



The GoodBye Chain Group

# The GoodBye Chain<sup>®</sup>

Supply Chain Readiness

**GCG Material Declaration Wizard:  
A tool to accurately communicate  
Material Content Data**

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The GoodBye Chain Group  
September 16, 2003**

# The GoodBye Chain Group - Focus

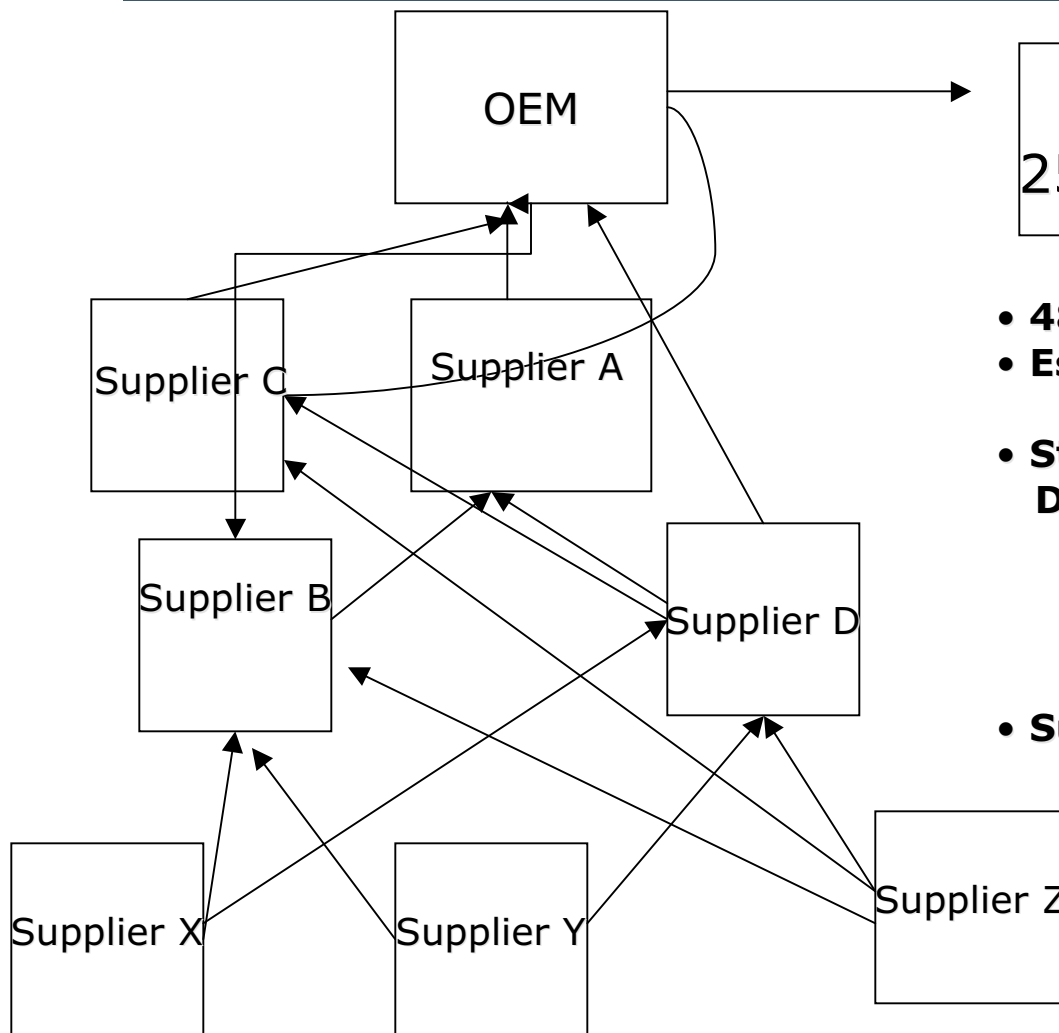
## **Problem: Economically burdensome volumes and toxicity of E-waste has resulted in:**

- Increasingly stringent global legislation driving recycling and hazardous chemical mgt. with Y2K like deadlines in the EU, (RoHS/WEEE)
- Pb-free assembly required by 2006 in order to comply with RoHS
- **Nightmarish supplier data collection** due to:
  - Thousands of globally dispersed suppliers
  - Lack of standardized format
  - Cost and time consumption for OEM/supplier data collection and exchange

## **Solution: Portfolio of Supply Chain Readiness products and services**

- Low cost web based Material Declaration **data collection, integrity and exchange software** with substances of concern declaration wizard
- Supply Chain Readiness training that: engages suppliers and **communicates best practices** for substances of concern **data collection, integrity and exchange**
- **Help desk services** that include: technical support; % weight calculation support; Pb-free compliance support; material science support; best practice processes for testing; qualified and unqualified Pb-free commodity parts list

