1. Add the following references to Subsection 2.3.4 to read as follows:

2.3.4 ASTM Publications.

2. Delete the following references in Subsection 2.3.8 as follows:


3. Add a new definition and associated Annex as follows:

3.3.X* Tex. A direct yarn size system that identifies the weight in grams for 1000 meters of yarn.
A.3.3.X Tex. Low numbers indicate a yarn size that is finer, weaker, and has more yards per pound. Tex size 70/80 is “two times” heavier and stronger than Tex size 35/40; and also has one-half the total length of yarn per pound.

4. Revise Section 6.2 to read as follows:

6.2 Protective Helmet Item Design Requirements.

6.2.13 All thread used to manufacture helmets, excluding that used on the crown straps, shall be made of inherently flame-resistant fiber.

5. Revise Section 6.7 to read as follows:

6.7 Chain Saw Protector Item Design Requirements.

6.7.4 All thread used to manufacture chain saw protectors shall be made of inherently flame-resistant fiber.
6. Revise Section 7.1 to read as follows:

7.1 Protective Garment Item Performance Requirements

7.1.10 All sewing thread utilized in the construction of garments shall be tested for Tex size as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a Tex size 21 to Tex size 100. All sewing thread utilized in the construction of garments shall be tested for melting temperature as specified in Section 8.9 and shall have a melting temperature not lower than 260°C (500°F).

7.1.11 All sewing thread utilized in the construction of garments shall be tested for breaking strength as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a minimum breaking strength as shown in Tables I or II in A-A-55217B. All sewing thread utilized in the construction of garments shall be tested for breaking strength as specified in Section 8.35 and shall have a breaking strength not lower than that specified in Table 7.1.11.

<table>
<thead>
<tr>
<th>Size (Tex)</th>
<th>Breaking Strength</th>
<th>Breaking Strength After Convective Heat Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>lb</td>
</tr>
<tr>
<td>≤34</td>
<td>5.8</td>
<td>1.3</td>
</tr>
<tr>
<td>35–49</td>
<td>8.9</td>
<td>2.0</td>
</tr>
<tr>
<td>50–69</td>
<td>13.3</td>
<td>3.0</td>
</tr>
<tr>
<td>70–89</td>
<td>20.0</td>
<td>4.5</td>
</tr>
<tr>
<td>≥90</td>
<td>24.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

7.1.12 All sewing thread utilized in the construction of garments shall be tested for elongation as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a maximum elongation as shown in Tables I or II in A-A-55217B.

7.1.13 All sewing thread utilized in the construction of garments shall be tested for melting temperature as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a melting temperature not lower than 260°C (500°F).

7. Revise Section 7.2 to read as follows:

7.2 Protective Helmet Item Performance Requirements

7.2.1 All sewing thread utilized in the construction of helmets shall be tested for Tex size as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a Tex size 21 to Tex size 100. All sewing thread utilized in the construction of helmets, excluding that used on the crown straps, shall be
tested for melting temperature as specified in Section 8.9 and shall have a melting temperature not lower than 260°C (500°F).

7.2.1.1 All sewing thread utilized in the construction of helmets shall be tested for breaking strength as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a minimum breaking strength as shown in Tables I or II in A-A-55217B. All sewing thread utilized in the construction of helmets, excluding that used on the crown straps, shall be tested for breaking strength as specified in Section 8.35 and shall have a breaking strength not lower than that specified in Table 7.2.2.

Table 7.2.2 Breaking Strength for Thread Used in Construction of Helmets (Excluding That Used on Crown Straps)

<table>
<thead>
<tr>
<th>Size (Tex)</th>
<th>Breaking Strength</th>
<th>Breaking Strength After Convective Heat Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>lb</td>
</tr>
<tr>
<td>≤34</td>
<td>5.8</td>
<td>1.3</td>
</tr>
<tr>
<td>35–49</td>
<td>8.9</td>
<td>2.0</td>
</tr>
<tr>
<td>50–69</td>
<td>13.3</td>
<td>3.0</td>
</tr>
<tr>
<td>70–89</td>
<td>20.0</td>
<td>4.5</td>
</tr>
<tr>
<td>≥90</td>
<td>24.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

7.2.1.2 All sewing thread utilized in the construction of helmets shall be tested for elongation as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a maximum elongation as shown in Tables I or II in A-A-55217B.

