

## TECHNICAL DATASHEET

### 7490

(Resin 7438 + Hardener 7489)

#### Description

7490 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.

**7490 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
- Solvent-free, good chemical resistance
- Minimum gap 75 µm (Spacer)

#### Physical properties (liquid product)

Chemical base			Epoxy resin adhesive
Curing System			2-component-system
Mixing ratio (volume)			2 : 1 (resin : hardener)
Mixing ratio (weight)			2.24 : 1 (resin : hardener)
Shelf life			24 month at 5 – 23 °C
Viscosity acc. to DIN EN 12092	(Cone-Plate-System, Cone 25, shear rate 35 s <sup>-1</sup> , 23 °C)		
Resin	7438		70'000 – 90'000 mPa•s
Viscosity acc. to DIN EN ISO 2555	(Spindle measurement, 25 °C)		
Hardener	7489	(Spindle 7, 2.5 rpm)	200'000 – 350'000 mPa•s
		(Spindle 7, 20 rpm)	40'000 – 60'000 mPa•s
Viscosity	Mixture		Pasty, thixotropic
Colour	Resin	7438	White
	Hardener	7489	Black
	Mixture		Black
Density	Resin	7438	~ 1.19 g/cm <sup>3</sup>
	Hardener	7489	~ 1.07 g/cm <sup>3</sup>
	Mixture		~ 1.15 g/cm <sup>3</sup>
Minimum gap / Spacer			75 µm

**Curing properties**

Pot life (23 °C) ~ 2 hours  
Final strength (23°C) ~ 5 days

Test method DIN EN 1465	At 23 °C	At 60 °C
Fixture time (>1 N/mm <sup>2</sup> )	~ 8.5 hours	~ 40 minutes
Functional time (> 10 N/mm <sup>2</sup> )	~ 15 hours	~ 65 minutes

Volume shrinkage ~ 4 %

**Physical properties (cured product)**

Thermal range -40 °C up to +180 °C

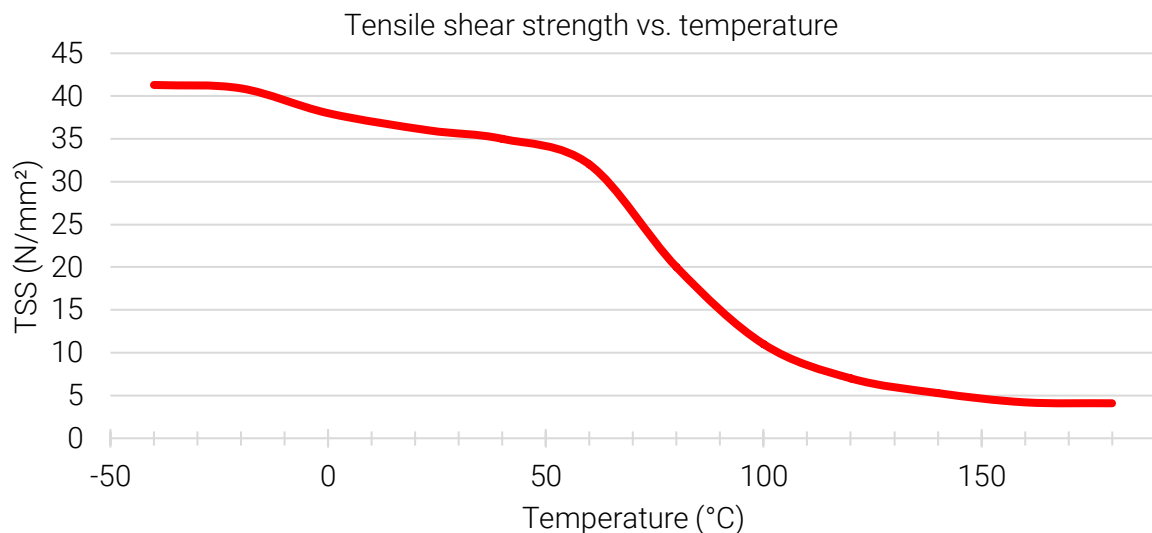
Glass transition point (T<sub>g</sub>) ~ 56 °C

