



# Delphine 5503/2

No-clean, lead-free and halide free 'L0' solder paste

## DESCRIPTION

Interflux® **Delphine 5503/2** has increased stencil life, tack time and hot slump properties when compared to Delphine 5503 solder paste. The standard powder size (type3, 25µ-45µ) solder paste is capable of printing 0,3mm pitch components and 0,200mm apertures with printing speeds up to 150mm/sec.

Because this solder paste is absolutely (0,0%) halogen free, it eliminates the risk of metal salt formation which is typical for solder chemistry using halides. These metal salts formed between halides and lead-free alloy metals are easily soluble in water and therefore pose an increased risk on corrosion.

The post reflow solder residue of **Delphine 5503/2** is very safe.

**Delphine 5503/2** can be reflowed with commonly used lead-free solder profiles under both air and nitrogen. The solder paste has good wetting ability on lead-free finished boards.

The residue can be cleaned off easily with conventional cleaning equipment.

## PROPERTIES

- True halogen free: absolutely no halogens
- Classification to IPC and EN: **RE L0**
- Designed for low and high volume/ speed assembly lines, wide parameter range at 18-30°C
- Tack life exceeding 120h at 18-25°C and 40-60% R.H.
- Print life exceeding 48h at 18-25°C and 40-60% R.H.
- Printer abandon time 2h at 18-25°C and 40-60% R.H.
- Under screen cleaning interval advised every 30min of idle time
- Increased hot slump resistance
- Good wetting on all finishes including OSP
- Transparent non tacky and pin testable residue
- Very safe residue cleaning not required but possible

availability						
Alloy	Sn96,5Ag3Cu0,5	Sn95,5Ag4Cu0,5	Sn95,5Ag3,8Cu0,7	Sn96,5Ag3,5	Sn95,8Ag4,2	Sn99,3Cu0,7
Metal content	88% - 88,5% for printing			84% - 85% dispensing		
Powder size	Standard : type 3 (25µ - 45µ) other sizes upon request					
Packaging	500g jar					
	500g - 1kg - 1,2kg - 1,3kg cartridge					
	5cc - 10cc - 30cc syringe					
	Puck Pack™ and Proflow™ cassettes					



**TEST RESULTS conform EN 61190-1-2(2002) and IPC J-STD-004A**

PROPERTIES	RESULTS	REMARKS
<b>Chemical</b>		
Flux Designator*	RE / L0	J-STD-004A
Qualitative Copper Mirror	Pass	J-STD-004A IPC-TM-650 2.3.32 (Low Activity Level)
Qualitative Halide		
Silver Chromate (Cl, Br)	Pass	J-STD-004A IPC-TM-650 2.3.33
Spot Test (F)	Pass	J-STD-004A IPC-TM-650 2.3.35.1
Quantitative Halide	0.0%	J-STD-004A IPC-TM-650 2.3.35
<b>Environmental</b>		
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

