IPC-1752 Class 5/6 Supplier Training

Revision 10, July 2012

Topics

- Purpose of this training
- IPC-1752 Overview
- Attributes of a high quality form submission
- How to fill out an IPC-1752 Class 5/6 form
- Supplier FAQ
- Most Common Mistakes

Purpose of this Training

- Supplier Representatives:
  - Rationale for replacing Intel SDOC with IPC-1752
  - Education on Intel's IPC-1752 form expectations

Our Expectations for a High Quality Form Submission

- Form must be *locked* and *digitally signed* (in that order) prior to upload in the portal
- 'Form Type' set to 'Distribute' on Page 1. This option allows for a multiple use, non-customer specific response.
- 'Declaration Type' set to either default 'Simplified' or 'Detailed' legal language on Page 2. Other type declarations will not be accepted.
- RoHS Declaration, on Page 2, should be appropriate and must include and match any exemption listed.
- For full Material disclosure on Page 3, supplier must declare BFR, CFR and/or PVC content for any halogenated materials used even if the homogenous material is proprietary. Use the CAS numbers listed in the JIG 101Appendix. For example, BFR: 135229-48-0, for PVC: 31780-26-4, for Br: 7726-95-6, for Cl: 7782-50-5.

IPC-1752 Overview: Standards Background

About IPC:

- IPC[1] is the "Association Connecting Electronic Industries"
- IPC is mostly formed by US companies (76% North America)

About IPC-1752 standard:

- Industry Standard for the exchange of materials declaration data
- Available publicly at http://members.ipc.org/committee/drafts/2-18_d_MaterialsDeclarationRequest.asp (English, Japanese, Chinese)

1. Changed from Interconnecting and Packaging Electronic Circuits to IPC in 1999

IPC-1752 Overview: Form Classes

- PDF form backed by IPC-1752 XML schema
- Note: In lieu of IPC-1752 Class 3/4 forms, Intel now accepts IEC 62474 material content reports.

Intel accepts two different classes of the IPC-1752 form from Intel Component Suppliers:

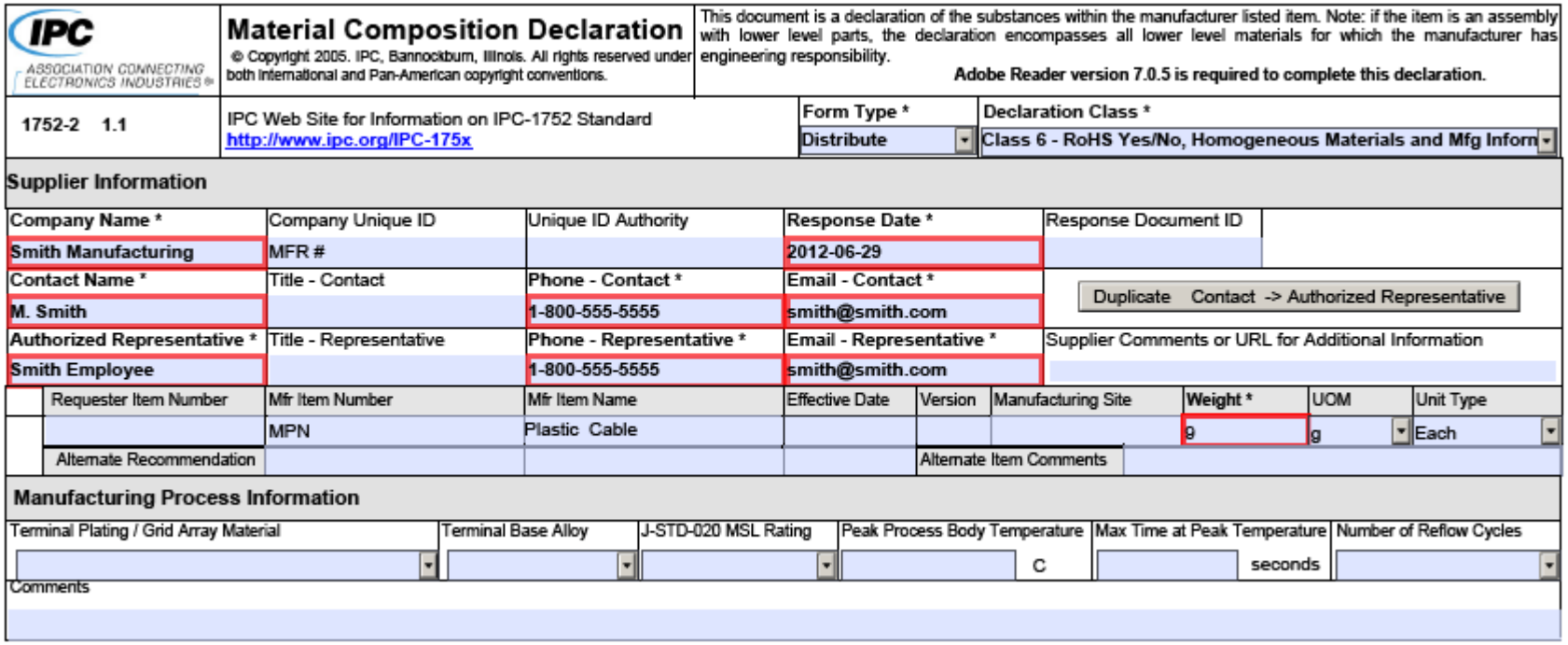
- Class 5: Material declaration of all substances present in each homogeneous material
- Class 6: Class 5 + Mfg Process Info

