

LA/OC SMTA CHAPTER NEWS

March 2004 EDITION

March 2004 Dinner & Presentation Meeting The SMT Cost of Quality Model

DATE

Thursday, March 18th, 2004

AGENDA

6:00PM, Social Hour

7:00PM, Dinner/Presentation

MEETING FEES

\$20, Members

\$25, Nonmembers

MENU

Chicken Parmesan

LOCATION

Embassy Suites

3100 East Frontera

Anaheim, CA



Los Angeles & Orange County Chapter

"The Surface Mount Technology Association membership is a network of professionals who build skills by sharing practical experiences and developing solutions in electronic assembly technologies and related business operations."

LA/OC SMTA CHAPTER IS PROUD TO PRESENT...

March 2004 Dinner & Presentation Meeting

The SMT Cost of Quality Model

Presented By:

Blake H. Bowling

V.P. of Business Development

Vectron, Inc.



RESERVATIONS

Call: MaskTek

(714) 557-3383

NO SHOWS WILL BE INVOICED

If you can not attend, please cancel your reservation by 12 Noon on Wednesday, prior to the meeting. See you there!

UP COMING EVENT

LA/OC SMTA is proud to Present...

April 2004 Dinner & Presentation Meeting...

MSD's

Moisture Sensitive Devices

DATE

Thursday, April 15th, 2004

AGENDA

6:00PM, Social Hour

7:00PM, Dinner/Presentation

MEETING FEES

\$20, Members

\$25, Nonmembers

MENU

Broiled Teriyaki Steak

LOCATION

Embassy Suites

3100 East Frontera

Anaheim, CA

PRESENTATION ABSTRACT

The cost of quality has made it necessary for SMT manufacturers to consider adding AOI to the line to avoid the random and systemic defects that occur during the manufacturing process. Eliminating these defects earlier in the process by implementing AOI prior to ICT, Functional and X-Ray can significantly reduce the overall costs associated with shipping a quality product.

There has been a significant advancement in the use of AOI and the overall performance of inspection equipment in the area of speed, flexibility, ease of use, repeatability and throughput. The ability of AOI to cover a broad range of defects at production speeds makes it a valuable tool for process control in addition to identifying assembly defects. Increasing package complexity and decreasing chip sizes are driving demand for higher resolution and imaging capability.

Current AOI capabilities, limitations, differences, strengths and weaknesses will be topics of discussion along with where the future of AOI is heading.

SPEAKER PROFILE

Blake Bowling has been in the SMT industry for over 15 years involved in product management, marketing and business development.

Mr. Bowling was an early contributor to Asymtek (automated fluid dispensing) and is now the V.P. of Business Development for Vectron (automated optical inspection) located in San Diego. Blake has been involved at the R&D stages of several revolutionary new technologies working closely with companies such as Intel, IBM, Motorola, Nokia and Qualcomm to improve their SMT manufacturing processes. While at Asymtek he successfully launched the industry's first process controlled flip chip underfill system and later introduced fluid jetting technology. As a founding partner of Vectron in 1998 he has been instrumental in introducing the first high-resolution, digital color, parametric-measurement automated optical inspection system. This exciting new technology won the Best in Test award from "Test & Measurement World" and the EP&P Excellence Award from "EP&P Magazine" at last year's APEX show in Anaheim.

What's Inside this Months News Letter...

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Presidents Message

By: Scott Penin

We have just about completed the calendar for 2004, only September and November are still open. If you know of anyone who is a preferred speaker and can enlighten us on any of the subjects identified in the last newsletter, please tell us so we can contact them.

January's meeting by Rick Brummet of SPEA was very informative on the history of electrical and visual testing. The upcoming meeting on AOI should prove to be just as informative and we hope those of you who missed January's meeting can make it to the March meeting.

March's meeting subject has been changed due to calendar conflicts. Moisture Sensitive Devices (MSD's) will be scheduled later in the year. The new subject will be the Cost of Quality, presented by Blake Bowling of Vectron. Blake has been in the business many years and is an excellent speaker.

Since this month's subject matter is centered on inspection methodologies, we will be setting up vendor tables for suppliers who wish to display their product(s) for our chapter. The cost is \$100 and includes: 1) a 5-6 foot long table to setup your wares; 2) the opportunity to talk to the attendees before and after the meeting; 3) a few minutes at the beginning of the meeting to talk about their products to a captive audience 4) a ¼ page ad in our newsletter and 5) posting on our local web site www.laocsmta.org. Our chapter operating revenue comes almost entirely from our vendor community and we appreciate the support we get.

