



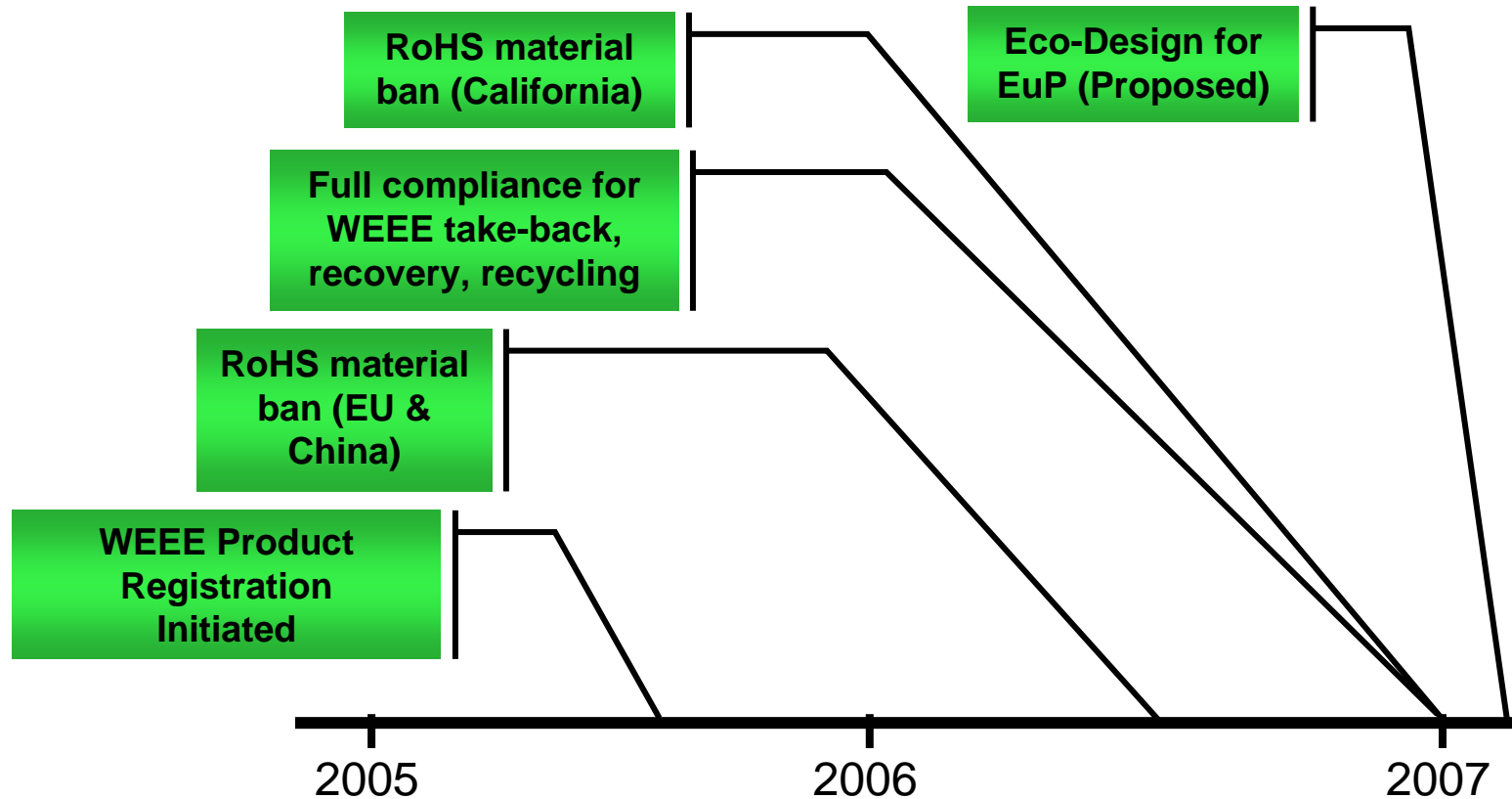
International Electronics Manufacturing Initiative

