Implications of RoHS/ WEEE Compliance

The Source
for Critical Information and Insight™

White Paper

As environmental-driven regulations emerge in markets worldwide, electronics manufacturers and industries using electronic components can not ignore hazardous materials or the changes taking place for compliance. Understanding the waste electrical and electronic equipment (WEEE) management requirements and restrictions on the use of certain hazardous substances in electrical and electronic equipment (RoHS) in Europe and the actions taking place to achieve compliance assures that businesses operate uninterrupted by supply issues or regulatory fines.

The significance of hazardous materials used in manufacturing continues to grow with additional regulations in China, the United States, Japan, and Korea. Canada and South American countries such as Mexico, Columbia, Brazil, and Chile are on the verge of similar legislation.

With rules in Europe effective July 2006, restrictions in China effective March 2007, and individual states in the United States adopting regulations on various schedules, compliance is not a one-time activity. Compliance needs to be an ongoing process or companies run the risk of being shut out of markets while responding to new or changing requirements.

The manufacturers of equipment not covered by RoHS and exempt from WEEE are not unaffected. These companies are often indirectly affected by the results of the regulations. Problems include diminished supply of electronic parts they can still use but other industries may not or changes to parts that impact interoperability or performance specifications. Many of these companies are also surprised to find although their products are out of scope for EU RoHS that their products are in scope for China RoHS. A good example of this is medical devices. Virtually all electronics industries are affected in some way by environmental regulations and must strategically address them.

Hazardous Materials Regulations for Electronics

Restriction of Hazardous Substances (RoHS), European Union
Effective date: July 1, 2006

JIS C 0950 (J-Moss or Japan RoHS), Japan
Effective date: July 1, 2006

Waste and Electronic Equipment Directive (WEEE), European Union
Effective date: December 31, 2006

The Electronic Waste Recycling Act (SB 20/50), California, United States
Effective date: January 1, 2007

Order #39 (China RoHS), China
Effective date: March 1, 2007

Registration, Evaluation and Authorization of Chemicals (REACH), European Union
Effective date: spring 2007

The Act for Resource Recycling of Electrical/Electric Products and Automobiles (Korea RoHS), South Korea
Effective date: July 1, 2007

Directive 2005/32/EC on the Eco-Design of Energy-Using Products (EUP), European Union
Effective date: August 11, 2007

Japan Green Procurement Survey Standardization Initiative (JGPSSI), Japan
Effective date: voluntary

Recycle and Re-use

Take back obligations have been imposed on manufacturers and importers of electrical and electronic products by EU Directive.[1] Importers and manufacturers of electrical and electronics products are responsible for the take back and recycling of products discarded by end users. However, each member state has transposed the WEEE directive into national law. So, while all WEEE requirements have the common goal of protecting human health and the environment, they can differ regarding the specifics of the controls. As a consequence manufacturers have to address WEEE compliance in each country where their products are distributed.

Collective take back systems coordinate the collection and the recycling of WEEE throughout the respective country. They work closely with retail, municipalities, municipal waste associations, and used-goods centers. Collectives also work with companies that specialize in the logistics and the environmentally responsible treatment of the discarded electronics. For countries where collectives are not currently operational for an industry segment, individual companies may submit a waste management plan for approval.
Take back of WEEE constitutes more than just a logistical and recycling task. Collective take back systems offer the simplest, most straightforward, and most cost-effective total approach. The activities that collectives perform include:

- organizing the collection of waste electrical and electronic appliances in accordance with the provisions of the legislation
- organizing the processing of the collected waste electrical and electronic appliances in accordance with the provisions of the legislation
- the provision of information to all stakeholders and reporting to all regulators involved in the implementation of the legislation; and
- ensuring the monitoring of results set down in the legislation.

No other approach has been so thoroughly developed, nor been subjected to the extensive negotiations and mutual compromises by the diverse array of stakeholders represented. Therefore, it is far more feasible to implement WEEE using a collective rather than the individual company take back plan approach. The WEEE Forum (www.weee-forum.org) provides several resources regarding WEEE compliance including information on established collectives.

RoHS Controls

The European RoHS Directive[2] requires companies to reduce and eliminate a variety of hazardous substances in products.