IPC-1752 Overview: Form Classes and Intel Supplier Expectations

Class Intel supplier expectations	RoHS Declaration (SDOC equivalent)	Mfg Process Info	Jig A&B substances, location and mass	Material declaration of all substances present in each homogeneous material
5 Articles used to assemble Integrated Circuits, eg. Integrated Heat Spreaders and Thermal Solutions	√		√	√
6 Integrated Circuits Sub Contracted by Intel and articles used to assemble ICs. eg. Passive components	√	√	√	√

How to Fill Out IPC-1752-2 v1.1 Class 5/6 Form

Page 1 Requirements in RED



IPC — ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES

Material Composition Declaration

This document is a declaration of the substances within the manufacturer listed item. Note: if the item is an assembly with lower level parts, the declaration encompasses all lower level materials for which the manufacturer has engineering responsibility.

Adobe Reader version 7.0.5 is required to complete this declaration.

1752-2 1.1

IPC Web Site for Information on IPC-1752 Standard
http://www.ipc.org/IPC-175x

Form Type *: Distribute

Declaration Class *: Class 6 - RoHS Yes/No, Homogeneous Materials and Mfg Inform

Supplier Information

Company Name *	Company Unique ID	Unique ID Authority	Response Date *	Response Document ID
Smith Manufacturing	MFR #		2012-06-29	

Contact Name *	Title - Contact	Phone - Contact *	Email - Contact *
M. Smith		1-800-555-5555	smith@smith.com

Duplicate Contact -> Authorized Representative

Authorized Representative *	Title - Representative	Phone - Representative *	Email - Representative *	Supplier Comments or URL for Additional Information
Smith Employee		1-800-555-5555	smith@smith.com	

Requester Item Number	Mfr Item Number	Mfr Item Name	Effective Date	Version	Manufacturing Site	Weight *	UOM	Unit Type
	MPN	Plastic Cable				9	g	Each

Alternate Recommendation | Alternate Item Comments

Manufacturing Process Information

Terminal Plating / Grid Array Material	Terminal Base Alloy	J-STD-020 MSL Rating	Peak Process Body Temperature	Max Time at Peak Temperature	Number of Reflow Cycles
			C	seconds	

