

## TECHNICAL DATASHEET

### ergo.<sup>®</sup> 7440

(ergo.<sup>®</sup> 7438 (resin) and ergo.<sup>®</sup> 7439 (hardener))

#### Description

ergo.<sup>®</sup> 7440 is a black, toughened, pasty epoxy resin for application with composite or metal parts. The resin provides excellent strength build up after pot life, very good heat resistance up to 180 °C as well as remarkable mechanical properties.

ergo.<sup>®</sup> 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
- Good chemical resistance
- High temperature resistance

#### Physical properties (liquid product)

Chemical base	epoxy resin
Curing System	2-K-System
Mixing ratio	2 : 1 ( <i>resin : hardener</i> )
Shelf life	24 month at 5 - 23 °C

#### Viscosity according to DIN 54453

(cone/plate-system; cone C-25; shear rate D=35 s<sup>-1</sup>; 23 °C)

Resin	ergo. <sup>®</sup> 7438	70'000 – 90'000 mPa•s
Hardener	ergo. <sup>®</sup> 7439	15'000 – 30'000 mPa•s
Mixture		pasty, thixotropic
Color	Resin ergo. <sup>®</sup> 7438	white
	Hardener ergo. <sup>®</sup> 7439	black
	Mixture	black
Density	Resin ergo. <sup>®</sup> 7438	1.2 g/cm <sup>3</sup>
23 °C	Hardener ergo. <sup>®</sup> 7439	1.2 g/cm <sup>3</sup>
	Mixture	1.2 g/cm <sup>3</sup>

## Physical properties (cured product after 7 days/23 °C)

Glasstransitiontemperatur ( $T_g$ )	~ 106 °C
Thermal range	-60 °C up to +180 °C
Volume resistivity	$1.94 \cdot 10^{15} \Omega \cdot \text{cm}$
Modulus (DIN EN ISO 178)	2100 N/mm <sup>2</sup>
After 7 days at 23°C	
Tensile strength (ISO 527 1A)	33 N/mm <sup>2</sup>
After 7 days at 23°C	
Elongation at break (ISO 527 1A)	4.6 %
After 7 days at 23°C	
Pot life (20 g mixture @ 23 °C)	40 - 60 minutes
Fixture time (> 1 N/mm <sup>2</sup> )	3 hours (23 °C)
Functional time (> 10 N/mm <sup>2</sup> )	4.5 hours (23 °C)
Final strength	2 – 3 days (23 °C)

## 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

Aluminum	~ 24 N/mm <sup>2</sup>
Steel	~ 35 N/mm <sup>2</sup>
Stainless steel	~ 30 N/mm <sup>2</sup>
Brass	~ 24 N/mm <sup>2</sup>
Copper	~ 20 N/mm <sup>2</sup>
ABS	~ 2 N/mm <sup>2</sup>
PVC	~ 2 N/mm <sup>2</sup>
Polycarbonate	~ 2 N/mm <sup>2</sup>
GRP, polyester	~ 9 N/mm <sup>2</sup> (broken fibers)
GRP, epoxy	~ 12 N/mm <sup>2</sup>
Carbon Composite	~ 26 N/mm <sup>2</sup> (broken fibers)

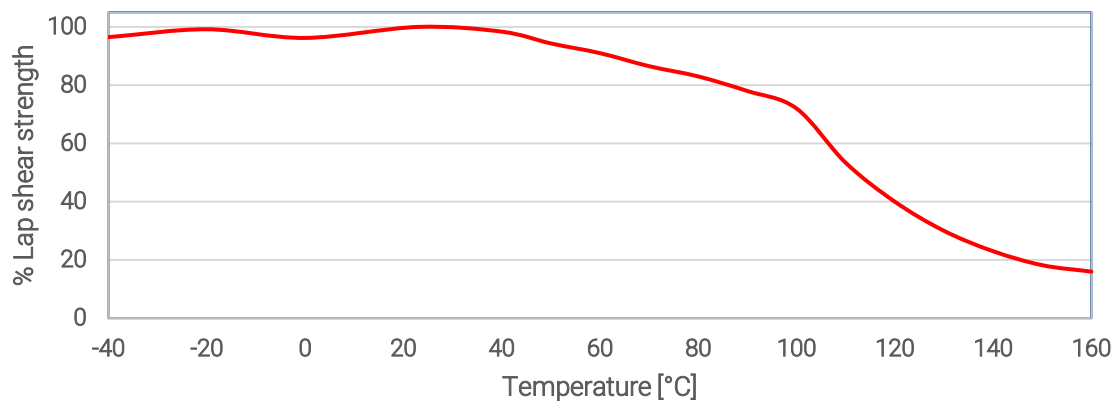


Fig. 1: Lap shear strength vs. temperature on steel-steel; 100% = strength at 23 °C.

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