



INTERNATIONAL
TRADE
ADMINISTRATION

Drivers, Trends and Differences in International RoHS Regulations

ICPHSO
March 1, 2007

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Overview of Presentation

1. Drivers
 2. EU
 3. China
 4. Japan
 5. Korea
 6. Brief Comparison
 7. Conclusions
- **Web Sites for More Information**



What's in a name? That which we call a
RoHS

By any other name.....might just be a
RoHS too.....or not.

Ross?

Roz?

Rose?

Rohas?

Restriction of Hazardous Substance



EU's ROHS Directive is NOT the same as China RoHS, Japan RoHS, Korea RoHS, or any other RoHS.....currently no regulatory harmonization.

- Referring to these regulations as “China RoHS,” “Japan RoHS,” “Korea RoHS,” etc., has led to the common assumption that the requirements for these regulations mirror those in the EU RoHS Directive.
- However, I’ll continue to add to this confusion today by referring to them in this manner



What Are the Restricted Hazardous Substances (“RoHS 6”)?

Restricted Substances

By Weight of Homogeneous Material

- | | |
|----------------------------------------|-------|
| • Lead | 0.1% |
| • Mercury | 0.1% |
| • Cadmium | 0.01% |
| • Hexavalent Chromium | 0.1% |
| • Polybrominated biphenyl (PBB) | 0.1% |
| • Polybrominated diphenyl ether (PBDE) | 0.1% |



INITIAL Drivers of RoHS Regulations

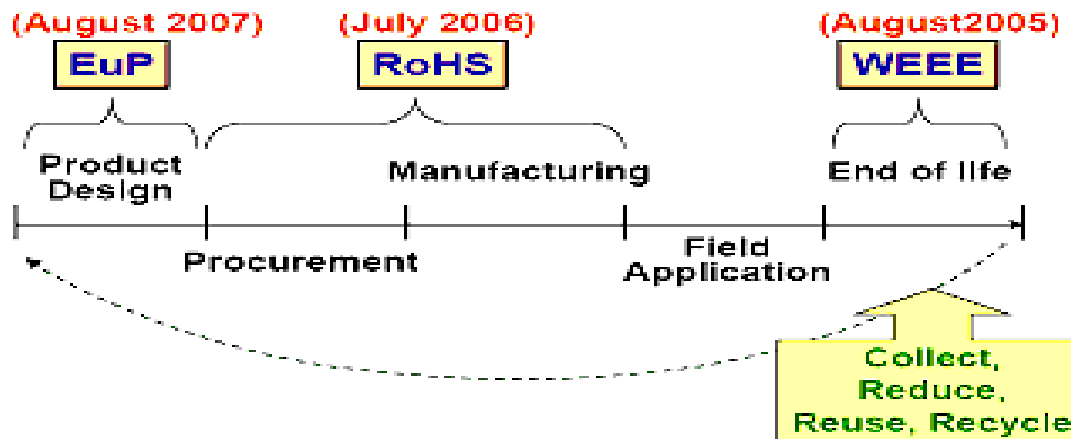
- **Externalities of Innovation and the Information Age**
 - Exponential increase in electrical and electronic products (many ICT and electronics) with short life cycles mean an exponential increase in waste.
 - EPA > 4.3 million tons of appliances and consumer electronics were discarded in 1999.
 - CA Integrated Waste Management Board > more than 6,000,000 obsolete computer monitors and TVs stockpiled in homes.
- **Economic costs of environmental damage**
 - China's State Environmental Protection Administration (SEPA) calculated that environmental damage cost China approximately \$65 billion in 2004, or roughly 3.05 percent of GDP over the last two years.



EU Environmental Regulations Affecting Electrical and Electronic Products (not comprehensive)

- **WEEE (Waste of Electrical and Electronic Equipment Directive)**
- **RoHS (Restriction of Hazardous Substances Directive)**
- **EuP (Eco-design of Energy Using Products Directive)**
- **REACH (Registration, Evaluation, Authorization of Chemicals)**

EU's Regulations and the Product Cycle





EU RoHS Overview

- From **July 1, 2006**, new electrical and electronic equipment put on the market should not contain the RoHS 6.
- The EU ROHS Directive is implemented according to **Article 95** of the Treaty of Rome, which means that Member States may only apply additional national provisions for protection under very limited circumstances.
- Seeks to reduce the environmental impact of EEE at end of life.
- Products which do not comply **cannot** be placed on the EU market.
- Complementary to the WEEE Directive.



