J-STD-005

Requirements for Soldering Pastes

A joint standard developed by the Solder Paste Task Group (5-22b) of IPC

Users of this standard are encouraged to participate in the development of future revisions.

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Requirements for Soldering Pastes

1.0 SCOPE

1.1 Scope This standard prescribes general requirements for the characterization and testing of solder pastes used to make high quality electronic interconnections. This specification is a quality control document and is not intended to relate directly to the material's performance in the manufacturing process.

1.1.1 Purpose This standard defines the characteristics of solder paste through the definitions of properties and specification of test methods and inspection criteria. The materials include solder powder and solder paste flux blended to produce solder paste. Solder powders are classified as to shape of the particles and size distribution of the particles. It is not the intent of this standard to exclude particle sizes or distributions not specifically listed. The flux properties of the solder paste, including classification and testing, shall be based on J-STD-004. The requirements for solder paste are defined in general terms. In practice, where more stringent requirements are necessary, additional requirements shall be defined by mutual agreement between the user and supplier. Users are cautioned to perform tests (beyond the scope of this specification) to determine the acceptability of the solder paste for specific processes.

2.0 APPLICABLE DOCUMENTS

The following documents of the issue currently in effect, form a part of this specification to the extent specified herein.

2.1 Joint Standards[1]

J-STD-001 Soldering requirements for Electronic Interconnections (Supercedes IPC-S-815)

J-STD-004 Requirements for Soldering Fluxes (Supercedes IPC-SF-818)

J-STD-006 Requirements for Alloys and Solder Products

2.2 Military[2]

MIL-STD-45662 Calibration Systems Requirements

2.3 International Standards Organization[3]

ISO 9002 Quality Systems – Model for Quality Assurance in Production and Installation

ISO 10012-1 Quality Assurance requirements for measuring equipment—Part 1: Management of measuring equipment.

2.4 IPC[1]

IPC-A-20 Fine pitch stencil pattern for Slump.

IPC-A-21 Standard pitch stencil pattern for Slump.

IPC-T-50 Terms and Definitions for Interconnecting and Packaging Electronic Circuits

IPC-TM-650 Test Methods Manual

2.2.14 Solder Powder Particle Size Distribution—Screen Method

2.2.14.1 Solder Powder Particle Size Distribution—Measuring Microscope Method

2.2.14.2 Solder Powder Particle Size Distribution—Optical Image Analyzer Method

2.2.14.3 Determination of Maximum Solder Powder Particle Size

2.2.20 Solder Paste Metal Content by Weight

2.4.34 Solder Paste Viscosity—T-Bar Spin Spindle Method (Applicable for 300,000 to 1,600,000 centipoise)

2.4.34.1 Solder Paste Viscosity—T-Bar Spindle Method (Applicable at less than 300,000 centipoise)

2.4.34.2 Solder Paste Viscosity—Spiral Pump Method (Applicable for 300,000 to 1,600,000 centipoise)

2.4.34.3 Solder Paste Viscosity—Spiral Pump Method (Applicable at less than 300,000 centipoise)

2.4.35 Solder Paste—Slump Test

2.4.43 Solder Paste—Solder Ball Test

2.4.44 Solder Paste—Tack Test

2.4.45 Solder Paste—Wetting Test

2.5 American Society for Testing Materials[4]

ASTM D-1210 Fineness of Dispersion of Pigment Vehicle Systems

1. Application for copies should be addressed to the IPC, 3000 Lakeside Drive, Suite 309S, Bannockburn, Illinois 60015-1219
2. Publications are available from Standardization Documents Order Dept., Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5090
3. Publications are available from the International Standards Organization 1 Rue de Varembe, Case 56, CH-1211 Geneve 20 Switzerland
4. American Society for Testing Materials, 1916 Race Street, Philadelphia, PA 19103-1187