

Soldertec... the lead-free resource centre www.lead-free.org

In this month...

Conference success

Kay's Column

Member's profile

Dear Soldertec member

CRU presentation

Murata products

Networking!

CONFERENCE
PROCEEDINGS &
WORKSHOP
HANDBOOKS



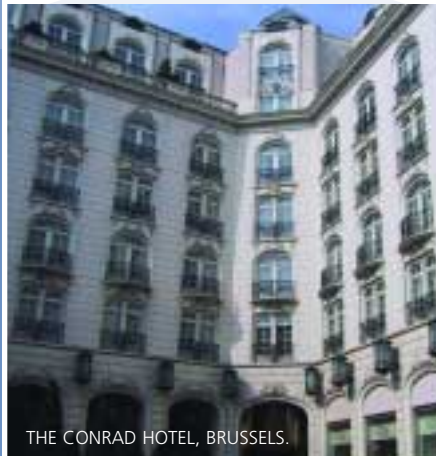
International Conference Proceedings are available from Soldertec on CD-rom for £125 each + VAT.

The Workshop Handbooks are also available at £50 each + VAT per Workshop.

Copies available by emailing: info@lead-free.org

If you have forgotten your password to website please email: tony.wallace@tintechnology.com

IPC / Soldertec Conference on Lead-Free Electronics... an International Success!



THE CONRAD HOTEL, BRUSSELS.

Around 200 attendees from around the world greatly enjoyed the recent Conference on Lead-free Electronics 'Towards implementation of the RoHS Directive', jointly sponsored by IPC- Association Connecting Electronics Industries™ (USA), and Soldertec at Tin Technology Ltd (UK). The delegates all left feeling fully informed about the requirements, challenges, and opportunities involved in a change to lead-free electronics production. The conference is now likely to be repeated next year. For anyone who missed this year's important event, copies of the proceedings are available on CD-rom for just £125 (around €180) by emailing info@lead-free.org. The event was opened by Marianne Klingbeil, Head of the Sustainable Resources Unit of the European Commission, and Steve Andrews from the UK Department of Trade and Industry, who outlined the requirements of RoHS and how the legislation would be implemented throughout the EU.

Eddie Hernandez-Sosa, Hewlett-Packard Caribe, Puerto Rico said, "It was great to hear the legislator speak. I now have a much clearer understanding of why RoHS is important to Europe. The networking at coffee and lunch really helped share the understanding." The conference was indeed a great networking opportunity, and a truly international event, with representatives from every Member State of the EU, significant numbers from the US, Japan, and delegates from as far afield as Australia, Thailand and Sri Lanka.

The high quality technical programme provided all the information required for successful lead-free production, as well as news of the latest industry developments. The high quality of papers and presenters was particularly noted and appreciated by everyone attending. Many key industry experts participated, including Ken Suetsugu, Matsushita Electric Industrial Company, leader of the company wide lead-free implementation programme which has recently achieved 100% lead-free solder usage for all Panasonic production sites. Other experts included Rob Horsley, of Celestica; Dongkai Shangquan from Flextronics, Vivek Gupta of Intel, Malcolm Warwick from Loctite-Multicore, Jennie Hwang from H-Technologies Group and John Lau of Agilent Technologies. Plans are already being made for a similar event next year. Michael Muller, Polytron-Print, Germany said, "As a PCB fabricator the conference has helped me to fully understand my customers needs. Will come again next year"

Martin Tarr of SAMC commented "A very worthwhile experience: the numbers attending showed that people are at last waking up to lead-free; the quality of the speakers, and the breadth and depth of expertise evident from the audience contributions, combined to make the conference content technically challenging – like its subject!"

The conference provided the ideal opportunity for production experiences from different regions of the world to be shared. Delegates left the event well informed and ready to make further progress towards full implementation of lead-free production. The conference was held in the Conrad Hotel, Brussels, 10th –12th June 2003. More details can be found from the Soldertec website www.lead-free.org

KAY'S COLUMN



Soldertec Global requests applications and nominations from electronics industry for Lead-free Solder Awards 2003

Following on from our enjoyable Brussels Conference, Soldertec is announcing that it is offering individuals or organisations involved with the development of lead-free technology the opportunity to apply for one of this year's Lead-free Solder Awards.

The awards recognize significant contributions of researchers, engineers or companies to the development and implementation of lead-free electronics soldering during 2002. Applications can be made directly by individuals or organisations, but industry is also encouraged to provide nominations of individuals they feel should be recognized through this award.

Applications or nominations should be made by email to our Editor Tom Perrett email: tom.perrett@tinttechnology.com describing in less than 300 words the work of the individual towards achieving the successful introduction of lead-free electronics. Past awards have been made for leading collaborative research projects, introducing lead-free soldering into production, making particular improvements in process technology or contributing to knowledge through academic studies.

Member's Profile - EDELHOFF

Edelhoff is a medium sized, family-owned company, drawing and coating wires for various applications in the electronics, lighting industry and cable business.