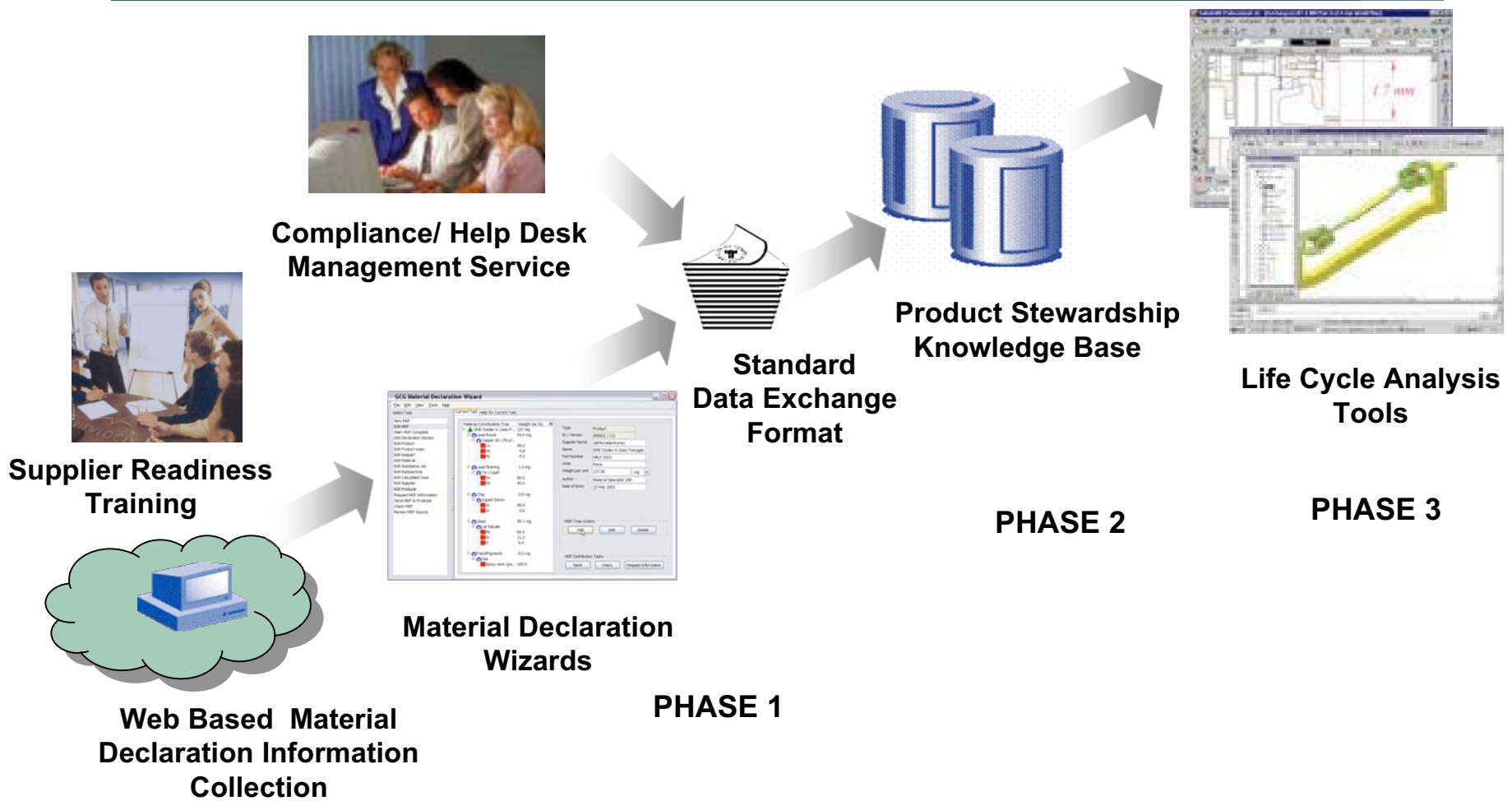
# Front-End Pain: Data Collection Nightmare



25 EU Countries with  
25 Different Requirement Sets

- **48K EEE OEMs/suppliers in US alone**
- **Est. average: 1,000 suppliers**
- **Study: Average to complete Materials Declaration Form for each product**
  - **7.66 weeks**
  - **4.75 communications/supplier =**
  - **4.75K communications for OEM**
- **Suppliers often:**
  - **Don't know what they get from their suppliers**
  - **Report inaccurately**

