Agenda

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Introduction

What is Product Compliance and why is data being requested?

- A product is compliant if it is compliant to global regulations (such as RoHS, REACH, ELV) that restrict or prohibit certain chemical substances.

- In order for Cummins to continue to sell products around the globe, they must be able to demonstrate that the products are compliant.
RoHS Basics

The European Union’s
Restriction on Hazardous Substances
RoHS Basics

What is RoHS?

- RoHS is an European Union (EU) legislation that restricts certain substances in electrical and electronic equipment with the goal of reducing the environmental impact of such equipment.
- It originally entered into force July 1, 2006 (2002/95/EC) and was later revised June 8, 2011 (2011/65/EU) and entered into force July 3, 2013.
- The latest version of RoHS may be found [here](#).
- Countries beyond the EU (China, Korea, India, etc.), have also adopted RoHS-like legislation.
- Many Cummins products are considered electrical and electronic equipment.
RoHS Basics

- Electrical and Electronic Equipment (EEE)

‘Electrical and electronic equipment’ (hereinafter ‘EEE’) means equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields and designed for use with a voltage rating not exceeding 1000 volts for alternating current and 1500 volts for direct current.

Where as ‘dependent’ means “needing electric currents or electromagnetic fields to fulfill at least one intended function”.
RoHS Basics

- Summary of Changes between RoHS 1.0 and RoHS 2
  - Expanded Scope to Include
    - Medical Devices
    - Monitoring and Control Devices
    - And a “Catch All” category – Other electrical and electronic equipment
  - Requires CE Marking
  - Requires Declaration of Conformance
  - Requires Technical Documentation
  - Includes exemptions with expiration dates
RoHS Basics

- **RoHS Substance Restrictions**
  - Substances restricted (Percentages indicate the max tolerated and are based on the amount of the substance in a single homogenous material):
    - Lead (0.1%)
    - Mercury (0.1%)
    - Cadmium (0.01%)
    - Hexavalent chromium (0.1%)
    - Polybrominated biphenyls (PBB) (0.1%)
    - Polybrominated diphenyl ethers (PBDE) (0.1%)
    - Bis (2-ethylhexyl) phthalate (DEHP) (0.1%)
    - Butyl benzyl phthalate (BBP) (0.1%)
    - Dibutyl phthalate (DBP) (0.1%)
    - Diisobutyl phthalate (DIBP) (0.1%)
  - Some exemptions exist
RoHS Basics

- **What is a Homogenous Material?**
  - A material that has uniform composition that cannot be mechanically separated into different materials. Materials are made from chemical substances.
  - Example: A radio is composed of a case, screws, washers, a circuit board, speakers, etc. The screws, washers, and case may each be made of homogenous materials (steel, plastic, coatings), but the other components comprise multiple sub-components of many different types of materials. For instance, a circuit board is composed of bare PCBs, ICs, resistors, capacitors, switches, etc.
  - EACH homogenous material must be compliant. If not, the whole product is not compliant.

Example: A coated steel part may contain multiple homogenous materials.
RoHS Basics

- **Common homogenous materials containing restricted substances:**
  - Lead – Solders, termination coating, paints, pigment, PVC stabilizer
  - Cadmium – Coatings, solders, semiconductors, contacts, PVC stabilizers, pigments
  - Mercury – Fluorescent lamps, batteries, sensors, relays
  - Hexavalent Chromium – Coatings to prevent corrosion (on zinc, aluminum or in paints).
  - PBB, PBDE – Flame retardant in certain plastics
  - DEHP, BBP, DBP, DIBP – Plasticizers in certain plastics and cables
Exemption Examples:
- Lead as an alloying element in aluminum containing up to 0.4% lead by weight is permitted (6b).
- Copper alloy containing up to 4% lead by weight is permitted (6c).
- Lead in high melting temperature type solders (i.e. lead based solder alloys containing 85% by weight or more lead) (7a).
- Restriction of DEHP, BBP, DBP, and DIBP shall apply to industrial monitoring and control instruments from July 22, 2021.

Keep in mind that exemptions have expiration dates!
RoHS Basics

Products that were compliant to RoHS 2002/95/EC may not be compliant to RoHS 2011/65/EU.