EU RoHS Scope and Coverage

(Consumer and Industrial EEE)

1. Large Household Appliances
2. Small Household Appliances
3. IT / Telecommunications
4. Consumer Equipment
5. Lighting Equipment
including electric light bulbs and household luminaires
6. Electrical and Electronic Tools
7. Toys, Leisure & Sports
8. **Medical Devices**
(excluded)
9. **Monitoring and Control Instruments**
(excluded)
10. Automatic Dispensers



EU RoHS Scope

- In most cases the answer is straightforward, (eg. PCs, mobile phones, DVD players, etc.).
- But significant areas of doubt, (particularly in the specialised or industrial sectors).
- **EU Guidance Document issued May 2006** (EU RoHS Enforcement Authorities Informal Network – not legally binding).
- Ultimately, only the courts can give a legally-binding opinion.



EU RoHS Exclusions and Exemptions

- Medical Devices, Monitoring & Control Instruments (EU finished its review and concluded that these categories should be covered under RoHS by 2012 to 2016)
- Large-scale stationary industrial tools
- ‘Spare parts’ that are used for the repair or reuse of electrical and electronic equipment put on the market **before** July 1, 2006.
- Exemptions listed in Annex (plus additions)



EU RoHS Exemptions in Annex

(October 12, 2006 Official Journal of the EU)

- **Currently 29 exemptions. Over 100 proposed.**
 - 21. Lead and cadmium in printing inks for the application of enamels on borosilicate glass.
 - 22. Lead as impurity in RIG (rare earth iron garnet) Faraday rotators used for fibre optic communications systems.
 - 24. Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors.



Self-declaration of Conformity

- Used for many EU ‘New Approach’ Directives
 - Products placed on market presumed to comply with the RoHS Directive (issue with “placed on the market”)
 - Enforced by market surveillance
- “Declaration” can be challenged by the enforcement body
 - producers will need to demonstrate they have taken “reasonable steps” to comply



The Ever Mutating RoHS: Current Drivers and Issues

- **Dumping:** Countries fear that non-compliant products will be dumped in their market.
 - Should not be an issue once the supply chain runs out of non-compliant parts/components.
- **Innovation/Competitiveness:** Forced innovation – ensure that domestic industry remain competitive.
- **Framework regulations**
- **No international regulatory harmonization**



China RoHS vs. EU RoHS

China

- All Products in Scope Subject to **Mandatory Labeling** (exceptions to follow)
- Products in ***Priority Products Catalog*** Subject to **Restrictions (Bans) of the Use of Hazardous Substances**

EU

- All Products in Scope Subject to **Restrictions (Bans) of the Use of Hazardous Substances**
- Except:
 - ***Exempted Uses*** of Hazardous substances



Unique Features of the Administrative Measures on the Control of Pollution Caused by Electronic Information Products or “China RoHS”

- **Different Product Scope**
- **Enforcement Dates Depend on Product/Provision**
- **Unique Labeling Provisions**
- **“Priority Products Catalog”**
- **Mandatory Inspection and Testing for “Priority Catalog” Products**



Product Coverage: China vs. EU

China

- Radar Equipment
- Communications Equipment
- Navigational Equipment
- Broadcasting Equipment
- Medical Equipment
- Audio and Video Equipment
- Computers and Peripherals
- Measuring and Test Instrument
- Manufacturing and Assembly Equipment for Electronics
- Electronic Components
- Associated parts, subassemblies, and materials

■ **Outside of EU RoHS**

EU

- Large and Small Household Appliances
 - White goods outside of China RoHS
- Telecommunications Equipment
- IT Equipment
- Lighting Equipment
- Electrical and Electronic Tools
- Automatic Dispensers



China's Two Step Approach

- All Products in Scope Subject to **Mandatory Labeling** (*In Effect March 1, 2007!!!*)
- Products in ***Priority Products Catalog***
 - Substance Restrictions, Mandatory Testing and Certification
 - Positive list of products/substance restrictions.
 - Has created uncertainty within industry.



