

LOCTITE GC 50

February 2020

PRODUCT DESCRIPTION

LOCTITE GC 50 provides the following product characteristics:

Technology	Solder paste
Application	Jetting/Dispensing, Halogen-free, Pb-free soldering

LOCTITE GC 50 solder paste is a halogen free, no-clean, Pb-free solder paste specially specially designed to provide enhanced stability when used in jetting and other dispensing applications.

FEATURES AND BENEFITS

- Provides added long-term stability over a wide range of temperature conditions. Cpk >2.0 achievable with less than 50% tolerance
- High process capability for paste diameter targets of <300 µm using jetting technology
- Optimized rheology suitable for solder paste jetting technology with process stability up to 28°C (82°F)
- Stable in ejector head for at least 1 week (up to 28°C/82°F).
- Suitable for use in time/pressure and auger pump dispensing systems
- Void-free packaging for improved process consistency and sustainability
- Stable at room temperature for enhanced sustainability
- Excellent soldering performance in air or in nitrogen
- Good resistance to graping in demanding reflow profiles
- IPC Class III voiding performance
- Post reflow residues readily removed with electronics industry solvents
- Compatible with Pb-free printing pastes in a solder additive process
- Eliminates the need for step-stencil or preforms

Refer to the Engineering Manual for LOCTITE GC 50 solder paste for additional technical information.

TYPICAL PROPERTIES

LOCTITE GC 50 solder alloys and powders are RoHS and EICC compliant.

Solder Alloy (J-STD 006)

LOCTITE Code	SAC305
Melting Point (°C)	217
Nominal Composition (% by weight)	
Sn	96.5
Ag	3.0
Cu	0.5

Solder Powder

Careful control of the atomisation process for production of solder powders for LOCTITE GC 50 solder pastes ensures that the solder powder is produced to a quality level that exceeds IPC/J-STD-005 and EN 29453 requirements for sphericity, size distribution, impurities and oxide levels.

Minimum order requirements may apply to certain alloys and powder sizes. For availability contact your local Henkel Sales Representative.

Particle Size Distribution (PSD) (J-STD-005A)

Type 5 Powder

Powder Description	T5
Powder Particle Size Distribution	15 to 25 µm

Solder Paste Typical Properties

Based on T5 powder

Alloy	SAC305
Metal Content, %	84
Brookfield Viscosity @ 25°C, mPa.s (cP) Spindle TF, Speed 5 rpm, 2 minutes	850,000
Malcom Viscosity @ 25°C, Pa.s Speed 10 rpm	110
Malcom Thixotropic Index	0.73

DIRECTIONS FOR USE

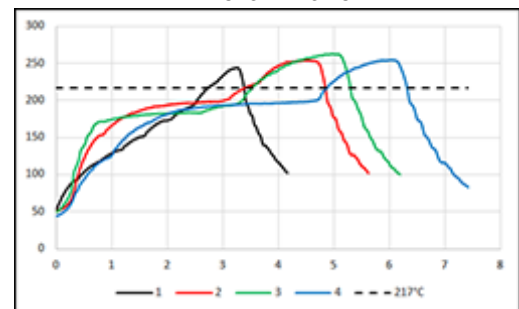
Application Method:

LOCTITE GC 50 has been formulated with rheology optimized for jet dispensing. It can be also used in traditional dispensing technology. Process setup is specific to technology chosen (time/pressure and auger pump dispensing systems).

Reflow:

Excellent soldering performance is typically achieved using a convection reflow oven in air. Nitrogen atmosphere reflow can be used if desired. Example reflow profiles are shown below.

Reflow Profile



Refer to the LOCTITE GC 50 Engineering Manual for additional profiling information and to Henkel Technical Service for other modes of reflow oven.

Cleaning:

- LOCTITE GC 50 is a no-clean solder paste designed to be left on the PCB, post assembly, without compromising long-term reliability.
- Should there be a specific requirement for residue removal, this may be achieved using conventional electronic cleaning processes based on commercially available cleaning materials designed for the de-fluxing of electronic assemblies.

RELIABILITY PROPERTIES

Solder Paste Medium:

LOCTITE GC 50 flux has been tested to the J-STD-004B specification with IPC classification of ROL0.

J-STD-004B (IPC TM-650 Test Method)	Results
Flux Corrosion (2.6.15C)	Pass
Copper Mirror (2.3.32D)	Pass
Surface Insulation Resistance (SIR) (2.6.3.7)	Pass
Electromigration (ECM) (2.6.14.1)	Pass
Halogen Content (Pretreatment EN14582, 2.3.28.1)	Pass
Flux Activity Classification	ROL0

COMPATIBILITY:

LOCTITE GC 50 solder paste is compatible with Pb-free printing solder pastes.

STORAGE AND SHELF LIFE

Packaging

LOCTITE GC 50 is available in 100 gram Iwashita cartridges and 25 gram and 75 gram EFD cartridge.

Customized packaging may be available upon request.

Storage:

Optimal storage: 5 to 25°C (41 to 77°F)

Storage information may be indicated on the product container labelling. Material removed from containers may be contaminated during use. Do not return products to the original container. Henkel Corporation cannot assume responsibility for product that 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.

Please refer to the LOCTITE GC 50 Handling Guidelines for further information on storage conditions.

Shelf Life:

Provided that LOCTITE GC 50 is stored in the original container, shelf life of 180 days at 5 to 25°C (41 to 77°F) can be expected.

DATA RANGES

The data contained herein may be reported as a typical value and/or a range. Values are based on actual test data and are verified on a periodic basis.

GENERAL INFORMATION

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

Not for Product Specifications

The technical information contained herein is intended for reference only. Please contact Henkel Technologies Technical Service for assistance and recommendations on specifications for this product.

Conversions

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

Disclaimer

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. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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