



## TRAUMA FOUNDATION

San Francisco General Hospital  
San Francisco, California 94110

415.821.8209

415.282.2563 Fax

16 June, 2008  
Dear Colleagues,

As members of the fire fighting and burn injury prevention communities, we are concerned about the negative health and environmental effects of Clause 21, the proposed amendment to IEC Standard 60065 for candle flammability standards for television enclosures and consumer electronics. We are especially troubled about negative impact on firefighters' health from their exposure to the toxic combustion by-products when fire retardant chemicals burn.

We have reviewed the fire data cited in support of Clause 21 and do not find a valid fire-safety rationale for this standard. TVs and consumer electronics equipment are already adequately protected against internal faults that could lead to fire; there is no documented fire safety benefit from housings resisting a candle flame. Proponents of the standard frequently cite outdated statistics from the 1990s when CRT televisions were the norm. The data cited primarily come from a single suburb in Sweden with a much larger number of TV fires than other parts of Sweden and the EU. There is no current evidence that a significant number of fires in TVs and other electronics are caused by external candle ignition. Please see "The Case against Candle Resistant TVs" at <http://greensciencepolicy.org/standards.shtml> for more information.

While the fire risk is very low, the health risk, especially for fire fighters, is very high. The proposed standard would lead to considerable levels of fire retardant chemicals in plastic TV housings. When these fire retardant chemicals burn, large amounts of toxic and cancer-causing dioxins and furans can form, a significant health hazard for fire fighters.

In the November 2006 Journal of Occupational and Environmental Medicine, a meta-analysis of 32 research studies of cancer in fire fighters shows that fire fighters have significantly elevated rates of four types of cancer: multiple myeloma, non-Hodgkins lymphoma, prostate, and testicular cancer.<sup>[1]</sup> These four types of cancer can all be related to exposure to dioxins and/or furans.<sup>[2]</sup> We believe that fire retardant chemicals in TVs and other consumer products are likely to pose a greater health hazard to fire fighters and the public in general than the small open flame fires they can delay, or in some cases, prevent.

In addition, many fire retardants chemicals migrate out of the electronics housings, persist, and bioaccumulate at high levels in humans and animals ranging from children to pets to wild animals such as killer whales, sea otters, and even marine life living at depths of more than a thousand meters. When studied in experimental animals, many of these flame retardants are associated with health problems such as thyroid disease, reduced sperm count, infertility, hyperactivity, mental retardation, obesity, and cancer.

In summary, candle fires in modern TVs present an unproven fire hazard. The accumulation and health problems from the fire retardant chemicals, especially to fire fighters, have been documented in many dozens of peer-reviewed scientific research papers. We trust you will read the attached white paper and carefully evaluate the data. To protect the health of firefighters and the general population, we urge a vote of "No" on the candle standard amendment to IEC60065 for TV housings.

Sincerely,

Richard M. Duffy, Assistant to the General President,  
**International Association of Fire Fighters**

John F. Hanley, President,  
**San Francisco Fire Fighters Local 798**

Tony Stefani, Executive Director and Founder,  
**San Francisco Firefighters Cancer Prevention Foundation**

Bob Shewbrooks, President,  
**Hospital Fire Marshals Association**

Peter A. Brigham, Founding and Emeritus Board Member,  
**Federation of Burn Foundations**

Andrew McGuire, Executive Director,  
Elizabeth McLoughlin, Associate Director Ret.,  
**Trauma Foundation, San Francisco General Hospital.**

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[<sup>1</sup>] LeMasters G.K., et. al. (2006). Cancer risk among firefighters: a review and meta-analysis of 32 studies Journal of Occupational and Environmental Medicine 48(11): 1189-202

[<sup>2</sup>] Studies of Seveso, Italy residents exposed to dioxins showed increased multiple myeloma and non-Hodgkin's lymphoma. The Air Force Ranch Hand (Agent Orange sprayers) studies show increased prostate cancer in those exposed to dioxins. One study of dioxin exposed military dogs in Vietnam and one other study of Vietnam veterans showed increase rates of testicular cancer.