



European Flame Retardants Association

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10 October 2011

**Subject: Formal EFRA comments on the following document:**

**“Discussion on ‘Hazardous Substances’ Criterion Investigation of Request for Derogation” of September 2011**

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The European Flame Retardants Association (EFRA) would like to thank the Joint Research Centre for the opportunity to comment. Our comments relate to point 1.1 of this document regarding the substance (1-methylethylidene)di-4.1-phenylenetetraphenyl diphosphate (BDP or BPADP, CAS no. 5945-33-5).

**General comment: flame retardants should not be singled out**

“Flame retardants” describes a function and not a separate class or family of chemicals: there is no clear scientific or legal definition for the term flame retardant. A wide range of different chemicals is used for that purpose. Certain flame retardant substances can also be used for other function beyond flame retardancy, for example as plastic softeners or fillers. Therefore, flame retardants should be treated as any other substance in the EU Ecolabel and in (Green) Public Procurement. This is acknowledged by the recently published EU Flower criteria for laptop and desktop computers which do not single out flame retardants but apply to all substances: 2011/330/EU and 2011/337/EU.

**More specifically, our comments are related to the following paragraphs and/or sentences in the above-mentioned document:**

**1.1.2 Hazardous properties and health impact / 1.1.3 Direct Environmental Impacts (p. 8-10)**

*“The degradation products from the chemical components of BPADP are phenol, bisphenol A, and diphenyl phosphate (Maine 2007, Washington State 2006). It is unclear from these references under what conditions and to what extent this degradation into bisphenol A may appear. [...] Due to the potential for endocrine disruption by bisphenol A, (BPADP) was scored as high for the endocrine disrupting attribute based on its degradation products.” (p. 10)*

**Sufficient data shows: BDP is not a PBT**

Even though not published, there is sufficient data available on BDP, which EFRA member companies submitted to the respective authorities: being a “new substance”, BDP was registered after 1981 and has been evaluated by the EU and different Member States where it was registered (Belgium, the UK, the

Netherlands). The risk assessments of BDP conducted by these three EU Member States led to the result that it does not fulfil the screening criteria for bioaccumulation and toxicity. Therefore, BDP is not a PBT. The conclusion from the quoted U.S. literature on bioaccumulation of BDP is incorrect, as it is only based on modelling data and not on real test data.

#### ***There is no evidence that BDP degrades into bisphenol-A***

There is no evidence that BDP will degrade into bisphenol-A and EFRA is not aware of any information from literature or any other data confirming that this occurs. The quoted literature on p. 8 does not present any evidence either (Maine 2007) and is again related to a modelling exercise only, instead of real test data (Washington State 2006). It is therefore scientifically not justified to claim that BDP is an endocrine disrupting substance.

#### ***Basis for substance restriction under the EU Ecolable***

The EU flower restricts substances “meeting the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR)” (Art. 6.6 of Regulation (EC) No. 66/2010). BDP is not a CMR substance and with regard to its current H413 (R53) classification, EFRA would like to refer to its position paper from 8<sup>th</sup> September 2011, asking for a horizontal derogation of BDP and ATO (antimony trioxide) in the EU Flower.

#### **1.1.4 Life cycle considerations for bisphenolA bis(biphenylphosphate) (p. 10)**

*Since BDP has very low water solubility and high bioaccumulation potential the environmental fate of the substance is expected to be through particles. Therefore, it is very likely that BDP is emitted through plastic particles during recycling of external housing parts. If the housings are incinerated according to BAT than BDP is irreversible eliminated. (p.10)*

#### ***Recyclability of BDP***

There is no evidence that BDP is emitted through plastic particles during recycling of external housing parts. Studies on commercial and laboratory products conducted by EFRA indicate that BDP in PC/ABS shows good recycling properties under several scenarios, compared to RDP (CAS no. 57583-54-7) in PC/ABS where polymer properties were severely impacted. The recyclability of brominated flame retardants in HIPS is even better than the recyclability of BDP in PC/ABS.

#### **1.1.5 Potential substitutes of bisphenolA bis(biphenyl) phosphate / Table 8: Non halogenated Flame retardants commercially used in PC, PC blends, ABS, SAN and PET (p. 10-11)**

##### ***Flame retardant systems for E&E casings***

The information provided in Table 8 is misleading since not all of the flame retardant substances listed can be used for external casings of consumer electronics including imaging equipment, or are typically used by polymer manufacturers for that purpose. Table 8 indicates that single substances can easily be substituted by other substances, which does not work. For example, phosphorous based flame retardants are not considered to be a general substitute for halogenated flame retardants. There are only flame retardant systems, which – in some cases – can be substituted by other flame retardant systems:

For external casings, there are four main polymer formulations with limited combinations of suitable flame retardant systems. While several brominated flame retardants (e.g. TBBPA, EBP, EBTP and others) can

be used in virgin plastics such as HIPS or ABS, phosphorous based flame retardants can only be used in blends such as PC/ABS or HIPS/PPE.

