

CARE, MAINTENANCE AND USE GUIDE

WOVENS

 **WESTEX**[®]
Indura[®]

 **WESTEX**[®]
UltraSoft[®]

 **WESTEX**[®]
UltraSoft[®] AC

Description of Fabrics

Westex® Indura® 100% cotton woven fabrics, as well as UltraSoft® and UltraSoft® AC cotton-rich woven fabrics, are specially engineered to be flame-resistant secondary protective fabrics. Primary protective clothing (as described in ASTM F1002), like a firefighter's turnout gear, is worn for work activity "during which significant exposure to molten substance splash, radiant heat and flame is likely to occur." Secondary protective clothing, such as garments made from UltraSoft, UltraSoft AC or Indura fabrics, are "designed for continuous wear for work activities in designated locations in which intermittent exposure to molten substance splash, radiant heat and flame sources is possible."

The flame resistance of UltraSoft, UltraSoft AC and Indura fabrics is achieved by an engineering process proprietary to Westex. This finish has been designed to withstand the most rigorous laundering conditions anticipated for proper work clothing cleaning. A flame-resistant polymer is embedded in the fabric and will withstand the typical requirement for multiple launderings of such garments. **Westex guarantees the flame resistance of garments made from UltraSoft, UltraSoft AC and Indura fabrics for the useful life of those garments when employing proper care procedures.**

The thermal protective properties of any flame-resistant fabric can be compromised by contaminants on the fabric. Even though the original fabric is fully flame-resistant as measured by standard test protocols, flammable contaminants on garments can ignite and burn until consumed, which increases heat transfer to the wearer and leads to flame resistance failure. Garments must be laundered thoroughly to remove contaminants, and it is recommended to wash garments prior to wearing them.

The recommended procedures included are effective in removing industrial soiling and other contaminants while maximizing garment wear life. Users of garments made from UltraSoft, UltraSoft AC or Indura fabrics should ensure that their techniques achieve similar results by performing additional tests and/or working with Westex fabric experts.



Commercial Laundering

DETERGENT AND SUPPLEMENTAL CHEMICALS



Washing Detergent Supplies

A variety of commercial and industrial detergent formulations are available to process cotton and cotton-rich garments and have been used for many years. Consult wash chemical suppliers for appropriate information. Recently, detergents designed for use at wash temperatures of 140°F (60°C) or less—such as high surfactant, low alkalinity products—have gained some popularity, and have no adverse effect on UltraSoft, UltraSoft AC or Indura fabrics. It is important to use a detergent and wash temperature that is sufficient to thoroughly clean the soiled clothing, and consider supplemental alkalinity and higher wash temperatures where appropriate. Obtain best results in cleaning and utilization of detergent supplies by using softened water. UltraSoft, UltraSoft AC and Indura fabrics can be washed at temperatures up to 165°F (75°C).



Alkalinity

Detergents used commercially have pH values ranging from 9–13, and in most instances, are effective in removing dirt and oil from soiled garments. For more aggressive soil and oil removal, consider higher wash temperatures and supplemental alkalinity. If softened water is not available, we do not recommend using silicate-supplemented detergents. UltraSoft, UltraSoft AC and Indura fabrics are not adversely affected by high pH, but check the effect on garment colorfastness.



Softeners

We do not recommend using a supplemental softener, except in unique circumstances that are specifically described to us and tested for impact on flame resistance.



Starch

We do not recommend using starch or other hand builders, except in unique circumstances that are specifically described to us and are tested for impact on flame resistance.

DETERGENTS AND SUPPLEMENTAL CHEMICALS TO AVOID



Chlorine Bleach

Chlorine bleach (sodium hypochlorite), either separately or in detergents, must not be used on garments made with UltraSoft, UltraSoft AC and Indura fabrics as it can adversely affect the flame resistance of the fabric. Various laundry advisories generally prohibit the use of chlorine bleach for protective fabrics of any fiber composition.