China RoHS: *Labeling Requirements*

In Effect March 1, 2007

- **All Products in Scope (MANUFACTURED March 1, 2007 or after) are subject to labeling requirements**
- **Except for products or parts:**
 - 1. Imported into China for re-export or manufacturing of products to be exported and
 - 2. Parts or components imported into China for manufacturing for sale in China
 - (In this case, the parts supplier needs to supply the Chinese manufacturer with the information needed for them to label and disclose the information on the final product)



China RoHS: *Labeling Requirements*

- “Environment-Friendly Use” Period
- Content Level/Location of Hazardous Substances
- Recycle-ability of Product
- Packaging Material (Wrapping)

China RoHS *Labeling:* *Product Markings*

Symbol 1

- No restricted substances contained or above limit



图 1

Symbol 2

- Use if EIP contains restricted substance above limit requirements
- EUP Year – put in center



图 2



China RoHS *Labeling: Environment-Friendly Use Period*

- The time limit [in years] within which hazardous/toxic substances or elements in the EIP, **under conditions of normal use**, do not leak to pollute the environment or harm human beings and properties.
- **Determined by the manufacturer**, but advice from industry associations is suggested.
- Manufacturers have to weigh the costs and benefits of having longer and shorter environment-friendly use periods.
 - If longer, then more responsibility; if shorter, then it may lose out to competitors



China RoHS *Labeling: Date of Manufacturing*

- Products must be marked with the “date of manufacturing.” (According to Q22 in the Standards Q&A).
 - Used to determine the start date of the “Environment-friendly Use Period.”
 - Should be in the form of **(month/day/year)**, although we have heard that it is acceptable if the date is in the product code or somehow visible on the product.



China RoHS Priority Products Catalog: Restriction of Hazardous Substances

- No release date, but expected in the 3rd quarter of 2007
- Catalog products are a subset of labeling scope
- Catalog products subject to hazardous substance restrictions



China RoHS *Priority Products Catalog:* *Timing*

- Each restriction has its own timeline
- The Catalog is reviewed annually
 - ***Unknown which products will be included in the Catalog***



China RoHS *Priority Products Catalog:* *Inspection and Testing*

- Products in the Catalog are subject to compulsory certification and testing
- Imports of products in the Catalog are subject to authentication and inspection upon arrival at Chinese ports
- CCC Mark process (*according to 3rd Q&A and discussions*)



Japan: Amendment to “*Enforcement Orders of the Law for the Promotion of Effective Utilization of Resources*”

Amendment in Effect July 1, 2006

- Limited to 8 Products
- No Restrictions (bans) of Substances!!!
- Product Labeling and Recycling
 - The “Enforcement Orders” are Comprehensive Recycling Laws



Japan Recycling Law Amendment: Product Scope

1. Personal Computers
2. Unit-type Air Conditioners
3. Television Sets
4. Refrigerators
5. Washing Machines
6. Dryers
7. Microwave Ovens
8. Copiers*

*Copiers: Use of Recycle-able Resources
Provision Only

Japan: “J-MOSS” Mark



- Marking for Product and Packaging When Hazardous Substances are Present
- JIS Standard C0950 is mandatory - Gives specific guidance on the new labeling and reporting requirements
- Color: **Orange**
- Green label is optional. EU compliant products can use this mark.



Korea RoHS

- *“Act for Resource Recycling of Electrical/Electronic Products and Automobiles”*
- Draft Submitted to the World Trade Organization’s Technical Barrier’s to Trade Committee, March 30 2006
- Combines features of 3 EU Directives: RoHS, WEEE and ELV
- This legislation is similar to an EU Framework Directive – Policy and Plan to be developed



Korea RoHS: *Probable Scope*

- TVs
 - Refrigerators
 - “Laundry Machines”
 - Air Conditioners
 - Personal Computers
 - Audio Devices,
 - Cellular Phones,
 - Printers,
 - Copy Machines
 - Fax Machines
 - (Autos)
- *According to Ministry of Environment reply to industry WTO TBT inquiry*
- Recycling and Related Fees only



“Korea RoHS”: General Provisions

- **Regulates “hazardous substances”**
 - **Most likely RoHS Substances**
 - **Exemptions allowed**
- **Govt. may collect recycling dues**
- **Mandates use of recycle-able materials**



Compare: Implementation and Substances




EU	China	Japan	Korea
Implementation: July 1, 2006	March 1, 2007: Labeling and information disclosure aspects TBD dates: for substance restrictions & certification requirements	July 1, 2006	July 1, 2008
Substances: RoHS 6	Same as EU w/ an "Other" Category	Same as EU	Same as EU



