ELASTOSIL® SOLAR 2203

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Silicone Gels

ELASTOSIL® SOLAR 2203 is a pourable, addition-curing, RTV-2 silicone rubber for potting, lamination and encapsulation purposes. The product vulcanizes at room temperature to yield a very soft silicone gel.

ELASTOSIL® SOLAR 2203 shows a pronounced inherent tack and long-term stability against weathering, moisture and UV light. The soft silicone gel may continously 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 or ELASTOSIL® CAT CAT UV as curing agent
- 10 : 1 mixing ratio
- fast curing at room temperature, when processed with ELASTOSIL® CAT PT-F or ELASTOSIL® CAT CAT UV

Cured:

- very low hardness (silicone gel)
- crystal clear vulcanisate
- very high light transmission in the range of 250 nm to 1100 nm
- excellent resistance to UV light
- pronounced inherent tack
- recommended service temperature range: -50 °C to +160 °C

Specific features

- Addition Curing
- Optically clear
- Two-component
- 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 and ELASTOSIL® CAT UV.

Property	Condition	Value	Method
Viscosity, dynamic of mixture	25 °C	180 mPa·s	ISO 3219
Pot Life with ELASTOSIL® CAT PT	23 °C	90 min	DIN EN ISO 2555
Pot Life with ELASTOSIL® CAT PT-F	23 °C	5 min	DIN EN ISO 2555
Pot Life with ELASTOSIL® CAT UV[(1)]	23 °C	2 min	DIN EN ISO 2555

[1]after UV activation; irradiance: 6 W/cm^2, 60 s

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Properties Cured

Cured for 20 min at 150 °C in a circulating air oven.

Property	Condition	Value	Method
Color	-	crystal clear	-
Density	23 °C	0.97 g/cm^3	DIN EN ISO 1183-1 A
Penetration (hollow cone, 9. 38 g, 5 s)	-	70 1/10mm	DIN ISO 2137
Refractive index	23 °C | 589 nm	1.405	-
Volume resistivity	23 °C	10e15 Ohmcm	IEC 62631-3-1
Dielectric strength	23 °C	> 23 kV/mm	IEC 60243-1

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

Applications

- Encapsulation

Application details

- multi-purpose 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 2203. 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 2203 is processed with ELASTOSIL® CAT PT, ELASTOSIL® CAT PT-F or ELASTOSIL® CAT UV as curing agent. 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 2203 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 2203, 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 2203 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 2203 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 2203 typically is processed at room temperature. Preferred curing agents are ELASTOSIL® CAT PT and ELASTOSIL® CAT PT-F. Besides, ELASTOSIL® CAT UV allows a UV-activated curing of ELASTOSIL® SOLAR 2203.

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 additonally depends on irradiance and irradiation time. General information about the respective pot life is given in the table "Catalyzed"

The reactivity of ELASTOSIL® SOLAR 2203 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 2203 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 2203

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

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