



European Flame Retardants Association
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RoHS 2011

Directive on the Restriction of Hazardous Substances
in Electrical and Electronic Equipments
Directive 2011/65/EC of 8 June 2011

On 1 July, the Official Journal of the European Union published the revised Directive on the Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) following agreement between the EU Council and the European Parliament on 8 June 2011. The following outline describes the most important points of the new RoHS directive from a flame retardant perspective.

EFRA welcomes the adoption of this revised version of the RoHS Directive as an important decision in favour of science-based EU legislation. Substances added for the safety and functionality of electrical and electronic equipment, such as flame retardants used to increase the fire safety of electronics, will continue to be used if proven safe, effective and efficient.

science-based methodology

The new RoHS Directive, adopted in 2011, sets a landmark in favour of **science-based legislation** and underlines the importance of coherence of the RoHS with other chemicals legislation, in particular the REACH Regulation (EC) 1907/2006. It includes **a clear methodology for possible future restrictions** of substances in electrical and electronic equipment.

restricted substances list remains unchanged

The list of restricted substances in RoHS 2011 remains unchanged in relation to the current version of the RoHS Directive 2002/95/EC. PBBs and PBDEs remain restricted under RoHS 2011, including the substance Deca-BDE. **All other flame retardants are allowed for use.**

open scope of application

The new RoHS 2011 will **gradually open the scope of application to all electrical and electronic equipment** over an 8-year period (2011-2019). The open scope will be reviewed in 2014 to assess the need for further exclusions.

Link to the published text: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:174:0088:0110:EN:PDF>

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Restricted substances (Annex II)

Annex II of RoHS 2011 lists the substances to be restricted from use in electrical and electronic equipment. **The list of restricted substances has remained unchanged compared to the first version of the Directive.**

A revision of Annex II is to be considered before end-2014 by the Commission, on the basis of a thorough assessment, and periodically thereafter on its own initiative or following a proposal by a Member State.

Procedure for new restrictions

RoHS 2011 introduces criteria for the addition of restricted substances in Annex II.

Specifically, substances can be restricted under RoHS, if they:

- could give rise to uncontrolled or diffuse release of the substances or hazardous residues during E&E waste collection or treatment processes,
- could lead to unacceptable workers exposure in the E&E waste collection or treatment processes, and
- could be replaced by substitutes with less negative impacts.

The Commission by means of delegated acts can make amendments to the RoHS Annex II. The Member States and the Commission can make proposals to add substances to the list of restricted substances under RoHS.

These proposals will include documentation on the detrimental effects and exposure during the E&E waste management operations, a socio-economic assessment, and information on the availability and reliability of substitutes with lower negative impacts.

Which Flame Retardant substances are restricted under the RoHS Directive?

For the purpose of the RoHS directive, in addition to restrictions on the content in Lead (Pb), Mercury (Hg), Cadmium (Cd) and Hexavalent chromium (Cr VI), **the following flame retardant substances shall not be used (maximum concentration value of up to 0,1% by weight in homogeneous materials):**

▪ Polybrominated Biphenyls (PBBs)

Two main commercial mixtures of PBBs existed on the market: **hexabromobiphenyl and decabromobiphenyl**. The manufacturing, marketing and use of both commercial mixtures respectively stopped during the 1970's and in the 1990's.

▪ Polybrominated diphenyl ethers (PBDEs)

Three main commercial mixtures of PBDEs existed on the market: **pentabromodiphenyl ether (Penta-BDE), octabromodiphenyl ether (Octa-BDE) and decabromodiphenyl ether (Deca-BDE)**.

Penta-BDE and Octa-BDE: Following the results of their respective risk assessments under Regulation (EC) 793/93, manufacturing, marketing and use of both have been phased out since 2004.

