iNEMI-IPC Standard for Exchanging RoHS Composition Data
- IPC-1752

Richard Kubin
Vice President, E2open
Chair, IPC 2-18 Declaration Process Management Subcommittee
Chair iNEMI Business Leadership Team

Productronica 2005
• Challenges & Requirements
• Standards Activities
• IPC-1752 Overview
• Conclusions
High Level Timeline for Eco-Directives

- RoHS material ban (California)
- Full compliance for WEEE take-back, recovery, recycling
- RoHS material ban (EU & China)
- WEEE Product Registration Initiated
- Eco-Design for EuP (Proposed)

New products with a 6 month design/NPI cycle will need to support RoHS compliance January 2006!
Eco-Compliance and the Supply/Demand Chain

Material Flow

Information Flow

Semicon Foundry, Bulk Materials
Components: Semicon Packaging & Test
Sub-Assemblies
ODMs
EMSs
OEM
Channel Partners, Distribution
 Customers
Warranty, Repair & Return
EOL Re-use, Reclaim, Recycle

Compliance requires collection of information across the supply chain.
Managing risk requires establishing supplier liability at each tier.
• “Producers must demonstrate compliance with the Regulations by providing the enforcement authority (on request) with satisfactory evidence of such compliance in the form of relevant technical documentation or information.”
  – Collect Material Declarations from all direct suppliers
  – Identify any exemptions that may apply
  – Maintain records for 4 years

• “The defence of ‘due diligence’ is available where a person can show he took all reasonable steps and exercised all due diligence to avoid committing an offence.”
  – Includes reference to information or default by a 3rd party
  – Provides for ‘liability of persons other than the principle offender’
  – ‘allow a third party to be prosecuted as though they had committed the offence’
Model can be applied at any Tier within the supply chain

4. Targeted Supply Chain Analytical Audits (based on historical use, supplier factory audits, etc)

3. Component/Product Material Composition Declaration provided to customers and/or regulators

2. Supplier Material Composition Declarations (MCD) for procured materials

1. Contractual Responsibility Between Company and Supplier

General RoHS Compliance Model

Model can be applied at any Tier within the supply chain

4. Targeted Supply Chain Analytical Audits (based on historical use, supplier factory audits, etc)

3. Component/Product Material Composition Declaration provided to customers and/or regulators

2. Supplier Material Composition Declarations (MCD) for procured materials

1. Contractual Responsibility Between Company and Supplier

General RoHS Compliance Model
End product producers are requiring that suppliers provide materials declarations
  – Indicate compliance with the requirements
  – Provide detailed materials content information
Materials declarations formats and custom software are proliferating
Multiple formats increase the burden on the supply chain
Content

- Challenges & Requirements
- Standards Activities
- IPC-1752 Overview
- Conclusions
Many Organizations are Contributing to Standardization

• IEC
  – TC3, TC93
  – TC111
    • 3/750/PAS (61906) DRAFT
    • “Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products” DRAFT

• EIA/EICTA/JGPSSI
  – Joint Industry Guide

• iNEMI
  – Material Declaration Project
  – Material Composition Data Exchange Project

• RosettaNet
  – 2A10, 2A13 and 2A15 PIPs

• IPC
  – IPC-1752

• Other Industry organizations
  – ZVEI, NEDA, JGPSSI, etc.
Proposed Standards Framework

- IEC TC 111 Working Group 1 is defining the requirements and elements for material declarations, based on:
  - Joint Industry Guide (JIG) defines the specifics of what needs to be reported
  - IPC-1752 data standard provides an electronic data model and standardized forms that support both electronic exchange and human input
- IPC-1752 is aligned with RosettaNet 2A13 and 2A15 PIPs for direct system-to-system data exchange
- IEC TC 111 Working Group 3 Test Methods (DRAFT) will provide analytical validation standards
Regulatory and Standards Framework

