Death, Taxes, and Environmental Compliance: Things you can count on

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Abstract
The European Union passed two directives in 2003 addressing the increasing amount of waste from electric and electronic equipment: (1) Directives 2002/96/EC[i] – Waste Electrical and Electronic Equipment (WEEE) and (2) Directive 2002/95/EC[ii] – Restriction on the use of certain Hazardous Substances in electrical and electronic equipment (RoHS).

The RoHS Directive focuses on restricting the proliferation of six hazardous substances in any product which plugs into an electrical outlet or uses a battery. Member States shall ensure that, from 1 July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).[iii]

The cost of not complying with the RoHS directive, or any environmental directive, is enormous. The value/cost ratio of proper documentation is immeasurable.

There are several papers, articles, and other publications on how to make the product compliant or on the steps needed to set-up a compliance team. Companies will sell you their component compliance database; hold your hand through a consulting session on how to create the compliance team; talk to you about how to make the products in the company compliant. These are all great first steps to meeting the directive. But what happens when a product is selected for market analysis, and is actually audited for the six banned substances?

This paper provides direction on documenting the product's readiness to meet the RoHS directive as part of a self-declaration strategy.

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Introduction & RoHS Background

Compliance with the RoHS directive is much more than making products "lead-free." Lead is one of the six substances banned by the directive. The other five substances: mercury, cadmium, hexavalent chromium, polybrominated ethers, and polybrominated diphenyl ethers are also banned to limits stated in Chart 1.[iv]

Chart 1 - Maximum Concentration Levels for Restricted substances

Substance	Limit		Substance	Limit
Lead	Up to 0.1% by weight of Homogenous Substance		Cadmium	Up to 0.01% by weight of Homogenous Substance
Mercury	Up to 0.1% by weight of Homogenous Substance		PBB	Up to 0.1% by weight of Homogenous Substance
Hexavalent Chromium	Up to 0.1% by weight of Homogenous Substance		PBDE	Up to 0.1% by weight of Homogenous Substance

The RoHS directive has caused panic in the electrical and electronic equipment industries, as well as its supply chains. The Directive leaves the implementation and enforcement of the legislation to the Member States. The pressure of compliance has not come from the EU itself, but from a producer putting pressure on its supply chain. With no single direction on how to comply with the EU's directive or what is needed to prove compliance, it has been up to companies taking the onus of creating an initial compliance strategy; and other companies following suit. The United Kingdom's Department of Trade & Industry (UK DTI) has published two guides: WEEE Regulations Government Guidance Notes, July 2004[v] and RoHS Regulations Government Guidance Notes, August 2005[vi].

One case of such pressure from the producers is unique part numbers for electrical components. Several companies resisted changing the part number for RoHS-compliant products. One company on the forefront of requiring unique part numbers was International Business Machines (IBM). Most suppliers were hesitant to comply with the requirement, citing it was too large a work load to create unique part numbers for every RoHS-compliant part.[vii]

Most suppliers stated they would be able to track compliant product through date codes. Unfortunately, most databases – be it tracking, ordering, or inventory system – are unable to track parts by date code. Once this was understood by the component suppliers most began changing part numbers. In April 2005, iNEMI[viii] published a position statement that members want unique part numbers for RoHS-compliant components.

A case of the supply chain creating its own compliance standards is the creation of certificates of compliance. This started due to component suppliers being inundated with requests for materials declaration sheets from various customers. Without a clear standard initially for the format, there was not an automatic way to fulfill all the requests. Companies such as Texas Instruments[ix] and National Semiconductor[x] have certificates of compliance and materials declaration sheets available for download from their Environmental Policy[xi] web pages.

For materials declaration, the IPC has begun the initial stages of developing a standard for reporting materials compositions. The IPC-175x series is scheduled for publication in late 2005. The form is based in Adobe Acrobat and available for download from the IPC web site.

The RoHS Directive uses self-declaration and market analysis to ensure compliance with the directive. Many directives within the EU are self-declaration directives. Self-declaration means a company is able to state they are compliant with a directive without having a legal body or third-party certify they are compliant. If the company has the resources available, self-declaration is a viable option. For small to mid-sized companies, or companies who wish to be more focused in their business, third-party testing is a more classical approach. The CE Mark is an example of a directive which may be met by using self-declaration, or by utilizing a third-party testing facility.

The RoHS Directive only requires products are compliant – not that the producer provide documentation of compliance. Only in the event of market analysis, or a product audit, is documentation required to prove the product is compliant. The RoHS is a directive which utilized "self-declaration."

