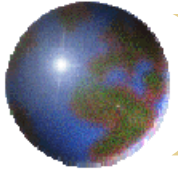


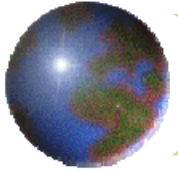
....the Rest of the REACH and RoHS Story

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September 11, 2008



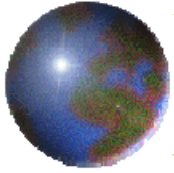
Introduction

- 38 years of environmental experience
- 24 years of corporate environmental management
 - Digital Equipment – High Tech
 - Polaroid – Chemicals and Consumer Products
- 8 years+ in product stewardship and international environment requirements



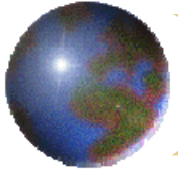
Agenda

- ⊕ Build on Anita's presentation
- ⊕ Step back and examine the paradigm shift that has occurred
- ⊕ Talk about product environmental regulations
- ⊕ Discuss where this is taking us and future actions



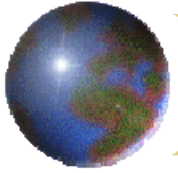
RoHS and REACH

- ❖ The Restriction of Hazardous Substances has had a profound impact on electronics design and material content
- ❖ RoHS is being revised as we speak
- ❖ Registration, Evaluation and Authorization of Chemicals - REACH will have an even more profound impact



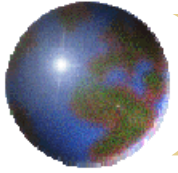
The Product, not the Plant – the RoHS example

- Shift from production to the product
- RoHS is a sibling Directive with the WEEE Directive (Waste Electronics and Electrical Equipment)
- Builds on Extended Producer Responsibility
- Started with 6 but now 7 substances in a wide but “defined” category of electronic products
- Eliminates the toxics in the design



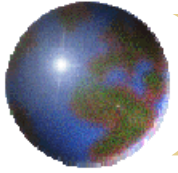
RoHS Became a De Facto International Standard

- ❖ Even though a EU requirement, RoHS brought about a major change in the supply chain
- ❖ Parts manufacturers were not going to keep two versions of a part and
- ❖ If they did, the old part became very costly
- ❖ Others picked up on it – China and CA



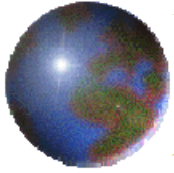
WEEE -

- ❖ The producer had to internalize the cost of end of life management of the product
- ❖ This did not mean the customer does not pay.
- ❖ In the US, electronics take back has become a state waste management issue



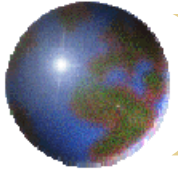
WEEE and RoHS Revisions (a)

- ❖ The process is in place
- ❖ The Directives were published at the beginning of 2003 (finalized in December of 2002)
- ❖ There is a 5 year review cycle
- ❖ There are significant proposed changes for both of these Directives



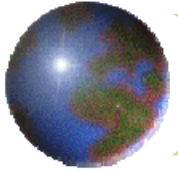
RoHS and WEEE Revision (b)

- ❖ 46 possible new RoHS Restricted Substances
- ❖ Elimination of many exemptions
- ❖ Broader definitions that will pull in more products
- ❖ Higher collection and recovery rates
- ❖ Greater business impact, lower environmental impact



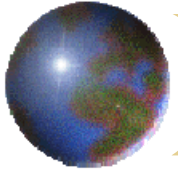
The Product Focus

- From WEEE and RoHS you should conclude that we are working with a moving target
- There are other important product environmental requirements – a few:
 - Packaging
 - Batteries
 - Energy-using Products
 - End of Life Vehicles
 - REACH



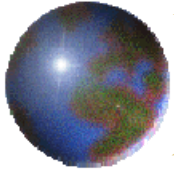
What is the Game Plan?

- ⊕ The producer is responsible
- ⊕ Reduce
 - ⊞ Materials
 - ⊞ Toxics
 - ⊞ Energy
- ⊕ Creating a smaller environmental footprint (includes Climate Change)
- ⊕ Conserve resources



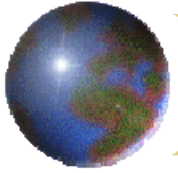
End of Life Vehicles Directive

- The EU is a big market
- ELV restricted metals
 - Mercury
 - Hexavalent Chrome
 - Lead
 - Cadmium
- Every auto part today meets the ELV directive even though only 40% of the parts are sold in the EU



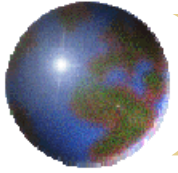
Packaging

- ❖ Major component of Municipal Trash
- ❖ Redesign created significant savings for companies
- ❖ Toxics in packaging a concern
- ❖ US CONEG packaging regulations in 19 States
- ❖ US Toxics in Packaging Clearing House