7.2.1.3 All sewing thread utilized in the construction of helmets shall be tested for melting temperature as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a melting temperature not lower than 260°C (500°F).

8. Revise Section 7.3 to read as follows:

7.3 Protective Work Glove Item Performance Requirements

7.3.10 All sewing thread utilized in the construction of protective work gloves shall be tested for Tex size as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a Tex size 21 to Tex size 100. All sewing thread utilized in the construction of protective work gloves shall be tested for melting temperature as specified in Section 8.9 and shall have a melting temperature not lower than 260°C (500°F).

7.3.10.1 All sewing thread utilized in the construction of protective work gloves shall be tested for breaking strength as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a minimum breaking strength as shown in Tables I or II in A-A-55217B. All sewing thread utilized in the construction of protective work gloves shall be tested for breaking strength...
as specified in Section 8.35 and shall have a breaking strength not lower than that specified in Table 7.3.11.

Table 7.3.11 Breaking Strength for Thread Used in Construction of Protective Work Gloves

<table>
<thead>
<tr>
<th>Size (Tex)</th>
<th>Breaking Strength</th>
<th>Breaking Strength After Convective Heat Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N lb</td>
<td>N lb</td>
</tr>
<tr>
<td>≤34</td>
<td>5.8 1.3</td>
<td>1.7 0.4</td>
</tr>
<tr>
<td>35–49</td>
<td>8.9 2.0</td>
<td>2.7 0.6</td>
</tr>
<tr>
<td>50–69</td>
<td>13.3 3.0</td>
<td>4.0 0.9</td>
</tr>
<tr>
<td>70–89</td>
<td>20.0 4.5</td>
<td>6.0 1.3</td>
</tr>
<tr>
<td>≥90</td>
<td>24.5 5.5</td>
<td>7.3 1.6</td>
</tr>
</tbody>
</table>

7.3.10.2 All sewing thread utilized in the construction of protective work gloves shall be tested for elongation as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a maximum elongation as shown in Tables I or II in A-A-55217B.

7.3.10.3 All sewing thread utilized in the construction of protective work gloves shall be tested for melting temperature as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a melting temperature not lower than 260°C (500°F).

9. Revise Section 7.4 to read as follows:

7.4 Protective Footwear Item Performance Requirements

7.4.11 All sewing thread exposed to the exterior of the footwear shall be tested for Tex size as specified in A-A-55195, *Thread, Para-Aramid, Spun, Intermediate Modulus, Type I Normal Performance or Type II High Performance*, and shall have a range from Tex size 39 to Tex size 142; or, as specified in A-A-55220, *Thread, Para-Aramid, Intermediate Modulus*, shall have a range from Tex size 40 to Tex size 800; or, as specified in A-A-50195, *Thread, Aramid*, shall have a range from Tex size 40 to Tex size 450. All sewing thread exposed to the exterior of footwear shall be tested for breaking strength as specified in Section 8.35 and shall have a breaking strength not lower than that specified in Table 7.4.12.
Table 7.4.12 Breaking Strength for Thread Exposed to Exterior of Footwear

<table>
<thead>
<tr>
<th>Size (Tex)</th>
<th>Breaking Strength</th>
<th>Breaking Strength After Convective Heat Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>lb</td>
</tr>
<tr>
<td>≤34</td>
<td>5.8</td>
<td>1.3</td>
</tr>
<tr>
<td>35–49</td>
<td>8.9</td>
<td>2.0</td>
</tr>
<tr>
<td>50–69</td>
<td>13.3</td>
<td>3.0</td>
</tr>
<tr>
<td>70–89</td>
<td>20.0</td>
<td>4.5</td>
</tr>
<tr>
<td>≥90</td>
<td>24.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

7.4.11.2 All sewing thread exposed to the exterior of the footwear shall be tested for maximum elongation as specified in A-A-55195, *Thread, Para-Aramid, Spun, Intermediate Modulus, Type I Normal Performance or Type II High Performance*, and shall have a minimum breaking strength as specified in Table I or II in A-A-55195 or Table I or IA in A-A-55220, *Thread, Para-Aramid, Intermediate Modulus*; or Table II in A-A-50195, *Thread, Aramid*.


