



 Burlington<sup>®</sup> LABS

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# Burlington<sup>®</sup> LABS

Celebrating 100 years of textile leadership, Burlington is a global diversified provider of textile solutions across performance apparel fabrics, advanced uniform fabrics, and technical fabrics.

Burlington Labs discovers, implements, and promotes proprietary emerging technology within Burlington, Safety Components, Elevate, and its global partners, providing a continuous stream of differentiated products.

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# 01 | Sustainable Practices

## Sustainability is the standard.

Burlington is committed to responsibly sourcing fibers, reducing its water consumption and greenhouse gas emissions.

We have a responsibility to be mindful of the impact we have on the environment. What goes around comes around and what was once new doesn't have to become waste. Create new meaning and purpose with Restora™.

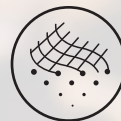
**RestGra™**



**Recycled Plastic Waste**



**Recycled Fibers**



**Reducing Microplastic Pollution**



**Cleaner Oceans**



Burlington is a proud to support these organizations  
in responsibly certified fabrics, chemical  
management, and more.



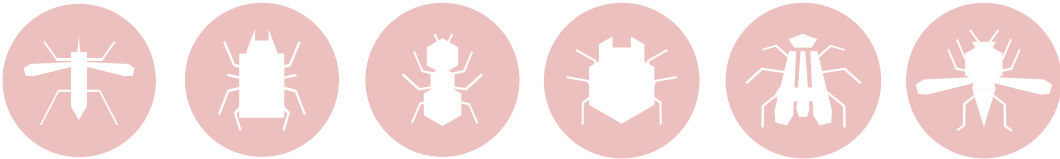
# 02 | Innovative Technologies

## Insect Repellency



No Fly Zone insect repellent technology works as an odorless contact insecticide and repellent. It is effective against mosquitoes, ticks, ants, chiggers, flies and midges.

No Fly Zone fabrics offer distinct advantages over other repellent technologies because the technology is applied at the fabric level for durable and consistent protection.



Global licensing capabilities are available using our No Fly Zone® technology for your shirts, pants, uniforms, socks, hats, pets, etc.

# Repellency



A non-fluorocarbon based water and stain repellent finish with exceptional durability and maximum protection for the fire service, uniform, and performance apparel markets.



A unique water and stain repellent finish with exceptional durability and maximum protection, even after repeated washings.



A revolutionary combination of technologies that raises the bar for liquid and stain repellency for fine worsted wool and synthetic garments.

# Odor Control

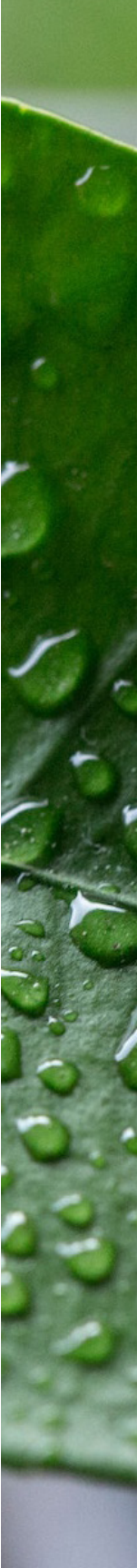


An antimicrobial, non-antimicrobial, and natural technologies that prevent biofilm formation. Minimizes odor, provides hygienic freshness, maintains the ecological balance and prevents the deterioration and discoloration of fabrics.

Antimicrobial technologies include zinc, silane based quaternary ammonium, and silver. Non-antimicrobials coat the individual fibers / yarns preventing odor causing bacteria from sticking and building up even after washing.



A bio-based, durable odor control technology that uses peppermint oil. This naturally-occurring, renewable technology uses no heavy metals, reduces microplastic shedding and more.



# Moisture Control System®



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## MCS® Moisture Control System

Moisture Control System® that absorbs and moves moisture away from the body and dries quickly.



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## MCS® Soil Release

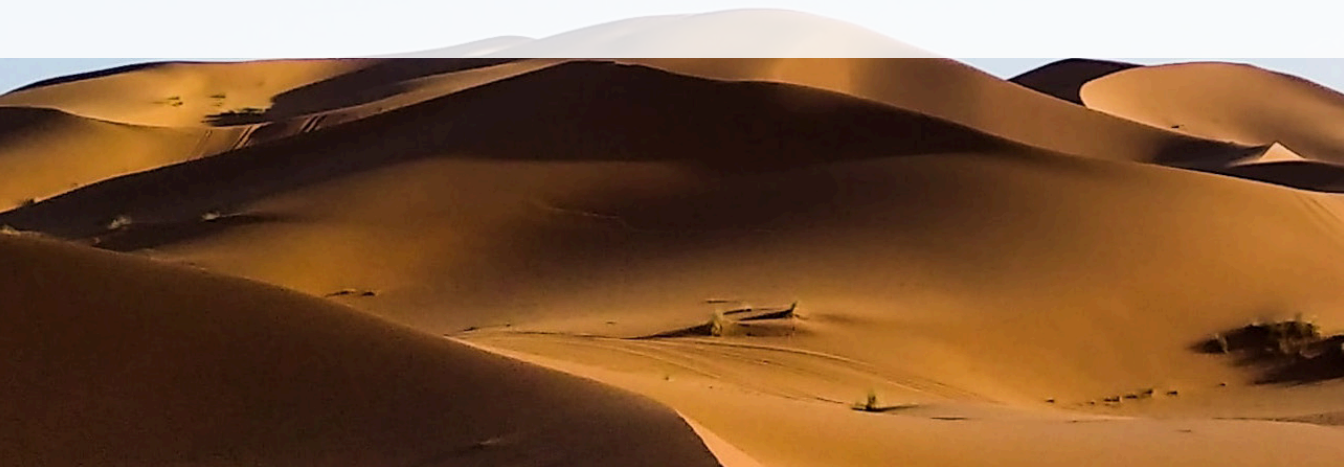
Moisture Control System® that absorbs and moves moisture away from the body while allowing most ground in stains to be easily removed and preventing soil from re-depositing.



