



“China RoHS”

The Impact to the Electronics Industry

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Polar Bears Face Toxic Threat



- Flame Retardants from US build up in bodies of Polar Bears
- Disrupt hormones and developing brains
- Cubs are contaminated from mother's milk
- Toxic legacy will carry on for years as PBDE's are slow to break down in cold climates
- Manufacturing Industries use large volumes of PBDE
 - Electronics
 - Plastics
 - Furniture
 - Carpet Padding



Presentation Overview

1. China RoHS Overview
2. Background of “China RoHS”
3. Two Phased Implementation
 - Phase 1 – Labeling & Content Disclosure
 - Phase 2 – The Catalog
4. Implementation Issues



China RoHS is topic of the year

- What is RoHS?
 - Restriction of Hazardous Substances
- Industry information available but with different twists
 - The New Definition of 'March Madness'
 - "China RoHS Till It Hurts"
- RoHS Requirements are quickly spreading WW
 - EU, Japan, China, CA, Korea.....



What is “China RoHS”?



电子信息产品污染控制管理办法

Various Translations and Interpretations:

- *Administration on the Control of Pollution Caused by Electronic Information Products (Official Chinese Translation)*
- *Measures for Administration of the Pollution Control of Electronic Information Products (Ministry of Commerce of PRC Translation)*
- *Administrative Measures on the Control of Pollution Caused by Electronic Information Products (WSGR Translation)*
- *Management Methods for Controlling Pollution by Electronic Information Products (AeA Translation)*

The RoHS Timeline

■ EU RoHS

- Effective July 2006

■ Japan RoHS

- Effective July 2006

■ CA RoHS

- Effective Jan 1, 2007

■ China RoHS

- Released Feb 28, 2006

- Effective March 1, 2007



EU WEEE
Implementation

EU RoHS
Compliance

China RoHS
Effective

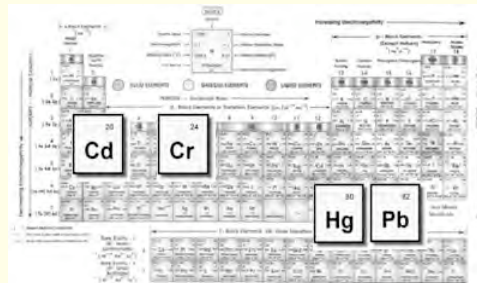
Release of China
RoHS

China RoHS
Catalog Release

China RoHS Catalog
Restrictions

China RoHS Substance Restrictions

- China RoHS restricts 6 hazardous substances
- Same banned substances as the EU
- China reserves the right to add substances in the future



A periodic table of elements with four specific elements highlighted in black boxes: Cadmium (Cd), Chromium (Cr), Mercury (Hg), and Lead (Pb). These elements are the ones restricted under China's RoHS regulations.

MATERIAL	LIMIT
Lead (Pb)	0.1 % wt
Cadmium (Cd)	0.01 % wt
Mercury (Hg)	0.1 % wt
Hexavalent Chromium (CrVI)	0.1 % wt
Polybrominated Biphenyls (PBB)	0.1 % wt
Polybrominated Diphenyl Ethers (PBDE)	0.1 % wt

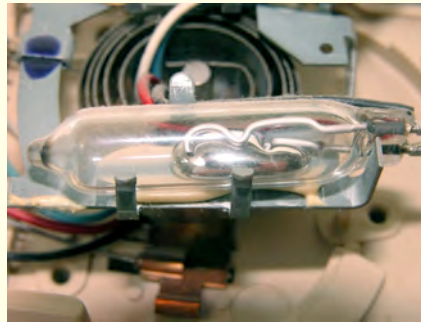
China RoHS Key Requirements

TOPIC	CHINA ROHS
Date law passed	28 Feb 2006
Effective date	1 Mar 2007
Marking	4 marking disclosure requirements
Scope	MII EIP list & growing subset to be put in Catalog
Exemptions	Exports
Packaging materials	Yes, Marking requirement
Production materials	Restricted per material restrictions
Put on the market	Products Manufactured from March 1, 2007
Testing/certification	Catalog items: expect process as for CCC Mark