Even products that were compliant to RoHS 2011/65/EU in the past, may no longer be compliant, if the exemption has expired!

It is critical that suppliers provide Cummins with up-to-date compliance information - New substances may be added to RoHS and exemptions expire, which may change the compliance status of your products.
REACH Basics

The European Union’s Registration, Evaluation, Authorization and Restriction of Chemicals
REACH Basics

- **What is REACH?**
  - REACH is an European Union (EU) legislation designed to protect human health and the environment. It entered into force in June 2007.
  - It replaces 40 years of old EU chemical legislations by compiling them into one
  - It contains 849 pages of text, plus tens of thousands of pages of technical guidance.
  - Applies to EU legal entities but many requirements flow down the supply chain.
  - Requirements apply to all industries and vary depending on the product (substance/material or article)
REACH Basics

- **REACH Requirements for Article Manufacturers**
  - **What is an Article?** An object which, during its production, is given a special shape, surface or design which determines its function to a greater degree than its chemical composition.
  - **Registration** – A substance must be registered with the European Chemicals Agency (ECHA), if the substance is intentionally released from the article > 1 ton per year.
  - **Authorization** – Banned substances, will need special authorization in order to continue to be allowed used in the EU.
  - **Potential banned substances** are taken from the Candidate List (aka: Substances of Very High Concern, SVHC) list.
  - **Companies using SVHCs** may have Notification (to ECHA) and/or Communication (to Customers) requirements depending on the amount of the SVHC.
REACH Basics

- REACH Requirements in the Supply Chain

1. Do you manufacture, import, or use product in EU?
   - YES: You may have legal obligations under REACH
   - NO: If all answers were no, REACH has no direct impact on you

2. Do you sell into supply chain that imports into EU?
   - YES: You may have to support your customers’ REACH data needs
   - NO: If all answers were no, REACH has no direct impact on you

3. Do you purchase out of supply chain that exports from EU?
   - YES: Supply of your substances may be vulnerable
   - NO: If all answers were no, REACH has no direct impact on you
REACH Basics

- More on SVHCs
  - SVHCs that are added to the Candidate List are those that are a candidate for elimination. These include: carcinogens, mutagens, reproductive toxins, persistent, bio-accumulative toxins, very persistent and very bio-accumulative toxins, endocrine disruptors, and substances of equivalent concern.
  - The Candidate List continues to grow and currently numbers 163 SVHCs.
  - The current list of SVHCs may be found here.
  - It is critical that suppliers provide Cummins detailed information regarding the amount of any SVHCs in their products. This information is needed to determine Cummins’ or Cummins’ customers’ Communication and Notification obligations.
As new SVHCs are continuously being added to the Candidate List, it is more efficient to provide full-material/substance disclosure of the products sold to Cummins so that the supply based does not need to be re-surveyed with each additional SVHC addition.
ELV Basics

The European Union’s
End-of-Live Vehicles Directive
What is ELV?

- ELV is an European Union (EU) directive that restricts certain substances in automobiles goal of reducing the environmental impact at the end of the vehicles useful life.
- It originally entered into force September 18, 2000 (2000/53/EC) and set the stage for other product compliance regulations such as RoHS and REACH.
- ELV is applicable to automobile manufacturers that manufacture or import automobiles into the EU. However, most all global automotive manufacturers have adopted the requirements.
- The Cummins products, used in automobiles, must comply with the ELV to meet their customer’s requirements.
- In addition to restricting certain substances, the ELV also has strict targets of reuse and recovery.
- The current ELV directive may be found [here](#) and current exemptions may be found [here](#).
ELV Basics

- **ELV Material Declarations**
  - As the burden of ELV compliance is on the automotive manufacturers, the automotive manufacturers agreed upon a common tool for which their supply base could provide their material declarations.
  - The International Material Data System (IMDS – [www.mdsystem.com](http://www.mdsystem.com)) is used by suppliers worldwide to support the automotive manufacturers.
  - If you sell a product into the automotive industry, it is likely that you are already familiar with the IMDS.
  - Unfortunately, other industries are not as fortunate to have a common tool. Therefore, for Cummins, non-automotive components that are subject to RoHS and REACH, alternative methods of reporting are necessary.
Cummins Approach
Cummins Approach

Cummins’ Immediate need for Compliance

- Expiring EU RoHS exemptions for power generation products

RoHS is the acronym for Restriction of Hazardous Substances. RoHS originated in the European Union and restricts the use of specific hazardous materials found in electrical and electronic products. All applicable products in the EU market must pass RoHS compliance unless specific exemptions apply.

