Brussels, 13 February 2008

Environmental and Health NGOs response on the review of Directive 2002/95/EC (RoHS) Directive: technical changes to the scope of the directive, definitions and facilitating implementation

The RoHS Directive has been instrumental in changing the electronics sector towards safer materials and products by restricting the use of some of the most hazardous chemicals. Industry has developed safer products as ROHS has promoted the uptake of green chemistry and innovation. RoHS has also had positive effects beyond the EU as many companies claim RoHS compliance worldwide (see Annex III, section 1).

However, widespread contamination with hazardous substances and materials widely used in electronics is still a matter of high concern due to the very limited scope of the legislation. Many undesirable substances and materials are still used in the production of electronic goods, and they eventually find their way in the environment and human bodies.

Environmental and health NGOs call on the European Commission to strengthen RoHS during its review process to ensure that manufacturers of electronic goods take responsibility for their products throughout their lifecycle. As a major contribution towards addressing health and environmental problems, manufacturers must develop and design clean products that avoid the use of hazardous chemical components at source.

Below you will find the NGOs' response to the policy options presented by the European Commission on I. Product groups to be included; II. Substances covered; III Technical changes to the scope of the directive; IV. Definitions and V. Facilitating implementation (Va Enforcement and Vb Mechanisms for exemptions).

I. PRODUCT GROUPS TO BE INCLUDED [ARTICLE 6 OF ROHS]

Given the emerging scientific and medical knowledge about the effects arising from exposure to extremely low doses of hazardous substances, particularly during the highly sensitive phases of human development in utero which may form the origins of adult disease, more effort to eliminate hazardous substances is warranted.

No.	Option	NGO Response	Summary Reason
1	Continue excluding category 8 and/or 9	Reject	Do not forego opportunity to enhance e/h benefits, and lacks a factual basis for most categories
2	Continue excluding category 8 and/or 9; encourage eco-design	Reject	Voluntary efforts produce insufficient and inconsistent progress
3	**Include both categories (probably 2012)**	**Top Preference (1)**	**Medical and measuring devices sectors are anticipating ROHS obligations**
4	Include both but defer deadline until 2014	Reject	Many manufacturers have already moved towards RoHS compliant production

5	Include both with ERA-proposed exemptions	(2) table 72 exemptions rejected, table 71 needs to be reviewed, if still needed then only time limited exemptions	
6	Include both with ERA-proposed exemptions, later deadlines, and general exemption for lead in solders	Reject	General exemption for lead solders – unnecessary given existing alternatives; permanent exclusion of sensors is disincentive to safer materials/ technology innovation
7	Differentiate consumer / industrial equipment in category 9 – latter by 2018	Reject	Add complexity; bad for simplification
8	Differentiate IVD, AIMD – permanent exclusion/ exemption until 2020.	Low	Permanent exclusion bars innovation.

1. Continue excluding one or both categories altogether

REJECT

Any opportunity to enhance the environmental and health benefits obtained via the Directive should not be foregone. Moreover, given the Consultant background report[1] and other evidence provided to the Commission, there is no factual basis for continuation of the exclusion for the vast majority of the products involved, since effective and cost competitive alternatives are readily available.

Technology has advanced, and both sectors have been anticipating changes. Numerous medical device manufacturers and suppliers, including in the USA, are already claiming compliance with RoHS.[2] Many manufacturers of measuring and control devices have already substituted the concerned substances since their devices have been part of other equipment, already covered by the directive, or are serving markets where such alternatives are already required.[3] For example, Honeywell recently discontinued the manufacture of mercury-added thermostats for the USA market, in response to state legislation prohibiting new sales.[4] As of this time, 11 states in the USA, covering about 30% of the population, have enacted comprehensive legislation prohibiting the sale of mercury switches, relays, and measuring devices (including medical devices). Additional states have prohibitions covering sales of selected products, such as thermostats. (See map in Annex I)

2. Continue excluding one or both categories altogether and encourage eco-design

REJECT

We do not believe that voluntary efforts will lead to sufficient progress, nor is this approach consistent with the underlying objective of the RoHS that timely and consistent action is needed throughout Europe to protect human health and the environment. See also comments above.

[1] ERA Technology, July 2006 "Review of Directive 2002/95/EC for the possible inclusion in the scope of this Directive, equipment which falls under categories 8 and 9 set out in Annex IA to Directive 2002/96/EC (WEEE)" , http://ec.europa.eu/environment/waste/weee/pdf/era_study_final_report.pdf

[2] See reference on our comments sent 22 May 2007, http://www.zeromercury.org/EU_developments/070522RoHS_consultation_NGO%20submission_final.pdf

[3] See comments submitted 26 April 2006, on the interim report on the review of ROHS, http://www.zeromercury.org/EU_developments/060426CommentsonERA-ROHS-scope-report-Mercury.pdf and additional comments submitted 17 May 2006, http://www.zeromercury.org/EU_developments/060517NGOs-additional-Comments-on-Hg-Pb-ERA-ROHS-scope-report.pdf

[4] See http://www.epa.gov/npep/success/honeywell.htm.

3. Include them both from the beginning (probably around 2012 taking into account time necessary for co-decision and accomplishing transposition of revised RoHS in all MS[5])

TOP PREFERENCE

As we noted above and in our previous submissions[6] to the ROHS review, the medical and monitoring and measuring devices sectors are anticipating being subject to ROHS, and numerous manufacturers are already claiming compliance.

For mercury, its use in many monitoring and control devices (where mercury is mainly used out of the six RoHS substances) has already been replaced and mercury-free instruments are already available in the market, so 2012 would even be considered a delay and inconsistent with EU mercury strategy to minimize mercury use as soon as possible. The largest thermostat manufacturer in the world has replaced almost all of their mercury-based thermostats with mercury-free types in 2006.[7]

It is also worth noting that according to the European Lead Free Soldering Network (ELFNET) Third Yearly Report[8], 67% of medical equipment manufacturers are using lead free solders.

4. Include both categories but with a deferred deadline (e.g. 2014)

REJECT

Concerns for continued exemptions were already outlined in the ERA report Table 69, for categories 8 and 9, i.e. that many manufacturers have already moved towards RoHS production and it would be unfair to reward those who have not with an exemption.

As mentioned previously, as far as mercury is concerned, mercury free devices are already available on the market, there is therefore no reason why a later deadline should apply. Moreover, as the EU Mercury Strategy notes, European action must be seen in the global context. In the product area, leadership is required to establish the global norm and encourage market transformations in the developing world. This leadership from the EU will not be evident if it is willing to maintain lengthy periods of inertia without a compelling justification.

5. Include both from the beginning with the exemptions proposed by ERA (tables 71&72: depending on the adoption date, table 72 exemptions may be redundant)

RANKING 2

This is an option that could be considered – however if exemptions are to be given, these should be time limited to ensure the proper incentive structure for developing alternatives (see comments on exemptions below). Considering the dates for restrictions proposed, the exemptions of table 72, ERA report should not be accepted. The exemptions outlined in table 71, should further be reviewed on their validity; it is evident that many of the requests for exemptions by industry, since the adoption of the RoHS directive, have not been justified and were therefore rejected. Accordingly, they should not be memorialized in rule, but considered as normal part of the exemption process and processed accordingly.

[5] Member States

[6] http://www.zeromercury.org/EU_developments/060113_ENV&H_NGOsEUTHERMOSTATinRoHS.pdf
http://www.zeromercury.org/EU_developments/060113_ANNEX_1_%20MAINE_DEP_DENIALOFEXEMPTIONREQUEST.pdf
http://www.zeromercury.org/EU_developments/060113_ANNEX_2_MAINE_BEP_DENIALOFEXEMPTIONREQUEST.pdf
http://www.zeromercury.org/EU_developments/060113_ANNEX_3_051027FINALNGOResponse3rdConsultationROHS.pdf
http://www.zeromercury.org/EU_developments/060426CommentsonERA-ROHS-scope-report-Mercury.pdf
http://www.zeromercury.org/EU_developments/060517NGOs-additional-Comments-on-Hg-Pb-ERA-ROHS-scope-report.pdf

[7] ERA Report 2006-0383- Final Report, page 235, Honeywell- www.honeywell.com

[8] Lead-free soldering status survey 2006, TUB Germany, 23 March 2007; p. 31-32.
http://www.europeanleadfree.net/POOLED/DOCUMENTS/a285702/ELFNET%20Implementation%20Status%20Report%202006.pdf

6. Include both with exemptions (tables 71&72) and deferred deadlines and general exemption for lead in solders (p.230&246-248)

REJECT

A general exemption for lead in solders is unacceptable. We refer back to our submission in May 2006, commenting on the ERA Interim report [9] and in January 2007 [10] to the Stakeholder Consultation regarding the exemption request number 15 (all electronics assemblies using lead in solder). In summary, lead free solders exist, are more environmentally friendly and therefore less health damaging, and are already in widespread use, accounting for perhaps 60% of EU production. A recent European Lead Free Soldering Network Third Yearly Report noted a clear majority of medical equipment manufacturers using lead-free solders.

A *permanent* exclusion for sensors is also unacceptable, as this cannot provide any incentive for innovation of safer materials in sensor technology.

7. Differentiate between consumer/industrial equipment for cat.9 (maximum deadline for industrial equipment: 2018)

REJECT

There is a legitimate issue when it comes to replacement parts for complex industrial machinery, but we believe this should be best addressed as a replacement part issue since new industrial equipment should be subject to the RoHS prohibitions as alternatives are more readily available.

8. Differentiate for In Vitro Diagnostics (IVD) (2016) and Active Implanted Medical Devices (AIMD) (permanent exclusion or exemption until 2020) (p.230)

RANKING: low

Permanent exclusions are unacceptable because they give the wrong signal to industry and eliminate any incentive for innovation in use of safer material.

