No clean solder paste IF **9009^{LT}**

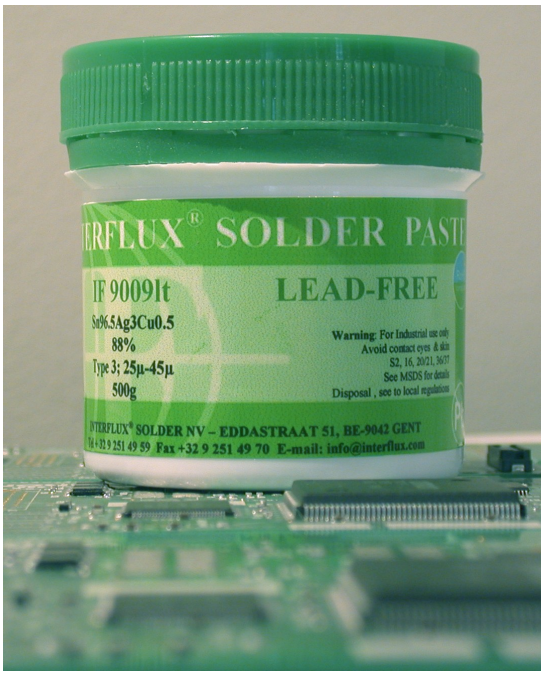
No-clean, lead free solder paste

Description:

Lead free IF 9009^{lt} is a solder paste that shows good wetting on strongly oxidized surface finishes. It is available in SnAg and SnAgCu alloys. IF 9009^{lt} has good tackiness and print definition.

The solder paste does not contain any rosin: it gives no harmful fumes and less oven maintenance. The residues after reflow are clear, they are easy to be penetrated by flying probe- and ICT-test pins. IF 9009^{lt} keeps its rheology characteristics during printing, resulting in a stable print process. IF 9009^{lt} is hydrophobic and gives no solder balling after reflow. The residues can easily be cleaned with Dr. Wack cleaning medium (Zestron FA).

IF 9009^{lt} is low in halogens and is classified as RE/L1 according to IPC J-STD-004A.



More information:

Reflow profile	*2*
Profile recommendations	*2*
Product handling	*3*
Test results	*3*
Operating parameter recommendations	*4*

Key advantages:

- Excellent wetting on strongly oxidized board finishes
- No disturbing smell
- Excellent wetting on Sn/Pb, Ni/ Au,OSP,Ag/Pd
- Clear residues after reflow

Availability

alloy	metal content	powder size	packaging
Sn95,5Ag4Cu0,5 Sn96,5Ag3Cu0,5 Sn96,5Ag3,5	printing: 88 – 88,5%	Standard type 3 (25— 45µ) other sizes upon request	500g jar 500g in 6Oz. Cartridge 1kg—1,2kg—1,3kg in 12 Oz. cartridge 5—10—30cc syringes PuckPack™ and ProFlow™ cassettes

Reflow profile general

General description

In general a soak profile is advised and may be used when temperature differences across a board, due to a high mix of components or large board sizes, need to be levelled out. Or when the number of voids, if present because of material combination, need to be decreased.

When soldering in air the profile's peak temperature should occur within a frame time of maximum 300sec or 5 minutes from the profile's starting point.

The correct conveyor speed (m/min) can be calculated by dividing the total chamber length (m) of the heating zones by the desired process time (min). Soldering under nitrogen has fewer limitations.

When soldering an assembly in a lead free solder process, care must be taken not to overheat components especially when using air convection or IR ovens. It is very important to know the temperature limitations of the components used on the board. To get a good thermal mapping of the board it is advised to use thermocouples and a thermal measuring tool. Measure on small outline, big outline and temperature sensitive components. Measure on the board side near the conveyor chain, in the middle of the board and close to, or on heat sinks.

Profile recommendations

Preheat

From room temperature until ±150°C at a rate of 1-3 °C/s. Faster rates could result in component cracking due to absorbed moisture evaporating.

Soak zone

Around 170°C. A soak zone is used to level out temperature differences on a board. It is often used in IR ovens and on boards with a big diversity of components and Cu distribution.

