

Techsil® RTV27844

Techsil® RTV27844 silicone rubber compound are clear liquids which cure at room temperature to high strength silicone rubber with the addition of curing agents. These two-component products are supplied with curing agent in matched kits which are designed for use at a convenient 10:1 ratio by weight.

The compound is clear and colorless but differs in low temperature flexibility. All three are low viscosity, easily pourable liquids with nominal viscosities ranging between 3000 and 7000 cps. Techsil® RTV27844 silicone rubber compounds have the capability of remaining flexible at temperatures -115°C (-175°F).

Techsil® RTV27844 silicone rubber compound have been used for protection of electronic components and assemblies against shock, vibration, moisture, ozone, dust, chemicals, and other environmental hazards by potting or encapsulation of the components and assemblies.

The optical clarity of these silicone rubber compounds suggests evaluation for applications such as potting solar cells for maximum light transmission and electronic assemblies where component identification is necessary or desirable. Techsil® RTV27844 silicone rubber compound are preferred where flexibility at temperatures down to -115°C (-175°F) is required

Key Features and Benefits

- Convenient 10:1 mixing ratio for use in automatic dispensing or hand operations
- Low viscosity allows easy flow in and around complex parts, providing excellent electrical insulation and shock resistance Cure rate can be accelerated by heat
- Will cure in deep sections or enclosed assemblies without exotherm and with low shrinkage Chemical composition contains no solvents for ease of use on production lines
- Reversion resistance and hydrolytic stability permit use in high humidity environments at elevated temperatures
- Clarity permits visual inspection for easy identification and repair of encapsulated parts Retention of elastomeric properties at temperatures up to 204°C (400°F)

Typical Physical Properties

Uncured Properties	Techsil® RTV27844 A	Techsil® RTV27844 B
Colour	Clear Colourless	Clear Colourless
Consistency	Easily Pourable	Easily Pourable
Viscosity, cps	4300	-
Specific Gravity	1.02	-

Uncured Properties with curing agent added	Techsil® RTV27844 A
Colour	Clear Colourless
Consistency	Easily Pourable
Viscosity, cps	4000
Work Time @ 25°C (77°F), hrs	4

Contact Details

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Cured Properties (Cured 1 hr. @ 25° @ 100°C/212°F)	Techsil® RTV27844
Mechanical	
Hardness, Shore A Durometer	44
Tensile Strength, kg/cm ² (psi)	65 (920)
Elongation, %	120
Elongation, %	0.2
Refractive Index	1.406
Electrical	
Dielectric Strength, kv/mm (v/mil) (1.9 mm thick)	19.7 (500)
Dielectric Constant @ 1000 Hz	2.7
Dissipation Factor @ 1000 Hz	0.0006
Volume Resistivity, ohm-cm	1.8 x 10 ¹⁵
Thermal	
Useful Temperature Range, °C (°F)	-60 to 204 (-75 to 400)
Thermal Conductivity, gm-cal/sec, cm ² , °C/cm (Btu/hr, ft ² , °F/ft)	0.00045 (0.11)
Coefficient of Expansion, cm/cm, °C (in/in, °F)	27 x 10 ⁻⁵ (15.3 x 10 ⁻⁵)
Specific Heat, cal/gm, °C (Btu/lb, °F)	0.3 (0.3)

Product Safety, Handling and Storage

Caution

Techsil® RTV27844 curing agents can generate flammable hydrogen gas upon contact with acidic, basic, or oxidizing materials. Such contact should be avoided.

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. SDS are available at www.techsil.co.uk or, upon request, from any Techsil representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with Techsil products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials

Processing Recommendations

Compatibility

Techsil® RTV27844 silicone rubber compounds will cure in contact with most clean, dry surfaces. However, certain materials, such as butyl and chlorinated rubber, sulfur-containing materials, amines, and certain metal soap-cured RTV silicone rubber compounds, can cause cure inhibition. Cure inhibition is characterized by a gummy appearance of the RTV silicone rubber compound at the interface between it and the substrate.

It is recommended that a sample patch test be performed with Techsil® RTV27844 silicone rubber compounds to determine if a barrier coating or other inhibition-preventing measures are necessary before pouring the material.

Mixing

Select a mixing container 4-5 times larger than the volume of RTV silicone rubber compound to be used. Weigh out ten parts of the A component and one part of the B component. Since Techsil® RTV27844 silicone rubber compounds are kit-matched, work time (or pot life), cure time, and final properties of the cured RTV silicone rubber compound can be assured only if the A component is used with the B component from the same kit.

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With clean tools, thoroughly mix the A and B components together, scraping the sides and bottom of the container carefully to produce a homogeneous mixture. When using power mixers, avoid excessive speeds which could entrap large amounts of air or cause overheating of the mixture, resulting in shorter pot life.

Deaeration

Air entrapped during mixing should be removed to eliminate voids in the cured product. Expose the mixed material to a vacuum of about 25 mm (29 in.) of mercury. The material will expand, crest, and recede to approximately the original level as the bubbles break. Degassing is usually complete approximately two minutes after frothing ceases. When using the RTV silicone rubber compound for potting, a deaeration step may be necessary after pouring to avoid capturing air in complex assemblies.

Automatic equipment designed to meter, mix, deaerate, and dispense two-component RTV silicone rubber compounds will add convenience to continuous or large volume operations

Curing

Techsil® RTV27844 silicone rubber compounds will cure sufficiently in 24 hours at 25°C (77°F) to permit handling. To achieve optimum properties an elevated temperature cure or a cure time of 7 days at room temperature is required. The table below illustrates the effect of temperature on cure time:

Temperature, °C (°F)	Cure Time*
25 (77)	6-7 days
65 (149)	4 hrs.
100 (212)	1 hr.
125 (257)	45 min.
150 (302)	15 min.

* Cure times are only approximate. The actual time is affected by the mass of the unit and the time required to reach the desired temperature.

Bonding

These silicone rubber compounds require a primer to bond to non-silicone surfaces. Techsil® RTV27844 is tested for adhesion and will typically perform when a very low temperature adhesive/encapsulant is needed. All of these products do require a primer for bonding as stated herein.

Thoroughly clean the substrate with a non-oily solvent such as naphtha or methyl ethyl ketone and allow to dry. Then apply a uniform thin film of SS4155 silicone primer and allow the primer to air dry for one hour or more. Finally, apply freshly catalyzed RTV silicone rubber compound to the primed surface and cure as recommended. When dry, SS4155 silicone primer exhibits a white haze which will show through Techsil® RTV27844 silicone rubber compounds. If the appearance of the surface to be bonded must be unchanged, SS4120 silicone primer (which dries to an invisible film) may be used. For more details on priming and adhesion, refer to Techsil technical support regarding silicone primers.

DISCLAIMER

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy themselves as to the suitability of such information for their particular use.

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