



#208

Material Declaration Training

Material and Substance Identification & Weights

This 'Quick Start' guidance can be used by you, colleagues and suppliers to quickly understand the basics of collecting Material Declaration (MD) data for your product(s)

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Material Declaration Training

100 Series: Material Regulations

Regulation Overviews
RoHS
REACH
Conflict Minerals
CA Prop 65
Canada DSL

200 Series: Reporting Parts

Workflow & Examples
Reporting Options
Report Training & Templates
Supplier Data Requirement
Letter Templates
Supporting Details

You
Are
Here

300 Series: Project Management

Assessment
Planning
Execution
Simplified Reporting
Advanced Techniques
Additional Resources

Training materials may be found on web page:
<http://rohsready.org/training.html>



Roster of Training – 200 Series

Reporting Material Declarations

- #200 - Reporting a Part (Item)
- #201 - Selecting a Reporting Option
- #202 - Reporting in FMD Format
- #203 - Reporting in Specific MD Format
- #204 - Template for FMD Format
- #205 - Template for Specific MD Formats
- #206 - Supplier Requirement Letter Template
- #207 - Decomposition of BoMs (for Items & Building an MD-BoM)
- #208 - Material and Substance Identification & Weights
- #209 - RoHS Exemptions
- #210 - Substance Not Specifically Reportable
- #211 - Reviewing MD inputs from suppliers
- #212 - Applicability and Exceptions
- #213 - Units Conversion Guide

You are Here



#208

Material and Substance Identification & Weights

This guidance will help you learn recommended methods for planning and executing your Material Declaration data collection project

Key topics:

Material identification & weight
Substance identification & weight
Sources of information



Reference
from #200

Basic Workflow

for
Material Declaration (MD) Reporting

1 Receive and Review Customer Requirement

2 Review Bills of Material (BoMs)

3 Identify Materials & Substances

4 Collect Material & Substance Weights

5 Enter Data in Reporting Format

6 Review and Submit

These
steps
detailed
herein

Engage
sub-tier
suppliers
where
needed



Staple Remover Example

Returning to Example in #207





Identify Materials

- Returning to FMD BoM from #207
(on following sheet)

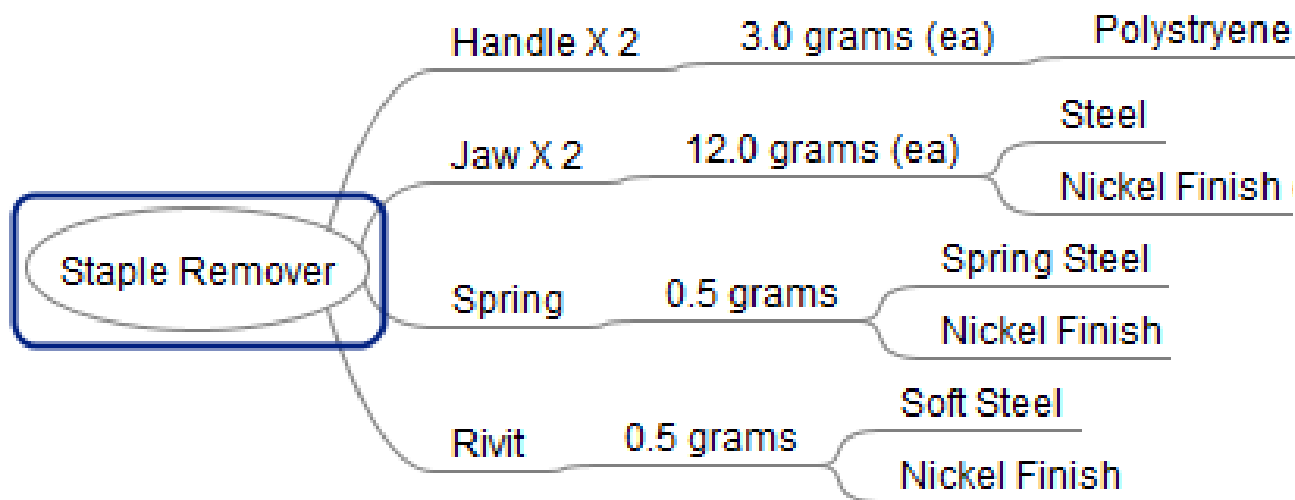
Identify the material(s)* within each part
and substances within these materials

*Homogeneous materials for RoHS regulation
See Appendix and #100 for definition and examples



Staple Remover Parts w/ Materials

FMD - BoM view (from #207)





Material and Substance ID

Identify materials & weights

- Use all available sources of documentation
 - Part drawings or catalog information
 - Bill of Materials
 - Material standards (e.g. ANSI, DIN, others)
 - Raw material manufacturer information
 - Input from supplier:
 - Specification, Certificate of Conformance, Report, Declaration, Process documentation
 - Weight calculation – volume X density of material
 - Weigh part or material – finished or in-process



Material and Substance ID

Working material identification & weight

- Report 99.99% of the weight content of the part provided to Customer
- Exclude materials and/or substances not present in final part, e.g. process related material, cleaning solvents, chemical bath for plating, etc
 - See #212 – Applicability and Exceptions for other conditions which may apply



Material and Substance ID

Identify substances & weights

- Flow down from material identification
 - Part drawings/notes or catalog information
 - Material standards (e.g. ANSI, DIN, others)
 - Raw material manufacturer information / specification
 - Input from supplier:
 - Specification, Certificate of Conformance, Report
 - Material Content Files – See Appendix
- **Laboratory test / analysis is not mandatory**
 - Use for specific cases or customer requirements