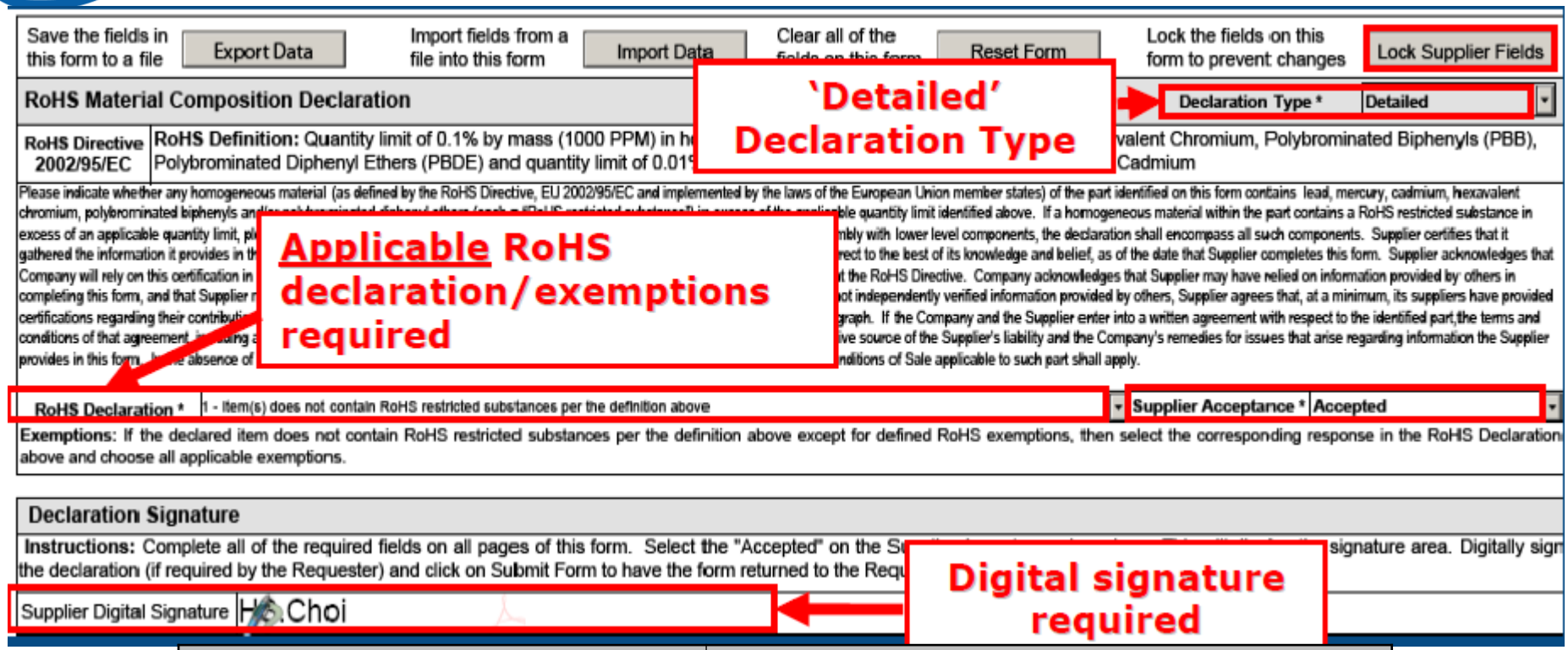
Comments

Key IPC-1752 Field Name	Intel Requirement
Form Type *	Distribute
Declaration Class *	See Form Classes Table
Company Name *	Fully Company Name
Company Unique ID	SPEED Manufacturer Number
Mfr Item Number	MPN (manufacturer part number)
Weight *	Total weight of part from supplier

Page 1 Requirements – Continued

- EU RoHS has updated the exemption numbering system, which varies in some cases from the exemption options on this form. Please provide the updated numbering, if applicable, in the Comments field on Page 1 of the form.
- Additional guidance on exemption number mapping can be found in the Best Known Methods (BKM) section of the EC Training website.

