

LOCTITE STYCAST OS 5101

June 2021

PRODUCT DESCRIPTION

LOCTITE STYCAST OS 5101 provides the following product characteristics:

Technology	Epoxy
Appearance	White paste
Product Benefits	<ul style="list-style-type: none"> • One component • Non-conductive • Fast UV cure • Cures in shadowed areas with heat • High adhesion • Low CTE
Cure	Ultraviolet (UV) light & heat cure
Application	Electronic Adhesives & Solder, Component assembly, UV Adhesive
Typical Assembly Applications	Optoelectronic lens assembly
Key Substrates	Glass, Stainless steel, Au Plated PCB

LOCTITE STYCAST OS 5101 cure adhesive is specially formulated for use in optical component assembly applications. This product is designed with a secondary thermal cure mechanism for applications with shadowed areas where light is unable to penetrate.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Rheometer Anton Paar@ 25°C, Parallel Plate 25, 200 µm gap, mPa·s (cP):

@ Shear rate of 20 s ⁻¹	22,000
Thixotropic Index	≥1.5
Density, g/ml	1.83
Particle Size, Hegman gauge, µm	24
Work Life @ 20 to 25°C, hours	24
Shelf Life @ -20°C, days	180

TYPICAL CURING PERFORMANCE

Recommended UV Cure Condition

Light Source	LED lamp
Wavelength, nm	365
Light Intensity, mW/cm ²	120 to 250
Exposure Time, seconds	60 to 120

Secondary Thermal Cure Condition

60 to 120 minutes @ 120°C

The above cure profile(s) are guideline recommendation(s). These conditions (time and temperature) may vary based on customers' experience and specific application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Coefficient of Thermal Expansion, ppm/°C :	
Below Tg	20
Above Tg	56
Glass Transition Temperature, TMA, °C	137
DMA Modulus @ 25°C	N/mm ² 13,490
	(psi) (1.96×10 ⁶)
Volume Shrinkage, %	1

Outgassing Properties

Outgassing, %:	
24 hours @ 120°C by TGA, after curing	<0.6

Adhesion Properties

Sample cured 60 minutes @ 120°C, 5 mil gap:

Shear Strength :	
Lap Shear Strength @ 25°C:	
SS304 to SS304	N/mm ² 7
	(psi) (1,020)

Sample cured 365 nm, 120 to 250 mW/cm² for 60 to 120 seconds followed by secondary thermal cure 60 minutes @ 120°C:

Shear Strength :	
Die Shear Strength @ 25°C, kg-f:	
2 X 2 mm glass die to glass	7

GENERAL INFORMATION

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

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 their strong oxidizing materials.

THAWING:

1. Allow container to reach room temperature before use.
2. After removing from the freezer, set the syringes to stand vertically while thawing.
3. DO NOT open the container before contents reach 25 °C temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.
4. DO NOT re-freeze. Once thawed to 25°C, the adhesive should not be re-frozen.
5. Material is ready to use after 1 hour @ 25°C.

DIRECTIONS FOR USE

1. This product is UV light sensitive. Exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling.
2. Cure rate is dependent on lamp intensity, distance from light source, depth of cure needed or bondline gap and light transmission of the substrate through which the radiation must pass.
3. Thawed material should immediately be placed on dispense equipment for use.
4. If the adhesive is transferred to a final dispensing reservoir, care must be exercised to avoid entrapment of contaminants and/or air into the adhesive.
5. Adhesive must be completely used within the product's recommended work life.
6. Alternate dispense amounts may be used depending on the application requirements.
7. Star or crossed shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

STORAGE

Store product in the unopened container in a cool dry well ventilated area. Storage information may be indicated on the product container labeling.

Must be away from any light source.

Optimal Storage: -20°C. Storage below -20°C or above -20°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 Henkel Representative.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\text{N} \times 0.225 = \text{lb/F}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{psi} \times 145 = \text{N/mm}^2$
 $\text{MPa} = \text{N/mm}^2$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

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