Technical Data Sheet

LOCTITE® IS RTC 535E

June 2019

PRODUCT DESCRIPTION

LOCTITE® IS RTC 535E provides the following product characteristics:

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

LOCTITE® IS RTC 535E 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. 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 general industrial threadlocking and sealing applications. The sealing of porosity done by this product is a preparatory step for plating and coating operations and a means of improving machinability of powdered metal parts. LOCTITE® IS RTC 535E resists short term exposure up to 250 °C.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.0
Flash Point - See SDS	
Viscosity, Cone & Plate, 25 °C, mPa·s (cP):	
PV1, C60 1° Cone at 1,000 s^{-1}	5 to 15[LMS]
Surface Tension, ASTM D 1590, dynes/cm	30.8

TYPICAL CURING PERFORMANCE

Cure Mechanism

Liquid LOCTITE® IS RTC 535E 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® IS RTC 535E 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® IS RTC 535E 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		92
Compressive Modulus, ISO 604	N/mm²	900
Compressive Strength, at failure	N/mm²	115
% Compression		32

TYPICAL ENVIRONMENTAL RESISTANCE

Solvent Resistance

The following solvent conditions were tested and approved per Mil-I-17563 Rev. C - Class 1 and Class 3.

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 Safety Data Sheet (SDS).

Directions for use

Porosity sealants typically require catalyzation and must be handled with chemically compatible materials and equipment.

Use of process equipment designed, built and maintained to LOCTITE® standards is recommended to ensure consistent performance. Consult a LOCTITE® Porosity Sealing Specialist for specific application assistance, process development and equipment selection.

1. Impregnate LOCTITE® IS RTC 535E 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. Parts can be placed in an optional surface activator rinse to help cure excessive surface porosity.
5. Soak parts in final rinse at temperatures between 21°C and 50°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.

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.

Loctite Material Specification[LMS]

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.

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:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

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Reference 1.0