Deca-BDE: In April 2008, the European Court of Justice (ECJ) ruled that, due to procedural errors in the 2005 Commission decision exempting the substance Deca-BDE from the RoHS Directive provisions, the exemption should be annulled. It had been granted on the basis of the outcome of the Deca-BDE risk assessment under Regulation (EC) 793/93, which did not identify any significant risk to health or environment. As a consequence of the ECJ decision, the commercial mixture of Deca-BDE cannot be used in the manufacturing of E&E equipment covered by the RoHS Directive.

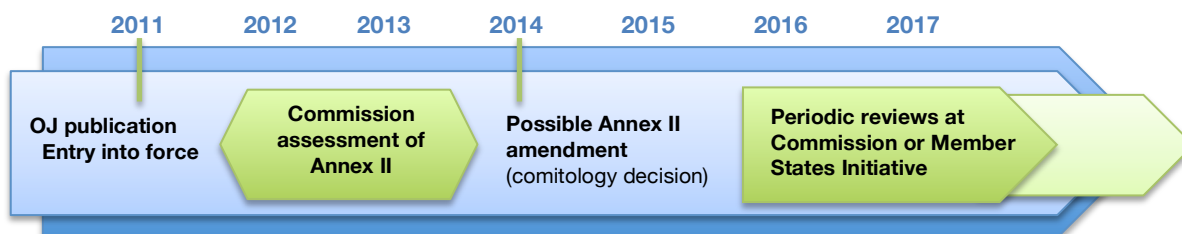


Fig 1. Timeline for potential new restrictions under RoHS (EFRA indicative projection)

Coherence with REACH

RoHS 2011 provisions are in coherence with the REACH Regulation (EC) 1907/2006 and other chemicals legislation. **The text calls for coherence with REACH to be pursued as a priority.**

On that basis, Recital 10 of the Recast RoHS Directive mentions that the risks to health and the environment posed by **four substances listed as substances of very high concern (SVHCs)** under REACH shall be considered as a priority. These four substances are three plasticizers (DEHP, BBP and DBP) and the flame retardant Hexabromocyclododecane (HBCDD).

Exemptions for specific uses

Exemptions for the use of restricted substances in specific applications, granted by the Commission when technical feasibility obstacles arise (e.g. no reliable substitute available), will be time-limited (Art. 5). **Manufacturers will have to regularly renew their requests for exemptions.**

Existing exemptions, listed in Annex III (for categories 1 to 7 and 10) and Annex IV (for categories 8 & 9), are maintained for a limited period of time.

In-scope categories and open scope

RoHS 2011 introduces important new aspects regarding the scope of products, which are covered by the Directive. While the initial RoHS Directive referred to 8 E&E categories (8 of the 10 categories of the sister Directive on Waste of Electrical and Electronic Equipment WEEE), the revised directive now lists 11 categories.

The 2002 Directive exempted the categories **medical devices (cat. 8) and monitoring and control instruments (cat. 9)** from the RoHS provisions. These categories will now be brought into the scope of the RoHS Directive progressively, between 2014 and 2017.

As a major evolution, a new category has been introduced, providing that **other electrical and electronic equipment not covered by any of the categories above (cat. 11), is to be brought into the scope 8 years after the entry into force, (in the course of 2019) leading to an open scope.**

11 RoHS categories (annex I)

1. Large household appliances (LHA)
2. Small household appliances (SHA)
3. IT and telecommunication equipment (IT)
4. Consumer equipment (CE)
5. Lighting equipment
6. Electrical and electronic tools (with exception of large-scale stationary industrial tools)
7. Toys, leisure and sports equipment
8. **Medical devices**
9. **Monitoring and control instruments, including industrial monitoring and control instruments**
10. Automatic dispensers
11. **Other electrical and electronic equipment not covered by any of the categories above.**

