



# Know the Standards for Flash Fire Hazards

NFPA 2112 and NFPA 2113. Two companion standards for workers exposed to flash fire hazards, both of which have several burning questions still attached to them. Bulwark, the world's #1 FR brand and educational resource, is here to explain the finer points of what these standards specifically state, and update you with all of the recent regulatory amendments that impact how you need to go about protecting the people under your watch from flash fire hazard properly - from base layer to outerwear.



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**WHAT STANDARDS ARE USED FOR WORKERS EXPOSED TO FLASH FIRE HAZARDS? NFPA 2112**, Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire, and its companion standard, NFPA 2113, Selection, Care, Use, and Maintenance of the same, specify design, performance, certification requirements, and test methods for flame-resistant garments for use in areas at risk from flash fires. Third party certification of garments is also required. In addition to the usual fabric performance requirements for flame resistance, heat resistance and thermal shrinkage, this standard introduced some new requirements and revised some old ones.

- Flame resistance of each fabric layer is required to be tested as received and after 100 cycles of washing and drying and/or dry cleaning.
- Heat Transfer Performance (HTP), formerly known as TPP, must be tested both with the fabric specimen in contact with the sensor assembly and separated from the sensor by a 1/4-inch spacer. A minimum HTP rating of 6.0 is required for “spaced” and 3.0 for “contact”.
- Coveralls made to a standard pattern from candidate fabrics are tested for overall flash fire exposure on an instrumented mannequin in accordance with ASTM Test Method F1930. The exposure heat flux is 84 kW/m<sup>2</sup> (2.02 cal/cm<sup>2</sup>/sec) with an exposure time of 3.0 seconds. The average total predicted body burn must not exceed 50%.



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NFPA 2113 provides guidance in the selection and specification of flame-resistant garments, including workplace hazard assessment. Other sections cover use and care and maintenance recommendations. There is extensive appendix material that amplifies and explains many of the issues including an explanation of the meaning and application of the testing required in NFPA 2112.

Canadian General Standards Board (CGSB) CAN/CGSB 155.20, Workwear for Protection Against Hydrocarbon Flash Fire, is the Canadian flash fire standard.

In addition to flame resistance, heat resistance and thermal shrinkage requirements, this standard also requires that the garment label be in both English & French. For single layer garments, the TPP values for both spaced and contact tests must be reported on the garment label.

## **DOES NFPA 2112 ADDRESS OUTERWEAR?**

Yes. In the summer of 2013, a TIA (Temporary Interim Amendment) was issued to clarify language in the standard that prescribes the certification of outerwear. The changes specifically address the unique features of cold weather gear which is sometimes designed with a removable lining.



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In the instance where the shell and lining can be worn separately, each stand alone piece must be independently certified. In the case where the insulation layer is permanently attached (sewn into) the certified outer shell, the performance requirements of the insulation layer were adjusted to account for the added protection afforded by the outer shell.

According to NFPA rules, a TIA applies only to the current edition of the standard, and the Technical Committee is required to formally re-consider the issue during the next revision cycle. The next edition of NFPA 2112 is due in 2017.

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Need more information on the standards for flash fire hazards?  
Still have questions regarding NFPA 2112 or 2113?

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