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*American Competitiveness Institute*

***European Space Agency Position Summary***

***Lead Free Soldering Summit***

***Barrie D. Dunn***



## ***European Space Agency Position Summary***

### ***- Lead Free Soldering Current Status***

- *Inputs Provided By B. Dunn*
  - *Head of Materials and Processes Division*
  - *ESA – ESTEC*
  - *PO Box 299*
  - *2200AG Noordwijk ZH*
  - *The Netherlands*
  - *E-Mail: [Barrie.Dunn@esa.int](mailto:Barrie.Dunn@esa.int)*



## **European Space Agency Position Summary**

### **- Lead Free Soldering Current Status**

- Space Contractors
  - *Verify their solder assembly processes to European Standards*
    - ECSS-Q-70-08
    - ESA-PSS-01-738
  - *Using conventional component finishes and solders*
- Components
  - *Supplied with 60Sn or 62SnPb component finishes*
  - *If another finish is supplied, components are pre-tinned at the assembly site*
    - *Ensure good solderability*
    - *Avoid probability of tin whisker growth*
- Circuit Boards
  - *Electroplated then fused with SnPb following European Standards*
    - ECSS-Q-70-10 and ECSS-Q-70-11



## ***European Space Agency Position Summary***

### ***- Lead Free Soldering Current Status***

- Pure Tin (Sn) Usage: Specifically Forbidden
  - *ESA Materials Standards*
  - *ESA Component Standards*
- ESA Approved Circuit Board Companies
  - *Continue to deliver to space / military markets with SnPb finishes*
- Preferred Solder Alloy Supplier
  - *No intention of withdrawing eutectic SnPb alloy*



## European Space Agency Position Summary

### - Lead Free Soldering Current Status

- Component Manufacturers Conversion to Lead Free Finishes
  - *Most will continue with variants having SnPb finishes*
  - *ESA requires SnPb pre-tinning prior to assembly*
  - *Similar to gold finish removal with 2 solder pots*
    - *First pot to remove the non-approved finish*
      - *Gold*
      - *100% pure tin*
    - *Second pot to re-tin the hardware with SnPb*
- Gold Finishes Components For RF Applications
  - *Several options are available*
  - *One option used in Europe: Indium – Lead Alloys*
    - *70 Indium 30 Lead*
    - *50 Indium 50 Lead (ESA PSS-01-738)*



## ***European Space Agency Position Summary***

### ***- Lead Free Soldering Current Status***

- SnPb Processes Critical For High Reliability Applications
  - *Rework, Repair, Modifications to circuits*
    - *Covered by ECSS-Q-70-28*
  - *Will not be affected by Lead Free Soldering Conversion*
    - *Introduction of non-compatible alloys*
    - *Potentially higher soldering temperatures*
    - *Cleaning difficulties associated with fluxes and residues*
- Consistent with NASA Guidelines
  - *NASA's Workmanship Standards Technical Committee*