- **IEC TC 111**: International Standards Body. Defines the high level requirements for MD.
- **IPC**: Develops draft standards for MCD and hands off to IPC.
- **RosettaNet**: Standards organization provides leadership in promoting collaborative commerce.
- **MCD**: Based on IPC standards.
- **RoHS**: Requires the collection, treatment, recycling and recovery of waste electrical and electronic equipment.
- **WEEE Directive**: Requires the collection, treatment, recycling and recovery of waste electrical and electronic equipment.
- **JIG**: JGPSSI JEDEC
- **JEDEC**: Defines the specifics of what needs to be reported.
Joint Industry Guide

- Targeted lists of materials and substances for disclosure
- The composition amount or "threshold level"
- 15 Level A Material/Substance categories (including the 6 RoHS substances)
- 9 Level B Material/Substance categories
- Over 2000 specific substance CAS numbers!
- Formally released as an EIA/JEDEC standard on May 25, 2005

Provides “What” needs to be declared
• Materials and Substances to be declared:

Criteria for Level A Disclosure:

- The Level A List is composed of materials and substances when used in products and subparts that are subject to currently enacted legislation that:
  a) Prohibits their use;
  b) Restricts their use; or
  c) Requires reporting or results in other regulatory effects.

   Based upon these criteria, Level A materials and substances are listed in Annex A.

Criteria for Level B Disclosure:

- The Level B List is composed of materials and substances that the industry has determined relevant for disclosure because they meet one or more of the following criteria:
  a) Materials/substances that are of significant environmental, health, or safety interest
  b) Materials/substances that would trigger hazardous waste management requirements
  c) Materials/substances that could have a negative impact on end-of-life management.
IPC-1752 Materials Declaration Management

- References RoHS and JIG for substance reporting requirements
- Provides a standard data model, XML schema and human readable presentation format (PDF)
- XML schema will be aligned with RosettaNet 2A13/2A15 PIPs
- 2 versions of the form:
  - IPC-1752-1: RoHS at homogeneous and JIG substance reporting at the part level
  - IPC-1752-2: RoHS and substance reporting at the homogeneous material level

Provides standard on “How” to declare
Content

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IPC 175x: a Family of Supplier Declaration Standards

• 1751 Generic Requirements
  – Establishes the principles and details for any declaration necessary between members of a supply chain
  – Contains general information about the supplier
  – Supplemented by sectional standards that define specific details for customer requested information

• 1752 Material and Substance Declaration

• Future Declaration Standards
Leverage existing work

- EIA/EICTA/JGPSSI Joint Industry Guide (JIG) – materials and substances to be disclosed by suppliers
- RosettaNet - Partner Interface Processes (PIPs) for Partner-to-Partner electronic exchange
- iNEMI Projects
  - Material Declarations
  - Data exchange format and process project
• Defined using a UML data model
• Underlying XML schema
• Provide a PDF-based form version for human input
  – Conforms to the XML schema
  – Support for automated data load and extract
• Aligned and consistent with the data models for RosettaNet PIPs
  – 2A13 and 2A15
• Support for both “Request/Response” and “Distribute” models
• Support for declaration of bulk material, components, sub-assemblies, products
• Support for Part Family declaration (Umbrella Spec)
Adobe Portable Document Format (PDF) Implementation

- Human presentation of 1752 XML data
- Estimated 500 million Adobe readers deployed
- The Adobe PDF reader is free to trading partners
- Large number of Independent Software Vendors (ISVs) supporting PDF
- Platform independent
- Supports manual entry
- Provides XML import/export to integrate with data management systems
## Six Classes of Reporting

