ELASTOSIL® N 2076

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Moisture Curing Silicone Rubber (RTV-1)

ELASTOSIL® N 2076 is a flowable, one-part silicone rubber for coating and encapsulation applications. When exposed to air moisture it cures at room temperature to yield a permanently flexible silicone rubber with good heat resistance and excellent flame retardant properties.

Fully vulcanized ELASTOSIL® N 2076 shows long-term stability against weathering, moisture and UV radiation. The silicone elastomer may continously be exposed to constantly changing climatic conditions, UV radiation and temperature as high as 180 °C (356 °F) without damage.

Properties

Uncured:

- Medium viscosity level
- By-product of curing: alcohol

Cured:

- Medium hardness
- Designed for the protective coating of electrical coils
- High Limiting Oxygen Index (LOI)
- Meets the requirements of DIN EN 45545-2 for Hazard Level HL1 and HL2 (as per requirement set R22), and for Hazard Level HL1, HL2 and HL3 (as per requirement set R23 and R24), respectively.
- Recommended service temperature range: -50 °C to +180 °C

Specific features

- Condensation-curing
- Electrically insulating
- Flame retardant
- Flowable
- One-component
- UV & weathering-resistant

Technical data

Properties Uncured

Property	Condition	Value	Method
Skin formation time	23 °C | 50 % r.h	5 - 20 min	-
Colour	-	anthracite	-
Curing speed	23 °C | 50 % r.h	1.5 mm/d	-
Density	23 °C	1.30 g/cm^3	DIN EN ISO 2811-2
Viscosity, dynamic	25 °C | 0.5 1/S	160000 mPa·s	ISO 3219
Viscosity, dynamic	25 °C | 25 1/S	18500 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	-	anthracite	-
Density (in water)	23 °C	1.3 g/cm^3	DIN EN ISO 1183-1 A
Hardness Shore A	-	36	DIN ISO 48-4
Tensile strength	-	1.6 N/mm^2	ISO 37 type 1
Elongation at break	-	150 %	ISO 37 type 1
Limiting Oxygen Index (LOI), %[(1)]	-	36	-

[1]as per ISO 4589-2:2017

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Applications

- Electrical Components

Application details

- General purpose coating, in particular for applications demanding fire resistance (electrical coils of small transformers or chokes)
- Encapsulation of electrical devices
- Typical fields of applicaton: electrical industry, railway industry

Processing

Processing

ELASTOSIL® N 2076 is a 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® N 2076 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.

Increasing the curing temperature has just a minor effect both on the skin formation time and the curing speed. ELASTOSIL® N 2076 therefore is vulcanized typically 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® N 2076 usually shows good primerless adhesion to many substrates, e.g. glass, ceramics, metals, plastics, powder coatings and materials based on wood. The silicone rubber coating has excellent flame retardant properties, as proven by fire safety tests according to DIN EN 45545-2:2013+A1:2015, requirement set R22, R23 and R24 (test certificate available upon request).

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.

Example of Use

Coil Coatings:
ELASTOSIL® N 2076 is designed to create long-lasting, protective coatings with good heat resistance and excellent flame retardant properties.

Surface Preparation:
ELASTOSIL® N 2076 shows primerless adhesion to many substrates. However, for optimal adhesion the objects to be coated should be cleaned prior use in order to remove any dirt, rust, oil or grease.

Optional handling:
ELASTOSIL® N 2076 is flowable and self-levelling. The product can be used as delievered, or - if necessary - as a solvent-based coating suspension. Suitable organic diluents are non-polar aliphatic solvents, such as technically dry cyclohexane, white spirit or similar aliphatic grades, and non-polar aromatic solvents (e.g. technically dry toluene or xylene).

Important:
Once prepared, the solvent containing coating mixture has to be stirred continously in order to prevent the sedimentation of fillers. Furthermore all containers, used for storage or processing, should be humidity-tight and must be kept properly closed, because both the coating formulation and its solvent-based suspension are sensitive to moisture. If needed, the storage containers can be filled and ventilated with dry nitrogen or argon gas in order to additionally block air moisture.

Coating:
ELASTOSIL® N 2076 can be applied by any coating method, such as spraying, dipping and brushing. For substrates of simple shape, coating by airless spraying equipment is recommended, because it avoids premature curing of the silicone rubber during the coating process. However, objects with a more complex geometry (such as electrical coils) should be coated by dipping, preferably.

Curing:
The curing process already starts during application, in the moment when the uncured ("wet") coating gets in contact with air moisture. When ELASTOSIL® N 2076 is applied from a solvent containing suspension, it is recommended to store the coated objects in a well ventilated place for physical drying untill all solvent has evaporated. While the coating usually gets tack-free within a few hours, full curing requires several days at 23 °C and 50 % rel. humidity.

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

While curing ELASTOSIL® N 2076 releases a total of approx. 2.5 - 3 wt.% alcohol. These vapors should not be inhaled for long periods or in high concentrations. Hence ventilation of the work place is recommended.

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® N 2076

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

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