TECHNICAL DATASHEET

ergo.® 7440

(ergo.® 7438 resin + ergo.® 7439 hardener)

Description

ergo.® 7440 is a black, toughened, pasty epoxy resin for application with composite or metal parts. The resin provides excellent strength build up after a long pot life, very good heat resistance as well as remarkable mechanical properties over a broad temperature range.
ergo.® 7440 fulfills the requirements according to DIN EN 45545-2 chart 5, R1, R7 and R17 with HL1-3.

Advantages

- High toughness
- Excellent adhesion to composite materials and metals
- High strength at elevated temperatures
- High temperature resistance
- Solvent-free, good chemical resistance

Physical properties (liquid product)

Chemical base		epoxy resin
Curing System		2-component-ystem
Mixing ratio (v:v)		2 : 1 (*resin : hardener*)
Shelf life		24 month at 5 – 23 °C
Colour	Resin	white
	Hardener	black
	When cured	black
Density (23 °C)	Resin	~1.2 g/cm³
	Hardener	~1.2 g/cm³
	Mixture	~1.2 g/cm³

Viscosity acc. to DIN EN 12092 measured at 23 °C

Resin	70’000 – 90’000 mPa•s
Hardener	15’000 – 30’000 mPa•s
Mixture	pasty, thixotropic

Curing properties

Pot life at 23 °C	40 – 60 minutes
Fixture time at 23 °C (>1 N/mm^2)	~ 3 hours
Functional time at 23 °C (>10 N/mm^2)	~ 4.5 hours
Final strength at 23°C	~ 2 – 3 days
Volume shrinkage	~ 3 %

Test method DIN EN 1465	At 23 °C	At 60 °C	At 80 °C
Fixture time (>1 N/mm^2)	~3 hours	~18 minutes	~10 minutes
Functional time (> 10 N/mm^2)	~4.5 hours	~23 minutes	~11 minutes

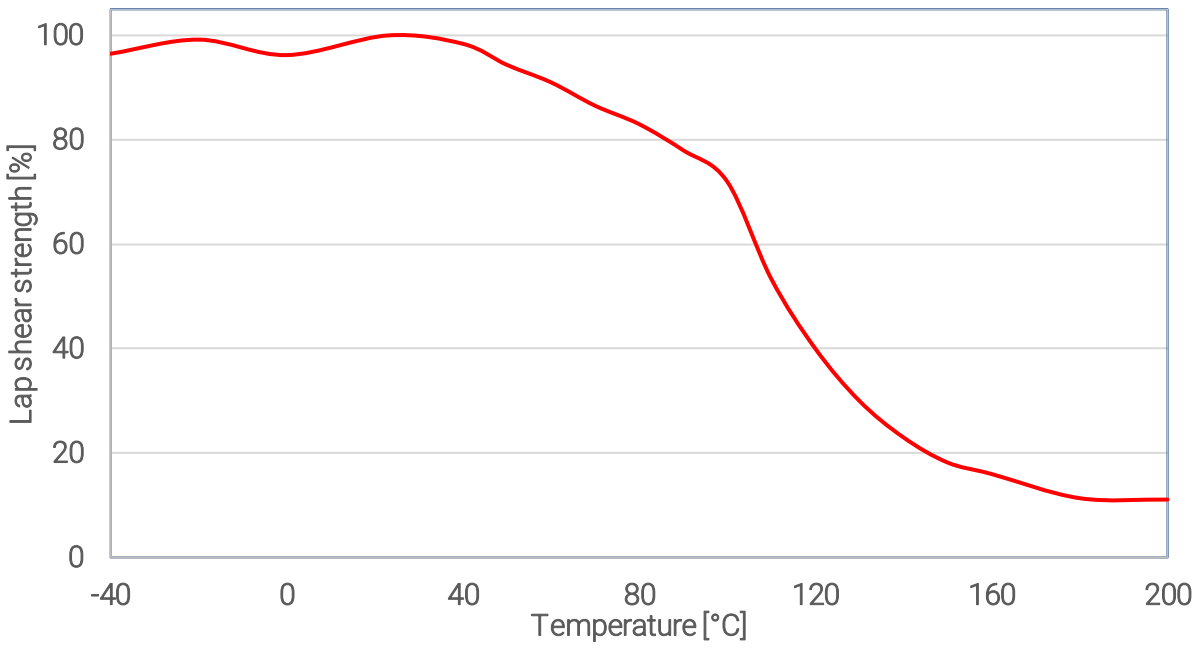
Physical properties (cured product)

Thermal range	-60 °C up to +180 °C
Glass transition point (T_g)	~ 106°C

Curing: 16 hours at 40 °C, post-hardened at 120 °C

Thermal expansion coefficient	103 ppm/K
Volume resistivity	$1.94 \cdot 10^{15}$ Ω•cm

Tensile shear strength vs. temperature (steel to steel); 100% = Strength at 23 °C



Tensile strength (ISO 527-2/1A/2) After 7 days at 23 °C, test temperature 23 °C	~ 33 N/mm²
Elongation at break (ISO 527-2/1A/2) After 7 days at 23 °C, test temperature 23 °C	~ 4.6 %
E-modulus (DIN EN ISO 178/A/2) After 7 days at 23 °C, test temperature 23 °C	~ 2100 MPa
Shore-D-hardness	~ 80

Tensile shear strength acc. to DIN EN 1465
Curing: 16 hours at 40 °C, 24 hours at 23 °C, test temperature 23 °C, metals corundum blasted

Steel	~ 35 N/mm²
Stainless Steel	~ 30 N/mm²
Aluminium	~ 24 N/mm²
Brass	~ 24 N/mm²
Copper	~ 20 N/mm²
GRP, epoxy	~ 12 N/mm²
GRP, polyester	~ 9 N/mm² (broken fibres)
Carbon Composite	~ 26 N/mm² (broken fibres)
ABS	~ 2 N/mm²
PC	~ 2 N/mm²
PVC	~ 2 N/mm²

Precautions

For your own safety, please refer to the information of the concerned MSDS and for the correct handling the “user instructions”.

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