Goal: Remove the Six RoHS Substances



Lead



Mercury



Cadmium



**Hexavalent
Chromium**



PBB



PBDE

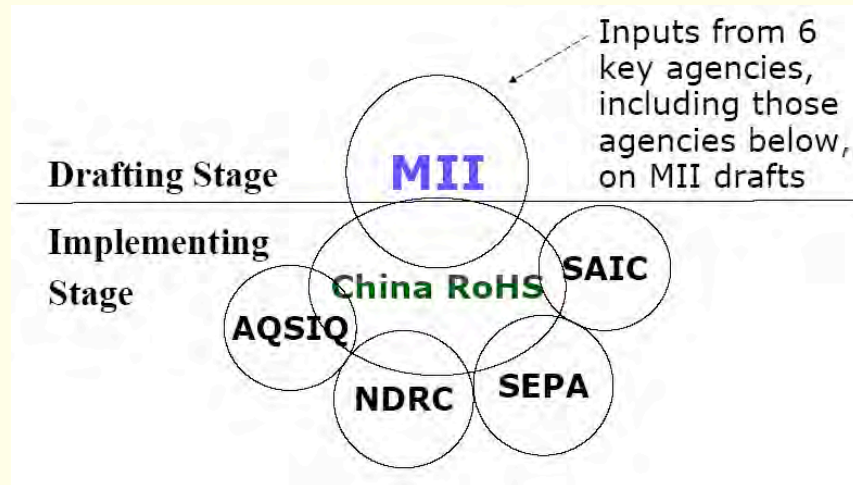
Impacts of Hazardous Materials

- **Lead**
 - Toxic to kidneys, nervous & reproductive systems
 - Inhibits mental development of young children & fetuses
- **Mercury**
 - High levels can contribute to brain & kidney damage
 - Can harm a developing fetus and can be passed down through breast milk
 - Mercury is stored in the fat of animals.
 - High levels of mercury found in fish in SF Bay
- **Cadmium**
 - Can cause kidney damage
 - Harmful to fragile bones
- **Hexavalent Chromium**
 - Can cause DNA damage & asthmatic bronchitis
- **Brominated Flame Retardants**
 - Levels in human breast milk are doubling every five years
 - Can potentially harm the developing fetus and can impact human development

Where do you find the Banned Substances? (Examples)

Substance	Where used now
Lead	Solders, termination coatings, paints, pigment, PVC stabiliser, batteries, cable wire insulation, connectors, circuit breakers, motors, power supplies, electronic components
Cadmium	Coatings, solders, semiconductors, contacts, PVC stabiliser, pigments
Mercury	Fluorescent lamps, batteries, sensors, relays, cable wire insulation, connectors, motors, power supplies, electronic components
Hexavalent chromium	Coatings to prevent corrosion (on zinc or aluminium or in paints), metallized plastics, toners
PBB	Flame retardant in certain plastics
PBDE	Flame retardants, plastic cases for monitors, connectors, fans, cables, etc.

Background of China RoHS



- **MII - Ministry of Information Industry**
- **AQSIQ - Administration for Quality Supervision, Inspection and Quarantine**
- **NDRC - National Development and Reform Commission**
- **SEPA - State Environmental Protection Administration**
- **SAIC - State Administration for Industry and Commerce**

“China RoHS” Scope

- **Scope: “Electronic Information Product”**: defined to include
 - *electronic radar products,*
 - *electronic communications products,*
 - *radio and television products,*
 - *computer products,*
 - *home electronic products,*
 - *electronic instrument measuring products,*
 - *specialized electronic products,*
 - *electronic components and parts,*
 - *electronic applications,*
 - *electronic materials, and accessories.*
- **“Electronic Information Product”** is the terminology for MII’s jurisdiction
- **Similar in approach as EU RoHS’ 8 categories –**
 - **Companies must interpret whether their products are within scope.**
- **“China RoHS”** applies to all EIP sold within China (does NOT apply to products manufactured for export)

Computer Industry Products (Examples)