They are certified by ISO 9001:2000 and more than 65% of their production is exported. Wires for the electronics industry are normally lead-wires for passive components or jumper wires. Base material is normally copper, but bronze, brass, nickel-silver and steel are used for specific applications also.

Due to solderability requirements most of Edelhoff's wires are coated. They coat by using the electroplating process as well as by hot dipped tinning. Tin-lead coatings were mostly common in the past, although specific customers have used Edelhoff's lead-free coatings for many years. Their tin coatings have been considered state-of-the-art in the product range for over 15 years. To prevent whiskers they carry out an undercoating by nickel, if the cover layer is electrolytic matt tin they use hot dipping. Another option is to use a reflow process for electrolytic coated tinned wires. For more technical information please visit www.edelhoff-wire.de



Congratulations to Celestica's Rob Horsley on gaining doctorate

Robert Horsley received the BSc (Hons) degree in Metallurgy and Microstructural Engineering from Sheffield City Polytechnic and the MSc degree in Advanced Manufacturing from the University of Salford, Manchester in 1986 and 1987 respectively. Since receiving his MSc degree he joined the Manufacturing Technology Department of Celestica Limited in UK where his main research activities include lead-free soldering implementation. He is now a leading member of the Celestica global lead-free team and has also successfully completed a PhD in lead-free solder joint microstructural characterisation at the University of Salford.

Rob's lead-free activities are both internal and external, examples include the Celestica global lead-free process qualification programme, whilst also representing the company in industry consortium type activities. Examples include the high temperature lead-free reliability project in the High Density Packaging User Group (HDPUG) consortium which has membership of large companies from around the world. In this project lead-free test boards with a wide range of thermal mass components were assembled at Celestica. Assembled test boards were subsequently subjected to accelerated thermal cycling (ACT) reliability testing at Soldertec. Rob was co-author of 4 technical papers written on this project and they were presented at the APEX03 conference in Anaheim, California in March.

Another example of a consortia type activity is the DTI funded 'HALFREE' project which is managed by Soldertec. The project is aimed at deriving new tin based and halogen-free flame retardant systems for PCBs and component body encapsulations. Soldertec's previous experience in the field of developing novel tin based flame retardants ensure this project has firm foundations on which to build and Rob is keen for Celestica, as an assembler, to be an active participant in this project.

IPC / Soldertec
Conference
on Lead-Free
Electronics...
a Networking
Success!



Welcome from the Editor



As editor of your newsletter can I welcome you to this, our second edition. You will see that most of the space is rightly used to tell you all about the Brussels Lead-free Conference "Towards Implementation of the RoHS directive". It was a great event in many ways, but if I had to say what pleased me about the 3 days most it would be the networking. The coffee breaks and lunchtimes were filled with informal discussions, contacts made, addresses exchanged and the chance to talk to the presenters on a one-to-one basis. The interchange of ideas during the 3 days, made the event a success, and everyone went back to their organisations buoyed up with new plans. If you missed the event, there are details in this issue of how to obtain the conference CD-ROM, and copies of the workshop handbooks (a complete list is shown on page 4).

Now the dates for the implementation of the proposed legislation have been set; the countdown towards July 1st 2006 has begun. Your newsletter will continue to keep you in touch with what is happening around the world to keep you ahead in the race.

In the next month I will be contacting you all by letter to show you our new Soldertec Global brochure. It will help us to expand our aims of providing information and technical support, through a membership scheme to a larger global network. By increasing our membership numbers across the world we can help with the exchange of ideas and knowledge which will benefit all. We will be offering our members more information to download from our website, and expanding our e-shop capabilities. Our move to the new site at Curo Park, St.Albans will allow us greater opportunities to support your move to lead-free through project work, and fast turnaround laboratory services. The framework for all this is our membership scheme which I hope you will all use to network and exchange those ideas.

CRU presentation to Tin Technology Board points to global supply shortfall

The presentation made by independent analysts CRU International at Tin Technology's Board meeting this month in Kuala Lumpur showed that world tin consumption is likely to exceed production by some 12,000 tonnes in 2003. Although demand is forecast to decline slightly, the main feature in the market is a sharp fall in production by Asian custom smelters.

The full article can be found on www.tintechnology.com

Murata Products - Lead Elimination Activities

Soldertec received a copy of the brochure detailing Murata's Lead Elimination and Reduction Activities. In talking to Mike Ball, their Business Development Manager, he told us "At Murata we take our responsibilities to the environment very seriously and are at the forefront of activities to reduce the impact on the environment.

