

WELCOME TO OUR FIRST ELECTRONIC NEWSLETTER

It gives me great pleasure to send you this newsletter from SMART Group and we wish you a Happy, Successful & Prosperous New Year. SMART Group remains Europe's largest electronics technical trade association and as you will see we are entering a new phase with some exciting changes.

Many of these are detailed in our new brochure, to request a copy please email your request to info@smartgroup.org or download it from our web site.



Vision Change and Incorporation of TISA into SMART

At a press conference held recently at the Nepcon offices of Reed Exhibitions, SMART Group announced a vision change whereby the group activities will now encompass all aspects of Electronics Manufacture, Assembly and Test. As a first step, Peter Marshall, Chairman of SMART announced that TISA, the Test Industry Supplier's Association, will be incorporated into the SMART Group. Andy Bonner, Business Development Director of DiagnoSYS and a TISA Committee Member, presented the history of TISA and expressed satisfaction in their joining SMART. A new brochure from SMART outlines this and other changes, including the addition of an Individual Membership category, (added to the existing Corporate Membership). A complete range of member benefits is listed, together with examples of past and current SMART Group activities.

A new project for 2004, SMART Group is proud to be associated with LEADOUT, a European funded scheme that will expand the very successful PPM monitoring project into a lead-free environment. In co-operation with over 20 organisations across Europe, LEADOUT will examine reliability, process change and the training needs of small and medium volume manufacturing companies. The 6th Annual SMART Group Lead-Free Seminar will be held on February 3rd and is well on the way to becoming a sell-out event.



Are You Experienced? Hands-On Lead-Free Experience 2

After last year's successful, sell-out, SMART Group 'Hands-On Lead-Free Experience' held at the Nepcon show we are doing it all again!

On May 26-27th at the Metropole Hotel in Brighton we hope you will join us. Here are some comments from attendees last year.

"A most valuable event"

"Personally the most valuable aspect of the 'Experience' was actually seeing what processes were involved in getting a good joint"

"I thought the overall seminar content and the way the event was structured was very good and credit to you and the SMART Group"

"Congratulations on organising such a good event, if you do another one I would like to see even more in depth process presentations"

"Visibility of real processes and gaining confidence into aspects of new alloys"

"Having representatives from all areas of PCB manufacture enabled us to gather a lot of information in a short space in time. It also gave us the right questions to go and ask our suppliers"

Smart Group Experience is a purpose built feature area designed by the SMART Group at the Nepcon Electronics Show. As well as the valuable experience gained, all delegates receive a special CD-ROM featuring lead-free information provided by each of our Experience partners. More information in our next Newsletter.

FEEDBACK

We hope you enjoy our first newsletter and we would appreciate your feedback. What would you like to see in future issues?

Please let us have your comments.
Mike Judd – Editor
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Report on the SMART Group Lead-Free Assembly & Soldering Workshop that was held at the premises of Speedprint Technologies Ltd., Upton, Poole, Dorset on November 27th 2003.

Bob Willis, Technical Director of the SMART Group, welcomed over 40 delegates to this event, with a morning of presentations covering lead-free soldering, followed after lunch by a practical 'hands-on' look at the application of, and subsequent processing with, lead-free solders on the equipment available in the Europlacer Speedprint demonstration room.: screen printer, component placing and reflow soldering equipment.

Attending such a SMART Group meeting evidences the wealth of knowledge and experience now available in the field of lead-free. It was therefore not surprising to see that many delegates came from companies who have to face up to the changes necessary before July 2006. Bob opened the meeting by referring the delegates to the SMART Group programme on reliability testing, in which companies can bench mark their assembly process.

He also referred to the legislation and recommended delegates to visit the web site www.dti.gov.uk/sustainability

Other topics covered were:

PCBs themselves, there would generally speaking be no change in the base materials, but the automotive industry is considering higher Tg materials.

Solder finishes, in the range of gold, solder levelled, silver, tin and OSP, electroless ni/au was the most popular, followed by HASL,

silver and OSP. OSP wets well, and the HASL finish has some lead-free options.

Temperatures for lead-free would typically be Wave solder - 260-265C, Convection oven - 240 - 245C, Vapour phase - 230 or 240C. Concerning the IEC/IPC Component Requirements, the change to lead-free will move the goalposts higher up, so it is worth looking at the JEDEC website which shows draft charts on times and temperatures.

Defects such as fillet lifting during wave soldering were discussed.

With wave soldering, try to get rid of shorts, also with some alloys you get a duller appearance. Change alloy, more expensive yes, but the performance can be the same as what you are doing now. Bob recommended centre board supports for wave soldering on single-sided and double sided boards. He has also done some tests to prove that tin erodes surfaces, he has used various alloys here.

