SolderKing assembly materials ltd

Technical Data Sheet

SK P2-5 SnBiAg (Sn42Bi57Ag1)

No Clean, Lead Free Solder Paste

Issue No. 1.01 February 2019

Description

Solderking SK P2-5 SnBiAg (Sn42Bi57Ag1) is a no clean lead free solder paste formulated for lead free applications requiring excellent, defect free soldering of even the most difficult to solder components and board finishes, including OSP, ENIG, Ag, Sn and HASL.

SK P2-5 leaves minimal clear, post reflow residue. Tested to Industry standards including J-STD 004B and Bellcore (ECM), solder paste 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 and Type 4 powder size, SK P2-5 offers excellent print definition for fine pitch printing and offers extended tack and open times in excess of three days.

Specification

SK P2-5 SnBiAg 20-38 typical batch analysis.

Flux Classification J-STD 004B	ROL1
Malcom Viscosity 10rpm, 25°C, Pa.s	150-160
Slump J-STD 005A	Pass <0.2 mm
Metal Content J-STD 005A	90%
Tack Test J-STD 005A	>3 days
Solder Ball Test J-STD 005A	Pass
Quantitative Halide J-STD 004B	<0.5%
Surface Insulation Resistance J-STD 004B	Pass >100 MΩ
Electrochemical Migration J-STD 004B	Pass
Electromigration Resistance GR78 Core	Pass
Copper Corrosion 10 day J-STD 004B	Pass
Copper Mirror Corrosion J-STD 004B	Pass

Benefits

High reliability solder paste flux type ROL1 to J-STD 004B

Reduces and eliminates voiding and head-in-pillow defects

Powerful wetting on all board finishes

Shiny joint finish, Clear minimal residue

Long tack and open times

12 months refrigerated shelf life

Low Melting Point SnBiAg - 138ºC, Peak Temperature of 170-180ºC.

Excellent print definition for fine pitch.

Availability

Solderking manufacture all solder pastes in the UK. Custom pastes, packaging and modifications are available on request.

SK P2-5 is available in the following packaging:

Flux	Packaging
SK P2-5 SnBiAg	40g, 75g manual
20-38µm (T4)	40g, 75g automatic
	250g/500g tubs
25-45 µm (T3)	600g cartridges

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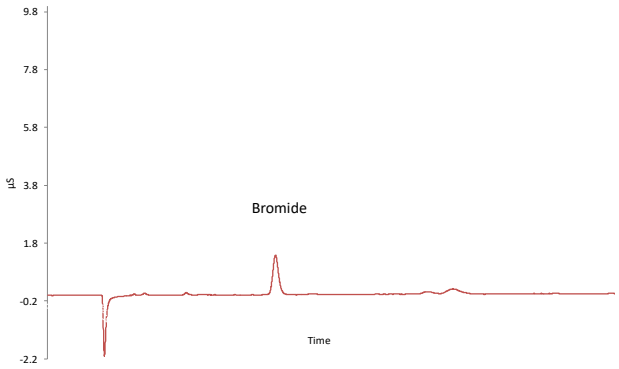
Solder Powder

Solderking SK P2-5 SnBiAg solder paste incorporate High Purity Solder Powders. Solder powders far exceed the purity requirements of EN29453 and J-STD 006.

Solderking Part	Alloy	Melting Point ºC
SnBiAg	Sn42Bi57Ag1	138

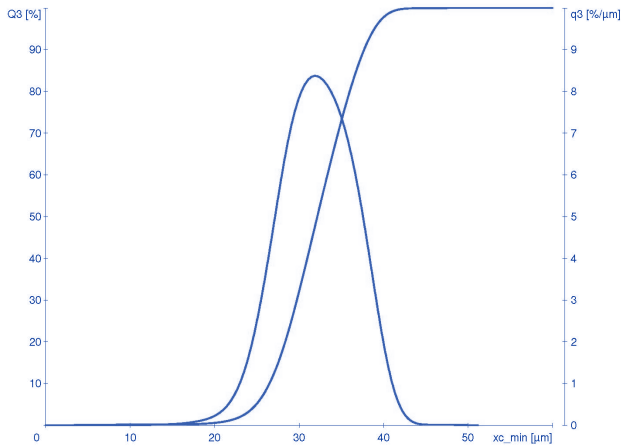


Ion chromatogram of SK P2-5 reflowed flux residue in accordance to J-STD-004B, TM 650 2.2.34, showing <0.5% halide.

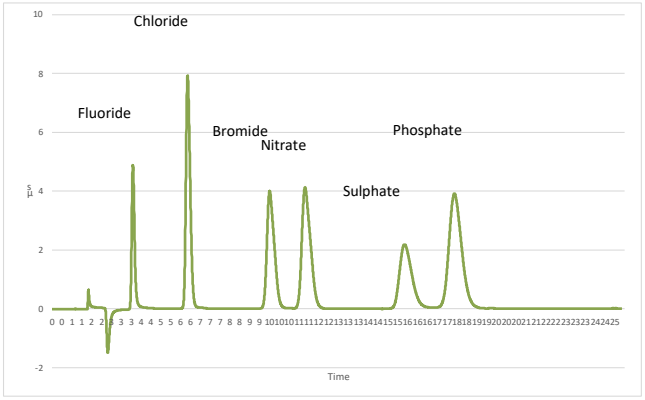
Particle Size Distribution

Solderking SK P2-5 SnBiAg is available in the following powder sizes.

