



RoHS - REACH

International Environmental Regulations Update

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Change



Product Life Cycle

**New
Focus**

End of Life

R&D

Distribution
Throughout
the World

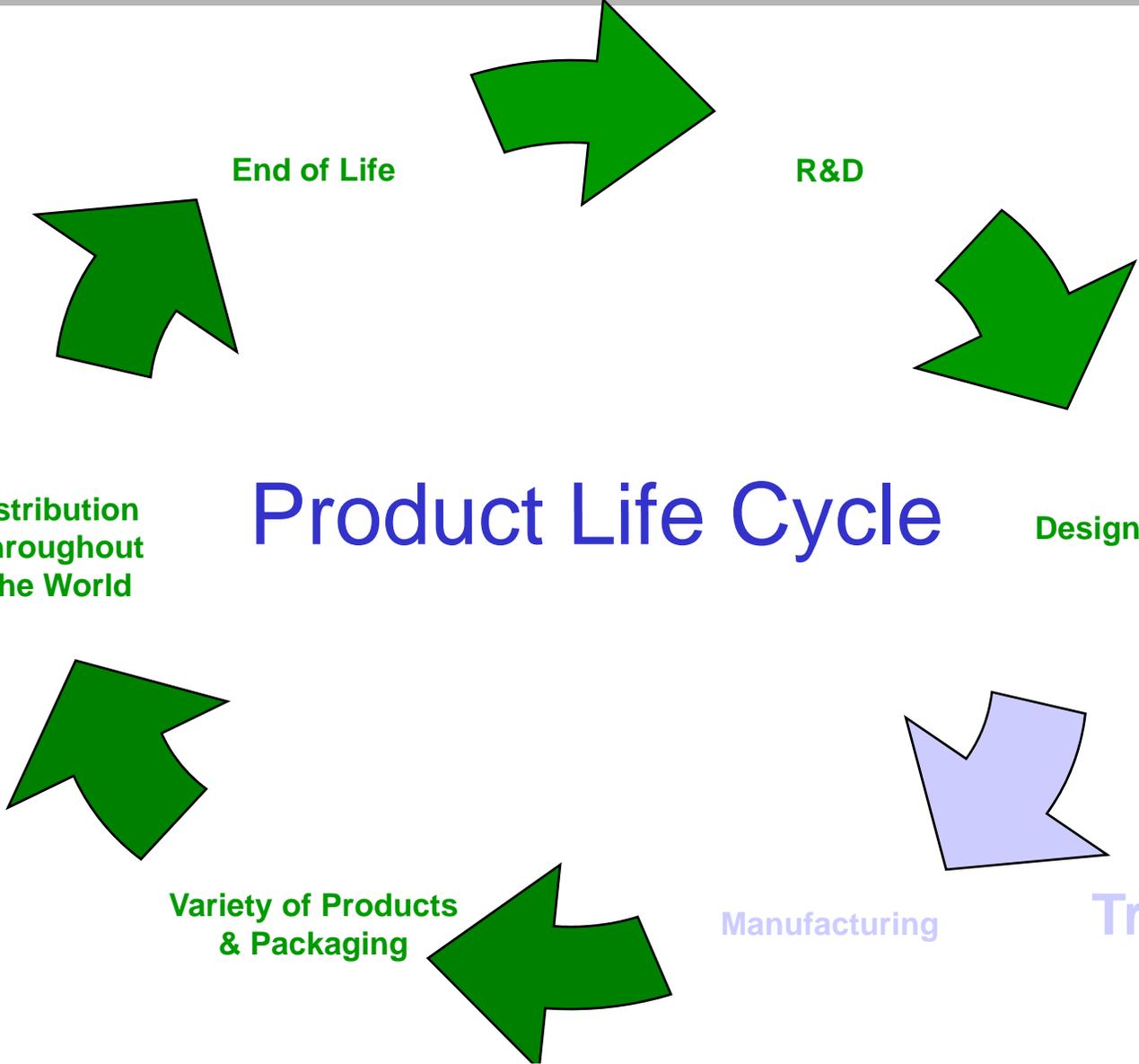
Product Life Cycle

Design

Variety of Products
& Packaging

Manufacturing

**Traditional
Focus**



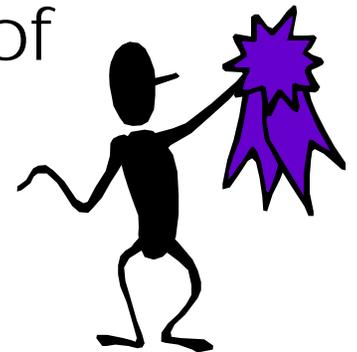


Dropping Like Flies



Benefits

- Design for the Environment.
- More proactive approach than reactive.
- Focus is on preventing long-term issues.
- Address global issues verses domestic.
- Accountability is at all levels instead of just EH&S organization.



