



# The Global Greening of Electronics

September, 2006

**KEMET**  
CHARGED.™



## The World Goes GREEN

- EU RoHS Directive, July 1 2006
  - Japanese RoHS (J-MOSS), July 1 2006
  - California RoHS, January 1, 2007
  - China RoHS, Phase 1: March 1, 2007, Phase 2: TBD
  - Korean RoHS, July 1, 2007
  - Energy Using Products (EuP), Law target by August 2007
  - Registration, Evaluation, Authorisation of Chemicals (REACH), 2007
  - Proposed CA AB2202, January, 2010
- 
- California REACH may be on the way!



## China RoHS – 3 Documents

- The **Law**
  - “Administrative Measure on the Control of Pollution Caused by Electronic Information Products (EIP)”
- The **Universe**
  - “Note for Classification of Electronic Information Products (EIP)”
- The **Scope**
  - Catalog planned for release later this year
  - Define everything, but limit application to a sub-set of the Universe
  - An annual review is planned for this document

- Phase 1 – March 1, 2007
  - Think of this as the “Labeling Phase”
  - EIP within the scope must meet the marking and disclosure regimens for
    - Environment-Friendly Use Period
    - Packaging material content
    - Hazardous material content
      - Defined Mark in any “eye-catching” color
  - Article 3 materials must be disclosed by component
    - **In Chinese**
    - “X” = Substance Present, “O” = Substance Not Present
    - Disclosed in brochure / manual
  
- Phase 2 – TBD
  - This is the “Enforcement Phase”
  - Based on the Catalog scope:
    - Limited to EIPs subject to material restrictions
    - The extent of the material restrictions
    - The in-force date for the restrictions

- Scope identified things must be certified by the State certification and accreditation authorities
  - Expect the existing China Compulsory Certification (CCC) mark system
  - Required upon examination and inspection at the entry point
    - Certification issued and product is released from Customs
  - Testing required to homogenous material level
    - By Certified Chinese Labs
    - 18 Labs at this point
    - SGS is not one of them



# China RoHS – Comparison to EU RoHS

Criteria	EU	China
Material Restrictions	Common - at this point	
Date Law Passed	23-Feb-03	28-Feb-06
Effective Date	1-Jul-06	1-Mar-07
Marking	None	3 Requirements: Environmentally Friendly Use Period, Packaging Materials, Restricted Materials
Scope	10 very broad categories	Electronic Information Products: EU RoHS + ELV, Medical, Radar, Componets, Materials, Equipment, Household Appliances, Tovs, Tools
Exemptions	Exemptions based on substance application defined, system to petition more	None. Catalog will define inclusion scope, may also define application exemptions, no formal petition process.
Packaging Materials	Out of Scope	Non-toxic / Recyclable, disclosed in mark
Production Materials	Out of Scope	Restricted per material restrictions
Put on the Market	Confused and inconsistent between member states, allows limited channel stuffing	No channel stuffing, on effective date, each step in the chain from dock to retail shelf must be compliant
Testing / Certification	Not a prerequisite	Requires Chinese lab test results for Catalog items



## Korea RoHS – July 1, 2007

- Scope:
  - × Anything electrical or electronic, includes automobiles and components
- Material Restrictions:
  - × Expect alignment with EU
- Exemptions:
  - × Not allowed
- Marking:
  - × Required to improve recycling efficiency
  - × Not yet defined
- Extended Producer Responsibility
  - × Must join "Collective" recycling business / mutual aid association
  - × Fees to be announced
- Material Content:
  - × Available to credentialed government officials upon demand
  - × MoE determines and publishes analysis methods
- Penalty Structure:
  - × Clearly defined
  - × Failure to provide data can result in 1 year jail + fine  $\leq$  \$50k US

- Registration, Evaluation, Authorisation of Chemicals
  - Covers 30,000 existing and all new chemicals
  - Builds on existing legislation
    - Replaces over 40 existing directives
    - Existing HS&E and Recycling / Recovery legislation
- Manufacturers and Importers
  - Generate information on hazards to health, safety, environment
  - Assess risks
  - Manage risks
- Ensures information is available
  - Users
  - Regulators
  - General public

- Expected to come into force January, 2007
- First Phase: Pre-registration
  - To be followed by registration and testing, evaluation and authorisation
- The first volume band
  - Process should be completed in 3 years
- Planned implementation for existing chemicals is 11 years
  - A signal for how big this really is?

