Forms Vs. Function: Battling The Paperwork Deluge On Restricted Substances

by Kevin Parmenter, Chair, and James Spangler, Co-chair, PSMA Safety and Compliance Committee

Almost once a week or more the phone rings or an email arrives, usually from a top name brand company or on behalf of one, asking about our product's compliance with environmental and hazardous materials regulations. I [Kevin] work for a semiconductor manufacturer, so the requests concern components we're supplying to a customer. But anyone supplying any components, subassemblies or finished electronic instruments or equipment could be subject to such inquiries. The request comes from a far off land because it's been outsourced to someone to get a form filled out. It seems this is more fun and monkey motion from our friends in corporate finance and legal departments.

The good news is that people are paying attention to restricted materials regulations. However the bad news is that these OEM customers are unwilling to subscribe to a supply-chain service such as SiliconExpert, which would allow them to have all the necessary materials information at their fingertips. They probably figure it's less money to get their suppliers to do it for free, using telemarketers to ask us to fill out an extensive check list that someone dreamed up as the standard for the Mr. Big company. The intention was to get every supplier to fill out this form with the same info on it.

The problem is compounded by the fact that different individuals working for the same company will contact us at different times asking us to fill out forms for different parts. As a supplier we have even asked them, "Can you send us a list of all the parts you use at one time so we can work on a complete list for you?" The response has been, "No, all I have here is part ABC123. Please fill out the form." Next week they call back with another part and don't even know their company asked us for something else last week. The process is usually not very organized.

Naturally, as suppliers we balk at these requests. After all, the information the customer is requesting has already been published on our company's website. So we try to point the customer there. However, almost every attempt at telling them "here are the links which list all the information you are requesting," results in them responding, "yes but you must fill out our form in our format". What they don't say is why they insist we fill out their form. If they did, the answer would be "because I have no idea what any of this means and I will be calling people next week asking them for compliance information relating to health insurance."

Then too, we can't help fill out everyone's form because each one is different. But wouldn't it be nice if we had a standard form everyone could agree on? Maybe EICA (the Electrical Industry Certifications Association) or some other organization could establish a standardized form to simplify our lives a bit? While we wait for such a form to be developed, in the spirit of helping (without the ability to fill out every possible form that might cross your desk), we offer the following list of materials resources (see the table). These are the websites for the various global regulations that your customers may ask you about and these sites provide the information you'll need to help you fill out the RoHS, prop 65 Reach, and plethora of other requirements concerning restricted materials.

As noted previously, these regulations are not just for semiconductors. They apply to all components including passive electromechanical devices, cable assemblies, connectors and any parts going into an assembly. That includes hardware, plastic cases, rubber feet, purchased assemblies, batteries, power supplies and anything that goes into the box that you ship your product in. And they also mean the box, plus line cord and packaging materials—even the user's manual!

If you supply any of these items to a company that makes a product, then your product must be cleared for compliance with the targeted regulations, and you are required to fill out the tick box check list that the company needs. This activity may not be fun, but visiting the regulatory websites and getting familiar with the requirements may take some of the pain out of the process.

Table. List of worldwide restricted materials regulations affecting electronic product development.

Regulation	Website
RoHS (Restriction of Hazardous Substance)	http://eur-lex.europa.eu

REACH (Registration, Evaluation, Authorization of Chemical)	https://echa.europa.eu/
WEEE (Waste Electrical & Electronic Equipment)	http://ec.europa.eu/environment/waste/weee/
Proposition 65	https://oehha.ca.gov/proposition-65
JIG-101 (Joint Industry Guide, Ed. 4.1)	http://www.ipc.org
PFOS/PFOA (Perfluorooctane solfonetes/ Perfluorooctanoic Acid)	http://eur-lex.europa.eu
PAH (Polycyclic Aromatic Hydrocarbons)	http://eur-lex.europa.eu
POPs (Persistent Organic Pollutants)	http://ec.europa.eu
PPW (Packaging and Packaging Waste)	http://ec.europa.eu/
EU Battery Directive	http://eur-lex.europa.eu

About The Authors

Kevin Parmenter is an IEEE Senior Member and has over 20 years of experience in the electronics and semiconductor industry. Kevin is currently director of Field Applications Engineering North America for Taiwan Semiconductor. Previously he was vice president of applications engineering in the U.S.A. for Excelsys, an Advanced Energy company; director of Advanced Technical Marketing for Digital Power Products at Exar; and led global product applications engineering and new product definition for Freescale Semiconductors AMPD - Analog, Mixed Signal and Power Division.

Prior to that, Kevin worked for Fairchild Semiconductor in the Americas as senior director of field applications engineering and held various technical and management positions with increasing responsibility at ON Semiconductor and in the Motorola Semiconductor Products Sector. Kevin also led an applications engineering team for the start-up Primarion.

Kevin serves on he board of directors of the PSMA (Power Sources Manufacturers Association) and was the general chair of APEC 2009 (the IEEE Applied Power Electronics Conference.) Kevin has also had design engineering experience in the medical electronics and military electronics fields. He holds a BSEE and BS in Business Administration, is a member of the IEEE, and holds an Amateur Extra class FCC license (call sign KG5Q) as well as an FCC Commercial Radiotelephone License.

Jim Spangler is a Life Member of the IEEE with over 40 years of electronics design experience and is president of Spangler Prototype Inc. (SPI). His power electronics engineering consulting firm's priority is helping companies to place products into production, assisting them to pass government regulations and agency standards such as UL, FCC, ANSI, IES, and the IEC.

For many years, he worked as a field applications engineer (FAE) for Motorola Semiconductor, On Semiconductor, Cirrus Logic, and Active Semiconductor, assisting customers in using semiconductors. He published numerous application notes and conference papers at a variety of conferences: APEC, ECCE, IAS, and PCIM. Topics included power factor correction, lighting, and automotive applications. As an FAE, he traveled internationally giving switch-mode power supply seminars in Australia, Hong Kong, Taiwan, Korea, Japan, Mexico, and Canada.

Jim has a Master's Degree from Northern Illinois University (NIU), and was a PhD candidate at Illinois Institute of Technology (IIT). He taught senior and first-level graduate student classes: Survey of Power Electronics, Fields and Waves, and Electronic Engineering at IIT and Midwest College of Engineering.

Jim is a member of the IEEE: IAS, PELS, PES; the Illuminating Engineering Society (IES), and the Power Sources Manufacturers Association (PSMA) where he is co-chair of the Safety and Compliance Committee.

For further reading on power supply-related safety and compliance issues, see How2Power's special section on Power Supply Safety and Compliance.