

New Flame Retardant Standards for Plastic Enclosures

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November 2007

In early 2008, we expect new fire safety standards to be voted on that will affect a broad range of electronics and IT equipment. This memo reviews the specific standards that are currently undergoing this change and fire retardant implications of these new standards.

Which Standards Will Be Changed?

New external ignition requirements are being developed for audio, video, information technology and electronics enclosures. The new standard, known as IEC 62368 will introduce a single flame standard for a broad range of products.

Why Are The Standards Being Changed?

Many electronic products are made of plastic that easily combusts. This standard addresses external ignition. The test literally involves placing a burning candle next to the unit. Units of certain dimensions – i.e., tall enough to place the test candle next to it—must meeting the standards for protecting against external flames.

What Products Are Effected

Its somewhat complicated to determine exactly what products fall under this new standard since it depends on the height of the product (candle accessible areas between 10mm of base and up to 150 mm of base) and the wattage and voltage of internal parts. Table 1 contains a list of the types of products likely affected by this new standard. For a more detailed look at these issues, this Samsung article provides several interesting tables:

http://www.samsungchemicalusa.com/human_resource/admin/news_upload/1154533405_2_news_upload.pdf

Table 1: Affected Products

Standard	Example Products Affected
IEC 60065: Audio, video and similar electronic apparatus safety standard This standard covers Audio/Video Equipment	<ul style="list-style-type: none">• Televisions (TVs) including plasma TVs• Audio, CD/DVD players• Game machines• Video cameras• Electronic musical instruments.
IEC 60950: Information technology (IT) equipment safety standard This standard covers IT/OA and Telecommunication Equipment.	<ul style="list-style-type: none">• Monitor, personnel computer• Printer, scanner, fax machine, copier, calculator• Photo-printing equipment• Monetary processing Machine• Telephone sets, pager, modem

How Is This Different From Current Flame Requirements?


Nearly all these products must be protected from internal flame sources – e.g., high voltage supplies. That's why many manufacturers use design strategies to separate high voltage areas from plastics that may be combustible. They use internal metal fire boxes or sometimes place the power supply

outside the unit – the power supply for most printers for example are contained in little black boxes external to the unit. This new standard protects against external combustion sources. As a result, the design strategy of placing the power supply outside the unit does nothing to help with compliance with the new standard.

What Level of Flame Protection Must Be Met Under this New Standard?

Depending on the product, the new requirement outlined in IEC62368 can require external materials to meet at least a V-1 rating (see Table 1). Currently, many printers, copiers, LCD TVs are not flame retarded because manufacturers are able to use design standards to isolate internal high voltages.

Table 2: Flame-retardant Standards

UL Flame Classification	Details
5VA	<i>More Flame Resistant</i>  <i>Less Flame Resistant</i>
5VB	
V-0	
V-1	
V-2	
HB	

What Types of Plastics and Flame Retardants Are Likely To Be Used To Meet This Standard?

We know of no comprehensive study that has looked at this question. It is likely that manufacturers will use a mix of approaches. For those products made from HIPs and ABS, it is likely they will use BFRs to meet these standards (decaBDE, TBBPA, brominated oligomers, etc.). For those products made from PC/ABS, it's likely they will use phosphorus flame-retardants.

When does the New Standard Take Effect?

While the new standard is expected to be in place by 2008, the products affected will roll out over the subsequent years (see Table 3).

Table 3: Expected implementation schedule for new standard (IEC 62368)

Expected Implementation Date	Details
April 2008	Expected passage/publication of IEC 62368
2008	Grace Period
2009	Products affected by new standard

Ref: Samsung article

Who Is In Charge of This Standard Setting Process?

The International Electrotechnical Commission (IEC) runs this standard setting process. The process underway to confirm the new standard (IEC 62368) is called IEC Technical Committee (TC) 108 Safety of Electronic Equipment within the field of Audio/Video, Information Technology and Communication Technology. There are hundreds of different technical committees currently

working on different issues for the IEC. TC108 contains 14 members from the manufacturing industry and universities. Activities include the review and approval of new IEC 62368 standard; maintenance and amendment of existing IEC 60950 and IEC 60065 standard; comparison of domestic and international standards and technical seminar including integration of standards. *The IEC process is completely non-transparent; the progress is listed on their website, but can only be viewed with a password which is only available to committee members.*

What Can Be Done To Influence This Standard?

Apparently there is very little that can be done to alter the requirements of this standard. It appears that the process is far enough along and sufficiently isolated to preclude the NGO community for influencing the standard itself. Getting on the technical committee is very difficult. Meetings are held around the world and are expensive to attend. NGO leverage is probably best through the brands (who don't necessarily want the standards since they increase cost) and possible Underwriters Laboratory.

What Can Be Done to Influence the Flame Retardants Use to Comply with This Standard?

Quite a bit. A host of brands have staked out a halogen free position for computers, laptops and other electronic products. Asking these and other affect brands about their strategy for complying with the new IEC 62368 external ignition is critical. Brands should be pressed to use the safest flame-retardants to achieve compliance with the new standard and to apply any policy used in one product (e.g. computers) to other products (e.g. printers).

Can You Give Me More Information About These Standards?

The objectives of TC 108 include establishment of a new safety standard and integration with existing similar standards (IEC 60950 and 60065) as well as maintenance and repair of the current standard. To resolve standard duplication and technology standard application problems IEC started TC 108 to replace existing IEC60950 and IEC60065 in 2001. In 2002, the hazard based standard development team (HBSDT) started to discuss new IEC standard (IEC62368).

Audio, video, and similar electronic apparatus (IEC 60065) covers the safety requirements of electronic apparatus intended for reception, generation, recording or reproduction of audio, video and associated signals. This standard primarily concerns apparatus intended for household and similar general use but which may also be used in places of public assembly such as schools, theatres, places of worship and the workplace.

Safety of information technology (IT) equipment (IEC 60950) covers the safety of information technology equipment and that which is intended to be connected directly to a telecommunication network, including business equipment and associated equipment, with a voltage not exceeding 600V.