

LOCTITE ABLESTIK SSP 2020

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PRODUCT DESCRIPTION

LOCTITE ABLESTIK SSP 2020 provides the following product characteristics:

Technology	Silver Sintering Paste
Appearance	Silver
Cure	Heat cure
Product Benefits	• Long work life • Good workability • Syringe dispensable • Stencil printable • High electrical conductivity • High thermal conductivity • High die shear strength
Application	High power die attach
Typical Package Application	High thermal package applications
Key Substrates	Metalized back side die to Ag or Au coated substrates or other metalized leadframes

LOCTITE ABLESTIK SSP 2020 sintering silver paste die attach adhesive designed for devices requiring high thermal and electrical conductivity. LOCTITE ABLESTIK SSP 2020 is formulated to provide high heat transfer generated from power devices. LOCTITE ABLESTIK SSP 2020 maintains high adhesion at operating temperatures as high as 260°C.

TYPICAL PROPERTIES OF UNSINTERED MATERIAL

Thixotropic Index (0.5/5 rpm)	5.0
Viscosity, Brookfield - Cone & Plate, 25 °C, mPa·s (cP):	
Speed 5/0.5 rpm	19,000
Work Life @ 25°C, hours	>18
Storage Life @ -40°C, days	183
Flash Point - See SDS	

TYPICAL SINTERING PERFORMANCE

Pressureless Sintering Process

Ag or Au Leadframe sintered in	
Conventional Air Circulated Oven	10 minute ramp to 250°C + 60 minutes @ 250°C
N2 Oven	10 minute ramp to 250°C + 60 minutes @ 250°C
Direct Bonded Copper (DBC)	
on Au	10 minute ramp to 200°C + 60 minutes @ 200°C
on Ag	10 minute ramp to 250°C + 60 minutes @ 250°C

Pressure Sintering Process

Air dry 40 minutes @ 120°C then sinter 2 minutes @ ≥250 °C at >10 MPa pressure

The above sintering profiles are guideline recommendations. Sintering conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer sintering equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF SINTERED MATERIAL

Sample sintered 30 min ramp to 250°C + 60 mins @ 250°C

Physical Properties

Thermal Conductivity, W/(m·K)	>100
Extractable Ionic Content, ppm:	
Chloride (Cl-)	<1
Sodium (Na+)	<1
Potassium (K+)	<1
Modulus of Elasticity :	
@ 25°C	N/mm ² 12,490 (psi) (1,800,000)
@ 100°C	N/mm ² 9,740 (psi) (1,400,000)
@ 150°C	N/mm ² 8,290 (psi) (1,200,000)
@ 200°C	N/mm ² 6,970 (psi) (1,000,000)
@ 250°C	N/mm ² 5,615 (psi) (800,000)

Electrical Properties

Volume Resistivity , 4-point probe , ohm-cm	4.8×10 ⁻⁵
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TYPICAL PERFORMANCE OF SINTERED MATERIAL

Exact performance depends on process conditions.

Miscellaneous

Die Shear Strength	
Pressureless Sintering	
Ag/Cu leadframe, kg/mm ²	3
PPF LF, kg/mm ²	2
Pressure Sintering	
Ag or Au Surface, kg/mm ²	>>4

GENERAL INFORMATION

Product is hazardous to environment and is an eye irritant.

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

THAWING:

1. This adhesive is packed and shipped in dry ice.
2. Allow container to reach room temperature before use.
3. DO NOT open the container before contents reach 20°C temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.

DIRECTIONS FOR USE

1. Product remixing with a three- axis mixer is recommended before use. Silver-resin separation may occur if the adhesive is left standing.
2. Adhesive must be used within 8 hours after remixing.
3. This material can be applied by stencil printing or dispensed
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. Apply enough adhesive to achieve a 25 to 100 µm wet bondline thickness.
6. Star or crossed shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern
7. The following are the recommended stencil printing parameters:

Squeegee Type	Stainless steel metal, 45°
Print Speed, mm/sec	20 to 100
Squeegee pressure, Kg	3 to 6
8. Alternate print or dispense amounts may be used depending on the application requirements

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.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage : ≤-40 °C Protect from heat.

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

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

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Reference 0.1