

REINHARD OIL A/S

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GE Silicones

Food Contact Applications Silicone Rubber Compounds

Several GE Silicones RTV silicone rubber compounds can be evaluated for food contact applications where FDA, USDA and NSF regulations apply.

FDA STATUS

The following RTV silicone rubber adhesive sealants may be used in repeated contact with foods under FDA regulation 21CFR177.2600 "Rubber Articles Intended for Repeated Use" (and, by reference, 21CFR175.300 "Resins and Polymeric Coatings").

RTV102	RTV109	IS802
RTV103	RTV112	IS803
RTV106	RTV116	IS806
RTV108	RTV118	IS808

The use of these sealants is subject to the following conditions:

- The sealant must be applied in accordance with Good Manufacturing Practices at a thickness not to exceed 6mm (1/4") from an exposed edge, as a continuous film between joints acting as a functional barrier between the food and the substrate (the area underneath the joint.)
- The sealant must be cured for a minimum of 14 days at 25C (77F) and 50% RH.
- The sealant must be thoroughly cleansed before the first use.
- The sealant, when properly cured, must comply with the extractives limitations at temperatures up to and including reflux applications. The user should verify compliance with extractives limitations at higher temperatures.
- Compliance with 21CFR177.2600 does not authorize use of these sealants for the manufacture of baby bottle nipples.

All previously mentioned sealants must be evaluated to determine bond strength for each specific application. If greater adhesion is required, the evaluation of primer

SS4044 (clear) is recommended. SS4044 may be used in repeated contact with food under 21CFR175.105 "Adhesives", and used in conjunction with the RTV products covered under 21CFR177.2600.

The following two component RTV silicone rubber compounds may be used in repeated contact with foods under FDA regulation 21CFR177.2600, "Rubber Articles Intended for Repeated Use"

RTV11	LIMSHS40
RTV41	LIM2500
RTV615	LIM2600
RTV664	LIM2700
RTF762	SLE5500
	SLE5600

The use of these compounds is subject to the following conditions:

- The compound must be applied in accordance with Good Manufacturing Practices.
- The compound must be thoroughly cleansed before the first use.
- Compliance with 21CFR177.2600 does not authorize use of the compound for the manufacture of baby bottle nipples.

RTV11 and RTV41 must be formulated with a catalyst which complies with 21CFR175.300 or 177.2600. These catalysts are Dibutyl Tin Dilaurate (DBT) and RTV9950.

RTV11, RTV41 and SLE5500 compounds should not be used in contact with acid foods.

As with the sealants, primers may be desired. If so, the evaluation of primers SS4044 or SS4120 is recommended. These are covered under FDA regulation 21CFR175.105 "Adhesives", and can be used in conjunction with the silicone compounds mentioned above covered under 21CFR177.2600.

USDA STATUS

GE Silicones has on file approval letters from the USDA which states that RTV102, RTV103, RTV106, RTV108, RTV109, RTV112, RTV116, RTV118, IS802, IS803, IS806 and IS808 sealants, are chemically acceptable for use as sealants on equipment which may contact edible products in official establishments operating under the federal meat and poultry products inspection program. The areas sealed should be thoroughly rinsed with potable water after the sealant has properly cured. The compound must be used in a manner which prevents direct or indirect contamination of edible products.

If greater adhesion is required, the evaluation of primer SS4044 (clear) is recommended. SS4044 is listed with the USDA.

The final granting of authorization for the proposed use of such sealants is the responsibility of the inspector in charge of the official plant. Technical assistance will be provided by the Product Safety Branch of USDA upon request. These sealants are found in the "List of Proprietary

Substances and Nonfood Compounds" issued by USDA. A copy of the approval letter may be required by the USDA inspector. A copy of the approval letter may be obtained from the GE Silicone Product Regulatory Compliance Operation.

NSF STATUS

The National Sanitation Foundation lists RTV102, RTV103, RTV106, RTV108, RTV109, RTV112, RTV116, RTV118, IS802, IS803, IS806 and IS808 sealants under NSF Standard No. 51 "Plastic Materials and Components for Use in Food Equipment" as satisfactory for use on food contact surfaces. If greater adhesion is required, the evaluation of SS4044 primer is recommended. SS4044, is also listed under NSF Standard No. 51.

PRODUCT DATA

Product data sheets describing specific product properties, typical industrial applications and instructions for use are available from GE Silicones, Waterford, NY 12188, the GE Silicones sales office nearest you or an authorized GE silicone product distributor.

LIMITED WARRANTY

GE Silicones warrants that its product will conform to GE Silicones' internal specifications at the time of application or use, provided that the product is stored in accordance with GE Silicones' recommendations and used or applied before the earliest of (1) the "Use Before Date" indicated on the product package, (2) one year from date of shipment, or (3) expiration of such other period or recommended storage time stated in the GE Silicones' literature for the product. If notified in writing of a claim within six months of the product's use or application, GE Silicones will, at its option, replace or refund the purchase price of any GE Silicones product which does not satisfy the foregoing warranty.

THE FOREGOING SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDY FOR DEFECTS OR FAILURE OF THE PRODUCT, AND THE SOLE AND EXCLUSIVE LIABILITY OF GE. THE WARRANTIES STATED ABOVE ARE IN LIEU OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

LIMITATION OF LIABILITY: GE shall in no event, whether the claim is based on warranty, contract, tort, strict liability, negligence or otherwise, be liable for incidental or consequential damages, or for any other damages in excess of the amount of the purchase price.

NOTE: For many products, GE Silicones may be able to offer a more extensive, application specific warranty. For further information, contact your GE Silicones field representative.