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>Form type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>- RoHS reporting at a homogeneous level in yes/no format</td>
<td>IPC-1752-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IPC-1752-2</td>
</tr>
<tr>
<td>Class 2</td>
<td>- same as Class 1, with the addition of Manufacturing process reporting</td>
<td>IPC-1752-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IPC-1752-2</td>
</tr>
<tr>
<td>Class 3</td>
<td>- RoHS reporting at a homogeneous level in yes/no format</td>
<td>IPC-1752-1</td>
</tr>
<tr>
<td></td>
<td>- RoHS substance reporting at a homogeneous level and other JIG A &amp; B substance reporting at the part level plus other substances at the part level</td>
<td></td>
</tr>
<tr>
<td>Class 4</td>
<td>- same as Class 3, with the addition of Manufacturing process reporting</td>
<td>IPC-1752-1</td>
</tr>
<tr>
<td>Class 5</td>
<td>- RoHS reporting at a homogeneous level in yes/no format</td>
<td>IPC-1752-2</td>
</tr>
<tr>
<td></td>
<td>- Substance reporting at the homogeneous level. JIG A &amp; B substance list provided, other substances can be added</td>
<td></td>
</tr>
<tr>
<td>Class 6</td>
<td>- same as Class 5, with the addition of Manufacturing process reporting</td>
<td>IPC-1752-2</td>
</tr>
</tbody>
</table>
**Material Composition Declaration**

This document is a declaration of the substances within the manufacturer item listed. The item must be declared as containing or not containing RoHS (Restriction of the use of certain hazardous substances in electrical and electronic equipment) substances or as an unknown item or obsolete item. Note: if the item is an assembly with lower level parts, the declaration encompasses all lower level materials.

<table>
<thead>
<tr>
<th>IPC Standard</th>
<th>IPC Web Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1752.2</td>
<td><a href="http://www.ipc.org/committedetail.asp?Committee=2-18">http://www.ipc.org/committedetail.asp?Committee=2-18</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form Type *</th>
<th>Declaration Type *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request/Reply</td>
<td>RoHS, JIG and Manufacturing Information</td>
</tr>
</tbody>
</table>

**Request for Information**

- **Request Date**: 2/12/05 10:32 PM
- **Request Document ID**: 7000938-4454-01
- **Internal Item Name**: Technium 4 Processor - 3.2Ghz 4454-01
- **Contact Name**: John Doe
- **Company Name**: Comps-R-Ua
- **Manufacturer Item Name**: Technium 4 Processor - 3.2Ghz CHP07505
- **Contact Title**: MCD Manager
- **Contact Phone**: 214 245 6775
- **Unique ID Authority**: DUNS
- **Manufacturer Item Version**: 1.0
- **Manufacturer Effective Date**: Contact Email: john@comps.com
- **Digital Signature of Requester**: My ID for the Manufacturer

**Requestor Information**

- **Requestor Name**: Richard Kubin
- **Company Name**: Elex Inc
- **Company Unique ID**: DUNS
- **Company Email**: richard@elex.com
- **Item Name**: Unit Length/Volume of Each
- **Effective Date**: Version
- **Alternative Recommended Item**: Alternative Item Name
- **Alternative Item Comments**: Alternative Part Comments

**Manufacturing Process Information**

- **Terminal Plating / Grid Array Material**: SnAgCu
- **Terminal Base Alloy**: Alloy 42
- **J-STD-020 Moisture**: 3
- **Maximum Reflow Temp**: 260 C
- **Maximum Cycles for Reflow**: 3

* Required Field

Form enabled courtesy of Adobe Systems
### Material Composition Declaration

This document is a declaration of the substances within the manufacturer item listed. The item must be declared as containing or not containing RoHS (Restriction of the use of certain hazardous substances in electrical and electronic equipment) substances or as an unknown item or obsolesce item. Note: if the item is an assembly with lower level parts, the declaration encompasses all lower level materials.

#### Request for Information

<table>
<thead>
<tr>
<th>Request Date</th>
<th>Respond By Date</th>
<th>Contact Name *</th>
<th>Contact Title</th>
<th>Contact Phone *</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/12/05 10:32 PM</td>
<td>Sun Jun 19 00:00:00</td>
<td>John Doe</td>
<td>MCD Manager</td>
<td>214 245 6775</td>
</tr>
</tbody>
</table>

