

ELASTOSIL[®] SOLAR 2205



Room Temperature Curing Silicone Rubber (RTV-2)

ELASTOSIL[®] SOLAR 2205 is a pourable addition curing RTV-2 silicone rubber for coating, lamination and encapsulation purposes. The product vulcanizes at room temperature and under heat to yield a soft elastomer.

Cured ELASTOSIL[®] SOLAR 2205 shows long-term stability against weathering, moisture and UV light. The soft silicone elastomer may continuously be exposed to constantly changing climatic conditions, UV radiation and temperatures as high as 160 °C (320 °F) without damage.

Properties

Uncured:

- very low viscosity
- to be cured with ELASTOSIL[®] CAT PT, ELASTOSIL[®] CAT PT-F, ELASTOSIL[®] CAT CPV or ELASTOSIL[®] CAT UV as curing agent
- 10 : 1 mixing ratio
- fast curing at room temperature

Cured:

- soft silicone rubber (Sh 00 range)
- crystal clear vulcanisate
- excellent resistance to UV light
- very high light transmission in the range of 250 nm to 1100 nm
- recommended service temperature range: -50 °C to +160 °C

Specific features

- Electrically insulating
- Highly transparent
- Low viscosity
- Optically clear
- UV & weathering-resistant
- UV stable

Technical data

Properties Uncured

Property	Condition	Value	Method
Colour	-	colourless	-
Density	23 °C	0.97 g/cm ³	ISO 2811
Viscosity, dynamic	25 °C	150 mPa·s	DIN EN ISO 3219

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

Catalyzed

All values given for a mixing ratio of 10:1 by weight. Suitable curing agents: ELASTOSIL® CAT PT, ELASTOSIL® CAT PT-F, ELASTOSIL® CAT CPV and ELASTOSIL® CAT UV

Property	Condition	Value	Method
Viscosity of mix	-	200 mPa·s	ISO 3219
Pot Life with ELASTOSIL® CAT CPV	25 °C	4 - 5 h	DIN EN ISO 2555
Pot Life with ELASTOSIL® CAT PT	25 °C	90 - 120 min	DIN EN ISO 2555
Pot Life with ELASTOSIL® CAT PT-F	25 °C	20 - 45 min	DIN EN ISO 2555
Pot Life with ELASTOSIL® CAT UV ⁽¹⁾	25 °C	10 - 15 min	ISO 6721-10

¹after UV activation; irradiance: 6 W/cm², 60 s

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

Properties Cured

Cured with ELASTOSIL® CAT PT-F in a mixing ratio of 10:1 by weight. Curing conditions: 20 min at 150 °C in a circulating air oven. 2 mm sheet, no post-curing.

Property	Condition	Value	Method
Color	-	crystal clear	-
Density (in water)	23 °C	0.97 g/cm ³	DIN EN ISO 1183-1 A
Hardness Shore 00	-	50	ASTM D 2240
Volume resistivity	23 °C	4.5*10e16 Ohmcm	IEC 62631-3-1
Dielectric strength	23 °C	14 kV/mm	IEC 60243-1
Refractive index	23 °C 589 nm	1.406	-
Transmission (10 mm layer), 380-1100 nm	-	> 90 %	-

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

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

- Encapsulation

Application details

- potting agent for the PV industry
- encapsulation of electronic components (e.g. junction boxes or power inverters)
- encapsulation of solar cells
- lamination of solar modules

Processing

Surface preparation:

All surfaces must be clean and free of contaminants that will inhibit the cure of ELASTOSIL® SOLAR 2205. Examples of inhibiting contaminants are sulfur containing materials, plasticizers, urethanes, amine containing materials and organometallic compounds – especially organotin compounds. If a substrate's ability to inhibit cure is unknown, a small scale test should be run to determine compatibility.

Mixing:

ELASTOSIL® SOLAR 2205 is processed with curing agents of the ELASTOSIL® CAT series. The two components need to be thoroughly mixed at a 10:1 ratio by weight or volume. Mixing can happen either manually or by automatic metering lines equipped with static or dynamic mixing devices.

Caution! ELASTOSIL® SOLAR 2205 contains the crosslinker, while the curing agents of the ELASTOSIL® CAT series contain the platinum catalyst. Since even traces of platinum catalyst may cause gelling of ELASTOSIL® SOLAR 2205, all tools (e.g. spatula, stirrers, mixing cups etc.) used for handling either the curing agents or the catalyzed mix must not come into contact with ELASTOSIL® SOLAR 2205 by mistake.

Material application:

To eliminate any air introduced during mixing, dispensing or trapped under components and devices a vacuum encapsulation is useful. Alternatively, ELASTOSIL® SOLAR 2205 and the respective curing agent can be deaerated individually prior use in order to remove absorbed air; applying a vacuum of 25-50 mbar for 10-15 min is recommended.

Curing:

Though curing by heat is possible, ELASTOSIL® SOLAR 2205 typically is processed at room temperature. Preferred curing agents are ELASTOSIL® CAT PT (for a medium curing speed) and ELASTOSIL® CAT PT-F (for fast curing). When a slow curing is required, ELASTOSIL® CAT CPV can be used. Besides, ELASTOSIL® CAT UV allows a UV-activated, very fast curing of ELASTOSIL® SOLAR 2205.

Please note: the curing time is highly dependent on the type of curing agent used, processing temperature and both the size and the heat sink properties of the components being encapsulated. For catalyzed mixtures containing ELASTOSIL® CAT UV as curing agent, the curing speed additionally depends on irradiance and irradiation time. General information about the respective pot life is given in the table "Catalyzed".

Furthermore, the reactivity of ELASTOSIL® SOLAR 2205 can be adjusted within wide limits by adding WACKER® Catalyst EP or WACKER® Inhibitor PT 88 to suit the processing requirements of the particular application. WACKER® Catalyst EP increases reactivity, i. e. pot life and curing time are reduced. WACKER® Inhibitor PT 88 is a pot life extender and thus prolongs pot life and curing time.

Pigmentation:

ELASTOSIL® SOLAR 2205 is colourless, transparent and crystal clear. If necessary, the product can be pigmented by adding up to 2 wt. % of ELASTOSIL® COLOR PASTE FL.

Detailed information about processing and pigmentation 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 is fully vulcanized. Cured silicone gel can be rubbed off and removed mechanically, if necessary in combination with a swelling agent (solvent).

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

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 2205



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

Wacker Chemie AG, Gisela-Stein-Strasse 1, 81671 Munich, Germany
productinformation@wacker.com, www.wacker.com

The data presented in this medium are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this medium should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.