



Getting the lead out

Electronics makers cope with new rules

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Six months ago, Greg Caswell, who oversees engineering at VirTex Assembly Services Inc., saw a slowly growing lead monster looming on the horizon.

In mid-2006, Europe countries began regulating six hazardous substances, one of which was lead -- the most common material used in soldering and making circuit boards. VirTex, an Austin manufacturer of circuit boards and other electrical equipment, had to make massive changes to its training, equipment and materials once Europe passed the regulation.

Following Europe's lead, China is set to impose regulations of its own, but has yet to set a deadline. The increasing ban of lead in products has prompted many Austin companies to undergo a massive -- and costly -- transition.

But in some cases, that transition has reaped big rewards. As a result of offering lead-free products, VirTex has seen a 30 to 35 percent increase in its revenue, and has needed to add 20 people partly because of the greater demand for lead-free products. VirTex has 55 employees.

Caswell says when Europe first imposed the regulations, about 20 percent of VirTex's customers were requesting lead-free products. Today, that number has jumped to 60 percent. Caswell estimates that by the end of 2007, at least 90 percent of VirTex's customers will be lead-free.

"To be a strong, viable competitor, it was imperative that VirTex switch to lead-free materials," Caswell says. "Companies that want to deliver to Europe or China have to do the same thing."

"In our industry, if you're not ready, you'll go out of business because a large part of the world is going in that direction," says Mike Harlow, vice president of sales at Austin-based manufacturer Kodiak Assembly Solutions LLC.

This year, China will launch a lead-free regulation known as the Restriction of Hazardous Substances Directive, or RoHS, which applies to all electronic products sold in, or imported to,



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Tam Phajm, an evaluation technician, inspects a lead-free board produced at VirTex, which projects 2007 revenue to be between \$13M and \$15M.
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China. There are two phases to the regulation, with the first effective March 1 and requiring companies shipping and/or selling to China to provide specific labeling and information in a Chinese-specified format. In the second phase, manufacturers will have to eliminate those materials altogether, and cannot depend on exemptions.

With the stringent and numerous rules under the China RoHS, many manufacturers are anxiously gearing up and waiting for the deadline. China has made no indication thus far as to when it plans to eliminate lead and the other harmful substances.

Even though Freescale Semiconductor Inc. was making lead-free products well before the European regulation was imposed, the Chinese regulation is more perplexing because of the unknown eventual scope of its harmful-substances regulation and its ambiguous deadline.

"Right now, we don't know much about it. There's lots of speculation in the industry," says Griffin Teggeman, manager of environmentally preferred products at Freescale. "All we can do right now is march forward and remove the lead. We continue to move down the line and find other technology alternatives to remove the lead."

Regardless, Teggeman says Freescale continues to find ways to eliminate harmful substances in all of its products, as well as finding greener ways to manufacture its chips.

For medium-sized computer parts manufacturers, such as VirTex and Kodiak, it costs 20 percent more to make lead-free products. And it's not just the materials that cost more -- manufacturing companies have had to buy all new equipment, and those machines are required to run 40 percent hotter to accommodate lead-free solder. Employees also had to be trained to solder at higher temperatures.

"It's been an expensive transition," says Kodiak's Harlow.

As a result of the higher cost of manufacturing lead-free products, companies such as VirTex and Kodiak have had to increase the price of those products.

Not only does a board itself have to be compliant, but the parts that go on that board, such as chips, have to be compliant.

"A year ago, most electronic-component makers didn't have to be RoHS-compliant. But they've all been undergoing the same transition," Harlow says.

The good news is many companies have already been undergoing the transition to being lead-free because of the European RoHS, Harlow says. And many in the industry predict that becoming lead-free will be the wave of the future and may eventually hit closer to home.

"The U.S. is dragging their feet," VirTex's Caswell says. "I think if materials keep getting better, the U.S. will have no choice but to embrace lead-free."

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