

A Review of the Impact of European Union Directives on S&C Products

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Agenda

- Introduction
- Section 1: Summary of the EU Regulatory System, the EU Material Content Directives, and Implications to Industry
- Section 2: Impact of EU Material Content Directives on S&C Products
- Section 3: Communicating Status of S&C Products to Customers
- Section 4: What should we be doing now?

Section 3: Communicating Status of S&C Products to Customers

Section 3: Communications

- Entire supply chains are currently engaged in collecting data on the conformance of their suppliers.
- The Automotive Industry, because the ELV passed two years prior to the RoHS, has been actively addressing material content issues for the past two years.
- Other industries in which TI participates are only now beginning this process.
 - Since November 1, 2003, TIA has received over 100 questionnaires regarding CPB and RFID RoHS conformance.

Section 3: Reporting

- Because the obligation to demonstrate conformance rests with the OEMs, they have developed a variety of mechanisms for obtaining conformance data of their supply chains.
- As a supplier, TI is obligated to utilize whatever mechanism provided by our customers:
 - Simple and Complex Certification Statements
 - EIA/EICTA/JGPSSI Tool
 - International Material Data System

Section 3: Reporting

- Since there is no single format being used across industry, each product line must be prepared to respond in any one of the formats or, in some cases, all of them.
- Regardless of format, the first step is collecting data about the product:
 - Material Content Breakdown
 - Transpose Material Content Data into format required of questionnaire.
 - Apply appropriate level of disclaimer to protect TI as product understanding changes.

Section 3: Reporting

- Example of the simplest of the reporting formats: "Request for Certification"

Please fill in the information of following Table.
 根據歐盟RoHS 上標示規定，請定 貴司之產品有否含有下列有害物質：
 Raw Material name: Raw Material P/N
 物料名稱： 物料編號：

有害物質	Yes (含有有害物質)		No
	Trace Material	Raw Material	
1) 鉛 (Pb)	<0.1%	>0.1%	
2) 水銀 (Hg)	<0.1%	>0.1%	
3) 鎘 (Cd)	<0.01%	>0.01%	
4) 六價鉻 (Cr6+)	<0.1%	>0.1%	
5) 聚溴化聯苯 (PBB)	<0.1%	>0.1%	
6) 聚溴化聯苯醚 (PBDE)	<0.1%	>0.1%	

Section 3: Reporting

- Complex certifications are similar but require greater detail and other data elements.

Electronics Industry Reporting

- The Electronics Industry Association (EIA) and equivalents in Japan & Europe have developed a standard material content reporting tool.

SAMPLE MATERIAL DECLARATION DATA SHEET

Date: 03/09/11
 Company Name: Any Company
 Product Name: Integrated Circuit
 Product Number: 001
 Product Total Mass (g): 0.717 g

Material/Substance Name	Material/Substance Mass (g)	Material/Substance Information
Antimony	0.01166	
Silver	0.05630	
Copper	0.21934	
Lead	0.00715	Solder Plating
Cold	0.00047	

Electronics Industry Reporting

- EIA released a Materials Declaration Guide in March 2001
- Contains 3 material lists:
 - "Banned" materials (RoHS & country specific)
 - "Restricted" materials
 - "Materials of interest"
- Process chemicals not covered
- Background levels not covered
- Materials used in rare and uncommon applications not covered

Electronics Industry Reporting

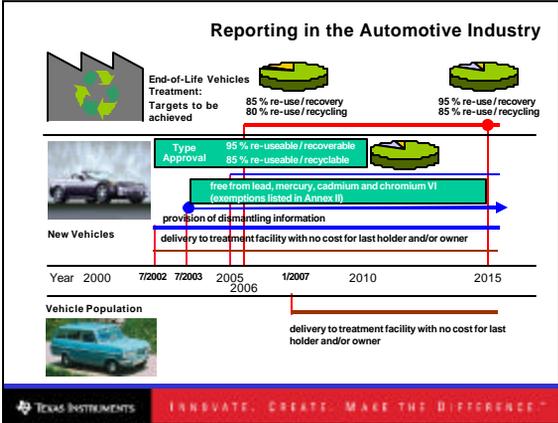
- Variations of the EIA tool are beginning to appear, especially from Asian based multi-nationals.
- The tool compares products against the most strict of the world's material content restrictions.
- The objective of the EIA tool is to create a single certification statement regarding the material content of an electronic or electrical device.

Electronics Industry Reporting

Level A Materials

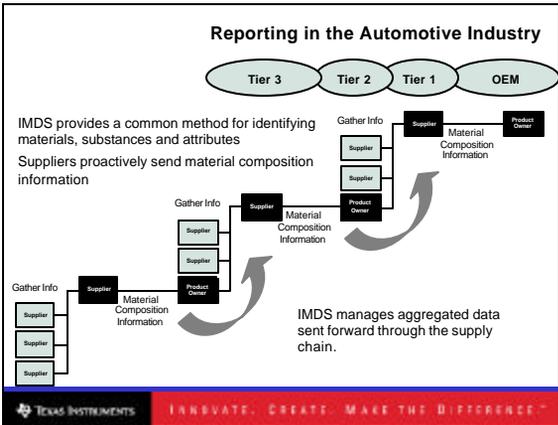
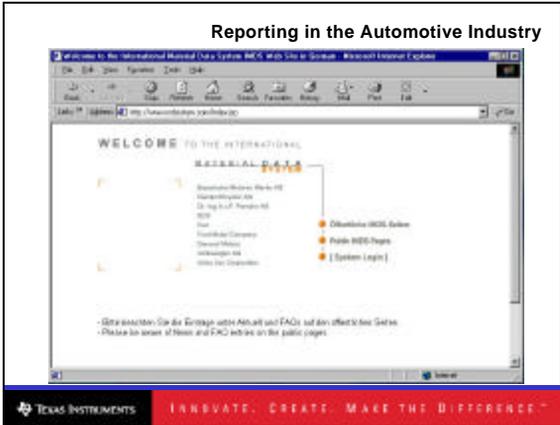
Comprises those materials and/or substances that are knowingly present or intentionally added within the materials that comprise the product and which are subject to current or enacted legislation that either,

