WACKER® RTV-S 691 A/B
Room Temperature Curing Silicone Rubber (RTV-2)

Wacker® RTV-S 691 A/B is a self levelling, two-part addition curing silicone rubber which can be vulcanised at room temperature. Due to its low outgassing rate and low temperature flexibility it is recommended especially for space applications. It has been designed and is used as adhesive for solar cells on solar generators for space applications such as satellites.

Properties

- resistant to low temperatures
- glass transition temperature: < -100 °C / -148 °F
- particularly low volatile contents
- admitted for aerospace applications by ESTEC (European Space Research and technology Centre) according to specification ECSS-Q-70-02A (corresponds to former ESA PSS-01-701)

Specific features

- Heat resistant
- Low volatile
- Low-temperature flexible
- UV stable
### Technical data

#### Properties Uncured

<table>
<thead>
<tr>
<th>Property</th>
<th>Condition</th>
<th>A</th>
<th>B</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>-</td>
<td>red</td>
<td>colourless, clear</td>
<td>-</td>
</tr>
<tr>
<td>Density</td>
<td>-</td>
<td>1.55 - 1.65 g/cm³</td>
<td>0.98 g/cm³</td>
<td>-</td>
</tr>
<tr>
<td>Viscosity, dynamic spindle 5, 2.5 rpm</td>
<td>23.0 °C</td>
<td>55000.0 - 70000.0 mPa·s</td>
<td>-</td>
<td>Brookfield</td>
</tr>
<tr>
<td>Viscosity</td>
<td>25 °C</td>
<td>-</td>
<td>200 - 240</td>
<td>ISO 3219</td>
</tr>
</tbody>
</table>

These figures are only intended as a guide and should not be used in preparing specifications.

#### Catalyzed

<table>
<thead>
<tr>
<th>Property</th>
<th>Condition</th>
<th>Value</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, dynamic (ca. 5 min after mixing the 2 components, shear rate 16 1/s)</td>
<td>23.0 °C</td>
<td>18000.0 - 26000.0 mPa·s</td>
<td>-</td>
</tr>
<tr>
<td>Mix ratio⁽¹⁾</td>
<td>-</td>
<td>9 : 1</td>
<td>A : B</td>
</tr>
<tr>
<td>Pot life⁽²⁾</td>
<td>-</td>
<td>90 - 110 min</td>
<td>-</td>
</tr>
</tbody>
</table>

⁽¹⁾(p.b.w.)
⁽²⁾(time to 200,000 mPa s at 16 1/s)

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## Properties Cured

<table>
<thead>
<tr>
<th>Property</th>
<th>Condition</th>
<th>Value</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density in water</td>
<td>23.0 °C</td>
<td>1.52 g/cm³</td>
<td>-</td>
</tr>
<tr>
<td>Hardness Shore A</td>
<td>-</td>
<td>50 - 60</td>
<td>ISO 868</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>-</td>
<td>4.0 - 6.0 N/mm²</td>
<td>ISO 37</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>-</td>
<td>100 - 160 %</td>
<td>ISO 37</td>
</tr>
<tr>
<td>Modulus at 100 % elongation elasticity</td>
<td>100.0 %</td>
<td>1.33 - 1.53 N/mm²</td>
<td>ISO 37</td>
</tr>
<tr>
<td>Volume resistivity</td>
<td>100.0 V</td>
<td>&gt; 1.0 x 10¹⁴ Ohmcm</td>
<td>-</td>
</tr>
<tr>
<td>Surface resistivity</td>
<td>100.0 V</td>
<td>&gt; 1.0 x 10¹² OHM</td>
<td>-</td>
</tr>
<tr>
<td>Tear resistance</td>
<td>-</td>
<td>4.0 - 6.0 N/mm²</td>
<td>-</td>
</tr>
<tr>
<td>Total mass loss TML</td>
<td>-</td>
<td>&lt; 1.0 %</td>
<td>ESA ECSS-Q-70-02A</td>
</tr>
<tr>
<td>Volatiles CVCM (¹)</td>
<td>-</td>
<td>&lt; 0.1 %</td>
<td>-</td>
</tr>
<tr>
<td>Volatiles TML l</td>
<td>-</td>
<td>&lt; 1.0 %</td>
<td>-</td>
</tr>
</tbody>
</table>

¹ESA ECSS-Q-70-02A

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All the information provided is in accordance with the present state of our knowledge. Nonetheless, we disclaim any warranty or liability whatsoever and reserve the right, at any time, to effect technical alterations. The information provided, as well as the product’s fitness for an intended application, should be checked by the buyer in preliminary trials. Contractual terms and conditions always take precedence. This disclaimer of warranty and liability also applies particularly in foreign countries with respect to third parties’ rights.

### Applications

- Aerospace

### Application details

Mixing ratio is 9:1 p.b.w Before taking component A out of the container or adding the catalyst, stir the material thoroughly. Components A and B can be mixed by hand or with metering equipment. The material must be evacuated before application to remove enclosed the bubbles. For detailed information refer to our leaflet "Wacker RTV-2 Silicone Rubber Processing". Important: The platinum catalyst is contained in component A. Caution! Only components A and B that have the same lot number may be processed together! Mixing of the components is absolutely imperative that any equipment, such as mixing vessels, spatulas and stirres, that is used to process Component A (which contains the platinum catalyst) or the mixture of both components does not come into contact with Component B (which contains the crosslinker). Therefore, all equipment should be clearly labeled.

WACKER® RTV-S 691 A/B is used as silicone adhesive with minimum outgassing behaviour for space projects, e. g. bonding for solar cells in satellites.
RTV-S691 can be applied by silk screen printing or by dispensing equipment. In order to make the rubber adhere to other materials (e.g. glass, aluminium, silver, epoxy resin, polyester resin), it is necessary to pretreat the surface with Primer G 790.

**Packaging and storage**

**Storage**

The 'Best use before end' date of each batch is shown on the product label. Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

**Safety notes**

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from WACKER subsidiaries or may be printed via WACKER web site http://www.wacker.com.

**QR Code WACKER® RTV-S 691 A/B**