DELO®-PUR 9691
Multi-purpose 2c polyurethane, cures at room temperature, medium-viscous, filled

**Base**
- polyurethane
- two-component

**Use**
- for the bonding of metal, plastic and sometimes even elastomers
- initial strength is reached fast
- good tough-elastic properties
- very good strengths under static and dynamic conditions
- mixture is flowable
- also suitable for small castings
- the cured product is normally used in a temperature range of -40 °C to +125 °C; depending on the application, other limits may be more reasonable
- compliant with RoHS directive 2015/863/EU
- successfully tested according to UL 94 HB
- tested for biocompatibility and meets the requirements according to DIN EN ISO 10993-5: test for cytotoxicity

**Processing**
- supplied ready for use and can be processed well from the original container
- components A and B must be mixed homogeneously in the mixing ratio stated below
- using the DELO-AUTOMIX system for processing is especially advantageous
- the surfaces to be bonded must be dry as well as free of dust, grease and other contaminations
- use DELOTHEN cleaners for the cleaning of bonding surfaces

**Curing**
- at room temperature (ca. 23 °C)
- increased temperatures accelerate curing
- applying heat could change physical characteristics

**Technical data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>black</td>
</tr>
<tr>
<td>Filler</td>
<td>minerals</td>
</tr>
</tbody>
</table>

**Mixing ratio**

- (A : B) according to weight: 1 : 1
- (A : B) according to volume: 1 : 1

**Density [g/cm³]**

- at room temperature (approx. 23 °C): 1.45
Viscosity of component A [mPas]  
Brookfield at 23 °C  
80000

Viscosity of component B [mPas]  
Brookfield at 23 °C  
80000

Processing time in 3 g preparation [min]  
at room temperature (approx. 23 °C)  
10

Maximum reaction temperature [°C]  
in 100 g preparation  
40

Curing time until initial strength [min]  
tensile shear strength 1 - 2 MPa  
at room temperature (approx. 23 °C)  
90

Curing time until functional strength [h]  
tensile shear strength > 10 MPa  
at room temperature (approx. 23 °C)  
6

Curing time until functional strength [min]  
at +80 °C  
20

Curing time until final strength [h]  
at room temperature (approx. 23 °C)  
72

Curing time until final strength [min]  
at +80 °C  
22

Tensile shear strength Al/Al [MPa]  
by the criteria of DIN EN 1465, sand-blasted  
component thickness 1.6 mm,  
curing: 24 h at room temperature (approx. 23 °C)  
12

Tensile shear strength Al/Al  
by the criteria of DIN EN 1465, sand-blasted  
component thickness 1.6 mm

![Graph showing tensile/shear strength](image1)

![Graph showing tensile/shear strength](image2)
Tensile shear strength Al/Al [MPa] 13
DELO Standard 39, sand-blasted
component thickness: 6 mm
after 72 h at room temperature (approx. 23 °C)

Floating roller peel resistance St/St [N/mm] 6
DELO Standard 38, sand-blasted
component thickness: 1.5 mm

Temperature stability Al/Al at +100 °C [MPa] 2.5
according to DIN EN 1465, sand-blasted
component thickness: 1.6 mm

Tensile strength [MPa] 13
according to DIN EN ISO 527

Elongation at tear [%] 20
according to DIN EN ISO 527

Young’s modulus [MPa] 500
according to DIN EN ISO 527

Shore hardness D 69
according to DIN EN ISO 868

Glass transition temperature [°C] 49
DELO Standard 24, Rheometer, 2nd heating process

Coefficient of linear expansion [ppm/K] 162
in a temperature range of +25 to +140 °C

Water absorption [weight %] 0.24
according to DIN EN ISO 62, 24 h at room temperature (approx. 23 °C)

Decomposition temperature [°C] 225
DELO Standard 36

Specific volume resistance [Ω cm] >1xE13
VDE 0303, part 30

Surface resistance [Ω] >1xE13
VDE 0303, part 30

Dielectric strength [kV/mm] 16.6
VDE 0303, part 2

Creep resistance CTI 600 M
VDE 0303, part 11, DIN EN 60112

Storage life at room temperature (approx. 23 °C) 6 months
in unopened original container

Performance under chemical influence
compression shear strength after storage for 1,000 h
based on initial value at room temperature
measured at room temperature (approx. 23 °C)
according to DELO Standard 5

<table>
<thead>
<tr>
<th>Chemical medium</th>
<th>Compression/shear strength Al/Al [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATF gear oil</td>
<td>37</td>
</tr>
<tr>
<td>Diesel fuel</td>
<td>44</td>
</tr>
<tr>
<td>engine oil 10W40</td>
<td>37</td>
</tr>
<tr>
<td>demineralised water / glykol mixture 50:50</td>
<td>35</td>
</tr>
</tbody>
</table>
Performance under temperature influence

Zugscherfestigkeit Al/Al sandgestrahlt nach Temperaturlagerung bezogen auf Anfangswert bei Raumtemperatur (ca. 23 °C) entsprechend DIN EN 1465

Zugscherfestigkeit Al/Al sandgestrahlt bei Temperatur bezogen auf Wert bei Raumtemperatur entsprechend DIN EN 1465

Zugfestigkeit
nach 500 h / 1.000 h / 3.000 h Temperaturalterung in Anlehnung an DIN EN ISO 527
Schichtdicke: 4 mm
Aushärtung: 7 d bei Raumtemperatur (ca. 23 °C)
gemessen bei Raumtemperatur (ca. 23 °C)

Reißdehnung
nach 500 h / 1.000 h / 3.000 h Temperaturalterung in Anlehnung an DIN EN ISO 527
Schichtdicke: 4 mm
Aushärtung: 7 d bei Raumtemperatur (ca. 23 °C)
gemessen bei Raumtemperatur (ca. 23 °C)

E-Modul
nach 500 h / 1.000 h / 3.000 h Temperaturalterung in Anlehnung an DIN EN ISO 527
Schichtdicke: 4 mm
Aushärtung: 7 d bei Raumtemperatur (ca. 23 °C)
gemessen bei Raumtemperatur (ca. 23 °C)
Instructions and advice

General
The data and information provided are based on tests performed under laboratory conditions. Reliable information about the behavior of the product under practical conditions and its suitability for a specific purpose cannot be concluded from this. It is the customer’s responsibility to test the suitability of a product for the intended purpose by considering all specific requirements and by applying standards the customer deems suitable (e. g. DIN 2304-1). Type, physical and chemical properties of the materials to be processed with the product, as well as all actual influences occurring during transport, storage, processing and use, may cause deviations in the behavior of the product compared to its behavior under laboratory conditions. All data provided are typical average values or uniquely determined parameters measured under laboratory conditions. The data and information provided are therefore no guarantee for specific product properties or the suitability of the product for a specific purpose.
Nothing contained herein shall be construed to indicate the non-existence of any relevant patents or to constitute a permission, encouragement or recommendation to practice any development covered by any patents, without permission of the owner of this patent.
All products provided by DELO are subject to DELO’s General Terms of Business. Verbal ancillary agreements are deemed not to exist.

Instructions for use
The instructions for use of DELO-PUR are available on: www.DELO.de. We will be pleased to send them to you on demand.

Occupational health and safety
see material safety data sheet

Specification
The properties in italics are part of the specification. Ranges with clear limits are defined for them and others, where applicable. In the course of the QA test, each batch is tested for these properties and the maintenance of the limits is ensured. The measuring methods used can deviate from those specified in the data sheet. Details can be found in the QA test report.