We are honored to be able to host a SMT Process Engineer certification course this year in Southern California. It will be held at Irvine Electronics, November 9th through the 11th. Please see our ad in this newsletter, or see the detailed information on the national site www.smta.org under certifications or contact JoAnn@smta.org for more information.

As always, if you have any suggestions that will assist or improve our chapter, please contact us at www.laocsmta.org.

LA/OC SMTA is proud to Present...

November 2004

SMT Process Engineer Certification Course

Get the recognition that you deserve.

These days it takes more than experience. It takes "proof".

SMTA Certification will quickly become the electronic assembly industry's most respected sign of approval. Certification is one way to enhance your stature in our industry. Your certification can also be a marketing tool for your company. They will be able to proudly say that they have team members who are SMTA certified.

What The Certification Programs Are

Each SMTA Certification program is a three-day workshop consisting of refresher topics in the SMT processes or systems. This will include both open and closed book examinations. The workshop, as well as the exam, assumes that the participant has at least one year of SMT experience and has an educational background equivalent to two years or more of college in a technical discipline. This is not an entry level program. Basic algebra and geometry will be used in the workshop and examination. The examination is "competitive" in that it requires written answers and some calculations. The intent of this procedure is to enable the students to establish competitive credentials as "Certified" by the SMTA in SMT Assembly Processes or SMT Systems.

SMT Processes Curriculum

SMT Materials
SMT Components
Stencil Printing
Dispensing
Component Placement
Reflow Soldering
Wave Soldering
Test and Inspection
Line Balancing

Who Should Attend

SMTA Certification is intended for manufacturing and process engineers. However, design, test and quality engineering personnel, as well as SMT assembly managers who want to confirm their current competence at a fundamental level of overall process technology, should also consider certification. The program assumes that the student has a year or more of SMT experience and is competent in elementary engineering mathematics.

DATE

November 9th to 11th, 2004

AGENDA

8:00AM, Check-In
8:30AM to 4:00PM, Certification Course

COURSE FEES

\$1195 SMTA member / \$1345 non-member includes the workshop, study guide, and test.
\$745 SMTA member / \$895 non-member includes just the study guide and test (no workshop).

MENU

TBD

LOCATION

Irvine Electronics
1601 Alton Parkway
Irvine, Ca 92606
(949) 250-0315

Technical Article

"Lead Free or Not - Why is that the Question?"

Written by, **Kathleen S. Palumbo** with PA&LS & Technical Advice by, **Dana Imler & Bill Gesick PhD** with AMTECH

APEX 2004 was a good show this year. Many folks said they had good attendance at their booth, while others stated it was not as good as it should have been. This is definitely better than last year when everyone was stating the show was awful.

The big buzz of the show was of course the topic of "Lead Free". Many folks are very concerned about this push for a lead free process and rightly so.

There are many issues that we have discovered with this "lead free" push and our stance on the issues has not changed. We believe that this does not make sense for our industry and the hidden costs with going lead free are going to be the demise of our electronic industry in the United States.

Don't get me wrong here, as an M.E. I have always supported a "Green and Clean" process; however, my approach was to recycle 100% of our waste. In fact we were actually able to generate a significant income from recycling while eliminating our hazardous waste bill, which netted a \$28K savings per year.

Let us look at the lead free formulas that some are proposing to mandate that we switch too. Several of the formulas contain copper. Let us think about this logically. As I recall copper is considered a contaminant. Remember an intermetallic compound contains copper, and you do not want an intermetallic in a solder connection as it is brittle and it will greatly affect your reliability. I have also experienced wetting issues on HASL coated PCB's and after further root cause analysis we discovered that the issue was coming from too much copper content in the HASL solder bath. So, does putting copper into your raw solder materials make sense to you? I think not.

There are many other issues with the copper solder formulas as well since they are non-eutectic formulas. Non-eutectic means the solder has a pasty range from 217°C to 219°C. A non-eutectic solder formula is never going to have as tight of a grain structure in your solder connection, which is going to have a huge affect on your overall reliability. Remember the tighter the grain structure, the more reliable your solder connection. In addition there is absolutely no reliable reliability data available on these copper solder formulas.

Wait, there's more. The copper content formulas also require a very active flux in order to get the solder to wet. More active flux you say? What about BGA solder connections? As you will recall the more active the flux the more prone to voiding issues in a BGA solder connection; however, none of this will matter anyway since the copper content formulas are prone to 25% voiding even without the more active flux. 25%?! Boy, is this going to reek havoc on our high

speed BGA designs. Can you say "waiver"?

