Teamcenter Compliance:

RoHS, ELV, WEEE Environmental Compliance

PLM World 2006

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Agenda

Introduction & Overview

- Environmental Compliance – a PLM issue
- Managing Environmental Compliance with Teamcenter

Teamcenter Environmental Compliance

- Demo & Discussion

Summary / Q & A
Why worry about compliance?

- If you make a product, you **must** comply with the local and global Environmental Compliance standards
- ELV (End of Life Vehicle) - All Automotive companies
- RoHS, WEEE - All High Tech and Electronic companies

- Fundamental capabilities in Teamcenter help achieve many different compliance standards
- Teamcenter offers OOTB compliance standards solutions
- UGS Foundation Partner products help in this area

**VALUE**

**You can’t afford *not* to!**
Teamcenter Compliance

- ISO 13485
- ISO 9000
- TS 16949
- CFR Part 11
- 820
- 483
- Air worthiness Directives

Others . . .

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Teamcenter Compliance Strategy

Utilize fundamental Teamcenter capabilities where possible

- **Teamcenter Enterprise / Engineering** (e.g. part/document management, mark-up, material & substance management, workflows, reporting, etc.)
- **Teamcenter Systems Engineering** (for managing product and performance requirements)
- **Teamcenter Project** (for managing and tracking projects and programs, phase-gates, deliverables, success criteria, etc.)
- **Teamcenter Lifecycle Sourcing** (for supplier sourcing-related functionality)
- **Teamcenter Global Services** (for the location and retrieval of information from diverse, physically distributed applications through a logical single point of entry)

Leverage 3rd party expertise

- Industry standards (keeping up with the latest standards)
- Compliance metrics (verification calculations / reporting)
Environmental Compliance – A Living Process

Compliance Strategy
Define and Plan

Design for Compliance
Design and Verify

Manufacture for Compliance
Build and Validate

Supplier Selection and Communication Plan

New Roles and Responsibilities
Revised Corporate Policies
New Regulations & Enforcement
Greater Risk with Harsher Penalties

Certification and Declaration
Traceability and Quality Control

Part Change Notifications and Obsolescence
Change Management
New Lead Times and Inventory Usage Rules
New Manufacturing Processes

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Environmental Compliance

- Extended Producer Responsibility (EPR) legislation
  - Ensure Reuse, Recycling and Recovery
- ELV – End of Life Vehicle Directive
- RoHS (EU and China) – Restriction on the use of certain Hazardous Substances
- WEEE – Waste of Electric and Electronic Equipment
- Other international and US federal/ state legislation
Hazardous Material Content

- **Computers**
  - Harmful substances: Lead, mercury, cadmium, polybrominated diphenylethers
  - Sources: Circuit boards, connectors, cables

- **CRT monitors**
  - Harmful substances: Lead, hexavalent chromium, barium
  - Sources: Glass, soldering

- **Flat panel monitors**
  - Harmful substances: Mercury, lead
  - Sources: Light bulbs, switches

- **Digital cameras**
  - Harmful substances: Polyvinyl chloride, lead acid, cadmium, lithium
  - Sources: Casings, batteries

- **Cellphones**
  - Harmful substances: Antimony, arsenic, lead, beryllium, cadmium, copper, zinc
  - Sources: Batteries, circuit boards

- **Digital music players**
  - Harmful substances: Arsenic, lead, cadmium
  - Sources: Batteries, circuit boards

Source: Silicon Valley Toxics Coalition
Compliance – a PLM Issue

Teamcenter Backbone

Opportunity
Designing for Compliance

Environmental Compliance Reporting

Teamcenter System Engineering
Teamcenter Sourcing
Tecnomatix
Teamcenter MRO

Functional
As Designed
As Planned
As Built
As Maintained

Change Management
Configuration
Collaboration
PLM Operations
Defining the Solution for managing materials & substances

Four areas where we are working to resolve:

- **Teamcenter Data Model** – designing and building a data model in Teamcenter to hold this material and substance data
- **BOM data mining & aggregation** – pulling BOM material and substance data from various systems (PLM, ERP, MES, SCM, etc.)
- **Compliance Validation** – the ability to compare a BOM with a particular industry standard (ELV, RoHS, etc.)
- **Data exchange & reporting** – the ability to roll-up and report this data via IMDS, Compliance Connect™, or other mediums (RosettaNet)
Teamcenter Environmental Compliance

“PLM Enabled” Material Content Data

Suppliers

- Material Content Data
- Import/Export (Compliance Connect, RosettaNet, other)
- RoHS Compliance Evaluation
- Multi-Source Worst Case Analysis
- Multi-Level Aggregation

Teamcenter Environmental Compliance

Customer Reporting

- Workflows
- Related Documents
- Supplier Qualification
- Preferred Parts
- CAD Library Interface
- Part Life Cycle Status

BOM from multiple tools

ERP
PLM
MES

Part

Mold Compound
Sn/Pb Solder

Material Content Data

Import/Export (Compliance Connect, RosettaNet, other)

RoHS Compliance Evaluation

Multi-Source Worst Case Analysis

Multi-Level Aggregation

"PLM Enabled" Material Content Data

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Key features:

- Material and Substance Content Management for **Parts and Products**
- Automatic Compliance validation against **ANY** standard
  - Prohibited and declarable substance standards (ELV/RoHS)
  - Regulatory exemption management
- Data source independent for Part data and Product Bill of Materials
- Worst case evaluation of *multi-sourced* components
- Product BOM aggregation at multiple levels
- Communicate Data Exchange Protocols
  - Export/Import Excel based tools i.e. AIAG Compliance Connect spreadsheet, JGPSSI
  - Bi-directional communication via IMDS, RosettaNet, IPC1752 PDF
  - Support for other format via XSLT configurable reports
### Configurable Reporting to Customers

**Generate the report once**

**Send and track to multiple customers**

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#### Environmental Data Manager

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#### Customers

- RosettaNet XML
- IPC 1752 PDF
- Compliance Connect™
- IMDS

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Teamcenter Environmental Compliance allows Complete or Selective Aggregation and Full Disclosure
What are the products?

Compliance MANAGER

- Includes all available / supported protocols (ELV, RoHS, etc.)

Targeted Users

- Corporate Compliance Officers
- People who do IMDS or other kind of Compliance Reporting
- Authors of compliance data into the system
- Procurement (editing / adding compliance information)
- Component Management / Commodity Group

Compliance ACCESS

Targeted Customers

- The entire Teamcenter population including designers and other “users” of the compliance data
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Thank you!