



# NASCO

Protective Outerwear Solutions





## The NASCO Vision

### Quality

NASCO manufactures the highest quality products available. From digitally mastered patterns to computerized assembly techniques, NASCO made in USA quality is engineered into every garment.

### Safety

NASCO understands outerwear plays a significant role in workplace safety. Whether you need protection from an electric arc, a flash fire, a chemical splash or a road-side traffic hazard, NASCO products are tested to the most current and stringent safety standards available.

### Comfort

NASCO understands that a balance must be struck between safety and comfort. But you need not sacrifice one for the other any longer. NASCO's mission is to maximize safety, comfort and functionality of our rainwear. Waterproof, breathable and safe protective outerwear solutions are now available.

### Innovation

NASCO understands that solutions are derived from innovation. Technologies continue to advance, making materials safer, lighter, stronger and more comfortable. Change must be constant. It is the NASCO mission to convert these advancements in materials into protective outerwear solutions for today's workforce.

## Our Commitment

NASCO customers should expect...

- Accurate, on-time delivery
- Respectful, courteous customer service
- A quality domestic product covered by a guarantee of complete satisfaction
- Access to industry expertise and expert problem solving knowledge
- Quality, innovative protective outerwear solutions

## Property Legend



NASCO has the ability to create high quality corporate images using ink silk-screening, single and multi-color heat transfers and reflective logos using 3M Scotchlite™ technologies.

All NASCO raingear patterns are digitally mastered and cut ensuring that you get the right size garment every time.

Proud Members of:



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INSULATION  
**FR**

**3M Scotchlite™**  
Reflective Material

**NOMEX®**  
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# ArcWear Resources & Associated Hazards

What is an Arc Flash? Arc Flash is the result of a rapid release of energy caused by a fault between a phase bus bar and another phase bus bar, neutral or a ground where the air is the conductor. The National Fire Protection Association (NFPA), says it is “a dangerous condition associated with the release of energy caused by an electric arc.”

Who is exposed to an Arc Flash? Utility workers who are linemen, meter service technicians, troublemen, field service locators, and anyone else working on energized lines. Also, in general industry, electricians working on electrical installations may be exposed.



Above: When exposed to an electric arc, suit ignites, melts, drips and fails to meet F1891. Right: NASCO suit does not ignite, melt or drip and exceeds ASTM F1891 requirements.

**Additional Resources:**  
*Flash Fire Resistance see page 8*  
*Traffic Standards & Chemical Splash see page 14*

## Arc Flash Relevant Standards

### Electric Arc Resistance

#### ASTM F1891

- Arc Rating: The amount of energy needed to create the 50% probability of a second degree burn injury.
- Heat Attenuation Factor: The percent of the energy which is blocked by a material.
- Breakopen Threshold: The amount of energy that results in a 50% probability that the fabric will breakopen.

#### Requirements

- Material must be flame retardant (ASTM D6413), self-extinguish <2 seconds, <6" char length.
- Must determine Arc Rating (ASTM F1959) – report results, no minimum required.
- Must determine Heat Attenuation Factor (ASTM F1959) – report results, no minimum required.
- Must determine Breakopen Threshold (ASTM F1959) – report results, minimum of 5 cal/cm<sup>2</sup>.
- Must not melt, drip or ignite at two (2) times arc rating.

### NFPA 70E / CSA Z462

- NFPA 70E Standard for Electrical Safety Requirements for Employee Workplace, includes codes, standards and recommended practices and guides for safe work practices.
- Covers protection to workers from electrical hazards associated with installation, maintenance or repair of electrical systems. This standard excludes the transmission and distribution of electric power by utility companies.
- Requires workplace to conduct a hazard assessment then provide personal protective equipment (PPE) based on that assessment. Hazard risk categories have been established to help employers select proper PPE.
- Hazard Risk Categories are:

HRC	Minimum Arc Rating
1	4
2	8
3	25
4	40

## Comfort

### Breathability

#### Breathable Raingear vs. Non-Breathable Raingear

- Non-breathable raingear is designed to keep water out but also keeps perspiration in. It creates an internal environment that stores heat which leads to workers becoming wet from perspiration even though no rain passed through.
- Breathable raingear is designed to collect and transmit perspiration out of the garment. This leaves the worker dry from both the transmitted perspiration and the rain.
- Breathability is measured in 2 ways:
  - Moisture Vapor Transmission Rate (MVTR) - The amount of vapor that evaporates through the material per ASTM E96.
  - Total Heat Loss (THL) - The ability of a material to release heat as it is built up per ASTM F1868.
- For a material to be considered breathable, it must have a:
  - Moisture Vapor Transmission Rate (MVTR) of greater than 5000 g/m<sup>2</sup>/24 hours.
  - Total Heat Loss (THL) of 300 watts/m<sup>2</sup>/24 hours





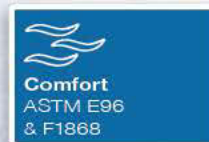
Omega™ is the first waterproof, breathable outerwear product that combines high visibility worker conspicuity with protection from the thermal hazards associated with an electric arc flash and hydrocarbon flash fires. Omega is designed for today's rugged work environment.

## Features & Benefits

- Removable Winter Liners Available
- ANSI 107 Class 3 Compliant
- Fall Protection Access
- Stain & Soil Release
- Electric Arc Resistance
- Flash Fire Resistance
- Waterproof
- Breathable
- Reduces Worker Heat Stress
- Lightweight
- Wind-Proof
- Designed With Premier Features

## Recommended Applications

- Gas & Electric Utility
- Transmission & Distribution
- Telecommunication & CATV Workers
- Storm Restoration
- Electrical Maintenance
- Meter Service
- Electrical Switching



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**Omega 5000 Items** 9 oz/yd<sup>2</sup> Omega FR outer Shell; Nomex® knit inside

**Following items come standard with:** hood-in-collar, nonconductive zipper front with Velcro storm fly front, fall protection access, 2 side entry pockets, tool belt slit with zippers, liner attachments, 3M Scotchlite 2" reflective trim around chest, shoulder harness and biceps.

●●● **5503JNFY** Navy/Fluorescent yellow waist length jacket.

●●● **5503JNFO** Navy/Fluorescent orange waist length jacket.

**Following items come standard with:** Klein Tool pocket on right thigh, reinforced knees, non-conductive leg zippers with overfly, 3M Scotchlite 2" reflective trim at calf and ankles.

●●● **5001PFY** Fluorescent yellow elastic waist pant with drawstring, snap fly front.

●●● **5001PFO** Fluorescent orange elastic waist pant with drawstring, snap fly front.

●●● **5001TFY** Fluorescent yellow bib style trouser with snap fly front, quick release suspender self-material system.

●●● **5001TFO** Fluorescent orange bib style trouser with snap fly front, quick release suspender self-material system.





Sentinel™ excels in joining comfort with durability and protection. While keeping workers safe from electric arcs and flash fires, the durable Sentinel™ material extends the usable life and level of comfort well beyond other raingear.

