MPa] <i>150°C, 15min</i> <i>PE-Standard 013</i>	18
Lap shear strength at 150°C (steel/steel) [MPa] <i>150°C, 15min</i> <i>PE-Standard 013</i>	15
Lap shear strength (AlMg3/AlMg3) [MPa] <i>150°C, 15min</i> <i>PE-Standard 013</i>	14
Lap shear strength at 100°C (AlMg3/AlMg3) [MPa] <i>150°C, 15min</i> <i>PE-Standard 013</i>	16
Lap shear strength at 150°C (AlMg3/AlMg3) [MPa] <i>150°C, 15min</i> <i>PE-Standard 013</i>	16
After storage at 150°C (steel/steel)	
Lap shear strength [MPa] <i>500h</i> <i>PE-Standard 013</i>	19
Lap shear strength [MPa] <i>1000h</i> <i>PE-Standard 013</i>	21
After storage at 85°C/85% rel. humidity (steel/steel)	
Lap shear strength [MPa] <i>500h</i> <i>PE-Standard 013</i>	7
Lap shear strength [MPa] <i>1000h</i> <i>PE-Standard 013</i>	8
After storage at 25°C in motor oil 5W-30 (steel/steel)	
Lap shear strength [MPa] <i>500h</i> <i>PE-Standard 013</i>	13
Lap shear strength [MPa] <i>1000h</i> <i>PE-Standard 013</i>	13
After storage at 25°C in gear oil ATF 1100 (steel/steel)	
Lap shear strength [MPa] <i>500h</i> <i>PE-Standard 013</i>	17
Lap shear strength [MPa] <i>1000h</i> <i>PE-Standard 013</i>	16

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After storage at 25°C in salt water (7.5%) (steel/steel)	
Lap shear strength [MPa] 500h <i>PE-Standard 013</i>	9
Lap shear strength [MPa] 1000h <i>PE-Standard 013</i>	9

After storage at 85°C in water (steel/steel)	
Lap shear strength [MPa] 500h <i>PE-Standard 013</i>	18
Lap shear strength [MPa] 1000h <i>PE-Standard 013</i>	9

After storage at 25°C in water/glycol (1:1) (steel/steel)	
Lap shear strength [MPa] 500h <i>PE-Standard 013</i>	15
Lap shear strength [MPa] 1000h <i>PE-Standard 013</i>	15

Transport/Storage/Shelf Life

Package type	Transport	Storage	Shelf life*
Syringe/Cartridge	0°C – 10°C	0°C – 10°C	At delivery min. 3 months max. 6 months
Other packages			

***Store in original, unopened containers!**

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Instructions for use

Surface preparation

The surfaces to be bonded should be free of dust, oil, grease, mold release, or other contaminants in order to obtain an optimal and reproducible bond. For cleaning we recommend the cleaner IP® from Panacol, or a solution of Isopropyl Alcohol at 90% or higher concentration. Substrates with low surface energy (e.g. polyethylene, polypropylene) must be pretreated in order to achieve sufficient adhesion.

Application

Our products are supplied ready to use. Depending on packaging they can be applied by hand directly from the container or by using compatible dispensing systems and automation. Many commercially available valve and controller options are available to ensure accurate and consistent adhesive dispensing. For assistance with dispensing and curing questions, please contact our Applications Engineering department. To obtain best results, the adhesive and substrates to be bonded may not be cold and should be allowed to warm to room temperature prior to processing. For safety information refer to our Material Safety Data Sheet (MSDS).

Storage

Store uncured product in its original, closed container in a dry location. Any material removed from the original container must not be returned to the container as it could be contaminated. Panacol cannot assume responsibility for products that were improperly stored, contaminated, or repackaged into other containers.

Handling and Clean-up

For safe handling information, consult this product's Material Safety Data Sheet (MSDS) prior to use. Uncured material may be wiped away from surfaces with organic solvents. Do not use solvents to remove material from eyes or skin!

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Disclaimer

The product is free of heavy metals, PFOS and Phthalates and is conform to the current EU-Directive RoHS.

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