**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

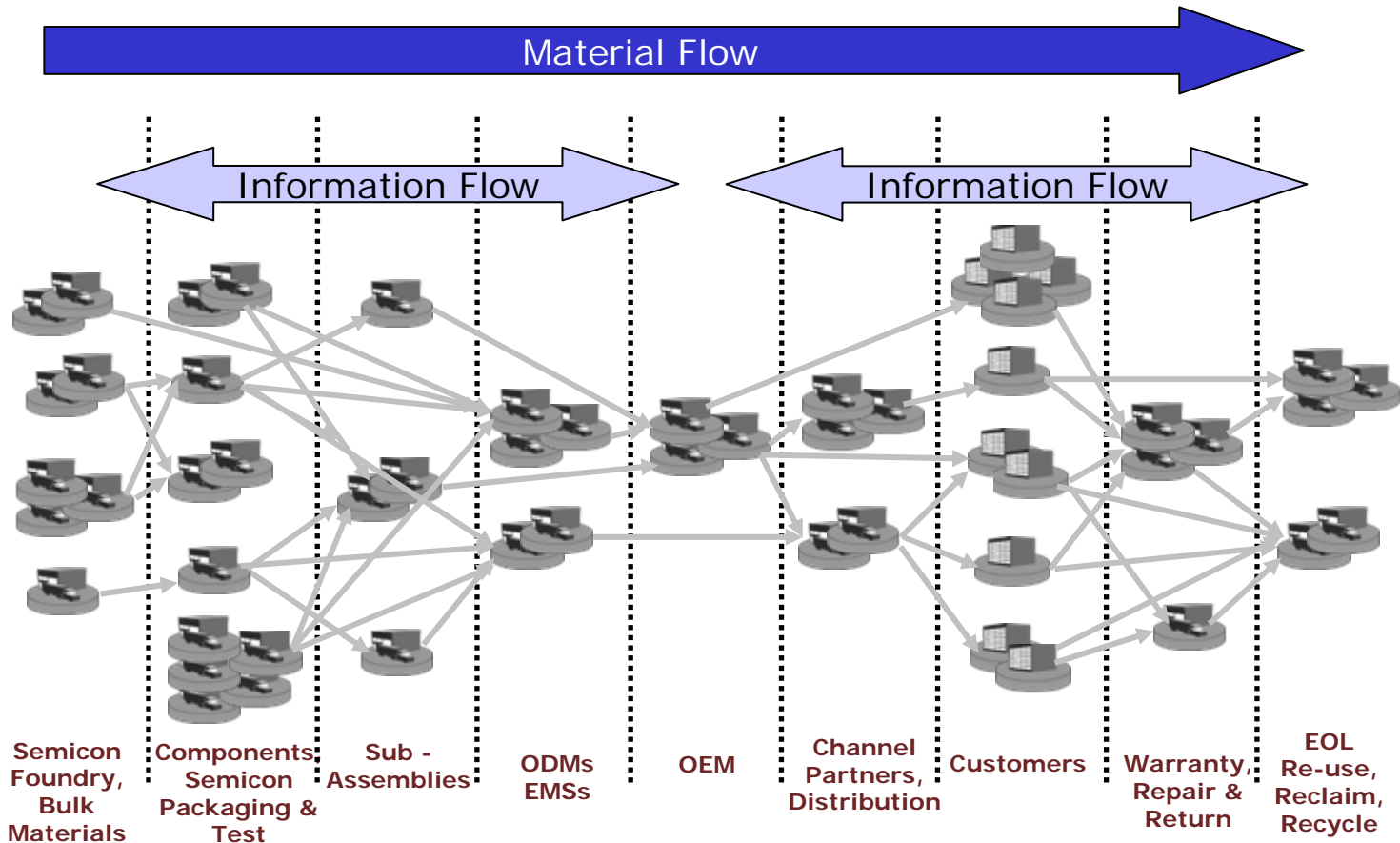
Productronica 2005

- **Challenges & Requirements**
- **Standards Activities**
- **IPC-1752 Overview**
- **Conclusions**



New products with a 6 month design/NPI cycle will need to support RoHS compliance January 2006!

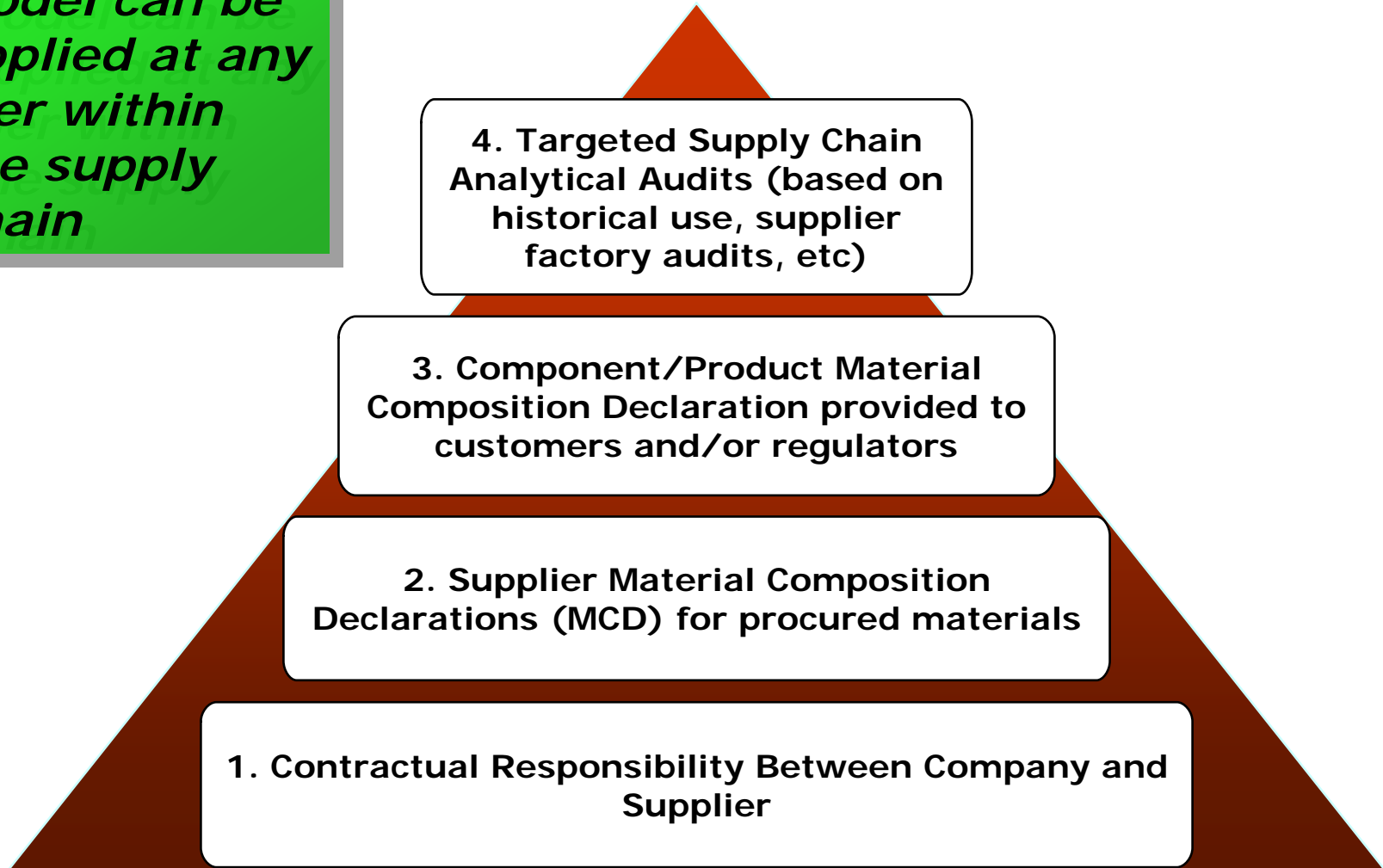
Eco-Compliance and the Supply/Demand Chain