- Prohibits the use and/or marketing
- Restricts the use and/or marketing
- Requires reporting or other regulatory effects



- ### Reporting in the Automotive Industry
- In 2000, the automotive manufacturers were faced with the challenge of how to meet the requirements of the End-of-Life Vehicle directive.
 - Certify that their products do not contain prohibited hazardous substances.
 - Demonstrate the percent of recycled content built into their products.
 - Demonstrate the percent of their products that can be re-used or recycled at end-of-life
 - Provide appropriate information to treatment facilities concerning the dismantling, re-use and recycling of their products.
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- ### Reporting in the Automotive Industry
- **Development of the Automotive Manufacturer strategy:**
 - Starting in 1996, the Association of Automotive Manufacturers established a procedure for the collection of material content data (Material Data Sheets).
 - Concurrently, investigation began on automated systems for providing/obtaining material content data:
 - Individual queries of each and every supplier regarding the material content of their products
 - Product Material Content Web (or equivalent) to be queried, as necessary
 - Product Material Content Web provided by the customer with data inputs required of the supplier
 - In 1998, the Automotive Manufacturers developed an electronic system, the International Material Data System (IMDS at <http://www.mdssystem.com>).
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Reporting in the Automotive Industry

Why IMDS?

- Several automakers have attributed the IMDS format on the ELV requirements for the automakers to supply information on recycled content, end-of-life recyclability and specific chemical-specific (Cr+6 weight) data.

From DaimlerChrysler Corp. Characteristics Standard, CS-9003

	1998	1999	2000	2002	2005	2010
New Models	80%	82%	82%	85%	95%	95%
Carryover Models	75%	80%	82%	85%	85%	95%

(1) All values are by weight and include 5% for energy recovery. Values after 2002 for new models have a 10% energy recovery value included. For both new and carryover models after 2010 a 10 % energy value applies.

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Reporting in the Automotive Industry

- Example of “GM-specific” IMDS Requirements
 - Must use IMDS as method of making material content declarations.
 - All substances listed in the Restricted Substance Standard (GMW3059) must be reported.
 - GM requires the following statement in the “Remarks” if any “joker” is used:

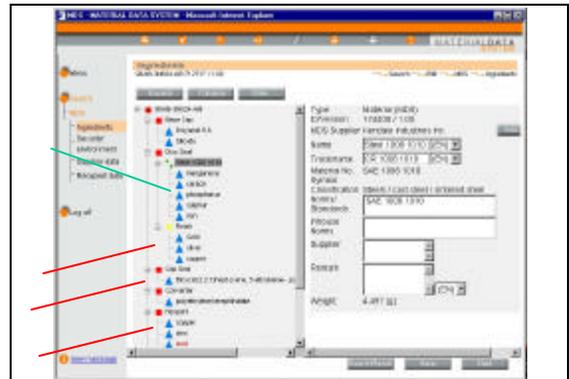
“The material doesn’t have any restricted or reportable substances according to GMW3059 and VDA 232-101 guidelines.”

Reporting in the Automotive Industry

- GETTING STARTED ON IMDS
 - Initial registration and obtaining an Account.
 - Texas Instruments NA (Attleboro, MA) 2883
 - Texas Instruments Europe (Almelo) 4394
 - Texas Instruments Germany (Freising) 2169
 - Texas Instruments Asia (Japan) 14299
 - System originally limited access by region. Upgrades allow one account for each company (simplify data sharing)
 - Establish Account Manager
 - Logon and Passwords
 - System Permissions
 - Data Sheet Management
 - Organizational Unit Assignment and Management

Reporting in the Automotive Industry

- Automakers have established very specific rules regarding the format of IMDS entries.
- IMDS Entry Structure:
 - Component (red square)
 - Sub-component (yellow circle)
 - Material (green double circles)
 - Element/Substance (blue triangle)
- Not following the acceptable IMDS Entry Structure will result in “Rejection.”
- Each company has slight variations to what they allow.



Reporting in the Automotive Industry

- Step 1: Collect Material Content Data
- Step 2: Decide on Entry Format (Normal, FBOM)
- Step 3: Enter required materials
- Step 4: Assemble Part in IMDS
- Step 5: Validate
- Step 6: Recycling Information
- Step 7: Supplier Information
- Step 8: Customer Information
- Step 9: Customer Specific Requirements
- Step 10: Send
- Step 11: Follow-up

Reporting in the Automotive Industry

- Material Content Data Elements
 - IMDS Format:
 - TI part number
 - Supplier Number provided by Customer
 - Customer part number
 - Material Account Information
 - Total part weight
 - Detailed Material Account
 - Recyclability Characteristics
 - Supplier Information
 - Additional Information required of Customer
 - Use of the Material in the Part (Ford)
 - Customer IMDS number/identifier