With print & reflow process, no problems, printing is simple with lead-free, as is the reflow process, although there are some concerns on metallurgy between two surfaces that need to be understood, also spread during reflow. Lead-free does not wet as well as conventional, this is a fact of life, some people have been modifying the apertures to cope, successfully. Use of vapour phase will increase up to about 10% or so. There are five main suppliers in the field, results of tests

showed that the process soldered well, there was some tombstoning but overall it was excellent. Inspection - there are no inspection standards for lead-free, and it might be as well for IPC to leave the basic criteria alone. What we should have are reference joints for various materials. Bob circulated some SMART Group inspection posters showing different lead-free joints for discussion amongst the delegates. Use of X-ray is effective, too. Yield information on lead-free does not exist, but Bob reminded the listeners that the SMART Group has already started a project on PPM Monitoring to compare tin/lead and lead-free processes.

Rework & repair - demonstrations by use of video showed that lead-free works fine, and the removing and replacing of components could be achieved without difficulty. However, said Bob, with lead-free we might start to see a move back to contact methods. You have to think about temperature demand to reflow the solder, but it works fine. Hot air pencils work well for removal of small components, even the very smallest 0201 and 01005 chips.

A thoroughly enjoyable, informative and useful morning, with an equally valuable practical session in the afternoon. Our grateful thanks to Andy Kellard at Europlacer:

Copy of the presentation to download (91.9 meg)
www.smartgroup.org/pdf/speedprint.pdf





SMART GROUP PROCESS TECHNOLOGY SEMINARS AT NEPCON

The SMART Group would welcome suggestions on technical presentations for this year's event, which may cover one of the following important topics:

PCB Design for Manufacture Press Fit
Technology Lead-Free Materials Printed
Board Manufacture Test and Testability Sourcing
PCBs and Component Trends 0201 Chip
Component Assembly or Soldering
Optoelectronics Automatic Optical Inspection.

Presentations are 25 min in length and presented in PowerPoint. After the seminars all papers are featured on the Nepcon/SMART Group web sites for further exposure. Full written articles can also be featured on web sites for download and may be submitted to our sponsoring magazine for possible inclusion in the magazine. The magazine will be featuring the seminar listings and coverage of the seminars over the coming months. If you would like to give a presentation at Nepcon Brighton send a short abstract to technical@smartgroup.org as soon as possible.

DIARY 2004

3rd February

Annual Lead-Free Seminar / Table Top Exhibition - H. Wycombe

18th February

PCB Specification & Procurement Workshop - Waterlooville

19th February

Inspection Automation & Control Seminar - Dublin

18th March

Lead-Free Reliability - Milton Keynes

1st April

Quality Control - Scotland

13th May

Lead-Free Seminar - Shannon

14th May

Golf & Clay Pigeon Shooting Day - Shannon

26-27th May

SMART Experience - Nepcon, Brighton

16-18 November

European Conference - Brighton

SMART Group 6th Annual Lead-Free Seminar & Table-Top Exhibition

Tuesday 3rd February 2004

Wycombe Football Club Conference Centre

UK manufacturers fail to tackle lead-free directive. UK electronics manufacturers are not taking the lead-free directive seriously, and many may fail to meet the deadline of July 2006. *Electronics Weekly (22nd October 2003)*

Lack of action on EU waste directive threatens electronics competitiveness *Electronics Weekly (12th November 2003)*

Lead-Free Seminar and Table Top Exhibition Programme:

Introduction by Mike Judd, SMART Group PR Director

Consultation, Compliance & Enforcement Steven Andrews - DTI
European LEADOUT project Bob Willis - SMART Group
Transition to Lead-Free - Potential Pitfalls - Chris Hunt - NPL

Status Update of Lead-Free Manufacturing in Japan & the movement to Lead-Free in Mainland Europe - Martin Allison - Senju Manufacturing (Europe)

Harsh Environment Applications for Lead-Free Solder Systems
Steve Brown - Cookson Electronics

For this event we have tried to cover many concerns raised recently on our email forum smart-e-link

Product Marking for Pb-free or RoHS - Industry Options and Guidelines
Kay Nimmo - Soldertec

Challenges & Experiences of Running a Lead-Free Line: Feedback from the Line
Mike Fenner - Indium

Vapour Phase Returns for Lead-Free Soldering,
Mary Gregory - A & D Automation

Table Top Exhibition features:

A&D Automation, Blundell Production Equipment Ltd, BTU, Concoat Ltd, Dage Ltd, Henkel, Hereaus Materials Ltd, Indium Corporation Europe, OK International Ltd, Seho UK Ltd, Senju Manufacturing (Europe) Ltd, Tecan Ltd, Tin Technology Ltd.

To get further information and booking form go to www.smartgroup.org/pdf/lf2004.pdf

Don't be disappointed!
Over 110 delegates already booked.