- **Large or Medium-Scale Computer Work Station**
 - Large or Medium-Scale Computer
 - Mini Computer
 - Work Station
- **Personal Computer Equipment**
 - Desktop Personal Computer
 - Business Personal Computer
 - Household Personal Computer
- **Server**
- **Industrial Computer**
- **Portable Personal Computer**
 - Notebook PC
 - Palmtop Computer
- **Hand Held Information Terminal**
 - Personal Digital Assistant (PDA)
 - Electronic Instant-Dictionary
 - Electronic Notepad
 - Electronic Dictionary

China RoHS Scope

- Scope is all “EIP” sold in China
 - Domestic Market
 - Excludes exports
 - Includes “Other”
- Parts used in products that are out of scope are in scope
 - White Household Electronics
 - Toys
- CD/ DVD Players under scope
 - Blank DVD, CD under scope (Q24 MII FAQ)
 - Recorded DVD, CD not under scope
- Copiers Not under scope
 - Toner and Ink under scope (Q22)
- Automobiles Not under scope
 - Automobile EIP sold separately needs to comply (Q15)

China RoHS Standards

- Standard No: SJ/T11364-2006:
 - “Marking for Control of Pollution Caused by Electronic Information Products”
 - [GB 18455-2001 Packaging Recycling Mark](#) is referenced in the “Marking for Control of Pollution Caused by Electronic Information Products”
- Standard No: SJ/T11363-2006:
 - “Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products”
- Standard No: SJ/T 11365-2006
 - Testing Methods for Hazardous Substances in Electronic Information Products
- General Rule of Environment-Friendly Use Period of EIP (3rd draft released)
- Four material standards for leadless soldering materials

Two Phases of China RoHS

Phase I: Before Catalog

All EIP
Self Declaration +
Labels

Mar 1, 2007

Enter Market

Imposes labeling and
information disclosure
requirements

Catalog

Phase II: After Catalog

Material
Restrictions,
Testing +
Certification

Date not yet
Specified

Enter Market

Substance restrictions and
associated pre-market
compliance certification
required (CCC Process)

Phase 1 - Labeling Requirements

- 1. “Environment-Friendly Use Period” Marking**
 - Term during which hazardous/toxic substances contained in EIP, under conditions of normal use, “will not leak out or mutate” causing environmental pollution.
- 2. Toxic and Hazardous Substance Content Disclosure**
 - Disclosure of the name, content, location, and recyclability of parts containing targeted substances to be disclosed in chart form.
- 3. Packaging Material Content Disclosure**
 - Packaging Labels
 - Disclosure of materials used in packaging.
- 4. Date of Manufacture**

Required by March 1, 2007

Pollution control marking on product

Symbol 1:

No toxic substances



Symbol 2:

Product contains toxic substances;
Environment Friendly Use Period (EFUP*) in # years



EFUP refers to the period during which the toxic or hazardous substances or elements contained in electronic information products will not leak or mutate under normal operating conditions so that the use of such electronic information products will not result in any severe environmental pollution, any bodily injury or damage to any assets.

Environment-Friendly Use Period (EFUP)

- Identify # years the equipment will stay intact before there is an impact to the environment under normal conditions
- Review EFUP of components within the system as well as any part of the system that may impact the environment
- Equipment EFUP will typically be the lowest common denominator of the EFUP of the component (“Bucket Principle”)
 - Exclude those parts that require periodic replacement, which must then be labeled separately.
- EFUP Selection Methods
 - Safe Use Period – Use product’s specified safe use period
 - Techno-life – Determined by Design
 - Analogy – Evaluate similar technologies
 - Look-Up – Refer to EFUP standard

EFUP Determination

Larger EFUP number

- 'Enterprise' is **responsible** for the product during EFUP
- May be based on the durability of the product line
- Dependent on preventative maintenance plan

Smaller EFUP number

- Should be based on the lowest EFUP number of the subassemblies.
- At EOL, put product into **waste disposal process** (recycle, reuse)
- Manufacturer may be concerned with market competitiveness

Toxic Material Content Declaration

Part Name	Toxic and hazardous substances or elements					
	Pb	Hg	Cd	Cr6+	PBB	PBDE
Motherboard	X	O	O	O	O	O
Memory	X	O	X	O	O	O
Hard Disk Drive	O	X	O	O	O	O
Keyboard	X	O	O	O	X	X

Notes:




- Enter “X” in table cell if substance is over limit in at least one homogenous material in the part;
- Enter “O” if all homogenous materials in part are below limit for substance.
- MCVs are the same as for EU RoHS
- Table must be in simplified Chinese.
- Parts to be selected for listing at discretion of manufacturer.

