

## TECHNICAL DATASHEET

### 1670

(Resin 1668 + Hardener 1664)

#### Description

1670 is a black, non-sag, two-part methyl methacrylate adhesive designed for structural bonding of thermoplastic, metal, and composite assemblies. Combined at a 10:1 (V:V) mixing ratio, it has a working time of 18 – 22 minutes.

1670 is mainly used as an universal grade for industrial applications where composites are involved. Normally it does not require any surface preparation except cleaning. It is often used in following industries: Household appliance (white ware), advertising panels, traffic guidance systems, electronic and electrical engineering, vehicle industry, furnishment, windows and doors, bus-, truck-, rail and car industry, boat and ship construction.

**1670 fulfills the requirements according to DIN EN 45545-2 chart 5, R1, R7 and R17 with HL1-3.**

#### Advantages

- Good adhesion to a wide range of materials
- Non-dropping paste
- Bridges gap up to 6 mm
- Minimum gap 200 µm (Spacer)
- Excellent resistance against dynamic loads
- Resistant against outside conditions and humidity
- 100% reactive compound

#### Product data

Chemical base	Methyl methacrylate adhesive
Curing system	2-Component-System
Mixing ratio by volume	10 : 1 (1668 : 1664)
Mixing ratio by mass	10 : 1.15 (1668 : 1664)
Colour (after curing)	Black
Shelf life in 50 up to 490ml 10:1 cartridge	12 month at 4 – 23 °C
Shelf life Resin 1663 in 10kg	6 month at 4 – 23 °C
Shelf life Hardener 1668 in 2.5kg up to 20kg	12 month at 4 – 23 °C

**Physical properties (uncured):**

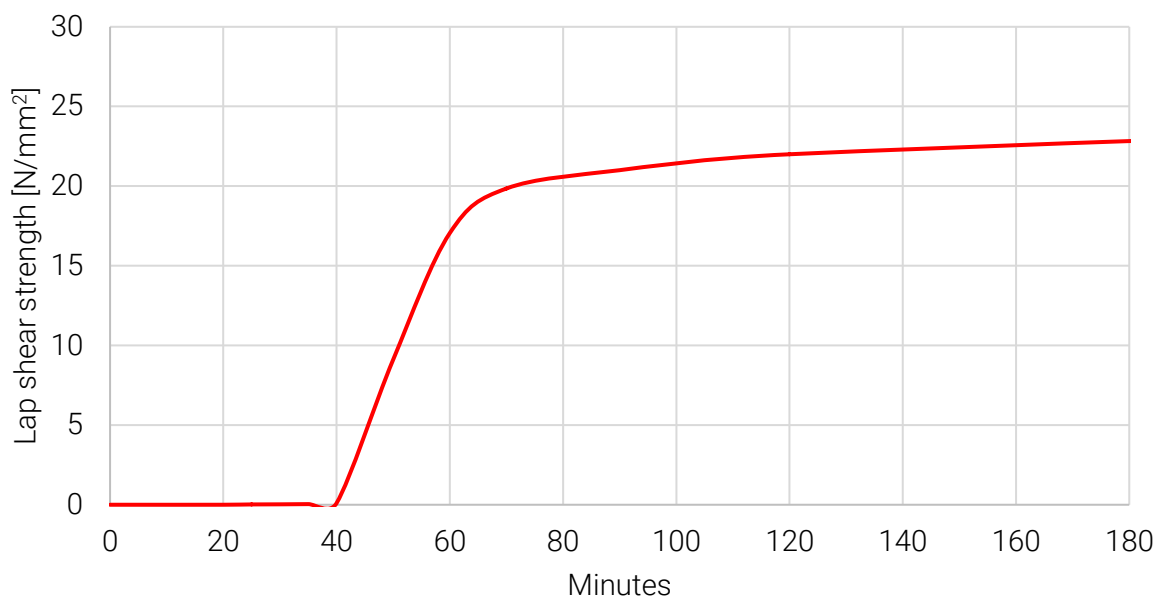
Viscosity at 25°C	Resin 1668 (Brookfield, spindle 7, 2.5 rpm)		~ 500'000 mPa•s
	Resin 1668 (Brookfield, spindle 7, 20 rpm)		~ 120'000 mPa•s
	Hardener 1664 (cone/plate, shear rate 1 s <sup>-1</sup> )		~ 60'000 mPa•s
	Hardener 1664 (cone/plate, shear rate 35 s <sup>-1</sup> )		~ 6'000 mPa•s
Density	Resin	1668	1.00 g/cm <sup>3</sup>
	Hardener	1664	1.15 g/cm <sup>3</sup>
Colour	Resin	1668	Midnight blue
	Hardener	1664	Blue
	Mixed		Black
Gap filling	Up to 6 mm		
Minimum gap / Spacer	200 µm		

**Curing properties:**

Application temperature	+10 °C to +40 °C
Open time at 23°C	18 - 22 minutes
Fixture time at 23°C [~1 N/mm <sup>2</sup> ]	40 – 50 minutes
Functional strength at 23°C [~10 N/mm <sup>2</sup> ]	50 - 60 minutes
Final strength at 23°C	12 hours

