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FIRE RETARDANT CLOTHING

Personal Protective

Carhartt Flame-Resistant clothing and line of high-visibility workwear is designed to protect you on the job site. Our Carhartt Flame-Resistant clothing helps protect workers from burns caused by electric arcs or flash fires.



Carhartt Brochure



HIGH VISIBILITY SAFETY CLOTHING



TIMBERLAND BOOTS





HILTI TOOLS



GEORGE L .WILSON CO. OF WV ALSO SPECIALIZES IN CONCRETE CONSTRUCTION SUPPLIES. WE CARRY A COMPREHENSIVE SELECTION OF MATERIALS NEEDED FOR CONCRETE CONSTRUCTION. FOR FULL DETAILS, PLEASE SEE OUR MASTER CATELOG



Flame-Resistant 2011



carhartt
FR



Carhartt FR Clothing

Designed to meet your standards for comfort.

- 120 years of making comfortable, durable workwear.
- Easy bending pleated elbows and bi-swing back.
- Built tough with triple-stitched main seams.
- Can be home or industrial laundered.

Built to meet industry standards for protection.

- Specially designed to help protect you from electric arcs and flash fires.
- Premium fabrics tested to meet and exceed industry standards.
- Carhartt FR workwear is guaranteed to be flame-resistant for the useful life of the garment, provided clothing-care instructions are followed.
- Carhartt Flame-Resistant Clothing meets NFPA 70E, NFPA 2112, ASTM, OSHA and NESC standards.

Contents

FR Testing	1
FR Safety Regulations	2
Frequently Asked Questions	3
FR Care Instructions	4
FR Workwear For Men	5
FR Workwear For Women	19

Vertical Flame Test Results: Industrial Laundering

More Than Just Words, Results: Carhartt uses the ASTM vertical flame test to demonstrate the permanent nature of the molecular bond formed during the FR treatment process. However, rather than testing the fabrics after 100 industrial launderings, Carhartt tested the fabrics after 200 industrial launderings.

The Test: ASTM F1506 is the *Standard Performance Specification for Flame Resistant Textile Materials for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards*. Fabric manufacturers use ASTM F1506 to evaluate the flame resistant properties of fabrics in response to heat and flame under controlled laboratory conditions.

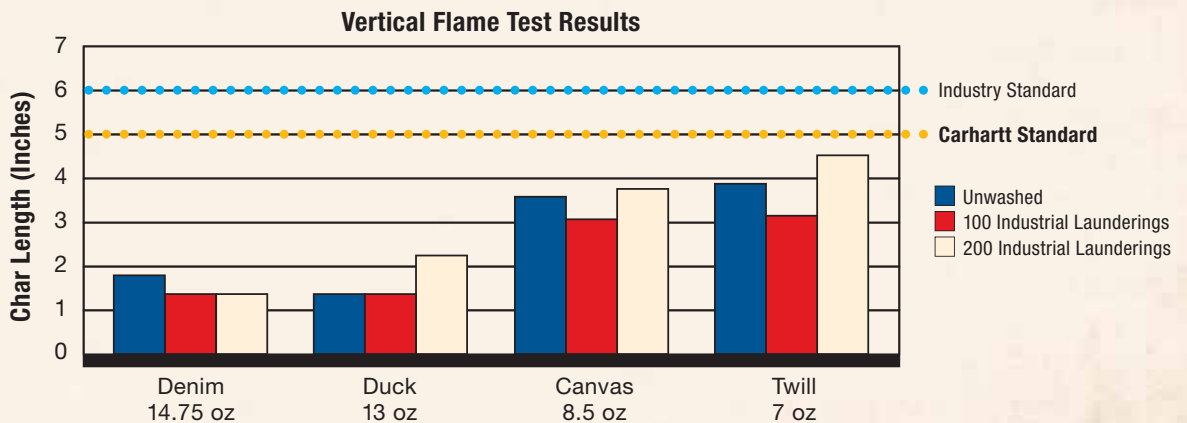
The standard requires fabric samples to be subjected to the ASTM D6413 Vertical Flame Test.

