



# A NEW FORCE IN CHEMICAL MANUFACTURING

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## TECHNICAL DATA SHEET

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### PRODUCT NAME

SAC305CR318 Lead Free No Clean Solder Paste

### PRODUCT RANGE

Part Number	Available Size
SAC305CR318S05-PT	10 g Syringe
SAC305CR318J250	250 g Jar
SAC305CR318J5	500 g Jar
SAC305CR318C5	500g Cartridge
SAC305CR318C10	1 kg Cartridge



Refer to MSDS for product safety guidelines

## SAC305CR318 Lead Free No Clean Solder Paste

Chemtools SAC305CR318 is designed for the most demanding high density electronic assemblies. SAC305CR318 has been developed to offer excellent wetting, improved printing and to reduce voiding. The superior wetting ability of SAC305CR318 results in bright, smooth and shiny solder joints with SAC alloys. An innovative activator system offers excellent wetting in a wide range of profiles. Enhanced wetting will reduce voiding on QFN ground planes, LGA and BGA interconnects. SAC305CR318 consistent transfer efficiencies reduce head-in-pillow (HiP) even when component/substrate co-planarity is not optimal. SAC305CR318 is also available in 10g syringes with higher flux content to normal stencil grade solder paste for rework and low volume production.

### FEATURES:

- For Use with Demanding High Density Electronic Assemblies
- Reduced Head-in-Pillow
- Extremely Stable Formula
- Extended Pause-to-Print Process Window
- Reduces Voiding on QFN Ground Pads
- Improved Printing Characteristics
- ROLO per J-STD-004B
- REACH Compliant

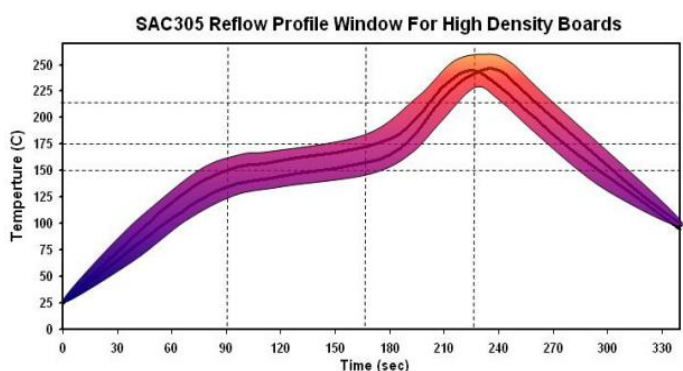
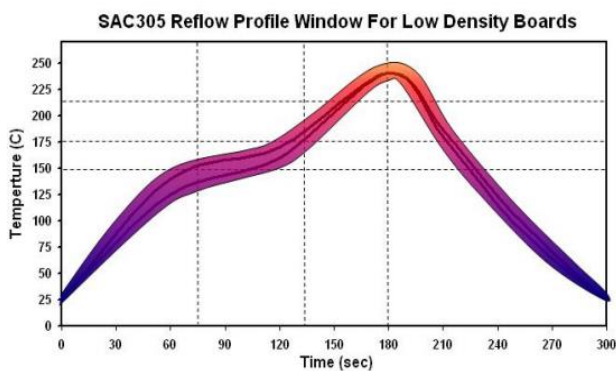
### PRINTING:

- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle. A bead diameter of 15-20mm (index finger) is sufficient.
- The application of small amounts of fresh solder paste to the stencil at controlled intervals will maintain paste chemistry rather than one large deposit over an extended period of time.
- CR318 is formulated to maintain excellent transfer efficiency after extended pauses, however, a knead cycle after pauses longer than 60 minutes will improve performance.
- Cleaning of your stencil will vary by application; however, if solvent is required use of Chemtools CT-SKM stencil cleaner for manual process. Contact your stencil printer supplier for option with regards to automatic machines.
- Isopropyl Alcohol (IPA) is NOT recommended for cleaning stencils during the printing process.

RECOMMENDED INITIAL PRINTER SETTINGS BELOW ARE DEPENDENT ON PCB AND PAD DESIGN			
PARAMETER	RECOMMENDED INITIAL SETTINGS	PARAMETER	RECOMMENDED INITIAL SETTINGS
Squeegee Pressure	0.9 - 1.5 lbs/inch of blade	PCB Separation Distance	0.75 - 2.0 mm (.030-.080")
Squeegee Speed	0.5 - 6 inches/second	PCB Separation Speed	3.0 - 20.00 mm/second
Snap-off Distance	On Contact 0.00 mm (0.00")		

**REFLOW PROFILE:**

Below are general guidelines for a ramp to spike (RTS) and ramp soak spike (RSS) Key differences are time to peak temperatures, and time above liquidus (TAL). The shorter profile is appropriate for low-medium thermal mass assemblies. The longer profile would apply to high mass assemblies, such as backplanes and high thermal density boards. The extended time and temperature of an RSS profile are needed to minimize the ΔT of a high mass board. The shaded area defines the process window for SAC305CR318. Oven characteristics, board mass/density, component type and IPC Acceptance Class all influence the final profile settings. These profiles are general guidelines and profile measurements with properly attached thermo-couples are highly recommended.



