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Kisling

TECHNICAL DATASHEET

7440
(Resin 7438 + Hardener 7439)

Description
7440 is a black, toughened, pasty epoxy resin adhesive 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. 7440 is characterised by easy processing, despite high paste stability.

Advantages
- High toughness
- Excellent adhesion to composite materials and metals
- Very good temperature resistance up to 180 °C
- High strength at elevated temperatures
- Very good stability, flow resistant
- Solvent-free, good chemical resistance

Product information

Chemical base	Epoxy resin adhesive
Curing System	2-component-ystem
Colour when cured	Black
Mixing ratio (volume)	2 : 1 (resin : hardener)
Mixing ratio (weight)	1.96 : 1 (resin : hardener)
Shelf life	24 months at 2 – 30 °C

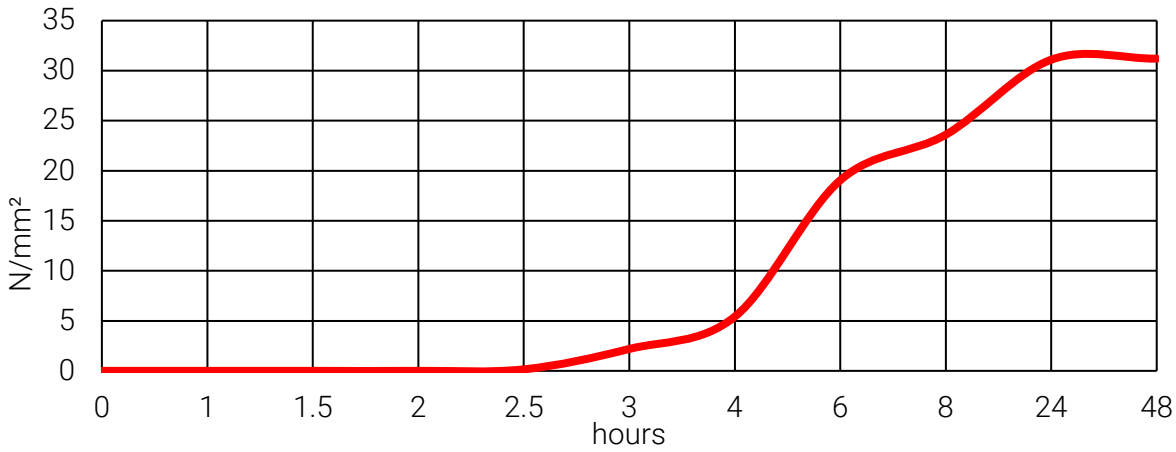
Physical properties (liquid product)

Colour	Resin	7438	White
	Hardener	7439	Black
Density (following DIN EN ISO 2811-1)			
	Resin	7438	~1.17 g/cm³
	Hardener	7439	~1.19 g/cm³
	Mixture		~1.17 g/cm³
Viscosity (DIN EN ISO 12092; 25 °C, cone-plate, shear rate 35 s^{-1})			
	Resin	7438	40'000 – 60'000 mPa·s
	Hardener	7439	20'000 – 35'000 mPa·s
Viscosity	Mixture		Pasty, thixotropic

Curing properties

Pot life at 23 °C	40 – 60 minutes
Fixture time at 23 °C (DIN EN 1465; >1 N/mm^2)	2 – 3 hours
Functional time at 23 °C (DIN EN 1465; >10 N/mm^2)	~ 4.5 hours
Final strength at 23°C	~ 2 – 3 days
Volume shrinkage (DIN EN ISO 3521)	~ 3.6 %

Strength build-up
Test temperature 23 °C; material: steel corundum blasted; method: tensile shear strength acc. to DIN EN 1465