In this test, FR fabric samples are exposed to a 12 second burn test. Once the flame has been removed, the fabric must self-extinguish within 2 seconds and the fabric’s char-length must be less than 6 inches (To pass Carhartt quality standards the fabric char-length must be less than 5 inches). Most fabric manufacturers use the Vertical Flame Test to evaluate the flame-resistant properties of FR fabric after being subjected to 100 industrial launderings. However, Carhartt guarantees flame-resistant properties for the useful life of its FR garments regardless of the number of washings, provided laundering instructions are followed. Therefore, to show the durability and consistency of the FR treatment, Carhartt required the vertical flame test be performed on swatches that had been through 200 Industrial launderings.

The Results: The chart below shows the char-length measurements for unwashed swatches, and swatches industrial laundered up to 200 times. As the chart illustrates, Carhartt garments still maintained their FR properties after 200 industrial launderings (equivalent to approximately 400 home launderings) demonstrating the permanent nature of the molecular bond formed during the FR treatment process.

Vertical Flame Test Results on Industrial Laundered Samples

(Char Length Measured in Inches)



	Denim 14.75 oz	Duck 13 oz	Canvas 8.5 oz	Twill 7 oz
Unwashed	1.8	1.6	3.6	3.8
100 Industrial Launderings	1.4	1.6	3.1	3.2
200 Industrial Launderings	1.4	2.3	3.7	4.4

Three industry regulations govern workplaces and clothing in regard to electric arc flashes and flash fire hazards. Carhartt has flame-resistant clothing that meets all three standards.



NFPA 70E For General Industry

For general industry, NFPA 70E:

- Mandates that employers conduct a *hazard risk assessment* to determine the potential arc exposure for employees who work on or near energized parts or equipment. The level of arc exposure is referred to as the Arc Thermal Performance Value (ATPV) and is measured in calories/cm² (often called a cal rating).
- Requires employees to wear flame-resistant clothing with an ATPV, or cal rating, equal to or greater than the determined arc hazard.
- Simplifies the hazard assessment and compliance process by creating Hazard Risk Categories (HRC) for common tasks an electrical worker would perform. Therefore, an FR clothing item's HRC rating determines if that item provides sufficient protection for a particular job. *As a result, Carhartt FR Clothing carries HRC tags. And, unlike some others, Carhartt HRC tags are externally visible, allowing supervisors and safety officers to easily confirm workers are in compliance with NFPA 70E regulations.*



NFPA 2112 For Oil & Petrochemical Industries

For the oil and petrochemical industries, NFPA 2112:

- Mandates that employers conduct a flash-fire hazard assessment to determine the risk of a flash fire.
- Requires employees to wear flame-resistant clothing if the potential for a flash fire exists.



NESC® For Electric Utilities

For electric utilities, NESC:

- Specifies that employers conduct a hazard risk assessment to determine the potential arc exposure for employees who work on or near energized parts or equipment.
- Requires employees to wear flame-resistant clothing with an ATPV, or cal rating, equal to or greater than the determined arc hazard.

FREQUENTLY ASKED QUESTIONS

1.

Who is Carhartt Flame-Resistant (FR) Clothing designed for?

Carhartt FR Clothing is designed for electricians and workers in the utility, oil, gas and petrochemical fields who are at risk of exposure to electric arc flashes and flash fires, which could cause severe or fatal burn injuries. Typical candidates for FR clothing include electric linemen, pipeline and refinery workers, as well as industrial electricians.

2.

Can the flame-resistant chemicals be washed out?

No. Carhartt Flame-Resistant Clothing is guaranteed to be flame-resistant for the useful life of the garment regardless of the number of launderings, provided garment-care instructions are followed.

3.

Will non-treated cotton and other natural fibers help protect against possible burn injury?

No. Non-treated cotton and wool are flammable fibers. If exposed to electric arc flashes and flash fires, these materials can ignite and continue to burn, potentially causing severe injury or death.

4.

Does Carhartt Flame-Resistant Clothing meet applicable clothing standards and industry regulations?

Yes. Carhartt has FR clothing that meets the requirements of NFPA 70E, NESC, NFPA 2112 and OSHA 29 CFR 1910.269.

