

**PRODUCT DESCRIPTION**

LOCTITE® Product 5248 is a single component ultraviolet (U.V.) light and moisture curable thixotropic silicone sealant. Upon exposure to U.V. light or atmospheric moisture this product cures to form a durable, flexible rubber sealant.

**TYPICAL APPLICATIONS**

Used for gasketing and sealing applications, especially for medical device applications. Loctite 5248 has USP Class VI Certification. Suitable for use in assembly of disposable medical devices.

**PROPERTIES OF UNCURED MATERIAL**

	Value	Typical Range
Chemical Type	Modified Alkoxy Silicone	
Appearance	Clear, Translucent paste	
Specific Gravity @ 25°C	1.02	
Viscosity @ 25°C, mPa.s (cP)		
Brookfield RVT		
Spindle 8 @ 2.5 rpm	65,000	50,000 to 80,000
Flash Point (TCC), °C	>100	

**TYPICAL CURING PERFORMANCE**

Normal processing conditions will include exposure to sufficient UV light irradiance to effectively cure the material. Surface and/or atmospheric moisture will influence the cure of shadowed regions. Although functional strength is developed almost instantly due to the UV curing nature of this product, full performance properties will develop over 72 hours.

**Surface Cure**

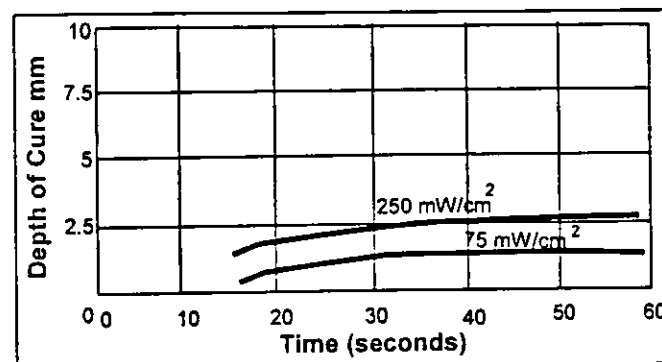
When curing with sufficient UV light irradiance, exposed material will cure dry to the touch in seconds. Atmospheric moisture controls the cure of material not exposed to UV light. Typically, non-UV light cured areas will skin over in approximately 11 minutes and become tack free in 14 minutes.

**UV Light vs. Moisture Cure**

It is important to state that functional strength or performance is achieved very rapidly due to the UV light curing nature of this product. However, full performance properties are developed over a period of 72 hours. The table below lists the difference in three key physical properties between UV light only and moisture only cure parameters.

**Depth of Cure vs. Time**

Shadowed areas rely on surface and/or atmospheric moisture to effect cure. Depth of cure is limited to approximately 1/4 inch and will take at least 24 hours to develop. Rapid, deep section cure can be attained with properly focused UV light. The graph below shows the depth of cure obtained in one minute at two different levels of UV irradiance.

**TYPICAL PROPERTIES OF CURED MATERIAL****Physical Properties**

(cured @ 40mW/cm² for 60 sec./side, plus 7 days @ 50% RH & 23°C)

Coefficient of thermal expansion, ASTM E228, /°C	2.89 x 10 <sup>-4</sup>
Tensile Strength, ASTM D412, N/mm²	1.5
(psi)	(220)
Tensile Elongation, ASTM D412, %	175
Hardness, ASTM D2240, Shore A	30
Water absorption, 24hrs. @ Room Temp., %	0
Shrinkage, % Volume	0
Tear (die B), ASTM D624, kN/m	1.75
(pli)	(10)
Non-volatile content, %	>95
Water vapour transmission, ASTM E96, gram/hr./M²	0.455
Compression Set, ASTM D395, %	
After 70 hrs. @ room temperature	6
After 70 hrs. @ 75°C	44
After 70 hrs. @ 100°C	80

**Electrical Properties**

	Constant	Loss
Dielectric constant & loss, 25°C, ASTM D150		
measured at 100 Hz	2.90	0.002
100 kHz	2.88	0.003
Volume Resistivity, ASTM D257, Ω.cm		8.3 x 10 <sup>+13</sup>

**(% of Full Cure Values)**

	a. UV Cure Only	b. Moisture Cure Only
Hardness	7	60
Durometer		
Tensile strength, psi	37	100
Elongation, %	75	150

a. 40 mW/cm² for 60 seconds/side

b. 7 days room temperature, 50% R.H. (no UV exposure)

NOT FOR PRODUCT SPECIFICATIONS

THE TECHNICAL DATA CONTAINED HEREIN ARE INTENDED AS REFERENCE ONLY.