Papers, articles, and guides have been published to address various steps a company should take to become "RoHS-Ready." In the EU's view, it is the product which will be selected for a market analysis, not the company. A company's readiness is not directly reflective of a product's readiness. If a product is shipped into an EU Member State after 1 July 2006, it is assumed to comply with the RoHS directive. In other words, a product is presumed to comply until the member state is otherwise informed. In the UK, *Envirowise* has published two guides on behalf of the DTI and DEFRA (Department for Environment Food and Rural Affairs). Department of Trade and Industry has provided a direction for compliance through their publication of two guides[xii] available on their web site. The UK's direction on complying with the RoHS Directive is one of "due diligence." A producer must state that they have done everything in their power to meet the directive. One of the ways to support a "due diligence" defense is to use auditable documentation. A technical compliance file or report is such a document.[xiii]

Several exemptions have been granted based on technical need basis. Some have expiration dates, other are permanent exemptions. One example of a technical exemption which has an expiration date is the use of lead solder for servers, storage and storage array systems (exemption granted until 2010).[xiv] An example of a current permanent exemption is hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.[xv]

Exemptions have the potential of being reviewed every four years by the Technical Adaptation Committee within the EU. All current exemptions are listed in the Annex of the RoHS directive. Exemptions are also explained in DTI Publication on RoHS Regulations, July 2004.

Four Misconceptions that Could Cripple your Company

Compliance with the RoHS Directive is confusing and can be hindered by interpretations and assumptions. There are some assumptions that could cripple your company; in both the business and marketing arenas. This paper will cover four assumptions about RoHS compliance.

Misconception 1: Company is not Affected

Many suppliers and manufacturers think they are not affected by the EU's RoHS legislation because they do not sell products directly in the EU market. They may not be affected by RoHS directly – but what happens when a customer needs compliant product?

Even if no customers need RoHS compliant products now, the company should be aware there are several other legislative bodies enacting environmental restrictions around the world. As more and more communities, countries, and legislative bodies are working on implementing environmental directives restricting and banning substances, being ready for RoHS would allow an easier transition to meeting legislation which directly affects the company.

Among the world communities working on implementing environmental legislations or directives are: China, Taiwan, Thailand, and several states in the USA. China is currently looking to emulate the EU's RoHS directive, but it is expected to have tighter restrictions. Starting as early as 2007, thirteen states in the USA are planning on implementing environmental restriction legislation and/or recycling laws; California, Massachusetts, and Maine have already set implementation dates.

Misconception 2: Spreadsheets = Compliance Documentation

Many companies are completing spreadsheets with various columns listing material amounts for a component or product. The company then believes this spreadsheet is proof that the product or part is compliant. Simply filling in a spreadsheet will not prove "due diligence" in complying with the directive.

A spreadsheet can be manipulated, falsified, and changed by anyone with access to an editing program. A spreadsheet is not a stand-alone auditable document. A spreadsheet may work in conjunction with other documentation.

If the spreadsheet is accompanied by other supporting documents – such as testing reports, certificates of compliance, roadmaps, and process records – then due diligence may be proved. Therefore, a spreadsheet is only part of a compliance strategy. All documents mentioned can be considered part of a technical compliance file (TCF).

Several industry standards organizations are working on introducing standardized reporting methods. For instance, IPC is working on IPC 1751 & 1752 which give direction on a standard format for reporting material composition by using a materials declaration sheet, or MDS. JEDEC, EIA, and JGPSSI published in April 2005 the Joint Industry Guide 101 Material Composition Declaration for Electronics Products; commonly referred to as JIG A&B.[xvi]

Misconception 3: Company Compliance Team = Compliance
In the EU's view, it is the product which will be selected for a market analysis or product audit, not the company. Therefore, a company's readiness is not directly reflective of a product's readiness. The compliance team may assist in proving due diligence actions, but it will not pass as a guarantee of compliance on its own. Be aware, if a Member state finds a product to be non-compliant, it has the ability to make an example of the company.

"As far as RoHS is concerned, a company must demonstrate that it has taken all reasonable steps to comply with the Directive's requirements, if the company feels it has done that (but the national enforcement body disagrees), then it would be up to the court to decide if that really was the case or not."[xvii]

If the RoHS Readiness team is fully implemented, they will be responsible for documenting the compliance of each product. They will also be responsible for documenting a procedure to follow for proving products are compliant. For a large corporation or company, formation of a team will not be an issue. They have the resources available to provide people power to the project. People can be reassigned or take on additional tasks.

