PacIFic 2009MLF

VOC free, no-clean, halide free soldering flux for spray applications

Description:

PacIFic 2009MLF has been developed to minimize micro solder ball formation. It is an adapted version of the PacIFic 2009M.

Conventional VOC-free fluxes may give more solder balling than alcohol based fluxes on micro solder ball sensitive solder masks. PacIFic 2009MLF minimizes micro solder balling on these solder masks, often resulting in less solder balls than the alcohol based flux.

PacIFic 2009MLF is absolutely halogen free. The flux allows a change over from alcohol based fluxes to water based fluxes with virtually no disadvantages.

PacIFic 2009MLF is perfectly suitable for lead-free soldering and is typically applied by spray fluxing. It can be used for both wave and selective soldering.

RoHS compliant

Physical and chemical properties	
Density at 20°C	1,00 g/ml ± 0,01
Colour	clear
Odour	sweet
Solid content	3,6 % ± 0,2
Halide content	none
Flash point (T.C.C)	n.a.
Total Acid Number	25 mg KOH/g ± 2
IPC/ EN	OR/ L0

Products pictured may differ from the product delivered

Why VOC-free?

→ No risk of fire caused by flux ignition
→ No Volatile Organic Compounds (VOC) emission caused by flux evaporation
→ No alcohol smell in the production area caused by flux evaporation
→ No use of flux thinner
→ No need for monitoring of flux solid content
→ Lower flux transport, storage and insurance costs
→ A general reduction of flux consumption up to 30%

Key properties

- Minimizes solder balling
- Absolutely halide free
- Suitable for wave and selective soldering
- 100% water based
- Resists high temperatures
- Practically odourless
- Improved through hole filling

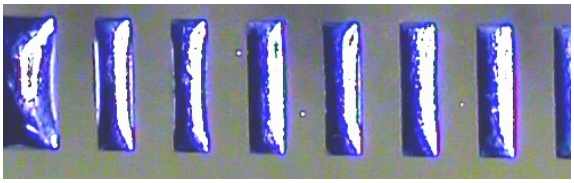
S.A. INTERFLUX® ELECTRONICS N.V - Eddastraat 51 - BE-9042 Gent - Belgium
tel.: +32 9251 49 59 - fax.: +32 9251.4970
www.interflux.com - Info@interflux.com

Applying the flux

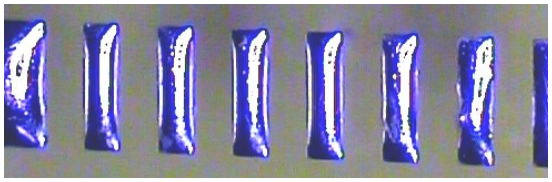
The PacIFic 2009MLF is designed to be applied by means of a spray fluxing unit. It is advised to use a double spray stroke during fluxing, whenever possible and to keep the flux air pressure low enough to avoid flux being forced in between the PCB and soldering carrier. The nozzle traverse speed should be set to a value which ensures that every point on the board(s) is being sprayed twice, once from each side. This results in a 50% overlap on the spray pattern. This will give the most uniform spray pattern coverage. Spray pattern coverage can be checked by passing a piece of cardboard through the spray fluxer and removing it before it reaches the preheating. Check spray volume by passing a glass plate or empty circuit board through the fluxer and remove it from the machine before it reaches the preheating. There may be no drops present. Drops are a sign of excessive flux and are difficult to evaporate. To start, it is advisable to reduce the flux amount with about 30% compared to most alcohol based fluxes. Reduce the flux amount until defects typical for a too low flux amount like, webbing, flagging, shorts and icicles are observed. From this point increase the flux level again until defects disappear.

Minimizing micro solder balls

More flux will give less micro solder balls. More flux will also give more residues. So an optimal spray volume that minimizes both solder balling and residues has to be found. This can be done by trial and error. Because the main cause of solder balling is the solder mask, this optimal spray volume can vary from case to case.



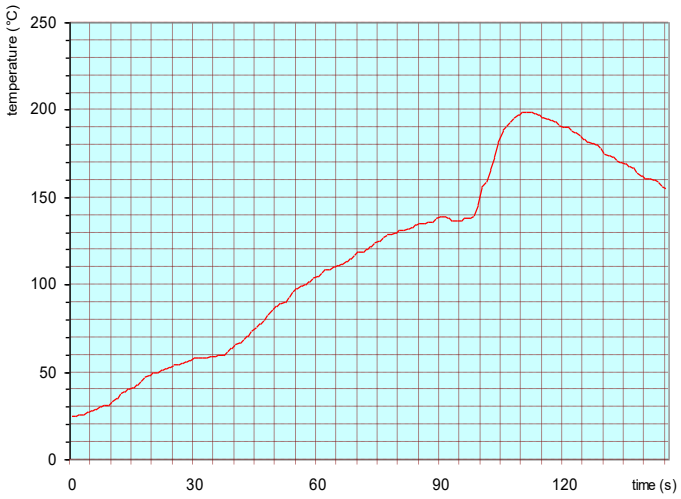
Solder balling with a conventional VOC-free flux



Solder balling with PacIFic 2009MLF

Preheating

The recommended preheat temperature measured on the topside of the boards is 80°C-160°C.This value is retrieved from practical experience. All water should be evaporated from the boards before hitting the wave. Hot air convection preheating facilitates water evaporation but it is advisable to avoid hot air temperatures above 150°C when possible.
Preheat slope: 1-3°C/s
Always take into account the physical properties of the board, components and soldering application in order to get an optimal final result .



Example of a measured preheating profile

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Wave contact

Typical wave contact or dwell time value is 3-4s when using a single solder wave. For double wave soldering systems typical values are 1-2s for the first wave and 2-4s for the second wave. Lower total dwell time limit is 2s. Solder wetting can be optimal at lower contact times however longer contact times facilitate total flux wash off from the boards. The maximum upper limit will be determined by flux exhaustion and physical limitations of the board and components. Indications for flux exhaustion are bridging, icicling, webbing,...

Test results

conform EN 61190-1-1(2002) and IPC J-STD-004A

Property	Result	Method
Chemical		
Flux designator	**OR L0**	J-STD-004A
Qualitative copper mirror	**pass**	J-STD-004A IPC-TM-650 2.3.32
Qualitative halide		
Silver chromate (Cl, Br)	**pass**	J-STD-004A IPC-TM-650 2.3.33
Quantitative halide	**0,00%**	J-STD-004A IPC-TM-650 2.3.35
Environmental		
SIR test	**pass**	J-STD-004A IPC-TM-650 2.6.3.3
Qualitative corrosion, flux	**pass**	J-STD-004A IPC-TM-650 2.6.15
Electro (chemical) migration (40°C, 93%RH,5VDC)	**pass**	Siemens ZT test protocol

Safety

Please always consult the safety datasheet.

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Packaging

PacIFic 2009MLF is available in the following packages:

1L HDPE bottle
10L and 25L HDPE drums
200L HDPE barrel
Other packaging available upon request.

Trade name : PacIFic 2009MLF VOC-Free No-Clean Soldering Flux

Disclaimer

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