

# **Test & Measurement Coalition**

## **RoHS Directive Scope Review**

### **Contribution to Öko-Institut study on RoHS substances in EEE**

7 February 2008

The Test & Measurement Coalition represents an ad-hoc grouping of companies active in producing Category 9 type products. The Coalition includes six leading companies in the sector including Agilent Technologies, Anritsu, Fluke Corporation, Keithley Instruments, National Instruments, and Tektronix. We estimate the coalition membership represents roughly 60% of the global production of industrial test and measurement products and other Category 9 equipment including chemical analysers.

The Test & Measurement Coalition actively participated in the consultations organised by DG Environment and DG Enterprise regarding RoHS revisions. We are pleased now to contribute to the Öko-Institut consultation preparing the study on the RoHS substances in EEE.

#### **Summary**

- Products in Category 9 are not currently in the scope of the RoHS Directive, therefore our efforts have focused on investigating the presence of the six RoHS substances in our products and piloting alternative materials where appropriate.
- Because of the specificity of the design process and the high reliability requirements, our products are expected to become RoHS compliant by 2018 through our ongoing efforts to eliminate uses of the six RoHS substances.
- If the scope of the revised RoHS Directive is extended to additional substances, Category 9 should be exempted altogether from limits on any additional substances in order to limit negative impact of withdrawal of products on economy and innovation.
- Any recommendation on adding new substances should be based on solid scientific evaluation of the risk on environment and health and analysis of the socio-economic impact.
- The REACH Regulation already foresees a more appropriate, horizontal system of identifying, assessing and restricting hazardous substances contained in all products, including EEE.
- Extending the scope of new substances to Test & Measurement equipment will have very little environmental benefits as the waste from that equipment counts for less than 1% of the total waste from EEE.

### ***RoHS substances contained in Test & Measurement equipment***

The monitoring and control instrumentation category (Category 9) is not currently in the scope of the RoHS Directive 2002/95/EC restrictions. This category will be reviewed by the Commission to assess feasibility of bringing this type of equipment within the scope of the Directive.

Although the Coalition members are not covered by the RoHS Directive, we have investigated the use of the six RoHS substances in our products and we have gathered the volumes used of each of the substances (see Annex).

The figures show that the volumes of RoHS substances used in our products are limited. However, in many instances their applications are key for guaranteeing quality and reliability of the test and measurement equipment throughout an expected long lifespan.

### ***Specificity of Category 9 products and design process and expected timing for conversion to RoHS compliant products***

We are concentrating our efforts on assessing the impact on bringing our product category into the RoHS scope and the expected timing for product conversion. This assessment is based on the current scope of six hazardous substances.

Bringing Category 9 into scope will require significant substitution and redesign of the large number of products due to extensive use of lead solder. Assuming that drop-in replacement, compliant components were available, which is not the case for many custom parts, compliance will require re-qualification of virtually all products after new designs are assembled with lead-free solder. Qualification testing alone will have a major impact on our industry and on our customers considering the large number of products we make, even without additional practical issues to solve.

The Coalition strongly emphasises that all industrial test and measurement equipment will be compliant by the 2018 date. Compliance will be a gradual process with an increasing momentum around the 2014-2017 period. As ERA has correctly noted, the design cycles of our products simply do not allow for a sensible transformation of all products in a shorter time.

Redesign is not common for our sector. Whereas a television or mobile telephone's model life on the market may nominally be 2 or 3 years, our products have a long product life: 5 to 30 years and 10 years on average. Consumer goods are redesigned every 1-1.5 years. Our products are redesigned every 5 to 15 years.

Our companies make very different use of human resources from consumer goods producers. Fast-paced market changes require frequent re-design of consumer electronics and many engineers are working on redesign. However in our sector, the majority of our engineers are dedicated to new product development and new technological innovation. Assuming we will come into the scope of the RoHS Directive before 2018, the majority of available resources

would need to be applied to the redesign of current products. The redesign process therefore poses a practical execution problem for the T&M industry.

If products are brought into scope too soon, a lengthy transitional period for full compliance needs to be allowed due to the sheer number of products that are being adapted and a larger number of wide ranging exemptions need to be enacted. The large number of exemptions in fact complicates the enforcement of the directive and makes it a less effective instrument.

For the above mentioned reasons, we strongly emphasise that bringing Cat. 9 into the scope will be only feasible if the conversion process concerns only the current six hazardous substances.

If Category 9 will have to comply with restriction on additional substances beyond the six already regulated by RoHS, more time will be needed to research and test possible substitutions for suitability in meeting the high reliability requirements. In that case, the revisions would need to either consider continuing to leave Category 9 products outside the scope of the directive or the need for a great number of additional exemptions.

If the scope of the RoHS Directive is extended to new substances, the obligation to phase out these additional substances should not apply to Category 9.

### ***Recommendations regarding process of inclusion of new substances***

Regarding the process for inclusion of new substances, we advise a precautionary analysis to determine possible impacts to innovation within the EEE industry in Europe and competitiveness of the EU economy. Otherwise, applying a new substance restriction could have unintended negative consequences to EU competitiveness and innovation in research areas and emerging technology industries (e.g., nanotechnology, optical computers.)