Overall for Part I, we would also like to invite you to look back at the NGOs' comments mainly concerning mercury but also lead, submitted to the European Commission and the consultant (ERA) who prepared the study on 'Review of Directive 2002/95/EC (RoHS) Categories 8 and 9':

- Stakeholder Consultation of the Restriction of Hazardous Substances Directive (2002/95/EEC). Objection to exemption request Number 15 - All electronics assemblies using lead in solder, submitted 10 January 2007
- Additional Environmental and Health NGOs comments on the interim report on the review of directive 2002/95/EC (ROHS) Categories 8 and 9, mainly on mercury, submitted 17 May 2006
- Environmental and Health NGOs comments on the interim report on the review of directive 2002/95/EC (ROHS) Categories 8 and 9, mainly on mercury[11], submitted 26/4/2007
- Environmental and Health NGOs position on inclusion of non-industrial thermostats within the RoHS directive. Annex I, Annex II, Annex III [January 13th, 2006]

[9] http://www.zeromercury.org/EU_developments/060517NGOs-additional-Comments-on-Hg-Pb-ERA-ROHS-scope-report.pdf
[10] http://www.env-health.org/a/2079 ,at the bottom of the page.
[11] http://www.zeromercury.org/EU_developments/060426CommentsonERA-ROHS-scope-report-Mercury.pdf

II. SUBSTANCES COVERED [ARTICLE 6 OF ROHS]

No.	Option	NGO Response	Summary Reason
1	Not add new HS and deal with them under REACH	Reject	RoHS and REACH have different objectives, targets and timeframes.
2	Add new HS only for certain categories	Reject	Against the principle of the legislation. Would create confusion and uncertainty.
3	**Add new HS with exemptions**	**Top preference (1)**	**Exemptions should only be granted when fully justified on a case-by-case basis.**
4	Add new HS without exemptions with deferral date	Low	This option can only be effective if the deadlines for including new chemicals are not hindered by endless disputes.
5	Add new HS only if substitutes are available	Reject	Against the principle of the legislation. Would create confusion and uncertainty. This is already foreseen under the exemptions mechanism on a case-by-case basis.
6	Link adding new HS to a report on efficiency of WEEE management for removing them from waste stream	Unclear	
7	No new HS but labelling	Reject	Against the principle of the legislation. Would create confusion and uncertainty.
8	No new HS but obligation for easy removability of parts containing HS	Reject	Against the principle of the legislation. Would create confusion and uncertainty. This is dealt with by the EuP legislation.

1. Not add new justified substances under RoHS and deal with them under REACH

REJECT

RoHS and REACH are two different laws with different objectives, target groups and timeframes and therefore cannot be merged. REACH deals with substances and preparations whereas RoHS addresses products. Moreover, for certain hazardous materials like polyvinyl chloride (PVC) plastic, which could be covered under RoHS, REACH will never be able to deal with them as long as polymers are excluded from the scope of the legislation. REACH cannot deal with groups of hazardous chemicals either.

REACH does not have sector-specific analysis of the lifecycle impacts of hazardous chemicals. And certain sectors like electronics were rightly targeted under the Fifth Environment Action Programme as priority waste streams because of their impact on the environment. Besides, any measure taken by RoHS will automatically be exempted under REACH, which will then also help reduce the burden on REACH.

Furthermore, REACH might have much longer timeframes to adopt any measure against HS than RoHS as it is impossible to predict when HS relevant to the electronics industry will be prioritised for authorisation or restriction procedures.

NGOs would also like to emphasize that for all the electronic products currently being imported from non-EU countries, the REACH authorisation would not work to prevent HS from being used.

A decision for not adding new substances to the Article 6 list needs to be done following investigation of new health and environment data that have certainly arisen since the legislation

entered into force and not for bureaucratic reasons in the name of 'simplicity'. New compelling evidence of HS in EEE products (see below) should not be neglected.

Article 6, paragraphs 3 and 4, clearly states that
"The Commission shall also study the need to adapt the list of substances of Article 4(1), on the basis of scientific facts and taking the precautionary principle into account, and present proposals to the European Parliament and Council for such adaptations, if appropriate.

Particular attention shall be paid during the review to the impact on the environment and on human health of other hazardous substances and materials used in electrical and electronic equipment. The Commission shall examine the feasibility of replacing such substances and materials and shall present proposals to the European Parliament and to the Council in order to extend the scope of Article 4, as appropriate."

In other words, interested stakeholders already knew since RoHS passed in January 2003 that the Article 4.1 list could be modified. In fact, they were expecting it to happen before 13 February 2005 (already three years ago) when the legislation was supposed to be reviewed by the Commission.

2. Add new substances but only for certain categories of EEE in the scope of RoHS

REJECT
Besides the negative points already laid down in the consultation document, this option would create a huge burden to analyse which categories could be in or out of the scope with expected huge delays in implementing it. This option would go against the main objective of the legislation which is to eliminate the use of hazardous chemicals in the electronic sector in a timely manner by leaving certain categories out of the scope without proper justification. The exemptions mechanism should be the right place to apply for it.

3. Add new substances for all EEE, in the scope of RoHS but with exempted applications

TOP PREFERENCE
This option is the top preference for NGOs, on our assumption that this is the current practice under RoHS and it can only work properly if a more stringent exemptions procedure is adopted (see comments under part *Vb. Mechanism for exemptions* below). No blank exemptions should be granted as this goes against the general principles of the law, only justified ones that industry needs to apply via the exemptions mechanism could possibly be granted.

As for the additional substances to be included under RoHS, in recent years, a compelling set of studies on the health and environmental impacts of certain HS have been published. NGOs propose the following non-exhaustive list of chemicals to be prioritised for inclusion in Article 4.1: all brominated flame retardants, all phthalates, PVC and beryllium. More detailed technical information on those chemicals may be found in Annex II.

Environmental and health NGOs believe the above list of new chemicals would be feasible to be included under the legislation in the near future. There are a number of examples of the electronics sector efforts where they have already eliminated additional HS voluntarily or are publicly committed to phase them out in the near future. A compilation of such voluntary agreements by industry may be found in Annex III, section 3 and 4 below.

4. Add new substances for all EEE without exemptions at a deferred date

RANKING: Low
This option can only be effective if the deadlines for including new chemicals are not hindered by endless disputes, which would create huge legal uncertainties as to which new HS would be included and by when and prevent new HS being introduced in a timely manner. This would also make it very difficult for industry to prepare in advance and have substitutes ready in time.

Furthermore, this option is unclear as to who should have the burden of proof for analysing which and when new substances be introduced and will not provide the necessary incentive to industry to search for safer alternatives as soon as possible (see also comments in option 5 below).

5. Add new justified substances under RoHS only if substitutes already available and fully investigated

REJECT

This option would create huge delays in including new HS. Who would conduct the assessments whether substitutes are available or not? Who would pay for them? This option would discourage the development of substitutes as a deadline for implementation will not be fixed in time. When RoHS was adopted, industry was given 3 years before the legislation entered into force, which gave them time to search for and implement alternatives. And in case alternatives are not available for certain specific applications, the exemptions mechanism would apply. Besides, as seeing in Annex III, many industry players have already phased out other HS beyond RoHS demonstrating its feasibility.

This option would most likely entail a shift of the burden of proof from industry applicants to public authorities who do not have the capacity, resources and knowledge to do so including not having access to relevant data.

6. Link inclusion of substances at a given deadline (e.g. 2014) with the results of a report on the efficiency of waste (WEEE) management for removing HS from the waste stream

This option is very unclear. To Environmental NGOs, RoHS exists to identify and eliminate hazardous substances from EEE, and WEEE exists to prevent increasing levels of such waste, and to channel it towards specific waste treatment types (reuse, recycling, recovery). WEEE is also a rare piece of legislation that incorporates eco-design and a clear individual producer responsibility obligation. Both pieces of legislation are complementary to each other but have very different objectives.

This option appears to only consider the waste phase of the HS or the WEEE product and not the entire lifecycle of the product.

It would also be difficult to assess the efficiency of waste management in removing HS as electronic waste is treated differently in different countries. One also needs to be fully aware of the different realities regarding waste management especially outside the EU, which cannot be under the scope of this legislation.

7. Not add any new substances but introduce labeling requirements (for example certain phthalates for certain Medical Devices)

REJECT

Labeling of some phthalates is now obligatory under the newly revised medical devices directive (MDD). Such RoHS labeling could induce lots of confusion between what is labeled for identification, and what is labeled for restriction; and what is labeled for MDD purposes (all medical devices, not just EEE, which contain CMR cat 1&2 phthalates), and what is labeled under RoHS. REACH also imposes labeling for authorised chemicals which will add to the confusion.

When certain HS are identified as highly problematic, they should be phased out from use in electronic goods, instead of passing the burden to the consumer.

8. Not add any new substances but introduce obligation for easy removability of parts containing HS

REJECT

This option does not solve the problem; instead it shifts the burden/responsibility to other players (such as waste handlers) other than the manufacturers, the latter being much better equipped to eliminate the problem of HS at source. One can never guarantee proper waste treatment even if the removal of HS is made easier. Moreover, RoHS addresses the whole lifecycle of the product

where workers at the production sites might be exposed to HS, consumers during the use phase and not only its waste phase.
Other existing legislation (EuP) is already addressing this issue and there is no contradiction or unnecessary overlap in having both applied concurrently.

III. Technical changes to the scope of the directive

No.	Option	NGO Response	Summary Reason
1	Separate WEEE from RoHS scope	REJECT	Impact and added value need to be detailed
2	Include explicitly spare parts & components	SUPPORT in principle	Would increase legal certainty
3	Insert clause excluding equipment which is part of another type of equipment that does not fall within the scope	REJECT	The legal wording of RoHS does not exempt these.
4	Insert clause excluding equipment intended for military purposes	REJECT	as above
5	Clarify status of consumables	SUPPORT in principle	Careful legal definition is needed
6	Assess the need for including fixed installations	SUPPORT in principle	
7	Assess the need for maintaining a general exemption for LSIT	SUPPORT	Would send a wrong signal to continue prolonging such blanket exemptions from RoHS.
8	Extend the scope to cover all EEE	SUPPORT in principle	Exemptions should be granted on a case-by-case approach and should be time limited rather than through blanket exemptions.
9	Add more specialised product categories in an indicative index	--	
10	“repair as produced” principle: exclude parts for repairing and for the reuse of products lawfully placed on the market	SUPPORT with clear time limit and limitation of scope	Should be considered only with a limited time period (market transition to RoHS compliant products) and limited to specific sectors where there is a strong evidence that RoHS is hampering the repair and reuse of products

1. Separate WEEE from RoHS scope

REJECT
Environmental and health NGOs would not favour a complete separation of the scope of WEEE and ROHS. The added value of such a separation is far from obvious as the two instruments were conceived as “twin” directives and all stakeholders are used to the two directives. We are concerned that completely separating the scope of the two directives could lead to pressures on RoHS to focus on the use phase rather than the entire life-cycle of products (production, use and end-of-life) in the process of adding new substances or for granting exemptions.

In addition, environmental and health NGOs are not opposed to a clarification of the scope of ROHS to facilitate implementation of the directive. However, particular attention would need to be given to the precise drafting of clarifications not to avoid creating loopholes in the directive.

2. Include explicitly spare parts & components

SUPPORT in principle
Environmental and health NGOs support in principle the explicit inclusion of "spare parts and components", since it could increase legal certainty provided clear definitions.