<table>
<thead>
<tr>
<th>RoHS &amp; RoHS 2 Restricted Substances with Limits</th>
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<tbody>
<tr>
<td>Lead (Pb)</td>
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<tr>
<td>Mercury (Hg)</td>
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<tr>
<td>Cadmium (Cd)</td>
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<tr>
<td>Hexavalent Chromium (Cr VI)</td>
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<tr>
<td>Polybrominated Biphenyls (PBB)</td>
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<tr>
<td>Polybrominated Diphenyl Ethers (PBDE)</td>
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RoHS is a Conformité Européenne (CE) regulation

Category 9 – Industrial monitoring & control instruments
- RoHS Exemption expiry date – July 2016

All electrical and electronic equipment (EEE)
- Gensets and G-Drive Engines
- RoHS Exemption expiry date – July 2019
Cummins Approach

Materials Compliance System

1. Supplier
   - CMI Declaration Request
   - Multiple methods for Supplier to submit Declarations.

2. E-Mail response with Declaration in Anthesis template/ IPC 1752 A XML file

3. BOMCheck
   - CD
   - IMD

4. Material Compliance System
   - Supplier Part number and related CMI Parts
   - BOM
   - Supplier Info

CMI Internal systems for data
Cummins Approach

- What is Cummins doing to support their product compliance efforts?
  - Implementing a software solution (Material Compliance System) to help manage internal assembly and supplied product data.
  - Providing awareness training to suppliers
  - Obtaining material declarations from suppliers in a format which can be imported into the Material Compliance System.
  - Stressing the importance and benefits to suppliers to provide full-material/substance disclosure.
  - Performing supplier audits and testing, as needed, depending on product risk.
Cummins Approach

- **Suggestions to Suppliers:**
  - Identify a Product Compliance contact at your organization
  - Cascade requirements down the supply chain.
  - Include requirements as part of your terms and conditions
  - Continuously monitor product compliance regulations
  - Join industry groups to help keep your company up to date
Cummins Approach

Cummins is requesting supplier’s full material declarations for each product, in the IPC1752A standard format:


Using this standard, Cummins will be able to import the declaration into the Material Compliance System. The System will combine supplier data to provide a compliance status of each Cummins assembly.

If suppliers are unfamiliar with this standard, Cummins recommends two other ways you can comply with this request:

- BoMCheck
- Anthesis spreadsheet

Additional guidance on these two methods are described in the following sections.
Cummins Approach

- BoMCheck
  - BoMCheck is an on-line resource for sharing product compliant data which can be accessed at [www.bomcheck.net](http://www.bomcheck.net).
  - Using BoMCheck benefits both suppliers as the supplier data for a single part number would only need to be entered once, but can be shared with multiple customers.
  - The cost for using BoMCheck is minimal:
    - Free 90 trial
    - Free for companies with total annual turnover of less than 3 million Euros
    - Otherwise, only 300 Euros per year
  - Creating a Supplier Account is easy. Click the green “Suppliers” button at the top, then click the blue “Create a supplier account” button.
  - There are several training opportunities (pre-recorded webinars, live training webinars, and User Guides)
Cummins Approach

- **Anthesis Spreadsheet**
  - This Excel tool can also be used to provide product compliance data.
  - If you did not receive a copy of your parts list and spreadsheet, please e-mail the Cummins Supplier Compliance team at the e-mail address following this presentation.
  - Tool Demonstration…
  - Please refer to the Quick Start Guide for additional guidance.
  - The Quick Start Guide and additional information may be found on the Cummins Supplier Portal. A link to the Portal, by clicking the “Help” button, may be found on the Products tab of the Anthesis spreadsheet.
Cummins Approach

For Questions, please contact us:

- Phone: (001) - 734-213-4092
- E-mail – supplier.compliance@cummins.com
- Supplier Portal – by clicking below or clicking the Help button within the Anthesis spreadsheet.
- Supplier Portal Link

Cummins Approach