## Features & Benefits

- Arc and Flame Resistance
  - Does Not Melt, Drip, Ignite, or Break Open
  - Minimizes Heat Transfer Burns
- Flash Fire Resistance
  - Does Not Melt, Drip, Ignite, or Break Open
  - Minimizes Heat Transfer Burns
- Chemical Splash Resistance
- Waterproof
- Durable
- Soft, Flexible
- Long Life Cycle

## Recommended Applications

- Electric & Gas Utilities
- Gas & Oil Extraction
- Oil Refining
- Electrical Maintenance
- Electrical Switching
- Meter Service
- Storm Restoration
- Tank Cleaning



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**Sentinel™ 4500 Items 10 oz/yd 100% Cotton Knit/Polyurethane**

- **4503J** Waist length jacket, 3 piece hood-in-collar, non-conductive zipper front with Velcro® closure, Nomex® mesh ventilation system, fall protection access, Velcro® tab type wrist adjusters, two pockets with Velcro® closure, 3M Scotchlite™ 2" reflective trim, ANSI 107 Class 3 Level 2.
- **4503C** 48" coat, 3 piece hood-in-collar, non-conductive zipper front w/ Velcro closure, Nomex mesh ventilation, fall protection access, Velcro tab type wrist adjusters, 2 pockets w/ Velcro closure, 3M Scotchlite 2" reflective trim, ANSI 107 Class 3, Level 2.
- **4501T** Bib style trouser with quick release suspender system, fly front with snap, Velcro® tab type leg cuff adjusters, 3M 2" reflective trim around calves and knees, ANSI 107 Class E Level 2.
- **4501P** Elastic waist pant, fly front with snap, Velcro® tab type leg cuff adjusters, 3M 2" reflective trim around calves and knees, ANSI 107 Class E Level 2.



# ArcLite™

ArcLite™ is the most popular foul weather product designed specifically for utility workers who may be exposed to electric arcs. With a feature packed design, ArcLite is sure to meet the needs of the demanding electric utility industry.

## Features & Benefits

- Arc and Flame Resistance
- Does Not Melt, Drip, Ignite, or Break Open
- Minimizes Heat Transfer Burns
- Waterproof
- Lightweight
- Soft, Flexible
- Designed by Linemen
- Limited Chemical Splash Resistance

## Recommended Applications

- Electric Utility
- Electrical Maintenance
- Meter Service
- Electrical Switching
- Telecommunication workers
- CATV workers



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### ArcLite™ 1000/1500 Items 8 oz/yd² FR Synthetic Leather PU/PVC

**Following items come standard with:** two pockets with Velcro® closure, non-conductive zipper front with dual over files and snaps, Nomex® mesh ventilation system, fall protection access, Velcro® tab type wrist adjusters.

- ● **1503J** Waist length jacket, 3 piece hood-in-collar, 3M 2" reflective trim around chest, over-shoulder harness, around biceps and around hood, ANSI 107 Class 3 Level 2.
- ● **1103J** Waist length jacket, hood-in-collar, 3M 1.5" reflective trim down fly front, across cape back, around bottom hem, and around sleeve cuffs.
- ● **1503C** 48" length coat, 3 piece hood-in-collar, 3M 2" reflective trim around chest, over-shoulder harness, around biceps and around hood, ANSI 107 Class 3 Level 2.

- ● **1103C** 48" length coat, hood-in-collar, 3M 1.5" reflective trim down fly front, across cape back, around bottom hem, and around sleeve cuffs.

**Following items come standard with:** quick release suspender system, fly front with snap, Velcro® tab type leg cuff adjusters.

- ● **1501T** Bib style trouser, 3M 2" reflective trim around calves and knees, ANSI 107 Class E Level 2.
- ● **1101T** Bib style trouser, 3M 1.5" reflective trim around calves and knees.

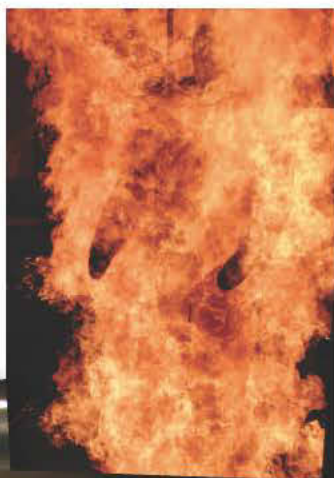


# PetroWear Resources

What is a hydrocarbon flash fire? An unexpected, sudden intense fire caused by the ignition of flammable solids (including dust), liquids, or gases. It is characterized by high-temperature, short-duration, considerable shock waves, and a rapidly moving flame front. This is a very dangerous yet common type of work related fire hazard in the petrochemical and natural gas industry, but can be found in other industries as well.

Who could be exposed to a flash fire? Workers in the following industries are at risk for exposure:

- Oil Refining and Processing
- Oil and Gas Extraction
- Tank Cleaning
- Chemical Handling and Transport
- Chemical Manufacturing and Processing
- Pipeline Construction and Maintenance
- Oil and Gas Service Contractors



Brand-X rainwear commonly labeled as flame resistant (FR), however demonstrated significant melting, dripping, shrinkage, break open, and ignition in a flash fire test.



NASCO PetroLite – ASTM F2733 compliant, no melting, no dripping, no ignition.

## Flash Fire Relevant Standards

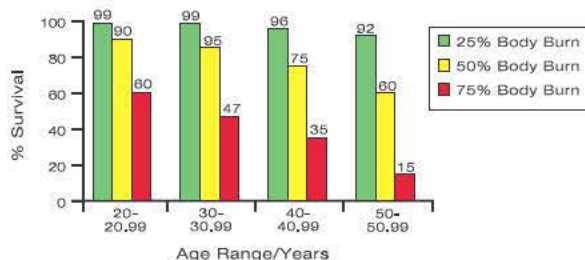
### What is FR?



#### Limited Flame Resistance (LFR) vs. Flash Fire Resistance (FFR)

- LFR measures a fabric's ability to self-extinguish within 2 sec. of removal of the ignition source per ASTM D6413. LFR is a function only of the fabric. LFR is valuable to determine how a fabric will react to a small and simple flame.
- FFR measures the predicted burn injury from a simulated flash fire per ASTM F1930. FFR is a function of both the fabric and the design of the garment worn.
- FFR is valuable to determine how protective a garment is and to what extent the worker wearing that garment may be injured.

**Burn Injury Survivability:** The ability of an individual to survive burn injury is dependant primarily on 2 factors: percent of burn injury and age. As both increase, the chance of survival decreases. In an industrial setting, because you cannot control the age of the worker, you must control the severity of the burn. The industry objective is to reduce the burn injury as low as possible thus increasing the survivability.



### Flash Fire Resistance ASTM F2733



- Rainwear material shall be exposed to a 3 second flash fire burn in accordance with ASTM F1930.
- The average predicted total area of burn injury for the three specimens tested shall be equal to or less than 40%.
- Material response characteristics shall be reported for all exposures. Characteristics are: Afterflame time, breakopen, charring, melting, dripping, garment ignition, embrittlement, and shrinkage.
- Structural seam integrity: Structural seams shall not exhibit a seam failure that creates a seam opening of greater than 51 mm (2 inches).
- Closure function: Closures shall function (open only) after the simulated fire exposure. Closures that do not fully open do not meet the performance requirements of this specification. Report all closures that do not fully open.
- Manufacturer Label: States size, catalog number, manufacturer's name and notation of conformance to F2733, and the label is permanently affixed in each rainwear item.