3. Insert clause excluding equipment which is part of another type of equipment that does not fall within the scope

And

4. Insert clause excluding equipment intended for military purposes

REJECT and assess the need
This equipment is not exempted from the scope of the RoHS directive, according to the directive's legal text; however interpretation that this equipment is actually excluded from the scope was provided by the EC in the Frequently Asked Questions document[12]. We don't see why these products should be exempted as a blanket exemption. Time limited exemptions should apply under the exemptions mechanism of the directive, in considered necessary.

5. Clarify status of consumables

SUPPORT in principle
It could increase legal certainty provided clear definitions.

6. Assess the need for including fixed installations

SUPPORT in principle
Fixed installations should be included in the scope of the directive. If needed, time limited exemptions should apply under the exemptions mechanism of the directive.

7. Assess the need for maintaining a general exemption for LSIT

SUPPORT
Similar to the comments above, the Commission should go beyond the proposal of merely assessing the need for maintaining a general exemption for LSIT but plan for an inclusion of this category in the RoHS directive. It would send a wrong signal to continue prolonging such blanket exemptions from RoHS.

8. Extend the scope to cover all EEE

SUPPORT
This issue has been covered in Part I.
The Commission is proposing a wide range of options for clarifying the scope of the RoHS directive. Environmental and health NGOs favour the principle of extending the scope of RoHS to cover all EEE. As such, we recommend the Commission to provide a strong signal to operators by working towards the removal of "blanket" exemptions.

9. Add more specialised product categories in an indicative index

No comment

[12] http://ec.europa.eu/environment/waste/weee/pdf/faq_weee.pdf

10. "repair as produced" principle: exclude parts for repairing and for the reuse of products lawfully placed on the market

SUPPORT with clear time limit and limitation of scope

Environmental and health NGOs are concerned about the granting of an open-ended exemption on parts for "repairing and for the reuse of products". This could be inconsistent with the inclusion of spare parts (Option 2) and could lead to more confusion on the market.

We note, however, the potential difficulty of finding non-HS replacement parts for some complex machinery bought years ago. In the USA for example, state legislation prohibiting the sale of mercury switches, and relays generally applies to spare or replacement parts, however time limited exemptions are provided for larger products used in manufacturing, or when the product (mercury switches in this case) is integrated and not physically separate from other components of the larger product.

Similar exemption language is typically not applied to measuring devices, since they tend to be physically separate and thus more readily replaceable.

The European Commission should therefore come forward with a proposal to limit these exemptions in time and for specific sectors where there is strong evidence that RoHS may be hampering the repair and reuse of products thus reducing life-span.

IV. Definitions

No.	Option	NGO Response	Summary Reason
1	Insert new definition "placing on the market"	--	Can be supported in principle
2	Insert new definition for economic operators	--	Can be supported in principle
3	Insert definition for fixed installations	--	Can be supported in principle
4	Add descriptive definitions for all product category	REJECT	No significant added value and time-consuming
5	Include a comitology procedure to update the list of illustrative examples (clarifying the status of "grey area" products)	SUPPORT with scrutiny of the EP	Already happens in practice. As the very scope of the directive is at stake, the European Parliament should maintain its scrutiny right.
6	Insert definition for "homogeneous material" and the MCVs of the Commission decision	--	Can be supported in principle
7	Insert definition of spare parts	--	Can be supported in principle

1. Insert new definition "placing on the market"
2. Insert new definition for economic operators
3. Insert definition for fixed installations

See comments under policy option 6,7.

4. Add descriptive definitions for all product category

REJECT

We believe Option 4 would be a time-consuming exercise with no significant added value. On the contrary, this could create even more confusion while not solving the issue of "grey areas".

5. **Include a comitology procedure to update the list of illustrative examples (clarifying the status of "grey area" products)**

SUPPORT with EP scrutiny
We are in principle supportive of a process to update the list of illustrative examples to clarify the status of grey area products within an EU harmonised approach. As this decision is at the heart of the directive and will impact its scope, we would strongly recommend a parliamentary scrutiny if the comitology process is suggested.

6. **Insert definition for "homogeneous material" and the MCVs of the Commission decision and**
7. **Insert definition of spare parts**

Environmental and health NGOs can support the inclusion of definitions as proposed as they will improve legal certainty of the legislation. It is crucial however, especially with respect to homogenous material that the definition in the Guidance document is kept and the debate is not reopened.

V. Facilitating implementation

Va Enforcement

No.	Option	NGO Response	Summary Reason
1	Introduce market surveillance mechanisms	SUPPORT in principle	Far greater verification checking is needed.
2	Include conformity assessment procedures (self declaration or third party verifications)	SUPPORT in principle	NGOs would favour third party verifications.
3	Introduce marking to introduce RoHS compliance	REJECT	A separate RoHS marking would not bring the intended benefits and could create confusion for consumers without added value.
4	Introduce common procedures for withdrawing non-compliant products from the market and for administrative cooperation	SUPPORT in principle	Non-compliant products should be withdrawn from the market as early as possible at the manufacturer's cost and penalties should be established to discourage future illegal actions from happening.
5	Use of (international) standards; elaboration of material data bases and material declaration formats	--	
6	Insert obligation for MS to collect and make available data	SUPPORT in principle	This would increase transparency and confidence that the objectives of the directive are being met.
7	Insert review clause with or without progress criteria/indicators	SUPPORT in principle	
8	Introduce stakeholder forum	SUPPORT in principle	In principle, NGOs favour transparency and inclusive process to monitor implementation of the directive.
9	Introduce implementation-related provisions such as EEE producer traceability requirements (producer register, information for users and treatment facilities)	SUPPORT in principle	

1. Introduce market surveillance mechanisms

SUPPORT in principle
Environmental and health NGOs assume this option would include the actual testing of products (or at least asking manufacturers to demonstrate compliance).

Strengthening RoHS is important, but if there is not adequate checking that the regulation is working in practice then the potential benefits may be greatly reduced.
Far greater verification checking of how industry is complying with the directive is necessary to make sure the objectives of the legislation are being carried through. NGOs also believe the results should be made public to increase its transparency.

3. Introduce marking to demonstrate RoHS compliance

REJECT
Environmental and health NGOs are strongly opposed to this option in the form of a separate RoHS logo. This would be confusing for European consumers at a time where labelling environmental information is becoming increasingly fashionable. The RoHS logo would bring no added value and would merely reflect conformity with the law.
While marking / labelling schemes can provide benefits as part of a wider set of measures, alone they do not guarantee compliance. Misuse of a marking scheme, either unknowingly or intentionally, could falsely demonstrate RoHS compliance for a non-compliant product, leading to the perception that hazardous substances in products that will enter the electronic waste stream are being addressed to a greater extent that is actually the case, thereby undermining the intention of this option to enhance RoHS compliance.

Introduction of any marking scheme must be part of a wider package of measures that together provide comprehensive assessment of products for compliance, including, amongst other measures, the actual testing of products & their components.

Vb. Mechanisms for exemptions

No.	Option	NGO Response	Summary Reason
1	No more exemptions, but reduce scope of the directive	REJECT	Exemptions should be based on a case-by case approach and not linked to the scope of the directive
2	Remove additional requirement for stakeholder consultation	REJECT	Would reduce transparency
3	Exemptions to be granted only for new technologies or only for new equipment	REJECT	Could reduce the possibility of exemptions but send the wrong signal. New technologies/new equipment should be RoHS compliant. The possibility for exemptions should in principle only be applied to existing equipment or technologies.
4	Industry and not public authorities to assume the burden of proof and cost	SUPPORT	Polluter pays principle – and to ensure not overburdening authorities.
5	Manufacturers to provide substitution plan when requesting exemptions	SUPPORT	Would allow thorough analysis by public authorities when examining exemption
6	Establish standard format for providing info on requested exemptions	SUPPORT in principle	It would make sure all necessary information are given and would help analysing the requests for exemptions faster.

7	Introduce cost/broader sustainability criteria for granting exemptions	REJECT	Basis for granting exemption should remain unchanged
8	Introduce other criteria for granting exemptions	REJECT	Basis for granting exemption should remain unchanged
9	Exemption requests to be submitted directly to TAC	REJECT	Unbalanced decision-making process

1. No more exemptions, but reduce scope of the directive

REJECT
Exemptions from the general substitution requirement of the RoHS directive are permitted currently 1) if substitution is not possible from the scientific and technical point of view; 2) if the negative environmental or health impacts caused by substitution are likely to outweigh the human and environmental benefits of the substitution, or 3) if it is not compatible with the health and safety of users of electrical and electronic equipment.

Environmental and Health NGOs believe that whenever exemptions are given, these should only be for a time limited period to drive innovation and substitution, and should be based on the existing criteria. Although the process might be considered long for the operators, the practice proves that strict controls and verifications are needed when an application for exemption is made by industry.

The consultation document mentions that some stakeholders expressed the view that the current system for granting exemptions has created practical problems. However the practical problems claimed by the operators have rather been caused by their delay in dealing with the directive's requirements, as can be seen by the fact that most of the requests are for applications which existed before the publication of the directive. Delays in the process are also caused by late submissions for exemptions, and unclear justifications.

3. Exemptions to be granted only for new technologies or only for new equipment

REJECT
We are concerned that this option would send the wrong signal to investors who will continue to invest in equipment containing RoHS hazardous substances instead of phasing them out while the objective of RoHS has been to promote innovation and substitution of hazardous substances.
Admittedly, it would limit the possibility to submit exemptions request. However, this could also be achieved by making sure the industry carries the burden of proof. The possibility for exemptions should in principle only be applied to existing equipment or technologies. The proposed option risks creating an artificial distinction between OLD and NEW equipment/technologies.

4. Industry and not public authorities to assume the burden of proof and cost

SUPPORT
We would strongly recommend that applicants assume the burden of proof for exemptions (see also comments under option 5). Until now more than 100 additional (to the initial RoHS directive) requests for exemptions have been submitted by industry. Public consultation and the analysis from the consultants have proven however that not all of these justify adoption. Only 28 have been approved so far, showing that many requests were not justifiable. This has led to significant pressure on public authorities and the work of the TAC to deal with the exemptions.

5. Manufacturers to provide substitution plan when requesting exemptions

SUPPORT
We strongly favour the submission of substitution plans. Full evaluation is needed for every exemption request to ensure whether safer alternatives are available and follow the criteria set on

the directive. Manufacturers are best suited to conduct those and submit the appropriate data as to meet the criteria for applying for an exemption. The evaluation carried out by the consultants should also be broader to include investigation of the availability of safer alternatives, including the active searching for such information. Currently they rely solely on voluntarily submitted information but ideally they should be verifying the data presented by the applicant and request further information if appropriate. Furthermore the cost for such detailed investigations should follow the polluter pays principle and be borne by the requesting industrial entity: e.g. each request for exemption should be accompanied by a fee payment – the fee would cover part of the cost of an independent consultant hired by the Commission to examine the details of the request including availability of alternatives.