#### Supplier Information

<table>
<thead>
<tr>
<th>Response Date *</th>
<th>Response Document ID</th>
<th>Contact Name *</th>
<th>Contact Title</th>
<th>Contact Phone *</th>
<th>Certifying Title *</th>
<th>Certifying Phone *</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06-23</td>
<td></td>
<td>Richard Rubin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Company Name *</th>
<th>Contact Email *</th>
<th>Unique ID Authority</th>
<th>Contact Email *</th>
<th>Contact Phone *</th>
<th>URL for Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronix</td>
<td><a href="mailto:rkubin@elex.com">rkubin@elex.com</a></td>
<td></td>
<td><a href="mailto:rkubin@elex.com">rkubin@elex.com</a></td>
<td>123-234-1234</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item Name</th>
<th>Item Number *</th>
<th>Item Weight *</th>
<th>Unit per Length/Area/Volume</th>
<th>Effective Date</th>
<th>Item Comments</th>
<th>Alternative Item Name</th>
<th>Availability Date</th>
<th>Alternative Part Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHP07505</td>
<td>45 g</td>
<td></td>
<td>Each</td>
<td>1.0</td>
<td>Manufacturing Site</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Manufacturing Process Information

<table>
<thead>
<tr>
<th>Terminal Plating / Grid Array Material</th>
<th>Terminal Base Alloy</th>
<th>J-STD-020 Moisture</th>
<th>Maximum Reflow Temp</th>
<th>Maximum Cycles for Reflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>SnAgCu</td>
<td>Alloy 42</td>
<td>3</td>
<td>260 °C</td>
<td>3</td>
</tr>
</tbody>
</table>

* Required Field
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**IPC Standard**
1752.2

**IPC Web Site**

**Form Type**
Request/Reply

**Declaration Type**
RoHS, JIG and Manufacturing Information

### Request for Information

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<td>Technium 4 Processor - 3.2G</td>
<td>4454-01</td>
<td>John Doe</td>
<td>MCD Manager</td>
<td>214 245 6775</td>
</tr>
</tbody>
</table>

**Respond By Date**
Sun Jun 19 00:00:00 PDT 2005

**Company Name**
Comps-R-Us

**Manufacturer Item Name**
Technium 4 Processor - 3.2G

**Manufacturer Item Number**
CHP07505

**Contact Title**
MCD Manager

**Contact Phone**
214 245 6775

**Contact Email**
john@comps.com

**Company Unique ID**
63901

**Unique ID Authority**
DUNS

**Manufacturer Item Version**
1.0

**Manufacturer Effective Date**
[1/1752]

**Requester Comments**

These fields control how the form is returned by the supplier using the Submit button. Consult your IT staff to determine the File Type and address (https, http, ftp or mailto) for the submission.

**File Type**
XDP

**Destination - URL or Email address**
e2sctran/e2sc/servlet/submitR

### Optional Manufacturing Process Information

**Contact Name**
Richard Kubin

**Contact Title**

**Contact Phone**
123-234-1234

**Certifying Title**
NP

**Certifying Phone**
123-234-1234

**Contact Email**
rkubin@elex.com

**Certifying Email**
rkubin@elex.com

**Item Name**
CHP07505

**Item Weight**
45g

**Unit per Length/Area/Volume**
Each

**Effective Date**
1/1752

**Item Comments**

**Alternative Recommended Item**

**Availability Date**

**Alternative Part Comments**

### Manufacturing Process Information

**Terminal Plating / Grid Array Material**
SnAgCu

**Terminal Base Alloy**
Alloy 42

**J-STD-020 Moisture**
3

**Maximum Reflow Temp**
260 C

**Maximum cycles for Reflow**
3
RoHS Material Composition Declaration

For each item, please indicate whether it contains an amount above the quantity limit identified below for the following chemicals at the material level: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers (RoHS restricted substances). If the item contains a RoHS restricted substance in an amount above the quantity limit, please indicate whether you believe a listed exemption may apply. The "material level" refers to each material of uniform composition within your item. If the part is an assembly with lower level items, the declaration encompasses all lower level components. This determination was made using appropriate systems and processes to ensure accuracy of any data provided. NOTE: Supplier does not provide any warranty, express or implied, with respect to the information provided in this declaration by completing and transmitting it. Rather, warranty obligations, if any, with respect to the identified part are solely as defined in a separate written agreement under which Supplier provides or sells such item.

