

Title: Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment

PIR No: [Click here to enter text.](#)

Original IA/RPC No: BIS 0391

Lead department or agency: Defra

Other departments or agencies:
BEIS

Contact for enquiries: Jameson Mashakada

Post Implementation Review

Date: 17/05/2018

Type of regulation: EU

Type of review: Statutory

Date measure came into force:
02/01/2013

Recommendation: Amend

RPC Opinion: Green

1. What were the policy objectives of the measure?

To stimulate exports & inward investment by promoting open and fair global markets, through alignment of regulation with harmonised requirements to demonstrate compliance. To support DEFRA's departmental priority to protect and enhance the natural environment by reducing the quantities of 6 hazardous substances (lead, mercury, cadmium, hexavalent chromium & 2 flame retardants - PBB, & PBDE) used in the manufacture of Electrical & Electronic Equipment (EEE) placed on the EU market. RoHS reduces the risk of toxicity from Waste Electrical and Electronic Equipment (WEEE) & the adverse consequential ecological & human/animal health impacts.

2. What evidence has informed the PIR?

A survey of companies impacted by RoHS was carried out. Contact was made with 23 companies accounting for the majority of the UK market in effected goods, to request they complete a questionnaire looking at their experiences of RoHS 2. Data from these questionnaires has been used to inform this PIR.

The Commission carried out an impact assessment of the effects that RoHS 2 would have before its introduction in July 2019. The findings have informed this PIR.

Between 2014 and 2016 BEIS conducted Enforcement Projects samples of EEE to see if they were RoHS compliant and if not on what grounds they failed on. Of the 405 items surveyed 324 were RoHS substance compliant, a content compliance rate of 80%. This data informed this PIR.

3. To what extent have the policy objectives been achieved? (Maximum 5 lines)

RoHS 2 implemented the highest priority of the waste hierarchy; waste prevention. It has reduced harmful substances and chemicals used in the production of EEE and prevented those substances entering the waste stream with consequential adverse impacts to human and animal health.

It has ensured the free movement of EEE across the EU Single Market by applying the same restrictions to producers regardless of the place of manufacture or import into the EU.

Sign-off for Post Implementation Review: Chief economist/Head of Analysis and Minister

I have read the PIR and I am satisfied that it represents a fair and proportionate assessment of the impact of the measure.

Signed: **John Walsh & Steve Andrews**

Date: 17/05/2018

Further information sheet

Please provide additional evidence in subsequent sheets, as required.

4. What were the original assumptions?(Maximum 5 lines)

The UK's RoHS Regulations were supported by a full Regulatory Impact Assessment (RIA) when they were laid before Parliament. The RIA (2006) provided a qualitative assessment of benefits. In terms of the costs of the RoHS Regulations, the RIA estimated that these would consist of research and development (R&D) costs, capital costs, additional operating expenditure, and administrative costs. The majority of the costs estimated were expected to be related to the restrictions on the use of lead as significant research was needed to change to lead free solders whereas the cost of using alternatives to the other five substances has been borne mainly by chemical suppliers.

Health and environmental benefits would be based on the reduction of hazardous substances into the waste stream and into the environment from landfill sites.

5. Were there any unintended consequences? (Maximum 5 lines)

An impact assessment carried out by the Commission, at the request of Member States, identified a number of unintended consequences of RoHS 2 such as, severely restricting the second-hand sales of equipment that comes within the scope from July 2019, the supply of spare parts and the restriction of lead in the lead pipes of new pipe organs.

These consequences were addressed in November 2017 when an amending Directive was agreed, this will be transposed into UK law by June 2019.

6. Has the evidence identified any opportunities for reducing the burden on business? (Maximum 5 lines)

The November 2017 amendment to the RoHS Directive was supported by the UK in light of stakeholder and business feedback. It provides greater clarity around the resale and repair of old equipment and removes certain equipment from its scope leading to lower costs to business, whilst still maintaining a high level of environmental protection.

7. For EU measures, how does the UK's implementation compare with that in other EU member states in terms of costs to business? (Maximum 5 lines)

The UK has implemented the Directive fully. RoHS 2 and its amending Directives are "Single Market" measures, giving Member States very little flexibility around transposition; this ensures an EU wide level playing field for business.

All the EU Member States have transposed RoHS 2 into their domestic legislation.