As an additional suggestion, we would like the Commission to make all exemptions time-limited to give the right signal to industry that they should be continuously searching for alternatives. Annex III, section 2 contains examples of such efforts by progressive industry and shows that certain exemptions are no longer needed and therefore should be deleted.

7. Introduce cost/broader sustainability criteria for granting exemptions

And

8. Introduce other criteria for granting exemptions

REJECT

We strongly oppose Option 7 and 8. Cost evaluation is NOT foreseen by the RoHS Directive Article 6, and this should not be changed. Exemptions should only be based on scientific facts and not on simplistic cost considerations.

9. Exemption requests to be submitted directly to TAC

REJECT

We oppose Option 9 and option 2 (remove additional stakeholder consultation) as these options would effectively result in less transparency. Should industry representatives be allowed in TAC meetings to provide information on exemptions, this would need to be balanced out by the participation of other relevant stakeholders, such as environmental and health NGOs, consumer organisations etc.

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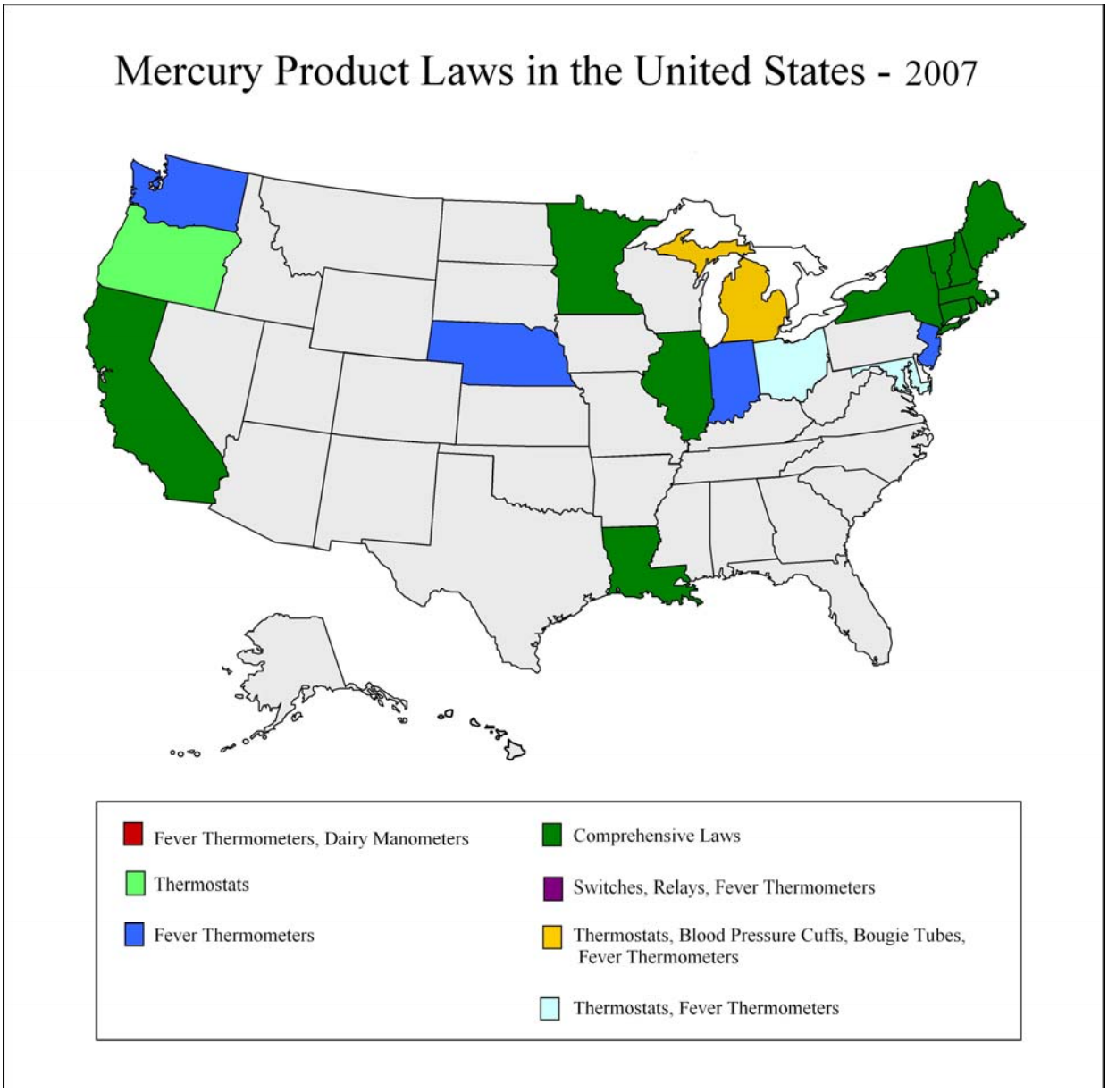
Annex I


Mercury Product Laws in the United States - 2007
Fever Thermometers, Dairy Manometers
Thermostats
Fever Thermometers
Comprehensive Laws
Switches, Relays, Fever Thermometers
Thermostats, Blood Pressure Cuffs, Bougie Tubes, Fever Thermometers
Thermostats, Fever Thermometers

Annex II: New evidence for the inclusion of additional substances to be regulated under RoHS, including through the removal of the current deca-BDE exemption

As part of an earlier submission by a coalition of environmental and health NGOs (of 22nd May 2007) to the RoHS review process (see Annex IV), information was submitted supporting the call for the inclusion of additional chemicals to be regulated under this directive, including through the removal of the current deca-BDE exemption.

As a consequence of ongoing research into these chemicals of concern, additional supporting data and studies have subsequently been published that provide additional support to the call for their regulation in this area through their addition to those chemicals that are currently regulated under the directive.

1. New hazardous substances to be included in Article 4.1 of RoHS

1.1. PVC and other chlorinated polymers

In the previous submission (of 22 May 2007) evidence was presented for the inclusion of chlorinated plastics including PVC amongst those chemicals regulated under the RoHS Directive.

In many EEE products, chlorinated polymers such as PVC are commonly present in conjunction with brominated materials, primarily brominated flame retardants. The combination of these two groups of materials can result in emissions of mixed chlorinated-brominated dioxins/furans through end of life processing. This group of chemical pollutants has generally not been included in studies of halogenated dioxins/furans. However, recent data indicates that these chemicals could constitute a significant fraction of the total halogenated dioxin/furan burden from use of such materials, and that the mixed chlorinated-brominated dioxins/furans may be as toxic, if not more toxic, than the more well known chlorinated dioxins/furans.

Additional information on mixed chlorinated-brominated dioxins is presented below in the section addressing brominated flame retardants

1.2. All brominated flame retardants (BFRs)

Currently RoHS regulates the use of two groups of brominated flame retardant, namely polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). The directive currently allows an exemption for one chemical of the PBDE group, namely deca-BDE. Data demonstrating the need to remove the exemption allowing use of this specific BFR has been presented below.

Further to the regulation of all PBBs and PBDEs (including deca-BDE), there is need for the inclusion of **all** BFRs on the list of chemicals regulated under RoHS. As detailed in the submission of 22 May 2007, in addition to impacts relating to other specific BFRs, studies have demonstrated the potential for environmental contamination with persistent, bioaccumulative and toxic chemicals that can be produced during the processing of materials containing organic-bound bromine (which include all BFRs), as well as organic-bound chlorine (which includes the plastic PVC).

The previous submission presented data from studies relating to halogenated dioxins/furans (polychlorinated dibenzo-dioxins and –furans), including;

- **chlorinated** dioxins/furans arising from chlorinated materials (e.g. PVC)
- **brominated** dioxins/furans from brominated materials (e.g. all BFRs)
- **mixed** chlorinated-brominated dioxins/furans arising from mixtures of chlorinated and brominated materials (e.g. PVC and BFRs in the same source)

The following text provides additional relevant studies on the toxicity, formation, environmental distribution and monitoring of some of these chemicals that have been recently published.

Toxicity

The toxicity of chlorinated dioxins/furans are well documented and will not be addressed herein. In comparison, however, far less data is available concerning the toxicity of brominated dioxins/furans, and even less so for mixed chlorinated-brominated dioxins/furans.

In the previous submission, information was presented indicating that **brominated** dioxins/furans have similar toxicity to the related chlorinated dioxin/furans. Subsequently, further data[13] has been published that support the toxicities of brominated dioxins/furans as being equivalent to those of chlorinated dioxin/furans.

Data on the toxicity of certain **mixed** chlorinated-brominated dioxins/furans has recently been published[14]. These data indicate that mixed chlorinated-brominated dioxins may have even greater toxicity than the more well known chlorinated dioxins/furans, in one case, up to three times greater effect than the most toxic chlorinated dioxin (2,3,7,8-TCDD). The World Health Organization (WHO) has recently reevaluated their toxic equivalency factors (TEFs) of dioxins and dioxin-like compounds. As part of this work, the WHO stated that where mixed halogenated (bromine- and chlorine-substituted) dioxins/furans are detected in humans and their food, these chemicals should definitely be considered for inclusion in the TEF scheme[15].

Formation

Though less studied that the chlorinated dioxins/furans, the potential for the formation of **brominated** dioxins/furans has been well documented during the thermal processing of brominated materials, such as polymeric materials containing any type of BFR. Adding to this body of evidence, a recent study[16] specifically investigated brominated and chlorinated materials widely present in EEE. This study demonstrated that recycling operations used to processes electronic waste in some countries can result in very high emissions of brominated dioxins/furans from the processing of these materials.

Far less data is currently available on the formation of **mixed** chlorinated-brominated dioxins/furans, studies [17] have been carried out which demonstrate the formation of mixed dioxins/furans from the thermal processing of mixtures of brominated and chlorinated materials, as currently found in EEE through use of PVC and BFRs.