China RoHS – Packaging Marking

- Packaging materials must correctly marked
- China National Standard GB 18455-2001
- Select appropriate marking and label packaging with one mark
- Label the ‘main package’



Table 1 Recycling Marks

Mark Number	Mark Name	Mark Graphic	Scope of Application of Mark
1	Reusable		Applies to all types of packaging
2	Recyclable/renewable		
3	Contains renewable materials		

Phase 2 – The Catalogue



- Banned substances applies only to Catalogued products
 - No exceptions will be allowed from products once placed in Catalog
- MIIT is currently working on the criteria for Cataloguing products
 - MIIT will be inviting industry input for product selection
- First-batch Catalog expected to be released between September 2007 and March 2008
- Substance restrictions and associated pre-market compliance certification required
- Testing shall be performed by Chinese labs prior to receiving the government certification to verify that the products are RoHS compliant.

Final Implementation Dates TBD

China RoHS Implementation Issues

- Scope ?
- Spare Parts?
- Second Hand Equipment?

Is my product within scope of China RoHS?

- **Yes** (probably) - All “electronic information products” (EIP) sold in China are within scope per “China RoHS”
- Scope of China RoHS is wider than EU RoHS
- To clarify what is EIP, the Ministry of Information Industry issued “Electronic Information Products Classification and Explanations” on March 16, 2006
 - A list of approximately 1,800 products, components and materials
 - Even this list is not considered totally inclusive
- Product may fit under the category of “other”

Are spare parts that are on MII's EIP list to be labeled?

- **June 5, 2006 MII FAQ (Q14)**
 - Replacement parts and complete sets products produced after 3/1/2007, whether for maintenance or separate sale, are included.
- **Aug 30, 2006 MII/SEMI Meeting Beijing, China**
 - Spare parts must obey our rules, **except** “Those spares that will be used on equipment to take the place of failed parts, if still under the maintenance period and you don't charge your customers an additional fee, then there is no need to label them.”
- **Oct. 26, 2006 in San Jose, CA**
 - On the question of whether or not you have to put a label on the replacement or spare part, “You are **not** required to do so. That's a new...interpretation”
- **December 2006 – MII FAQ (Q16)**
 - Parts for replacements and upgrade are **NOT** subject to the Administrative Measures unless they are “sold individually”

Is second-hand equipment on MII's EIP list to be labeled?

- **June 5, 2006, MII FAQ (Q22)**
 - new models as well as old models and including retail, wholesale and maintenance products shall be marked.”
- **Aug 30, 2006 MII/SEMI Meeting Beijing, China (Q5)**
 - “Second-hand tools will also require labeling”
- **Oct 25, 2006 - SIEMIC/ MII Seminar Milpitas, CA**
 - “Refurbished product **not** in scope” (Noted from SIEMIC-sponsored seminar with MII’s employees, Guo Weixing and Lu Chunyang, 25 Oct. 2006)
- **December 2006 – MII FAQ Standards (Q26)**
 - Second Hand EIPs are not included in the scope of the Administrative Measures

What's the definition of used equipment?

What should an electronics company do?

- Check the MII's EIP list to see if product in scope or likely to be in scope
- If your product may be in scope:
 1. Develop a Compliance Strategy
 2. Read all key documents
 3. Consider joining the MII's China RoHS standards working group
 4. Work with industry organizations to stay informed on latest information
 5. Develop your company's compliance plan
 6. Interact with your upstream and downstream supply chain
 7. Implement plan and meet all labeling and disclosure requirements

