

☐ Flammability

☐ Flammable

☐ Flame

proof

☐ Flame Proof Types

☐ Factors Affecting
Flame resistance

☐ Available Methods
of Test

☐ Standard for
the

Flammability

☐ Flammabilit

Testing

☐ Flame
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FLAMMABILITY

Flammability is the ability of a substance to burn or ignite, causing fire or combustion. The degree of difficulty required to cause the combustion of a substance is quantified through fire testing.

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FLAMMABLE

A flammable fabric is one which propagates flame, i.e. it continues to burn after the igniting flame has been removed.

Flame Resistance Rating (M): A figure derived from the flammability testing of fabrics and is of the same order as the time in seconds necessary for the propagation of flame 100 inch in a vertical strip.

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FLAME PROOF

A flame-proof fabric is one which does not propagate flame, i.e. any flame goes out quickly when the igniting flame is withdrawn.

Flame-Resistance: A flame resistant fabric is one whose flame resistance rating is high.

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FLAME PROOF TYPES

Inherently Flame-proof Material: Material which, although not submitted to a flame-proofing process, is flame proof.

Durably Flame-proof Material: A flame-proof material which, after being submitted to a washing treatment, remains flame proof.

Temporarily Flame-proof Material: Material which complies with the standard requirement, before, but not after, the prescribed washing treatment.

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FACTORS AFFECTING FLAME RESISTANCE

❑ Fibre content

❑ Types of Yarn

❑ Fabric Structure

❑ Fabric weight

AVAILABLE METHODS OF TEST

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❑ The Visual Timing Test (Here the rate of flame spread is determined over fabric suspended vertically)

❑ The 45° Test (The time, t for the flame to travel 5 inch over fabric sloping at an angle of 45 degree is measured in seconds. The flame resistance rating, M , is then given by $2.5 * t$)

❑ The Hoop Test (The rate of flame spread is determined over the fabric mounted on a semicircular frame)

STANDARD FOR THE FLAMMABILITY OF
CLOTHING TEXTILES

16 CFR PART 1610

Consumer Product Safety Commission is amending its flammability standard for general wearing apparel, the Standard for the Flammability of Clothing Textiles, 16 CFR part 1610. The Standard, originally issued in 1953, has become outdated in several respects. The revisions better reflect current consumer practices and technologies and clarify several aspects of the Standard.

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STANDARD FOR THE FLAMMABILITY OF CLOTHING TEXTILES

16 CFR PART 1610

Exemption of Testing:

Plain Surface

Raised Surface

**Note: Acrylic, Modacrylic, Nylon, Olefin,
Polyester, Wool**

2.6 oz/sq.yards

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Procedure of Testing:

Refurbishing: 5 Specimen

Original: 5 Specimen

Preliminary Test: Direction finding

Specimen: * "6

"2Brushing:

45degree

Sensor

1sec, 16 mm flame length

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STANDARD FOR THE FLAMMABILITY OF
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Interpretation of Result:

For Plain Surface & For Raised Surface

Class 1: Normal Flammability:

Class 2: Intermediate Flammability:

Class 3: Normal Flammability:

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Interpretation of Result:

Plain Surface:

DNI= Did Not Ignite

IBE = Ignite But Extinguish

Burn Time

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STANDARD FOR THE FLAMMABILITY OF CLOTHING TEXTILES

16 CFR PART 1610

Interpretation of Result:

| Class | Plain surface textile fabric | Raised surface textile fabric |
|-------|---|---|
| 1 | Burn time is ≥ 3.5 seconds. | <ul style="list-style-type: none">• Burn time is > 7.0 seconds; or• Burn time is 0-7 seconds with no base burns (SFBB). Exhibits rapid surface flash only. |
| 2 | N/A | Burn time is 4-7 seconds (inclusive) with base burn (SFBB). |
| 3 | Burn time is < 3.5 seconds. NOT ACCEPTABLE | Burn time is < 4.0 seconds with base burn (SFBB). NOT ACCEPTABLE. |

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Interpretation of Result:

Raised Surface:

SFuc

SFpw

SFpoi

- - sec.

- - SF only

- - SFBB

- - SFBBpoi

- - SFBBpoi*

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FLAME PROOFING AND FLAM-RESISTANT FINISHES

But should be considered following

1. Be permanent and not disappear at the first laundering or cleaning
2. Be non-toxic
3. Be non-irritant to the skin
4. Leave the handle and other desirable fabric properties unaffected.

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