

LOCTITE C 511

September 2014

PRODUCT DESCRIPTION

LOCTITE C 511 provides the following product characteristics:

Technology	Cored solder wire
Activity	High
Product Benefits	<ul style="list-style-type: none"> No clean Clear residue Good wetting Fast soldering Heat stable Mild odor Pb-free and SnPb alloys available
IPC/J-STD-004 Classification	ROM1
Application	Soldering - Cored wire
Surface Finishes	Copper, Brass and Nickel

LOCTITE C 511 cored solder wire has been specially formulated to complement no clean wave and reflow soldering processes.

TYPICAL PROPERTIES

Solder Wire - Cored Typical Properties

Alloys - Tin/lead	<ul style="list-style-type: none"> SN63 SN60 SN62 60EN
Alloys - Lead Free	<ul style="list-style-type: none"> 96SC (SAC387) 97SC (SAC305) 99C (SnCu) 95A (SnSb) 96S (SnAg)
Acid Value	164 to 176 mg KOH/g
Halide content	1.1%
Flux Content (%)	2.7

ALLOYS:

The alloys used in LOCTITE C 511 cored solder wires conform to the purity requirements of the common national and international standards.

FLUX:

LOCTITE C 511 solid flux is based on modified rosin and carefully selected activators. In practice they exhibit a mild rosin odor and leave a small quantity of clear residue.

DIRECTIONS FOR USE

Soldering with LOCTITE C 511 does not require any special methods or deviation from standard hand soldering practices.

Soldering Iron:

- Good results can be obtained using a range of tip temperatures. However, the optimum tip temperature and heat capacity required for a hand-soldering process is a function of both

soldering iron design and the nature of the task.

- Care should be exercised to avoid unnecessarily high tip temperatures for extensive periods of time.
- A high tip temperature may increase any tendency to flux spitting and it may produce some residue darkening.
- The tip of the soldering iron should be properly tinned. Severely contaminated soldering iron tips should be cleaned with Multicore® Tip Tinner/Cleaner.
- Wipe the tip on a clean, damp sponge before re-tinning with LOCTITE C 511 wire.

Soldering Process:

- Apply the soldering iron tip to the work surface. The iron tip should contact both the base material and the lead at the same time to heat both surfaces properly. It should take no more than a fraction of a second to heat both surfaces adequately.
- Apply LOCTITE C 511 flux cored wire to a part of the joint surface away from the soldering iron and allow to form a joint fillet. This will be virtually instantaneous. Do not apply excessive solder to the joint as this will not improve joint integrity and it will leave excess flux residues on the surface.
- Remove solder from the work piece and then remove the iron tip.
- The total process will be very rapid, depending upon thermal mass, tip temperature, tip configuration and the solderability of the surfaces to be joined.
- The resin and flux systems are designed to leave relatively low residues and to minimize residual activity. This is achieved by ensuring some decomposition and volatilization takes place during the soldering process.

Cleaning:

LOCTITE C 511 flux cored solder wire has been formulated to leave amber flux residues and resist spitting and fuming. In most industrial and consumer electronics applications, cleaning will not be required. The product may, therefore, be used to complement a no-clean wave soldering or reflow process or to allow repairs to cleaned boards without the need for a second cleaning process. In high-reliability applications, the residues should be removed.

Should cleaning be required, this is best achieved using SC-01™ cleaner.

RELIABILITY PROPERTIES

J-STD-004	Solder spread mm ²	340
	Corrosion Test	Pass
SIR (without cleaning)	IPC-SF-818 Class 3	Pass
	Bellcore TR-NWT-000078	Pass
Electromigration (without cleaning)	Bellcore TR-NWT-000078	Pass
Classification	EN29454-1	1.1.2
	IPC-SF-818	MR3CN

PACKAGING

LOCTITE C 511 is available in various diameters, flux percentages, and reel sizes.

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 Corporation 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.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

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. 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

relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada, Inc. the following disclaimer is applicable:

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, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel 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 Henkel 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.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office,

Reference 0.2

Americas

+1.888.943.6535

Europe

+32.1457.5611

Asia

+86.21.3898.4800

For the most direct access to local sales and technical support visit: www.henkel.com/electronics