Hydrogen Peroxide Bleach

Hydrogen peroxide (an oxygen bleach) must not be used separately or in detergents on garments constructed of UltraSoft, UltraSoft AC and Indura fabrics. The presence of metals with hydrogen peroxide can adversely affect the flame resistance of the fabric.



Soaps

Using soaps (salts of fatty acids) is not recommended for laundering garments made with UltraSoft, UltraSoft AC and Indura fabrics. Soaps can form insoluble scums with hard water deposits on the fabric. Soap scums may be flammable and can adversely affect the thermal protection performance of the garment if they burn.

RECOMMENDED WASHING/DRYING PROCEDURES

We recommend that garments are washed and dried inside out to minimize surface abrasion and aid in maintaining the surface appearance of garments constructed with UltraSoft, UltraSoft AC and Indura fabrics.



Washing Detergent General Formula

Consult with the wash chemical supplier for operational steps to commercially launder garments constructed with UltraSoft, UltraSoft AC and Indura fabrics. The actual conditions should be selected based on the degree of soiling and other factors of the processed garments. Not all steps need to be followed for lightly soiled garments. To improve soil removal and minimize redeposition, a “multi-add” procedure is recommended. Consult with the chemical supplier for assistance with the quantity of supplies and specific conditions used for your unique case.



Loading Washer

Garments made with UltraSoft, UltraSoft AC and Indura fabrics can be washed in various wash formulations depending on the degree and type of soil. UltraSoft, UltraSoft AC and Indura fabrics should be washed with similar fabrics. Exercise care when mixing light and dark colors, as well as heavy and light soil items in the load. Normal washer loads are generally set at 80% of washer capacity for 100% cotton garments, but loading at 65% will enhance cleaning for heavily soiled items.



Wash Temperature

The range of wash temperatures suggested considers various degrees of soiling. Higher temperatures mean better cleaning of heavily soiled garments. Check wash temperature compatibility with the detergent in use; the maximum wash temperature for UltraSoft, UltraSoft AC and Indura fabrics is 165°F (74°C).



Colorfastness of Garments

Wash temperatures higher than 140°F (60°C) may affect the washfastness (color loss) of certain colors. Similarly, the presence of sodium perborate in the wash system will significantly affect the shade of certain naphthol dyes.



Rinsing

UltraSoft, UltraSoft AC and Indura fabrics must be adequately rinsed to remove wash chemicals and lower the pH of the water supply. To minimize washer-induced wrinkles, water temperature is reduced in each succeeding rinse cycle until the last operation (sour) where it should be 100°F (38°C) or lower.



Sour

When laundering garments constructed with UltraSoft, UltraSoft AC and Indura fabrics, you must use a sour operation after thoroughly rinsing. The primary effect of sour is to reduce the fabric's pH after using alkaline detergents, and it also reduces the possibility of dermatological reactions from high pH. No adverse effect on flame resistance results from the use of acid sour. Residual alkalinity in any garment can cause skin irritation and other issues. To ensure that all traces of wash chemical alkalinity are neutralized, sour can be added to the final rinse cycle in the wash wheel. Garments constructed of UltraSoft, UltraSoft AC and Indura fabrics should not be rinsed further after the sour is added. Overuse of sour should be avoided, which would result in highly acidic fabrics. Any standard or buffered sour is acceptable for use with UltraSoft, UltraSoft AC and Indura fabrics.



Drying and Finishing

UltraSoft, UltraSoft AC and Indura fabrics can be dried and finished using normal methods available to laundries for cotton fabrics. It is important that cotton garments are not overdried in any step of the operation as overdrying has been determined to be the main cause of excessive garment shrinkage.