In contrast to what is indicated in Table 8, Boehmite alone cannot be used as a flame retardant for E&E casings, neither can hypophosphite calcium salt, because these substances do not fulfil the necessary technical requirements for this application. There are only two main flame retardant systems that are typically used in these above-mentioned polymer blends, that fulfil all technical requirements and that are commercially available: BDP and RDP.

For more information on suitable flame retardant system for E&E enclosures, EFRA would like to refer to its brochure “Keeping Fire in Check. An Introduction to Flame Retardants used in Electrical and Electronic Devices”<sup>1</sup>.

*However, halogenated aromatic FR can raise various environmental concerns and therefore their use is restricted in the MS Ecolabels [...] In general halogenated aromatic flame retardants are not considered to be potential substitutes of BPD which could contribute to improved environmental performance of products. p. 10*

### ***There is no scientific justification to discriminate against halogenated flame retardants***

Flame retardants consist of a large group of many different substances which can have very different environmental and health profiles. Consequently, there is no justification to generally state that halogenated aromatic FRs “raise various environmental concerns”.

To our best knowledge, the chemical grouping of a flame retardant molecule *per se* can only inform about the way the compound will interact with the fire reaction. This is the reason why it is common industry practice to group flame retardants depending on the presence of certain elements in the molecules – including halogens.

### ***Every substance needs to be assessed individually***

The sustainability of a substance should not be assessed on the basis of its elemental content as this fails to recognize that environmental and health profiles are specific to each individual substance. The presence (or absence) of a given chemical element in a flame retardant compound (e.g. Phosphorous, Aluminium, Magnesium, Chlorine, Bromine, Fluorine, Zinc, Nitrogen, Antimony, Boron, etc.) cannot be an indicator of their environmental and health profiles.

### ***Reference to national Ecolabels***

Ecolabels in Member States like the Nordic Swan and Blue Angel often have flame retardant-specific criteria for various product groups which include unjustified discriminative provisions against the use of halogenated substances as flame retardants in external plastic casings. These are not determined on a scientific basis and constitute a double discrimination against a specific function (flame retardant) and specific industrial clusters (halogenated substances).

In contrast to the Blue Angel and the Nordic Swan, the EU Flower does not discriminate against halogenated flame retardants in any product group. EFRA suggests that the EU flower should not refer to any Blue Angel and Nordic Swan criteria since these do not comply with the provisions of Art. 6.3 of regulation (EC) 66/2010 and point 5.14 of the ISO 14024 standard, which both request science-based criteria development for Type I ecolabels.

<sup>1</sup> <http://www.flameretardants.eu/content/Default.asp?PageID=116>

### 1.1.6 Conclusions regarding derogation request of bisphenolA bis(biphenylphosphate)

*The assessment of bisphenolA bis(biphenylphosphate) consist of data gaps and contradictory data. Nevertheless, there is enough data that indicates persistency, bioaccumulation and toxicity, as well as endocrine toxic properties for BDP. There are references indicating that BDP is biologically transformed into bisphenolA, which is a known endocrine disrupting substance. p.10*

#### **EFRA believes that there is sufficient data to justify a derogation of BDP**

EFRA would like to refer to the comments provided here above regarding “1.1.2 Hazardous properties and health impact / 1.1.3 Direct Environmental Impacts (p. 8-10)”. Since manufacturers and authorities have sufficient data on BDP available, there is no need to apply the precautionary principle.

In addition, EFRA would like to state that BDP is safely incorporated in the polymer matrix of external casings where it does not pose a risk for the environment or human health.

Based upon the explanations given here above, EFRA still asks for a horizontal derogation for BDP in all EU Flower and GPP criteria revision and development processes.

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**EFRA hopes that, for the sake of ensuring a scientific basis for criteria developments, these comments will be taken into account, not only in the background documents for the 2<sup>nd</sup> AHWG for imaging equipment but horizontally in all EU Flower and GPP criteria revision and development processes.**

#### **About EFRA**

*EFRA (the European Flame Retardants Association) brings together the major companies which manufacture flame retardants in Europe. EFRA covers all types of flame retardants: chemicals based on bromine, chlorine, phosphorus, nitrogen and inorganic compounds. EFRA is a Sector Group of Cefic, the European Chemical Industry Council.*

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