



ENGINEERING MATERIAL SPECIFICATION

SOLDER PASTE, 10 SN/88 PB/2 AG

NOT FOR NEW DESIGN

WSS-M11A32-A3

SOLDER PASTE, 10 SN/88 PB/2 AG, LOW VISCOSITY

NOT FOR NEW DESIGN

WSS-M11A32-A4

SOLDER PASTE, 10 SN/88 PB/2 AG, HIGH VISCOSITY

NOT FOR NEW DESIGN

WSS-M11A32-A6

1. SCOPE

The materials defined by these specifications are 10 Sn/88 Pb/2 Ag solder pastes with mildly activated rosin flux used for either screen printing, stencil printing or syringe dispensing applications. These solder pastes are homogeneous suspensions of prealloyed solder powder in specially formulated screening and fluxing vehicle systems.

2. APPLICATION

These specifications were released originally as conductive materials used as printable solder for surface mount connections and other applications. These solder pastes were designed to be screen printed, stencil printed or syringe dispensed onto ceramic substrates and reflowed using either convection or infrared soldering.

3. REQUIREMENTS

These solder pastes are homogeneous suspensions of prealloyed solder powder in specially formulated fluxing vehicle. All qualification testing shall be done at 25 +/- 2 °C and 50 +/- 3% relative humidity, unless otherwise specified.

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.3 COMPOSITION

(IPC-SP-819, Section 4.4, 50 gram sample required)

	A3	A4	A6
Solder Metal, weight %	89.2 - 90.2	87.0 - 89.0	89.7 - 90.7
Vehicle	Balance	Balance	Balance

3.3.1 Solder Metal Composition, atomic percent (QQ-S-571F, Class 1 Impurity Levels)

Tin	9.5 - 10.5
Silver	1.8 - 2.2
Zinc	0.005 max.
Antimony	0.50 max.
Bismuth	0.10 max.
Copper	0.08 max.
Iron	0.02 max.

Date	Action	Revisions
2012 07 25	N-Status	No replacement A. Wedepohl, NA
2005 02 07	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.7, 3.8, 4
1995 08 30	Activated	A3 and A4. Activated A6 on 1996 01 10



Aluminum	0.005 max.
Cadmium	0.005 max.
Lead	Remainder

3.4 INDIVIDUAL COMPONENT PROPERTIES

3.4.1 Solder Powder (Powder sample prior to mixing)

3.4.1.1 Particle Size (IPC-SP-819, Section 3.2.2)

% of Sample by Weight - Nominal Sizes

Less than 1% larger than	45 microns
Remainder between	45 - 25 microns
10% - 20% less than	25 microns

3.4.1.2 Particle Shape (IPC-SP-819, Section 3.2.3)

Spherical;
Ratio = 1 - 1.5

3.5 VISCOSITY, poise (IPC-TM-650, Section 2.4.34.3, spiral pump viscometer, 25 +/- 0.25 C)

	A3	A4	A6
5 RPM (5 minutes)	905 - 1965	538 - 1622	1500 - 2100
30 RPM (1 minute)	385 - 835	175 - 505	400 - 800

3.6 SHELF LIFE, min

6 months

Store an unopened container of solder paste at 2 +/- 2 °C (35 +/- 4 °F) for the specified shelf life time period. The solder paste shall meet the viscosity requirements per Section 3.5 of this specification. Shelf life is based on date of manufacture. The solder paste is to be delivered within two months of the date of manufacture.

4. GENERAL INFORMATION

The information given below is provided for clarification and assistance in meeting the requirements of these specifications. Contact gms@ford.com for questions concerning Engineering Material Specifications.

4.1 If the material contains a rosin based flux, GC spectra of the extracted flux are required.

4.1.1 Extraction Method

- Extract 2.0 g of paste with 3.0 mL of 50% isopropanol/50% toluene solution.
- Mix well and then use centrifuge to separate the metal particles from the liquid portion.
- Collect liquid portion with pipette and save for GC sample preparation.