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Via Electronic Submission
EPEAT SDR Collaboration Website
http://zerowaste.org/epeat_collab/sdr_doc

IPC Association Connecting Electronics Industries is the national trade association for the electronic interconnection industry, and represents more than 2,400 member companies involved in the manufacturing and assembly of printed circuit boards. Printed circuit boards and electronic assemblies are the backbone of a variety of electronic devices including computers, cell phones, pacemakers, automobiles, and sophisticated defense systems. On behalf of our members, IPC would like to offer the following comments on the Electronic Product Environmental Assessment Tool (EPEAT) Standards Development Roadmap (SDR).

After reviewing the July 9, 2007 EPEAT SDR Final Background Document, IPC is concerned that our comments continue to be misunderstood or possibly ignored. Despite repeated comments provided by IPC and others, the SDR background document continues to include unsubstantiated statements about brominated flame retardants (BFRs) and other substances. In the interest of maintaining the integrity of EPEAT and the transparency of the revision process, IPC urges editors of the SDR to resolve the following industry concerns prior to finalizing the document.

IPC is disappointed with the incomplete literature review that was conducted for the SDR. As a result of the incomplete literature review, the SDR creates a misleading and biased picture of BFRs Tetrabromobisphenol-A (TBBPA) and Decabrominated Diphenyl Ether (DecaBDE). IPC is perplexed that while unsupported stakeholder comments expressing concern about BFRs were incorporated in the SDR, the breadth of scientific data supporting the lack of human health and environmental risks for TBBPA and DecaBDE was suspiciously excluded. DecaBDE has been the subject of extensive scientific reviews by the National Academy of Sciences, the Consumer Product Safety Commission and a 10-year Risk Assessment by the European Union. TBBPA is currently going through the EU Risk Assessment process. The Human Health section of the Risk Assessment was closed in 2005 with no risks identified. The Environmental section of the Risk Assessment was closed in March 2007 with no risk identified for TBBPA when used reactively as in the epoxy resins of printed circuit boards. The EU Scientific Committee on Health & Environmental Risks (SCHER- an independent committee that advises the Commission) and a study from the University of Würzburg (under the EU Fire project) also confirmed these conclusions. None of the findings from this wide body

of works support listing TBBPA or DecaBDE as “content specific environmental or human health concerns.” Surprisingly, while the SDR claims to “have included the most up-to-date data where available,” there was no mention of any of these peer-reviewed scientific studies in the SDR.

Despite repeated comments provided by industry, the SDR continues to make inaccurate and misleading statements regarding TBBPA and DecaBDE (*See* Table 1). While we appreciate EPA’s efforts to respond to our comments by removing most gross generalizations about the diverse family of BFRs, the statement “Also likely to contain brominated flame retardants that may be hazardous to human health” seems to have been overlooked (*See* page 14 of the July 9, 2007 SDR Background Document). Furthermore, EPA’s attempt to avoid such blanket statements by specifically identifying TBBPA and DecaBDE as a “content specific environmental or human health concern,” is still erroneous and problematic. Likewise it is inappropriate to label these substances as “materials of concern,” or “constituents of concern.” As noted in our previous comments, while environmental and health concerns exist for certain BFRs, such as Polybrominated Biphenyls (PBBs) and Penta- and Octa-Polybrominated Diphenyl Ether (Penta- and Octa-PBDE), industry has responded by removing them from products. Others BFRs, such as TBBPA and DecaBDE have been thoroughly tested and found to have no identified risks or negative impacts on human health or the environment. Therefore it is entirely inappropriate to list TBBPA and DecaBDE as “content specific environmental or human health concerns,” or to refer to these substances as “materials of concern,” or “constituents of concern.” This implies that EPA considers TBBPA and DecaBDE to be an environmental or human health concern. In order to prevent implied validation of stakeholder concerns that have not been thoroughly examined, EPA should remove all these inaccurate statements (*See* Table 2). Any references to TBBPA and DecaBDE could more appropriately be placed in the “Product Profile Section” followed by a simple statement that certain stakeholders have expressed concerns regarding the use of these materials.

