



NEWS FROM WECC MEMBERS

IPC Releases Market Research Report on Issues and Outlook for Lead-Free Electronics in Military and Aerospace Applications

IPC has released a new market research study, "Issues and Outlook for Lead-Free Electronics in Military and Aerospace Applications." This study examines the current and future state of lead-free usage in high-reliability applications.

"Many manufacturers today must depend on a dual supply chain to accommodate both leaded and lead-free processes", said Sharon Starr, IPC director of market research. "The study finds that maintaining dual processes, along with the growing scarcity of some leaded components, adds extra costs. This state of economic inefficiency is a burden on the industry," Starr added.

The study examines the use of reballing lead-free assemblies in order to meet high-reliability requirements, and it estimates the average costs that this workaround typically adds to board production. It also estimates the price differential of scarce components and identifies the tipping points at which the industry can be expected to go fully lead-free. These tipping points and other indicators are the basis for a 10-year forecast of the ratio of tin/lead to lead-free solder consumption, both worldwide and in North America.

In the end, the growing cost differential between leaded materials and components will force a shift to lead-free electronics in high-reliability applications. The study provides a look at how manufacturers are coping with these problems today and how this trend will affect the industry in the future.

"Issues and Outlook for Lead-Free Electronics in Military and Aerospace Applications" is available for sale at www.ipc.org/lead-free-

[electronics-report](#). The cost is \$250 for IPC members and \$500 for non-members.

IPC Standards Committee Reports — Data Generation and Transfer, Supplier Declaration, Electronic Documentation, EHS, Management, Intellectual Property

These standards committee reports from IPC APEX EXPO 2015 have been compiled to help keep you up to date on IPC standards committee activities. This is the fourth and final in the series of reports.

Data Generation and Transfer

The 2-16 Product Data Description (Laminar View) Subcommittee continued discussion of potential new requirements and possible changes to [IPC-2581B](#), *Generic Requirements for Printed Board Assembly Products Manufacturing Description Data and Transfer Methodology*. The group continues to work on development of user guides that show designers how to implement 2581 concepts in their transfer between design and manufacturing.

Supplier Declaration

The 2-18 Supplier Declaration Subcommittee did not meet due to conflicts in the chair's schedule.

The 2-18b Materials Declaration Task Group discussed further enhancements to [IPC-1752A](#) *Materials Declaration Management*. The task group continues to work in concert with the IEC 62474 Materials Declaration Standards Group to ensure harmonization of the standards. The task group is in the process of organizing the annual solution provider review.

The 2-18j Laboratory Declaration Task Group is now looking at the next revisions of [IPC-1753](#), *Laboratory Report Declaration Standard*. The standard allows for laboratory data to be seamlessly exchanged among supply chain partners.

Electronic Documentation Technology

The 2-40 Electronic Documentation Technology Committee and 2-41 Product Data Description Subcommittee discussed the IPC-261X series.

Discussion included modifications to [IPC-2611](#), *Generic Requirements for Electronic Product Documentation*, [IPC-2612](#), *Sectional Requirements for Electronic Diagramming Documentation* and [IPC-2612-1](#), *Sectional Requirements for Electronic Diagramming Symbol Generation Methodology*, as well as [IPC-2614](#), *Sectional Requirements for Board Fabrication Documentation*.

Environment, Health, and Safety

The 4-30 Environmental, Health, and Safety Committee heard presentations and discussed several EHS issues impacting the electronics industry. The committee will help write the EHS section of the 2015-2016 IPC Roadmap. A presentation on the EICC Code of Conduct sparked good debate and discussion on what requirements may be seen in the future. IPC staff gave an update on their advocacy efforts on substance restrictions, both nationally and internationally. The presentations are available to IPC Members at www.ipc.org/ehs.

The 4-32 Equipment Safety Subcommittee discussed the continued efforts to develop a joint equipment safety standard with SEMI. Committee members present at the meeting discussed the need to move forward with a draft standard.

The 4-33 Halogen Free Laminate Materials Subcommittee was re-activated to try to provide both technical as well as financial information that helps prove the case of why tetrabrominated bis-phenol A should not be restricted any further as a flame retardant for printed board laminate.