Compare: Scope

EU	China	Japan	Korea
<p>Electrical & Electronic Equipment (EEE)</p> <p>8 Product Categories:</p> <p>Large household appliances</p> <p>Small household appliances</p> <p>IT and telecommunications equipment</p> <p>Consumer equipment</p> <p>Lighting equipment</p> <p>Electrical and electronic tools</p> <p>Toys, leisure and sports equipment</p> <p>Automatic dispensers</p> <p>8&9 excluded at the moment – medical devices & test & measurement</p>	<p>Electronic Information Products (EIP)</p> <p>10 Product Categories</p> <p>Electronic radar</p> <p>Electronic communications</p> <p>Broadcast TV</p> <p>Computers/peripherals</p> <p>Household electronics</p> <p>Electronic measurement instruments</p> <p>Electronics for special use</p> <p>Electronic components</p> <p>Electronic applications</p> <p>Electronic materials</p>	<p>7 Products:</p> <p>Personal computers (CRT & LCD)</p> <p>unit-type air conditioners</p> <p>Televisions</p> <p>microwave ovens</p> <p>clothes dryers</p> <p>electric refrigerators</p> <p>electric washing machines</p> <p>copying machines</p>	<p>10 Products:</p> <p>TVs</p> <p>refrigerators</p> <p>air conditioners</p> <p>laundry machines</p> <p>personal computers</p> <p>audio devices</p> <p>cellular phones</p> <p>Printers</p> <p>copy machines</p> <p>fax machines</p>

Compare: Marking and Labeling

EU	China	Japan	Korea
<p>No RoHS marks mandated</p>	<p>Product Labeling applies to ALL Electronic Information Products except for parts for manufacturing</p> <ul style="list-style-type: none"> •Environmental Friendly Use Period Marking •Toxic and Hazardous Substance Table •Packaging material content disclosure <div style="text-align: center;">  </div>	<p>JIS Standard C0950 is mandatory</p> <p>Gives specific guidance on the new labeling and reporting requirements</p> <p>Product labels</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>1</p> </div> <div style="text-align: center;">  <p>2</p> </div> </div> <p>Label #2 is optional. EU compliant products can use this mark.</p> <p>Materials table posted on a website for all in scope products sold in Japan</p>	<p>NA</p>



Compare: Compliance

EU	China	Japan	Korea
None	<p>For Catalogue Products, some mandatory conformity assessment requirements are expected. Possible requirements include:</p> <ul style="list-style-type: none">-Product Samples-Submittal of compliance data- CCC mark testing and certification process-Annual factory inspection by designated certification bodies	None	<p>Supplier's declaration on company website or government sponsored website if company does not have website</p>



Conclusions

- Cross sector, multi market regulations
- Impacts the entire supply chain
- Billions of dollars in remanufacturing, compliance, and testing
- Expect more RoHS-like regulations....
 - Australia, India, Brazil, Malaysia, Mexico, Singapore, Argentina, Taiwan, Thailand ??????
- Precautionary Approach.....expect more environmental regulations of this sort!!!



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Thank You!

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**Please let me know if you would like to be on my RoHS
email list.**



EU RoHS Web Sites

- U.S. Department of Commerce:
www.buyusa.gov/europeanunion/weee.html
- EU Official Site:
http://ec.europa.eu/environment/waste/weee_index.htm
- U.K. Department of Trade and Industry:
www.dti.gov.uk/innovation/sustainability/rohs/page29048.html



“China RoHS” Web Sites

Official (Chinese) links:

- The Regulation (in Chinese):
http://www.mii.gov.cn/art/2006/03/02/art_524_7343.html
- Detailed product scope list (in Chinese):
http://www.mii.gov.cn/art/2006/03/16/art_1221_8441.html



“China RoHS” Web Sites (Cont.)

Unofficial Translations and Further Information:

- AeA’s China RoHS Page:
http://www.aeanet.org/GovernmentAffairs/gabl_ChinaRoHSpag0905.asp
- Design Chain Associate’s (DCA) China RoHS page:
<http://www.chinarohs.com>
- Grace LLC, includes Q&A’s:
<http://www.graspllc.com/news.php>



“Korea RoHS” Web Site

- Ministry of Environment:
http://eng.me.go.kr/docs/faq/faq_view.html?idx=11&mcode=&av_pg=1