Application document

Description:

The Interflux® IF 2005 - series consists of three fluxes that are built without the traditional bodies like rosins and resins. They do not leave sticky residues that can cause contact problems. The compatibility with conformal coating without cleaning is very high. The IF 2005– series is absolutely halogen free.

Application:

The IF 2005 - series consists of IF 2005M, IF 2005K and IF 2005C. The difference between the fluxes is their solid content. The fluxes are interchangeable to a certain level but a rough classification can be made. The following table shows the recommended process for each IF 2005-type.

	Solid content	Application
IF 2005M	1,8%	Wave soldering SnPb
IF 2005K	2,5%	Wave soldering Pb-free
IF 2005C	3,4%	Selective soldering

Parameters:

The parameters and conditions in a specific process will determine the type of the IF 2005 - series that is most suitable. The table below gives an indication how certain parameters influence the choice of flux type. Adding up the scores for each applicable parameter, will give a score for each flux type. The highest score indicates the most suitable flux for the process.

	foam fluxing	spray flux pump unstable with low amounts	high preheating necessary > 150°C	low preheating necessary <80°C	heavy thermal mass	bad solderable surfaces	nitrogen lead-free wave	air lead-free wave	nitrogen SnPb wave
IF 2005M	3	2	1	3	1	1	2	1	3
IF 2005K	2	3	2	2	2	2	3	3	2
IF 2005C	1	1	3	1	3	3	1	2	1

	air SnPb	turbulent waves	high working T° lead-free >270°C	long contact times	minimal residue required	solder frame cleaning
IF 2005M	3	1	1	1	3	3
IF 2005K	2	2	2	2	2	2
IF 2005C	1	3	3	3	1	1

Foam fluxing

A foam fluxer always applies the maximum amount of flux. In some cases, this can cause excessive residue with a higher solid content. In these cases, a lower solid content is more suitable.

Spray flux pump unstable with low amounts

Some spray fluxers become unstable when working with low spray volumes. A lower solid content allows a higher spray volume with the same activation being applied to the board.

High preheating necessary > 150°C

High preheating settings are often used to promote through hole wetting when soldering boards or components with high thermal mass or to reduce the thermal shock. These high preheating settings can cause flux exhaustion. The higher solid contents are less sensitive to this phenomenon.

Low preheating necessary < 80°C

Low preheating temperatures are often used when thermal sensitive components are being soldered, when high throughput is required or due to machine limitations. A lower solid content limits the risk of excessive residue in these cases.

Heavy thermal mass

Components or boards with heavy thermal mass require more heat in the soldering process. This heat can cause flux exhaustion. The higher solid contents are less sensitive to this phenomenon.

Bad solderable surfaces

Heavily oxidised surfaces, too thin I-Sn, degraded OSP, etc… are difficult to solder. Using more activity, more wave contact or higher soldering temperatures can improve the soldering result. The higher solid contents are more suitable.

Nitrogen lead-free wave

Nitrogen atmosphere prevents oxidation during the lead-free wave soldering process. The lower solid contents are more suitable.

Air lead-free wave

Soldering in air will cause oxidation during the lead-free wave soldering process and requires more activation. The higher solid contents are more suitable.

Nitrogen SnPb wave

When wave soldering with SnPb alloys, lower working temperatures are used than with the lead-free alloys. In combination with nitrogen, the lowest solid content is the most suitable.

Air lead-free wave

SnPb is less sensitive to oxidation than the lead-free alloys. In many cases the lowest solid content is most suitable.

Turbulent waves

Turbulent waves will wash off a lot of flux and can cause solder defects like bridging, webbing,...

The higher solid contents are less sensitive to this phenomenon.

High working T° lead-free >270°C

High working temperatures are often used when soldering boards or components with high thermal mass or surfaces with bad solderability. The higher solid contents are more suitable.

Long contact times

Long contact times are often used when soldering surfaces with bad solderability. The higher solid contents are more suitable.

Minimal residue required

When minimal residue is required, the lower solid contents are more suitable.

Solder frame cleaning

Solder frames tend to accumulate residues after multiple passings through the process. The lower solid contents facilitate the cleaning process.