Mixed chlorinated-brominated dioxins/furans cannot be dismissed as being only of minor concern compared to chlorinated dioxins/furans or brominated dioxins/furans. Studies have shown[18] that under some conditions mixed dioxins/furans can constitute the bulk of the total amount of

[13] Olsman, H., Engwall, M., Kammann, U., Klempt, M., Otte, J., van Bavel, B., and Hollert, H. (2007) Relative differences in aryl hydrocarbon receptor–mediated response for 18 polybrominated and mixed halogenated dibenzo-*p*-dioxins and -furans in cell lines from four different species. Environmental Toxicology and Chemistry 26(11): 2448–2454

[14] Olsman, H., Engwall, M., Kammann, U., Klempt, M., Otte, J., van Bavel, B., and Hollert, H. (2007) Relative differences in aryl hydrocarbon receptor–mediated response for 18 polybrominated and mixed halogenated dibenzo-*p*-dioxins and -furans in cell lines from four different species. Environmental Toxicology and Chemistry 26(11): 2448–2454

[15] Van den Berg, M., Birnbaum, L.S., Denison, M., De Vito, M., Farland, W.,Feeley, M., Fiedler, H., Hakansson, H., Hanberg, A., Haws, L., Rose, M., Safe, S., Schrenk, D., Tohyama, C., Tritscher, A., Tuomisto, J. Tysklind, M., Walker, N., Peterson, R.E. (2006). The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds. Toxicological Sciences 93(2): 2203-241

[16] Gullett, B., Linak, W.P., Touati, A., Wasson, S.J., Gatica, S., King, C.J. (2007) Characterization of air emissions and residual ash from open burning of electronic wastes during simulated rudimentary recycling operations. Journal of Material Cycles and Waste Management 9(1), 69-79

[17] Example include; Weber, R. & Kuch, B. (2003) Relevance of BFRs and thermal conditions on the formation pathways of brominated and brominated–chlorinated dibenzodioxins and dibenzofurans. Environment International 29: 699– 710. Soderstrom, G. & Marklund, S. (2004) Formation of PBCDD and PBCDF during flue gas cooling. Environmental Science and Technology 38(3): 825-830. Soderstrom, G. & Marklund, S. (2002) PBCDD and PBCDF from incineration of waste-containing brominated flame retardants. Environmental Science and Technology 36(9): 1959-1964

[18] Weber, R., Kuch, B., Ohno, T., Sakurai, T. (2002) De novo synthesis of mixed brominated-chlorinated PXDD/PXDF. Organohalogen Compounds 56:181– 4 (cited in Weber & Kuch 2003)

dioxins/furans formed. The very limited data on these chemicals is primarily due to lack of awareness and the difficulties in analyzing these mixed dioxins/furans (discussed further below).

Dioxin/furan Environmental levels

Data on environmental levels of **brominated** dioxins/furans are limited for a number of reasons, including the assumption that these chemicals are present at far lower levels than the more well know chlorinated dioxins, the difficulties in analyzing for these chemicals, and the frequent non-inclusion of brominated dioxins in monitoring programs.

Recent studies[19] have shown that environmental levels of brominated dioxins/furans may be far higher than previously assumed. Brominated dioxins/furans have been found to be present in ambient air at levels equivalent to or even higher than levels of the more well known chlorinated analogues. The authors of one study noted that "it is strongly suggested that more attention should be paid to the PBDD/Fs [brominated dioxins/furans] contamination". Though these specific studies of not concerning levels within the EU, they do provide valuable recent data where very little has previously been available.

Data on the emissions of **mixed** chlorinated-brominated dioxins/furans, and their levels in the environment, is very scarce[20]. Compared to the chlorinated group and to the brominated group, there are an extremely high number of individual mixed chlorinated-brominated dioxins/furans (known as individual congeners). As recognized by the WHO[21], the very high number of these compounds, and the lack of analytical standards for the majority, has meant that very few studies have been able to investigate this group of chemicals, and where studies have been carried out they have been limited in their scope. This situation remains a major problem in assessing these pollutants.

Virtually all studies that have sought to investigate the emission of halogenated dioxins/furans during end of life processing of EEE containing chlorinated materials such as PVC and brominated materials such as BFRs have not included study of mixed chlorinated-brominated dioxins/furans.

1.3. Phthalate esters (phthalates)

In the previous submission of 22 May 2007, data was presented showing impacts from the use of phthalates in EEE, at both the manufacturing stage and at the products end of life through the recycling and disposal of electronic waste.

Subsequent to this submission, studies have been released that demonstrate the widespread use of phthalates in some classes of EEE; laptop computers[22] and mobile phones[23]. These studies demonstrate the use of numerous phthalates, primarily as plasticisers (softeners) in materials manufactured from PVC and other polymers. The amounts of phthalates present in the majority materials tested were not small, in some materials phthalates consisted of over 20% of the total weight of the material.

[19] Wang, L.C., Hsientsai, C., Chien, G.P. and Hsienhung, C. (2008) Characterization of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans in Different Atmospheric Environments. Environmental Science and Technology 42(1); 75-80. Li, H., Feng, J., Sheng, G., Lu, S., Fu, J., Peng, P., Man, R. (2008) The PCDD/F and PBDD/F pollution in the ambient atmosphere of Shanghai, China. Chemosphere 70: 576–583

[20] Watanabe, I. and Sakai, S. (2003) Environmental release and behavior of brominated flame retardants. Environment International 29(6): 665–682

[21] Van den Berg, M., Birnbaum, L.S., Denison, M., De Vito, M., Farland, W.,Feeley, M., Fiedler, H., Hakansson, H., Hanberg, A., Haws, L., Rose, M., Safe, S., Schrenk, D., Tohyama, C., Tritscher, A., Tuomisto, J. Tysklind, M., Walker, N., Peterson, R.E. (2006). The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds. Toxicological Sciences 93(2): 2203-241

22 Toxic chemicals in computers Reloaded. Brigden, K., Webster, J., Labunska, I. & Santillo, D. (2007) Greenpeace Research Laboratories Technical Note 06/2007: 52 pp.

[23] Missed Call: iPhone's hazardous chemicals. Santillo, D., Walters, A., Labunska, I. & Brigden, K. (2007) Greenpeace Research Laboratories Technical Note 08/2007: 12 pp.

Related regulation of phthalates in products

The principle phthalates identified in the above studies are not permitted for use in certain other products sold in Europe. As discussed in the previous submission, due to concerns over human exposure to toxic and potentially toxic chemicals, the use of certain phthalates is restricted in some products within the EU (toys and childcare articles)[24].

Toxicity

As noted in the previous submission, many phthalates are toxic to wildlife and humans, often through their metabolites (chemicals to which they breakdown in the body). Some phthalates (e.g. DEHP and DBP) are classified as "toxic to reproduction" within the EU[25]. As research continues, studies that give further evidence of the toxicity of phthalates continue to be published, including evidence of effects in humans (e.g. Meeker *et al.* 2007[26]).

1.4. Beryllium

Data was presented in the submission of 22 May 2007 demonstrating the potential for human health impacts arising from the use of beryllium alloys (including copper-beryllium alloys) in EEE.

2. Unnecessary exemption

Deca-BDE

Currently RoHS regulates the use of certain brominated flame retardant including polybrominated diphenyl ethers (PBDE). The directive currently allows an exemption for one specific PBDE, namely deca-BDE.

Data from the wide body of studies on this chemical that demonstrate the concerns arising from the use of deca-BDE have been previously submitted to the European Commission. Research into deca-BDE is ongoing, in part driven by the existing evidence showing potential impacts in certain areas, as well as uncertainty over impacts in other areas. Presented below are some examples of data that has been recently published that further demonstrate areas of risk through allowing ongoing use of deca-BDE in products, including EEE.

Deca-BDE conversion into other PBDEs in the environment

The RoHS Directive currently regulates the use of PBDEs (other than deca-BDE) as a result of the widely recognized concerns associated with these chemicals. Data has very recently been published[27] demonstrating that, following released to the environment, deca-BDE can undergo changes into other PBDEs, i.e. into chemicals that are currently regulated under RoHS. This debromination can take place within sediment, a major environmental receptor for deca-BDE. The authors of the study estimate that this process could produce quantities in the order of metric tons per year of those PBDEs that are currently regulated under RoHS, and may provide a significant source of these lesser-brominated PBDEs to biota.

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24 EC (2005) Directive 2005/84/EC of the European Parliament and of the Council of 14 December 2005 amending for the 22nd time Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (phthalates in toys and childcare articles). Official Journal of the European Communities L344, 27.12.2005: 40-43 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:344:0040:0043:EN:PDF

25 EC (2001) Directive 2001/59/EC of the European Parliament and of the Council of 6 August 2001 adapting to technical progress for the 28th time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances. Official Journal of the European Communities L225, 21.8.2001: 1-333 http://ecb.jrc.it/documents/Classification-Labelling/ATPS_OF_DIRECTIVE_67-548-EEC/28th_ATP.pdf

26 Meeker, J.D., Calafat, A.M., Hauser, R. (2007) Di(2-ethylhexyl) phthalate metabolites may alter thyroid hormone levels in men. Environmental Health Perspectives 115(7), 1029-1034

27 Tokarz, J.A., Ahn, M.Y., Leng, J., Filley, T.R. and Nies, L. (2008) Reductive debromination of polybrominated diphenyl ethers in anaerobic sediment and a
biomimetic system. Environmental Science & Technology ASAP Article, 10.1021/es071989t. http://pubs.acs.org/cgi-bin/asap.cgi/esthag/asap/pdf/es071989t.pdf

Deca-BDE bioaccumulation

Studies have shown that following release of deca-BDE to the environment, bioaccumulation of this PBDE can occur. For example, a very recent study[28] has demonstrated that, regardless of deca-BDE not fitting certain criteria for persistent and bioaccumulative substances, levels of this chemical have increased significantly over time in some biota. In this particular study, levels of deca-BDE were found to double every 2–3 years in herring gull eggs. The authors concluded that the study provides evidence that regulation of deca-BDE is now warranted.

Deca-BDE direct toxicity

There has been for some time a significant body of information on the toxicity of deca-BDE[29]. Adding to this, further research is ongoing to investigate the toxicity of deca-BDE, and the toxicity of deca-BDE metabolites formed within the body following exposure to deca-BDE. Some recent studies[30] have raised additional concerns over deca-BDE, indicating that this PBDE may be more toxic than previously thought, including through endocrine disrupting properties.