For a small or mid-sized company, the task of forming a team may be overwhelming; it may also not be practical. Companies offer several RoHS-related services; from guidance on creating a team, assisting in creating roadmaps and procedures, to creating documentation for a specific product.

Having TCF for a product is an insurance policy. The documentation in the TCF is easily accessible and available for authorities if a product selected for market analysis.

Misconception 4: Definition of "Homogenous Substance"
Many companies do not realize the definition of homogenous material has been updated. Many still think the definition means the total amount in the final product. The European Commission's publication from May 2005, "Frequently Asked Questions … on … RoHS & … WEEE, addresses the definition of homogenous substance.

Homogeneous material means a material that can not be mechanically disjointed into different materials.

Definitions:
The term "homogenous" means "of uniform composition throughout." Examples of "homogenous materials" are individual types of: plastics, ceramics, glass, metals, alloys, paper, board, resins, coatings.

The term "mechanically disjoints" means that the material can, in principle, be separated by mechanical actions such as: unscrewing, cutting, crushing, grinding and abrasive processes.[xviii]

For clarification, the UK's DTI included the examples below in its draft guidance.

- … A plastic cover (for example) would be a 'homogenous material' if it consisted exclusively of one type of plastic what was not coated with or had attached to it (or inside it) any kinds of materials. In this case the maximum concentration values of the RoHS Regulations would apply to the plastic. [xix]

- … An electrical cable that consisted of metal wires surrounded by non-metallic insulation materials would be an example of something that is not 'homogenous material' because a mechanical process would separate the different materials. In this case the maximum concentration values of the RoHS Regulations would apply to each of the separated materials individually.[xx]

- A semi-conductor package (as a final example) would contain many homogenous materials, which include the plastic moulding material, the tin-electroplating coatings on the lead frame, the lead frame alloy, and the gold-bond wires. In this case the maximum concentration values of the RoHS Regulations would apply to each of the separated materials individually.[xxi]

Creating Compliance Documentation: Easier Said than Done

The RoHS directive uses a self-declaration process for monitoring and enforcing compliance. The "hidden" portion of this process is the market analysis, or product audit. When a product is selected for market analysis or audited for compliance, the producer must provide proof the product meets the RoHS directive, or that the company used "due diligence" in meeting the directive. There are ways to do this internally, or through a third party.

There is not an agency or third-party which is or will be recognized by the EU or Member states which will provide a "RoHS-Ready" or "RoHS stamp of approval". There is also no certification available for a producer to show it has done "due diligence" in complying with the directive.

To thoroughly document a product, a technical compliance file (TCF) can be created. It should be maintained for a minimum of four years. At a minimum, the TCF should include the following for each part of the product: materials declaration sheets, certificates of compliance, test reports, and the procedure followed to determine if testing is required.[xxii]

To help in mitigating the risk of self-declaration, several smaller companies are utilizing third-party documentation. This has been seen as a viable solution for other self-declaration directives, such as the CE mark. This is a solid option for companies who are unable to dedicate people to create and maintain the compliance department and necessary documentation.

Information on mitigating the risk of self-declaration with the use of third-party documentation has been seen as a viable solution for smaller companies who are unable to create a compliance department.