**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.

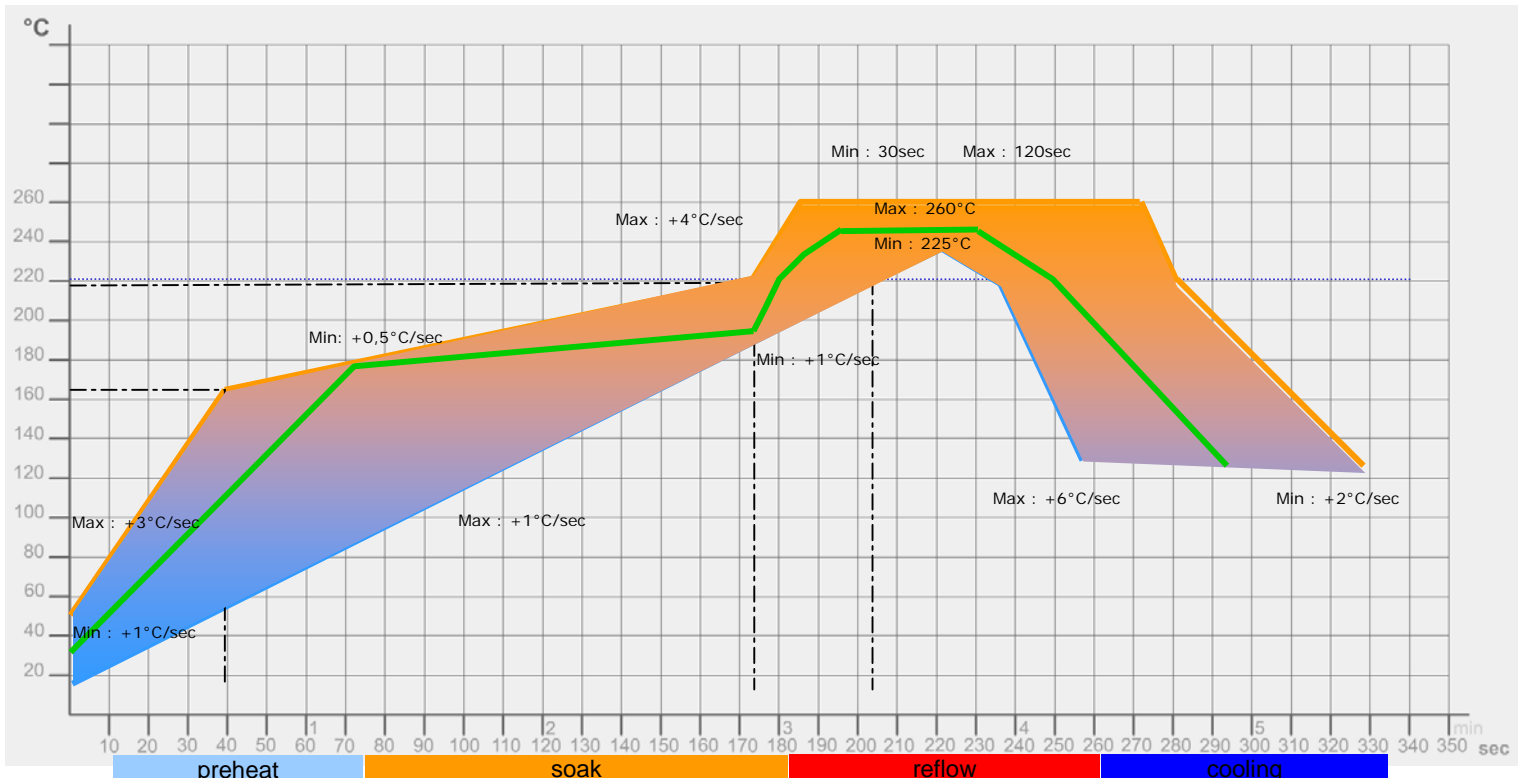
**Reflow**

Consult profile



## REFLOW PROFILE

for SAC and SnAg alloys



### General profile 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 leveled 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.



## INTERFLUX® SOLDER NV TECHNICAL DATA



### **Preheat**

From room temperature until about 120°C at a rate of 1-3°C/seconds.  
Higher heating rates could result in component cracking due to absorbed moisture.

### **Soak**

From 120°C to about 215°C at a rate of 1-3°C/seconds.  
In some cases a temperature holding soak zone is used to level out differences on a board. It is often used on high mix boards or to reduce voids in certain lead free processes.

### **Reflow**

Peak temperature used is related to component specifications. In general between 235°C and 250°C.  
The time in liquidus (over melting point of the alloy used) could be between 45 seconds and 90 seconds.

### **Cooling**

Cooling rate around -4°C/ second because of differences in thermal expansion coefficients inside components and between component and board materials.

Product information in other European languages can be obtained at Interflux® Solder NV, 9042 Ghent. Because we cannot anticipate or control the many different conditions under which this information and our products may be used, we do not guarantee the applicability or the accuracy of this information or the suitability of our products in any given situation. Users of our products should make their own tests to determine the suitability of each such product for their particular purposes. The products discussed are sold without such warranty, either expressed or implied.