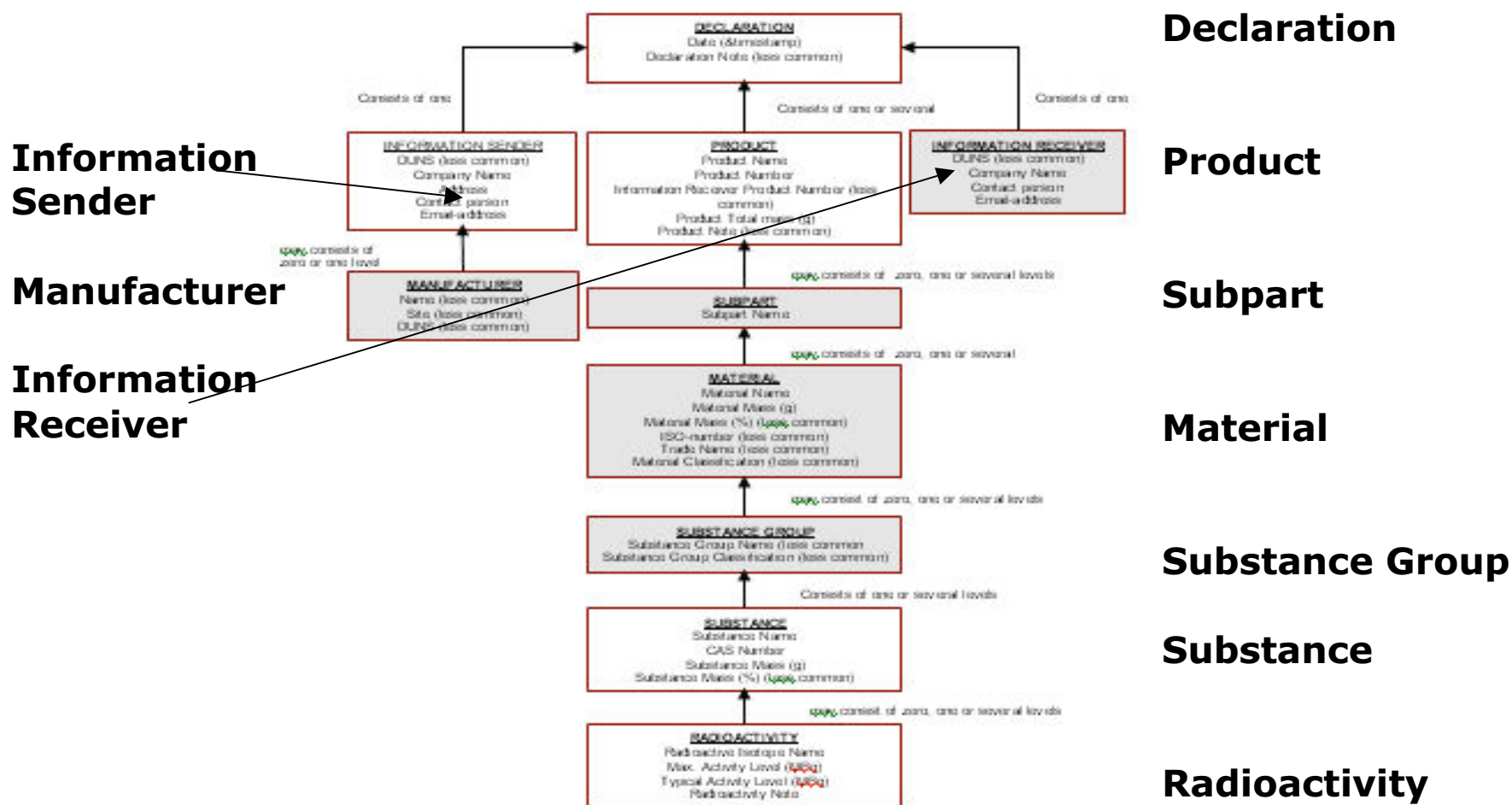
# Addressing the Pain – Phase 1- Supplier Readiness