***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



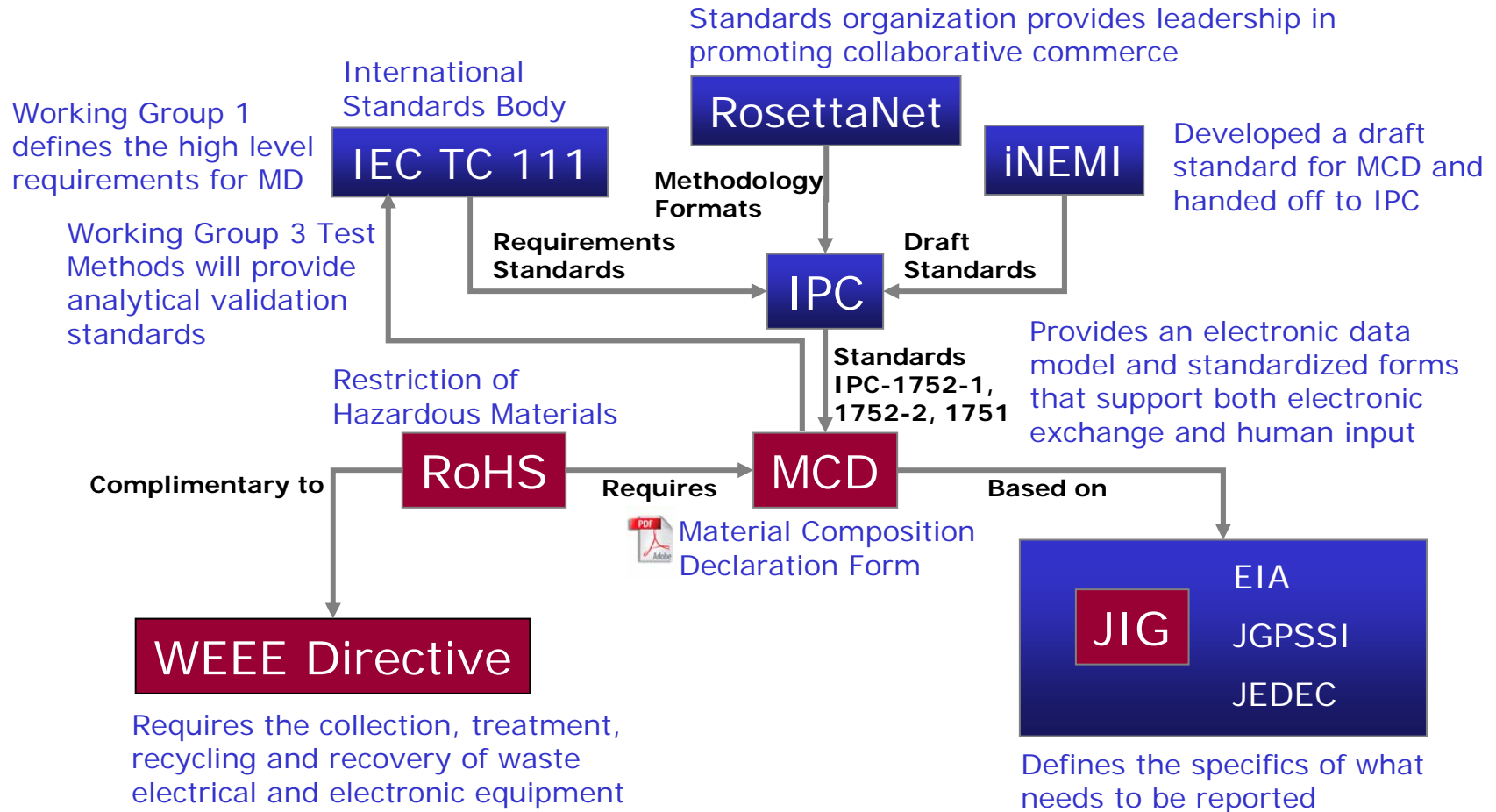
- End product producers are requiring that suppliers provide materials declarations
 - Indicate compliance with the requirements
 - Provide detailed materials content information
- Materials declarations formats and custom software are proliferating
- **Multiple formats increase the burden on the supply chain**