Curing: 16 hours at 40 °C

Glass transition point (T<sub>g</sub>) ~ 87 °C

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

Thermal expansion coefficient < T<sub>g</sub> ~ 77 ppm/K  
> T<sub>g</sub> ~ 182 ppm/K



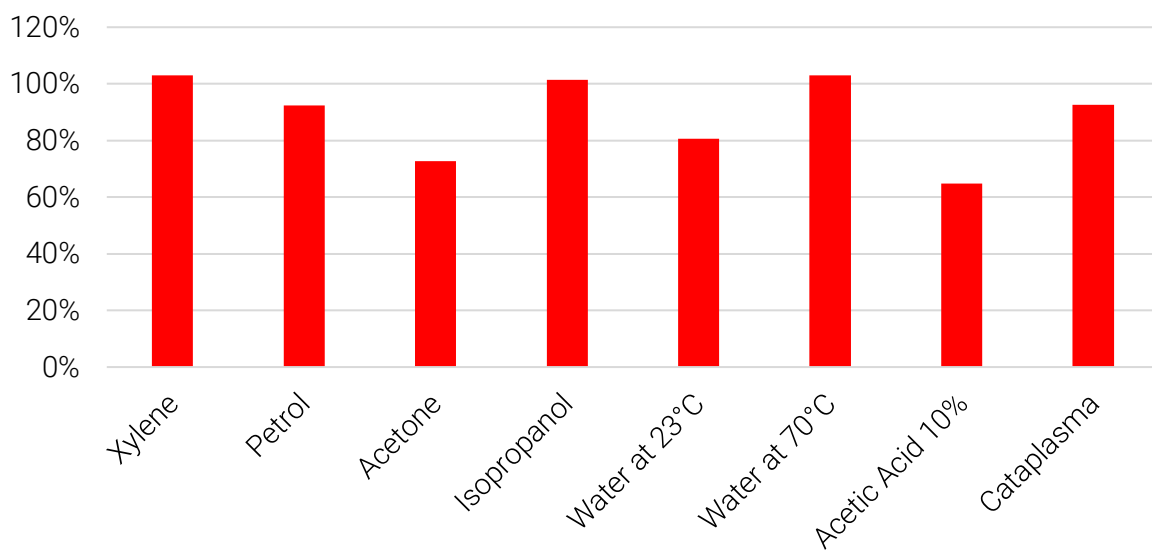
Tensile shear strength acc. to DIN EN 1465

Curing: 16 hours at 40 °C, 24 hours at 23 °C, test temperature 23 °C, metals corundum blasted

Steel	~ 37 N/mm <sup>2</sup>
Stainless Steel	~ 35 N/mm <sup>2</sup>
Aluminium	~ 33 N/mm <sup>2</sup>
Brass	~ 27 N/mm <sup>2</sup>
Copper	~ 21 N/mm <sup>2</sup>
GRP, epoxy	~ 29 N/mm <sup>2</sup>
GRP, polyester	~ 11 N/mm <sup>2</sup> (broken fibres)
Carbon Composite	~ 31 N/mm <sup>2</sup> (broken fibres)
ABS	~ 4 N/mm <sup>2</sup> (material failure)
PC	~ 4 N/mm <sup>2</sup>
PMMA	~ 2 N/mm <sup>2</sup>
PVC	~ 2 N/mm <sup>2</sup>
PA66	~ 2 N/mm <sup>2</sup>
Tensile strength (ISO 527-2/1A/2) After 7 days at 23 °C, test temperature 23 °C	~ 34 N/mm <sup>2</sup>
Elongation at break (ISO 527-2/1A/2) After 7 days at 23 °C, test temperature 23 °C	~ 6 – 7 %
E-modulus (DIN EN ISO 178/A/2) After 7 days at 23 °C, test temperature 23 °C	~ 1550 N/mm <sup>2</sup>
Shore-D-hardness	~ 83

Chemical resistance

Tensile shear strength acc. to DIN EN 1465; steel plates degreased and corundum-blasted; curing for 7 days at 23 °C, storage for 30 days at 23 °C (excepted: Cataplasma); % to the reference



### 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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