TECHNICAL DATASHEET

R4491 Dec.2019

2 part silicone

PRODUCT DESCRIPTION

R4491 is one of a family of soft, adherent, silicone elastomeric or gels designed for the encapsulation and protection of electronic components. It is a low viscosity, 2-component system that is readily mixed in a 1:1 ratio. It is used to provide protection from vibration, thermal or mechanical shock and protection from water and many environmental contaminants. It has excellent dielectric properties.

Key Features

- 1:1 Mix ratio or other depending hardness you need (see below)
- Very low viscosity
- Soft but resilient gel
- Flexible down to -55°C
- Ratio can be adjusted to increase or decrease the softness
- Meets UL94 HB
- Halogen free

Use and Cure Information

IMPORTANT:
The 'A' part of product contains the platinum catalyst; great care should be taken when using automatic dispensing equipment. Please ensure that it is not contaminated by residual hydride containing rubber in the dispensing equipment, as curing will result. If in doubt, it's advised to thoroughly purge the equipment with a suitable hydrocarbon solvent or silicone fluid.

Mixing

Both the 'A' and 'B' parts should be well stirred to ensure the material is uniform and any settled the fillers have been remixed. Place the required amount of 'A' and 'B' parts by weight at the mix ratio shown opposite, in a clean plastic or metal container of approximately 3 times their volume, and mix until the colour of the mixture is uniform. For best results, we recommend degassing. Degas by intermittent evacuation, the larger volume of the mixing vessel helps prevent overflow during this operation. In the case of automatic dispensing with static mixing head, the two components should be degassed before processing. Recommended vacuum conditions are 30-50 mbar intermittently over 5-10 minutes. Cast the mixture either by gravity or pressure injection.

Inhibition of Cure

Great care must be taken when handling and mixing all addition cured silicone elastomer systems, ensuring that all the mixing tools (vessels and spatulas) are clean and constructed in materials which do not interfere with the curing mechanism. The cure of the rubber can be inhibited by the presence of compounds of nitrogen, sulphur, phosphorus and arsenic; organotin catalysts and PVC stabilizers; epoxy resin catalysts and even contact with materials containing certain of these substances e.g. moulding clays, sulphur vulcanised rubbers,

condensation cure silicone rubbers, onion and garlic.

Curing Conditions
The data offers a guide to the rate of cure at various temperatures, mixing of the components at temperatures between 15 and 25°C is recommended to ensure adequate pot life for degassing and handling. The pot life can be extended to several hours by chilling the components before mixing.

Curing time

Max Cure Hrs	24 hrs at 25°C
Max Cure Mins	60 mins at 100°C
Cure Type	Addition

PROPERTIES	**Test Method**	**Value**
Uncured Product		
Appearance:		Transparent Liquid
Colour A Part:		Transparent
Colour B Part:		Transparent
Viscosity A Part:	Brookfield	630 mPa.s
Viscosity B Part:	Brookfield	630 mPa.s
Viscosity mixed	Brookfield	630 mPa.s
Pot Life:		45 minutes
SG 'A'Part		0.97
SG 'B'Part		0.97
Self bonding		Yes
Cured Product		
(after 7 days cure at 23+/-2°C and 65% relative humidity)		
Colour:		Transparent
Specific Gravity:	BS ISO 2781	0.97
Max. Service Temperature:	AFS 1540B	200 °C
Min. Service Temperature:		-55°C
CTE Volumetric		930 ppm/C
CTE Linear		310 ppm/C
Penetration (Cone Weight): 1:1mix		19.5/2.5mm mm

Can be increase with increasing the part of B in the ratio
Can be decrease with increasing the part of A in the ratio

Hardness (Shore A)	A10 to a mix 30 /70 A5 to a mix 35/ 65
Thermal Conductivity W/mK	0.18 W/mK
Volatile Content ppm	<11500 ppm
Flammability	Meets UL94 HB

Electrical Properties

Volume Resistivity:	ASTM D-257	2.0E+15 Ω.cm
Dielectric Strength:	ASTM D-149	>18.5 kV/mm
Dielectric Constant @ 1kHz	ASTM D-150	2.82
Dissipation Factor @ 1kHz	ASTM D-150	0.0014

STORAGE AND SHELF LIFE:

Storage temperature: 5 to 40°C
A temporary lower temperature during few days (transport) doesn't distort properties.

Shelf life: 18 months after the date of manufacturing

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification. ABchimie cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.