China RoHS Enforcement

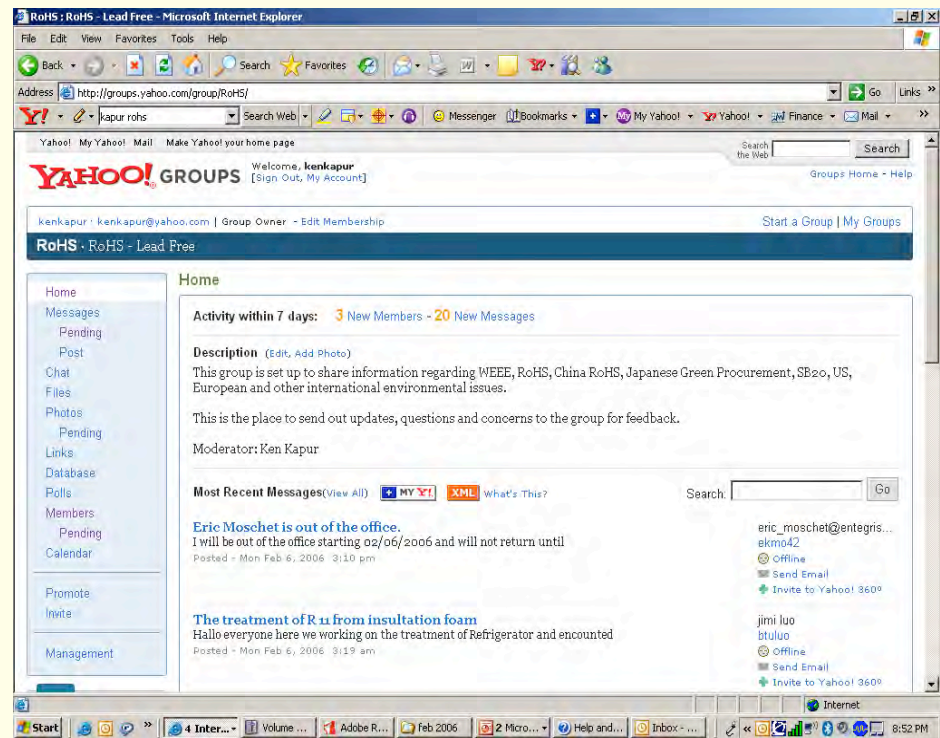
- **Enforcement:**
 - **AQSIQ - Administration for Quality Supervision, Inspection and Quarantine**
 - **SAIC - State Administration for Industry and Commerce Business Interruption**
- **Parts may be seized at entry port / held up**
- **Market Surveillance**
 - **Authorities may go into factories to audit**
- **Determine if label not on part**
- **Business Impacts**
 - **Delays**
 - **Fines**
 - **Warning**



An effective compliance strategy will prevent product shipment delays into China

Leverage off Industry Expertise

- RoHS Discussion Group
- Leaders in RoHS Expertise
- WW Representation
- Key RoHS Issues



RoHS - Yahoo Groups

<http://groups.yahoo.com/group/RoHS/>

Conclusion

- Companies should assess their product line to the China RoHS EIP list
- Understand and document the material composition of all parts
- Comply with labeling and disclosure requirements by March 1, 2007
 - Environment-Friendly Use Period (EFUP) label
 - Disclose Hazardous Material Content in product
 - Labeling & Disclosure of materials in Packaging
 - Date of Manufacture Marking
- Products will be listed in the Catalog starting late 2007/ early 2008.
- The China RoHS regulations will have far-reaching consequences in the electronics industry

Comply with RoHS!



References: Key documents and Resources

- EIP List
 - http://www.aeanet.org/governmentaffairs/gabl_HK_Art3_EIPTranslation.asp (English)
 - http://www.mii.gov.cn/art/2006/03/16/art_1221_8441.html (Chinese)
- AeA Key References and Standards
 - http://www.aeanet.org/GovernmentAffairs/gabl_ChinaRoHSpage0905.asp
 - AeA/ MII / Q& A:
http://www.aeanet.org/GovernmentAffairs/gamm_ChinaRoHS_WorkshopFAQs.asp
- The Regulation:
http://www.mii.gov.cn/art/2006/03/02/art_524_7343.html (Chinese)
- DCA China RoHS Resources
 - <http://www.chinarohs.com/>