**NFPA 2112** is not intended for coated fabrics and is a complimentary standard to F2733 providing a complete clothing ensemble to provide flash fire protection.

### Additional Resources:

*Arc Flash Standards see page 4*

*Breathability see page 4*

*Traffic Standards & Chemical Splash see page 14*



# MP3



MP3 is waterproof, windproof and breathable protection against electric arc, flash fire and heat stress hazards. MP3 is the lightest weight, most versatile protective Nomex® outerwear system available today.

## Features & Benefits

- Removable Winter Liners Available
- Fall Protection Access
- Stain & Soil Release
- Chemical Splash Resistance
- Electric Arc Resistance
- Flash Fire Resistance
- Water & Wind Proof
- Breathable & Lightweight
- Reduces Worker Heat Stress
- Designed With Premier Features
- Multi-year Life Cycle

## Recommended Applications

- Well Servicing
- Drilling Rig Operations
- SAGD
- Heavy Oil
- Oil Refining and Processing
- Pipeline Construction and Maintenance
- Offshore Oil and Gas Drilling
- Gas and Oil Extraction

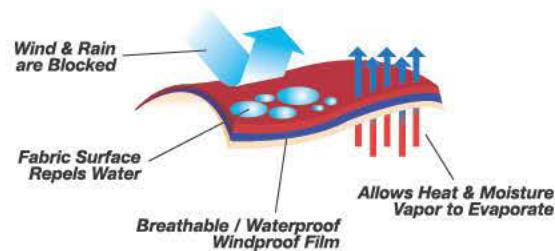


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### MP3™ 3000 Items 7.5 oz/yd² Nomex® IIIA/ePTFE/Nomex® Knit

- **3503J** Waist length jacket, hood-in-collar, fall protection access, 2 side entry pockets, tool belt slit with zippers, attachment points for removable liners, 3M Scotchlite 2" reflective trim around waist and sleeve cuffs.
- **3501T** Bib style trouser with non-conductive zipper front with Velcro storm fly front, quick release suspender self-material system, non-conductive leg zippers with overfly, reinforced knees, Velcro leg take ups, 3M Scotchlite 2" reflective trim at ankles.
- **3501P** Elastic waist pant with elastic drawstring, plain front, reinforced knees, non-conductive leg zippers with overfly, Velcro leg take ups, 3M Scotchlite 2" reflective trim at ankles.
- **3000CV** Coverall with collar, zipper front with overfly, Velcro® wrist adjusters and Velcro® leg cuff adjusters (not shown).







Sentinel™ excels in joining comfort with durability and protection. While keeping workers safe from electric arcs and flash fires, the durable Sentinel™ material extends the usable life and level of comfort well beyond other raingear.

## Features & Benefits

- Arc and Flame Resistance
  - Does Not Melt, Drip, Ignite, or Break Open
  - Minimizes Heat Transfer Burns
- Flash Fire Resistance
  - Does Not Melt, Drip, Ignite, or Break Open
  - Minimizes Heat Transfer Burns
- Chemical Splash Resistance
- Waterproof
- Durable
- Soft, Flexible
- Long Life Cycle

## Recommended Applications

- Well Servicing
- Drilling Rig Operations
- SAGD
- Heavy Oil
- Oil Refining and Processing
- Pipeline Construction and Maintenance
- Offshore Oil and Gas Drilling
- Gas and Oil Extraction
- Tank Cleaning
- Chemical Handling and Transport
- Chemical Processing



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### Sentinel™ 4500 Items 10 oz/yd² FR Cotton Knit/FR Polyurethane

- **4503J** Waist length jacket, 3 piece hood-in-collar, non-conductive zipper front with Velcro® closure, Nomex® mesh ventilation system, fall protection access, Velcro® tab type wrist adjusters, two pockets with Velcro® closure, 3M Scotchlite™ 2" reflective trim, ANSI 107 Class 3 Level 2.
- **4501T** Bib style trouser with quick release suspender system, fly front with snap, Velcro® tab type leg cuff adjusters, 3M 2" reflective trim around calves and knees, ANSI 107 Class E Level 2.
- **4501P** Elastic waist pant, fly front with snap, Velcro® tab type leg cuff adjusters, 3M 2" reflective trim around calves and knees, ANSI 107 Class E Level 2.
- **4503C** 48" coat, 3 piece hood-in-collar, non-conductive zipper front w/ Velcro closure, Nomex mesh ventilation, fall protection access, Velcro tab type wrist adjusters, 2 pockets w/ Velcro closure, 3M Scotchlite 2" reflective trim, ANSI 107 Class 3, Level 2.

### Available Colors



Fluorescent  
Orange



Fluorescent  
Lime Yellow





Omega™ is the first waterproof, breathable outerwear product that combines high visibility worker conspicuity with protection from the thermal hazards associated with an electric arc flash and hydrocarbon flash fires. Omega is designed for today's rugged work environment.

## Features & Benefits

- Removable Winter Liners Available
- ANSI 107 Class 3 Compliant
- Fall Protection Access
- Stain & Soil Release
- Chemical Splash Resistance
- Electric Arc Resistance
- Flash Fire Resistance
- Water & Wind Proof
- Breathable & Lightweight
- Reduces Worker Heat Stress
- Designed With Premier Features
- Multi-year Life Cycle

## Recommended Applications

- Well Servicing
- Drilling Rig Operations
- SAGD
- Heavy Oil
- Oil Refining and Processing
- Pipeline Construction and Maintenance
- Offshore Oil and Gas Drilling
- Gas and Oil Extraction



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**Omega 5000 Items** 9 oz/yd<sup>2</sup> Omega FR outer Shell; Nomex® knit inside

**Following items come standard with:** brass zipper front w/Velcro storm fly, liner zippers, 2 side entry pockets, tool belt access w/zippers, 3M 9910 2" reflective trim around biceps, over-shoulder harness, "X" back, Velcro tab sleeve take ups, ID pocket with lap & radio pocket on chest.

● ● 5503JNFY146 Navy/Fluorescent yellow waist length jacket.

● ● 5503JNFO146 Navy/Fluorescent orange waist length jacket.

**Following items come standard with:** Klein Tool pocket on right thigh, reinforced knees, non-conductive leg zippers with overfly, 3M Scotchlite 2" reflective trim at calf and ankles.

● ● 5001P Elastic waist pant with drawstring, snap front.

● ● 5001T Bib style trouser with snap fly front, quick release self-material suspender system.

**Following items come standard with:** hood-in-collar, nonconductive zipper front with Velcro storm fly front, fall protection access, 2 side entry pockets, tool belt slit with zippers, liner attachments, 3M Scotchlite 2" reflective trim around chest, over-shoulder harness and biceps.

● ● 5503JNFY Navy/Fluorescent yellow waist length jacket.

● ● 5503JNFO Navy/Fluorescent orange waist length jacket.



# PetroLite

PetroLite™ provides multiple hazard protection for workers exposed to electric arcs, flash fires, chemical splash and foul weather. PetroLite versatility allows for the cost effective use of one product to meet several different safety needs.