Material and Substance ID

Determine each substance CAS #

CAS = Chemical Abstract Service

Sources for substance CAS # Identification

- Web sites with substance name search capability:
 - www.chemexper.com/
 - www.chemnet.com/dict/
- Web search the substance name
 - Then confirm on one of the web sites above
- Inquire to raw material supplier
 - Some new or proprietary materials may not have CAS#
 - See #210 for these 'Not Specifically Reported' situations

Material and Substance Weights



Working with material and substance weights

➤ Preferred sources for weights (in priority order)

- Actual weight measurement data and/or material content analysis
- Nominal (avg.)* weight / material content per design / specification
 - *If the Material contains a RoHS substance, use the Maximum weight / material content per design or specification for this substance and re-apportion content of remaining substances
- Calculated
- Estimated

Use reasonable effort / method

- Discuss unique alternatives with Customer

Material and Substance Weights



Working with material and substance weights

- Convert % or decimal fractions to weights where needed
 - See Conversion guide #213
- Check sums of weights
 - Substance weights sum to material weight
 - Material weights sum to part weight
 - Reporting tools or templates may check sums
 - Recommend to build accurately beforehand

Material and Substance Weights



CERTIFICATE OF TEST

Customer: COPPER & BRASS SALES
279 JENCKES HILL ROAD
SMITHFIELD, RI 02917

Specification: ASTM B 36/B36M-08a

Customer PO No: 5520008906

PMX Order No: 031395-1

Customer Part No: CUFLR04077

PMX Bill of Lading: 00065906

Description: C26000 .09 S035

Pallet | Tag No.: 215049 | 91F1WA-A

If using Spec as input,
use max spec value
for RoHS Substance
concentration in
mat'l

Chemical Composition (Wt %) Test Date 01/23/09

Method (See below**)

Element	Fe	Pb	Zn	Cu
Spec Min.	0.0000	0.0000	28.0800	68.5000
Spec Max.	0.0500	0.0700	31.5000	71.5000
Actual	0.0169	0.0053	30.5943	69.3610

Dimensions

	Units/Scale	Spec. Min.	Spec. Max.	Actual
Thickness	in	.087	.093	.0905
Width	in	13.234	13.266	PASS

Mechanical Properties Test Date 02/10/09

Use substance data from material data / specification sheets
or material certification from raw material suppliers (per this example).

Check for generic descriptions which are not proper detail for the substance:

- Check for “other”, “misc” or names like “adhesive”
- Ask for sub-tier / material supplier to clarify specific identity



Next Steps

Take material, substance and weight information
into your reporting

Ref - #201, #202, #204



Additional Resources

Please see www.RoHSReady.org
for additional resources



Appendix

Definitions: Homogeneous Material and Substance

Examples of documentation for material & substance
identification and weight

Material Content Files



Definition

Homogeneous material

Definition from within RoHS Regulation:

“Homogeneous material” means a material of uniform composition throughout that can not be mechanically disjointed into different materials, meaning that the materials can not, in principle, be separated by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.

(Not in formal definition):

Examples of "homogeneous materials" :

individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins and coatings.

Add Picture Explanation?



Definition

Substance

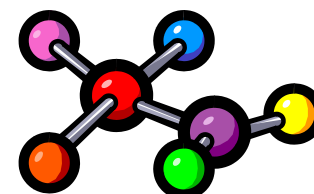
Definition from within RoHS Regulation:

“Substance” means a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

(Not in formal definition):

Examples of “Substances”:

Silicon, Silver, Lead, Iron, chemicals, polymers, Trivalent Chromium, Lead Oxide, Aluminum Oxide





Material and Substance ID

Examples

- Supplier Certificate of Conformance (C of C)
- Information from Part Catalog
- Information from Supplier Web site
- Material Standard
- Supplier declaration letter
- Supplier declaration report
- Material Content Files (Appendix)

Need Examples ?
Icon links to examples ?



Material and Substance ID

Example - Supplier Certificate of Conformance (C of C)

Need Examples ?

Unique sheets or Icon links to example files ?



Material Content Files

Material Content Files (MCF) provide information on the substance content of common materials

'Building Blocks' for FSD Reporting

- Provide fast access to substance content for:
 - Easy transfer into FMD reporting format
 - Assessment for Specific MD reporting for RoHS and REACH

- MCFs may be offered by:
 - Customers
 - 3rd Party tool providers
 - Material library providers

Typical MCF Commodities

Metal Alloys

Plating / Coatings

Plastics

Fasteners & Inserts

Paints & Primers

Adhesives



Material Content Files

An example MCF is below – Aluminum 6061

Material		Aluminum 6061 (USA)							
GEHC Reference(s)	5418003GSP; 2242000-61;-70	<i>The alloy composition given below is designed to show worst case concentration</i>							
Reference	AA6061; AMS4027; ASTM B209	<i>of restricted and other substances of interest for the purpose of RoHS and REACH reporting,</i>							
Trade Name Ref		<i>and may not be typical for the alloy.</i>							
Homogeneous Material				Substance					
Material Name	Material ID / Spec (or Part #)	Weight	Weight Unit	Substance Name	CAS #	Substance % within Homogeneous Material (RoHS)	Exemption 1	Exemption 2	Exemption 3
Aluminum 6061 (USA)		10.00	mg	Aluminum	7429-90-5	96.680			
				Copper	7440-50-8	0.275			
				Magnesium	7439-95-4	1.000			
				Manganese	7439-96-5	0.150			
				Iron	7439-89-6	0.700			
				Chromium	7440-47-3	0.195			
				Silicon	7440-21-3	0.600			
				Zinc	7440-66-6	0.250			
				Titanium	7440-32-6	0.150			
						100.000			



The 'boxed' portion can sometimes be easily translated into FMD reporting format

Substance CAS #'s

Substance % content

Exemptions included where appropriate