- There are some exemptions
  - Specifically listed, naturally occurring substances
    - e.g., graphite, limestone, gases, water, oils
  - Minerals, ores, or substances occurring in nature if they are not chemically modified during their manufacturing.
  - Anything covered by other directives
    - e.g., biocides, cosmetics

- “Article”
  - Anything which during production is given a special shape, surface or design, which determines its function to a greater degree than its chemical composition.
- Producers and importers of “articles” and under certain circumstances
  - Required to submit information about certain substances in their articles
  - With aim to register or notify
  - Imported volume above 1 ton annually
- Downstream users need to communicate upstream
  - Description of process & quantities of substance used
  - Operational conditions (frequency, duration)
  - Risk management measures
  - Use and inherent hazard will influence level of detail required

## What does this mean?

- MSDS and Material Declaration on steroids

<b>Driver</b>	<b>RoHS Directive</b>	<b>ELV</b>	<b>REACH</b>
<b>Substances</b>	<b>6</b>	<b>4</b>	<b>10k X</b>
<b>Industry List</b>	<b>JIG 101</b>	<b>GADSL</b>	<b>Annex XIII ?</b>
<b>Materials Declaration Response</b>	<b>IPC-1752</b>	<b>IMDS</b>	<b>&gt;&gt;&gt;</b>



## How else does REACH affect us?

- Supply chain complexity
- Classification and labeling impacts may be substantial
- Open supply chain dialog is essential
- Confidentiality issues

Punch line: How much will this cost?



## Berry Amendment – Quick Update

- The House players
  - Republican Conference Chair Pryce
  - Minority Whip Hoyer
  - Small Business Committee Chairman Manzullo
  - Speaker Hastert
- CEO meeting with Speaker Hastert mid-September
- As of 12 Sep 06
  - **rumor this morning is that Berry amendment changes would include**
    - an exemption for electronics and fasteners;
    - a one-year "get-well" period for companies to bring production into compliance; and
    - greater flexibility in attaining waivers for non-compliant products

**Both EIA and NEDA deserve a big applause for their involvement and leadership on this effort.**

- Most OEMs and CMs happy with anything they can get
  - **Currently, expect to change as their infrastructure matures**
- Version 1.1 ready
  - **Fixes June Bug and other problems**
- Love affair with Adobe is OVER
  - **Unclear at this point how that will affect future revisions**
  - **IPC poised to become a certifying body for future 3<sup>rd</sup> party templates**

- Version 2.0 plans taking shape
  - **Will not adopt GADSL**
  - **Will include updated JIG-101**
  - **Same framework**
    - XML communication tool
    - “Form” look and feel option
  - **Some types of multi-use features to be incorporated**
    - Potential separation from Adobe significantly opens up options

- Green Chemistry in Berkely
  - State Environment committee commised study by UC Berkeley
    - What are the key chemical challenges facing California
    - What are the causes of those challenges?
    - How might the Legislature respond to these challenges?
  - Answer published March 2006
    - Comprehensive, modern chemicals policy required to place California on a path for a sustainable future
      - Federal Toxic Substance Control Act is essentially ineeffective
    - Identifies 3 significant gaps
      - Data
      - Safety
      - Technology

- Data
  - Toxicity / ecotoxicity generally unknown, undocumented, not shared
  - Lack of comprehensive, standardized information endangers workers & consumers
  - Risk for employers
    - Can't identify hazardous materials
    - Chemical suppliers don't know all the uses
  - Lack of information weakens the deterrent function for product liability and worker's compensation systems
- Safety
  - Agencies don't have the info required to systematically identify and prioritize chemical hazards, nor the legal tools to efficiently mitigate known hazards
- Technology
  - No incentive for companies to invest in "Green chemistry"
  - EU has incentive REACH, China will too
  - California / US chemical industry risks falling behind



## What's our best industry strategy

- Stay informed
- Dedicate resources to these efforts
  - RoHS was just the tip of the proverbial iceberg
- Use industry forums to share information and approaches
  - This is no time for competitive game playing
  - We all face the same challenges and the costs are significant
  - We gain strength in numbers
- Stay very connected to our customers
  - And also now our supply base