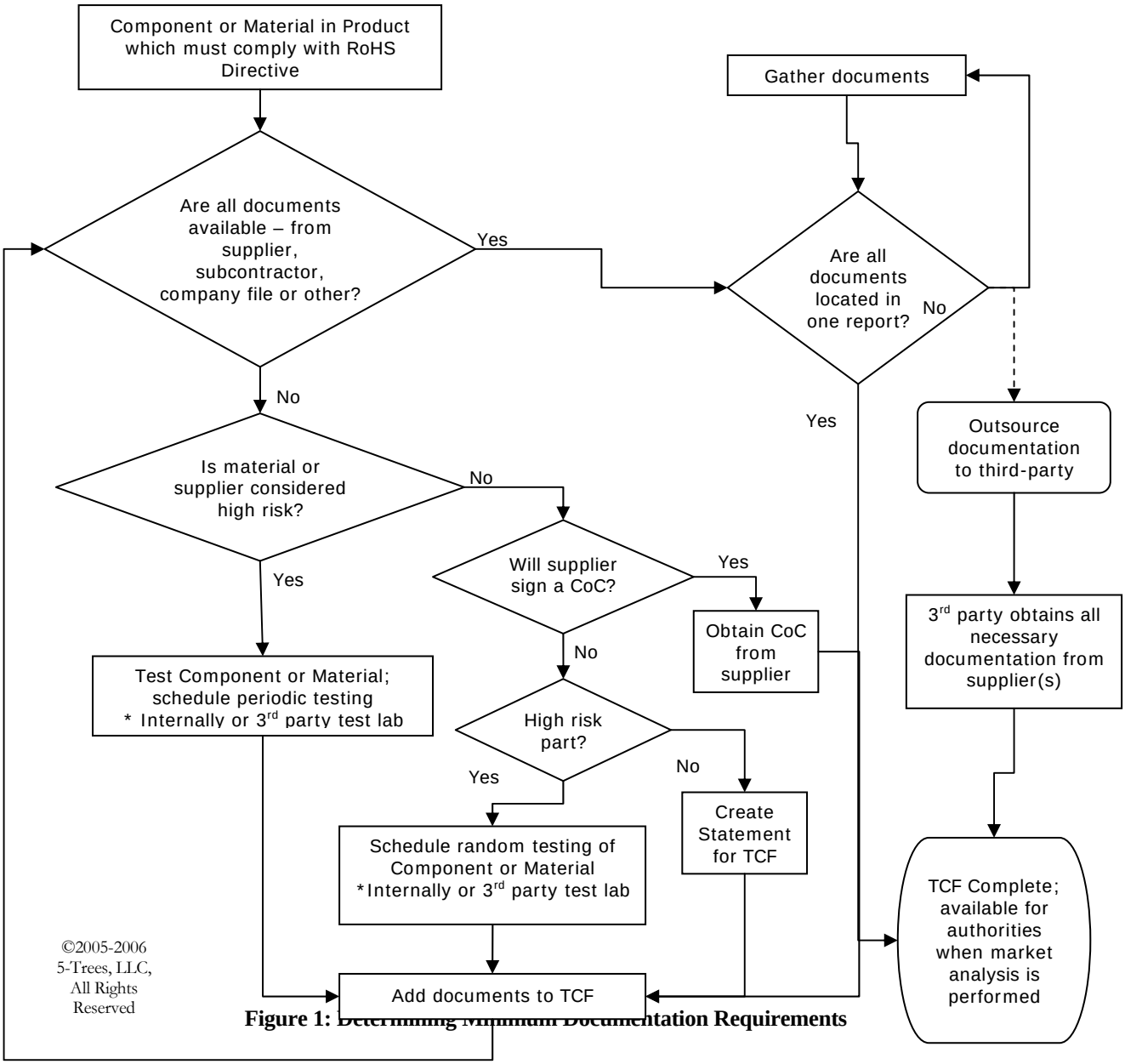


Figure 1: Determining Minimum Documentation Requirements

Beyond RoHS (Summary)

The RoHS directive has started a cascade of environmental legislations around the world. Whether you are part of the supply chain or a product manufacturer, you will be affected by the EU's RoHS directive; or one of the several other legislative communities which are enacting similar directives.

To date, the RoHS Directive only requires products are compliant. By shipping product into an EU member state after 1 July 2006, it is assumed to comply. At this time, the only direction for the producer on what is needed if/when their product is selected for market analysis is coming from the UK's DTI. Proof of "due diligence" is being viewed as what an enforcement body within a member state will be looking for when enforcing the RoHS Directive. Other member states are expected to follow similar enforcement initiatives. As of now, anything can happen with enforcement of RoHS starting on 1 July 2006.

There are three steps to a policy of "due diligence:" education, procedures, and TCF. Education is required of all employees – from executive management to manufacturing operators. Company procedures need to be updated to include designing for environmental directives – from the design procedures to the quality assurance procedures. With these first two steps in place, creating the technical compliance files (TCF) should be a natural by-product of the due "diligence approach".

The cost of such preparation and documentation is greatly out weighed by the potential cost of failing a product audit. Sony Play Station One® shipments to the Netherlands in 2001 were halted due to non-compliance with an environmental directive. Though this was prior to the RoHS directive implementation, it is an example of a product failing an audit and the resulting costs. Sony was held responsible for reworking all systems in the shipment; replacing all cables which contained cadmium. Sony Corporation estimated an impact on sales of approximately EUR 110 million and on operating profit of approximately EUR 52 million including costs of rework. [xxiii] This equates to approximately USD 132 million and USD 62.4 million, respectively.

