

## **IPC/JEDEC 3rd International Conference on Lead Free Electronics**

### **"Towards the RoHS Directive"**

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#### **A Database for the Transition to Lead-free**

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Although the deadline for the change to lead-free technologies that has been forced on the electronics industry by the EC Directive on the Restriction of Hazardous Substances (RoHS) is more than a year away there is already sufficient experience of commercial mass production of lead-free circuitry to provide a degree of confidence that there can be a smooth transition. Some reassurance is provided by the fact that the fundamental principles of soldering and solderability learned from more than 50 years experience with tin-lead solder appear to apply equally to lead-free soldering. The adjustments required for differences in melting points and wetting properties are turning out to be smaller than expected. The basic principles of process control remain the same and the equipments improvements required to cope with the smaller difference between the process temperature and the melting point of the lead-free solder have been largely a continuation of the improvements that were already underway to achieve better quality with assembly processes based on tin-lead solders. In this paper the current understanding of lead-free electronics assembly will be reviewed on the basis of the experience of evaluation and commercial production in the Japanese and European electronics industries over the past five years. Issues covered will include criteria for alloy selection, optimisation of wave, reflow and hand soldering processes and the wider issues of reliability