RoHS Directive
Version 2002/95/EC
RoHS Definition: Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE), and quantity limit of 0.01% by mass (100 PPM) of homogeneous material for Cadmium.

RoHS Exemptions

Exemptions: The following exemptions are in accordance with the General Compliance for RoHS as applicable, except for the following application specific exemptions. Check the appropriate exemptions next page then select the exemptions on that part of the form.

- 1. Mercury in straight fluorescent lamps for special purposes
- 2a. Mercury in sodium vapor lamps, vapor pressure not exceeding 1.7 bar
- 2b. Mercury in lamps with lifetime of more than 10000 hours
- 2c. Mercury in sodium vapor lamps with lifetime 5000 to 10000 hours
- 3. Mercury in sodium vapor lamps for special purposes
- 4. Mercury in other lamps not specifically mentioned in this list
- 5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes
- 5a. Lead as an alloying element in steel containing up to 0.35% lead by weight
- 5b. Lead as an alloying element in aluminum containing up to 0.4% lead by weight
- 5c. Lead as an alloying element in copper containing up to 4% lead by weight
- 5d. Lead in high melting temperature type solders (i.e. lead based solder alloys containing 65% by weight or more lead)
- 7b. Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications
- 7c. Lead in electronic ceramic parts (e.g. piezoelectric devices)
- 9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators
- 10. Lead used in compliant pin connector systems
- 11. Lead as a coating material for a thermal conduction module cooling
- 12a. Lead in optical and filter glass
- 12b. Cadmium in optical and filter glass
- 13. Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 65% by weight
- 14. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages
### RoHS Material Composition Declaration

For each item, please indicate whether it contains an amount above the quantity limit identified below for the following chemicals at the material level: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers (RoHS restricted substances). If the item contains a RoHS restricted substance in an amount above the quantity limit, please indicate whether you have listed an exemption. The 'material level' refers to each material of uniform composition within your item. If the part is an assembly with lower level items, the declaration encompasses all lower level components. This determination was made using appropriate systems and processes to ensure accuracy of any data provided. NOTE: Supplier does not provide any warranty, express or implied, with respect to the information provided in this declaration by completing and transmitting it. Rather, warranty obligations, if any, with respect to the identified part are solely as defined in a separate written agreement under which Supplier provides or sells such item.

#### RoHS Directives


#### RoHS Exemptions

Exemptions: The part on this form meets the specifications listed under General Compliance for RoHS, as applicable, except for the following application specific exemptions. Check the appropriate exemptions for the lead subpart and substance. If this form has a JIG declaration on the next page then select the exemptions on that part of the form.

1. Mercury in compact fluorescent lamps not exceeding 6 mg per lamp
2a. Mercury in straight fluorescent lamps for general purposes not exceeding 500 mg per lamp
2b. Mercury in straight fluorescent lamps for general purposes not exceeding 1000 mg per lamp
2c. Mercury in straight fluorescent lamps for general purposes not exceeding 2000 mg per lamp
3. Mercury in straight fluorescent lamps for special purposes
4. Mercury in other lamps not specifically mentioned in this list
5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes
6a. Lead as an alloying element in steel containing up to 0.35% lead by weight
6b. Lead as an alloying element in aluminum containing up to 0.4% lead by weight
6c. Lead as an alloying element in copper containing up to 0.4% lead by weight
7a. Lead in high melting temperature type solders (i.e. lead based solder alloys containing 85% by weight or more lead)
7b. Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, as well as network management for telecommunications
7c. Lead in electronic ceramic parts (e.g. piezoelectric devices)
9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators
10. Lead used in compliant pin connector systems
11. Lead as a coating material for a thermal conduction module on-iring
12a. Lead in optical and filter glass
12b. Cadmium in optical and filter glass
13. Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 85% by weight
14. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages
### Joint Industry Guide (JIG) Material Composition Declaration for Electronic Products

Instructions: The presence of JIG Level A and JIG Level B substances must be declared if they exceed the threshold levels. Threshold levels are defined at the item level except for the RoHS substances, noted with an asterisk (*), below, which are defined at the homogeneous material level. If the maximum concentration of any RoHS substance exceeds the JIG threshold levels within any homogeneous material contained in the item, then the RoHS substance content must be reported in total weight and worst case homogeneous material PPM within the item along with a description of material use. JIG Level B materials must be reported in total weight and worst case PPM. Where threshold levels include "intentionally added", substances must be declared even if they fall below the PPM threshold value.