Do not fall victim to being unprepared for a product audit. It is predicted a Member State will make an example of a company whose product fails to meet the RoHS directive.[xxiv] Start documenting products now to be ready for the 1-July-2006 deadline for the EU's RoHS Directive.

Eventually, any electrical or electronic equipment sold in the world will need to comply with an environmental directive. Why not start documenting compliance to the existing directives now and have the competitive advantage once it is implemented in your market?

List of Figures & Tables

List of Terms & Abbreviations

BoM, BOM. Bill of Materials. A listing of all components which make a product.
Cd. Cadmium; one of the six restricted substances in the RoHS Directive.
Certificate of Compliance. Document showing the product or part meets the requirement of stated legislation or directive.
Cr_6, Hex-Chrome. Hexavalent Chromium; one of the six restricted substances in the RoHS Directive.
DEFRA. Department for Environment Food and Rural Affairs
DTI. Department of Trade and Industry in the United Kingdom.
Due Diligence. Reasonable steps taken by the producer to meet the directive or legislation. Supported by TCF's.
Green. No legal definition; definitions differ between companies. Some definitions include: no use of any hazardous or restricted materials, no use of materials listed in JIG-101 A or B, or RoHS-compliant plus no use of brominated flame retardants or other hazardous materials. Not equivalent to RoHS-compliant, Lead-free, or Pb-Free.
Hg. Mercury; one of the six restricted substances in the RoHS Directive.
Homogeneous Material. Of uniform composition throughout; material cannot be mechanically disjointed into different materials.[xxv]
JIG. Joint Industry Guide. **JIG-101 (A&B)**. Acronym: Joint Industry Guide 101: Material Composition Declaration for electronic Products. Commonly referred to as 'JIG A&B.'
Lead-free / Pb-free. Product does not contain lead; not equivalent to RoHS-compliant or Green.
Materials Declaration Sheet (MDS). A standard form used for reporting banned/restricted/reportable substances in a product.
Maximum Concentration Values (MCV). The greatest amount of material allowed in the restricted substances as a percentage of weight.
Mechanically disjoints. The material can, in principle, be separated by mechanical actions such as: unscrewing, cutting, crushing, grinding and abrasive processes. [xxvi]
PBB. PolyBrominated Biphenyl; one of the six restricted substances in the RoHS Directive.
PBDE. PolyBrominated Diphenyl Ether; one of the six restricted substances in the RoHS Directive.
Pb. Lead; one of the six restricted substances in the RoHS Directive.
Producer. The company or distributor selling a product to the end consumer.
Product. A product which can be sorted into one of the 10 categories listed in Annex II of Directive 2002/96-EC (WEEE).
RoHS. EU Directive 2002/95/EC: **R**estriction on the use **o**f certain **h**azardous **s**ubstances in electrical and electronic equipment. 6 Banned Substances: lead, mercury, cadmium, hexavalent chromium, PBBs, and PBDEs. Sister directive to WEEE.
RoHS Compliant. Meets the RoHS directive; not equivalent to Lead-free, Pb-Free, or Green.
Self declaration. A producer is responsible for certifying its products are compliant with the legislation. Market analysis provides enforcement of legislation.
TAC. Technical Adaptation Committee. European Union's body of governmental legislators responsible for assessing technical viability.
TCF. Technical compliance files. Evidence of compliance for a directive such as Materials declarations, certificates of compliance, analytical data reports, standard procedures for analysis.
WEEE. EU Directive 2002/96/EC: Waste Electrical and Electronic Equipment. Sister directive to RoHS.