## Features & Benefits

### Electric Arc Resistance

Does Not Melt, Drip, Ignite, or Break Open

Minimizes Heat Transfer Burns

### Flash Fire Resistance

Does Not Melt, Drip, Ignite, or Break Open

Minimizes Heat Transfer Burns

### Chemical Splash Resistance

### Waterproof

### Feature Rich Design

### Durable

### Heavy Duty

## Recommended Applications

Well Servicing

Drilling Rig Operations

SAGD

Heavy Oil

Oil Refining and Processing

Pipeline Construction and Maintenance

Offshore Oil and Gas Drilling

Gas and Oil Extraction

Tank Cleaning

Chemical Handling and Transportation

Chemical Processing



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## PetroLite™ 9000 Items 12 oz/yd² Nomex® IIIA FR Neoprene

- **9003JB0245** International orange waist length jacket, elastic waist, non-conductive zipper front with dual over flies and snaps, hood-in-collar, fall protection access, inner cuffs, 2 patch pockets, Velcro sleeve take ups, 3M Scotchlite 2" reflective trim around sleeves, down each front, around waist, "X" on back per CSA Z96.
- **9003CB0245** International orange 48" length coat, non-conductive zipper front with dual over flies and snaps, hood-in-collar, fall protection access, inner cuffs, 2 patch pockets, Velcro sleeve take ups, 3M Scotchlite 2" reflective trim around sleeves, down each front, around waist, "X" on back per CSA Z96.
- **9000TB0245** Bib style trouser with quick release suspender system, plain front, leg zippers with storm fly, 3M 2" reflective trim around calves, knees and around waist. CSA Z96 compliant.

## Available Color



International Orange



# Liners

NASCO offers fleece and insulated liners to add warmth and versatility to our ArcWear and PetroWear products. They can be used as a stand alone jacket or as a removable liner. Either way, the added options to an outerwear program mean more value.

Materials available include DuPont's Nomex™ and Protera™ as well as 3M's FR Thinsulate™ (120g and 200g). All options provide electric arc and flash fire protection.

## Features & Benefits

Removable  
Insulated  
Electric Arc Resistance  
Flash Fire Resistance  
Fall Protection Access

## Recommended Applications

Gas & Electric Utility Line Workers  
Telecommunications & CATV Installation  
Oil Refineries  
Gas & Oil Service Contractors  
Gas & Oil Drilling



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**Nomex Fleece** 8 oz/yd<sup>2</sup> Nomex® Fleece, Arc Resistant (ASTM F1506, NFPA 70E) and Flash Fire Resistant (ASTM F1930), Made in USA.

- **FLC3000JB** Waist length jacket, elastic cuff, elastic waist, 2 pockets, zipper front.
- **FLC3000JB102** Waist length jacket, elastic waist, zipper front, Nomex knit cuffs, fall protection access, side openings with zipper closure, 2 pockets, attachment points.

**3M FR Thinsulate Insulated Lining** Arc Resistant (ASTM F1506, NFPA 70E) and Flash Fire Resistant (ASTM F1930), Made in USA.

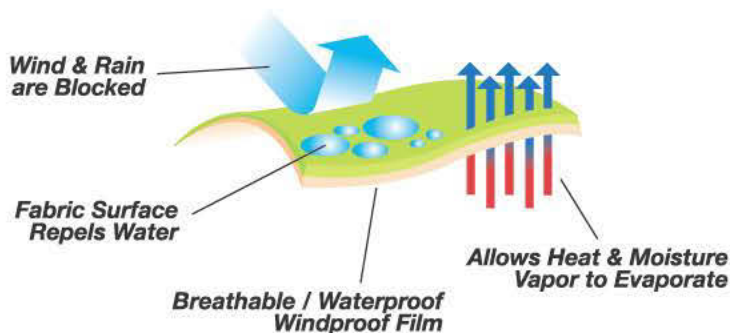
- **LIN5120JGR** 120g FR Thinsulate waist length jacket, elastic waist, zipper front, Nomex knit cuffs, fall protection access, side openings with snap closure, 2 inside pockets, inside radio pocket on left chest, attachment points.
- **LIN5200JGR102** 200g FR Thinsulate waist length jacket, elastic waist, zipper front, Nomex knit cuffs, fall protection access, side openings with snap closure, 2 inside pockets, inside radio pocket on left chest, attachment points.



# HiVis / WorkWear Resources

NASCO's HiVis line of outerwear was developed for workers in low light and/or foul weather conditions. Industries concerned about worker visibility and ANSI 107 high visibility compliance can choose from a line focused on comfort and safety.

From our lightweight, breathable, and windproof Envisage to our lightweight and stretchable WorkBrite, workers benefit from unparalleled comfort offering durability and protection. By incorporating high visibility features into unique waterproof solutions, workers exposed to vehicular traffic have options that are right for them.



## Chemical Penetration Resistance

### Permeation vs. Penetration

- Permeation resistance testing measures the passage of chemicals (liquids or gases) through a material at a molecular level and requires sensitive analytical equipment to detect chemical breakthrough. It is intended for use with vapor-protective, gas-tight, EPA level A garments. The primary purpose is to isolate the wearer from a surrounding hazardous chemical environment.
- Penetration resistance testing evaluates if liquids physically penetrate materials using visual observation for detection. It is intended for use with liquid-splash, liquid-tight, EPA level B or C garments. The primary purpose is to keep liquids from contacting the wearer's skin.

### ASTM F903 Test Method

- 5 minutes at ambient pressure
- 1 minute at 2 psig
- 54 minutes at ambient pressure
- Test yields a pass or fail result

### Additional Resources:

*Arc Flash Standards see page 4*

*Breathability see page 4*

*Flash Fire Resistance see page 8*

## Traffic Relevant Standards

### High Visibility ANSI 107 Requirements

- Class 2 jackets can be combined with Class E pants or overalls to make a Class 3 suit.
- Reflective trim must meet various requirements with regard to placement and configuration.
- Acceptable colors are: Fluorescent Lime-Yellow & Fluorescent Orange.
  - Colors must meet chromaticity and luminance requirements both initially and after 40 ultra-violet fading unit tests.
- Rainwear must meet minimum water penetration and repellency requirements.
- Minimum requirement established for breathable classification.
- Garments marketed as Flame Resistant, they must meet one of seven standards.
- Class 3 garments must have sleeves.

	Minimum Area Requirement		Width		Amount (linear feet)
	Meters <sup>2</sup>	Inches <sup>2</sup>	Millimeters	Inches	
Class 1	0.10 m <sup>2</sup>	155"²	25 mm	1"	12.92'
			35 mm	1-3/8"	9.39'
Class 2	0.13 m <sup>2</sup>	201"²	50 mm	2"	8.375'
			35 mm	1-3/8"	12.2'
Class 3	0.22	310"²	50 mm	2"	12.92'

## CSA Z96

Reflective trim must meet the following requirements for placement:

- X on the back extending from shoulders to waist
- 2 vertical stripes on front extending from shoulders to waist
- Horizontal band around the waist
- Class 3 requires stripes added to sleeves and legs
- Must maintain 360 degree visibility
- Allows for "Bright Background Material" for FR applications
- Establishes requirements for Water Repellency, Water Resistance and Water Penetration
- Establishes requirements for breathable materials

### Minimum areas of high-visibility material (any size garment)

	Class 3 apparel	Class 2 apparel
Description of minimal coverage	Class 2 apparel, plus bands encircling both arms and both legs. These bands shall be composed of combined-performance stripes/bands or a combination of retroreflective and background material	Full coverage of upper torso (front, back, sides, and over the shoulders*)
Retroreflective material	0.2 m <sup>2</sup>	0.13 m <sup>2</sup>
Photometric performance†	Level 2	Level 1 or Level 2

\*As a special case, bib-style overalls are recognized as Class 2 apparel. Bib-style overalls are not required to have retroreflective material over the shoulders, but may include retroreflective or combined-performance material around the legs.