5.

What is NFPA 70E?

Published by the National Fire Protection Association, NFPA 70E is the Standard for Electrical Safety in the Workplace. This standard requires employees to wear flame-resistant protective clothing wherever there is a possible exposure to electric arc flash. NFPA 70E is widely accepted throughout general manufacturing and electrical industries. NFPA 70E is a voluntary consensus standard, not a law. However, the U.S. Occupational Safety and Health Administration (OSHA) recognizes NFPA 70E as a generally accepted industry practice and has referenced it in citations.

6.

What is NESC?

The National Electrical Safety Code (NESC[®]) is the standard for the safety of employees in the electric utility industry. Although not a law, NESC is a voluntary consensus standard, and the standard OSHA cites when enforcing electrical safety in the utility industry.

7.

What is NFPA 2112?

NFPA 2112 is the Standard for Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire, and is published by the National Fire Protection Association (NFPA). The standard is targeted towards workers who are at risk of flash fires, primarily in the petrochemical industries. NFPA 2112 is a voluntary consensus standard, not a law. However, OSHA recognizes NFPA 2112 as a generally accepted industry practice.

8.

What is an ATPV?

An Arc Thermal Performance Value (ATPV) is a rating assigned to flame-resistant clothing indicating the level of protection provided. Higher-weight (e.g., thicker, denser) fabrics typically have higher ATPVs and provide increased protection (as does the layering of FR clothing). All Carhartt Flame-Resistant Clothing has the ATPV marked on the inside label for easy reference.

9.

What is an HRC?

An HRC or Hazard Risk Category is a rating for FR clothing that indicates the level of protection the garment provides. There are five HRCs ranging from 0 to 4, with an HRC of 0 representing the least protection, and an HRC of 4 representing the most protection. The NFPA 70E consensus standard assigns these categories based on the electrical maintenance task to be performed, and each HRC correlates to a specific range of ATPVs. For example, HRC 1 would include ATPVs greater than 5 cal/cm² but less than 8 cal/cm².

FR CARE INSTRUCTIONS

Carhartt guarantees the flame-resistant properties of our FR workwear for the useful life of each garment, regardless of the number of washings, provided these laundering instructions are followed:

<p>FRC066 FRB194 FRJ003 FRV036 FRJ164 FRR44 FRJ184 FRA002 FRJ195 FRA265 FRJ237 FRR43</p>	<p>Machine wash warm at a temperature not to exceed 140°F (60°C). Do not use bleach, hydrogen peroxide, fabric softeners. Machine wash prior to wearing. Tumble dry low, remove promptly. Iron with low heat. Garment may be dry cleaned.</p>
<p>FRJ020 FRS003 FRJ198 FRS004 FRB13 FRS006 FRB002 FRS007 FRB100 FRS159 FRB159 FRS160 FRB160 FRS191 FRB240 WFRS160 FRR45 WFRB159 FRX007 WFRB160 FRX010</p>	<p>Machine wash warm at a temperature not to exceed 165°F (74°C). Do not use bleach, hydrogen peroxide, fabric softeners. Machine wash prior to wearing. Tumble dry low, remove promptly. Iron with low heat. Garment may be dry cleaned.</p>
<p>FRK008 FRK127 FRK009 FRK006 FRK087 FRK007 FRK293 WFRK293 FRK294 WFRK294 FRK295 WFRK296 FRK296 FRA289</p>	<p>Machine wash warm at a temperature not to exceed 110°F (43°C), permanent press cycle, separately. Do not use bleach, fabric softeners, or starch. Tumble dry low. Do not iron. Garment may be dry cleaned.</p>

We know you need choices in FR workwear. Working out in the elements you have to be ready for the changing weather. Carhartt has you covered from lightweight pants to heavyweight outerwear and everything in-between. Read on to learn more.

LIGHTWEIGHT FR



Lightweight Flame-Resistant Clothing

Who says FR clothing has to be heavy? Not Carhartt. Specially designed for use during summer months or in warmer climates, our lightweight flame-resistant workwear is lighter than many competitive FR products but still provides the protection you need.

