RoHS Recast Guidance: Providing Coherent Advice to Design Engineers

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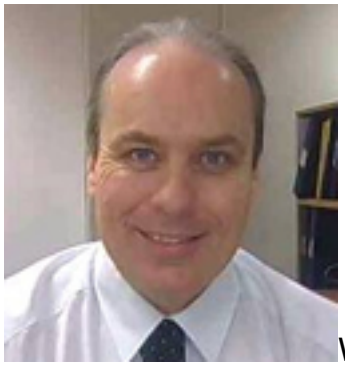 When RoHS (Restriction of Hazardous Substances) was enacted in 2006, there was a critical need for engineers (and the industry as a whole) to have one dependable source to help understand and navigate the complexities of global environmental legislation.

The success of element14's legislation portal at element14.com/legislation has been remarkable; over the last year, visitors to the site have increased from 50 per day to over 500. Key to this success has been the provision of a variety of resources, including step-by-step summaries of the most topical directives, key documents translated into six languages, a RoHS e-book, and an exclusive 'Ask the Expert' feature to query yours truly! Further development of online learning resources is planned, including webinars and online presentations. The element14 legislation portal was designed to provide the very latest electronics legislation information in an accessible way, turning what is often complicated and confusing into tangible and actionable advice.

A subject generating a lot of questions, and perhaps having the biggest legislative impact at present, is the RoHS recast. This article will explore the key changes the recast brings and how they could affect you and the industry.

RoHS: A Recap

Key implications of the 2006 RoHS directive included restrictions on the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl and polybrominated diphenyl ethers in Electronic and Electrical Equipment (EEE) if put on the market after July 1, 2006. Much literature about RoHS will list these substances as banned, but that is in fact incorrect. They can be used, but only in minute concentration values of 0.1 percent (0.01 percent for cadmium) by weight in a homogenous material which cannot be mechanically broken down into different materials. However, these substances can be used in higher concentrations if they fall under specific exemptions, or if they are used to upgrade, maintain or repair EEE placed on the market before July 1, 2006.

Another important element of RoHS placed responsibility for compliance firmly with

producers. This included manufacturers selling EEE under their own brand, anyone selling products under their own brand that were produced by others, and anyone who imported/exported EEE into an EU member state. The recast aims to provide clarity on many of the vague definitions from the original directive, as well as specific enter into force dates on categories 8 and 9.

RoHS Scope: What's Included?

Beyond the original RoHS legislation, what changes does the recast bring? Perhaps the most wide-reaching change will be the introduction of an open scope, which is due eight years after the recast is published in the Official Journal of the EU (2019). The new category 11 will include all products not captured in categories 1 to 10, unless specifically excluded. While not the choice of all Member States, the open scope was one of several compromises reached to guarantee a first reading approval.

Previously, RoHS' scope applied to electrical and electronic equipment that was dependent on electric or electromagnetic fields in order to work properly. Now the recast states that electronic equipment dependent on electronic or electromagnetic fields must fulfill at least one of its intended functions. Therefore, a gas cooker with an electric clock would now fall within scope where previously it would not. This small change could widen the amount of equipment that fall within scope.

There will be two reviews by the Commission within three years; first to look at the scope itself, and then to look at additional substance restrictions.

Restricted Substances

Restricted substances also play a major part in the recast with four identified for priority assessment (within three years) three plasticizers (BBP, DBP, DEHP) and a flame retardant (HBCDD). In addition, the methodology for the identification of substances for future restriction will also be reviewed. Restriction could be based on the REACH regulation approach of lengthy risk assessment of dangers to human health and environment. This will replace the RoHS methodology, which is based on identifying hazards and the possible use of available alternatives.

Exclusions and Exemptions

As the scope widens, so inevitably does the number of exclusions and exemptions that can be applied. The comprehensive list is available at element14. Regarding exemptions for the RoHS recast, a new annex IV has been created containing 39 specific exemptions for categories 8 and 9. Also, the four-year exemption review period has been scrapped and replaced by an automatic expiry of exemptions unless renewed. Categories 1 to 7 and 10 will be valid for a maximum of five years, while categories 8, 9 and 11 will be valid for seven years, with applications for renewal being made at least 18 months before expiring. It appears, however, that final decisions are yet to be made regarding the processes involved, as the Commission has a mandate to establish the detailed rules required for new requests. It is also important to remember that many of these exemptions might be incorporated into the 2019 open scope review.

R&D Equipment

The definition of research and development (R&D) equipment is poised to have a large-scale impact on the electronics industry. There are ongoing concerns over the status of ‘dev kits,’ in particular low cost, open PCB evaluation kits. Previous enforcement guidelines specified that R&D equipment would be in scope if they transfer data (falling into category 3). However, after prolonged protest from manufacturers, the recast now states that equipment will be out of scope if used solely for R&D purposes. So, while a PCB kit will be out of scope, a programmer in an enclosure for production quantities will be in scope. As before though, the uncertainty over the 2019 open scope review suggests that there is a good chance that R&D will again fall into scope.

CE Requirements

Manufacturers, importers and distributors will all be affected by changes to CE marking from the RoHS recast. CE obligations will apply immediately to products currently in scope once the recast enters into force. It will also apply to currently excluded parts once they fall into scope; for example, when an exemption expires. Obligations require that CE marked equipment and cables must be sold separately; declarations of conformity are required to show compliance; technical files are required and must be kept for 10 years; and information should not be removed from websites during this time.

Typical CE requirements requested as part of the RoHS recast are designed to verify products are CE marked and supplied with required documentation. The recast also states manufacturers will be audited where appropriate, checking that they carry out sample testing and keeping registers of complaints, non-conforming equipment and product recalls. It is advised audits should be on a sample basis with new products upon receipt. Other responsibilities include: checking products are correctly labelled (where manufactured outside Europe, it is the importer’s responsibility to label); distributors must not rely purely on declarations from their suppliers; and technical files are required, need to be kept for 10 years (including obsolete), include supplier declarations of compliance, data supplied by the manufacturer/importer, and the results of any distributor assessments. Finally, distributors must inform enforcement authorities if any non-compliant equipment ‘presents a risk,’ and then take corrective action.

What Else For The Future

In the next two years, it is highly likely that there will be more products falling within scope of regulations like RoHS and REACH, more revised exemptions, more data requests up and down the supply chain (especially with ad-hoc regulations), a greater focus on the content and quality of data sheets (in particular safety data), and probably more frustration, cost and resource issues for the industry.

We should witness developments in China and Korea and some state legislation in the United States. Congo Conflict Minerals could provide yet another data collection exercise for our industry, and many more energy efficiency requirements will evolve. The WEEE recast will be approved in the EU, and there will be continued pressure to ban the shipment of toxic waste to developing countries.