



EHS ROUND UP MINI CONFERENCE

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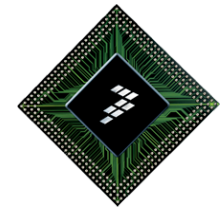
Freescale Semiconductor

7700 W. Parmer Lane

Austin, Texas

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REACH, ELV / RoHS & WEEE: Impact Product Content Regulations



Griffin Teggeman, Freescale Global EPP Manager
Presentation for SESA EHS Roundup

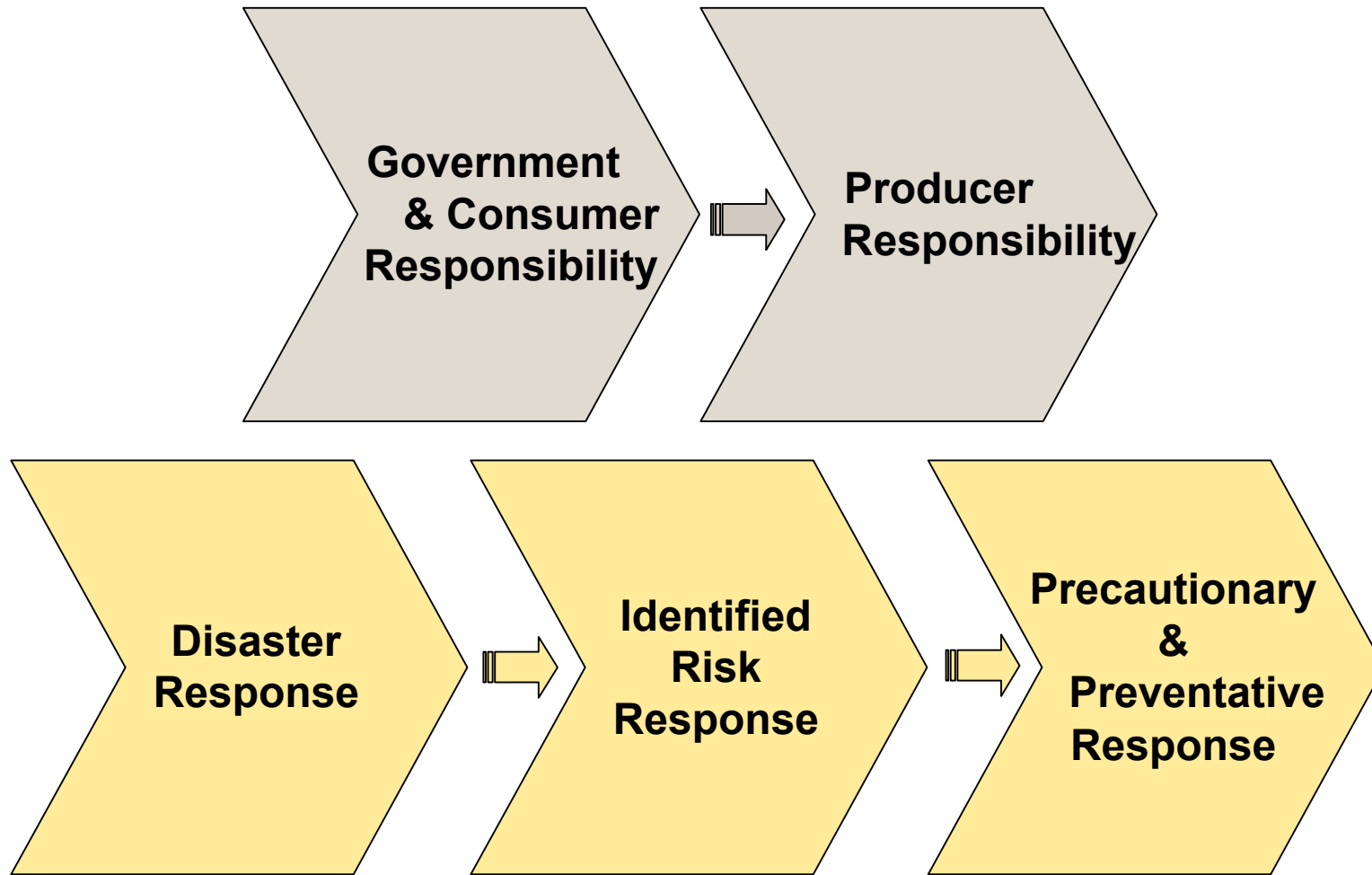
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Agenda

- 1) Origins of environmental product & process regulations
- 2) Primary current European Union regulations
 - REACH
 - RoHS / ELV
 - WEEE
- 3) What comes next?