PLEASE CONTACT LOCTITE CORPORATION QUALITY DEPARTMENT FOR ASSISTANCE AND RECOMMENDATIONS ON SPECIFICATIONS FOR THIS PRODUCT.

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PERFORMANCE OF CURED MATERIAL

(Cured @ 40mW/cm<sup>2</sup> for 60 sec./side, plus 7 days @ 50% RH & 23°C)

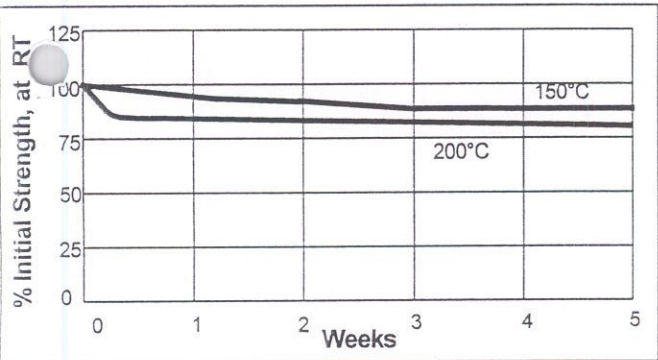
	Typical	
	Value	Range
Shear Strength, ASTM D1002/DIN 53283, N/mm <sup>2</sup>		
Aluminium to Glass (psi)	0.3 (40)	0.1 to 0.5 (20 to 70)
Steel to Glass (psi)	0.8 (120)	0.4 to 1.2 (60 to 180)
Glass to Glass (psi)	0.7 (100)	0.3 to 1.0 (40 to 150)

TYPICAL ENVIRONMENTAL RESISTANCE

The following tests refer to the effect of environment on strength. This is not a measure of sealing performance.

Heat Ageing

Test Procedure : Tensile Strength, ASTM D412  
Test specimen: 2mm film  
Cure procedure: 1minute per side @ 40 mW/cm<sup>2</sup>



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 oxidising materials.

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

When aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive/sealant. In some cases these aqueous washes can affect the cure and performance of the adhesive

Approvals

Product 5248 has been granted USP Class VI certification which makes it particularly suited for use in disposable medical device assemblies.

Directions for use

For best performance surfaces should be clean and free of grease or other contaminants. The product is designed to be initially cured with UV light at a minimum irradiance of 30mW/cm<sup>2</sup> for approximately 20 seconds. Functional strength is achieved almost instantly. Full performance properties will develop over 72 hours. Moisture curing begins immediately after the product is exposed to the atmosphere, therefore parts to be assembled should be mated within a few minutes after the product is dispensed. Excess material can be easily wiped away with non-polar solvents.

Storage

Product shall be ideally stored in a cool, dry location in unopened containers at a temperature between 8°C to 28°C (46°F to 82°F) unless otherwise labelled. Optimal storage is at the lower half of this temperature range. To prevent contamination of unused product, do not return any material to its original container. For further specific shelf life information, contact your local Technical Service Centre.

Data Ranges

The data contained herein may be reported as a typical value and/or range (based on the mean value ±2 standard deviations). Values are based on actual test data and are verified on a periodic basis.

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Loctite Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale of use of Loctite Corporation's products. Loctite Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Loctite Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.





This safety data sheet has been prepared in accordance with the requirements of EC Directive 88/379/EEC and 91/155/EEC (and other related directives) and provides information relating to the safe handling and use of the product.

