

NP545 Solder Paste

Zero-Halogen, Lead-Free, No-Clean



Product Description

Kester NP545 is a zero-halogen, lead-free no-clean solder paste formula designed for consistency and repeatability. NP545 is extremely stable and has an unrefrigerated shelf life of 12 months with no print or solderability degradation. NP545 consistently delivers paste transfer efficiencies of 0.55 to 0.5AR. The paste is also fully capable of printing and reflowing 01005 components, even in air reflow, with minimal graping behavior. NP545 is classified as ROL0 per IPC J-STD-004B.

Performance Characteristics:

- Zero-halogen
- Consistent print performance to 0.5AR
- Excellent shelf life, 1 year in both refrigerated and room temperature
- Low QFN/BGA voiding
- Exceptional printing relax & recovery, and printer friendly
- Reflowable in air and nitrogen conditions
- Wide reflow profile window with good solderability on various PCB surface finishes
- Excellent cosmetics and a clear residue



RoHS Compliance

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive, 2015/863 for the stated banned substances.



Physical Properties

Based on SAC305, Type 3 and 4

Initial Tackiness (typical): 30 grams
Tested to J-STD-005, IPC-TM-650, Method 2.4.44

Slump Test: Pass
Tested to J-STD-005, IPC-TM-650, Method 2.4.35

Solder Ball Test: Pass
Tested to J-STD-005, IPC-TM-650, Method 2.4.43

Viscosity (typical): 1450 poise
Malcom Viscometer @ 10 rpm and 25°C



Reliability Properties

Copper Mirror Corrosion: Low
Tested to J-STD-004B, IPC-TM-650, Method 2.3.32

Surface Insulation Resistance (SIR): Pass
Tested to J-STD-004B, IPC-TM-650, Method 2.6.3.7

Halogen Content: None Detected
Tested to J-STD-004B, IPC-TM-650, Method 2.3.41 (ref. EN 14582)

Copper Corrosion: Low
Tested to J-STD-004B, IPC-TM-650, Method 2.6.15

Surface Insulation Resistance (SIR): Pass
Tested to J-STD-004A, IPC-TM-650, Method 2.6.3.3

Electro Chemical Migration (ECM): Pass
Tested to J-STD-004B, IPC-TM-650, Method 2.6.14.1

Availability

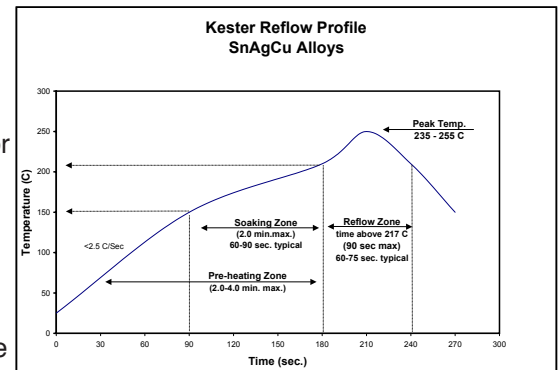
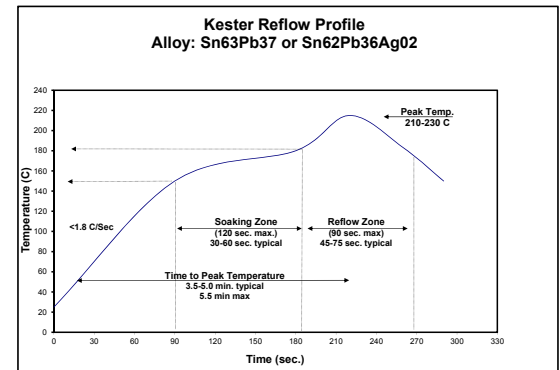
NP545 is available in the Sn96.5Ag3Cu0.5 alloy with a type 3 and 4 powder mesh, and available in the Sn63Pb37 alloy with a type 4 powder mesh. Type 4 mesh size is recommended for standard and fine pitch applications. NP545 is also compatible with other SnAgCu alloys in similar melting range to the listed alloys. For specific packaging information refer to Kester's Solder Paste Packaging Chart for available sizes. The appropriate combination depends on process variables and the specific application.

Printing Parameters

Squeegee Blade	Stainless steel preferred; 80-90 durometer or polyurethane could also be used
Print Speed	25mm/sec-200mm/sec
Stencil Material	Stainless Steel, Molybdenum, Nickel Plated or Brass
Temperature & RH	20-25°C (70-77°F) and 35-65%

Recommended Reflow Profile

The recommended convection reflow profile for NP545 formula made with SAC alloys and the recommended reflow profile for Tin-Lead alloys are shown here. These profiles are simply a guideline. NP545 has excellent solderability and wetting across a wide range of profiles, with similar performance in air and nitrogen. Your optimal profile may be different from the one shown based on your oven, board and mix of defects. Contact Kester Technical Support if you need additional profiling advice.



Cleaning

NP545 is a no-clean formula. The residues do not need to be removed for typical applications. Although NP545 is designed for no-clean applications; its residues can be removed using automated cleaning equipment (in-line or batch) with a variety of readily available cleaning agents.

Storage, Handling and Shelf Life

NP545 has a shelf life of 12 months from the date of manufacture when handled properly at 0-10°C (32-50°F) or when handled at room temperature (up to 27°C/80°F). If refrigerated, NP545 should be stabilized at room temperature (27°C/80°F) prior to printing. Please contact Kester Technical Support if you require additional information on the storage and handling of this material.

Health and Safety

This product, during handling or use, may be hazardous to your health or the environment. Read the Safety Data Sheet and warning label before using this product.