Page 2 Requirements in RED



Key IPC-1752 Field Name	Intel Requirement
Declaration Type *	Detailed or Simplified
RoHS Declaration *	EU RoHS Declaration applicable to product; EU RoHS exemptions required if applicable to product
Supplier Acceptance *	Accepted
Lock Supplier Fields	Locked
Supplier Digital Signature	Signed

NOTE : Form must be LOCKED then SIGNED as the last two steps prior to submission .

Page 3 Requirements in RED

Homogeneous Material Composition Declaration for Electronic Products

All BFRs, CFRs, and PVC must be declared according to the JIG 101 list.

See Notes on Proprietary Substances

See Example Weight and PPM Calculations

ances must be declared. [1] indicate the subpart in which the substance is located. [2] provide a description of the ial.

ester or Supplier) [B] select or RoHS exemption, if applicabl PP ce values are expected to co erw

Line Functions: +I Inserts a New Item/Subitem +M Inserts a new Material +C Inserts a new Substance Category +S Inserts a new Substance - Deletes the element line

	Item/SubItem Name		Homogeneous Material	Weight	Unit of Measure		Level	Substance Category		Substance	CAS	Exempt	Weight	Unit of Measure	Tolerance -	Tolerance +	PPM
+I -I	Polymer	+M -M	Polymer	0.355	mg	+C -C	Supplie	Resin	+S -S	Polymer A	9999-9-9		0.2	mg			200,00
						+C -C	Supplie	Resin	+S -S	Proprietary Polymer			0.1	mg			100,00
						+C -C	Supplie	Silicone	+S -S	Proprietary Elastomer			0.054894	mg			54,894
						+C -C	Supplie	Free Halogens	+S -S	Elemental Halogens			0.000106	mg			106
+I -I	Filler	+M -M	Quartz	0.6	mg	+C -C	Supplie	Quartz	+S -S	Quartz	7777-x-x		0.5	mg			500,00
		+M -M	Silica	0.145	mg	+C -C	Supplie	Silica	+S -S	Silica Type B	8888-x-x		0.145	mg			145,00

Key IPC-1752 Field Name	Intel Requirement
Substance	Substance Name: Element, molecular symbol, IUPAC name. Public MSDS, JIG-101, and elemental halogens must be declared for full material disclosure
CAS	CAS Registry number required for all non-proprietary substances CAS field should be left blank for all proprietary substances
Weight	Substance weights in right-side column must sum to the Homogeneous Material weight provided in left-side column
PPM	PPM concentrations must sum to 1,000,000 for each homogeneous material

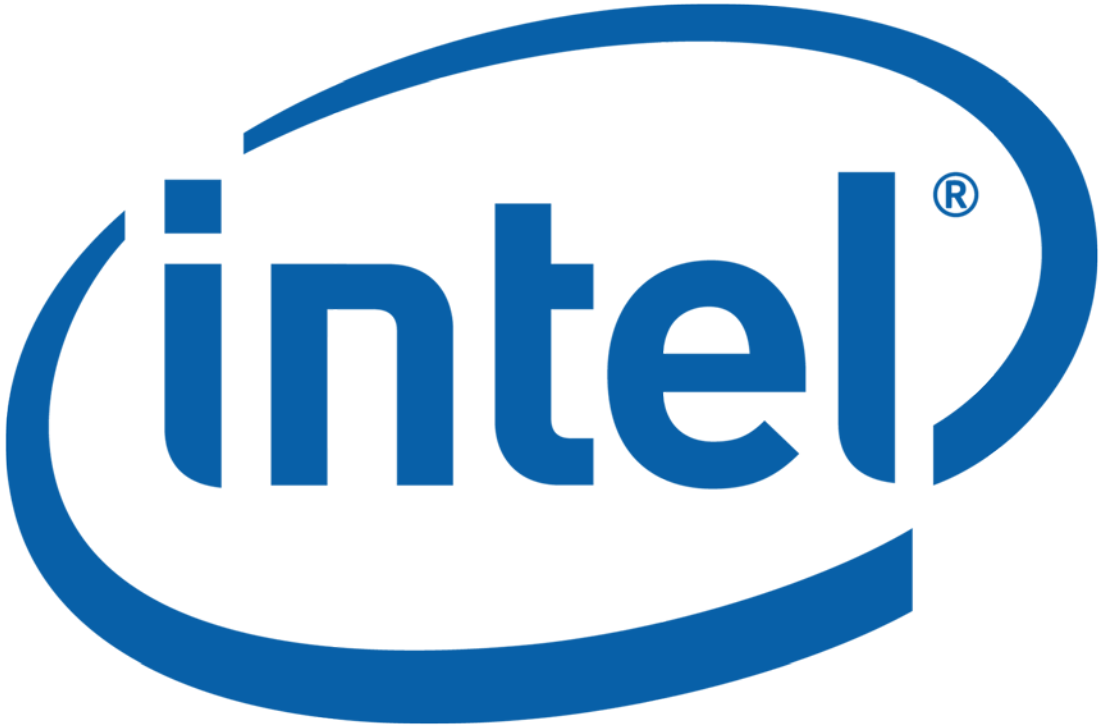
NOTE: Nickel is not considered an external application under JIG 101 list, however CAS7440-02 must be declared as such due to structure limitations of IPC1752 XML schema.