The 4-34b Marking, Symbols and Labels for Identification of Assemblies, Components & Devices Task Group reviewed updates needed on [J-STD-609A](#), *IPC/JEDEC Marking and Labeling of Components, PCBs and PCBAs to Identify Lead (Pb), Lead-Free (Pb-Free) and Other Attributes*, including adding references to the recast RoHS Directive and clarification that markings under this standard do not denote EU RoHS compliance or any other regional substance restriction legislation addressing lead content. The standard was intended to label PCB surface finishes, component terminal finishes, and attachment solders, as opposed to the lead used internal to the component.

Management

The 8-41 Technology Roadmap Subcommittee celebrated the publication of the 2015 *IPC International Technology Roadmap for Electronic Interconnections*. The roadmap represents two years of work by an international team and provides the vision and needs assessments of OEM, ODM, and EMS companies between now and 2015. In addition to discussing the newly published roadmap, the subcommittee also gathered comments on areas of improvement or need for the 2017 edition.

Intellectual Property

The E-21EMS Intellectual Property Subcommittee met to discuss the working draft version of IPC-1072, *Intellectual Property Protection in Printed Board Manufacturing*. Following the meeting, the document was to be distributed as a draft for industry review to generate feedback from industry and prepare a ballot document. The goal is to ballot the document by June and publish in fall or winter 2015. Changes made to this standard may be reflected in an amendment to IPC-1071A.

[Fail to Prepare, Prepare to Fail](#)

By Jennifer Read, Consultant

That's a quote from Ben Franklin cited by IPC CEO John Mitchell in a [video blog](#) about the recently published [IPC Study of the North American Labor Pool for Electronics Manufacturing](#). Recruiting and training the next generation of workers for the PCB industry is one of the most important ways for companies to prepare for the future. Our study shows that more than 70 percent of those surveyed believe there is a skilled labor shortage, with 2/3 of respondents reporting difficulties in filling production worker positions in the past six months.

I had the privilege of working on this important study with IPC's market research director Sharon Starr. We interviewed and surveyed IPC members to uncover the challenges and opportunities they faced in recruiting and training the next generation of electronics manufacturing workers. There is consensus that the industry will face serious skilled labor shortages in the coming years as employers are increasingly unable to lure the sharpest young people away from careers that are perceived to be more lucrative and exciting: e.g. software, finance and medical

technology. And there is increased frustration among employers at the caliber of the applicants that respond to job postings.

Here are some of the drivers of the recruitment challenges discussed in the report:

- Public perceptions of the industry
- Dynamics of supply and demand growth
- Job candidate expectations
- Manufacturers' constraints

For example, one glaring challenge is the fact that PCB fabricators and EMS companies are at a distinct disadvantage when competing for talent with their OEM customers due to resource constraints. What can be done about this inconvenient fact of life? The good news is that there are misperceptions about the industry that can be addressed. It isn't all about salaries paid. Some of the job candidates feel a lack of trust in manufacturing jobs in North America. When the manufacturing renaissance has lasted for some time and people see that these jobs are here to stay, that should change.

The 'Maker Revolution' is starting to catch on among the millennial generation. There are initiatives happening at the federal, state and local level to get young people excited about STEM subjects in general, and electronics hardware manufacturing specifically. From Maker Faires to field trips to trade shows, to grant awards to community colleges for training programs, there is a growing awareness that manufacturing is vital to the U.S. economy. And many in the education and government community are willing to put their money where their mouth is to help employers recruit and train the smartest workers for today's high tech electronics factories.

Our report addresses the causes of today's recruitment challenges, identifies the labor pool gaps and training needs, and discusses solutions. It is based on primary data from a representative sample of 107 companies that participated in IPC's survey and secondary research and analysis. The companies that participated accounted for an estimated \$31.7 billion in sales and included U.S. and Canadian electronics original equipment manufacturers (OEMs), electronics manufacturing services (EMS) companies, printed circuit board (PCB) fabricators, and suppliers of materials and equipment to those industry segments.

The report is available for sale at www.ipc.org/laborpoolstudy2015. The cost is \$450 for IPC members and \$900 for nonmembers.