Appendix A: Bibliography & Other Useful Information

- 10 Steps Towards RoHS Directive Compliance, Printed Circuit Design & Manufacture, February 2005.
- Directive 2002/96/EC: WEEE: waste electrical and electronic equipment; http://www.dti.gov.uk/sustainability/pdfs/finalweee.pdf
- Directive 2002/95/EC: RoHS: restriction of the use of certain hazardous substances; http://www.dti.gov.uk/sustainability/pdfs/finalrohs.pdf
- Amendment to Directive 2002/96/EC: http://www.dti.gov.uk/sustainability/weee/article_9_txt_final.pdf
- Frequently asked Questions on … RoHS … & … WEEE, published by European Commission Directorate-General Environment: http://www.europa.eu.int/comm/environment/waste/pdf/faq_weee.pdf
- DTI: Planning for Implementation Letter: http://www.dti.gov.uk/sustainability/weee/Planning_for_Implementation.pdf
- Draft: WEEE Guidance notes from the UK's DTI: http://www.dti.gov.uk/sustainability/weee/WEEEguidance_draft.pdf
- UK DTI: RoHS Governmental Guidance Notes August 2005
- Possible Compliance Approaches for Directive 2002/95/EC (The RoHS Directive), ERA Technology, April 2004
- A Guide to Compliance with RoHS Directive, ERA Technology's Publication, June 2005
- New Approach and the Global Approach: http://europa.eu.int/comm/enterprise/newapproach/legislation/guide/legislation.htm
- White Paper on Good Declaration Practice of Substances in Electronic Components and Assemblies, German Electrical and Electronic Manufacturers Association (ZVEI e.V.), October 2004
- Goodbye Chain Group Report on RoHS & WEEE: http://www.goodbyechain.com/Infolink/PDF/WEEE_RoHSReport_0603.pdf
- http://www.dti.gov.uk/sustainability/pdfs/weee-rohs-condoc.pdf

- http://www.envirowise.co.uk/envirowisev3.nsf/key/electronics
- http://www.envirowise.co.uk/envirowisev3.nsf/key/ElectronicsResR
- http://www.ul.com
- http://www.era.co.uk/services/rohs.asp
- http://www.greensupplyline.com

Endnotes

[i] http://www.dti.gov.uk/sustainability/pdfs/finalweee.pdf

[ii] http://www.dti.gov.uk/sustainability/pdfs/finalrohs.pdf

[iii] From Directive 2002/95/EC on the restriction of use of certain hazardous substances, Article 4, Prevention 1

[iv] Frequently asked Questions on Directive 2002/95/EC on the Restriction of the use of certain Hazardous substances in electrical and electronic Equipment (RoHS) and Directive 2002/96/EC on Waste Electrical and Electronic Equipment Directive (WEEE); published by European Commission Directorate-General Environment, May 2005; http://www.europa.eu.int/comm/environment/waste/pdf/faq_weee.pdf

[v] DTI: WEEE Regulations: Government Guidance Notes; Consultation Draft – July 2004.

[vi] DTI: RoHS Regulations: Government Guidance Notes; Consultation Draft – August 2005.

[vii] While at IBM, Ms. Botsford was responsible for ensuring electrical components were RoHS compliant.

[viii] http://www.inemi.org/cms/newsroom/PR/2005/PR04272005.html

[ix] http://www.ti.com/leadfree

[x] http://www.national.com/packaging/leadfree/

[xi] Commonly referred to as RoHS, Green, or Lead-Free

[xii] Guides can be located through the Envirowise website: http://www.envirowise.gov.uk/
http://www.envirowise.gov.uk/envirowisev3.nsf/key/GG415
http://www.envirowise.gov.uk/envirowisev3.nsf/key/GG416

[xiii] *Ibid.*

[xiv] Directive 2002/95/EC: RoHS: restriction of the use of certain hazardous substances;
http://www.dti.gov.uk/sustainability/pdfs/finalrohs.pdf

[xv] *Ibid.*

[xvi] More information at: http://www.ipc.org, http://www.jedec.org, http://www.eia.org.

[xvii] Steve Andrews, UK's Department of Trade and Industry

[xviii] Frequently asked Questions on Directive 2002/95/EC on the Restriction of the use of certain Hazardous substances in electrical and electronic Equipment (RoHS) and Directive 2002/96/EC on Waste Electrical and Electronic Equipment Directive (WEEE); published by European Commission Directorate-General Environment, May 2005; http://www.europa.eu.int/comm/environment/waste/pdf/faq_weee.pdf
& DTI: WEEE Regulations: Government Guidance Notes; Consultation Draft – July 2004.

[xix] *Ibid.*

[xx] *Ibid.*

[xxi] *Ibid.*

[xxii] ERA Technology Publication: A Guide to Compliance with the RoHS Directive.

