

SMART Group Announce New Process Control Test Methods Solder Paste Standard

SMART Group announce the release of its first Standard, “Control of Solder Paste used in Electronic Assembly Process” (Document reference: SG PCT01), that is intended to help electronics assemblers to determine the suitability of the solder paste prior to production. The tests show the actual useful life of the paste that will help to reduce waste and environmental impact.

The test methods employed are adaptations of the methods employed by paste manufacturers found in IPC-TM-650, IPC J-STD004/5 and IEC 61189-5. They assess solder paste for Slump - Spread - Wetting - Tack - Balling. Gathered data also provides the “Open Time” that the selected paste can provide to the user.

Process Control tests have become essential to CEM’s, ECM’s and ODM’s as they strive to enhance yields, improve product reliability and increase profits.

Good measurement practice, preferentially, requires only 1 variable - the item under test. However, this often requires far more sophisticated methodology than is practicable in a production environment - the demands in production are for something that is quick and easy to do, allowing a Go / No-Go answer rather than a definitive Pass / Fail.

This new Standard provides, for the first time, a user-friendly test procedure that may be conducted in less than 1 hour. Simple ceramic or copper clad FR4 type coupons are employed and the solder paste is applied using special stencils applicable to the test in question. To carry out the tests, the user will require some

items that, whilst readily available, are not necessarily “in-house” items. They include:

- Force Gauge
- Hot plate
- Microscope x10 to x30
- Camera
- Stencils and Printer
- Coupons (Ceramic and FR4 type)

There are, of course, commercially available systems that can be used to conduct all of these tests. Some of these are also able to provide image capture and comparator software that make the testing even easier and more useful.

SMART Group Vice-Chairman, Graham Naisbitt, who initiated this Standard, announced: “This document is an important new development to our membership and beyond. Process Control Tests are in high demand but have not been easy to implement because invariably it results in arguments between the user and the supplier.

“What we have set out to achieve is a careful balance of the needs of each and of enhancing the user / supplier relationship.”

SMART Group Chairman, Keith Bryant, welcomed this Standard, explaining: “It is hoped that our members will find this work extremely useful and will raise issues requiring us to look at further Standards requirements”.

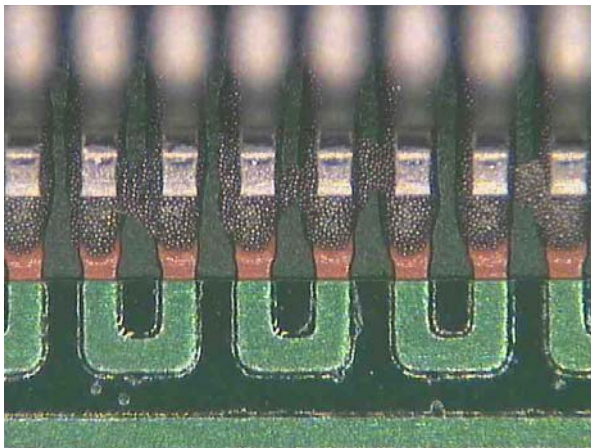
Note: This new Standard is available in the members area of SMART Group web site: www.smartgroup.org quoting document reference SGPCT01.

For more information contact: Tony Gordon, SMART Group Secretary at info@smartgroup.org

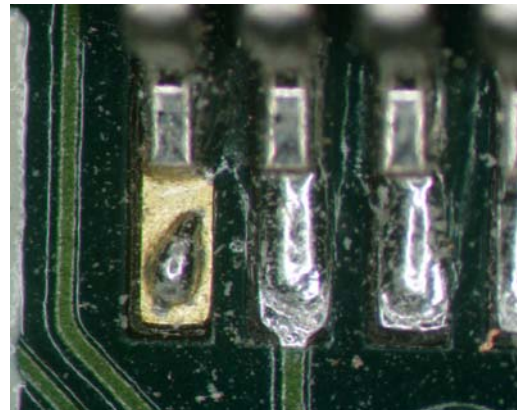
For press information contact: Mike Judd, SMART Group PR Director at

Solder Defect & Test Method	WHAT TYPE OF DEFECT IS OCCURRING?												
	Reject Parts	Missing Parts	Microshorts	Moving Parts	Tomestaming	Cold Joints	False joints	Solder Balls	Solder Cracks	Pinholes	Poor Wetting	Weak Solder	
Spreading						●	●	●		●		●	●
Wetting			●	●	●	●	●	●	●	●	●	●	●
Balling	●	●	●				●	●	●	●	●	●	●
Slump			●	●	●			●	●	●	●	●	●
Tack	●	●	●	●	●			●			●	●	●
Open Time	●	●	●	●	●	●	●	●	●	●	●	●	●

ITEMS	COST IMPLICATIONS?			
	1	2	3	4
EQUIPMENT	PRINTER	REFLOW	INSPECTION	REWORK
LABOUR & TIME	SETTING & CLEANING	SETTING & TESTING	RUNNING TIME	REPAIR
MATERIAL	WASTE	SOLDERING DEFECT	MAINTAIN PARTS	COMPONENT



Slump of paste on a board assembly prior to final reflow



Poor wetting on solder pad

These two Images courtesy of ASKBobWillis.com