- Challenges & Requirements
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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.

- 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



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:**

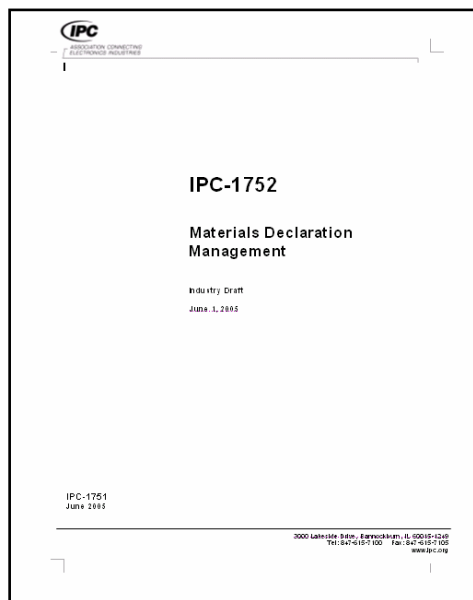
Criteria for Level A Disclosure:

- **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

- Challenges & Requirements
- Standards Activities
- **IPC-1752 Overview**
- Conclusions

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

Class	Description	Form type
Class 1	- RoHS reporting at a homogeneous level in yes/no format	IPC-1752-1 IPC-1752-2
Class 2	- same as Class 1, with the addition of Manufacturing process reporting	IPC-1752-1 IPC-1752-2
Class 3	- RoHS reporting at a homogeneous level in yes/no format - RoHS substance reporting at a homogeneous level and other JIG A & B substance reporting at the part level plus other substances at the part level	IPC-1752-1
Class 4	- same as Class 3, with the addition of Manufacturing process reporting	IPC-1752-1
Class 5	- RoHS reporting at a homogeneous level in yes/no format - Substance reporting at the homogeneous level. JIG A & B substance list provided, other substances can be added	IPC-1752-2
Class 6	- same as Class 5, with the addition of Manufacturing process reporting	IPC-1752-2

 <small>ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES®</small>	Material Composition Declaration		<small>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.</small>	
	<small>© Copyright 2005, IPC, Bannockburn, Illinois. All rights reserved under both International and Pan-American copyright conventions.</small>			
IPC Standard 1752.2	IPC Web Site http://www.ipc.org/committeedetail.asp?Committee=2-18	Form Type * Request/Reply	Declaration Type * RoHS, JIG and Manufacturing Information	

Request for Information Lock Request Fields					
Request Date	Request Document ID	Internal Item Name	Internal Item Number	Contact Name *	
6/12/05 10:32 PM	7000938-4454-01	Technium 4 Processor - 3.2G	4454-01	John Doe	
Respond By Date	Company Name *	Manufacturer Item Name	Manufacturer Item Number	Contact Title	Contact Phone *
Sun Jun 19 00:00:00 PDT 2006	Comps-R-Us	Technium 4 Processor - 3.2G	CHP07505	MCD Manager	214 245 6775
Company Unique ID	Unique ID Authority	Manufacturer Item Version	Manufacturer Effective Date	Contact Email *	
63901	DUNS	1.0		john@comps.com	
Digital Signature of Requester		Manufacturing Site	My ID for the Manufacturer	Requester Comments	
		Japan			
<small>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)</small>			File Type	Destination - URL or Email address	
			XDP	/e2sctran/e2sc/servlet/submitR	

Supplier Information Duplicate Contact ->					
Response Date *	Response Document ID	Contact Name *	Name of person certifying as true and correct *		
2005-06-23		Richard Kubin	Richard Kubin		
Company Name *	Contact Title	Contact Phone *	Certifying Title *	Certifying Phone *	
Electronix		123-234-1234	VP	123-234-1234	
Company Unique ID	Contact Email *	Certifying Email *			
	rkubin@elex.com	rkubin@elex.com			
Item Name	Weight *	Unit per Length/Area/Volume	URL for Additional Information		
	g	Each			
Effective Date	Version	Manufacturing Site	Item Comments		
	1.0				
Alternative Recommended Item	Alternative Item Name	Availability Date	Alternative Part Comments		

