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April 23, 2012

Dear IEC Secretary,

We have been informed that statements from Robert Graham in support of proposed revisions to International Electrotechnical Commission (IEC) Standards 60065 and 62368, which include a requirement for candle resistance of television enclosures, were circulated to the TC108 National Committees.

We ask you to similarly circulate the rebuttal representing scientists, doctors, public health professionals, and the public interest, especially since Mr. Graham's organization is funded by the flame retardant chemical manufacturers. Many of the points made in Mr. Graham's Annex are shown to be false or misleading in the 2012 updated "The Case against Candle Resistant TVs" available here. A review of this important document will inform you as to the lack of proven fire safety benefit and serious negative environmental, health, and recycling impacts if these standards were to be implemented (Some examples are given below.)

Thank you for your attention,

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Rebuttal to Mr. Graham of ACFSE and Burson-Marsteller

(ACFSE is funded by the European Flame Retardants Association (EFRA) and Burson-Mastellar is a public relations firm hired by the retardant manufacturers.)

1. A valid fire safety rationale for the candle resistance of flat screen televisions has not been demonstrated.

The only supporting data for inclusion of this clause in 60065 and 62368 is CRT-based TV data from the early 1990s. Mr. Graham stated: "In 2009, the JTF convened in Frankfurt concluded that the risk of external ignition for flat screen TVs is greater than for CRTVs, given that candles can easily be placed under them." This was not concluded at that meeting. Indeed since candles burn down not up, it is difficult to see how a candle could ignite from underneath a television, except



deliberately. And consumer goods are not designed to resist arson

2. The TV data cited by Mr. Graham does not provide information on the issue under consideration, which is an external small open flame ignition in consumer electronic housings.

Internally caused fires are not separated from those caused by external open flames in the home. The majority of TV and consumer electronics fires result from internal electrical malfunction; these should not have been included.

Mr. Graham's statement, "Europe has 325 fires per million TV sets each year" is not documented and is at variance with most other studies documenting numbers of 20 or less fires per million in Europe. ,

3. Dealing with the sources of ignition is a more effective, less dangerous, and less expensive strategy than fire-retarding all the consumer products that are potential fuel in homes and businesses.

The EU and the U.S. have new legislation for fire-safe cigarettes and a new series of industry standards for fire safe candles. Together fire-safe cigarettes and candles are expected to lead to a large decrease in fire hazard, without potential risk to human health, the environment, or recycling. Reducing sources of ignition is cost effective, sustainable, and currently happening in Europe and the U.S. To date, six ASTM candle standards and three CEN standards have been published. , ,

In addition to the non-incidence of candle ignition of current televisions, these candle safety standards, which have been adopted by the candle industries in the U.S. and Europe, will further minimize fatalities and injuries associated with candle fires. Preventing the cause of candle fires through these standards is a cost effective and sensible strategy for reducing the candle fire risk compared to adding potentially toxic flame retardant chemicals at high levels to TVs world wide

4. Western European fire death rates are lower on the whole than the U.S. The published comparative national data on Western European fire death rates available on the Internet for 1994-96 show death rates per 100,000 for Western Europe ranged from 0.43 (Switzerland) to 2.12 (Finland). The average Western European rate of 1.1 can be compared with a U.S. death rate of 1.6 during the mid-90's.

Due to the public relations work by the fire retardant industry and their allies (often working with PR companies such as Burson-Marsteller and lobbying firms like Sparber & Associates), there is an unproven perception that there is a large TV fire problem that urgently needs to be solved. The proposed solution is open flame or candle standards for consumer products that are most readily met by chemical fire retardants.



5. Mr. Graham **incorrectly references the Hertfordshire Fire and Rescue Service report** on the fire at Harrow Court October 2005 (reference #4) to argue that case histories of real fires in the EU have confirmed the unacceptable risk to consumers from fires of this nature.

During this incident in which a tea-light fell into an unplugged CRT-based television, candles had been placed upon the unit where they'd burned down and fallen into the internal cavity of the TV and ignited. Jos Remy specifically mentioned at the ACOS/ACEA JTF meeting in Frankfurt in April 2009 that flame retardants in the enclosure of CRT-based products do not prevent this cause of ignition. It is inappropriate that the pro-candle-ignition forces to use this type of example to support their arguments.

