

SUMMARY OF TOPICS

The following changes in requirements are being proposed:

1. Miscellaneous Revisions to UL 94

2. Modification of UL 94 Scope to Express Relationship to UL 1694

STP BALLOTS AND ALL COMMENTS DUE: November 28, 2005

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

1. Miscellaneous Revisions to UL 94

BACKGROUND

Since the last meeting, UL has been accumulating many proposals to UL 94, the Standard for Safety for Tests for Flammability of Polymeric Materials for Parts in Devices and Appliances. All of these proposed changes shown below were discussed at the August 17, 2005 STP meeting. The Chairman has decided that they can be balloted directly.

RATIONALE

Below is a table that shows the changes being proposed for UL 94 a general Rationale for each item. In general, it can be stated that all of these changes are intended to enhance and clarify the test procedures, update references to outside standards, and adjust tolerances to increase the reproducibility of test results

Paragraph, Section, Figure or Table	Type of Change	Summary of Change
1.1	Revise	General - Replace "plastic" with "polymeric"
1.2 and 1.3	Revise	General clarification
1.5	Revise	General clarification
1.6	Delete	Being deleted due to corporate policy
2.2.1	Revise	General Updating of References to outside standards.
2.3.2	Revise	Clarify the scope of related standard UL 746D
Heading 3	Revise	Update section 3 to reflect definitions in ISO 13943
3.1, 3.2, 3.3, 3.4, 3.5, and 3.6	Revise	Update section 3 to reflect definitions in ISO 13943
5.1	Revise	Correct typo ""thisenclosure"
5.2	Revise	General – Add note to point out that IEC Method A 60695-11-4 and ISO 10093 are equivalent
5.8	Revise	General - add missing hyphen and specify temperature for heat content determination

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5.9	Revise	General - clarify that wire gauze can be either iron or steel
5.16	Revise	General - specify minimum length for mandrel for VTM test
6.3	Revise	General - substitute "preconditioning" for "desiccator"
Heading Section 7	Revise	General - Updating of References to outside standards
7.1.2	Revise	General rewording for clarification
7.5.2	Revise	General - add paragraph reference to 5.9 (glossary definition of Wire Gauze)
7.5.5, 8.5.4	Revise	General - substitute term "confirmed" for "calibrated"
7.5.7	Revise	General - Specify tolerance for 45 degree angle to horizontal
7.5.9	Revise	General - Rewritten for clarity
7.5.10	Revise	General - Clarify that the fume hood should be evacuated after each specimen
7.6.1	Revise	General - Delete Note which is not needed due to rewrite of 7.5.9
Heading Section 8	Revise	General - (1) Add 50 W to title of Section and (2) Updating of References to outside standards
8.1.2.1	Add	Specify that, optionally, materials with low density be tested in accordance with test for Horizontal Burning Foamed Materials test
8.1.6	Revise	Specify that the pipet viscometer shall be used as the referee method
8.4.2	Revise	General - Delete current exception for Industrial Laminates since UL 746E is now revised to include that requirement
8.5.3	Revise	General - Specify that the wide face of the specimen is to face the burner
8.5.5	Revise and Add	General – Split 8.5.5 into 8.5.5, 8.5.5.1 and 8.5.5.2 and generally clarify the wording
8.5.6	Revise	General (1) specify that t_3 be to the nearest half second and (2) specify that the fume hood be evacuated after each specimen
8.6.1	Revise	Add Note to describe how it is determined that a specimen has burned up to the clamp
Heading for Section 9	Revise	General - (1) Add 500 W to title of the Section and (2) Updating of References to outside standards
9.1.2	Revise	Delete V-2 rating as a prerequisite to performing 125 mm Vertical Burning Test
9.5.3	Revise	Specify a maximum light level in room to adjust the gas flow
9.5.5	Revise	Specify (1) tolerance for burner angle of 20 degrees (from vertical) and (2) and the distance from flame to specimen
9.5.7	Revise	Clarify that whether or not there were dripping particles must be recorded
9.6.3 and 9.6.4	Revise	Clarify the distance to be provided between the flame and the specimen
9.6.5	Revise	Specify that penetration of the plaque specimen is to be done after the sample has cooled
Heading for Section 10	Revise	General - Add reference to ASTM E162 in another location
11.1.1 and 11.1.1.1	Revise and Add	General plus add note indicating that the VTM method is not, in general, applicable to thicknesses above 0.025 mm
11.3.1.1 and 11.3.3	Add and Revise	General - Clarification of general specimen preparation
11.4.2 and 11.4.3	Revise and Add	Clarify that cylindrical specimens are to be prepared before conditioning
11.5.5, 11.5.5.1, 11.5.5.2	Revise and Add	General Editorial - Split 11.5.5 into 11.5.5, 11.5.5.1 and 11.5.5.2 and generally clarify the wording to (1) specify that t_3 be to the nearest half second and (2) substitute the word "secured" for "pinched" with regard to the upper (held) end of the specimen
11.5.6	Revise	Specify that t_3 is to be recorded to the nearest half second

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Heading for Section 12	Revise	General - Updating of References to outside standards
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PROPOSAL

1.1 These requirements cover tests for flammability of ~~plastic~~ polymeric materials used for parts in devices and appliances. They are intended to serve as a preliminary indication of their acceptability with respect to flammability for a particular application.