IPC is particularly troubled that EPA continues to imply corroboration of unsubstantiated stakeholder claims by referring to them as “controversy around the human health and environments impacts associated with the use of flame retardants.” EPA further implies support by repeatedly referring back to the so-called controversy throughout the SDR. While some stakeholders may take issue with the use of flame retardants, there is no scientific evidence to support these concerns, nor is there any scientific controversy. Stakeholder concerns regarding the use of flame retardants should be addressed in future stages of the standards development process, where a comprehensive scientific review can be conducted. Until a thorough scientific review can be conducted, IPC requests that EPA take a neutral position by clearly stating that these are the concerns of certain stakeholders.

IPC is also concerned that the SDR fails to explain how ongoing research efforts undertaken by EPA will be included in the standards development process. EPA’s Design for the Environment (DfE) Program is currently investigating the environmental, health and safety aspects of alternative flame retardants for printed circuit boards. Through the

DfE, EPA will determine whether the materials currently being considered as replacements for these BFRs are any better or worse for the environment or human health.

The SDR also ignores current EPA efforts to reexamine the applicability of the PBT criteria to metals including lead. EPA's *Framework for Metals Risk Assessment* clearly suggests that the PBT classification of lead is no longer justified and should be revoked. EPA is currently "cross-walking" the framework with methods used to assess metals in agency programs. IPC suggests that instead of merely stating that "Lead is a PBT," the SDR also mention that EPA is currently reevaluating the questionable application of the PBT criteria to metals such as lead. The SDR needs to explain how the metals framework will be included in the standards development process.

As mentioned in our previous comments, until relevant and scientifically validated data are presented proving that TBBPA and DecaBDE have an adverse human health or environmental impact and the alternatives are better, these substances should be withdrawn from use as an EPEAT "content specific environmental or human health concern." However, certain stakeholder concerns regarding use of flame retardants can be examined in future stages of the standards development process, where a complete scientific review regarding any associated human health and environmental impacts can be conducted.

If the editors remain unable to address all stakeholder comments, IPC insists that a written explanation for the decision be provided to all stakeholders. For more information, please contact Fern Abrams, Director of Environmental Policy, at fabrams@ipc.org or 703-522-0225.

Table 1 - Significant Industry Concerns Continue to be Ignored by EPEAT Revision Process

Section	Summary of IPC Comments on April 30, 2007 and June 19, 2007	April 10, 2007 EPEAT SDR Background and Discussion Document	June 4, 2007 EPEAT SDR Background Document	July 9, 2007 EPEAT SDR Final Background Document
Section 1.3 - Preliminary Observations Regarding Environmental Considerations	TBBPA and Deca-BDE, have been thoroughly tested and found to have no identified risks or negative impacts on human health or the environment. Therefore, TBBPA and Deca-BDE should not be identified as “constituents of concern.”	BFRs are identified as a category in the table “Preliminary Summary of Opportunity for Environmental Benefits” (p. 12-14)	“Nearly all products use some flame retardants that have been identified as constituents of concern – including TBBPA (reacted into circuit boards), decabromodiphenyl ether (Deca-BDE – used primarily in housings are large plastic parts)...”(p.2)	“Nearly all products use some flame retardants including TBBPA (reacted into circuit boards), decabromodiphenyl ether (Deca-BDE –used primarily in housings and large plastic parts)...Based on stakeholder comments, it is clear that there is controversy around the human health and environments impacts associated with use of some flame retardants, including brominated flame retardants. Consequently, the flame retardants listed above are noted as constituents of concern in this document. See http://zerowaste.ort/epeat/roadmap_docs.htm for comments received during the two public comment periods for this document. This SDR process did not consider flame retardants as a criterion for prioritizing products for standards development and does not include any recommendations associated with the use of flame retardants. The standard development process for each product category will address criteria associated with the use of specific flame retardants.” (p. 2-3)