†Retroreflective or combined-performance materials used on garments intended for FR protection applications may meet performance levels lower than Levels 1 and 2. As a minimum, they shall meet performance levels ("Level FR").

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# ENVISAGE™



Envisage™ is waterproof, breathable, windproof and high visibility protective outerwear. Utilizing a waterproof, breathable film, Envisage™ ensures worker comfort by keeping the worker dry as well as reducing heat body stress during foul weather. During low light situations, the ANSI/ISEA 107 compliant polyester fabric and 3M Scotchlite™ keeps workers visible and safe.

## Features & Benefits

- ANSI 107 Compliant
- Resistance to Water Penetration
- Water Repellency
- Breathable Material Classification
- Reduces Worker Heat Stress
- Lightweight
- Soft
- Flexible
- Durable

## Recommended Applications

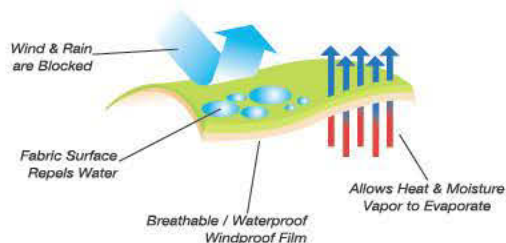
- Departments of Transportation
- Railroads
- Airlines
- Telecommunications
- CATV
- Meter Readers
- Municipalities



**3M Scotchlite™**  
Reflective Material

### Envisage™ HiVis™ 100 Items 4.25 oz/yd² Polyester/Polyurethane

- **103J** Set-in-sleeve style jacket with hood in-collar, 4 snap storm fly front, nylon taffeta lining, 3M Scotchlite 2" ANSI 107 Class 2, Level 2 performance, certified fluorescent yellow material, waterproof, breathable, windproof.
- **101P** Elastic waist style trouser with fly front, 3M Scotchlite 2" Class E, Level 2 performance, certified fluorescent yellow material, waterproof, breathable, windproof.
- **101T** Bib style trouser, snap fly front, elastic suspenders with buckles, 3M Scotchlite 2" reflective trim at knees and ankles. ANSI 107 Compliant Class E.
- **103C** 48" length coat, 5-snap front with storm fly, hood-in-collar, attached nylon taffeta liner, 3M Scotchlite 2" reflective trim at biceps, sleeve cuffs, around chest and harness over shoulders, ANSI 107 Class 3, Level 2.





# WorkLite HiVis™

WorkLite™ HiVis is lightweight, tear resistant, ANSI 107 compliant foul weather gear. WorkLite™ HiVis maximizes worker comfort while providing a high level of visibility to ensure worker safety. Maintains flexibility in cold weather.

## Features & Benefits

- ANSI 107 Compliant
- Waterproof
- Lightweight
- Durable
- Soft & Flexible
- Non-Conductive

## Recommended Applications

- Departments of Transportation
- Railroads
- Airlines
- Telecommunications
- CATV
- Sanitation Management
- Meter Readers
- Municipalities
- Construction Crews



**3M Scotchlite™**  
Reflective Material

**WorkLite™ HiVis™ 80 Items** 4.75 oz/yd² 250-denier polyester oxford, polyurethane moisture barrier

- **80J499** Waist length jacket with storm fly front and hood snaps, 3M Scotchlite 2" reflective trim around chest, harness over shoulders and biceps, ANSI 107 Class 3\*, Level 2 performance.
- **80J455** Waist length jacket with storm fly front and hood snaps, 3M Scotchlite 2" reflective trim at biceps, sleeve cuffs, around chest and waist, harness over shoulders, ANSI 107 Class 3, Level 2 performance. Yoke back air flow ventilation system and fall protection access.
- **81P455** Elastic waist and draw cord style trouser with 3M Scotchlite 2" reflective trim, ANSI 107 Class E, Level 2 performance.

- **H80455** Detachable hood with 5-snap placement
- **80T455** Bib style trouser with snap fly front, 3M Scotchlite 2" reflective trim around knees and ankles, ANSI 107 Class E, Level 2 performance.
- **80C455** 48" length coat, with storm fly front and hood snaps, 3M Scotchlite 2" reflective trim at biceps, sleeve cuffs, around chest and waist, harness over shoulders, ANSI 107 Class 3, Level 2 performance. Yoke back air flow ventilation system and fall protection access.

\* The WorkLite™ HiVis™ # 80J499 is ANSI 107-2004 Class 3 for sizes Medium and higher. The 80J499 size Small is ANSI 107-2004 Class 2 compliant. The WorkLite™ HiVis™ can be customized into ANSI 107-2004 Class 1 and Class 2 versions.



# WorkChoice HiVis™



WorkChoice™ HiVis is ANSI 107 compliant foul weather gear. WorkChoice™ is the right choice for economical high visibility protective outerwear.

## Features & Benefits

- ANSI 107 Compliant
- Waterproof
- Soft, Supple Feel
- Flexible
- Durable
- Medium Weight
- Limited Chemical Splash Resistance
- Limited Flame Resistance

## Recommended Applications

- Departments of Transportation
- Construction
- Municipalities
- Transportation
- Telecommunications
- CATV
- Sanitation Management



**3M Scotchlite™**  
Reflective Material

### WorkChoice™ HiVis™ 500 Items 10 oz/yd² polyester knit, PVC moisture barrier

- **513J221** Waist length jacket, attached hood, mesh vented cape back, fall protection access slit, take up snaps at sleeve cuffs, storm fly front with snaps, 3M Scotchlite 2" reflective trim around chest, biceps and harness over shoulders, ANSI 107 Class 3, Level 2 performance and compliant design.
- **513C221** 48" length coat, attached hood, mesh vented cape back, fall protection access slit, take up snaps at sleeve cuffs, storm fly front with snaps, 3M Scotchlite 2" reflective trim around chest, biceps and harness over shoulders, ANSI 107 Class 3, Level 2 performance and compliant design.
- **501P221** Elastic style trouser with fly front, take up snaps at leg cuffs, 3M Scotchlite 2" reflective trim around knees and ankles, ANSI 107 Class E, Level 2 performance.
- **501T221** Bib style trouser with fly front, elastic suspenders, take up snaps at leg cuffs, 3M Scotchlite 2" reflective trim around knees and ankles, ANSI 107 Class E, Level 2 performance.

### Available Colors



Fluorescent  
Orange



Fluorescent  
Lime Yellow



# WorkLite™

WorkLite™ is lightweight yet highly durable foul weather protection designed for many industrial applications. Maintains flexibility in cold weather.