RATE OF RISE 2°C / SEC MAX	RAMP TO 150°C (302°F)	PROGRESS THROUGH 150°C-170°C (302°F-338°F)	TO PEAK TEMP 230°C-245°C (445°F-474°F)	TIME ABOVE 217°C (425°F)	COOLDOWN ≤ 4 °C / SEC	PROFILE LENGTH AMBIENT TO COOL DOWN
Short Profiles	≤ 60 Sec	15-45 Sec	45-75 Sec	45-60 Sec	45± 15 Sec	2.75-3.75 Min
Long Profiles	≤ 90 Sec	60-90 Sec	45-60 Sec	45-75 Sec	45± 15 Sec	4.0-5.0 Min

**CLEANING:**

- Cleaning SAC305CR318 is not required; however, it can be cleaned if necessary with saponified water or an appropriate solvent cleaner such as Chemtools CT-DF solvent base or CT-PCBW VOC free flux remover.

**HANDLING AND STORAGE:**

- SAC305CR318 is best used within 6 months from date of manufacturer at 4° C-12° C (40° F- 55° F).
- Allow the solder paste to warm up completely and naturally to ambient temperature (8 hrs.) prior to breaking the seal for use.
- Mix the product lightly and thoroughly (1-2 minutes max).
- Do not store new and used paste in the same container.
- Reseal any opened containers while not in use.

**PHYSICAL PROPERTIES:**

ITEM	SPECIFICATION
Appearance	Grey, Smooth, Creamy
Alloy	SAC305
Melting Point	217° - 218° C
Particle Size	T3, T4
Viscosity	Per J-STD-005 IPC TM 650 2.4.34
Packaging	Available in all industry standard packaging.

**TEST DATA SUMMARY:**

CLASSIFICATION			
Product Name	IPC Classification to J-STD-004B		
SAC305CR318	ROLO		
POWDER TESTING			
No	Item	Results	Test Method
1	Powder Size	Type 3 (45-25 micron) Type 4 (38-20 micron)	IPC TM 650 2.2.14
1	Powder Shape	Spherical	Microscope
FLUX MEDIUM TESTING			
No	Item	Results	Test Method
1	Acid Value	150 +/- 5 mg KOH/ g flux	J-STD-004B IPC TM 650 2.3.13
2	Quantitative Halides	Silver Chromate Paper - Pass	J-STD-004B IPC TM 650 2.3.28.1
3	Qualitative Halides, Fluoride Spot	No fluoride	J-STD-004B IPC TM 650 2.3.35.1
4	Copper Mirror	Low	J-STD-004B IPC TM 650 2.3.32
5	Corrosion Flux	Pass	J-STD-004B IPC TM 650 2.6.15
6	Surface Insulation Resistance	Pass – See CT Qualification Test Report	J-STD-004B IPC TM 650 2.6.3.7
7	Oxygen Bomb	Bromine 613 mg/Kg Chlorine <125 mg/Kg	EN 14582:2007 SW 9056 SW 5050
VISCOSITY TESTING			
No	Item	Results	Test Method
	T-Bar Spindle Test Method	700 ± 10% kcps	J-STD-005 IPC TM 650 2.4.34
SOLDER PASTE TESTING			
No	Item	Results	Test Method
1	Tack Test	48.4 g	J-STD-005 IPC TM 650 2.4.44
2	Tack Test	94.8 g	JIS Z 3284 Annex 9
3	Solder Ball Test	Pass	J-STD-005 IPC TM 650 2.4.43
4	Wetting Test	Pass	J-STD-005 IPC TM 650 2.4.45
5	Paste Shelf Life	4°C (39°F) = 6 months	CT TM 125-11
6	Solder Paste Slump Test	Pass	J-STD-005 IPC TM 650 2.4.35

The information contained herein is based on data considered accurate and is offered at no charge. Product information is based upon the assumption of proper handling and operating conditions. All information pertaining to solder paste is produced with 45-micron powder. Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated. For further details contact Chemtools for full terms and conditions.