[xxiii] http://www.sony.net/SonyInfo/Environment/news/2002/02.html

[xxiv] Mentioned at various discussions at 6th Annual JISSO Meeting May 2005

[xxv] Frequently asked Questions on Directive 2002/95/EC on the Restriction of the use of certain Hazardous substances in electrical and electronic Equipment (RoHS) and Directive 2002/96/EC on Waste Electrical and Electronic Equipment Directive (WEEE); published by European Commission Directorate-General Environment, May 2005; http://www.europa.eu.int/comm/environment/waste/pdf/faq_weee.pdf

[xxvi] *Ibid*

RoHS Documentation:

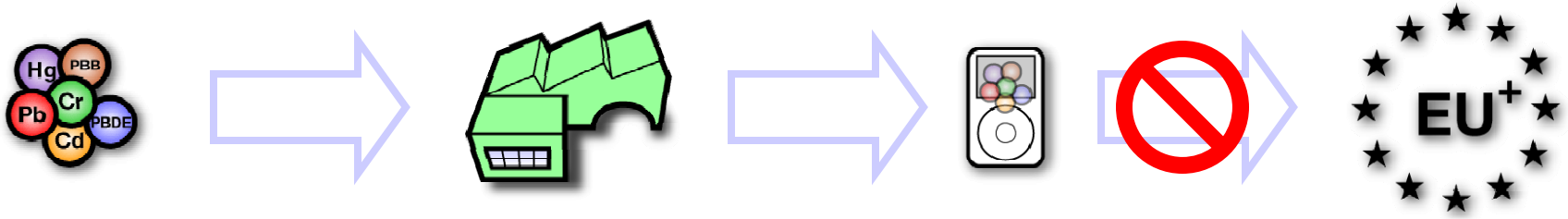
More than Materials Declaration

Excerpt from:

Death, Taxes, and Environmental Compliance:

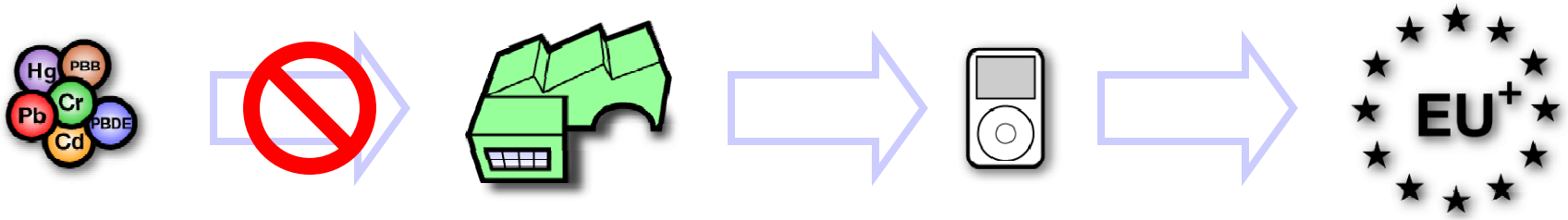
Things you can count on

EU's RoHS: The Basics



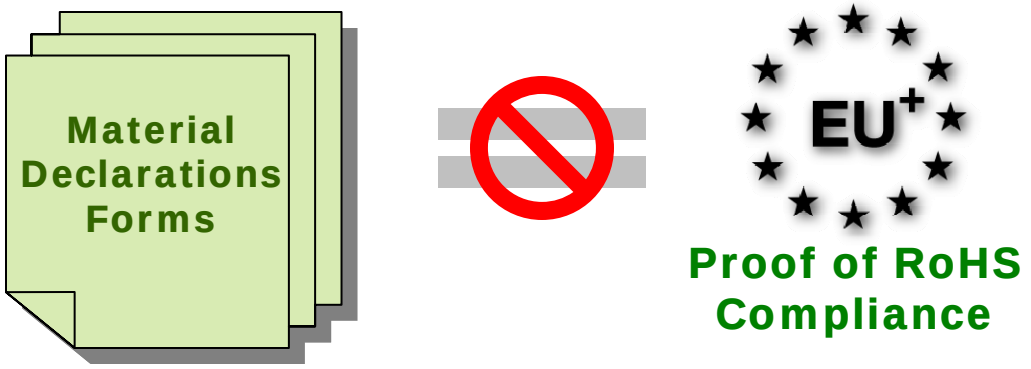
Exceed the minimum amount of restricted substances in your product – NO GO