[28] Gauthier, L.T., Hebert, C.E., Weseloh, D.V.C and Letcher, R.J. (2008) Dramatic Changes in the Temporal Trends of Polybrominated Diphenyl Ethers (PBDEs) in Herring Gull Eggs From the Laurentian Great Lakes: 1982–2006. Environmental Science & Technology, ASAP Article, 10.1021/es702382k. http://pubs.acs.org/cgi-bin/asap.cgi/esthag/asap/pdf/es702382k.pdf

[29] Costa, L.G. & Giordano, G. (2007) Developmental neurotoxicity of polybrominated diphenyl ether (PBDE) flame retardants. NeuroToxicology 28(6): 1047-1067 and references therein

[30] Tseng, L.H., Li, M.H., Tsai, S.S., Lee, C.W., Pan, M.H., Yao, W.J., Hsu, P.C. (2008) Developmental exposure to decabromodiphenyl ether (PBDE 209): Effects on thyroid hormone and hepatic enzyme activity in male mouse offspring. Chemosphere 70: 640–647, and studies cited therein

Annex III: Impact of RoHS inside and outside EU

1. Global RoHS-compliance

1.1 Companies with a clear statement that RoHS requirements are already applied globally.

Nokia

"This regulation went into effect July 1, 2006. We took the challenge head-on and produced RoHS-compliant products in both our Mobile and Network divisions. It is our practice to use legal compliance not as a mere baseline but as a starting point from which to grow." http://www.nokia.com/A4230064

'Nokia launched its first RoHS compliant product, the Nokia 5140i, a year ahead of the RoHS directive schedule in spring 2005, and has continued its work to apply RoHS requirements for its products globally.' http://www.nokia.com/A4359317

HP

"We have also met our voluntary internal goal of eliminating or reducing RoHS substances to the EU specified levels for virtually all HP brand electronic products worldwide, except where it is widely recognized that there is no technically feasible alternative as indicated by an exemption under the EU RoHS Directive." At:
http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/materialuse.html

Dell.

Dells 'Guidance Document on Restricted Materials (2006)
http://www.dell.com/downloads/global/corporate/environ/restricted_materials_guid.pdf covers "material restrictions required for parts in all Dell branded products".
..... "For RoHS substances, the substance is acceptable only if present in a homogenous material at a quantity at or below the threshold limit for a non-exempt application or if it is used in an exempt application per the RoHS Directive."
"Dell products sold in the EU on or after July 1 2006 comply with the EU RoHS requirements .... In addition, Dell met the requirements of the "Japan RoHS" or "J MOSS" legislation for applicable products. Dell is also meeting the requirements of the EU RoHS Directive worldwide." http://www.dell.com/downloads/global/corporate/environ/RoHS_Position.pdf

Apple.

All Apple products worldwide are compliant with the European Directive on the Restriction of the Use of Certain Hazardous Substances in electronics, also known as the RoHS Directive.
http://www.apple.com/environment/
"Apple products are compliant with the European Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, also known as the RoHS directive. Examples of materials restricted by RoHS include lead, mercury, cadmium, hexavalent chromium, and PBB and PBDE flame retardants. As a result of our precautionary approach to hazardous substances, Apple met many of the RoHS restrictions long before the July 2006 deadline." Their restricted substances timeline states: "2006, Products comply with the RoHS Directive worldwide." http://www.apple.com/environment/materials/

Sony

Mercury free LCD displays are used in Sony's 24.5mm LCD of a "VAIO T-Series" notebook PC. Iinstead of fluorescent tubes, the new LCD uses a mercury-free LED backlight. See page 57 of Sony's CSR Report 2006:
http://www.sony.net/SonyInfo/Environment/issues/report/2006/index.html

Sony

"In view of the global nature of Sony's markets and supply chains, Sony is observing certain standards such as the RoHS Directive on a worldwide basis. ….Sony's standards also target products not covered under the RoHS Directive, including CDs, MDs and other disc media, and videotapes." http://www.sony.net/SonyInfo/Environment/environment/management/efficiency/index.html

Sony Ericsson

"Sony Ericsson was the first company to ensure that every device in its range was fully compliant with the EC Directive on the Restriction of Hazardous Substances (RoHS). Every product manufactured since the

beginning of 2006 has been fully compliant and Sony Ericsson has applied this standard globally to all products it manufactures."
http://www.sonyericsson.com/cws/corporate/company/aboutus/socialresponsibility/environment#toxic_free_environment

1.2 Companies that prohibit RoHS substances in all their products, but do not make a clear statement that this is 'worldwide'

Samsung

"…SAMSUNG Electronics often goes above and beyond legal requirements in phasing out target chemicals across our entire product range in all countries, even where there is no legal requirement to do so."
http://www.samsung.com/us/aboutsamsung/corpcitizenship/environmentsocialreport/environmentsocialreport_PolicyOnTargetSubstances.html
Class 1 target substances are the six substances regulated under the EU RoHS Directive, which have been phased out of all products by 1 May 2006.
http://www.samsung.com/us/aboutsamsung/corpcitizenship/environmentsocialreport/environmentsocialreport_ManagementOfTargetSubstances.html
"Preparing for EU RoHS effected from July, 2006, we have taken Eco-partner policy since May, 2004 in order to manage hazardous substances in parts, raw materials that consist of product, and make environmental quality management system of cooperating company."
http://www.samsung.com/us/aboutsamsung/corpcitizenship/environmentsocialreport/environmentsocialreport_EcoPartnerCertificationProgram.html

Acer.

"After a year of devoted efforts, on 1 July 2006 all of Acer's products have been RoHS compliant."
http://www.global.acer.com/about/sustainability13.htm

Fujitsu Siemens.

"We offer our customers products which will comply with, or which already meet or exceed these new guidelines (WEEE and RoHS). All of our products are RoHS-compliant since mid of 2006."
http://extranet.fujitsu-siemens.com/products/documents/green/european_environmental_protection_regulations.pdf

LGE

LGE specifies that intentional use of all Level A substances (RoHS substances are Level A-1) is prohibited in all items supplied to LGE, see p.18:
http://www.lge.com/about/environment/images/Regulations_4thEdition_June2007.pdf

Panasonic

Although Panasonic does not specifically state that RoHS compliance is applied worldwide, RoHS substances are listed as 'Level 1 Prohibited Substances': "In the components, materials and products shipped by the Matsushita Group, these substances must not be used intentionally, and the contained concentration as an impurity must be guaranteed to be below the regulated value…".
http://www.panasonic.net/eco/suppliers/data/chemical4p_e.pdf

Philips

"Our global policy applies the EU RoHS requirements to all of the markets we serve. While medical equipment is currently not in the scope of the RoHS legislation, our Medical Systems division is proactively eliminating these substances where possible." (p. 54, Philips Sustainability Report 2006)
http://www.philips.com/shared/assets/Downloadablefile//Sustainability-Annual-Report-2006(2)-16090.pdf

1.3 Companies that aim to apply RoHS globally

Lenovo

"Lenovo has qualified the majority of its new products in accordance with the European Union Directive 2003/95/EC ("RoHS") and is phasing in European RoHS requirements for new products on a global basis."
http://www.pc.ibm.com/ww/lenovo/about/sustainability/environment/RoHS_Communication.pdf

1.4 Companies without a clear statement that they prohibit RoHS substances in all their products, or that this is worldwide, or planned to be worldwide.

Toshiba

"The RoHS Directive of the European Union (EU) banned the use of six substances, including lead, mercury and cadmium, in products placed on the EU market from July 2006. The Toshiba Group adopted a policy of not using these substances in products shipped from April 2005 in order to comply with the RoHS Directive and has now completed this work."
http://www.toshiba.co.jp/env/en/products/chemical.htm
"For all mobile phones, regardless of whether they are destined for the Japanese market or overseas markets, we are endeavouring to abolish use of harmful substances, including the six substances specified by the RoHS Directive, from the initial development phase…….As a result, Toshiba is already shipping mobile phones in compliance with the RoHS Directive not only to Europe, but also in Japan and elsewhere in Asia.
……As of March 2006, the entire line-up of Toshiba notebook PCs are RoHS compliant." However, this information isn't given for other PCs or for other Toshiba products (which are extensive).
http://www.toshiba.co.jp/env/en/products/chemical_casestudy2006.htm

Motorola

"All affected Motorola products shipped to the EU after June 30, 2006, comply with the RoHS Directives requirements." http://www.motorola.com/content.jsp?globalObjectId=8509
In addition, "whilst not all Motorola accessory products will necessarily fall within the scope of the EC RoHS Directive, Motorola policy ensures that only accessories free of RoHS restricted materials will be placed on the EU market from the 1st July 2006 onwards." http://www.motorola.com/content.jsp?globalObjectId=7437
Motorola does not state that they apply the RoHS restrictions worldwide, but does say that it "has implemented a comprehensive system for obtaining supplier declarations and material disclosures concerning the chemical composition of all components and products designed, manufactured or utilized by Motorola without regard to where products are ultimately going to be sold or deployed." http://www.motorola.com/mot/doc/6/6223_MotDoc.pdf

Sharp

Sharp has successfully eliminated all RoHS substances "in all products for the European market by the end of 2005 and in all new products (except those for certain regions) by March 31 2006." See p.2. http://www.sharp-world.com/corporate/eco/csr_report/2007pdf/sharp33_34e.pdf

Nintendo

Nintendo does not specifically refer to RoHS, but make the following statement "All Nintendo products supplied worldwide are designed to comply with relevant global standards. In order to certify that Nintendo products comply with standards for hazardous chemical substances, Nintendo has established the Green Procurement Standards, which require our component suppliers to certify that any parts they deliver do not include hazardous chemical substances, and ensure that Nintendo fully controls its products internally".
http://www.nintendo.com/corp/faq.jsp#environment

Microsoft

Microsoft states that: "At a minimum, we implement strict policies to ensure that our products and packaging fully comply with the requirements of each government's jurisdiction in which we do business. This includes compliance with the WEEE and RoHS Directives issued by the European Union (EU)."
http://www.microsoft.com/about/legal/weee/weee.aspx
"Compliance with the RoHS Directive for all EU products was achieved before July 1, 2006." In addition, Microsoft states in its document 'Restricted Substances for Hardware Products: "RoHS Substances: These substances shall not be present above trace background levels in homogeneous materials used in Microsoft hardware products, except as permitted by exemptions allowed per EU Directive 2002/95/EC …., with the exception of deca-BDE, which, although an exempted application under EU RoHS, is restricted by Microsoft in the same manner as other PBDEs. Except as specified in writing by Microsoft, all Microsoft products shipped from factories after July 1, 2005, must be Lead-Free in accordance with the requirements of the EU RoHS Directive…"
http://download.microsoft.com/download/2/9/c/29c66154-08db-438d-b427-d2de9d65717c/RohsComplianceLetter.pdf

2. Unnecessary exemptions

2.1 Lead in display panels of plasma TVs

e.g. Panasonic,
see press release 2nd Nov 2006 at:
http://panasonic.co.jp/corp/news/official.data/data.dir/en061102-1/en061102-1.html
Also:
http://www.panasonic.net/eco/gp/chemical.html
"the use of lead in PDPs was exempt from legislation because no alternative technology existed. But Panasonic persevered and found an alternative."