Declaring Proprietary Substances on Class 5/6

- All JIG 101 substances and BFRs/CFRs must be declared in proprietary materials. Intel recommends suppliers itemize proprietary substances and JIG 101, BFRs/CFRs substances separately (See example)
- Proprietary materials may be identified as "Proprietary Resin blend", "Proprietary Epoxy Hardener," etc. to identify the material and property
- To demonstrate that you understand the requirements in declaring JIG substances, Intel suggests you add this statement to the *Alternate Item Comments* field on Page 1 of the IPC:

  "Substances must be listed if the substance is declared or prohibited by JIG 101."

- IMPORTANT: IPC-1752 Class 5/6 forms will be rejected if JIG 101 substances are not declared for suspect materials.


intel

Example of Weight and PPM Calculations

$$\text{Substance Weight} = \frac{\text{Substance PPM}}{1{,}000{,}000} * (\text{Homogeneous Material Weight})$$

NOTE: Substance weight and homogeneous material weight must have same unit of measure (UoM).

Example of Itemized Proprietary Substances on Class 5/6

	Item/SubItem Name		Homogeneous Material	Weight	Unit of Measure		Level	Substance Category		Substance	CAS	Exempt	Weight	Unit of Measure	Tolerance -	Tolerance +	PPM
+I -I	Substrate	+M -M	Substrate	1.6735	g	+C -C	Supplie		+S -S	Copper	7440-50-8		712.014	mg			
						+C -C	Supplie		+S -S	Nickel	7440-02-0		14.6334	mg			
						+C -C	Supplie		+S -S	Gold	7440-57-5		14.6334	mg			
						+C -C	Supplie		+S -S	Silica Fibers	65997-17-3		649.850	mg			
						+C -C	Supplie		+S -S	Proprietary Epoxy			0.1573	mg			
						+C -C	Supplie		+S -S	Proprietary Dielectric			154.673	mg			
						+C -C	Supplie		+S -S	Proprietary Solder Re			27.536	mg			
						+C -C	B	Brominated Flame F	+S -S	Other Brominated Fla	-		100	mg			

Proprietary substances itemized separately from non-BFR's.

NOTE: Brominated Flame Retardants (BFRs) and Chlorinated Flame Retardants (CFRs) are also itemized separately as JIG B substances (see Level column) to directly communicate that this part is halogenated.

Supplier FAQ

1. In what format should IPC-1752's be submitted?

IPC-1752's must be submitted to Intel's Supplier Portal in the industry standard PDF format backed by XML schema.

2. What versions of the IPC-1752 schema can I submit?

IPC-1752 documents must be submitted in PDF format. The following schemas are accepted:
IPC-1752-2 v1.02
IPC-1752-2 v1.1

3. What test lab should suppliers use?

Intel does not endorse a specific test lab, though we do require that the lab is ISO/IEC 17025:2005 certified. The lab may be internal or external to the supplier.