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012: Post Implementation Review 2018

Background

1. On 23 June 2016, the EU referendum took place and the people of the United Kingdom voted to leave the European Union. Until exit negotiations are concluded, the UK remains a full member of the European Union and all the rights and obligations of EU membership remain in force. During this period the Government will continue to negotiate, implement and apply EU legislation. The outcome of these negotiations will determine what arrangements apply in relation to EU legislation in future once the UK has left the EU.

2. The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (EEE) Regulations Directive (RoHS) Directive 2002/95/EC was adopted in 2003. Since then it has been amended many times, and recast once. The purpose of the Directive was to provide a European-wide legislative framework to restrict the use of certain hazardous substances in new EEE so that its use did not create barriers to trade, to protect human health, and the environment.

As a single market directive, RoHS sets harmonised standards to ensure free movement of goods across the EU Single Market by applying the same restrictions to producers regardless of the point of manufacture along with ensuring environment protection. This requirement to harmonise standards means Member states have very little flexibility with regards to transposition.

3. The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations Directive 2011/65/EU, commonly known as RoHS 2, was a recast of the original Directive 2002/95/EC.

RoHS 2 was made part of UK law under The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, which came into effect in the UK on 2nd January 2013. The aim was to reduce the risk of toxicity of Waste Electrical and Electronic Equipment (WEEE) and the adverse consequential ecological & human/animal health impacts.

The objectives of the UK regulations were:

- A. To support BIS (now BEIS) departmental priority number 7: Stimulate exports & inward investment by promoting open & fair global markets, through alignment of the Directive with Regulation 768/2008, so RoHS becomes a CE mark directive with harmonised standards available to demonstrate compliance.
- B. To support DEFRA's departmental priority number 2: to protect & enhance the natural environment by reducing quantities of the 6 hazardous substances (lead, mercury, cadmium, hexavalent chromium & 2 flame retardants - PBB, & PBDE) used in wider scope of Electronic and Electronic Equipment (EEE) in the EU.

4. Significant environment benefits would be achieved from the reduction of hazardous substances in EEE. The Directive aimed to prevent hazardous substances from entering the production process, thereby keeping them out of the waste stream as the equipment moves into the waste management system at end of life.

5. RoHS will apply to all EEE unless specifically exempt. Military equipment, large-scale stationary industrial tools, large-scale fixed installations, active implantable medical devices, and photovoltaic panels are excluded from RoHS 2.

Unintended consequences and policy recommendations arising

6. When RoHS 2 (Directive 2011/65/EU) was agreed, the Commission agreed to carry out an impact assessment of the effect that 'open scope' (all EEE to be covered by the regulations) would have before its introduction in July 2019. This Impact Assessment identified a number of unintended consequences of RoHS 2, namely:

- The restriction of the second-hand sales of EEE falling in scope of the Directive for the first time from July 2019. Such an outcome would have been in conflict with the waste hierarchy that puts reuse and refurbishment above recycling.
- The inability to repair with spare parts any new EEE that falls within the scope of the Directive after July 2019. This would have been undesirable from both an environmental and an economic perspective.
- An inadvertent ban of pipe organs being placed on the EU market, as they would not be RoHS compliant due to the amount of lead required to produce the pipes.
- The different treatment of cord connected non-road mobile machinery, such as professional cleaning machinery, (which would be caught by the Directive) in comparison to otherwise identical machinery powered by a battery or an engine (which would be exempt).

These unintended consequences have been addressed by an amending directive that was agreed by the European Commission, "**DIRECTIVE (EU) 2017/2102 of the European Parliament and of the Council of 15 November 2017**".

The objective of the amending Directive was to remove the anomalies highlighted above that were inadvertently included at the time of adoption of RoHS 2 in 2011. If left in existing domestic legislation these anomalies would have severely restricted the second-hand sales of equipment that comes within the scope from July 2019, the supply of spare parts and the restriction of lead in any new pipe organs.

The amending Directive was supported by the UK and all Member States. It provides greater clarity and will lead to lower costs to business, whilst still maintaining a high level of environmental protection.

The department is persuaded of the importance of giving effect to these deregulatory measures and is putting in train arrangements intended to achieve this.

7. A light touch stakeholder engagement in form of a survey of companies impacted by RoHS was carried out. The companies chosen were taken primarily from a list provided by the Environment Agency of companies passing EEE on to the end user. The top 6 from the larger companies were chosen, along with the top six from the mid-range and the top 6 from the smaller producers. Companies known to Defra who were thought to be willing to inform our evidence were also contacted. Reassurance was given to respondents that all data would be anonymised. Data from these questionnaires has been used to inform this PIR.