Tumble Dry Conditioning/Finishing

In many instances, tumble dry conditioning is the only finishing necessary for garments constructed from UltraSoft, UltraSoft AC and Indura fabrics. Tumble dry conditioning can be done prior to wet-to-dry tunnel finishing (see next section) or pressing. For best results, tumble dryers should not be overloaded. Dry fabrics efficiently at stack temperatures between 140°F (60°C) and 165°F (74°C). Garment temperature in the basket should not exceed 280°F (138°C). Do not overdry fabrics, or excessive shrinkage will occur. If possible, remove garments made with UltraSoft, UltraSoft AC and Indura fabrics from dryer when slightly damp (about 10% moisture) and hang to dry or tunnel process. Garments should not remain in an inactive hot tumbler.



Wet-to-Dry Type Tunnel Drying/Finishing

Wet garments from the wash wheel, or partially dry tumble-dried garments, can be finished by hanging on a hanger and passing through a tunnel containing forced air supplied at 300°F (149°C) dry bulb and 190°F (80°C) wet bulb at a rate sufficient to completely dry the garments. Garment temperature should not exceed 280°F (138°C) and garments should not be overdried.



Dry-to-Dry Type Tunnel Drying/Finishing

This process is not recommended for fabrics constructed from UltraSoft, UltraSoft AC and Indura fabrics. Should the operational flow of your plant require passage through the tunnel, we recommend using the wet-to-dry procedure or passing fully tumble-dried garments through the tunnel at ambient air temperature.



Pressing

Garments constructed from UltraSoft, UltraSoft AC and Indura fabrics may require pressing using cotton blend settings. Pressing does not adversely affect the flame resistance of the fabric.

Home Laundering

Garments constructed from UltraSoft, UltraSoft AC and Indura woven fabrics can be washed, dried and hand-ironed by conventional home methods. These methods may not remove all potentially flammable soils that could adversely affect the performance of UltraSoft, UltraSoft AC and Indura fabrics. If home laundering does not remove contaminants or contaminant build-up, periodically dry-clean or commercially launder the garments. When UltraSoft, UltraSoft AC and Indura fabrics are contaminated by hazardous materials, use only commercial or on-site laundering with appropriate wastewater treatment techniques. The following procedures can help provide optimum cleaning and maintenance for protective apparel:

DETERGENTS AND OTHER LAUNDRY PRODUCTS



Washing Detergent Supplies

Many detergents are available for household use. Detergents should be used that do not contain hydrogen peroxide or chlorine bleach (sodium hypochlorite). It is important to use a detergent and wash temperature that is sufficient to thoroughly clean soiled clothing. Consult with the chemical supplier for detergents that are not recommended for use with UltraSoft and Indura fabrics.



Other Laundry Products

Laundry products, such as fabric softeners and starches, present a complex home-wash situation for all flame-resistant garments. Since it is impossible to examine and control each product and procedure, we do not recommend using them.



Use of Softened Water

For best cleaning results and the preservation of protective characteristics, an adequate supply of soft water is recommended for laundering garments constructed from UltraSoft, UltraSoft AC and Indura fabrics. Hard water contains salts, such as calcium and magnesium, that combine with other salts and fatty-based soaps to form insoluble deposits, film, scum and crud in the wash process that can deposit on the fabric. These contaminants are difficult to rinse from the fabric and may cover the flame resistance. Using soft water reduces detergent consumption, improves the quality of washing and avoids adverse effects on flame resistance.

DETERGENTS AND SUPPLEMENTAL CHEMICALS TO AVOID



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Soap

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RECOMMENDED WASHING/DRYING PROCEDURES

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Sorting

Garments made with UltraSoft, UltraSoft AC and Indura fabrics should be sorted by color—light colors washed with light colors and dark with dark—to avoid dye transfer. UltraSoft, UltraSoft AC and Indura fabrics should be washed with other UltraSoft and Indura fabrics.