1.2 The methods described in this Standard involve standard size specimens and are intended to be used solely to measure and describe the flammability properties of materials, used in devices and appliances, in response to heat and a small open flame or radiant heat source under controlled laboratory conditions. ~~The actual response of materials depends upon the size and form, and also on the end-use of the product using the material. Assessment of other important characteristics in the end-use application includes, but is not limited to, factors such as ease of ignition, burning rate, flame spread, fuel contribution, intensity of burning, and products of combustion.~~

1.3 The final acceptance of the material is dependent upon its use in complete equipment that conforms with the standards applicable to such equipment. The flammability classification required of a material is dependent upon the equipment or device involved and the particular use of the material. The performance level of a material determined by these methods shall not be assumed to correlate with its performance in end-use application. The actual response to heat and flame of materials depends upon the size and form, and also on the end-use of the product using the material. Assessment of other important characteristics in the end-use application includes, but is not limited to, factors such as ease of ignition, burning rate, flame spread, fuel contribution, intensity of burning, and products of combustion.

1.5 These tests, with the exception of the Radiant Panel Test in Section 10, are not applicable to the evaluation of parts where the thickness exceeds 13.0 mm or where the surface area exceeds 1 m². These requirements do not cover plastics when used as materials for building construction or finishing polymeric materials when used for building construction, finishing, or contents such as wall and floor coverings, furnishings, decorative objects and so forth. In addition, the fire resistance (in terms of an hourly rating), flame spread, smoke characterization, and heat release rate is not evaluated. Other fire tests exist and shall be used to evaluate the flammability of materials in the intended end-use-product configuration.

1.6 ~~A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involves a risk of fire or electric shock or injury to persons shall be evaluated using appropriate additional component and end-product requirements to maintain the level of safety as originally anticipated by the intent of the standard. A product whose features, characteristics, components, materials, or systems conflict with the specific requirements of provisions of this standard does not comply with this standard. Revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.~~

2.2.1 If a designation for a test method is followed by an alternate or equivalent designation, in parenthesis, the latter method is considered technically equivalent, though not necessarily identical, and might yield somewhat different numerical test results than those obtained with the original test method.

ISO 13943, Fire Safety – Vocabulary (ASTM E 176, Standard Terminology of Fire Standards)

ISO 291 : Standard Atmospheres for Conditioning and Testing (ASTM D 618, Practice for Conditioning Plastics for Testing) Method for Conditioning Plastics and Electrical Insulating Materials for Testing (ISO 291 : Plastics—Standard Atmospheres for Conditioning and Testing)

ASTM D 789, Test Method for Determination of Relative Viscosity, Melting Point, and Moisture Content of Polyamide (PA)

ASTM E 162, Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source

ASTM D 3195, Practice of Rotameter Calibration

IEC TS60695-11-4, Apparatus and Confirmational Test Methods; Method A (ASTM D 5025, Specification for a Laboratory Burner Used for Small-Scale Burning Tests on Plastic Materials; ASTM D 5207, Practice for Confirmation of 20 mm (50 W) Test Flames for Small-Scale Burning Tests on Plastic Materials)

ASTM D 5207, Standard Practice for Calibration of 20 mm and 125 mm Test Flames for Small-Scale Burning Tests on Plastic Materials

ASTM 2016, Specification for Industrial Woven Wire Cloth, Appendix X3 ASTM E 437, Specification for Industrial Wire Cloth and Screens (Square Opening Series), Appendix X3

HB: ASTM D 635, Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position (IEC 60695-11-10 Fire hazard testing Part 11-10: Test flames 50 W horizontal and vertical flame test methods) IEC 707, Methods of Test for the Determination of the Flammability of Solid Electrical Insulating Materials When Exposed to an Igniting Source, ISO 1210, Plastics—Determination of the Burning Behavior of Horizontal and Vertical Specimens in Contact with a Small Flame Ignition Source)

V: ASTM D 3801, Test Method for Measuring the Comparative Burning Extinguishing Characteristics of Solid Plastics in a Vertical Position (IEC 60695-11-10, Fire hazard testing Part 11-10: Test flames 50 W horizontal and vertical flame test methods) (IEC 707, ISO 1210)

VTM: ASTM D 4804, Test Method for Determining the Flammability Characteristics of Nonrigid Solid Plastics (ISO 9773, Plastics – Determination of Burning Behavior of Flexible Vertical Specimens in Contact with a Small Flame Ignition Source)

5V: ASTM D 5048, Standard Test Method for Measuring the Comparative Burning Characteristics and Resistance to Burn-Through of Solid Plastics Using a 125 mm Flame (IEC 60695-11-20, Fire hazard testing Part 11-20: Test flames 500 W flame test methods) (ISO 10351, Plastics—Method of Test for the Determination of Combustibility of Specimens Using a 125 mm Flame Source)

HBF: ASTM D 4986, Standard Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials (ISO/DIS 9772.3 ISO 9772, Cellular Plastics – Determination of Horizontal Burning Characteristics of Small Specimens Subjected to a Small Flame)

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