Materials Controlled Under RoHS Regulations
Lead (Pb)
Mercury (Hg)
Hexavalent chromium (Cr VI)
Cadmium (Cd)
Polybrominated biphenyl (PBB)
Polybrominated diphenyl ether (PBDE)

The RoHS controls were effective July 2006. Compliance actions varied. Some electronics manufacturers created multiple production lines to allow the manufacture of components for equipment or industries that are exempt from RoHS. Others have been systematically redesigning products and making changes to eliminate RoHS materials over the last several years. Still others responded by eliminating certain product lines from EU markets.

Enforcement by governments and compliance by industry appear to be lagging the effective date though. In December 2006, a survey of electronics manufacturers showed that 83% of respondents were at high risk of not being able to demonstrate RoHS compliance.[3] Governments in 2006 were partnering with companies and assisting with compliance rather than taking enforcement actions. This will likely change in 2007.

Self-Declaration Must Be Backed Up

While each country is developing their own RoHS enforcement policy, and in some cases imposing additional environmental protection requirements, self-declaration of compliance is the first step companies must take in the compliance process. However, self-declaration can not simply stand on its own. Companies need to be able to demonstrate they have taken reasonable steps to comply if they are challenged by a judge in a court of law. A strong, strategic compliance approach is to address hazardous materials in products from conception to disposal in the field.

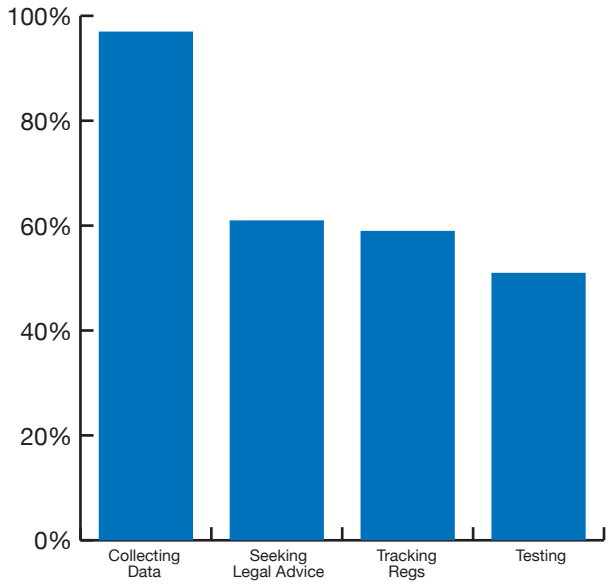
Treating compliance as a one time activity or as simply a reporting issue sets companies up for recurring costs, increased risk from late-term changes, manufacturing process delays, slow market launches, and reduced market

options as countries change requirements. A compliance strategy that is integrated with other business processes increases customer satisfaction, assures market retention, and supports growth.

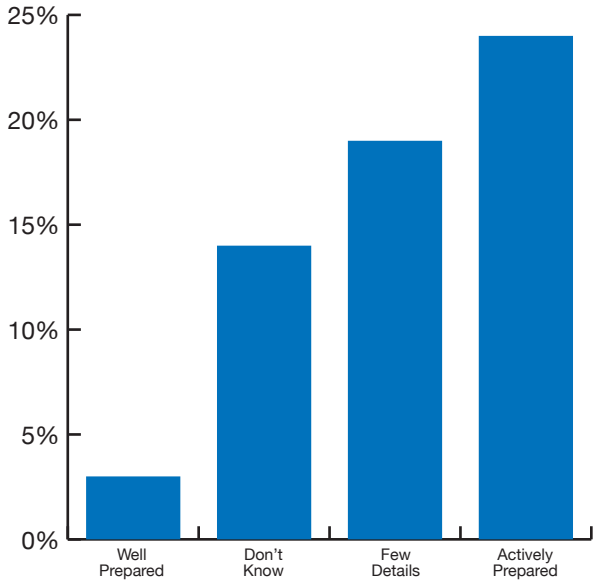
Product lifecycle management (PLM) provides a highly-regarded compliance solution because of the organizational process focus. Coordinating functions from product design to marketing and disposal creates an environment where compliance is an essential element of business activities. This lends itself to having systems in place to meet the requirements in all major markets. Companies that build regulatory compliance into the design process using compliance-enabling PLM technologies will have an advantage over the competition.

EU Compliance Is Not The Same As Compliance in China

The materials controlled under the requirements for controlling hazardous materials in electronic information products in China are the same as under the EU directive for RoHS.[4] However, compliance with the EU directive does not mean that a company is compliant with the law in China. Compliance with the regulations in China are expected to have an even more significant impact on companies than the EU RoHS requirements.