In addition to all of these issues there is also a separation issue. The copper tends to separate out from the solder easily upon freezing. In fact none of the copper solder formula solder bars can be extruded because of this issue. The copper content formulas can only be cast and even then the copper tends to separate out. Wonder how this will affect your solder joint upon freezing? Does anyone even know? As of yet there is no data on this so it is hard to say.

If you are being mandated to switch to a Lead Free formula I am sure you are saying to yourself by now "but I have no choice". Awe but you do. There are several other *Lead Free* formulas you can choose from. All of which have well over 20 years worth of reliable reliability data. They are eutectic and have a melting point of 221°C. These formulas are Sn95.5Ag3.5 or Sn96Ag4. As a matter of fact there is local Orange County, California company that has been successfully using these lead free formulas for well over 20 years with great success.

Now one must ask. Does switching to a lead free formula really solve the problem? Think about it. If the assemblies still go into a land fill isn't there still a chance of contaminants causing issues? Copper can be just as harmful as lead, and silver is far more harmful to our health than lead could ever be. Doesn't a recycling programming make more sense? Weren't we successful at recycling 100% of the lead battery's? What is the difference? Why aren't we capable of recycling 100% of electronic assemblies and CRT monitors?

Folks in the solder industry have a theory on all of this ubba-baloo on these copper content solder formulas. You see, they could not patent the Sn95.5Ag3.5 or Sn96Ag4 formulas; however they could patent their copper content formulas, and we all know what this means. Someone stands to make a lot of money by mandating the use of these copper content formulas.

The buzz in Europe is that they are going to refuse to use any copper content formulas. In addition many industries have been able to obtain "waivers" on the Lead Free mandate (due to reliability issues). These folks are all typically high reliability industries such as Automotive, Military, Aerospace, Medical Instrumentation, etc. So once again I must ask, "what's the Point?" If it is not 100%, have we really addressed the issue of electronic assemblies and CRT monitors ending up in our land fills?

We must ask ourselves, are we sheep or are we technologically leaders? Should we just follow along and go with what ever is being mandated? Or do we get off our duff and prove our stance that recycling is the key, and it always has been and always will be. Think about it. The added costs for lead free will be past on and the only folks who are going to pay are us the consumers.

LA/OC SMTA is proud to Present...
May 2004 Presentation & Plant Tour Meeting...

PARK-NELCO
Laminate Technology & LF Material Selection

DATE

Thursday, May 20th, 2004

AGENDA

6:00PM, Dinner

6:30PM, Presentation

7:00PM, Plant Tour

MEETING FEES

\$20, Members

\$25, Nonmembers

MENU

Catered

LOCATION

PARK-NELCO

2401 East Katella Avenue

Anaheim, CA 92806

SPEAKERS

Fred E. Hickman, III

VP OEM Marketing & Technology

PARK-NELCO

AND

Dave Hoover

Technical Application Engineer

Multek, Inc.

ABSTRACT

1. Introduction (5 minutes)
 2. Lamination 101 — The basics of making Laminates and Prepregs(20 minutes)
 3. LF Material Selection (10 minutes)
 4. Plant tour of NPI (20 minutes)
 5. Q & A (10 minutes)
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-



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secretary@laocsmta.org

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Acceptable Artwork Formats: .pdf, .jpg, .bmp, .gif, .tif, html, & Camera Ready Artwork. Laser Printed Pages will not be accepted.

Acceptable Font Style: Graphic, MSWord, or html.

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OR	3.75"	9.75"

Schedule

Ads should be submitted at least one week prior to the end of the month proceeding the first month of desired publication.

Vendor Tables

Display your products and literature at a Chapter Meeting for a fee of \$100, and receive a bonus of one free 1/4 page AD for one month.

Contact

Scott Penin

Call: (714) 403-1874 / E-Mail: info@paradigmmanufacturing.com

Calling All Members!

WE NEED YOUR INPUT!!

We need presentations for our 2004 meeting schedule. Currently our planning board has the following months available:

September & November

We are looking for Presentations in the following categories:

Factory Enterprise Systems & QA Techniques/SPC, Lead-free Assembly & Performance Measurement, DFM/DFT/DFA & SMT Design Methodologies, PCB Final Finish Selection, BGA's, Chip Scale/Micro BGA's & Fine-Pitch components.

If you have a presentation and/or know of someone with a presentation we would like to hear from you.

Please E-mail Kathy Palumbo at laocsmta@laocsmta.org OR Contact by Phone at 949.713.7229