- **RoHS:** Restriction of Hazardous Substances
- On July 1, 2006 EU RoHS became effective.
- On March 1, 2007 China RoHS became effective.
- China RoHS modeled after EU RoHS, but has major differences.

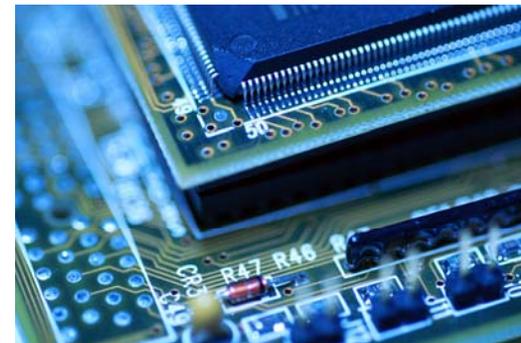


- **Six substances are targeted by both EU & China RoHS.**
 - Lead
 - Mercury
 - Cadmium
 - Hexavalent Chromium
 - Polybrominated Bi-Phenols (PBB)
 - Polybrominated Diphenyl Ethers (PBDE)



- **Maximum Concentration of Restricted Substances allowed are:**
 - 0.1% by weight in homogenous material for all.
 - 0.01% by weight in homogenous material for cadmium.
 - Numerous exemptions available by EU RoHS.
 - Hardly any exemptions offered by China RoHS.

- **RoHS Directive applies to:**
 - **EU RoHS:** Electrical and Electronic Equipment
 - **China RoHS:** Electronic Information Products List



- **Additional Requirements of China RoHS**
 - **Phase I: Information Disclosure**
 - Labeling
 - Packaging Material Disclosure Requirements
 - **Phase II: Material Restrictions**
 - EIP listed in the catalog must comply with hazardous substance ban.
 - EIP listed in the catalog are subject to China's Compulsory Certification and labeling requirements.
 - Requires testing using government-approved Chinese labs affiliated with China National Certification and Accreditation Administration (CNCA).



China RoHS Labeling Requirements

- **Green Logo**

- Arrow means the product should be recycled.
- “e” means that the product is “environmentally friendly”.
- Hazardous substance not present or below maximum concentration value.



China RoHS Labeling Requirements - Continued

- **Orange Logo**

- One or more of the six substances present above maximum concentration value.
- Numeral indicates “Environmental Protection Use Period (EPUP)”.
- EPUP is the period during which hazardous substance in EIP will not leak out or mutate.
- Additional disclosure in consumer manual.





Rogers Labeling EIP for China RoHS



Toxic or Hazardous Substances and Elements 有毒或有害物质及元素					
Lead 铅 (Pb)	Mercury 汞 Hg	Cadmium 镉 (Cd)	Hexavalent Chromium 六价铬 (Cr6)	Polybrominated Biphenyls 多溴化联苯 (PBB)	Polybrominated Diphenyl Ethers 多溴化二苯醚 (PBDE)
○	○	○	○	○	○

○: Indicates that this toxic or hazardous substance contained in all the homogeneous materials for the products contained in this package, according to EIP-A is below the limit requirements in SJ/T11363-2006 and complies with EU directive 2002/95/EC.

○: 表明该封装器件中所含有的产品的所有同质物中此类有毒或有害物质, 低于根据 EIP-A 中 SJ/T11363-2006 限定的要求, 并符合 EU 2002/95/EC 规定.

EIPs Subject to China RoHS

- EIPs Manufactured on or after March 1, 2007.
- EIPs for sale in People's Republic of China (Hong Kong, Taiwan are not PRC).
- EIPs to be exported outside of China are NOT subject to China RoHS.
- Self declaration of compliance with EU RoHS to PRC customs.



Compliance Strategy Supply Chain



- **Sanctions for Non-Compliance**
 - Fines & Penalties
 - Product Recall (Sony Playstation Cost \$150M)
 - Prohibition of Future Sales
 - Withdrawal of Operating Licenses
 - Criminal Liabilities in Serious Cases



- Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH)
 - In Effect June 1, 2007
 - Replaced 40 Existing Laws
 - European Chemical Agency Created

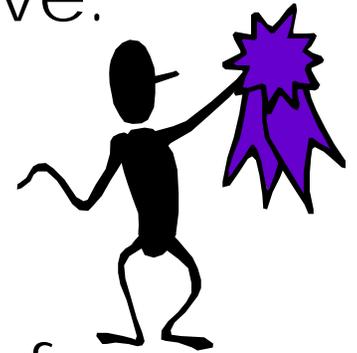


Purpose of this regulation is:

- Improve protection of human health and the environment.
- Enhance competitiveness and innovation in the EU.
- Place responsibility for risk management on the chemical producers or downstream users.
- Application of the precautionary principle.