Activities to Support China RoHS Compliance.
Industry NEWS-reported results of a poll taken in October 2006.[5]



Level of Preparedness for China RoHS Compliance
Industry NEWS-reported results of a poll taken in October 2006.[5]

As noted previously, compliance in Europe is largely based on self-declaration that is demonstrated if there is a challenge. Standards for reporting RoHS information are not legislated. China requires four hazardous materials-related marks for electronic and information products (EIPs) intended for its market. These include labeling with the environment-friendly use period (the number of years that toxic substances will not leak or mutate from the time of manufacture); date of manufacturer; disclosure of hazardous content (six RoHS substances) in a table (in Chinese); and labeling for packaging materials.

Obsolescence Management Is An Issue For Everyone

For RoHS compliance, many suppliers have ceased making parts with lead and the other RoHS materials. This effectively makes components using those materials obsolete. How this information is conveyed to buyers varies. Some suppliers are issuing a product change notice (PCN) rather than issuing an end-of-life (EOL) notice. This isn't just an issue of semantics.

For some buyers, a PCN may not trigger that a part that RoHS-noncompliant part will no longer be available. Many OEMs still use RoHS-noncompliant parts such defense, aerospace, and medical companies as well as companies providing products only to markets without RoHS requirements. The problem is that buyers and engineers who need to be informed when a part goes obsolete may never see the PCN.

Once an EOL notice for a part is issued, buyers find alternate sources for the part, make a lifetime buy, find an aftermarket suppliers to make the part, or qualify a new part. Many companies in defense and aerospace industries don't like to substitute a new part because of the high cost to qualify a new component. Buyers who purchase non-RoHS compliant parts need to check PCNs carefully to make sure the parts they need have not become obsolete.

Effectively Handling RoHS Requires Significant Data Management

Developing and implementing a RoHS compliance strategy that starts with product design and continues through the entire product lifecycle involves large amounts of data. Not only does the data need to be gathered, it needs to be verified, updated, and disseminated to truly demonstrate compliance. Automating as much of the process as possible supports a long-term strategy minimizing risk for noncompliance.

Large companies may be able to do this in house. They may already have programs in place from environment, safety, and health (ES&H) or corporate social responsibility initiatives that can be used as a starting point for RoHS compliance. Smaller companies and companies with widespread operations may find third-party solutions most effective from both cost and personnel commitment perspectives.

In addition to effectively managing large quantities of data, logistics systems will require adaptation and extensive training, both within company organizations and of suppliers, will be required to assure success.

IHS Solutions are Versatile and Reliable

As a dependable third-party standards and managed-information solution provider, IHS provides companies with detailed compliance, material content, replacement part, and manufacturing information to support compliance processes. IHS provides parts and materials information through regularly maintained reference databases and targeted content sourcing services. IHS also provides reference databases and applications supporting electronic design and BOM analysis. IHS partners with industry leaders such as Underwriters Laboratories; Thermo Electron, Niton Analyzers; Agile; PTC and Arena to provide this information. IHS subject matter experts are available to assist with developing custom enterprise solutions to support customer compliance strategies. Contact IHS at 1-888-752-0334, outside the US/Canada call 303-397-2892 or visit IHS online at http://electronics.ihs.com/products/products.htm.

About IHS Inc.

IHS (NYSE: IHS) is one of the leading global providers of critical technical information, decision-support tools and related services to customers in a number of industries including energy, defense, aerospace, construction, electronics, and automotive through two operating segments, Engineering and Energy. We serve customers ranging from governments and large multinational corporations to smaller companies and technical professionals in more than 100 countries. Our customers rely on our offerings to facilitate decision making, support key processes and improve productivity. We have been in business for more than 45 years and employ more than 2,300 people around the world.

[1]Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE).

[2]Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

[3]Teresko, John. "Still Not RoHS Compliant?" Industry Week. Dec. 2006. http://www.industryweek.com/ReadArticle.aspx?ArticleID=13082.

[4]"Measures for Administration of the Pollution Control of Electronic Information Products." English Translation posted on Ministry of Commerce of the People's Republic of China web site. http://english.mofcom.gov.cn/aarticle/policyrelease/domesticpolicy/200605/20060502132549.html

[5]Drysdale, Chelsey. "Differences acute between EU, China RoHS laws. (Industry NEWS)." Circuits Assembly 17.12. Dec. 2006.