Global Environmental Regulatory Overview



Global Environmental Regulatory Overview

Evolution of Environmental Regulations

	Before 1995	1995 - 2000	2001 - 2005	2006 & Beyond
USA	Super-Funds Ozone Depleting Chemicals		Energy STAR	California RoHS, WEEE & Batteries
EU	Cadmium Regulations	Packing Materials	ELV (auto) WEEE RoHS	PFOS REACH EuP 20% reduction of greenhouse gasses Green batteries
Japan	Consumer responsibility for recycling		Voluntary Industry Procedures	GPSSI Reporting / Audit Standard
China			Packing Materials	RoHS, WEEE & Marking
Other			UN wood imports	Malaysia Hazardous Substances S.Americas Batteries & WEEE Korea EuP, RoHS, WEEE ELV & REACH

1) Origins of environmental product & process regulations

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- RoHS / ELV
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3) What comes next?

REACH (EU Directive 2006/121/EC & Reg EC # 1907/2006)

REACH is Registration, Evaluation, Authorization of Chemicals

- “The two most important aims are to enhance the competitiveness of the EU chemicals industry and to improve protection of human health and the environment from the risks of chemicals.” *EU REACH in Brief Guidance 2004*

Replace current dual system for existing and new chemical registration with a single regulatory framework

- Shifts testing and assessment burden from government to industry
- Expands registration to circa. 30,000 substances
- Initially registers chemicals with > 1 tonne produced/imported
- Some exemptions to registration (R&D, polymer)

ROHS (EU Directive 2002/95/EC)

RoHS is Restriction of Hazardous Substances

- “Ensure that from 1 July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, poly-brominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).”
- “A maximum concentration value of 0.1% by weight in homogeneous materials for lead, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) and of 0.01% weight in homogeneous materials for cadmium shall be tolerated.”
- Placing electrical and electronic equipment (EEE) on the market in the EU after 1 July 2006 implies RoHS compliance
 - Transportation vehicles are not EEE
 - Not all consumer products with EEE components are subject to RoHS
 - Technical Advisory Committee maintains a list of exempt usages for hazardous materials where no ‘technically feasible’ alternative is available

ELV (EU Directive 2000/53/EC)

ELV is End of Life Vehicle

- Prevent waste from end of life vehicles including their components and materials, as well as spare and replacement parts
- Require reuse, recycling and other forms of recovery of end-of life vehicles and their components by weight (85% by 2006 and 95% by 2015)
- Focus on reduction and control of hazardous substances in vehicles, in particular the use of **lead, mercury, cadmium and hexavalent chromium**
- Annex II excludes Pb in batteries and solders, Cr⁶ for anti-corrosion and Hg in bulbs and instrument panel displays

WEEE (EU Directive 2002/96/EC)

WEEE is Waste in Electrical & Electronic Equipment

- Applies to products that operate on most battery or electrical currents
- WEEE covers all household appliances, IT equipment, radio/audio equipment, electrical tools and telecommunications equipment

Requirements of WEEE

- Producer registration in EU countries
- Separate collection of WEEE from households and businesses
- Producers have “end of life” plans and finance treatment and recovery
- Retailers to offer free take back
- EU to establish annual recovery and recycling targets
- Recyclers to keep accurate records of product volumes

Semiconductor Impacts

REACH

- Potential chemical price increases as suppliers pass along compliance costs
- Potential loss of supply where volume / profit does not cover registration costs
- Potential public release of confidential data

ELV & RoHS

- Packaging technology development to eliminate Pb, Hg, Cd, Cr⁶, PBB & PBDE
- Comprehensive qualification and reliability studies
- Material content certification & reporting throughout the supply chain
- Supplier, inventory & capacity management for 'green' conversions

WEEE

- Semiconductors are not subject to WEEE
- Where applicable:
 - Registration of products in each EU country
 - Absorb cost of take-back scheme on all EEE placed on the market

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Environmental Product Regulatory Landscape