## Features & Benefits

- Waterproof
- Lightweight
- Soft & Flexible
- Durable
- Non-Conductive
- Limited Flame Resistance

## Recommended Applications

- Construction
- Municipalities
- Tree Trimming
- Transportation
- Telecommunications
- CATV
- Food Processing



**WorkLite™ 80 Series Items** 4.5 oz/yd<sup>2</sup> 200-denier nylon oxford, polyurethane moisture barrier

- ● ● ● **80J** Waist length jacket, corduroy lined collar, hood snaps, snap front with storm fly.
- ● ● ● **81J** Waist length jacket, attached hood, snap front with storm fly.
- ● ● ● **80T** Bib style trouser, snap fly front, elastic suspenders with buckles.
- ● ● ● **81T** Bib style trouser, plain front, elastic suspenders with buckles.
- ● ● ● **80P** Waist style trouser, snap fly front, drawcord waist.
- ● ● ● **81P117** Waist style trouser, plain front, elastic waist.
- ● ● ● **81C468** 48" length hooded coat, snap front with storm fly, two pockets with flaps, tail vent.
- ● ● ● **H80** Detachable hood, one size fits all.

**WorkLite™ 80 Series for Food Processing Items** 4.5 oz/yd<sup>2</sup> 200-denier nylon oxford, reversed polyurethane moisture barrier (on outside of garment)

- ● ● ● **800J117** Waist length jacket, self material collar, hood snaps, snap front with storm fly.
- ● ● ● **801J** Waist length jacket, attached hood, snap front with storm fly.
- ● ● ● **801T** Bib style trouser, plain front, elastic suspenders with buckles.
- ● ● ● **801P** Waist style trouser, plain front, elastic waist.
- ● ● ● **H800** Detachable hood, one size fits all.



# WorkHard™

WorkHard™ is a durable, heavy duty protective product designed for food processing and sanitation applications. With an exterior coating, it easily sheds water, oils and sanitation chemicals while it resists being broken down by fats and acids. Sealed seams, metal hardware, and a rugged material extend its life cycle.

## Features & Benefits

Waterproof  
Lightweight  
Durable  
Dielectrically Welded Seams  
Abrasion Resistant  
Long Life Cycle

## Recommended Applications

Meat Packing  
Poultry Processing  
Sanitation Crews  
Produce Processing  
Dairy Processing



**WorkHard™ 60 Items** 5.5 oz/yd<sup>2</sup> 210-denier nylon, tough polyurethane moisture barrier

- 60J Waist length jacket, self material collar, hanger loop, metal snap front with storm fly.
- 61J Waist length jacket, attached hood, metal snap front with storm fly.
- 61T Bib style trouser, plain front, elastic suspenders with metal buckles and metal buttons.

## Available Colors



Spanish Green  
Yellow



# WorkTuff™

WorkTuff™ is lightweight yet very rugged and durable. Designed for rough work environments, it will protect the worker from the abrasive nature of the job as well as extreme foul weather.

## Features & Benefits

- Waterproof
- Lightweight
- Durable
- Abrasion Resistant
- Soft
- Flexible
- Non-Conductive

## Recommended Applications

- Forestry
- Food Processing
- Fishing
- Park Services



**WorkTuff™ 600 Series Items** 4.5 oz/yd<sup>2</sup> nylon oxford, polyurethane moisture barrier

- ● ● **600J** Waist length jacket, corduroy lined collar, hood snaps, hanger loop, snap front with storm fly.
- ● ● **601J** Waist length jacket, attached hood, hanger loop, snap front with storm fly.
- ● ● **601T** Bib style trouser, snap fly front, hanger loop, elastic suspenders with buckles.
- ● ● **600T** Bib style trouser, plain front, hanger loop, elastic suspenders with buckles.
- ● ● **612C** 38" length parka, attached hood, hanger loop, zipper storm front with snaps, wind cuffs, and two pockets with flaps.
- ● ● **H600** Detachable hood, one size fits all.

## Available Colors



Yellow



Green



Electric Blue



# WorkClassic™



WorkClassic™ offers time-tested durability and protection for workers in rugged and demanding industrial work environments. Its soft, reinforced outer fabric adds to the comfort, making this a great product for many applications.

## Features & Benefits

- Waterproof
- Heavy Duty
- Durable
- Tear Resistant
- Classic Ribbed Exterior
- Soft, Fleece-Like Lining
- Limited Chemical
- Splash Resistance
- Limited Flame Resistance

## Recommended Applications

- Construction
- General Industry
- Pulp & Paper Mills
- Food Processing
- Municipalities



### WorkClassic™ 90 Series Items 11 oz/yd² gang-stitched polyester, PVC moisture barriers

- **91JY** Waist length jacket, corduroy tipped collar, hood snaps, snap front with storm fly.
- **93JY** Waist length jacket, attached hood, snap front with storm fly.
- **90TY** Bib style trouser, plain front, elastic suspenders with buckles.
- **91TY** Bib style trouser, snap fly front, elastic suspenders with buckles.
- **90CY** 48" length coat, self material collar, snap front with storm fly, two patch pockets with flaps, cape back.
- **91CY** 54" length coat, self material collar, snap front with storm fly, two patch pockets with flaps, cape back.
- **H90Y** Detachable hood, one size fits all.



# WorkTrack™

WorkTrack™ is a cost effective way to provide durable, yet comfortable protective outerwear for many work environments. Its soft pile lining pulls moisture away from the body to keep you warm in the winter and cool in the summer.

## Features & Benefits

- Waterproof
- Lightweight
- Classic Ribbed Exterior
- Soft, Fleece-Like Lining
- Limited Chemical
- Splash Resistance
- Limited Flame Resistance

## Recommended Applications

- General Industry
- Agriculture
- Municipalities
- Construction



**WorkTrack™ 400 Series Items** 8.5 oz/yd<sup>2</sup> non-woven polyester, PVC moisture barrier

- **401J** Waist length jacket, self material collar, hood snaps, snap front with storm fly.
- **403J** Waist length jacket, attached hood, snap front with storm fly.
- **405T** Bib style trouser, plain front, elastic suspenders with buckles.
- **406T** Bib style trouser, snap fly front, elastic suspenders with buckles.
- **H400** Detachable hood, one size fits all.

## Available Colors



Yellow      Green



# WorkBasic™



The WorkBasic™ is the classic double-coated, lightweight and economical solution for many industrial needs. Its nylon scrim fabric provides a rip-stop characteristic that keeps punctures from becoming tears.

## Features & Benefits

- Waterproof
- Lightweight
- Long Lifecycle
- Tear Resistant
- Abrasion Resistant
- Limited Chemical
- Splash Resistance
- Limited Flame Resistance

## Recommended Applications

- Construction
- General Industry
- Municipalities
- Chemical Handling



### WorkBasic™ 300 Series Items 9 oz/yd<sup>2</sup> double coated PVC, nylon scrim

- 310J Waist length jacket, self material collar, snap front with storm fly.
- 311J Waist length jacket, attached hood, snap front with storm fly.
- 300T Bib style trouser, plain front, elastic suspenders with buckles.
- 301T Bib style trouser, snap fly front, elastic suspenders with buckles.
- 300C 48" length coat, self material collar, snap front with storm fly, two patch pockets.
- H300 Detachable hood, one size fits all.