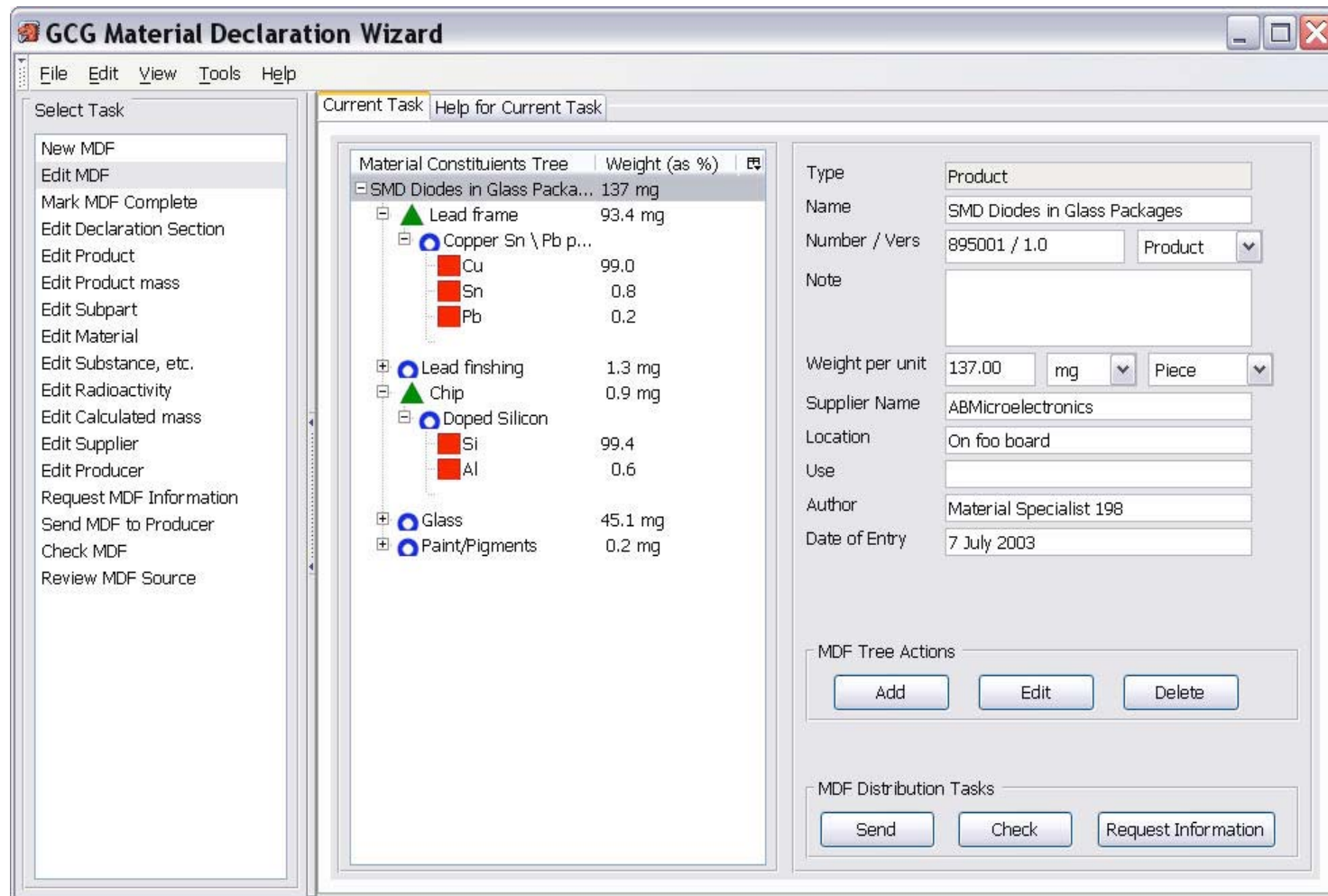
## Material Declaration Wizard Development Is Tracking

- **EIA / EICTA / JGPSSI Joint Industry Guide for Material Composition Declaration**
  - Level A and Level B materials and substances lists
  - Provides a guide for disclosure of other business-to-business material and substance lists
- **EIA Working Group Proposal of April 2003: Material Declaration Data Information**
  - Logical information structure for the Material Declaration Form (MDF)
  - Information objects and fields defining the content of the MDF
- **IPC's Material Declaration Project**
  - Calculation and analysis subgroups
- **NEMI Environmentally Conscious Electronics Gap Analysis**

# Draft EIA WG Proposal: Logical Information Structure



# MD Wizard: Edit or Add New Component



**GCG Material Declaration Wizard**

File Edit View Tools Help

Select Task

- New MDF
- Edit MDF
- Mark MDF Complete
- Edit Declaration Section
- Edit Product
- Edit Product mass
- Edit Subpart
- Edit Material
- Edit Substance, etc.
- Edit Radioactivity
- Edit Calculated mass
- Edit Supplier
- Edit Producer
- Request MDF Information
- Send MDF to Producer
- Check MDF
- Review MDF Source

Current Task Help for Current Task

Material Constituents Tree Weight (as %)

- SMD Diodes in Glass Packa... 137 mg
  - Lead frame 93.4 mg
    - Copper Sn \ Pb p...
      - Cu 99.0
      - Sn 0.8
      - Pb 0.2
    - Lead finishing 1.3 mg
    - Chip 0.9 mg
      - Doped Silicon
        - Si 99.4
        - Al 0.6
    - Glass 45.1 mg
    - Paint/Pigments 0.2 mg

Type: Product

Name: SMD Diodes in Glass Packages

Number / Vers: 895001 / 1.0 Product

Note:

Weight per unit: 137.00 mg Piece

Supplier Name: ABMicroelectronics

Location: On foo board

Use:

Author: Material Specialist 198

Date of Entry: 7 July 2003

MDF Tree Actions

Add Edit Delete

MDF Distribution Tasks

Send Check Request Information

## EIA / EICTA / JGPSSI Joint Industry Material Composition Declaration Guide

- **Material Composition Declaration Guide**
  - Establishes materials and substances that must be disclosed when present in products that are supplied to electronic and electrical equipment manufacturers
  - Composition amount that requires disclosure - regulatory “threshold level”
- **Guide establishes 29 categories divided into “Level A” and “Level B” lists that must be declared**
  - Level A - prohibited, restricted or requires reporting
  - Level B - precious, have significant environmental, health or safety interest, would trigger hazardous waste management requirements and could have a negative impact on end-of-life management
- **Guide provides for voluntary, business-to-business material information disclosure**

