FIRE SAFETY

STANDARDS

FLAME RETARDANT

INTERNATIONAL FIRE TESTING SAFETY
This test shows how flame retardant Trevira CS textiles (left) melt only slowly after the ignition source is extinguished, while conventional textiles (right) go up totally in flames.
## Fire testing standards for home textiles

### Europe

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 1165</td>
<td>Building products or furniture, cellulose or cellulosic materials.</td>
</tr>
<tr>
<td>EN 13501-1</td>
<td>Building products, non-cellulosic materials. Ignition test.</td>
</tr>
<tr>
<td>EN ISO 9239-2</td>
<td>Furniture, including upholstery, bedding, curtains, and similar products. Ignition test.</td>
</tr>
<tr>
<td>EN 13501-2</td>
<td>Building products, non-cellulosic materials. Fire endurance test.</td>
</tr>
</tbody>
</table>

### National Standards

- **Germany**:
  - **GOST R 50810-95**: Standard for furniture. Includes tests for upholstery materials.
  - **UNI VF 9174**: Standard for upholstery materials.
  - **BS 476 part 7**: Standard for building materials, decorative fabrics, and upholstery materials. Includes burn through test.
  - **BS 5852 Test**: Standard for upholstery materials. Includes burn through test.
  - **BS 5438 (withdrawn), BS 5867**: Standards for textiles, including tests for building products, decorative fabrics, and upholstery materials.
  - **NF D 60-013 (Article AM 18)**: French standard for building products, decorative fabrics, and upholstery materials.
  - **UNE 23723-27**: Spanish standard for building products, decorative fabrics, and upholstery materials.
  - **DIN 4102-1**: German standard for building materials, decorative fabrics, and upholstery materials. Includes tests for burn classes.
  - **OENORM A 3800-1**: Austrian standard for building products, decorative fabrics, and upholstery materials.

### Other Standards

- **EN 13823 (SBI) Test**: Standard for solar shading, curtains, and door curtains. Includes tests for flame spread and after-burn time.
- **EN ISO 11925-2 Test**: Standard for flooring, ceiling material, and building materials. Includes tests for flame spread and after-burn time.
- **EN 13772 Test**: Standard for light to heavy decorative fabrics, upholstery materials, and curtains. Includes tests for flame spread and after-burn time.

### Test Procedures

- **Test Procedures**: Standard for furniture, bedding, upholstery materials, solar shading, curtains, and door curtains. Includes tests for flame spread, after-burn time, and damage to the fabric.

### Test Specimens

- **Test Specimens**: Various specimens for different types of fabric and materials. Includes tests for burn classes, ignitability classes, and fire hazard classes.

### Test Institutes

- **SP Sveriges Tekniska Forskningsinstitut, Sweden**: www.sp.se
- **Warringtonfire Frankfurt**: www.warringtonfire.com
- **BTTG Testing Certification**: www.bttg.co.uk
- **BSI Testing**: www.bsigroup.com
- **IFTH, France**: www.ifth.org
- **Currenta Leverkusen**: www.currenta.de
- **Warringtonfire, Frankfurt**: www.warringtonfire.com
- **IBS - Institut für Brandschutztechnik und Sicherheitsforschung**: www.ibs-austria.at
- **ÖTI Institut für Ökologie, Technik und Innovation GmbH der Stadt Wien**: www.oti-bzg.at
- **OETI, Austria**: www.oeti.biz/oeti-de
- **General Building Inspectorate Approval** ("Allgemeine Bauaufsichtliche Zulassung") - see www.trevira.com

### Additional Information

- **Parallel Standards**: Analogous to IMO, FTP Code 2010, Annex 1, Part 7
- **Protection Act**: Nr. 1324 prescribes the test on normally combustible foam. The test is performed on calcium silicate board and PVA adhesive.
- **BTTG Test**: Test on normally combustible foam. The test is performed on fabrics that are flame retardant and have a density of ≥ 50 kg/m². Trevira CS fabrics pass this test for the contract sector in combination with appropriate flame retardant foam materials.
- **BTTG Certificate**: EN 13773_EN 1021 (see www.trevira.com)
- **General Building Inspectorate Approval**: "Allgemeine Bauaufsichtliche Zulassung" - see www.trevira.com
- **Class A**: flame retardant, non-combustible, class V0, medium hazard, class B1: average residual length ≥150 mm, smoke temperature max. 200 °C
- **Class B1-s1, d0**: ignitability classes: V1, V2, V3, I (flame retardant), II (flammable), III (easily flammable), IV (ignitable), V (easily ignitable)
- **Class 1, 2, 3, 4**: low, medium, high, and very high hazard
- **Class Pa**: type A (low requirement), type B (medium), type C (high requirement)
- **Class Pa and Pb**: no ignition
- **Class Pa and Pb, Pa and Pb**: medium, flame spread slow, DL below 5.4 m
- **Class Pa and Pb**: Class I
- **Class Pa and Pb**: Class High hazard
- **Class Pa and Pb**: Class A
- **Class Pa and Pb**: Class B1-s1, d0
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## Fire testing standards for home textiles

<table>
<thead>
<tr>
<th>STANDARD</th>
<th>APPLICATION/DESCRIPTION</th>
<th>IGNITION SOURCE</th>
<th>KIND OF IGNITION</th>
<th>CLASSIFICATION CRITERIA</th>
<th>TEST SPECIMEN</th>
<th>RATING CLASSIFICATION</th>
<th>ACHIEVABLE FOR TREVIRA CS</th>
<th>TEST INSTITUTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFPA 265</td>
<td>Upholstery materials</td>
<td>Cigarette</td>
<td>Passed</td>
<td>Passed</td>
<td>Passed</td>
<td>Passed</td>
<td>Passed</td>
<td>NFPA</td>
</tr>
<tr>
<td>ABAD 0031</td>
<td>Dividing curtains, seat upholstery, blankets</td>
<td>18-kW-flame</td>
<td>Passed</td>
<td>Passed</td>
<td>Passed</td>
<td>Passed</td>
<td>Passed</td>
<td>United Arab Emirates Testing Centre, <a href="http://www.ustesting.com">www.ustesting.com</a></td>
</tr>
</tbody>
</table>

### Notes
- **Ignition Sources**: Gas flame in Steiner tunnel, cigarette covered by linen cloth, 18-kW-flame, cigarette, gas flame, crib 5.
- **Classification Criteria**: After-burn time, after-glow time, charred area and length.
- **Test Specimen**: Various material samples are tested.
- **Test Institutes**: Various national and international test laboratories are involved in the tests.
- **Classifications**: Passed / not passed, speed of heat release.
- **Ratings**: Passed / not passed.
- **Applications**: Various as different tests are applied.

## Fire testing standards for textiles for the transport sector

<table>
<thead>
<tr>
<th>STANDARD</th>
<th>END USE / APPLICATION</th>
<th>CLASSIFICATION CRITERIA</th>
<th>TEST INSTITUTES</th>
</tr>
</thead>
</table>

**Notes**
- **End Uses/Applications**: Various as different tests are applied.
- **Classification Criteria**: Various criteria depending on the specific standard.
- **Test Institutes**: Various national and international test laboratories are involved in the tests.