### Available Colors



Yellow



International  
Orange



# AcidBasic™

SULFURIC

AcidBasic™ is an economical solution for light chemical splash hazards. It is designed to be used where there may be incidental contact with general industrial chemicals. AcidBasic™ is ideal for chemical handling that requires a reusable product.

## Features & Benefits

- Waterproof
- Chemical Splash Resistance
- Heavy Duty
- Durable
- Limited Flame Resistance

## Recommended Applications

- Chemical Plant
- Maintenance
- Chemical Handling
- General Industry
- Food Processing
- Sanitation
- Petro-Chemical



**AcidBasic™ 50 Series Items** 12 oz/yd<sup>2</sup> polyester knit, heavy PVC coating

- **52JG** Waist length jacket, self material collar, hidden snap front with storm fly.
- **512JG** Waist length jacket, attached hood, hidden snap front with storm fly.
- **52TG** Bib style trouser, plain front, elastic suspenders with buckles.
- **528CVG** Premium coverall, attached hood, zipper front with hidden snaps inner splash cuffs in legs and sleeves.
- **H52G** Detachable hood, one size fits all.

## Available Color



Kelly Green



# WorkBest™



WorkBest™ is a heavy duty, double coated neoprene rain suit. Ideal for the most rugged industrial environments, WorkBest™ is the premier and most durable neoprene protective outerwear product.

## Features & Benefits

- Waterproof
- Heavy Duty
- Durable
- Abrasion Resistant
- Puncture and Tear Resistant
- Limited Chemical
- Splash Resistance

## Recommended Applications

- Fishing
- Forestry
- Logging
- Mining
- Petrochemical
- Construction
- Pulp & Paper Mills



### WorkBest™ 70 Series Items 12 oz/yd<sup>2</sup> 210-denier nylon, neoprene moisture barriers

- 70J Waist length jacket, corduroy lined collar, snap front with storm fly.
- 71J Waist length jacket, attached hood, snap front with storm fly.
- 70T Bib style trouser, snap fly front, elastic suspenders with buckles.
- 71T Bib style trouser, plain front, elastic suspenders with buckles.
- H70 Detachable hood, one size fits all.

### Available Colors



Yellow Green



## Size Chart

Jacket/Coat					Bib Trouser/Waist Pant			
Size	Fits Chest Size	Actual Chest Size	Sleeve Length	Jacket Length	Size	Fits Waist Size	Actual Overall Waist	Inseam Length
Small	36-38"	46"	33"	29"	Small	32-34"	42"	29"
Medium	40-42"	50"	33.5"	29"	Medium	36-38"	46"	29"
Large	44-46"	54"	34"	29"	Large	40-42"	50"	29"
X Large	48-50"	58"	34.5"	29"	X Large	44-46"	54"	29"
XX Large	52-54"	62"	35"	29"	XX Large	48-50"	58"	29"
XXX Large	56-58"	66"	35.5"	29"	XXX Large	52-54"	62"	29"
XXXX Large	60-62"	70"	36"	29"	XXXX Large	56-58"	66"	29"
XXXXXL	64-66"	74"	36.5"	29"	XXXXXL	60-62"	70"	29"

Sizes M-5XL are available in Longs and Talls. Longs have 2 inches added to the jacket length, sleeves and bib trouser or waist pant inseam. Talls have 4 inches added to the jacket length, sleeves and bib overall inseam.

**All NASCO raingear patterns are digitally mastered and cut ensuring that you get the right size garment every time.**

### Logo Options

NASCO has the ability to create high quality corporate images on our products using ink silk-screening, single and multi-color heat transfers, and reflective logos using 3M Scotchlite technologies.

### Silk-Screen Images

Silk Screen: A one time set-up charge will be applied to your order. There will be charges for artwork designs unless camera-ready artwork is provided.

### Heat Transfer Images

Permanent heat transfer images are available in single and multi-colored options. Heat transfers offer the highest quality image possible for raingear. Camera-ready artwork is necessary for price quotes.

### Reflective Images

3M Scotchlite reflective images are available for all NASCO raingear. Camera-ready artwork is necessary for price quotes.

### Available Colors



Yellow



Green



Spanish  
Yellow



Electric Blue



Kelly Green



Navy



Black



International  
Orange



Fluorescent  
Lime Yellow



Fluorescent  
Orange



ALCOHOLS	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Amyl Alcohol (Pentanol)	6884-52-2	X	E	G	E	F
Benzyl Alcohol	100-51-6	XI	F	NR	NR	E
Butyl Alcohol (Butanol)	71-36-3	X	G	F	G	E
Diacetone Alcohol	112-31-2	XI	E	F	G	F
Diethanolamine	111-42-2	XI	E	G	E	F
Ethyl Alcohol (Ethanol)	64-17-5	V	G	NR	NR	E
Ethylene Glycol (Ethandiol)	107-21-1	XI	E	E	E	G
Glycerol (Glycerine)	56-81-5	NA	E	E	E	E
Methyl Alcohol (Methanol)	67-56-1	T	F	NR	F	E
Octyl Alcohol (Octanol)	29063-28-3	X	F	F	F	E
Propyl Alcohol (Propanol)	71-23-8	X	G	F	F	E
Triethanolamine >70%	102-71-6	XI	G	G	E	G

ALDEHYDES	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Acetaldehyde (Ethanal)	75-07-0	XI	NR	NR	NR	NR
Benzaldehyde (Benzamine)	100-52-7	X	NR	NR	NR	NR
Butyraldehyde	123-72-8	XI	NR	NR	NR	NR
Formaldehyde - 30%-70%	50-00-0	T,S,Cg	F	NR	F	NR
Furfural	98-01-1	T	NR	NR	NR	NR

HYDROCARBONS (OILS)	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Castor Oil		NA	G	NR	G	G
Coconut Oil		NA	E	G	G	E
Cottonseed Oil		NA	G	NR	NR	E
Cutting Oil (sulfur base)		NA	G	NR	G	E
Crude Oil	5/9/02	X	E	F	G	E
Grease - Pet Base		NA	E	NR	NR	E
Linseed Oil		NA	G	NR	NR	E
Mineral Oil		NA	G	NR	G	E
Olive Oil		NA	G	NR	NR	E
Pine Oil		NA	NR	NR	F	E
Soybean Oil		NA	F	NR	F	G
Shale Oil	68308-34-9	NA	F	F	F	E

HYDROCARBON (SOLVENTS)	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Benzene (Bensol)	71-43-2	T, Cg	NR	NR	NR	E
Benzyl Chloride	100-44-7	T	NR	NR	NR	E
Butane	106-97-8	NA	F	NR	NR	G
Carbon Tetrachloride	56-23-5	T	NR	NR	NR	E
Chloroform (Trichloromethane)	67-66-3	X,Cg	NR	NR	NR	E
Cyclohexane	110-82-7	V	NR	NR	NR	E
Diesel Fuel	68474-34-6	X	F	NR	F	E
Gasohol	8006-61-9	X	NR	NR	NR	E
Gasoline (unleaded)	8006-61-9	X	NR	NR	NR	E
Hexane (Butylethylene)	110-54-3	X	NR	NR	NR	E
Kerosene	8008-20-6	X	G	F	G	E
Jet Fuel		X	F	NR	NR	E
Methyl glycol (2-Methoxyethanol)	109-86-4	X	NR	NR	NR	F
Methyl Chloride (Chloromethane)	96-34-4	T	NR	NR	NR	E
Naptha (Mineral Spirits)	8052-41-3	X	F	NR	F	E
Nitrobenzene	98-95-3	T	NR	NR	NR	F
Perchloroethylene (Tetrachloroethylene)	127-18-4	X	NR	NR	NR	F
Petroleum ethers	8032-32-4	V	NR	NR	NR	F
Propane	74-98-6	NA	G	F	G	G
Toluene (Methylbenzene)	108-88-3	X	NR	NR	NR	E
Trichloroethylene	79-01-6	X	NR	NR	NR	E
Trimethylamine	75-50-3	X, C	F	NR	F	NT
Turpentine	8006-64-2	X	NR	NR	NR	E
Xylene (Dimethyl benzene)	1330-20-7	X	NR	NR	NR	E

