LOCTITE® Resinol® RTC

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PRODUCT DESCRIPTION

LOCTITE® Resinol® RTC provides the following product characteristics:

Technology	Acrylic
Chemical Type	Methacrylate monomers
Appearance (uncured)	Clear liquid[LMS]
Emulsification	Homogeneous white milky liquid[LMS]
Fluorescence	Positive under UV light[LMS]
Components	One component - requires no mixing
Viscosity	Low
Cure	Room temperature cure
Application	Sealing

LOCTITE® Resinol® RTC is a low viscosity liquid sealant designed for sealing porosity in metal castings and powder metal parts. It may also be used to seal microscopic voids in other materials. This product is typically applied with a vacuum impregnation process that removes air from the pores and then fills the pores with liquid sealant. The liquid polymerizes to form a tough thermoset polymer that permanently seals the pores. Liquid sealant is easily washed off with plain water and parts treated with this product are unchanged cosmetically or dimensionally. LOCTITE® Resinol® RTC contains a proprietary surfactant monomer that provides excellent washing from parts without degrading the cured polymer. Parts can be processed and sealed without surface residues typical of older technologies. This product is used to seal castings and powder metal parts against leakage of coolants, lubricants, fuels, hydraulic fluids, air and other fluids in automotive powertrains, steering systems, air conditioning and other components. It can be used in military as well as industrial threadlocking and sealing applications. The sealing of porosity is a preparatory step for plating and coating operations and a means for improving machinability of powdered metal parts.

UL Classification

Classified by Underwriters Laboratories Inc.® MH15585 as a casting impregnation material for exposure to gasoline, kerosene, fuel oils, naptha and gasoline-ethanol and gasoline-methanol mixtures with a maximum of 15% ethanol or methanol.

Mil-I-17563

LOCTITE® Resinol® RTC has passed all requirements of Military Specification Mil-I-17563 Rev. C - Class 1.

NSF International

Certified to ANSI/NSF Standard 61 for use in commercial and residential potable water systems not exceeding 82° C (180° F).

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.0
Flash Point - See MSDS	
Viscosity, Cannon Fenske, ISO 3104, mPa·s (cP):	
#100	5 to 15[LMS]
Surface Tension, ASTM D 1590, dynes/cm	32.1

TYPICAL CURING PERFORMANCE

Cure Mechanism

Liquid LOCTITE® Resinol® RTC self-cures at room temperature by a free radical polymerization reaction that occurs within the part substrate, isolated from the air. Curing occurs gradually and is sufficiently complete to allow most pressure tests to be accomplished after 1 to 4 hours. Parts can be handled and submitted to most other operations while sealant is curing.

Cure Rate

The polymerization (curing) of LOCTITE® Resinol® RTC takes place within the pores of the parts in the absence of air. Conditions for the polymerization reaction are established by chemical interaction with LOCTITE® Accelerator additive and with certain metal surfaces. The rate at which the sealant cures may be influenced by several factors:

LOCTITE® Accelerator additive makes the sealant cure more quickly.

LOCTITE® Concentrated Stabilizer slows the rate of cure.

Cure may be accelerated by contact with certain metals, particularly copper and copper alloys.

Cure rate is influenced by temperature. Heat accelerates curing. Lower temperature slows the cure rate.

Cure rate may be influenced by chemical interaction with various contaminants, such as oils, acids, gases, corrosion inhibitors or water.

Pot Life

Active LOCTITE® Resinol® RTC in an impregnation tank with normal use has unlimited pot life if recommended controls are maintained, including temperature controls and aeration.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Shore Hardness, ISO 868, Durometer D		82
Compressive Modulus, ISO 604	N/mm²	1,088.6
	(psi)	(157,850)
Compressive Strength, at failure	N/mm²	108.1
	(psi)	(15,675)
% Compression , at failure		37.9

TYPICAL ENVIRONMENTAL RESISTANCE

Solvent Resistance

The following solvent conditions were tested and approved per Mil-I-17563 Rev. C - Class 1.

Solvent	Result
Water	No Leakage
Oil	No Leakage
Hydraulic Fluid	No Leakage
Hydrocarbon Fluid	No Leakage
Carbon Removing Compound	No Leakage
Turbine Fuel	No Leakage
Lubricating Oil	No Leakage

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Directions for use

Use of process equipment designed and built by LOCTITE® , or approved by LOCTITE® is strongly recommended. Consult LOCTITE® impregnation technical service for specific process requirements or application equipment.

1. Impregnate LOCTITE® Resinol® RTC into the parts by using any of the following impregnation methods:
   - Wet Vacuum
   - Wet Vacuum/Pressure
   - Dry Vacuum/Pressure
   - Pressure Impregnation.
2. Centrifuge or drip drain the parts to reclaim excess sealant from the parts.
3. Wash parts in water (detergent solution optional) with agitation as necessary to achieve good cleaning.
4. Soak parts in activator rinse ti initiate catalytic cure of sealant at porosity surface sites.
5. Soak parts in final rinse at 43 °C to remove activator rinse and warm the parts for quick drying upon removal. Note: corrosion inhibitors may be added to final rinse if required.

Loctite Material Specification[LMS]

LMS dated September 01, 1995. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.
Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note

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Reference 1.0