# MDW: Is Item Covered by WEEE / RoHS?

**GCG Material Declaration Wizard**

File Edit View Tools Help

Current Task: Help for Current Task

Select Task

- New MDF
- Edit MDF
- Mark MDF Complete
- Edit Declaration Section**
- Edit Product
- Edit Product mass
- Edit Subpart
- Edit Material
- Edit Substance
- Edit Radioactivity
- Edit Calculated mass
- Edit Supplier
- Edit Producer
- Request MDF Information
- Send MDF to Producer
- Check MDF
- Review MDF Source

Declaration Section

Is Item Covered by the WEEE / RoHS Directive?

Is the item WEEE as defined in WEEE Directive categories 1 - 10 in Annex 1A?

WEEE Categories

Look Up WEEE Categories from Annex 1A

Yes, this item is included in WEEE Directive categories 1 - 7 or 10 in Annex 1A.

Yes, this item is included in WEEE Directive categories 8 - 9 in Annex 1A.

No, this item is NOT included in WEEE Directive categories 1 - 10 in Annex 1A.

Don't Know which WEEE Directive categories producer will use this item in.

(no input)

Does the item meet lead-free compliance standards?

Review Component Moisture Sensitivity Levels as defined in J-STD-020A?

J-STD-020 Specification

Yes, This item complies with JSTD 020 Moisture Sensitivity Levels.

No, This item does not comply with JSTD 020 Moisture Sensitivity Levels.

(no input)

Does item (component, assembly or material) contain prohibited substances and / or exempted applications?

No Prohibited substances and No Exempted applications

Yes this item contains prohibited substances

Yes this item contains exempted applications

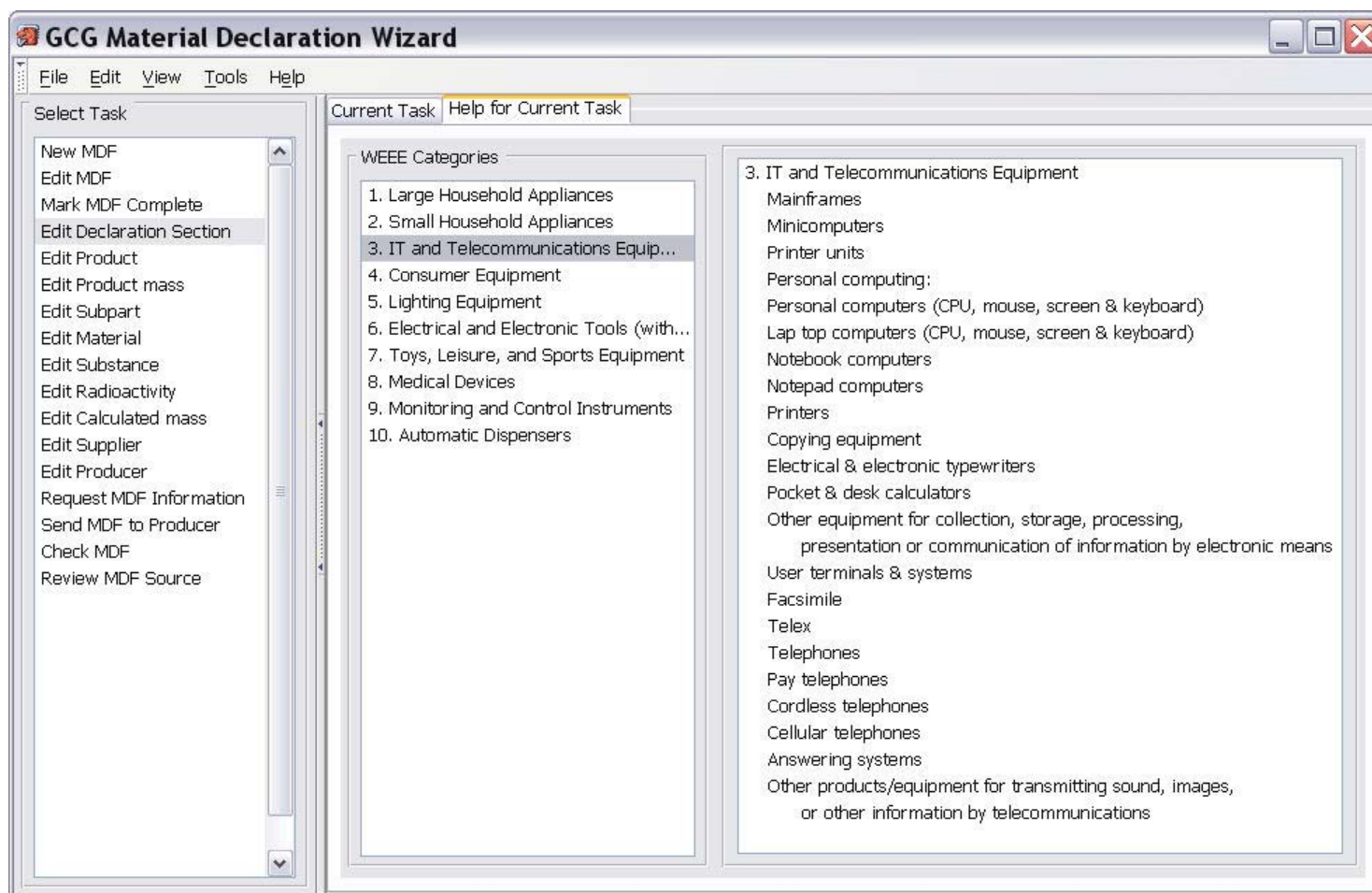
Both Prohibited substances and Exempted applications

