



risk to human health or the environment can be proven, or it cannot be controlled and substitutes exist.

RoHS restrictions can be imposed without a full assessment on the impact of the alternatives, which themselves may not have been fully tested. It is enough to show there is a potential risk without evidence of an actual risk – an example is lead in solder.

REACH restrictions are based on lengthy risk assessments that consider research into the impact of the substance throughout its entire life cycle, as well as the alternatives. This also considers the control measures used by industry to minimise risk and social and economic issues. Where a risk is identified, REACH restrictions are likely to be application specific, although total bans are possible.

The other main difference is that RoHS bans substances from electrical and electronic equipment that falls within the scope of the Directive's eight product categories, but there are numerous exemptions.

REACH affects all chemicals, including those used to make the equipment – alloys, solvents, paints and chemicals. There are

Peering ahead

A set of new Directives and regulations is approaching rapidly. By Gary Nevison.

The remainder of 2008 and 2009 will be a period of significant legislative development for EU Directives. As far as RoHS is concerned, China may implement at least a first pass of a 'China Catalogue' and the likes of India and the US may also embrace the benefits of RoHS and similar environmental legislation.

REACH regulations are now in preregistration until the end of the year, ahead of a 10year registration marathon. Apart from that, what should the design

engineer be looking out for over the coming months?

'RoHS; the sequel' or 'RoHS2' is set to have a huge impact, particularly with the debate on whether the industry should move from a RoHS based approach to substance restriction to that of REACH, which is quite different.

RoHS restrictions are based on hazards; if a substance is hazardous – and there are alternatives – then it could be banned. REACH restrictions are introduced only if

very few exclusions and exemptions. RoHS2 could see more product categories fall within scope, for example Categories 8 (medical devices) and 9 (monitoring and control instruments).

A review of further hazardous substances by the Oki Institut has reduced the list of candidates from 46 to 8 and there is a full review on the validity of all current exemptions. In addition, if time permits, the EC may provide some long awaited clarity on definitions such



as fixed installations.

Once the EC has published any amendments to the scope, and indicated implementation dates, it could well trigger painful memories of pre 2006 RoHS for many.

While clearly not on the same scale, we hope that equipment manufacturers provide compliance information promptly and make their part numbering policy clear, helping to safeguard against mixed stock. This should not represent the same problem as two years ago, as the potentially new product categories will include larger, more expensive, pieces of equipment with lower unit sales. For the same reason, it is likely to be a somewhat different supplier set.

The EuP Directive

The Energy using Products (EuP) Directive has a significant impact on the electronics design engineer. Implementing measures, or mini Directives, will continue to be published as more product categories come under investigation by the European Commission (EC).

Product categories will be only considered where they make a significant environmental impact, present considerable scope for improvement and sell more than 200,000 units per year in the European Union (EU). Implementing Measures, however, should not have a significant impact on a products price or performance.

EuP will establish eco design requirements aimed at reducing the overall impact of strategically important energy using products. The EC estimates that, once fully implemented, energy consumption could be reduced by around 10%. However, studies in California claim energy savings as high as 30% through product based standards of the type envisaged within the scope of EuP.

Implementing Measures will specify eco design requirements. A typical example would be the review of the standby and off mode power consumption of electrical and electronic household and office equipment.

Equipment shall, where appropriate,

offer a power management function that switches equipment to standby or off mode after the shortest period of time.

Typical products covered by this regulation include household appliances such as washing machines and dishwashers, hair dryers, domestic IT equipment, consumer equipment, musical instruments, toys, leisure and sports equipment.

When taking EuP into consideration, design engineers need to assess the environmental aspects of their products and design in line with implementing measures and eco design requirements. There will clearly be a need to use low power, more efficient components and assemblies such as ics, transformers, motors and power supplies.

The New Batteries Directive

The New Batteries Directive applies to all batteries used in appliances and vehicles. There is significant producer focus as the aim is to keep batteries away from landfill – something the ‘old directive’ didn’t achieve.

Substance restrictions will effectively ban mercury, as before, as well as cadmium, other than in three exemptions – emergency and alarm systems, including emergency lighting; medical equipment; and, for now, cordless power tools.

NiCd's will therefore be banned and that may lead to an increase in demand for nickel metal hydride (NiMH), which has been developed as a cadmium free substitute although its characteristics are not identical. Its operating temperature range is not as wide as NiCd and discharge tends to be faster. However, NiMH has a greater energy capacity.

Producers will have to register with a Compliance Scheme or some other third

party to meet their obligations. The battery or, if too small, its packaging, will require the crossed wheelie bin symbol.

Other information requirements for users include the potential impact on health and the environment of the substances in the battery, details of collection and recycling schemes, a note not to dispose with other waste and an explanation of the symbols printed on the battery.



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Gary Nevison, Farnell

Article 11 of the New Directive affects the design of electrical equipment, which must be made in such a way as to allow batteries, either for replacement or at end of life for disposal, to be ‘readily removed’ – although this term is not yet defined.

The requirement is clearly intended to ensure that users can remove batteries by opening a cover by hand or after removal of one or two screws. The producer will also have to provide the user with details on how to remove the battery safely. ■

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