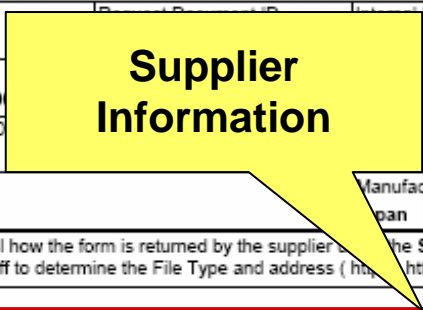
Requestor Information

Manufacturing Process Information					
Terminal Plating / Grid Array Material	Terminal Base Alloy	J-STD-020 Moisture	Maximum Reflow Temp	Maximum cycles for Reflow	
SnAgCu	Alloy 42	3	260 C	3	
Manufacturing Process Comments					

* Required Field

 <small>ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES®</small>	Material Composition Declaration		<small>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.</small>	
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Request for Information Lock Request Fields				
Request Date 6/12/05 10:32 PM	Item Name Item 4 Processor - 3.2G	Internal Item Number 4454-01	Contact Name * John Doe	
Respond By Date Sun Jun 19 00:00:00	Manufacturer Item Name Item 4 Processor - 3.2G	Manufacturer Item Number CHP07505	Contact Title MCD Manager	Contact Phone * 214 245 6775
Company Unique ID 63901	Manufacturer Item Version	Manufacturer Effective Date	Contact Email * john@comps.com	
Digital Signature of Requester	Manufacturing Site pan	My ID for the Manufacturer	Requester Comments	
<small>These fields control how the form is returned by the supplier when the Submit button is pressed. Consult your IT staff to determine the File Type and address (http, ftp or mailto)</small>		File Type XDP	Destination - URL or Email address /e2sctran/e2sc/servlet/submitR	



Supplier Information Duplicate Contact ->				
Response Date * 2005-06-23	ResponseDocument ID	Contact Name * Richard Kubin	Name of person certifying as true and correct * Richard Kubin	
Company Name * Electronix	Contact Title	Contact Phone * 123-234-1234	CertifyingTitle * VP	Certifying Phone * 123-234-1234
Company Unique ID	Unique ID Authority	Contact Email * rkubin@elex.com	Certifying Email * rkubin@elex.com	
Item Name	Item Number * CHP07505	Item Weight * 45 g	Unit per Length/Area/Volume Each	URL for Additional Information
Effective Date	Version 1.0	Manufacturing Site	Item Comments	
Alternative Recommended Item	Alternative Item Name	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
Manufacturing Process Comments				

* Required Field

 <small>ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES®</small>	Material Composition Declaration		<small>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.</small>	
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IPC Standard 1752.2	IPC Web Site http://www.ipc.org/committeedetail.asp?Committee=2-18	Form Type * Request/Reply	Declaration Type * RoHS, JIG and Manufacturing Information	

Request for Information Lock Request Fields					
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6/12/05 10:32 PM	7000938-4454-01	Technium 4 Processor - 3.2G	4454-01	John Doe	
Respond By Date	Company Name *	Manufacturer Item Name	Manufacturer Item Number	Contact Title	Contact Phone *
Sun Jun 19 00:00:00 PDT 2006	Comps-R-Us	Technium 4 Processor - 3.2G	CHP07505	MCD Manager	214 245 6775
Company Unique ID	Unique ID Authority	Manufacturer Item Version	Manufacturer Effective Date	Contact Email *	
63901	DUNS	1.0		john@comps.com	
Digital Signature of Requester		Manufacturing Site	My ID for the Manufacturer	Requester Comments	
		Japan			
<small>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)</small>			File Type	Destination - URL or Email address	
			XDP	/e2sctran/e2sc/servlet/submitR	

Optional Manufacturing Process Information

Supplier	Duplicate Contact ->			
Response	Contact Name *		Name of person certifying as true and correct *	
2005-06-23	Richard Kubin		Richard Kubin	
Company	Contact Title	Contact Phone *	Certifying Title *	Certifying Phone *
Electronix		123-234-1234	VP	123-234-1234
Company	Contact Email *	Certifying Email *		
	rkubin@elex.com	rkubin@elex.com		
Item Name	Item Weight *	Unit per Length/Area/Volume	URL for Additional Information	
	45 g	Each		
Effective Date	Version	Manufacturing Site	Item Comments	
	1.0			
Alternative Recommended Item	Alternative Item Name	Availability Date	Alternative Part Comments	

Manufacturing Process Information				
Terminal Plating / Grid Array Material	Terminal Base Alloy	J-STD-020 Moisture	Maximum Reflow Temp	Maximum cycles for Reflow
SnAgCu	Alloy 42	3	260 C	3
Manufacturing Process Comments				

* Required Field

Save the fields in this form to a file Import fields from a file into this form Clear all of the fields on this form Lock the fields on this form to prevent changes

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. **Submitter Acceptance**

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 Declaration *
Item does not contain RoHS restricted substances per the definition above except for selected exemptions

Digital Signature of Supplier: **Richard Kubin**
Digitally signed by Richard Kubin
DN: cn=Richard Kubin, o=INEMI, email=rick.kubin@inemi.com
Date: 2005.07.07 16:27:27 -0700

Instructions: Complete all of the required fields on all pages of this form, the Acceptance and Declaration fields above on this page must be completed, then digitally sign the form and submit the form to have it returned to the requester. Submission of this form using methods defined by the requester requires an Internet connection.

