

## Get the Lead Out and Take the Lead — Developing P&P for Green Policy and RoHS Compliance

By Andrew Cornell

Policy and Procedure writers have opportunities to participate in the new economy by developing Green policies. Get the lead out and put on your Green writing hat! Help your organization and its customers work toward a cleaner sustainable environment.

We already follow a number of sustainable policies in our daily lives. Because of hazardous substances, we can no longer just dump second-hand TVs in the local landfill. We dispose of electronic/electrical items at local recycling centers to comply with local policies. These policies have their origins in California state policy and the European directive, WEEE (Waste Electronic Electrical Equipment).

RoHS is the next wave — it's an environmental directive from Europe that stands for "Restriction of Hazardous Substances". So far, electronic/electrical OCMs (original component manufacturers), their distributors, and OEMs (original equipment manufacturers) have policies and procedures (P&Ps) in place to take action on what scientists and researchers have been warning against — hazardous materials like lead (Pb) that affect our health and safety.

### How More Companies Can Comply with RoHS

To comply with RoHS, companies need to establish Green P&Ps and audit programs. If you write P&P for a company that ships and receives electronic/electrical equipment, consider establishing a Green policy. Companies implement Green policies by designing an Environmental Management System (EMS). An example of an EMS is the ISO14001 standard. Under the umbrella of an EMS, companies will create P&Ps to audit suppliers for RoHS compliance, and evaluate electronic/electrical equipment.

### China In the Lead

Although Europe requires RoHS compliance, China is one of the leaders in promoting sustainability. To enter the Chinese market, product manufacturers must comply with the Chinese RoHS directive and mark their products. For example, ASUSTek Computers mark notebook power supplies with the EFUP (Environmental Friendly Use Period) logo. A logo that visually states the number of years before proper disposal is required. See Figure 1.

Although the Chinese RoHS directive requires specific labeling, companies have the flexibility to create their own labels

for the European market so long as they deliver their products with a "certificate of compliance." This means P&P writers must be aware of labeling requirements and "certificates of compliance" that show products comply with the directive. For markets in the United States, there are no federal labeling requirements, but state legislatures decide if the RoHS directive will be followed.



Figure 1—Chinese RoHS compliant logos: 10 year Environmentally Friendly User Period (EFUP) and Electronic Information Products (EIP)

### Getting Started in Your Company

If you are starting a Green policy for your company, consult your EHS and Engineering departments to ensure they understand the RoHS directive and the challenges that may include the following:

- The biggest challenge for OCMs and OEMs who manufacture electronics and electrical equipment is obtaining the same reliability standards involving new materials and processes (e.g., no-lead)<sup>1,2</sup> to comply with the RoHS directive. New materials and part numbers must be tracked to control the production and delivery of components and equipment designed for different environmental conditions. For example, equipment exposed to extreme environmental conditions (military) require materials that can withstand high temperatures and vibration. This is in contrast to a "Green" laptop computer designed for a typical consumer's lifestyle.
- For large manufacturers involved in the global supply chain, collecting and managing data (part numbers and materials) becomes complicated and requires sophisticated IT systems, e.g., XML and Smart Guides<sup>3</sup>.

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- For small and mid-size manufacturers, the issue of “due-diligence” to comply with the RoHS directive while maintaining reliability becomes more important to compete in the global supply chain. Remember the Challenger tragedy<sup>4</sup>.
- According to MTS Systems<sup>5</sup> Product Safety and Compliance Engineer, Cedric D’Souza, “We depend a lot on (our global supply chain) designing reliability into their electronic circuit boards and cannot say with certainty if non-lead solder can lower reliability as I do not have the data to back it up.”

### Examples of Green Policies

Green policies span across various industries, from companies involved with computers and communication networks to companies involved with medical devices. If you want to develop a Green policy of sustainability, navigate to the following sites for examples from various industries: ASUS computers [www.asus.com](http://www.asus.com); Oclaro [www.oclaro.com](http://www.oclaro.com); and IDEX Health and Science [www.idex-hs.com](http://www.idex-hs.com). These companies have policies and procedures in place to meet the RoHS directive.

Not only does the RoHS directive help the environment, the directive forces manufacturers to protect their workers from harmful exposure to lead during production. Although the directive is considered a “living document,” and is amended for specific items, you can establish a Green policy and write procedures to eliminate the use of materials that include harmful substances like lead (Pb), cadmium (Cd), and polybrominated materials.

### Get the Lead Out — Yes, You!

So get the lead out as a P&P writer and promote Green policy, and go in with your guns loaded. This is a chance to promote your value to the company by transferring knowledge based on SME research and members who participate in the STC SIGs.

And what about that second-hand TV dumped in the landfill? It contains lead to shield you from radiation.

Below are informative links about the RoHS and WEEE Directives and links to health and safety involving lead:

### Links to information about health and safety involving lead

[www.osha.gov/SLTC/lead/recognition.html](http://www.osha.gov/SLTC/lead/recognition.html)

[www.ceh.org/index.php](http://www.ceh.org/index.php)

### Links to organizations complying with RoHS

[www.arrow.com/green/compliance\\_info.htm](http://www.arrow.com/green/compliance_info.htm)

[www.oclaro.com/compliance\\_RoHS\\_europe.php](http://www.oclaro.com/compliance_RoHS_europe.php)

[green.asus.com/english/](http://green.asus.com/english/)

[www.idex-hs.com/about/environmental\\_policy.aspx](http://www.idex-hs.com/about/environmental_policy.aspx)

### Links to RoHS environmental regulation and legislation

[www.eiatrack.org](http://www.eiatrack.org)

[www.rohs.gov.uk](http://www.rohs.gov.uk)

[www.RoHSwell.com](http://www.RoHSwell.com)

[en.wikipedia.org/wiki/RoHS\\_Directive](http://en.wikipedia.org/wiki/RoHS_Directive)

### Journal Articles

<sup>1</sup> Hontao, Ma, Jeffrey C. Suhling, Yifei Zhang, Pradeep Lall, Michael J. Bozack. “The Influence of Elevated Temperature Aging of Lead Free Solder Joints.” 2007 Electronic Components and Technology Conference IEEE, 2007. 653 - 658.

<sup>2</sup> Sosiati, H., and Kuwano N., Hata S., Iwane Y., Morizono Y., Ohno Y. “Tin Whisker Formation on a Lead-free Solder Alloy Studied by Transmission Electron Microscopy.” 2006 Electronics Packaging Technology Conference IEEE, 2006. 398 - 403.

<sup>3</sup> Zhou, Chuanhong, Liu Zhixue and Liang Gao. “Declaration of RoHS Compliance based on Smart Document and XML Database.” 2009 The Ninth International Conference on Electronic Measurement & Instruments ICEMI, 2009 4-1063 - 4-1068.

<sup>4</sup> Cook, Kendra L. B. “Making Ethical Engineering Management Decisions in a Competitive Environment.” 2007 IEEE, 2007. 1 - 10.

<sup>5</sup> MTS Systems provide testing equipment and services to a variety of industries that include Ground Vehicles, Aerospace, Civil Engineering, BioMedical, Material Testing, and Sensors.

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