More details of our activities can be found on www.murata.com/env/index.html

“Towards Implementation of the RHS Directive”

IPC / Soldertec International Conference on Lead Free Electronics
June 10-12, 2003 Conrad Brussels Hotel, Brussels, Belgium

European Commission / Parliament/ EEB etc
Marianna Klingbeil
HEAD OF UNIT, DG ENVIRONMENT, EUROPEAN COMMISSION

The RHS Directive; European Dimension
and Implementation in the UK
Steve Andrews DEPARTMENT OF TRADE AND INDUSTRY, UK

European and International Roadmaps
for Lead free Technology
Kay Nimmo SOLDERTEC

Environmental Policy and lead free
Development in Matsushita
Ken Suetsugu MATSUSHITA ELECTRIC INDUSTRIAL CO

Designing a High Performance
Pb-free Paste and Reflow Process
Malcolm Warwick LOCITITE-MULTICORE WITH NOKIA

Microstructure Evaluation of SnAgCu, SnPb and
Mixed Cell Solder Joints After Reflow, Rework,
Aging and Thermal Cycling
Polina Snugovsky CELESTICA CANADA

Reliability and Failure Modes of
SnAgCu Solder Joints
P Ratchev IMEC

Optimisation of Environmentally Friendly
Soldering Processes - Flux Systems
Serge Tuerlings KESTER

Low Temperature Lead free Soldering
JEIP Project (SnZnBi etc)
Katsuaki Suganuma OSAKA UNIVERSITY

Novel Soldering Technique for Lead free
Solders Using Ultrasound
Kazumi Matsushige KYOTO UNIVERSITY

Lead free Wave Soldering and Reliability
of a LED Display
John Lau AGILIENT

Development and Implementation of
Lead free Assembly by and Electronics
Manufacturing Service Provider
Rob Horsley CELESTICA UK

A Collective Research Project of European SME's
Karl-Heinz Zuber IZM

Whisker Growth and Crystal Orientation -
Is There Any Correlation?
Dr Gernat Strube SCHLOTTER

Intermetallic Formation in Relation to Tin Whiskers
Pascal Oberndorff PHILIPS

Preventing Whiskers in Electrodeposited Tin for
Semiconductor Lead free Applications
Keith Whitlaw SHIPLEY

Status of JEITA Tin Whisker Test Method Project
Ichi Sakamoto OMRON

Lead free Electronics for Automotive Applications:
Specific Constraints, Failure Modes and Related
Design Guides for Reliability
Gerard-Marie Martin VALEO

SnZnAl Lead free Solder With Suppressed
Oxidation Reaction
Masayuki Kitajima FUJITSU JAPAN

Development of a Lead free Surface Mount
Manufacturing Process for High Complexity
Electronic Assemblies
Eddie Hernandez-Sosa HP

Consequences of Changing to Lead free
Solder for Board Assembly
Jan Kolsters PHILIPS

Wave Soldering Qualities on the Contamination
of Cu for Sn3Ag0.5Cu Solder
Minoru Ueshima SENJU MATERIAL CO

IMS Project EFSOT - Next Generation
Environmentally Friendly Soldering Technology
Otmar Deubzer IZM

Biological Impacts of Metals in Lead free Solders
Masaide Okamoto HITACHI

Standardization of Lead free Component
and Board Identification
Vivek Gupta INTEL

Characterisation and Reliability Investigation
on Lead free Packages
Shyh-Rong Tzan ITRI TAIWAN

Study of Compatibility for Pb-free
Solder PCB Assembly
Dongkai Shangguan FLEXTRONICS

A Simple Measuring Method of Lead and
Copper Contents in Lead free Solder
Kioji Itabashi MALCOM CO

Advanced Process Management for the
Lead free Reflow Process
Miles Moreu KIC

A Comparison of Tin-Silver-Copper
Lead free Alloys
Karl Seelig AIM

Lead free Alloys for HASL (SnCuNi)
Keith Sweatman NIHON SUPERIOR

Impurity Removal Technology for Lead free
Wave Soldering processing
Ken Suetsugu PANASONIC

Reliability Evaluations of Lead free
Solder Packages
Ellen Auerswald TU BERLIN

Thermal Windows of Processes, Wetting
Jean-David Cillard IFTEC

Material Characteristics and Practical Use
Situation of SnAgIn Bi System Solder
Masami Aihara HARIMA CHEMICALS

Use of Lead free Solder in Electronic Devices
for the Automotive Sector
Jose Antonia Cubero LEAR

Study of Immersion Silver and Tin Pcb Surface
finishes in Lead free Solder Applications
Minna Arra FLEXTRONICS FINLAND

Workshops

W.01
Lead free Interconnections -
Technology, Selection and Applications
Jennie Hwang, Ph.D.
H-TECHNOLOGIES GROUP, INC.

W.02
Lead free PCB Surface Finish
& Component Coating
Jennie Hwang, Ph.D
H-TECHNOLOGIES GROUP

W.03
Right Connection to
Lead free Soldering
Gerjan Diepstraten
VITRONICS SOLTEC BV

W.04
Reliability Issues for
Lead free Solders
Werner Engelmaier
ENGELMAIER ASSOCIATES, L.C.