Flame-Resistant Five Pocket Denim Jean (FRB100)

MIDWEIGHT FR



Midweight Flame-Resistant Clothing

For work days when it's not too hot and not too cold, select Carhartt flame-resistant clothing in midweight styles. Comfortable in a wide range of weather conditions, our midweight FR clothing delivers the durability and quality you expect from Carhartt.

Flame-Resistant Midweight Active Jac/Quilt Lined (FRJ237)

HEAVYWEIGHT FR



Heavyweight Flame-Resistant Clothing

Cold and windy weather call for the comfort and warmth of Carhartt flame-resistant workwear in heavyweight styles. Specially built to withstand the elements, our heavyweight FR clothing protects to the highest standards as it performs in the toughest conditions.

Flame-Resistant Traditional Arctic Lined Coat (FRC066)

FRB13

Flame-Resistant Denim Dungaree

11.75-ounce, 100% cotton FR denim · Sits slightly below the natural waist · Full seat and thighs · Multiple tool and utility pockets · Left-leg utility band · Two reinforced back pockets · Arc-resistant button closure at waist · Brass zipper fly with Nomex® FR zipper tape · Triple-stitched main seams · Leg openings fit over boots · Carhartt FR label sewn on back pocket, HRC 2 label sewn on front waistband · Meets NFPA 70E and NFPA 2112 standards · Flame-resistant fabric by Mount Vernon Mills

DNM

Style #/Color

FRB13DNM/Denim



FRS160 Dark Navy

Flame-Resistant Twill Shirt with Pocket Flaps 7-ounce FR twill: a blend of 88% cotton and 12% high-tenacity nylon · Two chest pockets with flaps and button closures · Extended sleeve plackets with two-button adjustable cuffs · FR melamine buttons throughout · Button-down collar with button closure · Triple-stitched main seams · Carhartt FR and HRC 2 labels sewn on left pocket · Meets NFPA 70E and NFPA 2112 standards · Flame-resistant fabric by Mount Vernon Mills

Style #/Color

FRS160DNY/Dark Navy



FRB159

Flame-Resistant Loose-Fit Midweight Canvas Jean 8.5-ounce FR canvas: a blend of 88% cotton and 12% high-tenacity nylon · Sits slightly below the natural waist · Loose-fitting seat and thighs · Arc-resistant button closure at waist · Brass zipper fly with Nomex® FR zipper tape · Cell phone pocket and utility pocket · Two reinforced back pockets · Triple-stitched main seams · Leg openings fit over boots · Carhartt FR label sewn on back pocket, HRC 2 label sewn on coin pocket · Meets NFPA 70E and NFPA 2112 standards · Flame-resistant fabric by Mount Vernon Mills

Style #/Color

FRB159DNY/Dark Navy



FRB160

Flame-Resistant Relaxed-Fit Denim Jean 14.75-ounce FR denim: a blend of 88% cotton and 12% high-tenacity nylon · Garment washed for a soft finish · Sits slightly below the natural waist · Relaxed fitting seat and thighs · Two reinforced back pockets · Arc-resistant button closure at waist · Brass zipper fly with Nomex® FR zipper tape · Double-stitched main seams · Leg openings fit over boots · Carhartt FR label sewn on back pocket, HRC 3 label sewn on coin pocket · Meets NFPA 70E and NFPA 2112 standards · Flame-resistant fabric by Mount Vernon Mills

DNM

Style #/Color
FRB160DNM/Denim



FRB100

Flame-Resistant Relaxed-Fit Jean – Straight Leg 11.75-ounce, 100% cotton FR denim · Sits slightly below the natural waist · Relaxed fitting seat and thighs · Garment washed for a soft hand · Arc-resistant button closure at waist · Brass zipper fly with Nomex® FR zipper tape · Two reinforced back pockets · Double-stitched main seams · Leg openings fit over boots · Carhartt FR label sewn on back pocket, HRC 2 label sewn on coin pocket · Meets NFPA 70E and NFPA 2112 standards · Flame-resistant fabric by Mount Vernon Mills

DNM

Style #/Color
FRB100DNM/Denim
HRC ATPV (CAL/CM2)
2 15.2
W A

