

ELASTOSIL[®] SOLAR 1109 BLACK

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Moisture Curing Silicone Rubber (RTV-1)

ELASTOSIL[®] SOLAR 1109 BLACK is a non-slump, one-part silicone adhesive. It is solvent-free and non-corrosive. When exposed to air moisture ELASTOSIL[®] SOLAR 1109 BLACK cures at room temperature to yield a permanently flexible silicone rubber with very good mechanical properties.

Fully cured ELASTOSIL[®] SOLAR 1109 BLACK shows long term stability against weathering, moisture and UV radiation. The silicone elastomer may continuously be exposed to constantly changing climatic conditions, UV radiation and temperature as high as 180 °C (356 °F) without damage.

Properties

Uncured:

- Non-slump paste
- Non-corrosive to metals
- By-product of curing: alcohol

Cured:

- Medium hardness
- Designed for bonding applications
- Recommended service temperature range:
-50 °C to +180 °C
- No inhibition of Pt curing silicones

Specific features

- Crosslinking Property: Condensation-curing
- Crosslinking Property: One-component
- Product Rheology: Thixotropic
- Resistance: UV & weathering-resistant
- Resistance: UV stable
- Resistance: UV stable
- Specific Features: Condensation-curing
- Specific Features: Electrically insulating
- Specific Features: One-component
- Specific Features: Thixotropic
- Specific Features: UV & weathering-resistant

Technical data

Properties Uncured

Property	Condition	Value	Method
Colour	-	black	-
Curing speed	23 °C 50 % r.h	1.0 mm/d	-
Density	25 °C	approx. 1.3 g/cm ³	ISO 1183-1 A
Extrusion rate - mass flow (3 mm nozzle)	2.1 bar 23 °C	6 g/10s	-
Skin formation time	23 °C 50 % r.h	20 - 35 min	-
Viscosity, dynamic	25 °C 0.5 1/S	800000 mPa-s	ISO 3219
Viscosity, dynamic	25 °C 25 1/S	110000 mPa-s	ISO 3219

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

Properties Cured

Curing Conditions: 14 days at 23 °C and 50 % rel. humidity, 2 mm sheet, no post-curing.

Property	Condition	Value	Method
Color	-	black	-
Density	23 °C	1.33 g/cm ³	DIN EN ISO 1183-1 A
Hardness Shore A	-	35	DIN ISO 48-4
Tensile strength	-	2.1 N/mm ²	ISO 37 type 1
Elongation at break	-	400 %	ISO 37 type 1
Tear strength	-	9.8 kN/m	ASTM D 624 B

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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

- Frame Bonding
- Production of CPV Modules
- Solar Thermal Energy

Application details

- General-purpose adhesive for the solar energy industry
- Typical fields of application: frame sealing, bonding of junction boxes, fixation of backrails and mirror elements.

Processing

ELASTOSIL® SOLAR 1109 BLACK is a ready-to-use, one-part silicone rubber which starts curing when exposed to air moisture. Typical curing characteristics are given in the table "Properties Uncured".

As RTV-1 silicones require humidity for curing, free access of air moisture to the silicone rubber is essential. Additionally, the vulcanization time of ELASTOSIL® SOLAR 1109 BLACK can be greatly reduced by increasing the level of air's relative humidity. Please note that, unlike the initial skin formation, the total curing rate of RTV-1 silicones is limited by moisture's diffusion speed in silicone rubber.

Since increasing the curing temperature has just a minor effect both on the skin formation time and the curing speed, ELASTOSIL® SOLAR 1109 BLACK typically is vulcanized at room temperature.

After completion of the vulcanization the silicone elastomer may continuously be exposed to constantly changing climatic conditions, UV radiation and high temperature without damage. Cured ELASTOSIL® SOLAR 1109 BLACK usually shows good primerless adhesion to many substrates, in particular to those which are common for the PV industry (glass, anodized aluminium, Tedlar® films, pre-treated PVF and PVDF etc.).

Detailed information about the processing of RTV-1 silicones is given in our brochure "ROOM TEMPERATURE VULCANIZING (RTV) SILICONES - MATERIAL AND PROCESSING GUIDELINES". We recommend running preliminary tests to optimize conditions for the particular application.

Removal:

If removal of the silicone from machines or dispensing equipment is necessary, white spirit or similar nonpolar solvents are recommended. However, cleaning ideally should take place before the silicone rubber is fully vulcanized. Cured silicone needs to be rubbed off or removed mechanically, if necessary in combination with a swelling agent (solvent) or a chemical silicone remover.

Packaging and storage

Storage

Store in a dry and cool place.

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

While curing ELASTOSIL® SOLAR 1109 BLACK releases a total of approx. 3 % by weight of alcohol. These vapours should not be inhaled for long periods or in high concentration. Work areas should therefore be well ventilated.

Contact of the uncured silicone rubber with eyes and mucous membranes must be avoided as this can cause irritation. If, despite all protective measures, uncured silicone rubber comes into contact with the skin or eyes, irrigate the affected area immediately with copious amounts of water for several minutes. If the irritation continues, seek medical advice.

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 ELASTOSIL® SOLAR 1109 BLACK



For technical, quality or product safety questions, please contact:

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