10. Revise Section 7.5 to read as follows:

7.5 Protective Face/Neck Shroud Item Performance Requirements

7.5.9 All sewing thread utilized in the construction of protective face/neck shrouds shall be tested for Tex size as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a Tex size 21 to Tex size 100. All sewing thread utilized in the construction of protective face/neck shrouds shall be tested for melting temperature as specified in Section 8.9 and shall have a melting temperature not lower than 260°C (500°F).

7.5.9.1 7.5.10 All sewing thread utilized in the construction of protective face/neck shrouds shall be tested for breaking strength as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a minimum breaking strength as shown in Tables I or II in A-A-55217B. All sewing thread utilized in the construction of protective face/neck shrouds shall be tested for breaking strength as specified in Section 8.35 and shall have a breaking strength not lower than that specified in Table 7.5.10.

Table 7.5.10 Breaking Strength for Thread Used in Construction of Protective Face/Neck Shrouds

<table>
<thead>
<tr>
<th>Size (Tex)</th>
<th>Breaking Strength</th>
<th>Breaking Strength After Convective Heat Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>lb</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>lb</td>
</tr>
</tbody>
</table>
7.5.9.2 All sewing thread utilized in the construction of protective face/neck shrouds shall be tested for elongation as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a maximum elongation as shown in Tables I or II in A-A-55217B.

7.5.9.3 All sewing thread utilized in the construction of protective face/neck shrouds shall be tested for melting temperature as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a melting temperature not lower than 260°C (500°F).

11. Revise Section 7.6 to read as follows:

7.6 Protective Goggle Item Performance Requirements

7.6.2 All sewing thread utilized in the construction of protective goggles shall be tested for Tex size as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a Tex size 21 to Tex size 100.

All sewing thread utilized in the construction of protective goggles shall be tested for melting temperature as specified in Section 8.9 and shall have a melting temperature not lower than 232°C (450°F).

7.6.2.1–7.6.3 All sewing thread utilized in the construction of protective goggles shall be tested for breaking strength as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a minimum breaking strength as shown in Tables I or II in A-A-55217B.

7.6.2.2 All sewing thread utilized in the construction of protective goggles shall be tested for elongation as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a maximum elongation as shown in Tables I or II in A-A-55217B.

7.6.2.3 All sewing thread utilized in the construction of protective goggles shall be tested for melting temperature as specified in A-A-55217B, *Thread, Aramid, Spun Staple, Type I Normal Performance or Type II High Performance*, and shall have a melting temperature not lower than 260°C (500°F).

12. Revise Section 7.7 to read as follows:

7.7 Chain Saw Protector Item Performance Requirements

7.7.4 All sewing thread utilized in the construction of chain saw protectors shall be tested for resistance to melting temperature as specified in Section 8.9 and shall not ignite, melt, or char have a melting temperature not lower than 232°C (450°F).

13. Revise Section 7.8 to read as follows:
7.8 Protective Driving Gloves Item Performance Requirements

7.8.8 All sewing thread utilized in the construction of protective driving gloves shall be tested for Tex size as specified in A-A-55195, Thread, Para-Aramid, Spun, Intermediate Modulus, Type I Normal Performance or Type II High Performance, and shall have a range from Tex size 14 to Tex size 135. All sewing thread utilized in the construction of protective driving gloves shall be tested for melting temperature as specified in Section 8.9 and shall have a melting temperature not lower than 260°C (500°F).

7.8.9 All sewing thread utilized in the construction of protective driving gloves shall be tested for breaking strength as specified in A-A-55195, Thread, Para-Aramid, Spun, Intermediate Modulus, Type I Normal Performance or Type II High Performance, and shall have a minimum breaking strength of 2 lb. All sewing thread utilized in the construction of protective driving gloves shall be tested for breaking strength as specified in Section 8.35 and shall have a breaking strength not lower than that specified in Table 7.8.9.

