

NFPA Jacket and Pants: Performance Requirements

PERFORMANCE REQUIREMENTS	NFPA 1999 2008 Edition	NFPA 1971 2007 Edition	NFPA 1951 2007 Edition UTILITY	NFPA 1951 2007 Edition RESCUE	NFPA 1951 2007 Edition CBRN
THL	450 w/m ²	205 w/m ²	650 w/m ²	450 w/m ²	250w/m ²
TPP Rating	None required	35	10	10	10
Tear Resistance Outer shell Thermal & moisture barrier	8 lbs 8 lbs	22 lbs 5 lbs	6.75 lbs	6.75 lbs	6.75 lbs
Shell Breaking Strength	50 lbs	140 lbs	90 lbs	90 lbs	90 lbs
Shell Abrasion Resistance	None	None	50 lbs	50 lbs	50 lbs
Shell & Liner Clean Shrinkage	5% Max	5% Max	5% Max	5% Max	5% Max
Seams Major A (shell) Major B (thermal & moisture barrier)	50 lbs 50 lbs	150 lbs 75 lbs	70 lbs 40 lbs	70 lbs 40 lbs	70 lbs 40 lbs
Flame Test – all textiles excludes elastic, hook & loop, zippers, seam seal materials unless they contact body, and exempting labels unless on interior of garment	Flame spread of 3.5 seconds or more; no char length; no after flame	Maximum char length of 4"; after flame of no more than 2 seconds & no melting or dripping	Maximum char length of 4"; after flame of no more than 2 seconds & no melting or dripping	Maximum char length of 4"; after flame of no more than 2 seconds & no melting or dripping	Maximum char length of 4"; after flame of no more than 2 seconds & no melting or dripping
Hot Air Oven Test excludes elastic, hook & loop, and seam seal materials	ASTM D 1230	No melting, dripping, or ignition. Hardware to remain functional.	No melting, dripping, or ignition. Hardware to remain functional.	No melting, dripping, or ignition. Hardware to remain functional.	No melting, dripping, or ignition. Hardware to remain functional.
Water Absorption (shell)	30% Max	30% Max	15% Max	15% Max	15% Max
Label Durability	Legibility after 25 wash/dry cycles	Legibility after 5 wash/dry cycles	Legibility after 10 wash/dry cycles	Legibility after 10 wash/dry cycles	Legibility after 10 wash/dry cycles
Liquid Penetration Tested against AFFF, battery acid, Fuel C, swimming pool chlorine, and hydraulic fluid	None	Barrier fabric & seams	Barrier fabric & seams	Barrier fabric & seams	Barrier fabric & seams
Viral Penetration	Barrier fabric & seams	Barrier fabric & seams	Barrier fabric & seams	Barrier fabric & seams	Barrier fabric & seams
Shower Test (duration)	1 garment, each closure 8 minutes	3 garments, each closure 20 minutes	NO 20 minutes	3 garments, each closure 20 minutes	3 garments, each closure
OPTIONAL CBRN PROTECTION:					
Mist Test	NO - Particulate Inward Leakage Test	4 ensembles PPDF: no less than 360/pad System: no less than 361	NO	NO	4 ensembles PPDF: no less than 120/pad System: no less than 76
Chemical Permeation	YES	YES	NO	NO	YES
External Layer Bursting Strength Puncture Propagation Cold Weather Performance	50 lbs 5.5 lbs NO	35 lbs 7 lbs YES	NO NO NO	NO NO NO	35 lbs 7 lbs YES
CAVEATS:					
<ul style="list-style-type: none"> Preconditioning, when required, remains at 10 w/d cycles for 1951 garments; 5 w/d for structural garments, and 25 w/d requirements for 1999 garments, even when performance requirements are the same. A minimum trim package is required on 1971 garments. Trim is optional on 1951 garments, but when utilized, trim must provide both retroreflection and fluorescence and must have a minimum of 100² in. placed in a manner sufficient to provide 360° visibility of wearer. No required pattern or square inches. Trim is not required on 1999 garments but when present and intended for high visibility must meet ANSI/ISEA 107, or have label requiring a least Class 2 approval when worn on roadside. 					