Section	Summary of IPC Comments on April 30, 2007 and June 19, 2007	April 10, 2007 EPEAT SDR Background and Discussion Document	June 4, 2007 EPEAT SDR Background Document	July 9, 2007 EPEAT SDR Final Background Document
<p>Section 2.0 Mobile Devices (Mobile Phones, Smartphones and PDAs)</p> <p>(Previously Section 3.1 in the April 10, 2007 SDR Background Document)</p>	<p>Since the July 9, 2007 SDR Background Document continues to identify TBBPA and Deca-BDE as “environmental or human health concerns,” and “materials of concern,” the document is still incorrect. TBBPA and Deca-BDE, have been thoroughly tested and found to have no identified risks or negative impacts on human health or the environment. Therefore, all references to TBBPA and Deca-BDE as “environmental or human health concerns,” and “materials of concern” should be removed.</p>	<p>Under the heading “Content Specific Environmental or Human Health Concerns” the following is stated, “Toxic materials likely found in cell phones sold today include (Socolof, 2007): BFRs-tetrabromobisphenol-A (TBBPA)...” (p. 18)</p>	<p>Under the heading, “Content Specific Environmental or Human Health Concerns” the following is stated, “Materials of concern likely found in cell phones sold today include (Socolof, 2007): BFRs-tetrabromobisphenol-A (TBBPA)...” (p.5)</p>	<p>Under the heading, “Content Specific Environmental or Human Health Concerns” the following is stated, “Materials of concern likely found in mobile phones sold today include (Socolof, 2007)... BFRs-tetrabromobisphenol-A (TBBPA)... may be present in mobile devices (see Section 1.3 for a discussion on flame retardants)” (p.5)</p>
<p>Section 3.0 Printers</p> <p>(Previously Section 3.2 in the April 10, 2007 SDR Background Document)</p>	<p>The July 9th SDR continues to improperly characterize TBBPA and DecaBDE. TBBPA and Deca-BDE have been thoroughly tested and found to have no identified risks or negative impacts on human health or the environment. Therefore, all references to TBBPA and Deca-BDE as “environmental or human health concerns,” and “constituents of concern” should be removed.</p>	<p>Under the heading, “Content Specific Environmental or Human Health Concerns” the following is stated, “BFRs which have been found to be ubiquitous in the environment are neurotoxins in children, immune system suppressors, and have other chronic human health affects (Rossi and Heine, 2007)” (p. 22-23)</p>	<p>Under the heading, “Content Specific Environmental or Human Health Concerns” the following is stated, “Printers may also include brominated flame retardants that have been identified as constituents of concern above (TBBPA in circuit boards and DecaBDE)” (p.8)</p>	<p>Under the heading, “Content Specific Environmental or Human Health Concerns” the following is stated, “Printers may also include brominated flame retardants that have been identified as constituents of concern above (TBBPA in circuit boards and DecaBDE) (see Section 1.3 for discussion on flame retardants)” (p.8)</p>

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<p>Section 6.0 Servers (Previously Section 3.7 in the April 10, 2007 SDR Background Document)</p>	<p>BFRs are a family of 75 chemical substances with different properties, characteristics, and performance. The only commonality is that all BFRs contain bromine – an element that is available in nature. It is therefore inappropriate and misleading to repeatedly make blanket statements that group all BFRs into one category.</p>	<p>“Also likely to contain brominated flame retardants that may be hazardous to human health.” (p.36)</p>	<p>“Also likely to contain brominated flame retardants that may be hazardous to human health.” (p.14)</p>	<p>“Also likely to contain brominated flame retardants that may be hazardous to human health.” (p.14)</p>

Table 2 – Proposed EPEAT SDR Clarifications

Section	Summary of IPC Comments on April 30, 2007 and June 19, 2007	July 9, 2007 EPEAT SDR Final Background Document	Additional Comments	Suggested Language
Section 1.3 - Preliminary Observations Regarding Environmental Considerations	TBBPA and Deca-BDE, have been thoroughly tested and found to have no identified risks or negative impacts on human health or the environment. Therefore, TBBPA and Deca-BDE should not be identified as “constituents of concern.”	“Nearly all products use some flame retardants including TBBPA (reacted into circuit boards), decabromdiphenyl ether (Deca-BDE –used primarily in housings and large plastic parts)...Based on stakeholder comments, it is clear that there is controversy around the human health and environments impacts associated with use of some flame retardants, including brominated flame retardants. Consequently, the flame retardants listed above are noted as constituents of concern in this document. See http://zerowaste.ort/epeat/roadmap_docs.htm for comments received during the two public comment periods for this document. This SDR process did not consider flame retardants as a criterion for prioritizing products for standards development and does not include any recommendations associated with the use of flame retardants. The standard development process for each product category will address criteria associated with the use of specific flame retardants.” (p. 2-3)	The statement, “Based on stakeholder comments, it is clear that there is controversy around the human health and environments impacts associated with use of some flame retardants, including brominated flame retardants” implies that there is a scientific controversy about the human health and environmental impacts. While some stakeholders make take issue with the use of flame retardants, there is no scientific evidence to support these concerns, nor is there any scientific controversy. EPA should clearly state that these are concerns of certain stakeholders.	“Nearly all products use some flame retardants. While this document does not attempt to review scientific evidence regarding any associated human health and environmental impacts or the lack thereof, the use of flame retardants in electronics is noted as a concern of some stakeholders and should be thoroughly reviewed in the next steps of the standard development process.”