- REACH is a regulation verses a directive.
- Does not require transposition into national laws of 27 member states.
- Member states may set up a system of controls and penalties for non-compliance.
- 1000 pages of legal text and 10 guidance documents known as RIPs.



REACH legal requirements apply to:

- EU importer = established within EU and responsible for import = manufacturers.
- EU producer = makes or assembles an article within the EU = user of chemicals.
- US companies exporting into EU have no direct legal liability but may have customer requirements.

Scope:

- Applies to all substances whether manufactured, imported, used as intermediates, or placed on the EU market either **on their own** or in **preparations** or in **articles**.
- **REACH** gives priority to **Substances of Very High Concern (SVHC)** and large volume substances.



Substances: A chemical substance and its compounds in the natural state or obtained by any manufacturing process. For example: chemicals, metals, etc.

Preparations: A mixture of solution composed of two or more substances. The function is more determined by the chemical composition than by its shape, surface or the design. For example: Paints, Resins, Alloys, etc.

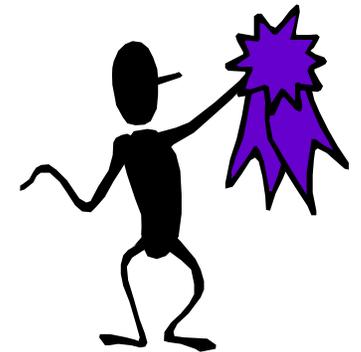
Article: An object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition.

- If you import >1 ton or more of any substance either on itself or in preparation per year, registration is required.
- If you import articles that are intended to release substances >1ton/year, registration is required.
- We also need to evaluate articles that contain substances of very high concern >0.1% by weight and totaling >1 ton/year.
- Down-stream user of substances must ensure their "Use" in Europe is registered.



Substances of Very High Concern (SVHCs)

- Substances classified as carcinogenic, mutagenic, reproductive toxin (CMR category 1 & 2).
- Substances which are persistent, bioaccumulative, and toxic (PBT, vP and vB).
- Endocrine disruptors or have similar concern.
- Candidate list to be published in 2009.



REACH Obligations:

- Pre-Registration: June 1 – Dec. 1, 2008
- Registration:
 - >1000 Metric Tons
(and Dangerous Substances Dec. 1, 2010)
 - >100 Metric Tons June 1, 2013
 - >1 Metric Ton June 1, 2018
- Notification: June 1, 2011
- Authorization: June 1, 2009
- Restrictions: TBD