Table 7.8.9 Breaking Strength for Thread Used in Construction of Protective Driving Gloves

<table>
<thead>
<tr>
<th>Size (Tex)</th>
<th>Breaking Strength</th>
<th>Breaking Strength After Convective Heat Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>lb</td>
</tr>
<tr>
<td>≤34</td>
<td>5.8</td>
<td>1.3</td>
</tr>
<tr>
<td>35–49</td>
<td>8.9</td>
<td>2.0</td>
</tr>
<tr>
<td>50–69</td>
<td>13.3</td>
<td>3.0</td>
</tr>
<tr>
<td>70–89</td>
<td>20.0</td>
<td>4.5</td>
</tr>
<tr>
<td>≥90</td>
<td>24.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

7.8.8.2 All sewing thread utilized in the construction of protective driving gloves shall be tested for elongation as specified in A-A-55195, Thread, Para-Aramid, Spun, Intermediate Modulus, Type I Normal Performance or Type II High Performance, and shall have a maximum elongation of 6 percent.

7.8.8.3 All sewing thread utilized in the construction of protective work gloves shall be tested for melting temperature as specified in A-A-55195, Thread, Para-Aramid, Spun, Intermediate Modulus, Type I Normal Performance or Type II High Performance, and shall have a melting temperature not lower than 260°C (500°F).

14. Revise Section 7.9 to read as follows:

7.9 Load-Carrying Equipment Item Performance Requirements

7.9.3 All sewing thread utilized in the construction of load-carrying equipment shall be tested for resistance to melting temperature as specified in Section 8.9 and shall not ignite, melt, or char, have a melting temperature not lower than 232°C (450°F).

15. Revise Subsection 8.1.3 to read as follows:

8.1.3.1 Samples shall be conditioned by exposing them to the procedure specified in 8.4.56 with the following modifications:
(1) The oven test temperature in 8.4.56.4 shall be stabilized at as follows: 140°C, +6°/−0°C (285°F, +10°/−0°F), and the test exposure time shall be 10 minutes, ±15/−0 seconds, as follows:
(a) For visibility markings, the temperature shall be 140°C, +6°/−0°C (285°F, +10°/−0°F), and the test exposure shall be 10 minutes, ±15/−0 seconds.
(b) For thread utilized in garments, helmets, gloves, footwear, and face/neck shrouds, the temperature shall be 260°C, +6°/−0°C (500°F, +10°/−0°F), and the test exposure shall be 15 minutes, ±15/−0 seconds.
(2) The test exposure time shall begin when the test thermocouple reading has stabilized at the required test exposure temperature.
(3) The requirements of 8.4.56.5 and 8.4.56.6 shall be disregarded.

16. Revise Section 8.9 to read as follows:

8.9 Thread Melting Test.
8.9.1 Application. 8.9.1.1 This test method shall apply to each type of thread used in the construction of garments, helmets, gloves, footwear, face/neck shrouds, goggles, chain saw protectors, and load-carrying equipment.
8.9.1.2 Modifications to this test method for testing thread for use on goggles, chain saw protectors, and load-carrying equipment shall be as specified in 8.9.5.4.
8.9.2 Samples.
8.9.2.1 Samples for conditioning shall be 150 mm (6 in.) or greater in length.
8.9.2.2 Samples shall be conditioned as specified in 8.1.1.
8.9.3 Specimens.
8.9.3.1 Specimens for testing shall be the same as the samples for conditioning.
8.9.3.2 Testing shall be conducted on three different specimens of each thread type.
8.9.4 Apparatus. The apparatus shall be as specified in ASTM D7138, Standard Test Method to Determine Melting Temperature of Synthetic Fibers.
8.9.4.1 An electrically heated stage having a circular depression large enough to insert a micro cover glass shall be used. The stage shall have a variable transformer controlling the rate of heat input into the stage.
8.9.4.2 The following equipment shall also be used:
(1) Armored stem thermometer with a range of 150°C to 300°C, accurate to 1°C
(2) A low-powered magnifying glass
(3) Two micro cover glasses
(4) Spatula, pick needle, or other instrument for applying pressure to the cover glasses
(5) Soxhlet extraction apparatus
8.9.4.3 The following reagents and reference materials shall be used:
(1) Chloroform, USP
(2) *U.S. Pharmacopeia reference standards for melting point calibration of the apparatus
8.9.5 Procedure. Thread heat resistance tests shall be performed as specified in ASTM D7138, Standard Test Method to Determine Melting Temperature of Synthetic Fibers.
8.9.5.1 The sample shall be extracted with chloroform for a minimum of 20 extractions in a Soxhlet extractor and dried. The specimen shall then be cut into lengths of 2 mm (1/16 in.) or less to serve as the specimens for testing.