**Strength build-up**

tested on sand-blasted steel @ 23°C, acc. to DIN EN 1465

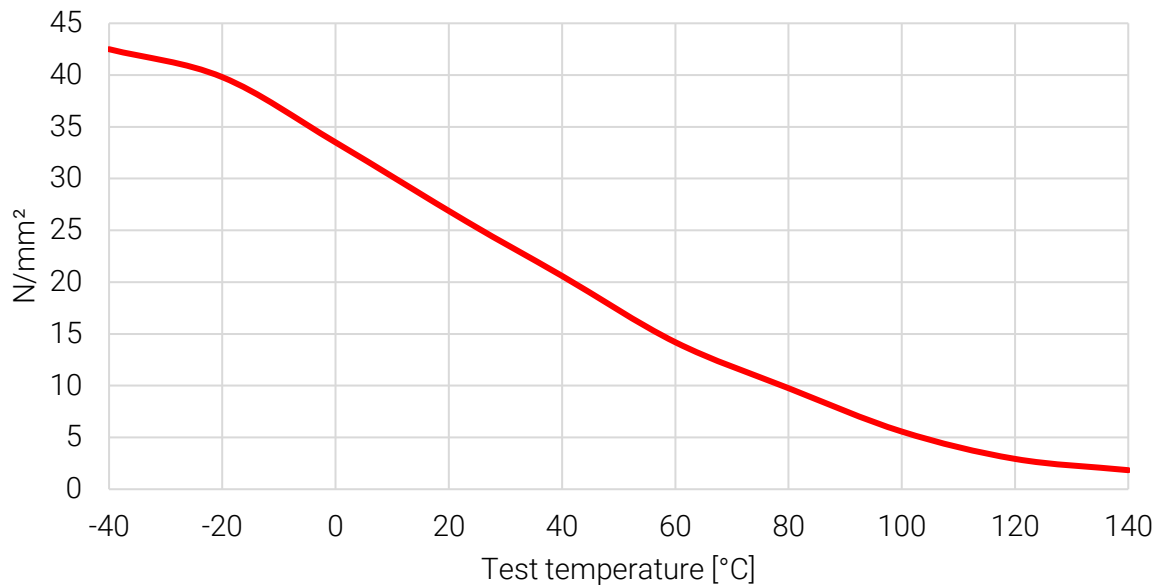


**Physical properties (cured):**

Usage temperature

- 55°C to + 120°C

Tensile Shear Strength at different temperatures, measured after curing (24 hours @ 23°C) and 24 hours @ mentioned test temperature (steel, sand-blasted) acc. to DIN EN 1465



Flexural modulus (DIN EN ISO 178)

after 24 h at 23°C

~ 560 N/mm²

Tensile strength (ISO 527-2/1A)

after 24 h at 23°C

~ 18 N/mm²

Elongation at break (ISO 527-2/1A)

after 24 h at 23°C

~ 75 %

**Lap shear strength (DIN EN 1465)**

Curing: 24 hours at 23 °C, test temperature 23 °C, metals corundum blasted, <sup>(X)</sup> = Failure of test specimen

Steel	> 22 N/mm <sup>2</sup>
Stainless steel	> 21 N/mm <sup>2</sup>
Brass	> 20 N/mm <sup>2</sup>
Aluminium	> 22 N/mm <sup>2</sup>
GFRP	> 21 N/mm <sup>2</sup>
CFRP	> 24 N/mm <sup>2</sup>
ABS	> 6 N/mm <sup>2</sup> <sup>(X)</sup>
PC	> 7 N/mm <sup>2</sup> <sup>(X)</sup>
PVC	> 8 N/mm <sup>2</sup> <sup>(X)</sup>
PMMA	> 5 N/mm <sup>2</sup> <sup>(X)</sup>

### Chemical resistance

Excellent in

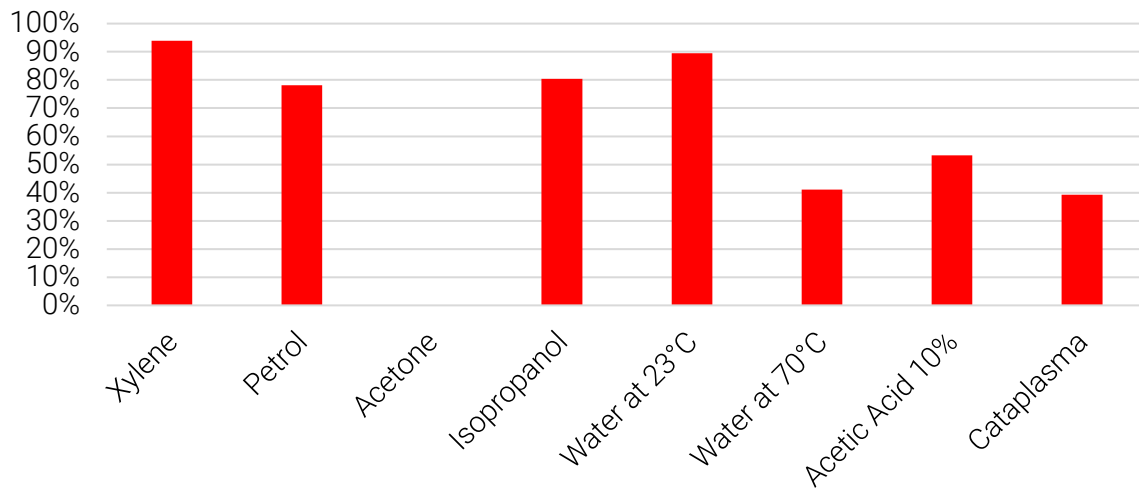
Hydrocarbons  
Acidic solutions (pH 3 – 10)  
Alkaline solutions (pH 3 – 10)  
Salt solutions

Unstable in

Polar solvents  
Strong Acidic/alkaline solutions

### 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



### Handling and storage

Due to the high reactivity of the product and the exothermic curing process, never mix bigger amount of the components. The heat might evaporate parts of the formulation and cause strong smell. Do not waste exceeded material in plastic containers, because of the danger of melting.

Slight serum formation may occur during storage.

The serum does not imply any quality issues and can be ejected when levelling the cartridge before first use.

### 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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