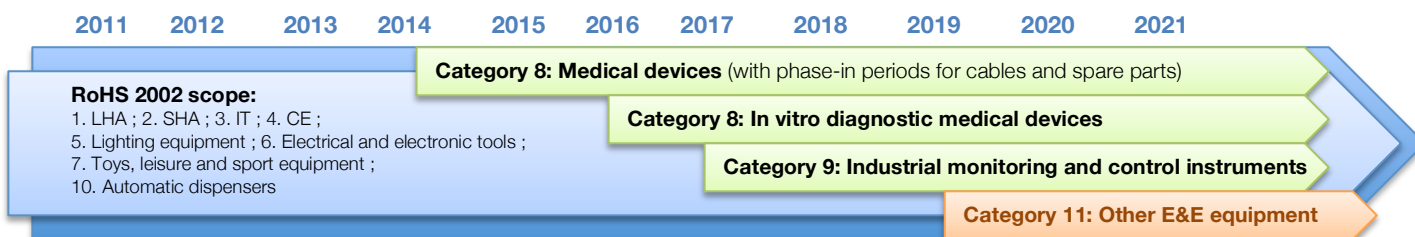


Fig 2. RoHS scope opening timeline (EFRA indicative projection)

Exclusions to the scope

Any E&E equipment not explicitly excluded from the new RoHS scope will, after 2019, be subject to the RoHS Directive provisions. 10 exclusions from the scope are listed in Article 2.4 of the revised directive.

In addition, **the 'open scope' will be subject to an impact assessment by the Commission by 2014,** which will provide the basis for potential additional exclusions to be proposed by the European Commission.

The 10 exclusions (Art. 2.4)

1. Military equipment
2. Equipment sent into space
3. Equipment designed to be part of an excluded equipment
4. Large-scale stationary industrial tools
5. Large-scale fixed installations
6. Transport means, except electric two-wheel vehicles
7. Non-road mobile machinery for professional use
8. Active implantable medical devices
9. Photovoltaic panels assembled and installed by professionals
10. Research and development equipment, only made available on a business-to-business basis

CE Marking

A significant evolution involves the need to explicitly declare conformity with the EU RoHS Directive provisions. Specifically, RoHS-compliant equipment will have to bear the CE marking, thus tying the RoHS and CE marking requirements closely together. In addition, documentation of compliance and a declaration of conformity with the RoHS requirements created by the manufacturer have to be made available upon request of enforcement authorities.

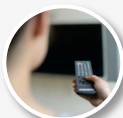
Establishing management systems, which are able to demonstrate RoHS compliance (art. 16.2) will demand significant efforts from all actors along the supply chain.

About flame retardants used in E&E equipment

Flame retardants are added to different materials in order to reduce the risk of fire. They save lives, prevent injuries and property losses, and protect the environment by helping to prevent fires from starting and to limit fire damage. It is possible to treat most potentially flammable materials in the modern world with special additives to make them more difficult to ignite and to significantly reduce the spread of fire. Flame retardants can thus make a decisive contribution to the fire safety of buildings, furniture, electric and electronic apparatus, textiles, public transport and cars.

The EFRA publication **“Keeping fire in check in Electrical and Electronic Devices”** gives a complete and up-to-date insight into the usage of flame retardant substances in Electrical and Electronic equipment. Today’s fast and light electronic devices pose specific material-related fire safety and technical challenges. There is no “one size fits all” solution when it comes to fire safety.

The publication is available from the EFRA website: www.flameretardants.eu



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The European Flame Retardants Association (EFRA) brings together the leading companies, which manufacture, market or use flame retardants in Europe. EFRA covers all types of flame retardants: chemicals based on bromine, chlorine, phosphorus, nitrogen, inorganic compounds and intumescent systems.

EFRA is a sector group of Cefic, the European Chemical Industry Council.

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Disclaimer: EFRA has compiled this factsheet very carefully and the present information is believed to be correct. However, this information is not exhaustive and for obvious reasons some complex points had to be simplified. EFRA will endeavour to make its best efforts to review and update this information on a regular basis, and welcomes your comments in view of future updates.

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