<table>
<thead>
<tr>
<th>JIG</th>
<th>Category Name</th>
<th>Threshold Level</th>
<th>Above Threshold Level?</th>
<th>If Yes, enter weight or PPM</th>
<th>Description of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Asbestos</td>
<td>Intentionally Added</td>
<td>Yes/No</td>
<td>Weight Unit PPM</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Certain Azo colorants</td>
<td>Intentionally Added</td>
<td>No</td>
<td>mg 50</td>
<td>in copper alloy</td>
</tr>
<tr>
<td>A</td>
<td>Cadmium/Cadmium Compounds *</td>
<td>75 PPM or Intentionally Added</td>
<td>Yes</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Hexavalent Chromium/Hexavalent Chromium Compounds *</td>
<td>1000 PPM or Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Lead/Lead Compounds *</td>
<td>1000 PPM or Intentionally Added</td>
<td>Yes</td>
<td>mg 3000</td>
<td>in copper alloy</td>
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<tr>
<td>A</td>
<td>Lead/Lead Compounds - PVC Cables and Wires Only</td>
<td>300 PPM</td>
<td>Intentionally Added</td>
<td>mg</td>
<td></td>
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<tr>
<td>A</td>
<td>Mercury/Mercury Compounds*</td>
<td>1000 PPM or Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
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<tr>
<td>A</td>
<td>Ozone Depleting Substances - Class I (CFCs, HFCFs, etc.)</td>
<td>Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Ozone Depleting Substances - Class II (HCFCs)</td>
<td>1000 PPM</td>
<td>Intentionally Added</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Polybrominated Biphenyls (PBBs) *</td>
<td>1000 PPM or Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Polybrominated Diphenyl ethers (PBDEs) *</td>
<td>1000 PPM or Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Polybrominated Biphenyls (PCBs)</td>
<td>Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
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<tr>
<td>A</td>
<td>Polybrominated Naphthalenes (PBDEs)</td>
<td>1000 PPM or Intentionally Added</td>
<td>No</td>
<td>mg</td>
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<tr>
<td>A</td>
<td>Radioactive Substances</td>
<td>Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Certain Bisphenol A-Halogenated Paraffins</td>
<td>Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Tributyl Tin (TBT) and Triphenyl Tin (TPT)</td>
<td>Intentionally Added</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Antimony/Antimony Compounds</td>
<td>1000 PPM</td>
<td>Intentionally Added</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Arsenic/Arsenic Compounds</td>
<td>1000 PPM</td>
<td>Intentionally Added</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Beryllium/Beryllium Compounds</td>
<td>1000 PPM</td>
<td>Intentionally Added</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Bismuth/Bismuth Compounds</td>
<td>1000 PPM</td>
<td>Intentionally Added</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Brominated Flame Retardants (other than PBBs or PBDEs)</td>
<td>1000 PPM</td>
<td>Yes</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Nickel (external applications only)</td>
<td>1000 PPM</td>
<td>Intentionally Added</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Certain Phthalates</td>
<td>1000 PPM</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Selenium/Seelenium Compounds</td>
<td>1000 PPM</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Polyvinyl Chloride (PVC)</td>
<td>1000 PPM</td>
<td>No</td>
<td>mg</td>
<td></td>
</tr>
</tbody>
</table>

---

**JIG A & B Substances in Yes /No Format**

(RoHS substances at Homogeneous level)
### Joint Industry Guide (JIG Homogeneous Materials)

**Subpart Instructions:** The presence of any JIG Level A or B substances must be declared if they exceed the JIG threshold values or (for Level A only) if they are intentionally added. [1] indicate the subpart in which the substance is located, [2] provide a description of the homogeneous material [3] enter the weight of the homogeneous material.

