

TECHNICAL DATA SHEET

Revision 1.0 Revision Date: 27/04/2022

DKP6

No Clean Lead Free Solder Paste

Description

DKP6 is a halide & halogen free, no clean solder paste formulated for lead free surface mount assemblies requiring excellent, defect free soldering of even the most difficult to solder components and board finishes, including OSP, ENIG, Ag, Sn and HASL. DKP6 leave clear, minimal, halogen free post reflow residue, and has been tested to industry standards including J-STD-004B and J-STD-005A. DKP6 residues can be considered safe to remain on an assembly when no-clean technology is appropriate to the assembly end use. Available in Type 3, 4 and 5 powder size, DKP6 offers excellent print definitions for fine and ultra-fine pitch printing and offers extended open times in excess of three days.

Benefits

- No clean: ROLO (J-STD-004B)
- Halogen & Halide Free
- Slump free / No solder balling
- Suitable for air / nitrogen
- Clear probe testable residue
- Long stencil life
- Excellent soldering / 72 hour tack life

Cleaning

Residues can be easily removed using DKL's range of cleaners.

Storage Conditions

DKP6 can be stored at room temperature, however storage in a refrigerator will prolong life.

Shelf Life

When refrigerated and stored at < 10°C, DKP6 has a shelf life of 12 months for unopened cartridges and tubs, and 6 months for unopened syringes.

Availability

DKP6 is manufactured in the UK.

| Alloy | Metals | Particle Size | Packaging |
|--------|--------|------------------------------|---|
| SAC305 | 88.5% | 25-45 µm, 20-38 µm, 15-25 µm | 1000 g, 500 g Cartridges, 1000 g, 500 g, 250 g Tubs |

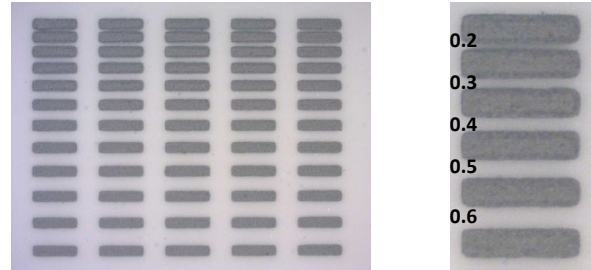
Other alloys, metal percentages, and stock units available. Contact sales for more information.

TECHNICAL DATA SHEET

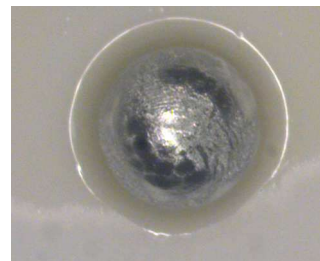
Test Data

Typical properties for P4000, 88.5%, 20-38 (T4)

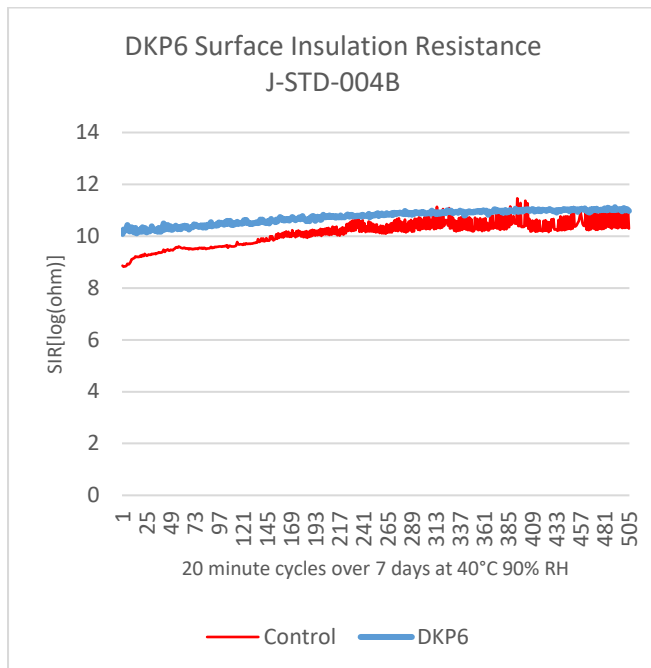
| | |
|---|--------------|
| Flux Classification J-STD-004B | ROLO |
| Slump J-STD-005A | Pass <0.2 mm |
| Metal Content J-STD-005A | 88.5% |
| Tack Test J-STD-005A | >3 days |
| Solder Ball Test J-STD-005A | Pass |
| Quantitative Halide J-STD-004B | No Halogen |
| Surface Insulation Resistance J-STD-004B | Pass >100MΩ |
| Copper Corrosion 10 day J-STD-004B | Pass |
| Copper Mirror Corrosion J-STD-004B | Pass |