8.9.5.2 The apparatus shall be calibrated by determining the melting point of a pure material of known melting point. The melting point of the pure material shall be 500°C, ±20°C (932°F, ±68°F). The value obtained shall agree within 1°C of the known value of the reference material.

8.9.5.3 The specific requirements of 8.9.5.3.1 through 8.9.5.3.3 shall apply to testing thread for use on garments, helmets, gloves, footwear, and face/neck shrouds.

8.9.5.3.1 Following each successive determination of melting temperature for the reference material and for the test specimens, the stage in each case shall be cooled to at least 232°C (450°F) before a new specimen is placed for testing.

8.9.5.3.2 The specimen shall be placed in a small mound on the cover glass and covered with another cover glass. The two cover glasses shall be pressed together and placed in the circular depression on the stage. The temperature of the stage shall be raised to 250°C (485°F) and thereafter raised at a rate of 2°C to 3°C (3°F to 4°F) per minute. At this rate of temperature rise, a slight pressure shall be applied on the upper glass cover by pressing with a spatula, pick needle, or other instrument, so that the complete fiber is in contact with the cover plate.

8.9.5.3.3 When the temperature of the stage reaches 260°C, +3°C/−0°C (500°F, +5°F/−0°F), the specimen shall be observed with the aid of the magnifying glass for ignition, melting, or charring.

8.9.5.4 The specific requirements of 8.9.5.4.1 through 8.9.5.4.3 shall apply to testing thread for use on goggles, chain saw protectors, and load-carrying equipment.

8.9.5.4.1 Following each successive determination of melting temperature for the reference material and for the test specimens, the stage in each case shall be cooled to at least 204°C (400°F) before a new specimen is placed for testing.

8.9.5.4.2 The specimen shall be placed in a small mound on the cover glass and covered with another cover glass. The two cover glasses shall be pressed together and placed in the circular depression on the stage. The temperature of the stage shall be raised to 225°C (435°F) and thereafter raised at a rate of 2°C to 3°C (3°F to 4°F) per minute. At this rate of temperature rise, a slight pressure shall be applied on the upper glass cover by pressing with a spatula, pick needle, or other instrument, so that the complete fiber is in contact with the cover plate.

8.9.5.4.3 When the temperature of the stage reaches 232°C, +3°C/−0°C (450°F, +5°F/−0°F), the specimen shall be observed with the aid of the magnifying glass for ignition, melting, or charring.

8.9.6 Report. Observations of ignition, melting, and charring The melting temperature shall be recorded and reported for each specimen.

8.9.7 Interpretation. Any specimen showing ignition, melting, or charring shall constitute failure of the sample. One or more thread specimens failing this test shall constitute failing performance for the thread type.

17. Add a new Subsection 8.35 to read as follows:

8.35 Thread-Breaking Strength Test.

8.35.1 Application. This test method shall apply to each type of thread used in the construction of garments, helmets, gloves, footwear, face/neck shrouds, and goggles.
8.35.2 Samples.
8.35.2.1 Samples for conditioning shall be 1 m (1 yd) or greater in length.
8.35.2.2 Samples shall be conditioned as specified in 8.1.1.
8.35.2.3 Additional samples shall be conditioned as specified in 8.1.3 followed by 8.1.1.

8.35.3 Specimens.
8.35.3.1 Specimens for testing shall be 254 mm (10 in.) or greater in length.
8.35.3.2 Testing shall be conducted on three specimens in each condition.
8.35.3.3 The smallest size in each size range shall be permitted to be representative of all sizes in the range.

8.35.4 Apparatus. The apparatus shall be as specified in ASTM D 2256/D 2256M, Tensile Properties of Yarns by the Single-Strand Method.

8.35.5 Procedure.
8.35.5.1 Breaking strength tests shall be performed in accordance with ASTM D 2256/D 2256M, Tensile Properties of Yarns by the Single-Strand Method, Configuration A, Straight.

8.35.6 Report.
8.35.6.1 The breaking strength shall be recorded and reported for each specimen.
8.35.6.2 The average breaking strength shall be recorded and reported for each condition for all specimens tested.

8.35.7 Interpretation. The average breaking strength for each condition shall be used to determine pass or fail performance.