Ramp to reflow

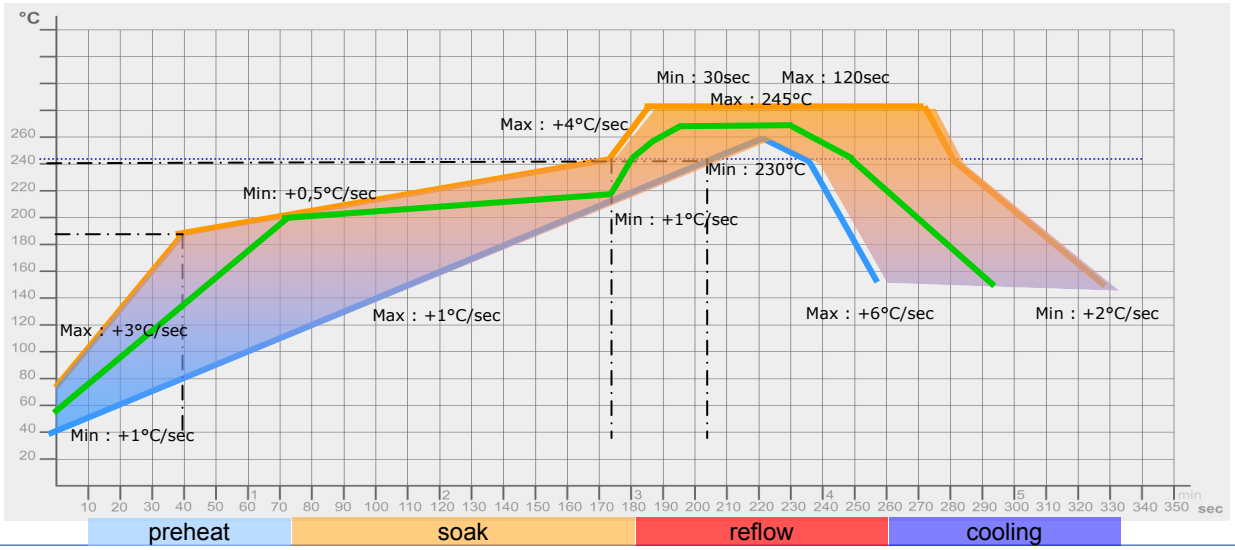
From 170°C to peak temperature. Maximum 4°C/s because of different thermal expansion coefficients inside the components.

Reflow

Peak temperature related to component specifications, in general from 230-245°C. Time above liquidus: In general 30s-90s

Cool down

Maximum 4°C/s because of different thermal expansion coefficients of the materials involved.



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Handling

Storage

Store the solder paste in the original packaging, tightly sealed at a preferred temperature of 3° to 7°C

Handling

Let the solder paste reach room temperature prior to opening the packaging. Stir well before use.

Printing

Apply enough solder paste to the stencil to allow smooth rolling during printing. Regular replenish fresh solder paste.

Maintenance

Set an under stencil clean interval which provides continuous printing quality.

Reuse

Do not mix used and fresh paste. Do not put packages back into refrigeration when already opened. Store used paste in a separate jar at room temperature.

Reflow

Consult profile

Test results

conform EN 61190-1-2(2002) and IPC J-STD-004A/J-STD-005

Property	Result	Method
Chemical		
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
Environmental		
SIR test	**pass**	J-STD-004A IPC-TM-650 2.6.3.3

Property		Result	Method
Mechanical			
solder ball test	after 15min	**preferred**	J-STD-005 IPC-TM-650 2.4.43
	after 4h	**acceptable**	J-STD-005 IPC-TM-650 2.4.43
wetting test		**pass**	J-STD-005 IPC-TM-650 2.4.45
slump test	after 15min at 25°C	**pass**	J-STD-005 IPC-TM-650 2.4.35
	after 10min at 150°C	**pass**	J-STD-005 IPC-TM-650 2.4.35
spread test		137,89 mm^2	J-STD-004 IPC-TM-650, 2.4.46

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Operating parameter recommendations

Printing speed:	20—70 mm/sec
squeegee pressure:	±250g / cm length
U.S.C. interval:	every 10 boards
temperature range:	15°C to 25°C

Dispensing

needle gauge:	≤ 22G
needle length:	1/2" (12mm)

Mounting

tack time:	> 8 hours

Reflow

reflow profile:	linear and soak
heating type:	convection, vapour phase, etc

I.C.T

flying probe testable

pin-bed testable

Cleaning

safe residues (no-clean formulation 100% halide free)

no post reflow cleaning necessary, however, residue is easily completely removed

Un-reflowed paste and stencil cleaning re-commended with

VIGON® :	SC200,SC202, SC400
ZESTRON® :	SD300, SD301
ATRON® :	SP200
INTERFLUX® :	SC8020*

(spray in air in stencil cleaning equipment -* in Under Stencil Cleaners of printers or pre-saturated wipes)

reflowed paste residue is easely removed with following recommended cleaning agents :

VIGON® :	A200, A300
ZESTRON® :	FA+, VD

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