RoHS Exemptions

Exemptions: The following exemptions are available for general compliance for RoHS, as applicable, except for the following application specific exemptions. Check the appropriate exemptions for the listed substances on this page then select the exemptions on that part of the form.

- | | |
|---|--|
| <input type="checkbox"/> 1. Mercury in lamps containing not more than 5 mg per lamp
<input type="checkbox"/> 2a. Mercury in halophosphate lamps containing not exceeding 5 mg per lamp
<input type="checkbox"/> 2b. Mercury in triphosphor lamps containing not exceeding 5 mg per lamp
<input type="checkbox"/> 2c. Mercury in triphosphor lamps containing not exceeding 5 mg per lamp
<input type="checkbox"/> 3. Mercury in straight fluorescent lamps for special purposes
<input type="checkbox"/> 4. Mercury in other lamps not specifically mentioned in this list
<input type="checkbox"/> 5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes
<input type="checkbox"/> 6a. Lead as an alloying element in steel containing up to 0.35% lead by weight
<input type="checkbox"/> 6b. Lead as an alloying element in aluminum containing up to 0.4% lead by weight
<input checked="" type="checkbox"/> 6c. Lead as an alloying element in copper containing up to 4% lead by weight
<input type="checkbox"/> 7a. Lead in high melting temperature type solders (i.e. lead based solder alloys containing 85 % by weight or more lead) | <input type="checkbox"/> 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
<input type="checkbox"/> 7c. Lead in electronic ceramic parts (e.g. piezoelectronic devices)
<input type="checkbox"/> 8. Cadmium and its compounds in electrical contacts and cadmium plating except for applications banned under Directive 91/338/EEC amending Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations piezoelectronic devices)
<input type="checkbox"/> 9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators
<input type="checkbox"/> 10. Lead used in compliant pin connector systems
<input type="checkbox"/> 11. Lead as a coating material for a thermal conduction module carrier
<input type="checkbox"/> 12a. Lead in optical and filter glass
<input type="checkbox"/> 12b. Cadmium in optical and filter glass
<input type="checkbox"/> 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
<input checked="" type="checkbox"/> 14. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages |
|---|--|

RoHS Declaration with option for Digital Signature

Save the fields in this form to a file Import fields from a file into this form Clear all of the fields on this form Lock the fields on this form to prevent changes

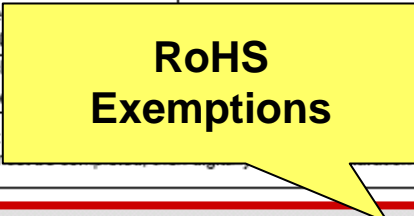
RoHS Material Composition Declaration

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. **Submitter Acceptance**

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

RoHS Declaration: This item does not contain any of the above except for selected exemptions **Digital Signature of Supplier** **Richard Kubin** Digitally signed by Richard Kubin
DN: cn=Richard Kubin, o=INEMI, email=kubin@inemi.com
Date: 2005.07.07 16:27:37 -0700

Instructions: This page must be completed and submitted with this form, the Acceptance and Declaration fields above on and submit the form to have it returned to the requester.



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 listed subpart and substance. If this form has a JIG declaration on the next page then select the exemptions on that part of the form.

- | | |
|---|--|
| <input type="checkbox"/> 1. Mercury in compact fluorescent lamps not exceeding 5 mg per lamp | <input type="checkbox"/> 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 |
| <input type="checkbox"/> 2a. Mercury in straight fluorescent lamps for general purposes not exceeding halophosphate 10 mg | <input type="checkbox"/> 7c. Lead in electronic ceramic parts (e.g. piezoelectronic devices) |
| <input type="checkbox"/> 2b. Mercury in straight fluorescent lamps for general purposes not exceeding triphosphate with normal lifetime 5 mg | <input type="checkbox"/> 8. Cadmium and its compounds in electrical contacts and cadmium plating except for applications banned under Directive 91/338/EEC amending Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations piezoelectronic devices) |
| <input type="checkbox"/> 2c. Mercury in straight fluorescent lamps for general purposes not exceeding triphosphat with long lifetime 8 mg | <input type="checkbox"/> 9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators |
| <input type="checkbox"/> 3. Mercury in straight fluorescent lamps for special purposes | <input type="checkbox"/> 10. Lead used in compliant pin connector systems |
| <input type="checkbox"/> 4. Mercury in other lamps not specifically mentioned in this list | <input type="checkbox"/> 11. Lead as a coating material for a thermal conduction module o-ring |
| <input type="checkbox"/> 5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes | <input type="checkbox"/> 12a. Lead in optical and filter glass |
| <input type="checkbox"/> 6a. Lead as an alloying element in steel containing up to 0.35% lead by weight | <input type="checkbox"/> 12b. Cadmium in optical and filter glass |
| <input type="checkbox"/> 6b. Lead as an alloying element in aluminum containing up to 0.4% lead by weight | <input type="checkbox"/> 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 |
| <input checked="" type="checkbox"/> 6c. Lead as an alloying element in copper containing up to 4% lead by weight | <input checked="" type="checkbox"/> 14. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages |
| <input type="checkbox"/> 7a. Lead in high melting temperature type solders (i.e. lead based solder alloys containing 85 % by weight or more lead) | |