J-STD-005A 150°C, 15 minutes – no slump to 0.2mm.



J-STD-005A solder balling—no solder balls.

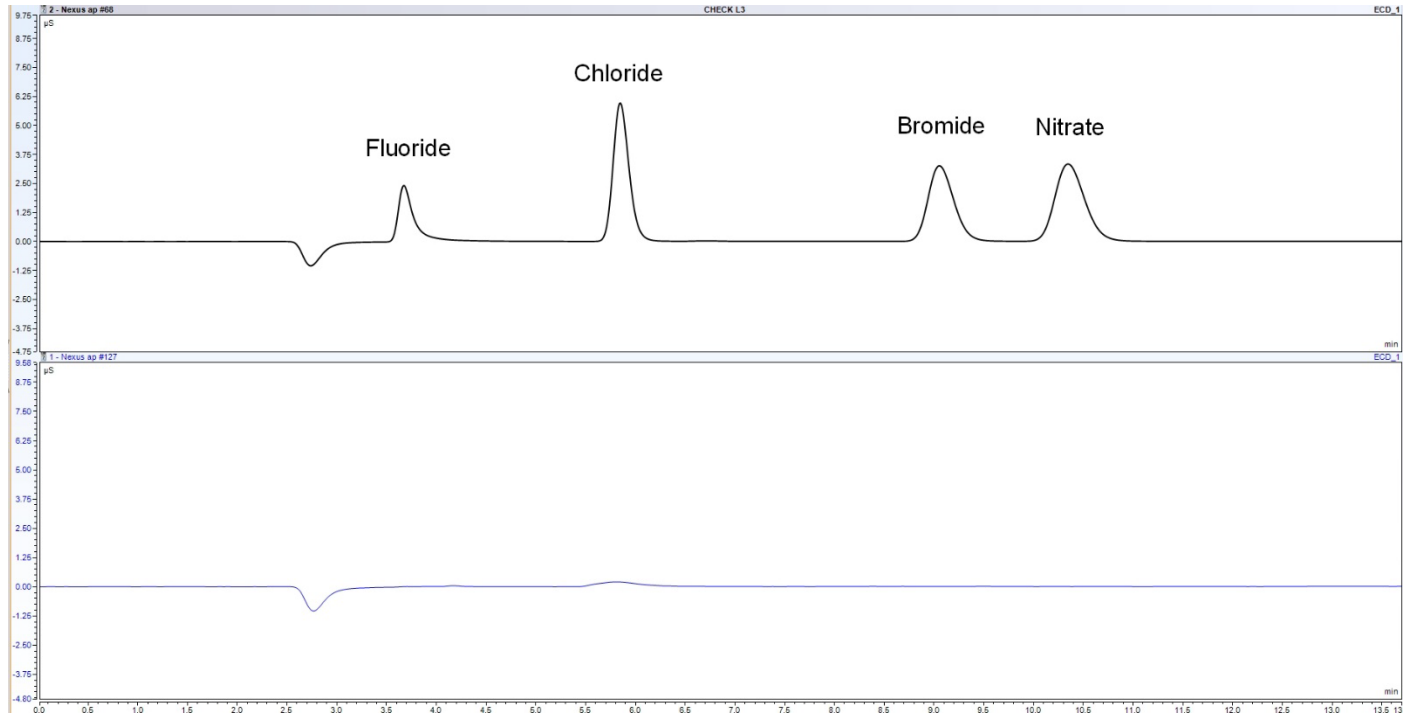


7 day continuous Surface Insulation Resistance test, testing cycles every 20 minutes at 5V. Showing no dendrite formation and far exceeding J-STD-004B requirements of greater than 100 MΩ.

