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MONITOR

Electronics, unleaded

Mar 10th 2005
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Environment: New European rules will force electronics firms to eliminate toxic substances and take back and recycle their products

IN LATE 2001, Dutch officials blocked a shipment of 1.3m Sony PlayStation games consoles because their cables contained levels of cadmium higher than those permitted by local law. Cadmium does not pose any health risks when used as a stabiliser and colouring agent in plastics, but incorrect disposal of such plastics can cause long-term environmental damage, and a law limiting the levels of cadmium was introduced in the Netherlands in 1999. Sony suspended shipments of several products while it addressed the problem, and lost €110m (\$100m) in sales as a result. The case gives a foretaste of what could happen next year, when similar legislation comes into force across the European Union.

The Restriction of Hazardous Substances (RoHS) legislation, which will apply throughout the EU from July 2006, bans products containing any more than trace amounts of lead, mercury, cadmium and three other hazardous substances. But it is just one of three pieces of EU legislation with which electronics manufacturers must comply. Another is the Waste Electrical and Electronic Equipment (WEEE) directive, which came into effect in August 2004 and requires manufacturers to take back and recycle electrical products. Finally, the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) directive requires firms to register the chemicals they use in their manufacturing processes.

Although these rules apply only in the EU, their effects are being felt around the world. "We cannot afford to run two production lines," says David Lear, Hewlett-Packard's director of Environmental Strategies and Sustainability. "We will be producing just one product for the worldwide market." And component suppliers, wherever they are, must ensure that they comply with the new rules if their parts end up in products sold in Europe.

Similar rules are also being adopted elsewhere. China's Ministry of Information Industry is basing its rules on RoHS. In America, the Environmental Protection Agency has remained quiet on the issue, preferring instead to let the industry regulate itself. As a result, many states are introducing their own regulations. "The EPA is not taking a leadership role, which leaves companies trying to deal with each state individually," says Mike Kirschner of Design Chain Associates, an electronics-manufacturing consultancy. California's rules, for example, are based on the directives.

Complying with the rules is no small task. The RoHS rules' main target is lead, a toxic substance that is used to fix components to circuit boards, is an ingredient in plastic casings and is found in the glass of cathode-ray-tube monitors. According to Californians Against Waste, an environmental lobby group, the

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The European Commission publishes information about its environmental policies. See also the Restrictions on Hazardous Substances directive, the Waste Electrical and Electronic Equipment directive and information about REACH.

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315m computers and monitors that became obsolete in America alone between 1997 and 2004 contained 550,000 tonnes of lead.

The RoHS rules specify that components must contain less than 0.1% lead. This means that the solder used to fix components to circuit boards, which consists of a mixture of 63% tin and 37% lead, must be replaced with a mixture of tin, silver and copper which costs 150% more. In addition, the lead-free solder melts at a higher temperature, which means manufacturing processes have to be changed too. As a result, the new rules will have significant financial implications for electronics and computer manufacturers, adding 1% to the cost of a PC and 2% to the cost of a mobile phone, according to Sanmina SCI, a contract manufacturing firm based in San Jose, California. WEEE, meanwhile, will add about \$5 to the price of each PC sold in Europe, according to Gartner, a consultancy.

But the manufacturing and recycling costs pale in comparison with the costs of ensuring compliance. "Proving compliance is turning out to be very difficult," says Mark Newton, manager of environmental affairs at Dell, the world's leading PC seller. "We have to contact our supply chain to catalogue each component." The number of parts that need to be catalogued by big companies like Dell runs into the tens of thousands.

Meanwhile, REACH is creating problems for companies such as Intel. The legislation requires companies to document which chemicals they use in their production processes. But not everyone wants to reveal this information, for competitive reasons. "This is raising a significant number of intellectual property issues for us, because we use those chemicals in our manufacturing process," says an Intel spokesman. "There are only a handful of people in Intel that have access to that information, and we don't want to register it publicly."

Slightly higher costs and teething troubles are inevitable as the new rules are introduced. But they may well be a price worth paying. For the result of the new European rules should be to reduce the environmental impact of computers and other electronic devices—not just in Europe, but in the rest of the world too.

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