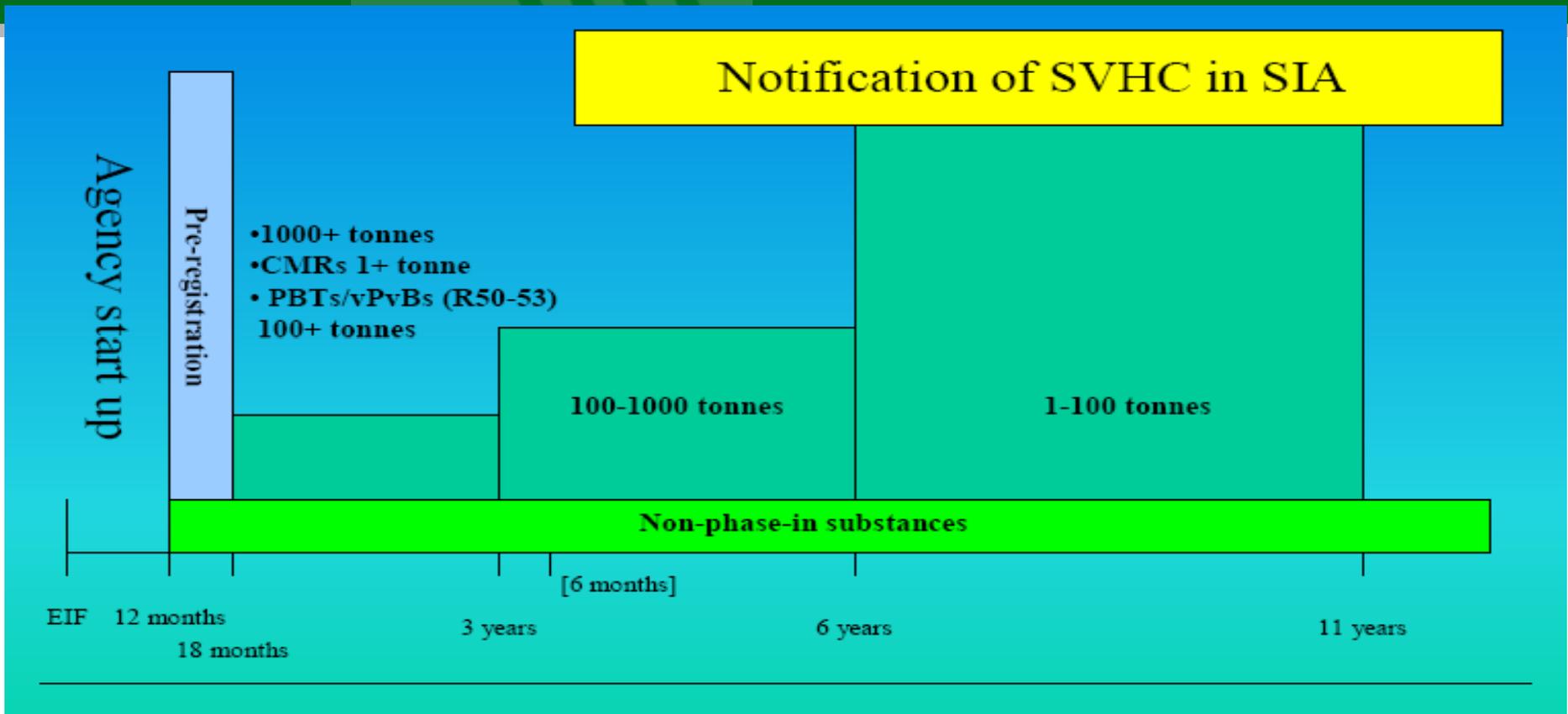




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REACH – (Pre) Registration Timeline



“Registration” of *substances, substances in preparations, substances in articles.*

“Registration” on basis of "tonnages", "SVHC or not", "phase-in or not“.

“Registration” after 3 1/2 year (> 1000 t/j) , 6 year (100-1000 t/j), 11 year (1-100 t/j).

“Notification” of Substances of Very High Concern (SVCH) in articles.

REACH Exemptions

- Waste substances.
- Radioactive substances.
- Substances used in medical cures, food stuff, interest of defense.
- Substances in transportation
- Non-isolated intermediates and by-products that don't enter the market.
- Substances for R&D under certain conditions.
- Return substances when identical to exported substances.
- Polymers (monomers must be registered).



- **Vendor of Critical Products:**

- May not register or not register for our intended "use".
 - Some specialty chemicals may be phased out due to high registration cost.
- Withdrawal from market (business continuity).
 - User may have to reformulate their products and re-qualify with the customers.
 - User or importer may have to register themselves.
 - User has to do the chemical safety assessment.
 - Cost
- May increase their prices due to registration costs.
- Substances of very high concern may be subject to use restrictions.
- May pre-register, but not register ... => ☹️
- Intellectual Properties.



- **First priority now:**

- Prepare a list of all substances, preparations, articles that are intended to release substances or with SVHC over one ton per year.
- Identify whether you are manufacturer, importer (**think global**) or downstream user.
- Ask your suppliers (if importer or downstream user) if they can reassure that they will take the necessary steps to register.



- **Based on these answers:**

- Negotiate with the suppliers to integrate your “use” in their chemical safety assessment.
- Negotiate with non-EU-suppliers to get them organized as importer/distributor in EU or retain only representative. It has to be an EU based legal entity.
- Find alternative suppliers/products/processes.



- **If all else fails:**

- Prepare to pre-register and register yourself.

- **Challenges we know about already:**
 - Inter-company deliveries:
 - Virtually **all raw materials** can be shipped from one division to the other.
 - Difficulty in classification of preparations, articles, and polymers.
 - Coating on a carrier material: preparation or an article?
Foams: Polymer or an article?
 - REACH Implementation Plans (RIPS) are not available for all scenarios.
 - New product lines:
 - What are the new products we will use? Will they be registered?

- Plan for chemicals in-use at European Operations.
- Plan for chemicals imported into Europe.
- Plan for Articles imported into Europe.
- Response to customer inquiries.
- May have to revise MSDSs to comply with EU requirements.
- Plan for phased-out chemicals.
- Communication within and outside your company.



- **A sustainable approach is needed:**
 - To maintain global market access.
 - At lowest cost.
 - To minimize business disruptions.
 - To minimize legal liabilities.
 - On-time product development.



**“Capture as a Business Opportunity
instead of Liability”**



Questions and Comments