TECHNICAL DATA SHEET

Halogen Free

DKP6 flux medium passes the ion chromatography test for fluorides, chlorides and bromides in accordance with J-STD-004 revision B. This revision demands a reflow pre-treatment of the solder paste flux in accordance with IPC TM650 2.3.34. Older revisions of J-STD-004 do not test for covalent halogens and can lead to confusion by allowing halogen containing fluxes to be classified as ROL0. DKP6 is a true halogen free type ROL0.



Ion chromatogram of DKP6 reflowed flux residue in accordance to J-STD-004B, TM 650 2.2.34, showing trace background levels of chloride (<0.05%) with no evidence of added halide or halide bearing materials, demonstrating halide and halogen free.

TECHNICAL DATA SHEET

Printing

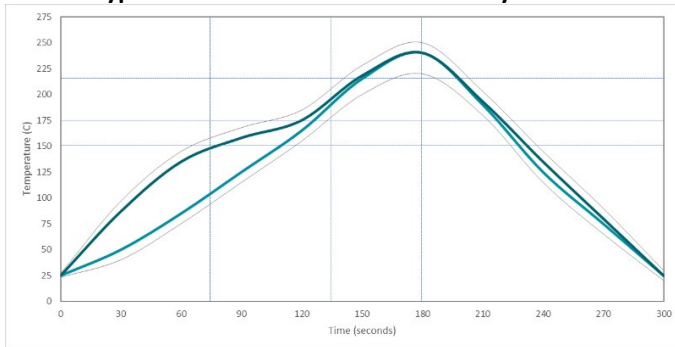
Ensure the paste is at room temperature before opening. For tubs, stir and apply sufficient paste to the stencil to allow for an even roll whilst printing. DKP6 is suitable for printing speeds between 20-100 mm/sec.

Typical Reflow Information

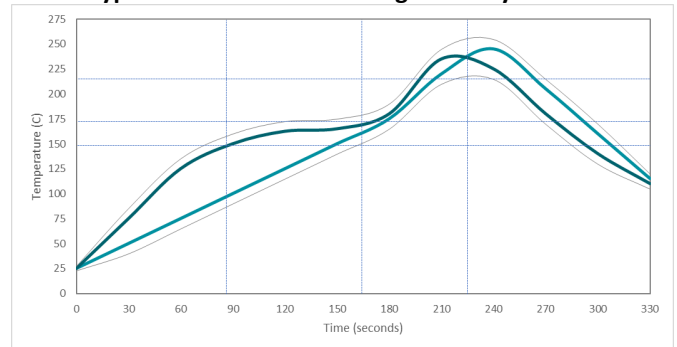
SAC305

| Parameter | Typical Settings |
|------------------------|---|
| Initial Ramp Rate | 1-3°C per second to 190°C |
| Soak Temperature | 190-200°C |
| Soak Duration | 60-120 seconds |
| Peak Temperature | 238-250°C (20-35°C above melting point) |
| Time Above Liquidous | 45-75 seconds |
| Ramp Down Rate | 4-6°C per second |
| Total Profile Duration | 4-5 minutes |

Typical Reflow Profile for Low Density Boards



Typical Reflow Profile for High Density Boards



Commitment to Care

Lead free soldering represents a clear commitment to care for the long-term health of our planet and its inhabitants, by eliminating the use of toxic materials which can leech into the water supply. DKP6 Solder Paste is formulated without the use of toxic metals such as Lead, Antimony or Nickel. DKL offers a commitment to care for users of Microprint Solder Pastes and DKL's insistence on ethical product development allows you to fulfil your commitment to the environment and manufacturing performance whilst offering you peace of mind.

The information supplied in this technical data sheet is designed only as guidance for the safe use and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information related only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process (2020).