## No-clean, halide free soldering flux

**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 2005C 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 (NiAu, I-Sn, HAL, Cu-OSP,…). 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.


*Products pictured may differ from the product delivered*

RoHS compliant

## Key properties

- 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

## Physical and chemical properties

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



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## Applying the flux

**Drop jet fluxing:** Because no air is used, correct X/Y-positioning of the nozzle 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 through hole solder wetting improves, increase the flux amount or adapt nozzle position and/or fluxing pattern. In all cases try to apply the minimum flux amount that achieves good soldering results. When the sprayed area is bigger than the solder contact area, this results in flux residues on the area with no solder contact. Minimum and correct flux application will minimise flux residues.

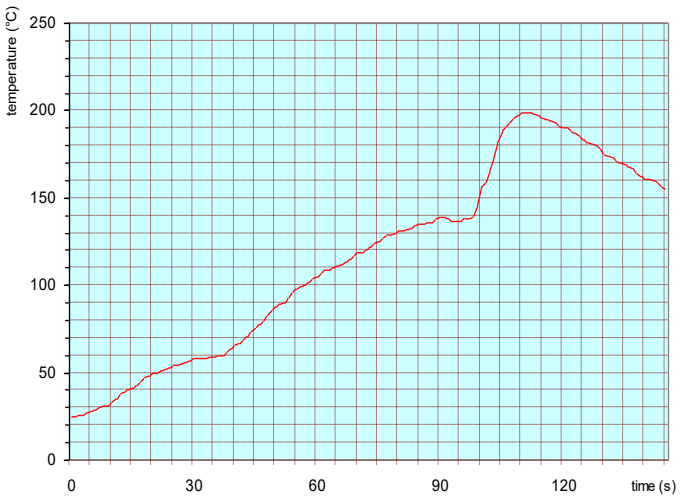
**Spray fluxing**: It is advised to use a double spray stroke during fluxing, whenever possible and to keep the flux air pressure low. The nozzle traverse speed is set to a value which ensures that every point on the board is sprayed twice, (once from each side). Resulting in a 50% overlap on the spray 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. Remove it before the pre heat 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 pre heater unit and check it on flux quantity. There may 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.
**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 temperature measured on the topside of the boards is 100°C-160°C. This value is retrieved from field experience. The flux can have lower preheating T° as long as the solvent is evaporated before wave contact. Preheating T° above 150°C are to be kept as short as possible in order to prevent flux exhaustion. If possible, avoid hot air convection preheating temperatures above 150°C.

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 temperature profile*



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## 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 soldering 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.

## White residues

There are more causes for white residues than only flux. When caused by IF 2005C, residues can be brushed away or fully evaporated with hot air >160°C. If this is not possible, the cause of the residues is different than only flux. When 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 won't cause contact problems. Less flux application, more heat or more wave contact can reduce these residues. IF 2005M and IF 2005K gives less residues but have a smaller process window in activity.

IF 2005C 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

### Safety

IF 2005C is flammable. Please always consult the safety datasheet of the product.

### Density control

For open flux application systems like e.g foam fluxing a flux density control can be useful. The density of the IF 2005C flux shall be checked using a suitable density meter, the value showed by the density meter should be compared, after temperature compensation, with the value in the IF 2005C density table and may only be adjusted with the T 2005M accordingly.

### Titration check

For open flux application systems like e.g foam fluxing, a titration check can be useful. The solids content value of the IF 2005C flux can be determined by titration. The liquids for titration are available at Interflux. Adjustments of the solid content may only be done by using T 2005M conditioner.



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## Test results

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

| Property | Result | Method |
|---|---|---|
| **Chemical** | | |
| Flux designator | **OR L0** | J-STD-004B |
| Qualitative copper mirror | **pass** | J-STD-004B IPC-TM-650 2.3.32 |
| Qualitative halide | | |
| Silver chromate (Cl, Br) | **pass** | J-STD-004B IPC-TM-650 2.3.33 |
| Quantitative halide | **0,00%** | J-STD-004B IPC-TM-650 2.3.35 |
| **Environmental** | | |
| SIR test | **pass** | J-STD-004B IPC-TM-650 2.6.3.7 |
| Qualitative corrosion, flux | **pass** | J-STD-004B 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 |

## Packaging

IF 2005C is available in the following packages:

1L HDPE bottle

10L and 25L HDPE drums
200L HDPE barrel

Other packaging available upon request.

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

**Disclaimer**

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