

22 December 2014

Mr Andrew Walker
Senior Coroner
HM Coroner for the Northern District of Greater London
North London Coroner's Court
29 Wood Street
Barnet
EN5 4BE

Our ref: CPL/61 and PEL/33

Dear Mr Walker

Response from British Standards Institution on behalf of BSI Committees CPL/61 and PEL/33

Further to your report dated 5 November 2014, BSI is now in a position to advise that the Committees CPL/61 and PEL/33 have reviewed points 36 to 48 therein in relation to the following British Standards:

BS EN 60252-1: AC motor capacitors - Part 1: General - Performance, testing and rating - Safety requirements - Guidance for installation and operation;

BS EN 60335-1: Household and similar electrical appliances; Safety Part 1: General requirements;

BS EN 60335-2-24: Household and similar electrical appliances. Safety. Particular requirements for refrigerating appliances, ice-cream appliances and ice makers

As you will be aware these are British Standards which are based on European harmonized standards which are in turn based upon International IEC standards. Any change we wish to make to the British Standard must be submitted by way of a proposal to the International Committee and/or the European Committee and is then subject to formal voting procedures.

The response from BSI to the points in the report which were addressed to CPL/61 and PEL/33 is as follows:

Construction of refrigeration appliances (36 to 40):

Item 36) The high fuel load from the polyurethane insulation material is necessary to achieve the high level of performance required by the Eco-design Directive.

(37) Regarding the matter of protecting foam insulation from the risk of ignition, the UK has put in a proposal on this to the International committee IEC SC 61C and in November 2014 this was agreed to be progressed to a Formal Vote. The proposal requires a flame retardant covering to be put over foam insulation. We believe that if this proposal is accepted internationally and in the EN then item 37 will be resolved. Relevant text from the UK delegate's report from this meeting is attached to this letter.

(39) See response to (36) above regarding the first two sentences. The last two sentences are addressed by the UK proposal which was agreed to progress at the IEC SC 61C meeting in November which improves the testing to ensure the fire resistance of the outer materials of the fridge/freezer. Relevant text from the UK delegate's report from this meeting is attached to this letter.

Capacitors (41 to 48)

It is important to note that the capacitors standard was amended in 2013 and is now designated as BS EN 60252-1:2011+A1:2013. This includes new features' associated with segmented metallised dielectrics, Clause 3.22.4 and a revision of the destruction test, Clause 5.16.

In this amendment, a new identification was introduced replacing the old safety classes P0, P1 and P2. This was done to make sure that any capacitors could be clearly identified as meeting the new classes S0, S1, S2 and S3.

Class S0 (formerly P0) does not have any specific safety protection.

Class S1 (formerly P1) is protected against fire and shock hazard but may fail in the open-circuit or short-circuit mode.

Class S2 (formerly P2) is protected against fire and shock hazard but must fail in the open-circuit mode only.

Class S3 is a new category covering segmented film construction and has protection against fire and shock hazard. Capacitors in this class are required to fail with low residual capacitance (<1% CN).

The recommendation of PEL/33 is that:

1. BS EN 60335-1:2012 should be amended to refer to BS_EN_60252-1-2011 +A1-2013 which has the new safety classes S0, S1, S2 and S3;
2. IEC/TC 61/SC 61C has the option of specifying the highest level of safety protection for applications such as refrigeration appliances. In the new amendment, this is referred to as S2 and S3.

CPL/61 can advise that as a result of the UK raising the general fire issue both of these recommendations are currently under consideration in the international committee IEC TC 61/SC 61C.

We trust that the above demonstrates that where possible BSI is taking on board the recommendations contained in the Coroner's report but we have to advise that we cannot guarantee that our position will prevail at international level. Additionally, it is important to be aware that the whole process of changing the standard and manufacturers changing their designs will take some time. Finally, changing the standard will not eradicate the problem which might exist with products already in use.

Yours sincerely



Geraldine Salt

Programme Manager, Manufacturing and Services

Extract from the report of the UK delegate to the IEC SC 61C meeting held on 13 November 2014

The proposal presented was accompanied by a presentation from the UK explaining the problem as we saw it together with a video clip of an ITN news broadcast about the incident that resulted in multiple deaths in north London. Videos of tests carried out by Bureau Veritas on behalf of London Fire Brigade on various types of insulated panels from the rear of a typical European style refrigeration appliances were also part of the presentation.

The national comments from various nations were discussed. The modifications proposed by New Zealand supported the British stance but they felt that the text could have been written in a simpler form and include an alternative procedure in dealing with abnormal heat and fire tests which appear in appliance standards. This had general support of the meeting. The vote was close with some major countries having a brief to oppose change including Germany, Japan, Brazil Turkey and Italy but there was enough support to continue to the next stage.

Normally this would go to a further stage of comment and discussion before being proposed as a Final Draft International Standard where national committees only have a yes/ no vote before publication. However on this occasion we had enough support from the national delegates present to include this in the amending FDIS that was being agreed at the meeting on other topics.

Assuming that the combined FDIS goes forward to publication it is likely that the international standard with Amendment 2 could be published in 2015. Thus regional standards such as the European EN60335-2-24 should change shortly afterwards with all products using the standard for compliance with European Safety Legislation meeting the requirements in about 2018. However since we have been discussing the matter, major manufacturers have been reviewing their constructions and many believe that changes they have been making will comply with this change though this will need to be confirmed once the standard is published.

The final text agreed has been through the editing committee of which the UK delegate is a member. We are awaiting formal publication by IEC and then via the BSI committee responsible CPL/61.

The editing committee text is as follows:

Extra warnings to be added to the instructions provided with all appliances:

*The instructions for **refrigerating appliances** and **ice-makers** shall include the substance of the following:*

***WARNING:** When positioning the appliance ensure the supply cord is not trapped or damaged.*

***WARNING:** Do not locate multiple portable socket-outlets or portable power supplies at the rear of the appliance.*

.....

A new test to be carried out on all appliances where relevant

30 Resistance to heat and fire

Add the following new subclause.

30.2.4 Addition:

Accessible non-metallic material having any dimension exceeding 50 mm that covers the thermal insulation on the rear surfaces of an appliance, excluding non-metallic material that is within 50 mm from the top surface of the appliance,

is subject to the needle-flame test (NFT) of Annex E; or

shall comprise material classified as V-0 or V-1 according to IEC 60695-11-10 provided that the test sample used for the classification was no thicker than the relevant part of the appliance.

Accessible non-metallic material of the appliance within 150 mm of the motor-compressor and its electrical controls

is subject to the needle-flame test (NFT) of Annex E; or

shall comprise material classified as V-0 or V-1 according to IEC 60695-11-10 provided that the test sample used for the classification was no thicker than the relevant part of the appliance.

.....

This extra test requires that non-metallic material used to cover thermal insulation on the rear of appliances, considered to be the cause of fire problems reported in the UK, will be subjected to a small flame test called the needle flame test which is used for similar material testing near to connections in other appliances. Also this will apply to all non-metallic material in an area close to the compressor and its controls. What is different is the allowance to meet the requirements using a pre-selection option of using materials with a known fire resistance which has always been an option in appliance standards and is the method favoured in US national standards by Underwriters Laboratory.

