

SCV1-2599

Ultra low outgassing™ thermally conductive silicone

DESCRIPTION

- Two-part, white, thermally conductive silicone
- Cures with the addition of heat
- 15:1 Mix Ratio (Part A:B)

Exceeds the ASTM E 595 low outgas specifications outlined in NASA SP-R-0022A and European Space Agency PSS-014-702, with a TML of $\leq 0.1\%$ and CVCM of $\leq 0.010\%$

APPLICATION

- For applications requiring Ultra Low Outgassing™ and minimal volatile condensables under extreme operating conditions to avoid condensation in sensitive devices
- To provide heat transfer between electrical/electronic components and their heat sinks
- Use to adhere integrated circuit substrates, base plates, heat sinks or where grooves or other configurations require a non-flowable to limited flow material

PROPERTIES

| Typical Properties | Average Result | Standard | NT-TM |
|--|---|------------------|-------|
| Uncured: | | | |
| Appearance | White | ASTM D2090 | 002 |
| Work Time | 2 hours | - | 008 |
| Cured: 7 days minimum at ambient temperature and humidity | | | |
| Specific Gravity | 1.53 | ASTM D792 | 003 |
| Durometer, Type A | 75 | ASTM D2240 | 006 |
| Tensile Strength | 200 psi (1.4 MPa) | ASTM D412 | 007 |
| Elongation | 30% | ASTM D412 | 007 |
| Tear Strength | 50 pli (8.8 kN/m) | ASTM D624 | 009 |
| Lap Shear Strength (primed w/ CF1-135) | 150 psi (1.0 MPa) | ASTM D1002 | 010 |
| Thermal Conductivity (tested at 43°C (109°F)) | 1.60 W/mK (38×10^{-4} cal/(cm·sec·°C)) | ASTM E1530 | 101 |
| Dielectric Strength | 540 volts/mil (21.3 kV/mm) | ASTM D149 | - |
| Volume Resistivity | 5.3×10^{14} ohm·cm | ASTM D257, D4496 | - |
| TGA Take-Off (1% wt. Loss, 10°C/min. in air) | 350°C (662°F) | - | - |

| Typical Properties | Average Result | Standard | NT-TM |
|--|----------------|------------|-------|
| Coefficient of Linear Thermal Expansion | | | |
| -100°C to -50°C | 165 (µm/(m°C)) | ASTM D3386 | - |
| -30°C to 250°C | 225 (µm/(m°C)) | ASTM D3386 | - |
| Collected Volatile Condensable Material (CVCM) | 0.007% | ASTM E595 | 072 |
| Total Mass Loss (TML) | 0.05% | ASTM E595 | 072 |

The test data shown for this material is the average value for typical properties. All of these properties may not be tested on a lot to lot basis and cannot be used to draft specifications. Please [contact](#) NuSil® for assistance and recommendations in establishing limits for product specifications.

INSTRUCTIONS FOR USE

Mixing

Thoroughly stir Part A prior to weighing for Part B addition as the product separates. Mix 15 parts Part A to 1 part Part B by weight, just prior to use.

Vacuum Deaeration

Remove air entrapped during mixing by common vacuum deaeration procedure, observing all applicable safety precautions. Slowly apply full vacuum to a container rated for use and at least four times the volume of the material being deaerated. Hold vacuum until bulk deaeration is complete.

Inhibition Concerns

Cures in contact with most materials. Exceptions include butyl and chlorinated rubbers, some RTV silicones and unreacted residues of some curing agents.

Note: Some bonding applications may require the use of a primer. NuSil CF1-135 silicone primer is recommended.

Adjustable Cure Schedule

Product cures a wide range of elevated temperatures and cure times to accommodate different production needs. [Contact](#) NuSil for details.

OPERATING TEMPERATURE

The operating temperature range of a silicone in any application is dependent on many variables, including but not limited to: temperature, time of exposure, type of atmosphere, exposure of the material's surface to the atmosphere, and mechanical stress. In addition, a material's physical properties will vary at both the high and low end of the operating temperature range. Silicone typically remains flexible at extremely low temperatures and has been known to perform at -50°C (-58°F) as well as resist breakdown at elevated

Packaging

50 Gram Kit (0.051 kg)
100 Gram Kit (0.102 kg)
500 Gram Kit (0.503 kg)

Warranty

12 Months

temperatures up to 250°C (482°F). The user is responsible to verify performance of a material in a specific application.

ROHS AND REACH COMPLIANCE

Please [contact](#) NuSil's Regulatory Compliance department with any questions or for further assistance.

SPECIFICATIONS

Do not use the typical properties shown in this technical profile as a basis for preparing specifications. Please [contact](#) NuSil for assistance and recommendations in establishing limits for product specifications.

WARRANTY INFORMATION

The warranty period provided by NuSil Technology LLC is 12 months from the date of shipment when stored below 40°C in original unopened containers. Unless NuSil provides a specific written warranty of fitness for a particular use, NuSil's sole warranty is that the product will meet NuSil's then current specification. NuSil specifically disclaims all other expressed or implied warranties, including, but not limited to, warranties of merchantability and fitness for use. The exclusive remedy and NuSil's sole liability for breach of warranty is limited to refund of

purchase price or replacement of any product shown to be other than as warranted. NuSil expressly disclaims any liability for incidental or consequential damages.

WARNINGS ABOUT PRODUCT SAFETY

NuSil believes, to the best of its knowledge, that the information and data contained herein are accurate and reliable. The user is responsible to determine the material's suitability and safety of use. NuSil cannot know each application's specific requirements and hereby notifies the user that it has not tested or determined this material's suitability or safety for use in any application. The user is responsible to adequately test and determine the safety and suitability for their application and NuSil makes no warranty concerning fitness for any use or purpose. NuSil has completed no testing to establish safety of use in any medical application.

NuSil has tested this material only to determine if the product meets the applicable specifications. (Please [contact](#) NuSil for assistance and recommendations when establishing specifications.) When considering the use of NuSil products in a particular application, review the latest Material Safety Data

Sheet and [contact](#) NuSil with any questions about product safety information.

Do not use any chemical in a food, drug, cosmetic, or medical application or process until having determined the safety and legality of the use. The user is responsible to meet the requirements of the U.S. Food and Drug Administration (FDA) and any other regulatory agencies. Before handling any other materials mentioned in the text, the user is advised to obtain available product safety information and take the necessary steps to ensure safety of use.

PATENT / INTELLECTUAL PROPERTY WARNING

NuSil disclaims any expressed or implied warranty against the infringement of any domestic or international patent/intellectual property right. NuSil does not warrant the use or sale of the products described herein will not infringe the claims of any domestic or international patent/intellectual property right covering the product itself, its use in combination with other products, or its use in the operation of any process.



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