18. Delete Annex paragraphs A.8.9.4.1 and A.8.9.4.3(2):

A.8.9.4.1 Apparatus of the type described in this method may be obtained from the following sources:
(1) Fisher Scientific Company, 711 Forbes Avenue, Pittsburgh, PA 15219 (Their apparatus is known as the Fisher-Johns Melting Point Apparatus.)
(2) Thomas Scientific, P.O. Box 99, Swedesboro, NJ 08085

A.8.9.4.3(2) Six standards for use in calibrating melting point apparatus can be obtained from U.S. Pharmacopeia Reference Standards, 46 Park Avenue, New York, NY 10016.

Substantiation.

1. The language as currently written refers to US Commercial Item Descriptions (CID’s). These CID’s contain design restrictive requirements in the form of thread size, and then relate the thread size to a breaking strength requirement. Any thread size outside of the specified range would be unacceptable. The CID’s are tailored to a specific type of thread construction. This forces the manufacturer to use the specified thread type for the compliant element (see table below). This is unnecessarily design restrictive.

2. The performance requirements for the conditioning prior to breaking are not uniform (see table below). This leads to different performance requirements for different thread compositions, and different minimum requirements depending on the end use of the thread. In the case of Garments, Helmets, Work Gloves, Face/Neck Shrouds, and Goggles – the conditioning temperature of 550F exceeds the required melting temperature of 500F.
<table>
<thead>
<tr>
<th>Specification</th>
<th>Conditioning Temperature</th>
<th>Conditioning Time</th>
<th>NFPA 1977 Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-A-50195</td>
<td>500F</td>
<td>15 min</td>
<td>Footwear,</td>
</tr>
<tr>
<td>A-A-55195</td>
<td>500F</td>
<td>4 hours</td>
<td>Footwear, Driving Gloves</td>
</tr>
<tr>
<td>A-A-55220</td>
<td>None</td>
<td>None</td>
<td>Footwear,</td>
</tr>
</tbody>
</table>

3. The current requirements include a thread elongation requirement. This requirement is in the military CID to account for the forces encountered during the sewing process. This is not a safety issue, and is adding unnecessary testing and cost for no substantiated reason.

4. The helmet thread design requirement requiring all thread to be made of inherently flame-resistant fiber (6.2.13) and the requirement for all thread to have a melt temperature greater than 500F (7.2.1.3) inadvertently deleted the exception for the thread used on the crown straps (NFPA 1977-2011 ed. 7.2.1).

5. The chain saw protector thread design requirement requiring all thread to be made of inherently flame resistant fiber (6.7.4) is contradictory to the thread melt requirement (8.9.5.4.3) of 232C (450F). The design requirement should be removed.

6. All thread melting temperature requirements should be part of the performance requirement (Ch. 7) – not buried in the test method (8.9.5.4.3).

7. There are currently two methods for evaluating thread melting; ASTM D7138, and section 8.9. This can lead to redundant testing of the same thread depending on the use of the thread. Only one method should be specified.

8. The proposed TIA eliminates the elongation requirement, eliminates the thread size requirement, and replaces the individual military CID’s with a uniform breaking strength method and requirement (based on A-A-50195).

**Emergency Nature.**

NFPA 1977 contains the following conflicts:

a) Chain saw protector thread is required to be of inherently flame resistant fiber, and requires a melting temperature of 232C. These products are not generally made using inherently flame resistant thread.

b) Different threads, depending on their end use, are subject to different conditioning requirements, and in the case of face/neck shrouds and goggles, a conditioning temperature of higher than the required melt temperature.

The proposed TIA intends to correct the following circumstances in which the revised NFPA Standard has resulted in an adverse impact of products that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification for the action:

a) The standard as currently written is overly design restrictive in that it forces manufacturers to use threads of a certain size and composition.

b) The standard as currently written forces the redundant testing of thread as there are different requirements based on the end use of the thread.
c) There is insufficient technical or safety justification for the thread elongation requirement.

d) The standard as currently written will now require that helmet crown straps be sewn with inherently flame resistant thread. There was no discussion or technical (safety) justification for this action.

Anyone may submit a comment by the closing date indicated above. To submit a comment, please identify the number of the TIA and forward to the Secretary, Standards Council, 1 Batterymarch Park, Quincy, MA 02169-7471.