Comparisons with other member states

8. The UK implemented RoHS 2 fully. As discussed RoHS 2 and its amending Directives are "Single Market Directives", this has ensured an EU wide level playing field for UK businesses.

Almost all Member States contributed to the revisions of the regulations that resulted in the planned reduction in burden for business. RoHS has been seen as a simple process which removes barriers to trade and reduces costs to business.

Economic Analysis

Rationale for Government Intervention

The Restriction of Hazardous Substances (RoHS) Directive was adopted on the basis of the precautionary principle to protect human health and the environment from six hazardous substances. The rationale for intervention for the recast of the RoHS Directive is as below:

- *Negative externalities:* These are associated with hazardous substances in Waste Electrical and Electronic Equipment (WEEE) going to landfill (and exported to countries where uncontrolled and unsafe recycling occur) and the consequential risk of human toxicity, freshwater aquatic toxicity, terrestrial toxicity and semimetal toxicity. These toxic risks and their impacts are not priced into the market and the social costs are greater than the private costs. The RoHS recast Directive was to provide additional environmental and health benefits from a widened scope.
- *Government failures:* There was inconsistent interpretation of scope by Member States which could have acted as barriers to trade due to a lack of clarity in the Directive. Removal of these barriers was to have a benefit to trade and growth. 2011/65/EU provided more clearly defined scope and to improve possibility of consistent interpretation across Member States and provided legal certainty for industry. It also improved the coherence of the Directive with Community legislation. Furthermore, the introduction of consistent enforcement across the EU and an effective functioning of the internal market in EEE effected by RoHS through a common framework for the marketing of products and harmonisation of scope was to help create an 'even playing field' across Member States.

European Union Directive

The first RoHS Directive (Directive 2002/95/EC of the European Parliament and Council) was adopted on the 27th January 2003 and came into force on 13th February 2003, the day of its publication in the Official Journal of the European Union. The RoHS Directive is an Internal Market Directive based on Article 95 replaced by Article 114 of the TEFU of the Treaty establishing the Community which has two main aims:

- To provide a European-wide legislative framework to restrict the use of certain hazardous substances in new Electrical and Electronic Equipment (EEE) so that its use does not create barriers to trade.
- Protection of human health and the environment

The Restriction of the use of certain Hazardous Substances Directive 2011/65/EU was published in the Official Journal of European Union in July 2011 with an implementation deadline of the 2nd January 2013. Under that timetable the UK had to transpose the requirements into UK legislation by this date.

Implementation and Transposition - Industry Survey

A survey was conducted to gather the thoughts and opinions of industries affected by the RoHS Directive and its implementation into UK law. Those companies chosen, were taken primarily from a list provided by the Environment Agency of companies passing EEE on to the end user, this list consisted of over 2600 companies. The top 6 from the larger companies were chosen, along with the top six from the mid-range and the top 6 from the smaller producers. Companies known to Defra who were thought to be willing to inform our evidence were also contacted. Eventually contact with 23 companies was attempted by telephone, requesting they complete a

questionnaire looking at their experiences of RoHS 2. Follow up contact was then made by email with 12 of those companies, requesting they complete our questionnaire, five were returned. Reassurance was given to respondents that all data would be anonymised. Data from these questionnaires has been used to inform this Post Implementation Review. Based on the low appetite from business to influence the change of this policy, we infer that there is limited interest in the impacts of the policy as a whole.

Responses range from large to medium companies and represent over 11% of all EEE placed on market (POM) in 2015 and over 13% of Household EEE POM. Overall the responses seemed mixed with regards to the implementation of RoHS Directive.

Three main questions were asked in the survey:

- **Question 1.** To what extent are the existing regulations working?
- **Question 2.** Are the existing regulations still the most appropriate approach?
- **Question 3.** Could refinements be made to the regulations, what scope is there for simplification and improvement?

Responses to Question 1 “To what extent are the existing regulations working?”

The responses to questions varied although most found benefits to their company from the clarification of EEE covered by the legislation and that it harmonised enforcement and implementation of the RoHS requirements across Europe. Surveyed companies mentioned increased cost of compliance as a negative effect. The majority of respondents also found that the legislation ensured compliance with CE marking through the use of harmonised standards/regulations. This suggests that overall, the respondents felt that the regulations were generally working.

Responses to Question 2 “Are the existing regulations still the most appropriate approach?”

