PROTECTIVE CLOTHING FOR FIREFIGHTERS

Comparative summary of mechanical requirements

<table>
<thead>
<tr>
<th>Requirement / Property</th>
<th>EN 469</th>
<th>EN 15614</th>
<th>EN 16689</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flame spread resistance</td>
<td>Level 3</td>
<td>Level 3</td>
<td>Level 2</td>
</tr>
<tr>
<td>Contact heat resistance</td>
<td>Not covered</td>
<td>Not covered</td>
<td>Not covered</td>
</tr>
<tr>
<td>Convective heat resistance</td>
<td>Not covered</td>
<td>Not covered</td>
<td>Not covered</td>
</tr>
<tr>
<td>Radiant heat resistance</td>
<td>Not covered</td>
<td>Not covered</td>
<td>Not covered</td>
</tr>
<tr>
<td>Water vapour resistance</td>
<td>25 s</td>
<td>&gt; 30 s</td>
<td>Not covered</td>
</tr>
<tr>
<td>Heat resistance</td>
<td>≤ 147.6 W/m²</td>
<td>≤ 169.7 W/m²</td>
<td>≤ 145.7 W/m²</td>
</tr>
</tbody>
</table>

In addition, clothing under EN 16689 is not defined. The manufacturer shall indicate on the information indicating the limitations of time of use due to heat stress. This limitation of time shall be related to the type of activity (metabolic rate production, environmental conditions).

*For garments that have reached level 1 in water vapour resistance, the manufacturer shall indicate in the information indicating the limitations of time of use due to heat stress. This limitation of time shall be related to the type of activity (metabolic rate production, environmental conditions).

**Maximum dimensional change in % after the indicated heat exposure.

Comparative summary of mechanical requirements

<table>
<thead>
<tr>
<th>Requirement / Property</th>
<th>EN 469</th>
<th>EN 15614</th>
<th>EN 16689</th>
</tr>
</thead>
</table>
| Abrasion resistance | Not covered | Not covered | 300 folds (minimum required)
| Burst strength | Not covered | Not covered | ≥ 25 N
| Tear resistance | Not covered | Not covered | ≥ 25 N
| Respiratory resistance | Not covered | Not covered | ≥ 0.3 Pa/W

Codes included in the pictogram, A2 or both, indicate the test method and the lower level of protection against radiant and convective heat, respectively, that the clothing has been tested for in order to determine the heat protection afforded by the clothing.

Protection against radiant and convective heat offered by this clothing is lower than the one offered by both EN 469 and EN 15614, but it does include a requirement for contact heat, not covered by the two standards.

In addition, as a specific characteristic, some other requirements, related to mechanical resistance and penetration by blood-borne pathogens, resistance need to be reached (see table). This clothing offers a lower water vapour resistance and, as a result, a higher breathability, and lightness, than the clothing designed according to EN 469.

High-visibility materials of the garments are mandatory and they have to comply with the thermal and high visibility requirements stated in this standard.

REFERENCES

- INSSBT PPE web site (in Spanish): http://www.inssbt.es/ppe
- Some standards related to other PPE for firefighters:
  - EN 1480: Protective clothing for fire-fighters. Test methods and requirements for reflective clothing for specialized fire-fighting.
  - EN 13591: Protective clothing for firefighters - Requirements and test methods for hoods for firefighters.
  - EN 1465: Helmets for firefighting: building and similar structures.
  - EN 16473: Firefighters helmets - Helmets for wildland firefighting.
  - EN 13657: Protective gloves for fire-fighters.
  - EN 13595: Protective boots for firefighters.
  - EN 1169: Footwear for firefighters.
  - EN 14643: Personal eye-equipment - Face-shields and visors for use with firefighting and high performance industrial safety helmets used by firefighters, ambulance and emergency services.