

NFPA 1971-Proposed 2013 Edition

Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting

TIA Log No. 1058

Reference: 2.3.2, 2.3.8, 8.10.4, and 8.10.5

Comment Closing Date: June 18, 2012

Submitter: Jim Reidy, Texas State Association of Fire Fighters

1. Delete the reference in 2.3.2 as follows:

2.3.2 ASTM Publications.

~~ASTM F 2700, Standard Test Method for Unsteady State Heat Transfer Evaluation of Flame Resistant Materials for Clothing with Continuous Heating, 2008.~~

2. Add a reference in 2.3.8 as follows:

2.3.8 ISO Publications.

ISO 17492, Clothing for Protection Against Heat and Flame – Determination of Heat Transmission on Exposure to Both Flame and Radiant Heat, 2003.

3. Revise the Section 8.10.4 and 8.10.5 as follows:

8.10.4 Apparatus. The test apparatus specified in ~~ASTM F2700, Standard Test Method for Unsteady State Heat Transfer Evaluation of Flame Resistant Materials for Clothing with Continuous Heating~~ ISO 17492, Clothing for Protection Against Heat and Flame – Determination of Heat Transmission on Exposure to Both Flame and Radiant Heat.

8.10.5 Procedure. Thermal protective performance testing shall be performed in accordance with ~~ASTM F 2700, Standard Test Method for Unsteady State Heat Transfer Evaluation of Flame Resistant Materials for Clothing with Continuous Heating~~ ISO 17492, Clothing for Protection Against Heat and Flame – Determination of Heat Transmission on Exposure to Both Flame and Radiant Heat, shall be used with the following modifications:

- (1) An exposure heat flux of 84 kW/m^2 , $\pm 2 \text{ kW/m}^2$, ($2.0 \text{ cal/cm}^2\text{s}$, $\pm 0.05 \text{ cal/cm}^2\text{s}$) shall be used.
- (+ 2) The contact configuration shall be used for testing of all material specimens.
- (2 3) ~~The heat transfer performance value~~ thermal threshold index analysis method shall be used with calculations made using the heat flux in calories per square centimeter per second ~~shall be and~~ reported as the TPP rating.

Submitter's Substantiation: During the new business item of the NFPA 1851 ROC meeting in San Antonio on April 3 and 4, 2012 a situation with the new ASTM F2700 test method as it relates to NFPA 1971 was brought up. After much discussion of the available data and the differences in the data of both TPP test methods for the same composites, the Technical Committee agreed that there was a need to file a TIA for NFPA 1971 based on the significance of the data presented at the meeting and the potential to negatively affect the end users. It was not the intent of the Technical Committee to increase or decrease the TPP value as the Committee agreed during the process that a 35 TPP as a minimum would adequately protect the firefighter.

Technical Merit: In the F2011 Report on Proposals for 1971-151 (Log #103), the Technical Committee on Structural and Proximity Fire Fighting Protective Ensembles provided an action for replacing the currently referenced ISO 17492 test method that measures thermal protective performance (TPP) with ASTM F2700. This change was believed to offer equivalent procedures and to provide additional details in conducting the test. Nevertheless, some of the specific details provided in the newer ASTM F2700 test method have been found to cause apparent significant differences in the currently reported TPP values for coat and pant garment material composites. Limited laboratory work using ASTM F2700 has neither resulted in the identification of any specific correlation that can be made for the amount of offset in TPP values that is resulting from the implementation of the new test method nor the determination of differences between the two test methods that can explain the variation of test results. Furthermore, it is unknown what effects the new test method will have on other types of composites being used in other elements, such as helmet ear covers, gloves, hoods, and wristlets.

Emergency Nature: The implementation of the new ASTM F2700 test method in place of the existing ISO 17492 test without reviewing the current performance criteria, has the potential of disqualifying a significant number of currently acceptable material composites that are used in the construction of structural firefighter protective clothing and will have unknown effects on the qualification of other structural firefighting protective elements such as gloves, hoods, and helmet ear covers.

The protective garment material composites that are most likely to be affected by this change represent the many of the industry composites that have thermal protective performance (TPP) values in the range of 35 to 40 cal/cm² and the corresponding higher values of total heat loss levels that are positioned to lessen the stress effects for wearing protective clothing. The observed differences in TPP values were not the result of changes in the material technology and there was no intention of increasing the level of thermal protection and insulation provided by firefighter protective clothing. Therefore, the proposed TIA intends to correct a circumstance in which the revised document has resulted in an adverse impact on both products and the TPP method that was inadvertently overlooked in the total revision process.

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.