Respondents once again mostly agreed that compliance is beneficial to their businesses. Respondents also mentioned that whilst non-statutory/voluntary measures are common with manufactures and are effective, they are not harmonized and not all levels in the supply chain are aware of them. RoHS 2 requires that EEE manufacturers conduct conformity assessment, prepare declarations of conformity, and affix CE markings on finished products to demonstrate compliance. In support of the existing regulations, comments were made that a statutory measure would need to be in place to ensure a level playing field.

Unintended effects of the regulations in the future were identified around interpretation or misinterpretation of the regulations allowing unfair competitive advantage and lack of consistency across industry. This could be rectified by better communication/ information and/or enforcement.

Responses to Question 3 “Could refinements be made to the regulations, what scope is there for simplification and improvement?”

Respondents quoted the Registration, Evaluation, Authorisation & restriction of Chemicals (REACH) legislation and suggested better harmonisation between both regulations and any subsequent new regulations try to avoid overlapping. Multiple respondents argued for clearer and stricter enforcement to ensure harmonised standards to promote free movement of goods across the EU Single Market by applying the same restrictions to producers regardless of the point of manufacture.

Respondents supported standardised reporting structures, generic risk assessment and guidance on what high risks components are and what and how to request information from suppliers.

Finally, most respondents suggested the costs of compliance were large but their estimates varied substantially. This illustrates the point mentioned by nearly all respondents that the cost of compliance is difficult to estimate as it is now incorporated in their standard costings for compliance and affects multiple levels of their supply chains. Getting this to a UK level also was seen as difficult if not impossible as EU RoHS costs were combined with international compliance costs for some companies. When a numerical figure was estimated one respondent suggested it was sure to be in the millions, another respondent simply replied with “£10k”.

BEIS RoHS Enforcement Sampling

Between 2014 and 2016 BEIS conducted Enforcement Projects samples of EEE to see if they were RoHS compliant and if not on what grounds they failed on. Of the 405 items surveyed 324 were RoHS substance compliant, a content compliance rate of 80%.

Compliance – BEIS RoHS Enforcement Projects Outcomes

Project Name	Year	Sample Size	RoHS Content Compliance Rate	Summary of Failures	Substances Failures	Markings, DoC Failures
Office Gadgets*	2014	16	81%	6 failed on manufacturing information and 3 failed Substances under RoHS.	3	6
Water Heater Project	2014	12	100%			
Tablets	2014	8	50%	6 failed on manufacturing information and 4 failed Substances under RoHS.	4	6
Budget Toys	2014	15	87%	3 failed on manufacturing information and 2 failed Substances under RoHS.	2	3
Interactive eyewear (Glasses)	2014	10	70%	All failed on manufacturing information and 3 failed Substances under RoHS.	3	10
Kitchen Appliances	2014	7	57%	3 failed on manufacturing information and 3 failed Substances under RoHS	3	3
High-End Toys	2014	13	85%	2 failed Substances under RoHS	2	
Medical and Monitoring Devices	2014	20	100%	9 failed on manufacturing information and 7 failed Substances under RoHS		
Sewing Equipment	2014	10	60%	4 failed on manufacturing information and 4 failed Substances under RoHS	4	4
Midrange Toys	2014	14	93%	1 failed on manufacturing information and 1 failed Substances under RoHS	1	1
Photo Frames	2014	14	57%	7 failed on manufacturing information and 6 failed Substances under RoHS	6	7
Audio accessories	2014	15	20%	7 failed on manufacturing information and 12 failed Substances under RoHS	12	7
Retail impact *	2014	20	60%	9 failed on manufacturing information and 8 failed Substances under RoHS	8	9
Lighting Project	2015	1	100%	1 failed on manufacturing information		1
Sport Equipment	2015	12	100%			
Men's Grooming Appliances	2015	20	75%	12 failed on manufacturing information and 5 failed Substances under RoHS.	5	
Peripheral Cables	2015	15	93%	6 failed on manufacturing information and 1 failed Substances under RoHS	1	6
Hearing Aids	2015	7	71%	2 failed on manufacturing information and 2 failed Substances under RoHS	2	2
Coffee Machines (Stand-by)	2015	10	100%			
Coffee Machines (Capsule-type)	2015	7	100%	2 failed on manufacturing information		3
Baby Swing	2015	11	73%	2 failed on manufacturing information and 3 failed Substances under RoHS	3	2
Warming Plate & cup drawers	2016	7	100%	5 failed on manufacturing information		5
EPS	2016	12	92%	8 failed on manufacturing information and 1 failed Substances under RoHS	1	8