(no input)

Prohibited Substances

Exempted Applications

# MDW: Check the WEEE Categories



# MDW: Yes, It is covered; Is it Pb-free compliant?

**GCG Material Declaration Wizard**

File Edit View Tools Help

Select Task

- New MDF
- Edit MDF
- Mark MDF Complete
- Edit Declaration Section**
- Edit Product
- Edit Product mass
- Edit Subpart
- Edit Material
- Edit Substance
- Edit Radioactivity
- Edit Calculated mass
- Edit Supplier
- Edit Producer
- Request MDF Information
- Send MDF to Producer
- Check MDF
- Review MDF Source

Current Task Help for Current Task

Declaration Section

Is Item Covered by the WEEE / RoHS Directive?

Is the item WEEE as defined in WEEE Directive categories 1 - 10 in Annex 1A?

WEEE Categories

Yes, this item is included in WEEE Directive categories 1 - 7 or 10 in Annex 1A.

Yes, this item is included in WEEE Directive categories 8 - 9 in Annex 1A.

No, this item is NOT included in WEEE Directive categories 1 - 10 in Annex 1A.

Don't Know which WEEE Directive categories producer will use this item in.

Fill out MDF for this item since both RoHS and WEEE apply.

Does the item meet lead-free compliance standards?

Review Component Moisture Sensitivity Levels as defined in J-STD-020A?

J-STD-020 Specification

Yes, This item complies with JSTD 020 Moisture Sensitivity Levels.

No, This item does not comply with JSTD 020 Moisture Sensitivity Levels.

(no input)

Does item (component, assembly or material) contain prohibited substances and / or exempted applications?

No Prohibited substances and No Exempted applications

Yes this item contains prohibited substances

Yes this item contains exempted applications

Both Prohibited substances and Exempted applications

(no input)