Save the fields in this form to a file Import fields from a file into this form Clear all of the fields on this form Lock the fields on this form to prevent changes

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 limitation 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 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 information provided are solely as defined in a separate written agreement under which Supplier provides or sells such item. Submitter Acceptance

**Import / Export
Form Reset
Lock Supplier Fields**

Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Diphenyl Ethers (PBDE) and quantity limit of 0.01% by mass (100 PPM) of homogeneous material for Cadmium

Declaration above except for selected exemptions

Digital Signature of Supplier: **Richard Kubin**
Digitally signed by Richard Kubin
 DN: cn=Richard Kubin, o=INEMI, email=richard.kubin@inemi.com, date=2005.07.07 16:27:37 -0700

Submission of this form using methods defined by the requester requires an Internet connection.

By submitting this form, the Acceptance and Declaration fields above on this form are locked. To have this form returned to the requester, please contact the requester.

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 listed subpart and substance. If this form has a JIG declaration on the next page then select the exemptions on that part of the form.

- | | |
|---|--|
| <input type="checkbox"/> 1. Mercury in compact fluorescent lamps not exceeding 5 mg per lamp | <input type="checkbox"/> 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 |
| <input type="checkbox"/> 2a. Mercury in straight fluorescent lamps for general purposes not exceeding halophosphate 10 mg | <input type="checkbox"/> 7c. Lead in electronic ceramic parts (e.g. piezoelectronic devices) |
| <input type="checkbox"/> 2b. Mercury in straight fluorescent lamps for general purposes not exceeding triphosphate with normal lifetime 5 mg | <input type="checkbox"/> 8. Cadmium and its compounds in electrical contacts and cadmium plating except for applications banned under Directive 91/338/EEC amending Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations piezoelectronic devices) |
| <input type="checkbox"/> 2c. Mercury in straight fluorescent lamps for general purposes not exceeding triphosphat with long lifetime 8 mg | <input type="checkbox"/> 9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators |
| <input type="checkbox"/> 3. Mercury in straight fluorescent lamps for special purposes | <input type="checkbox"/> 10. Lead used in compliant pin connector systems |
| <input type="checkbox"/> 4. Mercury in other lamps not specifically mentioned in this list | <input type="checkbox"/> 11. Lead as a coating material for a thermal conduction module o-ring |
| <input type="checkbox"/> 5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes | <input type="checkbox"/> 12a. Lead in optical and filter glass |
| <input type="checkbox"/> 6a. Lead as an alloying element in steel containing up to 0.35% lead by weight | <input type="checkbox"/> 12b. Cadmium in optical and filter glass |
| <input type="checkbox"/> 6b. Lead as an alloying element in aluminum containing up to 0.4% lead by weight | <input type="checkbox"/> 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 |
| <input checked="" type="checkbox"/> 6c. Lead as an alloying element in copper containing up to 4% lead by weight | <input checked="" type="checkbox"/> 14. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages |
| <input type="checkbox"/> 7a. Lead in high melting temperature type solders (i.e. lead based solder alloys containing 85 % by weight or more lead) | |

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.