2.2 Lead in plastics and paint

e.g. Apple
"In addition to the lead restrictions introduced by the European RoHS Directive, Apple's plastic parts, paint, and packaging material do not contain lead." At:
http://www.apple.com/environment/materials/

2.3 Mercury in flourescent tubes in LCDs

e.g. Apple
Apple has an Environmental Status Report for the Macbook Air, which states 'Mercury free LCD display with arsenic-free glass.'
http://www.apple.com/macbookair/specs.html

2.4 DecaBDE in PCs and laptops

e.g. HP
"HP eliminated the use of decaBDE many years ago and has no plans to reinitiate its use." At:
http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/materialuse.html

e.g. Dell
See (p.2) Guidance Doc on Restricted Substances
http://www.dell.com/downloads/global/corporate/environ/restricted_materials_guid.pdf

e.g. Apple
"Decabromodiphenyl ether (Deca-BDE) is also banned from Apple products even though its use is currently permitted under the RoHS directive." At:
http://www.apple.com/environment/materials/

e.g. Lenovo
See (p.10) Engineering Spec 41A7731 at:
http://www.pc.ibm.com/ww/lenovo/procurement/Guidelines/41A7731_EC_J25933T.pdf
"There are no applications of PBDE permitted by Lenovo. Lenovo does not exempt deca-bromodiphenyl ether from this restriction."

e.g. Samsung
Deca BDE is to be phased out by 1st January 2007 in all applications (including TVs)
http://www.samsung.com/uk/aboutsamsung/corporateactivity/corpcitizenship/environmentsocialreport/CorporateActivity_ManagementOfTargetSubstances.html

e.g. Sony
Deca BDE has been banned since 1 Jan 2005 in all applications (including TVs)
See p.9 of Management Regs SS-00259
http://www.sony.net/SonyInfo/procurementinfo/ss00259/ss_00259ec_General_use.pdf

e.g. Panasonic
Deca BDE is also prohibited by Matsushita (Panasonic) to comply with the German 'Dioxin Ordinance'. (see p.10) http://www.panasonic.net/eco/suppliers/data/chemical4p_e.pdf

e.g. LGE
Although Deca-BDE was exempted from the restriction under the ROHS directive, LG Electronics has banned all PBDE, including Deca-BDE from its products in light of the precautionary principle
http://www.lge.com/about/sustainability/hazardous_substances_detail.jsp

e.g. Microsoft.
Microsoft does not use deca-BDE in its products: "These substances shall not be present above trace background levels in homogeneous materials used in Microsoft hardware products, except as permitted by exemptions allowed per EU Directive 2002/95/EC …., with the exception of deca-BDE, which, although an exempted application under EU RoHS, is restricted by Microsoft in the same manner as other PBDEs."
http://download.microsoft.com/download/2/9/c/29c66154-08db-438d-b427-d2de9d65717c/RohsComplianceLetter.pdf

3. Additional Substances being eliminated BEYOND RoHS

3.1 PVC

Already eliminated PVC:
Nokia http://www.nokia.com/A4288185

Sony Ericsson
"…all Sony Ericsson products are already PVC free - except for cables in a few early models of chargers and accessories, and these are being phased out." at:
http://www.sonyericsson.com/cws/corporate/company/aboutus/socialresponsibility/environment#toxic_free_environment

e.g. Panasonic
(as of March 2007) has many examples of PVC-free products, including DVD players and recorders, home cinemas, video players and lighting equipment. PVC-free models are listed at:
http://www.panasonic.net/eco/gp/chemical.html

eg. Sony
As of November 2007, Sony has added more examples of products that are free of PVC, including many models of the Personal Computer VAIO, "WALKMAN", Camcorder, Videorecorder and Digital camera.
http://www.sony.net/SonyInfo/Environment/activities/products/index.html

FSC
Fujitsu Siemens Green products such as FUTRO thin clients, ESPRIMO professional PCs and CELSIUS workstations use halogen-free flame retardant plastics and halogen-free Printed Circuit Boards for mainboard and power supply.
http://www.fujitsu-siemens.com/aboutus/company_information/business_excellence/environmental_care/production.html
http://www.fujitsu-siemens.com/aboutus/company_information/business_excellence/environmental_care/products.html
http://www.fujitsu-siemens.com/home/products/personal_computers/scaleo_l_green_edition.html

Sharp
Sharp lists a number of LCD TVs and mobile phones (for the Japanese market) that are free from PVC (except for accessories).
http://www.sharp-world.com/corporate/eco/data/chem.html

Timeline of 2008 for elimination:

Apple

http://www.apple.com/environment/materials/

Timeline of 2009:

Lenovo

Lenovo is committed to a timeline of 2009 for the phase out of remaining uses of PVC.
http://www.pc.ibm.com/ww/lenovo/procurement/Guidelines/BFR_PVC_Phase-out_Supplier_Letter_August_2007.pdf

Dell

Dell is committed to eliminate in our new products all remaining uses of polyvinyl chloride (PVC) by 2009 at:
http://www.dell.com/content/topics/global.aspx/corp/environment/en/prod_design?c=us&l=en&s=corp&~section=016

Acer

Acer pledges to prohibit PVC and BFRs from use in all new Acer products by 2009. For a detailed description of this plan, please click here to see our HSF Plan. http://global.acer.com/about/sustainability13.htm

Toshiba

PVC and BFRs, in Class B group, used not only in PCs and mobile phones as we had previously announced but in all other products, will be replaced with alternatives, that are available from the viewpoint of mass production and cost efficiency, by 2009 if burdens on the environment can be reduced without affecting the capabilities, performance, or quality of products.
http://www.toshiba.co.jp/env/en/products/chemical.htm#pvcbfr_free
Examples of products with reduced use of PVC & BFRs are at:
http://www.toshiba.co.jp/env/en/products/chemical_casestudy2007.htm#copy
Information can also be found in 'Factor T' brochure (large pdf file) at:
http://www.toshiba.co.jp/env/en/products/ecp/factor.htm#FACTOR
http://www.toshiba.co.jp/pc_env/eco/lca.html#comm3
See also Commitment #5 at:
http://www.toshiba.co.jp/pc_env/eco/lca.html#comm5

HP

HP has provided a timeline for eliminating PVC in 2009 from its new computing products, but not for its entire product portfolio at:
http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/materialuse.html

Timeline of 2010:

LGE

PVC will be gradually phased out starting with the all newly developed products as of January 2008, and will be totally banned from use by December 2010.
http://www.lge.com/about/sustainability/hazardous_substances_detail.jsp

Samsung

Samsung is committed to achieving a phase out of all applications of PVC by 31st December 2010 at:
http://www.samsung.com/uk/aboutsamsung/corporateactivity/corpcitizenship/environmentsocialreport/CorporateActivity_PolicyOnTargetSubstances.html

Sony

Sony provides a timeline of end of 2010 to substitute PVC in all new models of Mobile products (excluding accessories) http://www.sony.net/SonyInfo/Environment/activities/products/index.html

Sharp

"Sharp is committed to eliminating PVC from all products by the end of fiscal 2010, provided that it can procure PVC alternatives that do not sacrifice the capabilities, performance, and quality of its products."
http://www.sharp-world.com/corporate/eco/data/chem.html

Timeline of 2011

Panasonic

Panasonic has committed to eliminating PVC in internal wiring of all products for the Japanese market by end of March 2009 and globally by end of March 2011. No timelines yet for substitution of PVC external cables, except for notebooks which should be globally PVC-free (including AC power cords) by 2011.
http://www.panasonic.net/eco/gp/chemical.html

Microsoft

Microsoft is committed to eliminating PVC and brominated fire retardants from all of its hardware products by or before 2011.
http://download.microsoft.com/download/f/8/f/f8f0fc33-3c5d-4fd8-a36e-348543f3539f/SustainabilityFactSheet.doc

Timeline of 2012

Philips

Philips state that: "We continue to investigate options to replace PVC in products and are evaluating the feasibility of a timeline for phase out. Our targeted time horizon is 2012, but can be subject to change depending on technical developments and economical feasibility."
http://www.philips.com/about/sustainability/howwework/ourproductsandprocesses/chemicalsubstances.page

No timeline but elimination commitment

e.g. FSC

"Fujitsu Siemens Computers is phasing out the use of polyvinyl chlorides (PVC) …. PVC are not used in the housing or mechanical parts of Fujitsu Siemens Computers products and are only employed when there is no acceptable substitute. However, long-term, the company is seeking the complete elimination of PVC, and is working in conjunction with its suppliers to source alternative substances."
http://www.fujitsu-siemens.com/aboutus/company_information/business_excellence/environmental_care/production.html

Reducing PVC use

e.g. Sony at: http://www.sony.net/SonyInfo/Environment/activities/products/index.html

Sony is also striving to gradually replace PVC used in other areas. These efforts have already enabled Sony to switch to olefin materials for certain power cables, AC adapter cords and electrical cords used in its products.

e.g. Motorola at: http://www.motorola.com/content.jsp?globalObjectId=1686-10565

"…we have programs to identify, test and utilize alternatives to polyvinyl chloride (PVC) materials in our handsets. By working closely with suppliers of alternative materials, we have been able to develop PVC-free products for our handset portfolio that serve as templates for expanding the PVC-free approach."

3.2 All BFRs

Eliminated or almost eliminated

Nokia

One remaining application (flexible circuits) in some models; otherwise ALL new models BFR-free:
http://www.nokia.com/NOKIA_COM_1/Corporate_Responsibility/Environment_/Sustainable_products/Substance_management/NokiaSubstanceList_Version_10.xls

Sony Ericsson by 1st Jan 2008

Sony Ericsson Lists of Banned and Restricted Substances (p.4), halogenated flame retardants are listed as banned.
http://www.sonyericsson.com/cws/download/1/308/336/1193062465/SE_Environmental_Policy_local.pdf
There are two exemptions until the end of 2007; "halogenated flame retardants in the epoxy resin of the adhesive for flexible printed circuit boards under mechanical stress…..; halogenated flame retardants in the epoxy resin of molds and substrates for electrical components ….. However, products based on electrical platforms and electrical components launched before 2007 may continue to use those components."