4. Do homogeneous materials have to be tested for all substances? (e.g. metals in ceramics)

Suppliers are not required to test homogeneous materials for substances they know are NOT in that material by design. However, Intel encourages suppliers to maintain baseline test data for all homogeneous materials on a wide range of substances to cover occasional customer audit inquiries.

5. What test methods should suppliers use?

Suppliers should use proven test methods from IEC, EPA, ASTM, or other standards organizations. Examples of appropriate halogen test methods include EPA SW-846 5050/9056 and DIN EN 14582 (method A).

Supplier FAQ (continued)

6. What list of substances should suppliers test for?

Suppliers should test for substances currently listed under the Joint Industry Guide (JIG) 101list. Suppliers must also ensure elemental bromine and chlorine, red phosphorous, antimony trioxide, and any other known substance in the homogeneous material (e.g. tin, silicon dioxide, barium titanate) are declared in the test report.

The latest edition of the JIG 101 list can be found at the Consumer Electronics Association™ (CEA) website: http://www.ce.org/jig

7. What minimum detection limits (MDL's) should be used?

Intel does not usually specify detection limits for lab analysis, and we recognize the MDL may depend on the sample size and test method being used. There are two substances for which Intel does specify testing MDL's: cadmium (Cd) and hexavalent chromium (Cr6). Cd and Cr6 are par of IEEE 1680 (EPEAT) optional criteria, and Intel requires that supplier MDL's are ≤ 50 ppm Cd and ≤ 500 ppm Cr6 in homogeneous materials.

8. Do proprietary substances/materials have to be declared?

Proprietary substances/materials do not have to be declared on the IPC form unless they contain JIG materials. Suppliers are requested to label such substances/materials as 'proprietary' and omit the CAS number from the form (e.g. Proprietary nickel compound, Proprietary solder mask, etc.). We also request that the following statement be added to page 1 of the form in the "Supplier Comments or URL for Additional Information" cell:

"Substances must be listed if substance disclosure is required by the latest revision of JIG-101"

Supplier FAQ (continued)

9. How do I determine the total product weight for page 1 of the IPC-1752?

Intel prefers the total product weight on page 1 to be based on worst case (highest) weight of actual samples. However, it is acceptable to estimate or model the total product weight based on similar part sizes.

10. What manufacturing process information must be provided for a Class 6 report?

Manufacturing process information should be provided on page 1 of the IPC-1752 form. This information is required for Class 6 reports. Minimum manufacturing process info includes:

- Moisture sensitivity level (MSL)
- Peak reflow temperature
- Second Level Interconnect material ('Terminal plating' field)

Manufacturing Process Information

Terminal Plating / Grid Array Material	Terminal Base Alloy	J-STD-020 MSL Rating	Peak Process Body Temperature	Max Time at Peak Temperature	Number of Reflow Cycles
Tin/Silver/Copper (Sn/Ag/Cu)		3	260 C	75 seconds	1

Most Common Mistakes

Here are the most common mistakes that we see in Supplier IPC 1752 forms and their respective solutions.

Problem	Solution
Weight values are not listed where they need to be.	The appropriate weight value is added in the respective fields. This includes the Weight* field on Page 1 and the Weight columns on Pages 3+ for all Homogeneous Materials and Substances that are declared.
CAS# and Substance name is missing.	At least the CAS# or the Substance name must be given for each substance which is being declared. It is ideal to provide both.
Document has not been locked.	The document must be locked prior to submittal.
Document has not been signed.	The document must be signed prior to submittal.
There are blank lines listed on Pages 3+ .	Delete the unnecessary blank lines by pressing the -| button on the left of the line.
The given CAS # does not match the given substance name.	Verify all CAS #s and respective substances names prior to submittal to ensure accuracy.
The same form is modified and used multiple times as a template.	The form can sometimes carry "ghost" substances which translate into our system. Please start with a blank form each time.