Musical Instruments	2016	10	90%	3 failed on manufacturing information and 1 failed Substances under RoHS	1	3
Toothbrushes	2016	10	100%	failed on manufacturing information		1
Own Brand Kettles & Toasters	2016	10	90%	1 failed Substances under RoHS	1	
Landline Telephone	2015	8	88%	6 failed on manufacturing information and 1 failed Substances under RoHS	1	6
E-Cigarettes	2016	10	80%	7 failed on manufacturing information and 2 failed Substances under RoHS	2	
Remote Sensing	2016	15	87%	3 failed on manufacturing information and 2 failed Substances under RoHS	2	
Sports Equipment	2016	10	90%	4 failed on manufacturing information and 1 failed Substances under RoHS	1	
Lasers	2016	10	60%	6 failed on manufacturing information and 4 failed Substances under RoHS	4	
Card Readers	2016	10	100%	4 failed on manufacturing information		
Fish Tanks	2016	5	60%	4 failed on manufacturing information and 2 failed Substances under RoHS	2	4
Drones	2016	8	100%	Awaiting results		
Electric Safes	2016	5	20%	5 failed on manufacturing information and 4 failed Substances under RoHS	4	5
Electronic Kitchen Scales	2016	8	63%	6 failed on manufacturing information and 3 failed Substances under RoHS	3	6
Air Fresheners	2016	10	100%	9 failed on manufacturing information		9
Total		405			81	117

Of the 405 items 29% failed on grounds of manufacturing information. Of those that failed on information, the vast majority did so on Economic operator information. Producers of EEE within the scope of the Directive are responsible for ensuring that their products meet the requirements of the Directive. To demonstrate compliance, a producer must prove that all components, materials, sub-assemblies that comprise the product are RoHS compliant. Furthermore, the act of placing a product on the market is a declaration by the producer that the product complies with the Directive. Manufacturers are responsible for compiling technical documentation, known as the 'technical file', to demonstrate compliance with the regulations. This should include information on the design, manufacture and operation of the EEE, which together make it possible to assess whether the product meets RoHS requirements.

This documentation including test reports must be held by the manufacturer for a period of 10 years after the product has been placed on the market. Once the manufacturer has completed the technical file and carried out an assessment of conformity with the regulations, they must prepare a declaration of conformity.

This is a self-declaration that the EEE meets all of the RoHS requirements that apply to that product. By making the declaration, they assume all responsibility for compliance with the regulations.

The compliance data provided by BEIS shows that the desirability of having transparent traceability throughout the supply chain would have been impaired. This could either indicate a lack of awareness of which operators' information needs to be listed on the product or of intentionally missing this information to not be held accountable for the products compliance further down the supply chain.

Conclusion

This PIR has been informed by a survey carried out involving companies affected by ROHS 2, enforcement data from BEIS and an Impact Assessment on the effects of the Regs carried out by the Commission in January 2017 as requested by the Member States.

It is clear from the evidence that RoHS 2 has achieved its objectives to stimulate exports & inward investment by promoting open and fair global markets, through alignment of the Directive with

Regulation 768/2008 so RoHS becomes a CE mark directive with harmonised standards available to demonstrate compliance and to protect and enhance the natural environment by reducing quantities of the 6 hazardous substances (lead, mercury, cadmium, hexavalent chromium & 2 flame retardants - PBB, & PBDE) used in wider scope of EEE in the EU. RoHS reduces risk of toxicity of WEEE & adverse consequential ecological & human/animal health impacts.

The objectives were achieved largely by requiring the manufacturers of EEE to meet and maintain the harmonised standards set out in the Directive (which requires them to restrict the use of hazardous substances listed under the Directive, mark their products with the CE marking and maintain the relevant documentation).

It is important to note that unintended consequences of these regulations were identified following an Impact assessment carried out by the Commission as requested by all Member States. These unintended consequences have been addressed by an amending directive “**DIRECTIVE (EU) 2017/2102 of the European Parliament and of the Council of 15 November 2017**” with a transposition deadline on 22 June 2019. In the UK the plan is to transpose the Amendment Directive by March 2019. This will mean no adverse impacts for business as the amendment is being done prior to RoHS 2 being in scope from July 2019.

Feedback from the survey conducted indicates that the regulations are working, and that there is no appetite from industry to change the regulations. The regulations set out restrictions regarding which hazardous substances cannot be used in the manufacture of EEE which is placed on the market in Member States of the EU. The regulations provide a legal framework that removes trade barriers, promote and maintain trade fairness, consistency and competitiveness across the EU and above all helps to protect human health and the environment.