**Substance Instructions:** [A] select the Level (JIG A, JIG B or Other) [B] select the substance category (JIG) or enter a value (Other), [C] select the substance (JIG) or enter the substance and CAS (Other). [D] select a RoHS exemption, if applicable [E] enter the weight of the substance or the PPM concentration [F] Optionally enter the positive (+) and negative (-) tolerance in percent Note: percent tolerance values are expected to cover a 3 sigma range of distribution. Use the X on the left to delete an unnecessary line.

<table>
<thead>
<tr>
<th>Part/Subpart Name</th>
<th>Homogeneous Material</th>
<th>Weight</th>
<th>Unit of Measure</th>
<th>Level</th>
<th>Substance Category</th>
<th>Substance</th>
<th>CAS</th>
<th>Exempt</th>
<th>Weight</th>
<th>Unit of Measure</th>
<th>Tolerance</th>
<th>PPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X flip chip solder</td>
<td>25.35</td>
<td>mg</td>
<td>A</td>
<td>Lead/Lead Compounds</td>
<td>Lead</td>
<td>7439-52-1</td>
<td>14</td>
<td>9.375</td>
<td>mg</td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X mold compound</td>
<td>452.55</td>
<td>mg</td>
<td>B</td>
<td>Antimony/Antimony Compos</td>
<td>Antimony (metallic)</td>
<td>7440-36-0</td>
<td>0.0155</td>
<td>mg</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X heat speader copper alloy</td>
<td>375</td>
<td>mg</td>
<td>A</td>
<td>Lead/Lead Compounds</td>
<td>Lead</td>
<td>7439-52-1</td>
<td>5c</td>
<td>9.375</td>
<td>mg</td>
<td>-</td>
<td>10 ppm</td>
<td></td>
</tr>
</tbody>
</table>

- Add New Part/Subpart
- Add New Substance

**Homogeneous Material Declaration**

JIG A & B
And Other
Auto-generate form and send to Supplier

XML data is auto-extracted, analyzed and loaded into Compliance database

Supplier completes Form (manual or data import) and submits back to Requestor
• **The 2 forms provide**
  - Request/Response or Distribute
  - Simple Yes/No RoHS Information
  - JIG level Declaration
  - Homogeneous level reporting, up to 100% declaration
  - Basic manufacturing information

• **Can save file in 3 different formats**
  - PDF form, including Digital Signatures and attachments
  - XML data only (will not include Digital Signatures and attachments)
  - XDP, retains all data in more compact, including Digital Signatures and attachments

• **Using this XML based format allows for**
  - “Submit” button to automatically send PDF, XDP, or XML data to Requestor
  - Automation to create forms (Request and Distribute), populate data into requests, extract data into internal systems
Obtain agreement from key constituents (IPC, EIA /JEDEC (JIG), NEMI, RosettaNet)............. Jan ’05

Develop draft data model and pdf form............................. Mar ’05

Incorporate NEMI pilots feedback ................................. Apr ’05

Two day meeting to prepare draft standard..................... May ’05

Circulate Final Draft Standard (60 days)....................... June ’05

Circulate as Proposed Standard for Ballot (30 days)........ Sept ’05

Resolve comments on Final Draft Standard.................... Oct ’05

2nd Circulation....................................................... Dec ’05

Release Final Standard............................................. Dec ’05

Publish Official Standard ......................................... Feb/Mar ’06
• IPC will support the development and ongoing maintenance of standard forms
  – Updates to support changes in regulations

• Free download  [www.ipc.org/IPC-175X](http://www.ipc.org/IPC-175X)
  – September Draft for Ballot currently available
  – Final Draft for Ballot expected in December
• Challenges & Requirements
• Standards Activities
• IPC-1752 Overview
• Conclusions
Conclusions

• IPC-1752 provides a standard for Material Declarations
  – References JIG-101
  – Supports all elements of supply chain
  – Easily automated
  – Supports requirements

• *Industry adoption will reduce the cost and complexity of supporting RoHS compliance!*
Thank You!

- Contact Information:

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