No-Clean flux
IF **2005C**

INTERFLUX® ELECTRONICS N.V.

Technical data IF 2005C
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No-clean, halide free soldering flux

RoHS compliant 2002/95/EC

Description:

Interflux® IF 2005C is a low solids no-clean flux, especially developed for selective soldering in lead-free and SnPb applications. It is the version of the IF 2005-series with the largest process window in activity.

IF 2005C is also suitable for wave soldering but IF 2005K and IF 2005M are the first choice for respectively lead-free and SnPb wave soldering.

IF 2005C has excellent solderability with lead-free alloys and on virtually all finishes. It is resistant to elevated preheat temperatures, and to long contact times with a higher working temperature. This makes IF 2005C the best choice for selective soldering.

This absolutely halide free flux meets the EN, Bellcore and IPC requirements. It is formulated to provide the best combination of solderability, ease of processing and highest reliability.

All flux components can evaporate during the soldering process. This means also the most safe no-clean flux for high-end electronics.

With no rosin nor resin to create sticky residue, there is nothing left behind after soldering to foul test pins or prevent electrical contact.

The flux is classified as OR/L0 according to EN and IPC standards.

Physical properties

Appearance	**Clear colourless liquid**
Solid content	**3,3% ± 0,3**
Density at 20°C	**0,813 g/ml — 0,815 g/ml**
Water content	**3-4%**
Acid number	**26 – 30 mg KOH/g**
Flash point T.O.C	**15°C (59°F)**

More information:

Key advantages:

- Absolutely halide free
- For lead-free **and** SnPb soldering
- Excellent for selective soldering
- Suitable for spray, drop jet, foam and dip fluxing
- Very high compatibility with conformal coatings

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Application of the flux

1. Drop jet fluxing

Because no air is used, correct positioning of the nozzle underneath the holes is important. To check if enough flux has been applied on components with not enough through hole solder wetting, apply some flux on the top of the hole with a small brush. If better through hole wetting is achieved, increase the flux amount. In all cases try to apply the minimum flux amount that achieves good soldering results. The sprayed area is often bigger than the soldered area, resulting in flux residues on the area that has not been soldered. Minimum flux application will reduce flux residues.

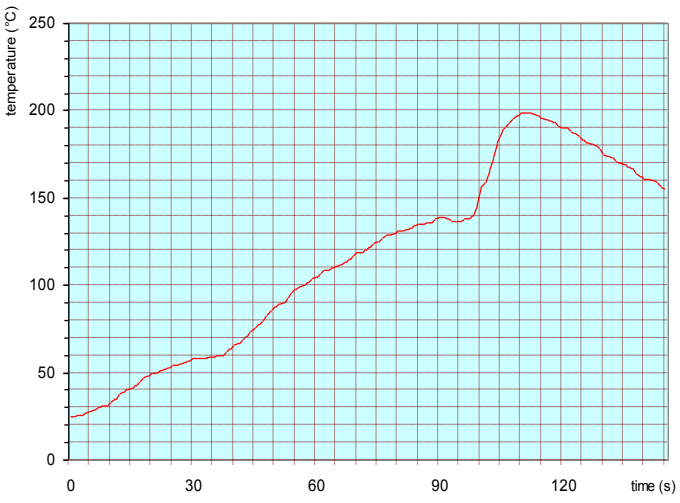
2. Spray fluxing: It is advisable to use a double spray stroke during fluxing whenever possible and to keep the flux pressure low. The nozzle traverse speed is set to a value which ensures that every point on the board is sprayed twice, once from two different sides. When this condition is met the result is 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. Remove it before it reaches the preheat unit. Additionally the spray fluxer settings need to be checked by passing a glass plate or empty circuit board through the fluxer. Remove it from the machine before it reaches the preheat unit and check it on flux quantity. There can be no drops present. Drops are a sign of excessive flux and are difficult to evaporate. 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.

3. Foam fluxing: To ensure good foaming, the level of flux needs to be at least 2—3 cm over the porous flux stone. The use of an air knife is imperative.

Preheating

The recommended preheat T° is: 100 - 160°C. This value is retrieved from field experience. The flux can have lower preheat T° as long as the solvent is evaporated before wave contact. Preheat T° above 150°C are to be kept as short as possible in order to prevent flux exhaustion. If possible, avoid hot air preheat settings above 150°C. Always take into account the physical properties of the board, components and soldering application in order to get an optimal final result .

Slope: 1-3°C/s



T° measured on the topside of the PCB on a lead-free soldering machine.

Wave contact

In selective soldering the wave contact is mostly determined by good through hole wetting. This is influenced by the preheating, the thermal mass of PCB and component, the wettability of the finishes, the solidification point of the used alloy and the working temperature. Typical contact times are between 1s and 2s. In wave soldering the same considerations apply, but other parameters like wave type, carriers, board design, nitrogen,... are important . Typical contact times are between 2s and 4s.

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White residues and cleaning

White residues

If white residues appear after soldering there can be several reasons. In selective soldering or wave soldering with selective soldering carriers, the area of flux application is often larger than the area with wave contact. This might result in white residues. Also too much flux application, or condensation of flux vapours might cause white residues. These residues are safe. The residues are not sticky and will not cause contact problems. Less flux application, more heat or more wave contact can reduce these residues. IF 2005M/ IF 2005K give less residues but have a smaller process window in activity.

Cleaning

The residues can be brushed away or evaporated with heat. The flux is cleanable with most conventional cleaning agents.

Handling

Storage

Store the flux in the original packaging, tightly sealed at a preferred temperature of +5° to +25°C.

Flux conditioning

The condition of the flux in open flux systems may be checked by density and/ or titration methods. Flux in closed flux systems (spray, jet,...) is generally not needed.

Density control

The density of the IF 2005C flux shall be checked using the IF density meter, measuring density and flux temperature. With these values and the IF 2005C density table, the right amount of thinner to be added can be calculated. T 2005M is the only thinner that can be used.

Titration check

The solid content value of the IF 2005C flux shall be determined by using the Titration Kit for IF 2005-series. Adjustments of the solid content may only be done by using T 2005M thinner.

Reuse

Do not mix used and fresh flux.

Titration kit

Density meter

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
ECM 40°C; 93% RH; 5 VDC	**pass**	Siemens Prüfprotokoll (2005)
EM, 50°C; 90% RH; 5VDC	**pass**	HP, EL-EN 861-00

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Packaging:

IF 2005C is available in the following packages:

10 litres polyethylene drums

25 litres polyethylene drums

200 litres polyethylene drums

Trade name : IF 2005C No-Clean, Halide Free Soldering Flux

D i s c l a i m e r

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