EU's RoHS: The Basics



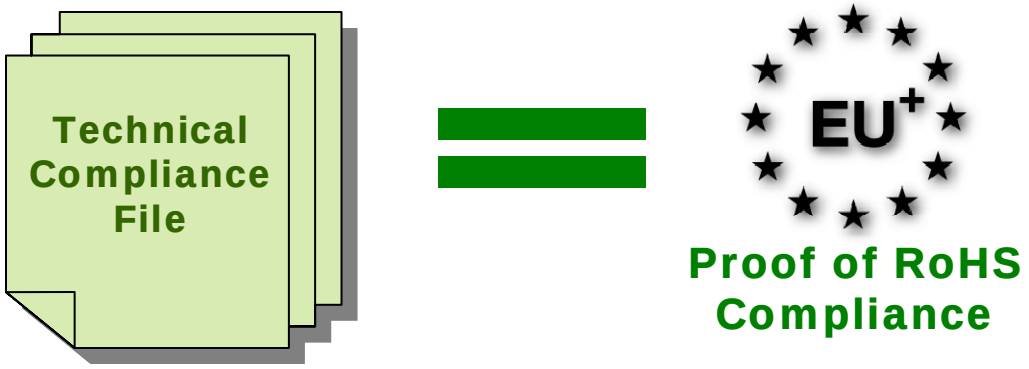
Limit the minimum amount of restricted substances in your product – GO

EU's RoHS Readiness



Materials Declarations are only *part*
of the *recommended*
compliance documentation.

EU's RoHS Readiness



Technical Compliance file includes any auditable documentation which may be used in a due diligence defense

Technical Compliance File: Company

- For each company/manufacturer:
  - Corporate Social/Environmental Policy/Statement
  - Standards Recognition (ISO, etc)
  - Certifications (Quality, IPC, etc)
  - 3rd Party Assessments/Assistance

Technical Compliance File: Products

- By product or product family:
  - Roadmap of compliance
  - Product Assessment
  - Analytical data
  - Process for assessing compliance
  - Audits of stated process
  - Materials declarations
  - Certificates of Compliance
  - 3rd party verifications/assessments

From EU's Enforcement Guidance Document

- Some Criteria for review:
  - Market intelligence
  - Random selection
  - Products known to contain materials of high concern
  - High volume products
  - Short life products
  - Consumer products unlikely to be recycled
  - Notification of concern from external parties
  - Notification of concern from other Member States

From: **RoHS Enforcement Guidance Document**
Version 1 – issued May 2006

Steps to Follow for Quick Compliance

Assess

- Use the documents available from the EU TAC, EU commission, DTI, and others to assess where products are categorized;
  - The enforcement guide lists what is to be expected of the company based on size, market, etc.
- Get a second opinion
  - Can your products potentially fit into two or more categories?
- Get a legal opinion
  - This can be an internal or external opinion

These steps are considered part of a due diligence strategy

Steps to Follow for Quick Compliance

Roadmap

- Company Roadmap
  - Show where you are, where you have been and where you are going
- Product Roadmap
  - When did work begin on converting products?
  - Where are the products today if not in compliance?
    - What are the reasons?
  - When will compliant product be available?
    - Is it based on the supply chain?

These steps are considered part of a due diligence strategy

Steps to Follow for Quick Compliance

Document

- Create files with general information and with specific information on products.
  - BoM Scrub procedure
  - Alternate Part verification
  - Part numbering scheme
- Make available Association Membership certificates
- Auditable records and procedures
  - Education, Design, Purchasing, Quality, Manufacturing, etc.

These steps are considered part of a due diligence strategy

Steps to Follow for Quick Compliance

Educate

- Seek expert assistance for areas which are unclear
- Ask where 3rd party's information is from
  - Direct from the source?
  - Previous experience?
  - Industry opinion/conferences?
- See legal opinions on unclear items and how they pertain to your products.

These steps are considered part of a due diligence strategy

Steps to Follow for Quick Compliance

Follow-up and Review

- Review on regular basis
  - Bi-weekly, monthly, etc.
- Corrective Actions
  - Once created, be sure the dates are realistic
  - Review on timely basis
- Do not include all people on review
  - reviews should be a short overview of what is happening; not an educational session for all involved

These steps are considered part of a due diligence strategy

Working with Future EU of Environmental Directives

RoHS is just the beginning…

Additional EU Environmental Directives

Beyond the EU's RoHS:

- EU's REACH
  - Registration, Evaluation and Authorisation of Chemicals
- EU's EuP
  - Environmentally-friendly design of Energy-using Products: framework Directive for setting eco-design requirements for Energy-using Products (EuP)

Useful websites

- Organizations

  www.ipc.org

  www.jedec.org

  www.eiatrack.org

- Government

  ec.europa.eu/environment/index_en.htm

  ec.europa.eu/environment/waste/weee_index.htm

  www.dti.gov.uk/innovation/sustainability/rohs/page29048.html

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