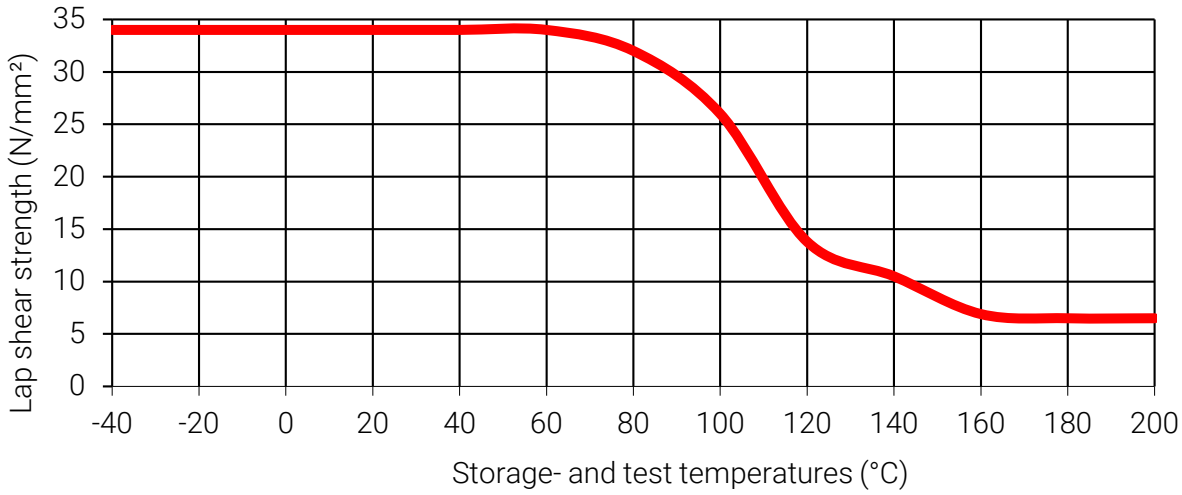


Physical properties (cured product)

Thermal range	-40 °C up to +180 °C
Glass transition point (T_g) Curing: 16 hours at 40 °C, post-hardened at 120 °C	~ 106°C
Density when cured (following DIN EN ISO 2811-1)	~1.21 g/cm³
Shore-D-hardness (DIN EN ISO 868)	~ 75
Flexural modulus (DIN EN ISO 178/A/2) After 7 days at 23 °C, test temperature 23 °C	~ 2170 N/mm²
Tensile strength (ISO 527-2/1A/2) After 7 days at 23 °C, test temperature 23 °C	~ 47 N/mm²
Elongation at break (ISO 527-2/1A/2) After 7 days at 23 °C, test temperature 23 °C	~ 8 %

Tensile shear strength vs. temperature

Tensile shear strength acc. to DIN EN 1465; steel plates degreased and corundum-blasted;
Curing: 16 hours at 40 °C, 24 hours at 23 °C; Stored for 24 hours and measured at mentioned temperature



Tensile shear strength acc. to DIN EN 1465

Curing: 16 hours at 40 °C, 24 hours at 23 °C; test temperature: 23 °C;
surface preparation: metals and composites corundum blasted and cleaned, plastics only cleaned

Steel	~ 32 N/mm²
Stainless Steel	~ 28 N/mm²
Aluminium	~ 24 N/mm²
Brass	~ 24 N/mm²
Copper	~ 20 N/mm²
GRP, epoxy	~ 18 N/mm² (broken fibres)
Carbon Composite	~ 27 N/mm² (broken fibres)
ABS	~ 3 N/mm² (material failure)
PVC	~ 3 N/mm² (material failure)
PC	~ 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”.

The information in this data sheet is based on the results of our research and experience. However, the suggestions herein concerning the use, application, and processing of the products (collectively, „the methods“) **are non-binding recommendations only.** It is the user’s sole responsibility to determine the suitability and safety of these methods, based on the user’s particular purpose in using the products. Before relying on the reliability and safety of any parts that are bonded using the products, it is extremely important that the user test the reliability and safety of the parts that are bonded. Failure to do so could result in serious personal injury. Because of the use of the products are within the purchaser’s sole control, Kisling Corporation specifically disclaims all warranties, express or implied, including warranties of merchantability or fitness for a particular purpose, arising from the sale or use of the products described herein. Kisling Corporation specifically disclaims any liability for consequential, incidental, or other damages of any kind, including lost profits. Kisling Corporation’s liability for damages shall not exceed the purchase price of the products used.

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