Section	Summary of IPC Comments on April 30, 2007 and June 19, 2007	July 9, 2007 EPEAT SDR Final Background Document	Additional Comments	Suggested Language
<p>Section 2.0 Mobile Devices (Mobile Phones, Smartphones and PDAs)</p> <p>(Previously Section 3.1 in the April 10, 2007 SDR Background Document)</p>	<p>Since the July 9, 2007 SDR Background Document continues to identify TBBPA and Deca-BDE as “environmental or human health concerns,” and “materials of concern,” the document is still incorrect. TBBPA and Deca-BDE, have been thoroughly tested and found to have no identified risks or negative impacts on human health or the environment. Therefore, all references to TBBPA and Deca-BDE as “environmental or human health concerns,” and “materials of concern” should be removed.</p>	<p>Under the heading, “Content Specific Environmental or Human Health Concerns” the following is stated, “Materials of concern likely found in mobile phones sold today include (Socolof, 2007)... BFRs-tetrabromobisphenol-A (TBBPA)... may be present in mobile devices (see Section 1.3 for a discussion on flame retardants)” (p.5)</p>	<p>The inclusion of TBBPA and DecaBDE under the heading “Content Specific Environmental or Human Health Concerns” implies that EPA considers TBBPA to be an environmental or human health concern, despite the lack of any supporting scientific documentation.</p>	<p>Suggest moving the statement regarding the presence of BFRs from the ‘Content Specific Environmental or Human Health Concerns’ to the previous ‘Product profile section.’ Following the statement regarding the presence of flame retardants, you may wish to repeat or reference the fact that certain stakeholders have expressed concerns regarding the impact of these materials.</p>

Section	Summary of IPC Comments on April 30, 2007 and June 19, 2007	July 9, 2007 EPEAT SDR Final Background Document	Additional Comments	Suggested Language
<p>Section 3.0 Printers</p> <p>(Previously Section 3.2 in the April 10, 2007 SDR Background Document)</p>	<p>The July 9th SDR continues to improperly characterize TBBPA and DecaBDE. TBBPA and Deca-BDE have been thoroughly tested and found to have no identified risks or negative impacts on human health or the environment. Therefore, all references to TBBPA and Deca-BDE as “environmental or human health concerns,” and “constituents of concern” should be removed.</p>	<p>Under the heading, “Content Specific Environmental or Human Health Concerns” the following is stated, “Printers may also include brominated flame retardants that have been identified as constituents of concern above (TBBPA in circuit boards and DecaBDE) (see Section 1.3 for discussion on flame retardants)” (p.8)</p>	<p>The inclusion of TBBPA and DecaBDE under the heading ‘Content Specific Environmental or Human Health Concerns’ implies that EPA considers TBBPA to be an environmental or human health concern, despite the lack of any supporting scientific documentation.</p>	<p>Suggest moving the statement regarding the presence of BFRs from the ‘Content Specific Environmental or Human Health Concerns’ to the previous ‘Product profile section.’ Following the statement regarding the presence of flame retardants, you may wish to repeat or reference the fact that certain stakeholders have expressed concerns regarding the impact of these materials.</p>
<p>Section 6.0 Servers</p> <p>(Previously Section 3.7 in the April 10, 2007 SDR Background Document)</p>	<p>BFRs are a family of 75 chemical substances with different properties, characteristics, and performance. The only commonality is that all BFRs contain bromine – an element that is available in nature. It is therefore inappropriate and misleading to repeatedly make blanket statements that group all BFRs into one category.</p>	<p>“Also likely to contain brominated flame retardants that may be hazardous to human health.” (p.14)</p>	<p>The presentation of this statement in the product profile section is appropriate, however, the statement, “that may be hazardous to human health” draws a conclusion that has not been supported by scientific documentation and is more appropriately addressed in future stages of the standard development process.</p>	<p>Suggest changing the statement to read, “Also likely to contain brominated flame retardants that have been identified as a human health and environmental concern by certain stakeholders.”</p>