Prohibited Substances

Exempted Applications

# MDW: Pb-Free Solder Declaration Help

**GCG Material Declaration Wizard**

File Edit View Tools Help

Select Task

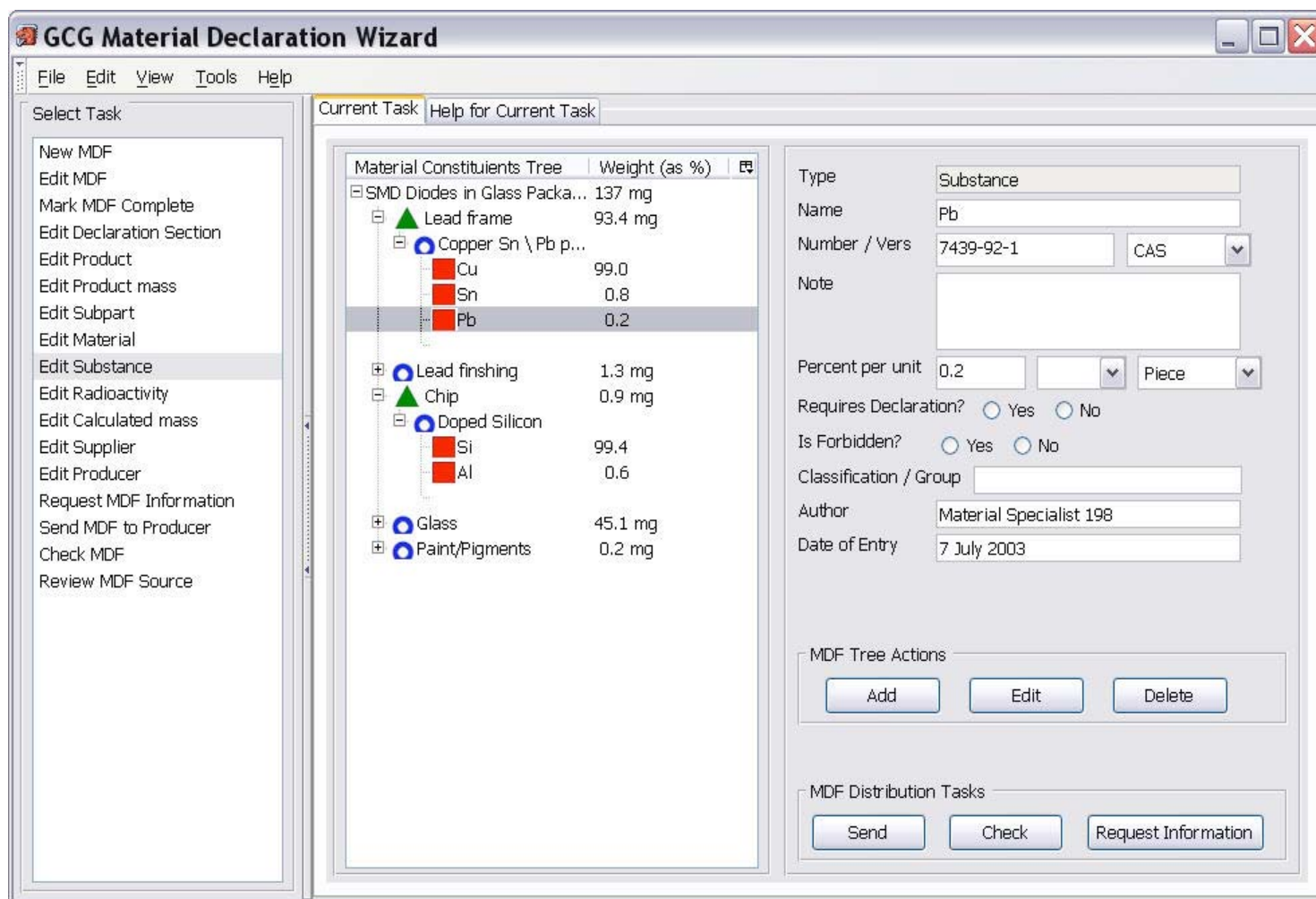
- New MDF
- Edit MDF
- Mark MDF Complete
- Edit Declaration Section**
- Edit Product
- Edit Product mass
- Edit Subpart
- Edit Material
- Edit Substance
- Edit Radioactivity
- Edit Calculated mass
- Edit Supplier
- Edit Producer
- Request MDF Information
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Current Task Help for Current Task

### J-STD-020 Component temperature limits

Reflow Condition	Component Sizes	
	Large Body ≥ 350 mm <sup>3</sup>	Small Body < 350 mm <sup>3</sup>
Average ramp-up rate (T <sub>L</sub> to Peak)	3 °C /second max.	
<b>Preheat</b> -Temp Min ( T <sub>smin</sub> ) -Temp Max (T <sub>smax</sub> ) -Time (min to max) (ts)	150 °C 200 °C 60-180 seconds	
T <sub>smax</sub> to T <sub>L</sub> -Ramp-up rate	3 °C /second max.	
Time maintained above: -Temperature (T <sub>L</sub> ) -Time (t <sub>L</sub> )	217°C 60-150 seconds	
Peak Temperature( T <sub>p</sub> )	245 +0/-5°C	250 +0/-5°C
Time within 5° C of actual Peak Temperature (T <sub>p</sub> )	10-30 seconds	20-40 seconds
Ramp-down Rate	6° C /second max.	
Time 25° C to Peak Temperature	8 minutes max.	

# MD Wizard: Edit or Add New Substance



**GCG Material Declaration Wizard**

File Edit View Tools Help

Select Task

- New MDF
- Edit MDF
- Mark MDF Complete
- Edit Declaration Section
- Edit Product
- Edit Product mass
- Edit Subpart
- Edit Material
- Edit Substance**
- Edit Radioactivity
- Edit Calculated mass
- Edit Supplier
- Edit Producer
- Request MDF Information
- Send MDF to Producer
- Check MDF
- Review MDF Source

Current Task Help for Current Task

Material Constituents Tree | Weight (as %) |

- [-] SMD Diodes in Glass Packa... 137 mg
  - [-] ▲ Lead frame 93.4 mg
    - [-] ○ Copper Sn \ Pb p...
      - Cu 99.0
      - Sn 0.8
      - Pb 0.2
    - [-] ⊕ Lead finishing 1.3 mg
    - [-] ▲ Chip 0.9 mg
      - [-] ○ Doped Silicon
        - Si 99.4
        - Al 0.6
      - [-] ⊕ Glass 45.1 mg
      - [-] ⊕ Paint/Pigments 0.2 mg

Type: Substance

Name: Pb

Number / Vers: 7439-92-1 CAS

Note:

Percent per unit: 0.2 Piece

Requires Declaration?  Yes  No

Is Forbidden?  Yes  No

Classification / Group:

