LOCTITE®

Product ECOLOGICAL SOLDERING ecosol® 105

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COLOPHONY-FREE CORED SOLDER WIRES

Multicore Ecosol 105 colophony-free solid flux has been specially formulated to address the concerns of PCB assemblers and allied industries who wish to use colophony or "rosin-free" cored wires.

- **Colophony-free, fully synthetic - no rosin or modified rosin**
- **User friendly performance**
- **High activity - no dewetting**
- **Fast and sustained soldering on copper and brass**
- **Non-corrosive formulation**
- **Distinctive low odour to distinguish from rosin products**
- **Operationally and aesthetically similar to traditional rosin fluxes**

PRODUCT RANGE

Multicore Ecosol 105 cored wires are available in alloys conforming to J-STD-006 and EN 29453 or alloys conforming to similar national and international standards. A wide range of wire diameters is available.

Alternative flux contents and alloys may be manufactured to special order.

RECOMMENDED OPERATING CONDITIONS

Multicore Ecosol 105 has been formulated as a "drop in replacement" for traditional colophony based cored wires and as such the transition to Multicore Ecosol 105 will be simple and straight forward. For the benefit of users not fully familiar with the necessary techniques, a resumé of hand soldering is given below.

Although Multicore Ecosol 105 is a colophony-free solid flux, it has been formulated to be as readily usable as conventional rosin based fluxes. Its excellent all round performance over a wide range of conditions promotes excellent joints without the need for traditional rosins and their associated shortcoming i.e. sensitisation, odour etc.

Multicore Ecosol 105 cored wire has been specially formulated to have a distinctive low odour that distinguishes it from rosin products.

Soldering iron: The optimum tip temperature and heat capacity required for a hand soldering process is a function of the design of the iron and the task. However, unnecessarily high tip temperatures for excessive times should be avoided and good results can be obtained with a tip temperature of 340-420°C (650-780°F).

The tip of the soldering iron should be properly tinned and this may be achieved with Multicore Ecosol 105 cored wire. However, this does depend on the initial condition of the tip. If it is in poor condition, it may be more effective to pre-tin the tip with Multicore Tip Tinner/Cleaner TTC1. Used correctly, this cleaner will leave the iron tip well tinned and free from any harmful residues which might be transferred to the work piece. Where tip preparation is required use the following procedure:

(a) With the soldering iron at operating temperature, tin the new tip by gently rubbing the working surface over TTC1.
(b) Wipe the tip on a clean, damp sponge to remove any excess solder.
(c) Re-tin the tip of the iron with Multicore Ecosol 105 flux cored wire.

It is not necessary to re-use Multicore TTC1 on soldering iron tips once they have been correctly tinned.

Soldering process: Multicore Ecosol 105 flux cored wires contain a carefully selected balance of components designed to provide minimal residues, high activity and good reliability without cleaning, together with a distinctive low odour that distinguishes it from rosin based products. Some adjustment to operator practices may be required to gain the maximum advantages from the product but the principles of normal hand soldering still apply. The process should be as follows:

(a) 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. The excess solder on the iron tip will assist in the heating process by forming a larger contact area between the base material and the lead. It should take no more than a fraction of a second to heat both surfaces adequately.

(b) At this time the Ecosol 105 flux cored wire should be applied to a part of the joint surface away from the soldering iron and allowed to flow to form the joint fillet. This should take about 0.5 second.

Note: If the solder is applied directly to the soldering iron tip, the flux may be overheated and its effectiveness diminished. It may also lead to charring which will contaminate the soldering iron tip.

Do not apply excessive solder to the joint, as this will leave excess flux residues on the surface.

(c) Remove solder from work piece and then remove the heat source (iron tip).

This total process should take from 0.5 to 1.5 seconds per joint, depending upon mass, iron temperature and tip configuration, along with the solderability of the surfaces. Excessive times or temperatures may exhaust the flux before solder wetting has occurred and may cause increased residue levels.

Cleaning: Multicore Ecosol 105 flux cored wires have been formulated to leave a light amber flux residue and to resist spitting.

Cleaning will not be required in most situations so the product may be used to complement a no clean wave soldering or should cleaning be required, this is best achieved in Multicore Prozone. Other proprietary solvent or semi-aqueous processes may be suitable but cleaning by saponification or alcohol washing is not recommended.

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TECHNICAL SPECIFICATION

A full description of test methods and detailed test results are available on request.

Alloys: The alloys used for Multicore flux cored solder wires conform to the purity requirements of the common national and international standards. A wide range of wire diameters is available manufactured to close dimensional tolerances.

Flux: Multicore Ecosol 105 solid flux is based on a novel formulation philosophy utilising carboxylic acid and halide activators. In use it has a characteristic odour and leaves a small quantity of amber residues.

FLUX PROPERTIES

Test	Ecosol 105
Acid value	80mg KOH/g
Halide content	0.5%

Multicore Ecosol 105 has been formulated to conform to those elements of the J-STD-004 test protocols associated with the following flux classifications:

RE M1 (J--STD-004)

The EN 29454-1 classification is 1.2.2

Cored Wire: Cored wire is available in a range of standard flux contents dependent upon customer demands.

HEALTH AND SAFETY

WARNING: The following information is for guidance only and users must refer to the Material Safety Data Sheets relevant to specific Multicore Ecosol 105 products before use.

Fume Hazards and Precautions: Avoid excessive inhalation of the flux fumes. These are irritating to the throat and respiratory organs. Suitable fume extraction equipment should be used to extract flux fumes away from operators.

Protection and Hygiene: Lead is harmful if absorbed into the body through the digestive system or skin. Eating, drinking and smoking should not be permitted in the working area. Hands should be washed with soap and warm water after handling solder, especially before eating.

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 or 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.

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