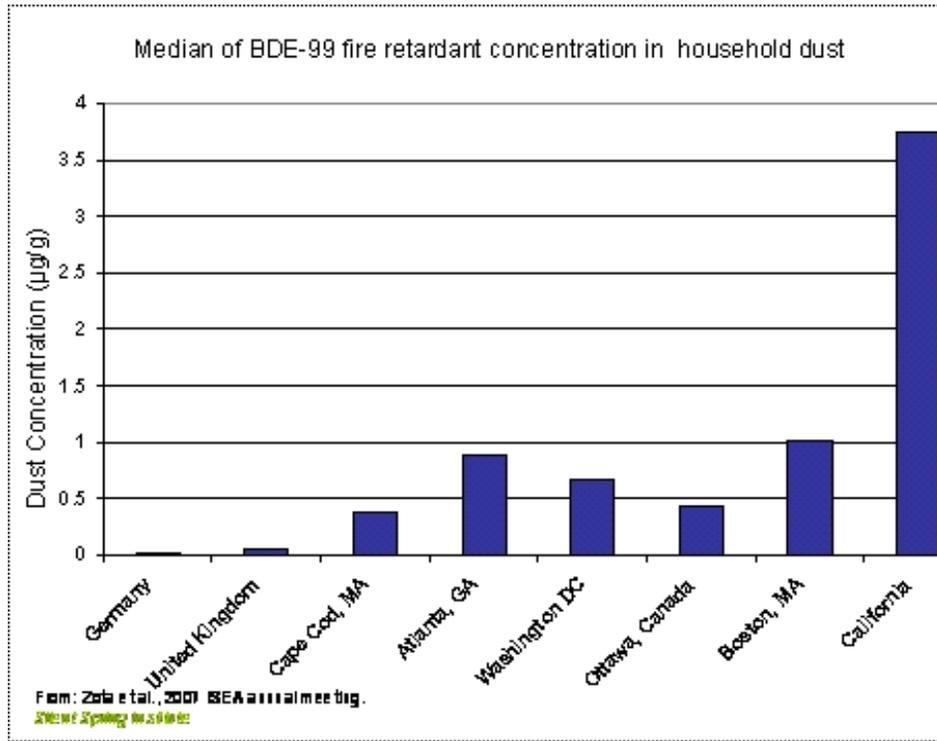
6. Although it is true that **chemical flame retardants** are not mandated by these standards as Mr. Graham states, they **are the least expensive and most convenient way to meet the standard**. If these standards were implemented, more fire retardant chemicals would be used in TVs worldwide. Many of these chemicals migrate out of consumer products and are found in dust, humans and animals. Europe uses less fire retardants and much lower levels of these chemicals are found in European dust, human and animal serum, and breast milk in Europe compared to the U.S.

Many dozens of peer reviewed scientific papers demonstrate that chemical fire retardants that could be used to meet such standards migrate out of consumer products into dust, humans, and animals. For example, the state of California had a standard for furniture which has resulted in the use of more PBDE fire retardants in furniture than was used in Europe. California dust has higher levels of fire retardant chemicals than other states which in turn have much higher levels than Europe as can be seen in Figure I below.*

*Please note that health information can only be obtained after chemicals have been used for a significant period of time. The most quantified information currently available is for pentaBDE, which is closely related in structure to decaBDE commonly used in TVs and other electronics. Although banned in the EU and much of the US, pentaBDE continues to migrate from products in consumers' homes contributing to sustained exposures.



Figure I: Comparison of the fire retardant chemical BDE-99, a toxic pentaBDE congener, in dust samples from Europe and six locations in the US.



California, which has the highest level of fire retardants from use in furniture foam, has the highest level in dust and in breast milk as well.⁶

The US in general is known to have a much higher level of toxic pentaBDE congeners such as BDE-99 in dust, breast milk and body fluids than does Europe. In the US, median human pentaBDE levels in breast milk range from 34 to 58 nanograms PBDE per gram lipid weight. Levels are 1.3 in Japan, 2.0 in Poland, and 3.2 in Sweden in similar studies as shown in Table 2

Recent studies of PBDE levels in human breast milk

Study (US)	Year collected	Population	Number of subjects	Median ng/g lipid weight	Range ng/g lipid weight
Schechter et al	(2003)	Texas	47	34	(6.2- 419)
Lunder, Sharp	(2003)	US	20	58	(9.5 to 1,078)
She et al	(2004)	NW US	40	50	(6 to 321)
Wu et al	(2004)	Boston	40	30	(4.3 to 264)
(Outside US)					
Eslami et al	(2004)	Japan	105	1.3	(0.01-23.0)
Jaraczewska et al	(2004)	Poland	22	2.0	(0.8-8.4)
Lind et al	(1996-99)	Sweden	93	3.2	(0.9-28.2)



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Chemically similar retardants are likely to be used if this proposal is passed, and could similarly end up in dust, human and animal bodies and breast milk.

7. Some of these **chemicals have been shown to be toxic in animal and human studies**. There is not adequate health and environmental information for the majority of the flame retardant chemicals that have potential to be used in electronic housings.

In animals, PBDEs and other brominated and chlorinated flame-retardants have been reported to cause thyroid disease, reproductive and developmental problems, and cancer. , Neurological impacts include decreased memory and learning, behavioral disorders, and hyperactivity. , According to an American Public Health Association Consensus Resolution, virtually all organochlorides that have been studied exhibit one or more serious toxic effects, including endocrine dysfunction, developmental impairment, birth defects, reproductive dysfunction, immunosuppression, and cancer, often at extremely low doses.

8. **The flame retardant chemical industry has a history of not providing adequate toxicological information in advance of sales of its products.** Polybrominated biphenyls (PBBs), polychlorinated biphenyls (PCBs), Tris, Halon, asbestos, and PBDEs are all fire retardant materials which have turned out to have serious long-term negative effects on our health and/or environment only after extensive use.

In addition, the inclusion of a variety of fire retarding chemicals in consumer product housings will make responsible recycling of electronics more expensive and difficult. Brominated and chlorinated fire retardants form highly toxic dioxins and furans during the controlled and uncontrolled combustion that is still the unfortunate end-of-life fate for much of the world's electronics.

* * *

Finally it should be noted that ACFSE, along with the many of the more vocal supporters of the candle standard, receive financial support from the manufacturers of fire retardant chemicals. See page 25 of the Case against Flame retardant electronics [here](#) for further details about the connection between the chemical industry and the candle standards.

Adding potentially toxic chemicals without adequate health data to consumer electronics to deal with an unsubstantiated fire hazard is not a judicious course of action. **We urge TC108 National Committees to vote NO on 108/478A/CDV and also 108/479/CDV, both of which contain clauses that would lead to the use of potentially toxic flame retardants in televisions with no proven improvement in fire safety.**