 JIG A autofill - No

 JIG B autofill - No

 JIG A & B autofill - No

JIG Level	Category Name	Threshold Level	Above Threshold Level?	If yes, enter weight or PPM			Description of Use
				Weight	Unit	PPM	
A	Asbestos	Intentionally Added	No				
A	Certain Azo colorants	Intentionally Added	No				
A	Cadmium/Cadmium Compounds *	75 PPM or Intentionally Added	Yes		mg	50	in copper alloy
A	Hexavalent Chromium/Hexavalent Chromium Compounds *	1000 PPM or Intentionally Added	No		mg		
A	Lead/Lead Compounds *	1000 PPM or Intentionally Added	Yes		mg	3,000	in copper alloy
A	Lead/Lead Compounds - PVC Cables and Wires Only	300 PPM	No				
A	Mercury/Mercury Compounds*	1000 PPM or Intentionally Added	No		mg		
A	Ozone Depleting Substances - Class I (CFCs, HBFCs, etc.)	Intentionally Added	No				
A	Ozone Depleting Substances - Class II (HCFCs)	1000 PPM	No				
A	Polybrominated Biphenyls (PBBs) *	1000 PPM or Intentionally Added	No				
A	Polybrominated Diphenylethers (PBDEs) *	1000 PPM or Intentionally Added	No				
A	Polybrominated Biphenyls (PCBs)	Intentionally Added	No				
A	Polychlorinated Naphthalenes (> 3 chlorine atoms)	Intentionally Added	No				
A	Radioactive Substances	Intentionally Added	No				
A	Certain Shortchain Chlorinated Paraffins	Intentionally Added	No				
A	Tributyl Tin (TBT) and Triphenyl Tin (TPT)	Intentionally Added	No				
A	Tributyl Tin Oxide (TBTO)	Intentionally Added	No				
B	Antimony/Antimony Compounds	1000 PPM	No				
B	Arsenic/Arsenic Compounds	1000 PPM	No				
B	Beryllium/Beryllium Compounds	1000 PPM	No				
B	Bismuth/Bismuth Compounds	1000 PPM	No				
B	Brominated Flame Retardants (other than PBBs or PBDEs)	1000 PPM	Yes				ound
B	Nickel (external applications only)	1000 PPM	No				
B	Certain Phthalates	1000 PPM	No		mg		
B	Selenium/Selenium Compounds	1000 PPM	No		mg		
B	Polyvinyl Chloride (PVC)	1000 PPM	No				

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

(RoHS substances at
Homogeneous level)**

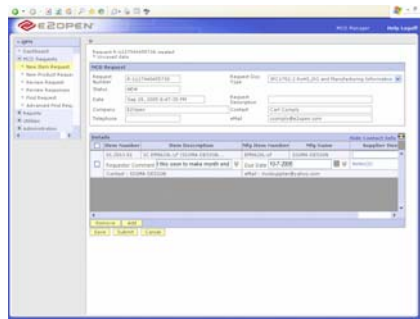
Joint Industry Guide (JIG Homogeneous Materials)

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.

Part/Subpart Name	Homogeneous Material	Weight	Unit of Measure	Level	Substance Category	Substance	CAS	Exempt	Weight	Unit of Measure	Tolerance		PPM
											-	+	
X flip chip	solder	25.35	mg	A	Lead/Lead Compounds	Lead	7439-92-1	14	9.3795	mg			
X			mg	B	Antimony/Antimony Comp	Antimony (metallic)	7440-36-0		0.0155	mg			
X mold compound	plastic epoxy	452.55	mg	B	Brominated Flame Retardan	Aliphatic/alicyclic bromine	58965-66-5		0.0785	mg			
X heat spreader	copper alloy	375	mg	A	Lead/Lead Compounds	Lead	7439-92-1	6c	9.375	mg			
X			mg	B	Beryllium/Beryllium Comp	Beryllium	7440-41-7		2.125	mg			
Add New Part/Subpart		Add New Substance											

**Homogeneous
Material Declaration
JIG A & B
And Other**



Auto-generate form and send to Supplier



Material Composition Declaration					
Requester Name	Requester Address	Requester City	Requester State	Requester Zip	Requester Country
IPC	10000 W. 10th Ave.	Denver, CO	CO	80202	USA
Supplier Information					
Supplier Name	Supplier Address	Supplier City	Supplier State	Supplier Zip	Supplier Country
IPC	10000 W. 10th Ave.	Denver, CO	CO	80202	USA
Manufacturing Process Information					
Part Name	Part Description	Part Quantity	Part Unit	Part Material	Part Finish
IPC	IPC	1	EA	IPC	IPC

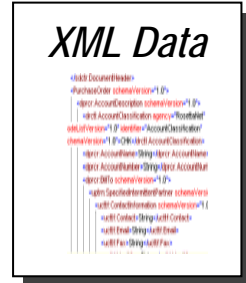
Supplier completes Form (manual or data import) and submits back to Requestor



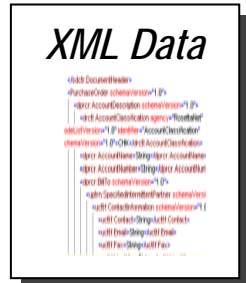
XML data is auto-extracted, analyzed and loaded into Compliance database



Part Name	Part Description	Part Quantity	Part Unit	Part Material	Part Finish
IPC	IPC	1	EA	IPC	IPC



Material Composition Declaration					
Requester Name	Requester Address	Requester City	Requester State	Requester Zip	Requester Country
IPC	10000 W. 10th Ave.	Denver, CO	CO	80202	USA
Supplier Information					
Supplier Name	Supplier Address	Supplier City	Supplier State	Supplier Zip	Supplier Country
IPC	10000 W. 10th Ave.	Denver, CO	CO	80202	USA
Manufacturing Process Information					
Part Name	Part Description	Part Quantity	Part Unit	Part Material	Part Finish
IPC	IPC	1	EA	IPC	IPC



- **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**
 - September Draft for Ballot currently available
 - Final Draft for Ballot expected in December

- Challenges & Requirements
- Standards Activities
- IPC-1752 Overview
- **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:**

Richard Kubin

Vice President, E2open

Phone: +1-650-381-3977

Email: rkubin@e2open.com

Website: www.e2open.com