SILPURAN® 4200

Moisture Curing Silicone Rubber (RTV-1)

SILPURAN® 4200 is a non-slump to self-levelling silicone rubber formulation, curing at room temperature under the influence of atmospheric moisture to a silicone elastomer exhibiting good mechanical properties.
SILPURAN® 4200 is designed for medical applications in compliance with the WACKER SILICONES HEALTH CARE POLICY.

Properties

SILPURAN® 4200 meets selected test requirements of ISO 10993 and United States Pharmacopeia (USP) Class VI. It usually exhibits good primerless adhesion to many substrates, e.g. glass, ceramics, metals, plastics and powder coatings. The recommended service temperature range is approx. -50 °C to +180 °C.

Special features

- 1-component system
- Condensation-curing
- Food-contact
- Primerless adhesion to most substrates
- Ready to use

Technical data

Properties Uncured

Property	Condition	Value	Method
Viscosity, dynamic (0.5 s^{-1})	23 °C	250000 mPa·s	DIN EN ISO 3219

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

Properties Cured

Curing conditions: 2 mm thickness, 14 days storage at 23 °C and 50 % RH.

Property	Condition	Value	Method
Elongation at break	-	300 %	DIN 53504 S1 / ISO 37
Tensile strength	-	5.5 N/mm^2	DIN 53504 S1 / ISO 37
Hardness Shore A	-	35	DIN 53 505 / ISO 868
Density in water	23 °C	1.10 g/cm^3	DIN EN ISO 1183-1 / ISO 2781
Color	-	translucent	-
Tear strength	-	10 N/mm	ASTM D 624

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Applications

- Medical Equipment

Application details

One-component silicone adhesive, in particular for medical applications.
The following studies were performed on vulcanizates of SILPURAN® 4200 according to ISO 10993:
- Cytotoxicity (ISO 10993-5)
- Sensitation LLNA (ISO 10993-10)
The following studies were performed on vulcanizates of SILPURAN® 4200 according to USP class VI:
- Acute systemic toxicity
- Intracutaneous toxicity
- Implantation test
No adverse effects have been detected at any of the studies performed.

Properly cured vulcanizates of SILPURAN® 4200 can be used for food contact applications and are suitable for use under the Recommendation "XV. Silicones" of the BfR as well as FDA 21 CFR § 175.300 "Resinous and polymeric coatings" and FDA 21 CFR §177.2600 "Rubber articles intended for repeated use" considering any given limitations on extractable and volatile substances.

Processing

SILPURAN® 4200 is a ready-to-use, one-part silicone rubber which starts curing when exposed to air moisture.
- Skin-forming time at 23 °C, 50 % RH: 5 - 10 min
- Curing time at 23 °C, 50 % RH: 12 h/mm

As RTV-1 silicones require humidity for curing, free access of air moisture to the silicone rubber is essential. The vulcanization time of SILPURAN® 4200 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 the silicone rubber. Since increasing the curing temperature has just a minor effect on both, the skin forming time as well as the curing speed, SILPURAN® 4200 is typically vulcanized at room temperature. Heat curing is recommended only for applications where the silicone rubber is applied as a thin film (thickness less than 0.5 mm), because otherwise blistering is likely to occur due to the quick release of acetic acid.
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 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

Packaging

SILPURAN® 4200 is available in 310 mL cartridges. SILPURAN® is neither produced nor packed under sterile conditions, so the final product has to be sterilized prior to use, if necessary.

Storage

Store cartridges 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

During vulcanization of SILPURAN® 4200, a total of about 3.5 % by weight of acetic acid is split off. These vapours should not be inhaled for long periods or in high concentration. Work areas should therefore be well ventilated. Contact of unvulcanized silicone rubber with eyes and mucous membranes must be avoided as this would cause irritation. However if it does happen, rinse the affected area thoroughly with water.

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 SILPURAN® 4200

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

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