The restriction of use of hazardous substances in EEE should be envisaged on basis of scientific facts proving the risk of a negative impact of the substance on environment and health.

The substances currently covered by the RoHS Directive were scientifically well researched and evaluated and have been subjected to different measures both at Community and at national level, before being made subject to restriction of use on EU level.

A similar level of rigor should be used prior to inclusion of new substances in the directive. To identify such substances, scientific studies are needed to assess the risk from their use in EEE products of such substances on environment and health. In addition, up-front cost benefits analyses are needed prior to the establishment of a list of new substances. These analyses should examine the technical and economic feasibility of replacing those substances and the impact on competitiveness and innovation. This process should be transparent and actively involve stakeholders.

***REACH Regulation foresees already a system of identifying, assessing and restricting hazardous substances contained in EEE***

REACH has already established a more appropriate process than RoHS of identifying a candidate list of hazardous substances as well as eventually including substances in Annex IV, assessing the risk arising to health and environment, and banning their use.

REACH has created a system where the hazardous substances other than the current six RoHS substances are identified, assessed and eventually restricted. Under the current REACH Regulation, producers of articles must declare hazardous substances contained in volumes > 1 tonne/year, in a concentration above 0.1% of the product weight and from which exposure cannot be excluded.

Under the REACH regime, companies using targeted chemicals in any product, not just EEE, will have to ask for a specific authorisation and provide justification for using the substance.

To avoid overlap, and ensure consistency with REACH and RoHS, it will be more efficient to limit the scope of RoHS to the current six substances and leave REACH to regulate the risk management measures related to new substances of concern.

***Limited Impact of Test & Measurement equipment on Environment and Health***

The environmental impact of Test & Measurement products is very small due to the low volume of products placed on the market and the professional nature of our customer base. Review of the waste stream has shown that all of monitoring and control equipment comprises less than 1% of the WEEE stream<sup>1</sup>. Additionally, there are high recovery and refurbishment rates for Test & Measurement equipment driven by the resale and material value contained in our products.

Therefore extending the scope of new substances to Category 9 will have very little environmental benefits.

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<sup>1</sup> <http://www.el-kretsen.se/Index-e.htm>

## Summary use of RoHS Substances from five member companies

*Units and estimated weights (in kg) of products and RoHS-restricted substances sold in the EU in 2004*

EU Product Shipments		Cadmium			Hexavalent Chromium			Mercury			Lead				BFRs	
Total Units Sold	Total Product Weight	Plating	Switch Contacts	Other Uses*	Aluminium Chromate Coating	Steel Chromate Coating	Other Uses	LCD Back-Lights	Relays & Switches	Other Uses*	Solder	Ball Grid Arrays	Radiation Shields	Other Uses*	PBDE	PBB
840,319	1,358,875	0.001	0.001	0	6.7	0.011	0	0.34	0.014	0	15,726	32	2010	91	0	0

*\* These figures exclude the use of the specified material in batteries and accumulators, which is governed by Directive 2006/66/EC*

*Applications and product types where RoHS substances are used*

	Cadmium			Hexavalent Chromium			Mercury			Lead				BFRs	
	Plating	Switch Contacts	Other Uses*	Aluminium Chromate Coating	Steel Chromate Coating	Other Uses	LCD Back-Lights	Relays & Switches	Other Uses*	Solder	Ball Grid Arrays	Radiation Shields	Other Uses*	PBDE	PBB
Automotive	None	None	None	None	None	None	None	None	None	Yes	Yes	None	Yes	None	None
Bio chemical	None	None	None	Yes	Yes	None	None	None	None	Yes	Yes	None	Yes	None	None
Chemical	Yes	None	None	Yes	Yes	None	None	None	None	Yes	Yes	None	Yes	None	None
Design Testers	Yes	None	None	Yes	Yes	None	Yes	None	None	Yes	Yes	None	Yes	None	None
Environmental Test	None	None	None	None	None	None	None	None	None	Yes	None	Yes	Yes	None	None
Manufacturing test	Yes	Yes	None	Yes	Yes	None	Yes	Yes	None	Yes	Yes	Yes	Yes	None	None
Medical	None	None	None	Yes	Yes	None	Yes	Yes	None	Yes	Yes	Yes	Yes	None	None
Optical	Yes	None	Yes	Yes	Yes	None	Yes	None	None	Yes	Yes	None	Yes	None	None
Plant Monitoring	None	None	None	Yes	None	None	None	None	None	Yes	Yes	None	Yes	None	None
Safety test	None	None	None	Yes	Yes	None	None	None	None	Yes	None	None	Yes	None	None
Standards	None	None	None	Yes	None	None	None	None	Yes	Yes	None	None	Yes	None	None
Telecomms	Yes	None	None	Yes	Yes	None	Yes	None	None	Yes	Yes	None	Yes	None	None
Design Testers	Yes	None	None	Yes	Yes	None	Yes	None	None	Yes	Yes	None	Yes	None	None
Temperature	None	None	None	Yes	None	None	None	None	None	Yes	None	None	Yes	None	None
General Purpose	Yes	None	None	Yes	Yes	None	Yes	Yes	None	Yes	Yes	Yes	Yes	None	None