INORGANIC ACIDS	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Carbonic Acid		NA	E	E	E	E
Hydrobromic Acid	10035-10-6	C	G	F	G	NR
Hydrochloric Acid - 37%	7647-01-0	C	E	G	G	G
Hydrochloric Acid - <30%	7647-01-0	C	E	G	G	G
Hydrofluoric Acid Conc. 30-70%	7664-39-3	Tx, Cx	NR	F	G	G
Hydrogen Sulfide	6/4/83	Tx	G	G	G	NR
Nitric Acid - Conc. 30%-70%	7697-37-2	Cx	G	F	F	NR
Nitric Acid - 10%	7697-37-2	XI	E	G	E	NR
Perchloric Acid 30%-70%	7601-90-3	Cx	E	G	E	NR
Phosphoric Acid 86%	7664-38-2	C	E	G	E	G
Sulfuric Acid 93%	7664-93-9	Cx	F	NR	F	G
Sulfuric Acid - <30%	7664-93-9	C	E	G	E	G

KETONES	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Acetone	67-64-1	V	F	NR	F	G
Chloroacetone	78-95-5	T	G	NR	NR	G
Methyl Ethyl Ketone	78-93-3	V	NR	NR	NR	G

ORGANIC ACIDS	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Acetic Acid	64-19-7	Cx	G	NR	F	G
Carbolic Acid (Phenol) 70%	108-95-2	T, C	F	NR	NR	G
Citric Acid - 30%-70%	77-92-9		E	E	E	G
Formic Acid (Methanoic acid)	64-18-6	Cx	G	F	G	NR
Lactic Acid >70%	50-21-5	C	E	E	E	G
Maleic Acid	110-16-7	XI	E	F	G	G
Oleic Acid	112-80-1		F	F	F	E
Tannic Acid	1401-55-4	T, Cg	E	G	E	E

ORGANIC ESTERS	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Butyl Acetate	123-86-4	V	NR	NR	NR	G
Dibutyl Phthalate	84-74-2	XI	F	NR	NR	F
Ethyl Acetate	141-78-6	V	NR	NR	NR	G
Methyl Acetate	79-20-9	X	NR	NR	NR	G
Pentyl acetate (amylacetate)	628-63-7	V	NR	NR	NR	G
Propyl Acetate	109-60-4	V	NR	NR	NR	G
Tricresyl Phosphate	95-95-4	T	G	G	E	F

SALTS AND ALKALIES	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Ammonium Hydroxide 30%-70%	1336-21-6	C	G	NR	F	NR
Ammonium Sulfate	7783-20-2	T	E	G	E	G
Calcium Chloride Cryst. Del.	10035-04-8	X	E	E	E	E
Calcium Hypochlorite Cryst. Sol.	7778-54-3	T, XI	F	G	E	F
Copper Chloride	7447-39-4	T	E	E	E	G
Copper Sulfate - Cryst.	7758-99-8	T, XI	E	F	G	G
Ferric Chloride	7705-08-0	C	E	E	E	E
Potassium chromate	7789-00-6	XI	E	G	G	G
Sodium Hydroxide >70%	1310-73-2	Cx	E	E	E	G
Sodium Hypochlorite 30%-70%	7681-52-9	C	E	E	E	G

MISCELLANEOUS	CAS #	Risk Code	Neoprene	PVC	Sp. PVC	Urethane
Acetonitrile (Methyl cyanide)	75-05-8	T	NR	NR	NR	NT
Acrylonitrile	107-13-1	T, Cg	NR	NR	NR	NR
Ammonia (aqueous)	7664-41-7	T, C	F	NR	F	G
Aniline (Phenylamine)	62-53-8	T	NR	NR	NR	NR
Battery Acid	7664-93-9	C	E	G	E	NR
Blood NA	20-05-7		G	F	F	F
Carbon Disulfide	75-15-0	T	NR	NR	NR	NR
Cyclohexylamine	108-91-8	C, X	NR	NR	NR	NT
Dibutylamine	111-92-2	C, X	F	NR	F	NR
Dichloromethane	111-44-4	T, Cg	F	F	F	NT
Dicyclohexylamine	101-83-7	C, X	F	NR	F	NT
Diethylamine	685-91-6	X	F	F	F	NT
Diisobutylamine	110-96-3	X	F	NR	F	NT
Diisopropylamine	108-18-9	C, X	F	NR	F	NT
Dimethyl Formamide	68-12-2	X	F	F	F	NT
Dimethylamine	124-4	C, X	G	NR	F	NT
Dipropylamine	142-84-7	C, X	F	NR	F	NT
Ethyl Ether (diethyl ether)	60-29-7	X	G	NR	NR	G
Ethylamine (Monoethylamine)	75-04-7	C, X	F	NR	F	G
Hydrogen Peroxide 30%-70%	7722-84-1	C	F	G	G	NR
Isobutylamine	78-81-9	C	F	F	F	NT
Isopropanol (Isopropyl alcohol)	67-63-0	V	G	F	F	NT
Isopropylamine	75-31-0	C, X	F	NR	F	NT
Methylamine	74-89-5	C, X	F	F	F	NT
Methylbutylamine			F	NR	F	NT
Nitrobenzene	98-95-3	T	F	NR	F	NT
Paint Remover (Acet-Alcoh-MC)		XI	F	NR	NR	NR
Propylamine	107-10-8	XI	F	NR	F	NT
Soaps			G	G	E	F
Tetrahydrofuran	109-99-9	X	F	NR	F	NT
Tributylamine	102-82-9	X	F	F	F	NT
Triethylamine	121-44-8	C, X	F	F	F	NT
Tripropylamine	102-69-2	C, X	E	F	F	NT

Key to Degradation Ratings: E = Excellent; G = Good; F = Fair; P = Poor; NR = Not Recommended; NT = Not Tested

**RISK CODES RATINGS: Tx = HIGHLY TOXIC; X = HAZARDOUS TO HEALTH (LESS TOXIC); T = TOXIC; XI = IRRITANT; Cx = HIGHLY CORROSIVE; S = SENSITIZATION; C = CORROSIVE; V = POTENTIALLY HARMFUL; Cg = POTENTIAL CARCINOGEN; NA = NOT ASSIGNED**

This chart is intended to be used only as a guideline. It is the responsibility of the user to determine the specific suitability of any particular product used against any chemical. Please contact NASCO to obtain material swatches for verification of material appropriateness.



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