Pre-Treating

Stains, as well as deep soil lines on the collars and cuffs of garments, are more readily removed if pre-treated. Stains should be pre-treated at the earliest opportunity. Allow sufficient time for the pre-treatment material to penetrate and loosen the soil. The heavily soiled or stained areas should be rubbed with a full-strength, heavy-duty liquid detergent or any off-the-shelf laundry pre-treatment product. Such pre-treatment products should not contain bleach or hydrogen peroxide, either separately or in combination with detergent.



Load Size

When laundering garments constructed from UltraSoft, UltraSoft AC and Indura fabrics, do not overload the machine. To ensure a cleaner wash and avoid setting wash wrinkles, the load size must permit clothes to move freely through the wash water and rinse cycle. Bulk (not weight) should be the limiting factor, regardless of the machine's rated capacity in pounds.



Wash Temperature

Heavily soiled garments made with UltraSoft, UltraSoft AC and Indura fabrics can be washed using the "hot" water temperature setting. Garments with lesser degrees of soil can be laundered with lower water temperatures, which will help retain garment color.



Tumble Drying

Garments made with UltraSoft, UltraSoft AC and Indura fabrics can be tumble-dried or air-dried after washing. For tumble drying, drying time should be carefully controlled so that garments are removed from the dryer immediately when dry or slightly damp. Overdrying will result in excessive shrinkage. Hang damp garments to complete the drying process. Drying times will vary depending on the load size and the relative weight of the garments being dried. Use of the "Permanent Press" setting on the dryer provides a beneficial cool down cycle.



Ironing

Garments constructed from UltraSoft, UltraSoft AC and Indura fabrics may require pressing. A steam or dry iron may be used on the cotton blend setting. Ironing has no adverse effect on the flame-resistant properties of the fabrics.

Garment Maintenance

To perform its protective function, a garment must be maintained in its original condition. Rips, tears, cuffing and thin spots are normal consequences of use, and they should be repaired or restored as soon as possible utilizing like materials and thread. For advice on proper repair techniques, contact your uniform service provider or clothing manufacturer.

To obtain additional, useful information on the care and maintenance of flame-resistant garments, consult the following industry publications:

ASTM F1449 Standard Guide for Industrial Laundering Care and Maintenance of Flame-Resistant or Arc-Rated Clothing

ASTM F2757 Standard Guide for Home Laundering Care and Maintenance of Flame-Resistant or Arc-Rated Clothing

NFPA 2113 Standard on Selection, Care, Use and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Short-Duration Thermal Exposures from Fire

Situations to Avoid in the Use of Clothing Made of UltraSoft, UltraSoft AC and Indura Fabrics

DO NOT USE FOR PRIMARY PROTECTIVE CLOTHING

Garments made from UltraSoft, UltraSoft AC or Indura fabrics should not be used for primary protective clothing, such as a firefighter's turnout gear. They should only be used for secondary protective clothing as recommended by ASTM F1002.

DO NOT USE FOR PRIMARY CHEMICAL SPLASH PROTECTION

UltraSoft, UltraSoft AC and Indura flame-resistant fabrics are designed for use in secondary protective clothing. The fabric is engineered to be flame-resistant, where it will self-extinguish when the source of ignition is removed. These fabrics are not designed to offer chemical splash protection. Other personal protective equipment, such as impermeable products, should be used in situations requiring chemical splash protection.

DO NOT USE IN THE PRESENCE OF STRONG ACIDS, OXIDIZERS OR REDUCERS

The flame-resistant polymer contained in UltraSoft, UltraSoft AC and Indura fabrics is highly resistant to most acids, bases and solvents. Exposure to strong acids, such as hydrochloric or sulfuric acid, may degrade the strength of the cotton fiber and cause holes in the fabric. Additionally, these fabrics should not be exposed to strong oxidizers, such as bleach (more than 6% sodium hypochlorite) and hydrogen peroxide, and strong reducers, such as sodium hydrosulfite. Strong oxidizing and reducing agents can cause an adverse reaction with the flame-resistant polymer.



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