Author: Material Specialist 198

Date of Entry: 7 July 2003

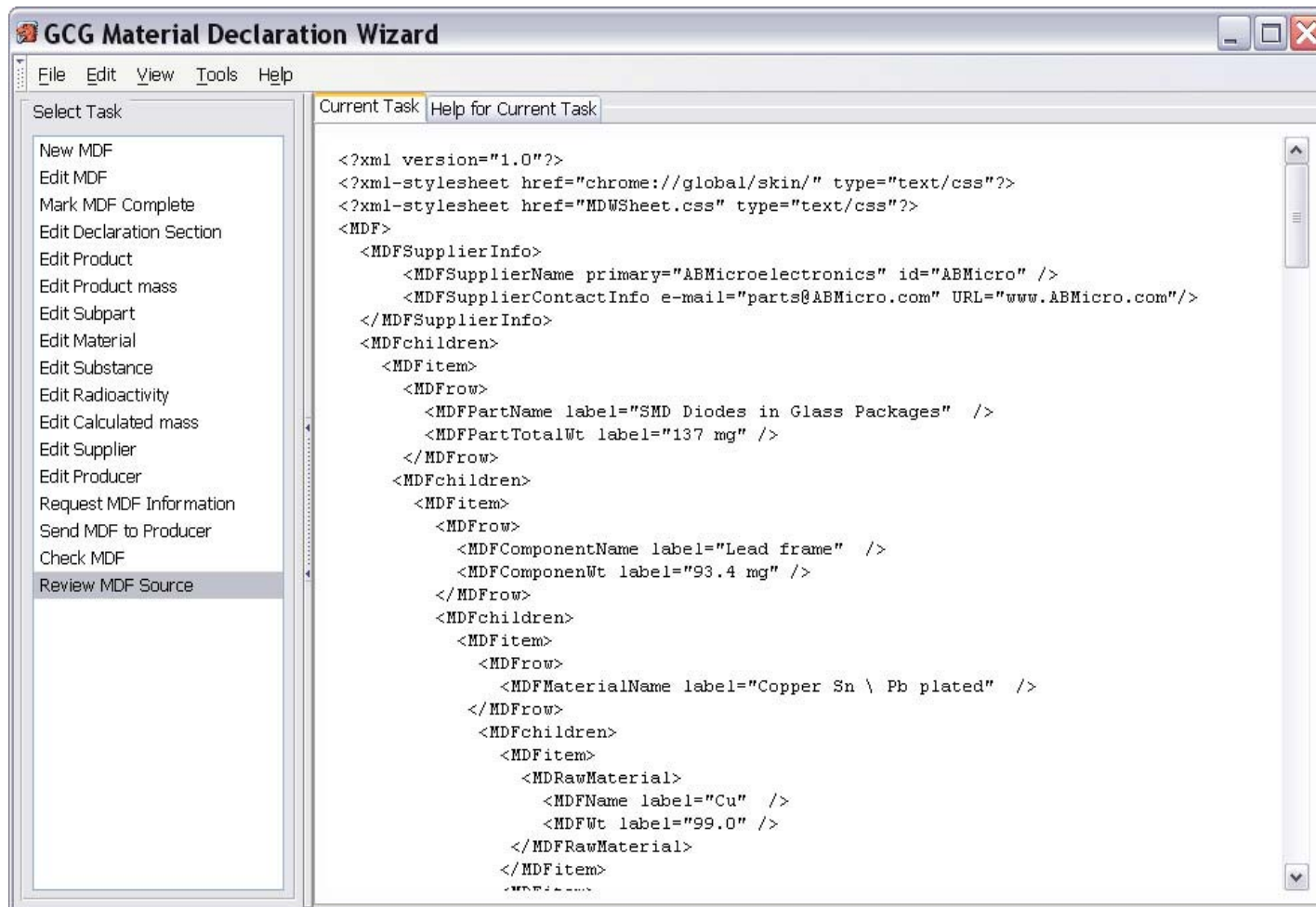
MDF Tree Actions

Add Edit Delete

MDF Distribution Tasks

Send Check Request Information

# Supplier Readiness Tools – Review XML Source file



## Current Status and Potential Next Steps

- **Material Declaration Wizard Current Status**

- Operational Prototype based on evolving standards
- Functional requirements defined and verified with IPC focus groups
  - What are the different export modes that need to be supported by the Material Declaration Wizard tool?
- Beta will be available for initial testing in 3-4 months
- Bundled with Supplier Readiness Training service that includes: WEEE/RoHS requirements; how to use the tool for data collection, % weight calculation and Pb-free solder compliance declaration

- **Potential Next Steps for NEMI Project**

- Demonstrate the data collection and data integrity functionality of the MDW tool.
- Determine export modes that best fit potential producers requirements.
  - Flat File, simple XML, PDX, other?
- Compare data collection and data integrity capabilities with other tools: Delphi, spreadsheet and RosettaNet
- Map the Draft EIA Working Group proposal into RosettaNet 2A10 and other PIPs (as needed).

## Thanks

- If you have further questions or comments please contact:

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