Solderking Part	Distribution µm	J-STD 005A
20-38	20-38	Type 4
25-45	25-45	Type 3



Particle Size 20-38 µm



Ion chromatogram of halide analytical standard showing fluoride, chloride, bromide, nitrate, sulphate and phosphate as low as 3 mg Kg^{-1}

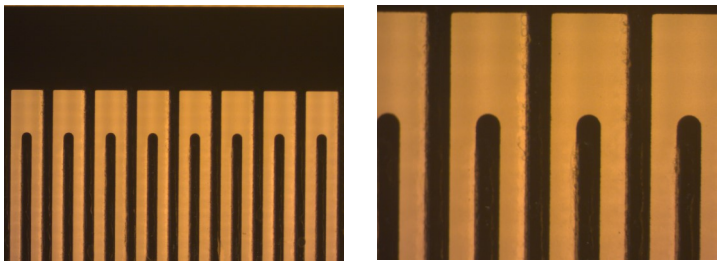
Flux Data - ROL1

Solderking SK P2-5 flux medium passes the ion chromatography test as <0.5% fluoride, chloride and bromide 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 contents over 0.5% (in some cases as high as 2%) to be classified as ROL1. SK P2-5 is a true ROL1.

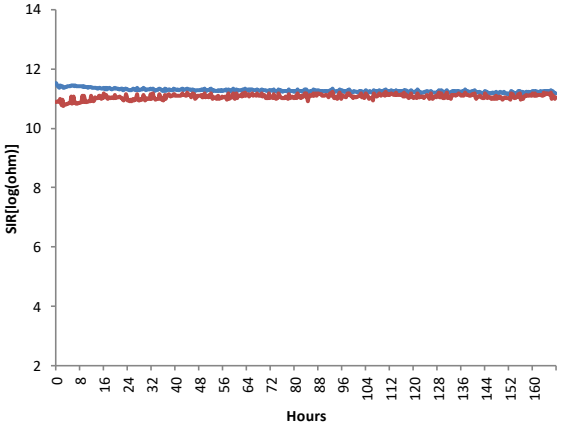
Cleaning

SK P2-5 is no clean. If cleaning is required a range of Solderking solvent, water based and saponification cleaners are available for ultrasonic, spray in air and spray under immersion.

Surface Insulation Resistance

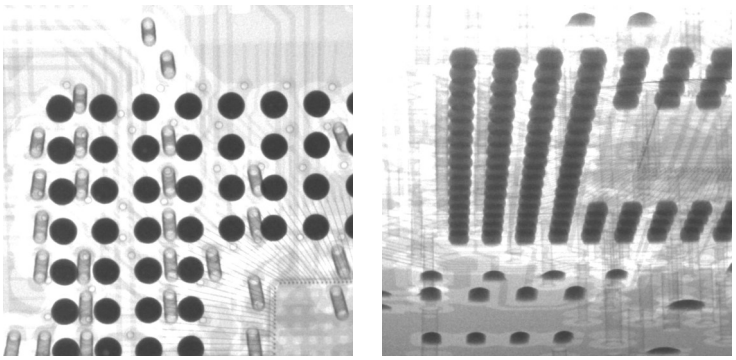


Above: J-STD 004B Surface Insulation Resistance test showing no conductive anodic filament (CAF) migration or dendritic growth after 168 hours at 40°C 90% relative humidity



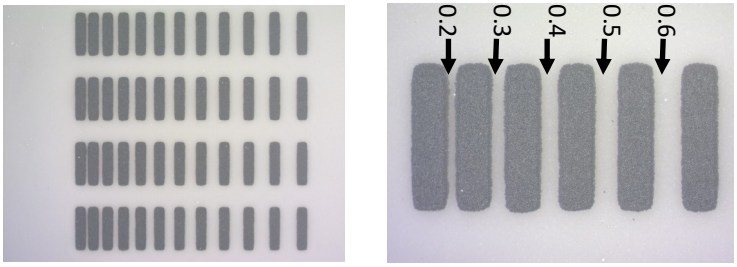
SK P2-5 median Surface Insulation Resistance J-STD-004B

No voiding, or head-in pillow defect



Typical SK P2-5 x-ray images of BGA's with no voiding, or head-in-pillow defect visible

No Slump



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

No Solder Balls

J-STD 005A Solder balls– no solder balls

Storage & Care of Paste

Shelf Life Un-opened containers –12 months from manufacture date.

Shelf life Open Containers- Will depend on the environmental conditions, ensure lids are replaced and tightened.

Conditions- When solder paste is received at the customer's location, the temperature should be in the range of 0 - 25 ºC. It is recommended that the solder paste be stored in a refrigerator within the range of 0 - 10 ºC.

Safety information

Always read safety data sheet before use. For any further information please contact::

info@solderking.com.

www.solderking.com

01262 363088

RoHS & REACH Directive

Solderking SK P2-5 Sn42Bi57Ag1 is RoHS and REACH compliant.