GE Silicones World Wide Offices

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GE Silicones

Underwriters' Laboratories Recognition for Silicone Rubber Adhesive Sealants

Several GE Silicones rubber adhesive sealants are recognized by Underwriters' Laboratories, Inc. under their Component Recognition Program. The following adhesive sealants are listed in Underwriters' Laboratories Recognized Component Directory under File No. E-36952:

RTV102†	RTV160	RTV6708#	IS802†
RTV103†	RTV162	RTV5812#	IS803†
RTV106†	RTV167	RTV5813#	IS806†
RTV109†	RTV122*	RTV5818#	IS808†
RTV112†	RTV123*	RTV6802#	RTF5002†
RTV116†	RTV128*	RTV6803#	RTF5003†
RTV118†	RTV6702#	RTV6808#	RTF5008†
RTV133	RTV6703#	RTV6809#	RTF5009†

SIGNIFICANCE OF UL RECOGNITION

Underwriters' Laboratories, Inc. is an independent, not for profit organization which examines and tests various devices (such as appliances, motors and electrical equipment) in relation to public safety.

UL recognition is not legally required of an equipment manufacturer to sell his product. However, the UL marking is a widely recognized and respected symbol of quality and dependability. Therefore, UL recognition is a highly desirable aspect of marketing and selling a finished product.

The finished product (toaster, refrigerator, motor, etc.) must undergo rigorous testing by UL before it achieves the UL marking. The testing can be shortened and simplified if the finished product contains components that UL has previously evaluated and listed in the UL Recognized Component Directory. UL considers silicone rubber adhesive sealants to be components.

The benefits of obtaining UL recognition for a silicone rubber adhesive sealant is that its recognition will in turn facilitate UL evaluation of the product in which the sealant is used.

* Do not use RTV122, RTV123, or RTV128 with polycarbonate plastic.

† These sealants are not for use in delicate electrical and electronic applications in which corrosion of copper, brass or other sensitive metals is undesirable.

These sealants may discolor sensitive metals such as copper and brass when

LEVEL OF UL RECOGNITION

Although the previously mentioned silicone rubber adhesive sealants are all listed in the UL Recognized Component Directory, it must not be assumed that the performance listings for these products are identical.

End users must refer to the Directory to ascertain that the properties listed for any particular adhesive sealant conform with the design requirements of the final product.

UL evaluation of silicone rubber adhesive sealants takes two forms; short term properties evaluation and long term temperature index.

SHORT TERM PROPERTIES

Short term properties include a variety of electrical and flammability tests that UL performs on the cured sealants. Six tests are involved, and results do vary among the silicone rubber adhesive sealants listed. Refer to the UL Recognized Component Directory (File No. E-36952) for specific information.

LONG TERM TEMPERATURE INDEX

The long term temperature index is a lengthy evaluation involving heat aging the cured silicone rubber adhesive sealant at various temperatures. The cured sealant is heat aged until its most sensitive property is reduced to half its original value. A time-temperature graph can then be constructed according to the Arrhenius model. The graph line is extrapolated to 40,000 hours and the corresponding temperature is read from the graph.

The value that appears as a temperature index for a given silicone rubber adhesive sealant can be interpreted as: the cured RTV will retain at least half its original properties after 40,000 hours at the temperature specified in the temperature index.

The long term temperature index is an optional evaluation. If GE Silicones choose not to submit a particular silicone rubber adhesive sealant for this evaluation, UL will assign a temperature index of 105C(221F) for that particular sealant.

The temperature index of the silicone rubber adhesive sealants as listed in Underwriters' Laboratories Recognized Component Directory (File No. E-36952) follows:

Product	Temperature Index	
	Electrical	Mechanical
RTV102, RTV112, RTF5008 RTV103, RTV118, RTF5009 RTV108, RTF5002 RTV109, RTF5003	150C (302F)	140C (284F)
RTV106, RTV116	200C (392F)	200C (392F)
RTV122, RTV6702, RTV5812, RTV123, RTV6703, RTV5813, RTV128, RTV6708, RTV5818, RTV133, RTV6802, IS802, RTV160, RTV6803, IS803, RTV162, RTV6808, IS806, RTV167, RTV6809, IS808	105C (221F)	105C (221F)

PRODUCT DATA

Product data sheets describing specific product properties, typical industrial applications and instructions for use are available from GE Silicones, Waterford, NY 12188, the Silicone Sales office nearest you or an authorized GE silicone product distributor.

HANDLING AND SAFETY

Material Safety Data Sheets are available upon request from GE Silicones. Similar information for solvents and other chemicals used with GE products should be obtained from your suppliers. When solvents are used, proper safety precautions must be observed.

GOVERNMENT REQUIREMENT

Prior to considering use of a GE Silicones product in fulfilling any Government requirement, contact GE Silicones Government Programs Office.

LIMITED WARRANTY

GE Silicones warrants that its product will conform to GE Silicones specifications at the time of application or use. The product must be stored in accordance with GE Silicones recommendations, and used or applied before the earliest of (1) the indicated "Use Before Date", (2) one year from date of purchase, or (3) expiration of such other period or recommended storage time stated in the GE Silicones product literature. If notified, in writing, of a claim within six months of the product's use or application, GE Silicones will, at its option, replace or refund the purchase price of any GE Silicones product which does not satisfy the foregoing warranty.

THE FOREGOING SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDY FOR DEFECTS OR FAILURE OF THE PRODUCT, AND THE SOLE AND EXCLUSIVE LIABILITY OF GE. THE WARRANTIES STATED ABOVE ARE IN LIEU OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

LIMITATION OF LIABILITY: GE shall, in no event, whether the claim is based on warranty, contract, tort, strict liability, negligence or otherwise, be liable for incidental or consequential damages, or for any damages in excess of the amount of the purchase price.

NOTE: For many products, GE Silicones may be able to offer a more extensive, application specific warranty. For further information, contact your GE Silicones field representative.



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