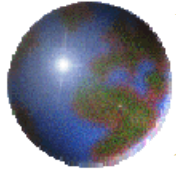
Batteries

- ❖ A very important part of today's technology
- ❖ The trade off of reduced toxics to easy and safe disposal
- ❖ By the way - all batteries are covered in the EU battery takeback program



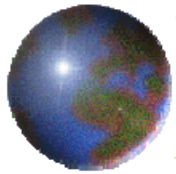
EU Energy-using Products

- ➊ More than just electronics
- ➋ Adds an important concept – eco design
- ➌ Creates product category standards which become part of the CE mark (equivalent to our UL label)
- ➍ Integrates environment with product safety



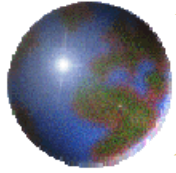
REACH

- ❖ Important for the manufacturer of the chemical (substance)
- ❖ Equally important for the user
- ❖ REACH impacts chemicals in products
- ❖ Substances of Very High Concern – SVHC
- ❖ SVHCs require information and planning



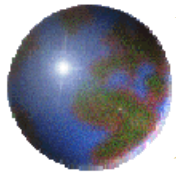
REACH SVHCs

- ✚ SVHCs will be the black list of chemicals non grata
- ✚ For candidate SVHCs, you need to know the threshold
- ✚ You may have to provide information when listed
- ✚ If/when restricted or authorized for use only as directed.



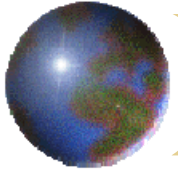
Echos of EPCRA

- Providing information is a great driver for change



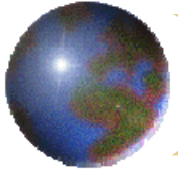
Wide Impact of REACH

- ✚ There are exemptions, meaning you are regulated by something else
- ✚ Most businesses fail to recognize the future impact
- ✚ SVHCs will be replaced with safer substitutes
- ✚ Chemical concerns will get pulled into green purchasing requirements



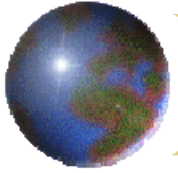
Circling Back to WEEE and RoHS

- ✚ Started with the fast growing, rapidly changing electronic products market
- ✚ Fewer toxic chemicals in products
- ✚ Less exposure during use
- ✚ Less impact at end of life



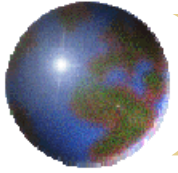
The 0.1% weight/weight Question

- ⊕ Thresholds become very important
- ⊕ Both are 0.1%
- ⊕ In RoHS it is for the homogeneous material
- ⊕ For REACH is for the sold product
- ⊕ There is strong debate whether REACH should be based on homogeneous material



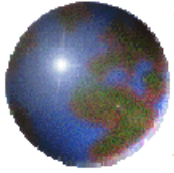
Compliance and Enforcement

- ❖ US and the EU are different in their approaches
- ❖ The biggest court case was over Decca; the Commission (and industry) lost
- ❖ Enforcement in the EU is not going to make consultants rich
- ❖ There is a long term view
- ❖ Use market forces



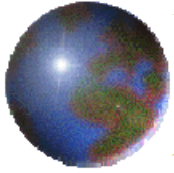
Business Impact

- ❖ Material restrictions are worked into purchasing contracts
- ❖ Greener purchasing
- ❖ Using the Supply Chain to achieve your reduction objectives
- ❖ The Supply Chain may be the only way to manage
- ❖ Competitive issue



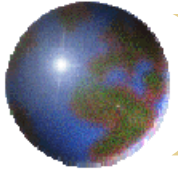
EPEAT

- ❖ Electronic Product Environmental Assessment Tool
- ❖ EPEAT is multi stakeholder, EPA IEEE effort
- ❖ Take a look at the website, www.epeat.net
- ❖ Blends it all together in a product rating



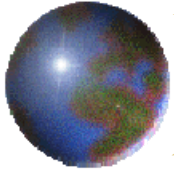
Keep the Faith

- ❖ Product Environmental Requirements are not focused on the manufacturing plant
- ❖ Environmental design will have a beneficial impact on manufacturing by reducing impacts



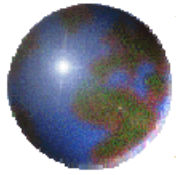
The Product is the Focus

- ⊕ While not our normal mode of operation, concern about products is not unique to the EU
- ⊕ Especially a concern for our disposable, rapidly changing consumer market
- ⊕ Also concern that we are talking about billions of pounds or tons



In Closing

- Change has begun
- Product Stewardship will evolve to be a business issue
- Just as an environmental review is now done to assess the environmental liabilities, a parcel of property may have
- The environmental product's fingerprint will be important for competitive and liability reasons



Contact Information

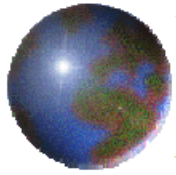
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Thank You For Your Attention

 Q&A