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product Code	0198002
Trade Name	5248
Manufacturer/Supplier	Loctite Ireland Ltd.
Address	Tallaght Business Park Whitestown Dublin 24
Emergency Phone Number	+353-1-451 0433
Fax Number	+353-1-451 0806

## 2. COMPOSITION/INFORMATION ON THE COMPONENTS

Nature	Methoxy curing silicone		
Preparation - Hazardous Components			
Component	Min%	Max%	EEC Classification
Accelerator	1	5	Harmful R10, R20, R36
Methacrylated PDMS resin	60	100	None N/A
Thixotropic Agent	10	15.00	None N/A

## 3. HAZARD IDENTIFICATION

This product is not classified as hazardous. Methoxy curing silicones release methanol in contact with moisture. Methanol is toxic if swallowed and harmful by inhalation. It is highly flammable.

## 4. FIRST AID MEASURES

### First Aid - Inhalation

Remove patient to fresh air and seek medical attention.

### First Aid - Skin

Wash skin with plenty of soap and water.

### First Aid - Eyes

Flush eyes immediately with plenty of water for at least 15 minutes.

### First Aid - Ingestion

Rinse mouth with water, then give plenty of water or milk to drink. Do not induce vomiting.

## 5. FIRE FIGHTING MEASURES

Non flammable product (flash point is greater than 100°C (CC)).

If product is involved in fire extinguish with dry powder, foam or carbon dioxide.

Trace amounts of toxic fumes may be released on incineration and the use of breathing apparatus is recommended.



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**5. FIRE FIGHTING MEASURES (continued)**

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**6. ACCIDENTAL RELEASE MEASURES**

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For small spills wipe up with paper towel and place in container for disposal.  
For large spills absorb onto inert absorbent material and place in sealed container for disposal.

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**7. HANDLING AND STORAGE**

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**Handling**

Loctite applicators are recommended to minimise skin contact, particularly where workers are handling sharp or threaded parts which might result in microlaceration of sensitive areas of the skin.

**Storage**

Store in original containers at 8°C-21°C and do not return residual materials to containers as contamination may reduce the shelf life of the bulk product.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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In circumstances where there is a potential for prolonged or repeated skin contact, the use of disposable gloves (polyethylene, natural rubber or equivalent ester-resistant material) is recommended.

Use of Loctite applicator equipment is recommended.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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Physical State	Paste.
Colour	Clear.
Odour	Alcoholic.
pH	N/A
Boiling Range/Point (°C)	N/A
Flash Point (CC) (°C)	>100
Specific Gravity	1.08.
Solubility in Water (kg/m <sup>3</sup> )	Immiscible.
Solubility in Acetone	Partially soluble
Vapour Pressure(mmHg @ 25°C)	<5.0
Explosion Limits (%)	N/A

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**10. STABILITY AND REACTIVITY**

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Stable under normal conditions. Polymerisation will occur in the presence of moisture.

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**11. TOXICOLOGICAL INFORMATION**

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## 11. TOXICOLOGICAL INFORMATION (continued)

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### Inhalation

Methanol released during polymerisation of RTV silicones is toxic by inhalation. It is also highly flammable.

### Skin

Acute dermal LD50 is estimated to be greater than 2000mg/kg.

### Eyes

May cause mild irritation to the eyes.

### Ingestion

This product is considered to be of low toxicity having an acute oral LD50 (rat) >5000mg/kg by analogy to other similar products.

Methanol released during polymerisation of alkoxy RTV silicones is toxic if swallowed.

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## 12. ECOLOGICAL INFORMATION

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No information available.

Does not contain substances listed on the Montreal protocol.

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## 13. DISPOSAL

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The product and contaminated packaging may be disposed of as non-hazardous waste in landfill at approved site. Local regulations should be observed.

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## 14. TRANSPORT INFORMATION

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UN Number	N/A
AIR (IATA)	N/A
Sea (IMO)	N/A
Road (ADR)/Rail(RID)	N/A

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## 15. REGULATORY INFORMATION

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Contains	N/A
R phrases	N/A
S phrases	N/A
Voluntary Labelling	Volatile byproducts are released during polymerisation. See safety data sheet for further information.

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## 16. OTHER INFORMATION

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MSDS first issued 20.07.95

Further Information may be obtained from:-

Loctite Corporation,



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**16. OTHER INFORMATION (continued)**

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Whitestown,  
Dublin 24,  
Ireland.

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