### Technical Data Sheet

#### Features

<table>
<thead>
<tr>
<th></th>
<th>LH285</th>
<th>LH285</th>
<th>LH286</th>
<th>LH287</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Viscosity</strong></td>
<td>100 ± 2 mPa·s</td>
<td>1.495 – 1.499</td>
<td>1.18 – 1.23</td>
<td>1.500 – 1.506</td>
</tr>
<tr>
<td><strong>Shelf Life</strong></td>
<td>24 months in originally sealed containers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td>Production of gliders, motor gliders and motor planes, boat and shipbuilding, sports equipment, model airplanes, moulds and tools</td>
<td></td>
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</tr>
<tr>
<td><strong>Curing Temperature</strong></td>
<td>60 – 100 °C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gel Time</strong></td>
<td>60 – 90 min.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>1.04 – 1.23 g/cm³</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Storage

- **Pot Life at 25°C:** Approx. 30 min to approx. 3.5 hours
- **Operational Temperature:** -60 °C up to +80 °C after heat treatment
- **Processing Temperature:** -60 °C up to +50 °C without heat treatment

#### Specifications

- **EPIKURE™ Curing Agent MGS™ LH285-287**
- **EPIKOTE™ Resin MGS™ LR285**

#### Measuring Conditions

<table>
<thead>
<tr>
<th>Measuring Condition</th>
<th>Methodology</th>
<th>Temperature</th>
<th>Dynamic Viscosity</th>
<th>Density</th>
<th>Refractive Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Measured at 25°C</td>
<td>Rotation viscosimeter, plate-plate configuration, measuring gap 0.2 mm</td>
<td>40 – 45°C</td>
<td></td>
<td>1.525 – 1.530</td>
<td></td>
</tr>
<tr>
<td>2) Measured in 30°C water bath, 100g sample</td>
<td></td>
<td>20 – 25°C</td>
<td>0.94 – 0.97</td>
<td>1.500 – 1.506</td>
<td></td>
</tr>
<tr>
<td>3) Conditioned at 40°C / 90% r.H.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Application

The laminating resin system approved by the German Federal Aviation Authority for use in aviation and non-aviation applications is characterized by its high mechanical properties and excellent wetting characteristics. It is suitable for the production of high-quality composite structures in the aerospace and transportation industries.

**Characteristics**

- **Pot Life:** App. 3 – 4 h
- **Ice Lid:** 15 – 20 min.
- **Heat Treatment:** 85 – 90 °C
- **Laminating Resin:** LR285 : All curing agents
- **Refractive Index:** 1.525 – 1.530
- **Density:** 1.04 – 1.23 g/cm³
- **Viscosity:** 100 – 120 mPa·s
- **Refractive Index:** 1.500 – 1.506
- **Density:** 1.04 – 1.23 g/cm³

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**Temperature Development**

The temperature development of the material during curing is shown in the diagram below. The optimal curing temperature is in the range of 20 to 35 °C. Higher temperatures are possible, but will shorten the pot life of the material. Proper curing is essential to achieve the desired mechanical properties and to ensure the material is usable.

**Notes:**

- The mixing viscosity guarantees fast and complete impregnation of the reinforcement fibres; however, the resin will not cloud in the mixing container. Pay special attention to the walls and bottom of the mixing container.
- Epoxy resins are super-cooled liquids, therefore crystallization is imminent possible. In an early stage, the resin will start to crystallize, which can negatively affect the quality after its reversion, in fact a high purity of material will increase the tendency for crystallization.
- As a matter of experience, LR285 can be combined with suitable gelcoats on UP, PU and EP basis.
- If high heat resistance or aircraft approval are not necessary, curing agent LH285 can also be used without heat treatment afterwards. However, the indicated properties will only be obtained after heat treatment at temperatures over 50 °C.
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- As a matter of experience, LR285 can be combined with suitable gelcoats on UP, PU and EP basis.
EPIKOTE™ Resin MGS™ LR285 and EPIKURE™ Curing Agent MGS™ LH285-287

**T_G Development 50°C**

![Graph showing T_G development at 50°C](image)

**T_G Development 60°C**

![Graph showing T_G development at 60°C](image)
### Mechanical Data

**Density**

DIN EN ISO 1183-1

\[ \text{[g/cm}^3\text{]} \]

1.18 – 1.20

**Flexural Strength**

DIN EN ISO 178

\[ \text{[MPa]} \]

110 – 120

**Modulus of Elasticity**

DIN EN ISO 178

\[ \text{[GPa]} \]

3.0 – 3.3

**Tensile Strength**

DIN EN ISO 527-2

\[ \text{[MPa]} \]

70 – 80

**Compressive Strength**

DIN EN ISO 604

\[ \text{[MPa]} \]

120 – 140

**Elongation at Break**

DIN EN ISO 527-2

\[ \text{[%]} \]

5.0 – 6.5

**Impact Strength**

ISO 179-1

\[ \text{[kJ/m}^2\text{]} \]

45 – 55

**Water Absorption at 23°C**

DIN EN ISO 175

24h \[ \text{[%]} \]

0.20 – 0.30

7d \[ \text{[%]} \]

0.60 – 0.80

Curing: 24h at 23°C + 15h at 60°C

**Advice:**

Mechanical data are typical for the combination of laminating resin LR285 with curing agent LH287. Data can differ in other applications.

### Mechanical Data of Reinforced Resin

<table>
<thead>
<tr>
<th></th>
<th>Glass fibre</th>
<th>Carbon fibre</th>
<th>Aramide fibre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexural Strength</td>
<td>510 – 560</td>
<td>720 – 770</td>
<td>350 – 380</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>460 – 500</td>
<td>510 – 550</td>
<td>400 – 480</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>410 – 440</td>
<td>460 – 510</td>
<td>140 – 160</td>
</tr>
<tr>
<td>Interlaminar Shear Strength</td>
<td>42 – 46</td>
<td>47 – 55</td>
<td>29 – 34</td>
</tr>
<tr>
<td>Modulus of Elasticity</td>
<td>20 – 24</td>
<td>40 – 45</td>
<td>16 – 19</td>
</tr>
</tbody>
</table>

Curing: 24h at 23°C + 15h at 80°C

**Glass fibre laminate:**

16 layers of glass fabric, 8H satin, 296 g/m², 4 mm thick

**Carbon fibre laminate:**

8 layers of carbon fabric, plain weave, 200 g/m², 2 mm thick

**Aramid fibre laminate:**

15 layers of aramide fabric, 4H satin, 170 g/², 4 mm thick

**Fibre content of samples during processing/testing:**

40 - 45 vol%

Data calculated for fibre content of 43 vol%

**Typical data according to WL 5.3203 Parts 1 and 2 of the GERMAN AVIATION MATERIALS MANUAL**

**Advice:**

Mechanical data are typical for the combination of laminating resin LR285 with curing agent LH287. Data can differ in other applications.