

RoHS & WEEE

ALTEK ELECTRONICS

The intent of this presentation is to share information that we have gathered from various sources regarding the upcoming RoHS & WEEE legislation. We cannot vouch for its validity, and this presentation should be used for reference only. We are sharing this information with our customers in order to raise awareness about the issues and work collaboratively to prepare for compliance.

European Union Directives - RoHS

- Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS, 2002)
 - Calls for the removal of six substances: lead, mercury, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers and cadmium
 - A maximum permitted concentration value of
 - Up to 0.1% by weight in homogenous materials for 5 substances except cadmium
 - Up to 0.01% by weight in homogenous materials for cadmium
 - Will be enforced in the EU from July 1st, 2006

Where Hazardous Substances are Found

- Lead
 - Pre-tinned leads on ICs, soldering of PCBs, glass for cathode ray tubes and light bulbs
- Mercury
 - Thermostats, sensors, relays in switches and discharge lamps
- Cadmium
 - Switches, springs, connectors, housings and printed circuits
- Hexavalent Chromium
 - Metal coatings for corrosion protection and wear resistance
- Polybrominated biphenyls & Diphenyl ethers
 - Flame retardants in PCBs, connectors and plastic covers

EU Directives - WEEE

- Waste Electrical and Electronic Equipment (WEEE, 2002)
 - Deals with recovery, sorting, recycling and disposal of non-compliant products
 - From August 13, 2005, makes producers of such equipment responsible for financing the collection, recycling and treatment of WEEE
 - Registration required; will likely be assessed based on % of market share

Which products are affected

- Household appliances
- IT and telecommunications equipment
- Consumer Electronics
- Lighting
- Electrical and Electronic Tools
- Toys, leisure and sports equipment
- Medical equipment systems – WEEE Only
- Monitoring and control equipment – WEEE Only

Who is affected

- A “Producer” is defined as anyone who
 - Manufactures electronic equipment from the affected list
 - Sells this kind of equipment produced by other suppliers
 - Imports or Exports this kind of equipment into the European Union (EU)
- Manufacturers of electronic equipment *outside Europe* must abide by this legislation if the equipment they produce is to be imported into an EU member state.

Exemptions - RoHS

- Military and aerospace applications
- Spare parts for the repair of electrical and electronic equipment put on the market before July 2006
- Some high-temperature solders and plating
- Large scale stationary industrial tools
 - “Machine or system, consisting of a combination of equipment, systems or products, each of which is manufactured and intended to be used only in fixed industrial applications.”
- HP is applying for an exemption for fine-pitch components (centers 0.65mm or less apart) due to tin whiskers

Status of Legislation

- European Union issues Directives to Member States
- The 25 Member States must develop their own legislation
- “Rules are in flux – no one really knows what’s going to happen until it happens.”
- UK using a “common sense” approach – RoHS compliance administered by Department for Trade & Industry; WEEE compliance administered by the Environmental Agency
- UK will delay introducing WEEE until January '06
- Germany & The Netherlands more strict due to high environmental standards – Directive will be administered by the Environmental Ministries

EU Member States

EU25 Member States:

Austria	Italy
Belgium	Latvia
Cyprus	Lithuania
Czech Republic	Luxembourg
Denmark	The Netherlands
Estonia	Poland
Finland	Portugal
France	Slovakia
Germany	Slovenia
Greece	Spain
Hungary	Swedan
Ireland	United Kingdom

Candidate Countries:

Bulgaria
Croatia
Romania
Turkey

Application Pending:

Former Yugoslav Republic
of Macedonia

www.eurunion.org

Legal Issues - RoHS

- UK – Due diligence defense – strict liability
- Random sample (Sony Playstation example)
- Consequences of Non-Compliance
 - Product banned (stuck in customs)
 - Cost of recall and replacement of product
 - Opportunity cost
 - Loss of market share
 - Penalties determined by Member States
- Legally binding judgment on these matters can only be given by the EU Court of Justice

Potential for Increased Costs

- R&D
 - Establishing that product BOMs are compliant
 - Identifying and tracking lead-free components
- Capital Equipment
 - Wave solder baths due to corrosive nature of high tin alloys
 - Surface mount ovens due to need for more zones

Potential for Increased Costs

- Operating Expenses
 - Lead free materials are more expensive (some estimates say 30% higher in the first year)
 - Higher energy bills (lead-free processes require 6-18% more energy)
 - Obsolescence management
 - Costs for capturing, tracking and reporting materials to the subcomponent level
 - Cost of certifications

Lead Times

- Some lead-free components are not yet available
- Lead-free materials are not yet in wide use and therefore lead times will be longer
- Many leaded components are becoming obsolete
- Industry is not synchronized in efforts to change from leaded to lead-free

Altek's Environmental Policy

- Altek endeavors to be an environmentally responsible company by
 - Using sound management practices
 - Complying with, or exceeding environmental Legislation and Regulations
 - Developing safe and environmentally friendly manufacturing processes

Altek's Compliance Plan

- Jan 2005 – July 2006
 - Study the RoHS and WEEE legislation and industry issues
 - Communicate with customers about the issues and develop joint strategies for compliance

- 1.) View Lead Free Web-Casts (on-going)
- 2.) Retain legal counsel for guidance
- 3.) Purchase new EKRA stencil printer
- 4.) Attend NEPCON Lead Free presentation on May 3 & 4
- 5.) Attend other seminars
- 6.) Communicate with Customers & Suppliers
- 7.) Acquire necessary tools and equipment to support lead-free process
- 8.) Develop internal procedures for lead-free manufacturing
- 9.) Fine-tune manufacturing processes
- 10.) Support customers' lead-free requirements

The Need to Work Together

- Identifying which products must be lead free
- Developing lead-free BOMs
- Engineering support to re-design PCBs to improve lead-free soldering (adding solder thieves)