Toshiba

make a range of notebook PCs including the 'Dynabook', 'Qosmio', 'Satellite', 'Tecra' and 'Portege' models which have circuit boards free of halogens and antimony.
http://www.toshiba.co.jp/pc_env/eco/lca.html#comm3
http://www.toshiba.co.jp/env/en/products/ecp/factor.htm#FACTOR
& pdf file
http://www.toshiba.co.jp/env/en/products/pdf/factor_t_2008_en.pdf
More information at:
http://dynabook.com/pc/catalog/satellit/0606cmn/kankyo.htm (in Japanese)

Philips

Since 2003 housings of all Philips Flat TVs have been flame retardant globally – although this is not required in most regions of the world" and plan for an eventual phase out of BFRs.
http://www.philips.com/about/sustainability/howwework/ourproductsandprocesses/chemicalsubstances.page

Sony

Sony has added more examples of products that are free of BFRs, including many models of the Personal Computer VAIO, "WALKMAN", Camcorder and Digital camera.
http://www.sony.net/SonyInfo/Environment/activities/products/index.html

LGE

LGE's mobile phone division has already phased out BFR in all housing parts for batteries and chargers/adaptors, and has made significant progress in phasing out BFR in handsets (the majority of models launched after Jan 2006 come with BFR-free handset cases).
http://www.lge.com/about/sustainability/hazardous_substances_detail.jsp

Samsung

Samsung products that are free of BFRs are:

- All mobile phone chargers are now BFR and halogen-free;
- Certain types of halogen-free memory chips and semiconductors are available;
- In 2005, use of TBBP-A in TV and monitor housing was reduced by over 50% and the phase out of TBBP-A in TV housing was completed in 2006.

http://www.samsung.com/uk/aboutsamsung/corporateactivity/corpcitizenship/environmentsocialreport/CorporateActivity_PolicyOnTargetSubstances.html

FSC

Fujitsu Siemens Green products such as FUTRO thin clients, ESPRIMO professional PCs and CELSIUS workstations use halogen-free flame retardant plastics and halogen-free Printed Circuit Boards for mainboard and power supply.
http://www.fujitsu-siemens.com/aboutus/company_information/business_excellence/environmental_care/production.html
http://www.fujitsu-siemens.com/aboutus/company_information/business_excellence/environmental_care/products.html
http://www.fujitsu-siemens.com/home/products/personal_computers/scaleo_l_green_edition.html

Sharp

Sharp lists a number of products that are free from BFRs in casings, such as LCD TVs, video projectors, DVD players, blu-ray disc players, audio products, copiers, MFPs and supplies.
http://www.sharp-world.com/corporate/eco/data/chem.html

Timeline of 2008 for elimination:

Apple at:

http://www.apple.com/environment/materials/

Timeline of 2009 for elimination:

Lenovo

Lenovo is committed to a timeline of 2009 for the phase out of remaining uses of BFRs,
at: http://www.pc.ibm.com/ww/lenovo/procurement/Guidelines/BFR_PVC_Phase-out_Supplier_Letter_August_2007.pdf

Dell

Dell is committed to eliminate in our new products all remaining uses of brominated flame retardants (BFRs) by 2009, as acceptable alternatives are identified…
http://www.dell.com/content/topics/global.aspx/corp/environment/en/prod_design?c=us&l=en&s=corp&~section=016

Acer

Acer pledges to prohibit PVC and BFRs from use in all new Acer products by 2009. For a detailed description of this plan, please click here to see our HSF Plan. http://global.acer.com/about/sustainability13.htm

Toshiba

"PVC and BFRs, in Class B group, used not only in PCs and mobile phones as we had previously announced but in all other products, will be replaced with alternatives, that are available from the viewpoint of mass production and cost efficiency, by 2009 if burdens on the environment can be reduced without affecting the capabilities, performance, or quality of products."
http://www.toshiba.co.jp/env/en/products/chemical.htm#pvcbfr_free
Examples of products with reduced use of PVC & BFRs are at:
http://www.toshiba.co.jp/env/en/products/chemical_casestudy2007.htm#copy
See Commitment #5 at:
http://www.toshiba.co.jp/pc_env/eco/lca.html#comm3

HP

HP has provided a timeline for eliminating BFRs in 2009 from its new computing products, but not for its entire product portfolio at:
http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/materialuse.html

Timeline of 2010:

LGE

Bromine-based flame retardants will be banned from use in all newly developed products as of January 2010, see:
http://www.lge.com/about/sustainability/hazardous_substances_detail.jsp

Samsung

Samsung is committed to phasing out all BFRs in new models of all products by 1st January 2010 at: http://www.samsung.com/uk/aboutsamsung/corporateactivity/corpcitizenship/environmentsocialreport/CorporateActivity_ManagementOfTargetSubstances.html

Sony

Sony provides a timeline of end of 2010 to substitute BFRs in the casing and main PWBs of all new models of Mobile products by the end of fiscal 2010.
http://www.sony.net/SonyInfo/Environment/activities/products/index.html

Sharp

"Sharp is committed to eliminating BFRs from all products by the end of fiscal 2010 according to the Precautionary Principle, provided that it can procure BFR alternatives that do not sacrifice the capabilities, performance, and quality of its products."
http://www.sharp-world.com/corporate/eco/data/chem.html

Timeline of 2011:

Panasonic

All new models of mobile phone and computers should be free of BFRs by 2011, but there is no commitment to eliminate BFRs from Panasonic's whole product portfolio. At: http://www.panasonic.net/eco/gp/chemical.html

Microsoft

Microsoft is committed to eliminating PVC and brominated fire retardants from all of its hardware products by or before 2011.
http://download.microsoft.com/download/f/8/f/f8f0fc33-3c5d-4fd8-a36e-348543f3539f/SustainabilityFactSheet.doc

Timeline of 2012

Philips

Philips state that: “We are evaluating the feasibility of a timeline for phase out of BFRs. Our targeted time horizon is 2012, but can be subject to change depending on technical developments, changes in safety regulations and economical feasibility.”
http://www.philips.com/about/sustainability/howwework/ourproductsandprocesses/chemicalsubstances.page

No timeline but elimination commitment and some models with BFR-free circuit boards

e.g. FSC

“…the use of polybrominated flame retardants in Fujitsu Siemens Computers products is avoided. BFRs are neither used in housings nor in formed plastic parts weighing over 25 grams, which exceeds the requirements set out in the European RoHS directive. Fujitsu Siemens Computers has reduced the chlorine and bromide content of the printed circuit boards in its Green products from 12 percent to less than 0.15 percent and is working with suppliers to eliminate the use of halogen in favour of alternatives that will meet product performance requirements while lowering the risk of health and environmental impact”.
http://www.fujitsu-siemens.com/aboutus/company_information/business_excellence/environmental_care/production.html
See also (p.6) http://extranet.fujitsu-siemens.com/products/documents/green/pdf/sn36350-2_FSC.pdf

e.g. Sony

Also: Sony’s Reducing Usage of BFRs at
http://www.sony.net/SonyInfo/Environment/activities/products/index.html
Sony is promoting the use of alternatives to brominated flame retardants (BFRs), which can generate harmful substances if treated improperly after disposal.
For example BFRs are not used in the cabinets of any models of the "VAIO" PC, as of November 2007, available in the market or in the printed wiring boards(PWBs) of any of B5-sized and smaller notebook PCs. Moreover, printed wiring boards in 91% of A4-sized Sony PCs also contain no BFRs.

e.g. Motorola

lists 54 models whose rigid circuit boards are free of BFRs at:
http://www.motorola.com/content.jsp?globalObjectId=1686-10565

4. Other Candidates for Addition to RoHS

Many companies already identify ‘future’ substances for substitution.

NOTE: Other EU laws already prohibit some substances in some applications e.g.

Nickel and its compounds	EU Directive 76/769/EEC
Arsenic and its compounds	EU Directive 76/769/EEC

E.g. Nokia

Nokia has restrictions in force, or has restrictions pending on antimony trioxide, beryllium and beryllium oxide, cobalt and PFOS, phthalates
http://www.nokia.com/NOKIA_COM_1/Corporate_Responsibility/Environment_/Sustainable_products/Substance_management/NokiaSubstanceList_Version_10.xls

E.g. Sony Ericsson

Lists of Banned and Restricted Substances (p.4)
http://www.sonyericsson.com/cws/download/1/308/336/1193062465/SE_Environmental_Policy_local.pdf

The Sony Ericsson list of restricted substances (in products)

Substance, Main areas of use, Main risks, Phase out date
Antimony and its compounds except in solder alloys(< 2% Sb) Various Flame retardants in plastics Toxic, negative for recycling **1/1 2008**
Beryllium, beryllium alloys and beryllium compounds Various Connectors Carcinogenic **1/1 2008**
Tetrabromobisphenol-A (TBBA), reactive or additive. Exemptions see clause 4. Halogenated flame retardants All others. Exemptions see clause 4. Various Epoxy resin of the adhesive for dynamic Flexible

Printed Circuit boards under mechanical stress and molds and substrates for electrical components Bioaccumulative **1/1 2008**
Phthalates Various Polyvinylchloride (PVC) Bioaccumulative, ecotoxic **1/1 2008**
Perchlorates Various Primary Li/MnO2 (CR) batteries Disruption of hormone production TBD

E.g. Dell
Guidance Doc on Restricted Substances' (p.4) nat:
http://www.dell.com/downloads/global/corporate/environ/restricted_materials_guid.pdf

Antimony and its compounds
Arsenic and its compounds
Beryllium and its compounds
Bismuth and its compounds
Phthalates
Selenium and its compounds

E.g. Apple's use of **Arsenic in LCD glass**
Used as an industry standard material in liquid crystal displays (LCDs), arsenic is added to prevent the formation of defects in the glass. Apple is on track to introduce our first displays using arsenic-free glass in 2007, and we plan to completely eliminate the use of arsenic in all of its displays by the end of 2008. at:
http://www.apple.com/environment/materials/
The new Macbook Air uses arsenic-free glass, as stated in its Environmental Status Report:
http://www.apple.com/macbookair/specs.html

E.g. Lenovo's reportable substances (p.12 Engineering Spec 41A7731) at:
http://www.pc.ibm.com/ww/lenovo/procurement/Guidelines/41A7731_EC_J25933T.pdf
Antimony/Antimony Compounds
Arsenic/Arsenic Compounds
Beryllium/Beryllium Compounds

E.g. LGE's Hazardous Substances Management at:
http://www.lge.com/about/sustainability/hazardous_substances_detail.jsp

Level B: Substances that are to be either monitored or reduced
Beryllium and its compounds, including alloy
Antimony and its compounds, including alloy
Selenium and its compounds
Palladium and its compounds
Bismuth and its compounds
Chlorine-based flame retardants
Volatile Organic Compounds
Radioactive materials

E.g. Panasonic's Managed substances include: antimony, beryllium, bismuth and phthalate esters. More information at:
http://www.panasonic.net/eco/suppliers/index.html
"Chemical Substances Management rank guidelines Ver.4 for products" and "Green Procurement Standards Manual Ver.4 were issued:
http://www.panasonic.net/eco/suppliers/data/chemical4p_e.pdf - (see page 12)
http://panasonic.net/eco/suppliers/data/procurement4_e.pdf

Philips
Philips state that "We pro-actively strive to eliminate substances of potential concern. For example, we aim to eliminate arsenic from television glass and other display products from 2008 onwards."
http://www.philips.com/about/sustainability/howwework/ourproductsandprocesses/chemicalsubstances.page