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## MCS® Blocker

Moisture Control System® that absorbs, moves moisture away from the body and dries quickly while providing excellent UV protection.







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## **MCS® Active Cooling**

Moisture Control System® offering advanced cooling by moisture activation. Makes your sweat work for you.

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## **MCS® Adaptive**

Moisture Control System® that transports moisture depending on environmental conditions to cool you off or keep you warm.

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## **MCS® Hybrid Cool**

Moisture Control System® that provides instant cooling by absorbing heat energy and long-lasting cooling by moving moisture away from the skin.



# 03 | Fiber & Yarn



## Performance Yarn

Featuring insect repellency, FR, and 100% wool and wool blends for socks, base layers, career and hospitality uniforms, FR, golf apparel, and the transportation industry.



## WeatherMAX®

Made from solution dyed Satura® Max yarns, this fabric retains color and strength in severe outdoor exposure.



easyWOOL™

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## EasyWool™

A revolutionary technology that allows worsted trousers and garments to be engineered as truly washable for the life of the garment.

 SYNATURAL™  
STRETCH

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## Synatural™

All the benefits of natural fiber aesthetics combined with high stretch and snap-back recovery for greater comfort and flexibility.

# Sustainable Fibers



## Repreve®

Transforming pre-consumer fiber waste and post-consumer plastics into high quality polyester and nylon fibers, Repreve® uses new petroleum, emitting fewer greenhouse gases and conserving water and energy in the process.



GREEN CIRCLE

## Green Circle™

A closed loop recycling system separates and eliminates both additives and colorants from used polyester products to purify the material, restoring the polyester to its original quality and function.



# RestOra™

## SEAQUAL™

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### Seaqual™

Recycled polyester yarn made from post-consumer plastic bottles and waste from the Mediterranean Sea. Seaqual™ preserves natural resources, reduces the waste in our planet's oceans, and creates high quality recycled polyester yarn made from 100% recycled materials.

## ciCLO®

FUNCTIONAL. SENSIBLE. SUSTAINABLE.

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### ciCLO®

Technology that reduces polyester microfiber pollution through biodegradation in wastewater treatment sludge. This allows polyester to biodegrade in landfills at rates similar to natural fibers like wool.

# 04 | Flame Resistant Technology



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## PBI Max™

The world's strongest, patented, inherent, flame resistant, outer shell fabric that provides maximum protection, mobility, comfort and durability.



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## Sigma 4 Star™

Enhanced FR protection that uses a revolutionary, patented, proprietary 4 fiber blend and offers the highest thermal protective properties with exceptional comfort and durability.



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## Bodyshield®

FR technology that incorporates innovative fibers, blends of yarns, and FR composites creating leading edge materials that provide the highest levels of thermal and molten metal protective performance.



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*glide*ICE™

## **Glide Ice™**

A patented design and construction of 60% DuPont™ Nomex® filament yarns and 40% DuPont™ Nomex®/Lenzing FR® spun yarns combines ultimate comfort, unparalleled freedom of movement and optimal moisture management.

**Nomex 360™**  
by Safety Components

## **Nomex® 360™**

Constructed to deliver a perfect balance of firefighter comfort, mobility and protection while also delivering the world's best garment durability.

**ARMORAP™**

## **Armor AP™**

Armor AP™ fills the needs of firefighters who prefer improved mobility, improved durability, and improved protection at an economical price. Armor AP—a 6.5 oz. outer shell with absolute performance.

# Matrixing Technologies

Matrix fabric finish technologies like odor management, sun protection, and moisture wicking for a high performance fabric.

Ask a sales representative about matrixing our performance technologies to fit your needs.

S

Repellency

Antimicrobial

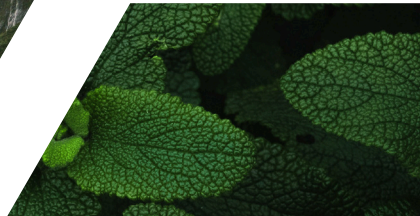
Sustainability





# Moisture Control

# Humidity Protection



# 05 | Barrier



## Maxima®

Fluid resistant, reusable surgical fabrics, ideal for all applications of the medical market.

## Medical Laminates

Industry leading laminates comprised of technical face fabrics, proprietary film layers, and comfortable backers. Durable through 75 wash, dry, steam sterilization cycles.

## Medical Patches

Functional patches specifically engineered to seal holes, cuts, and tears in XALT™ and Maxima® Surgical Barrier material.



## C Class™

A collection of high performance, reusable contamination control fabrics created from non-linting filament polyester which offer a high degree of surface resistivity and static decay performance.

# Medical



## XALT™ HC

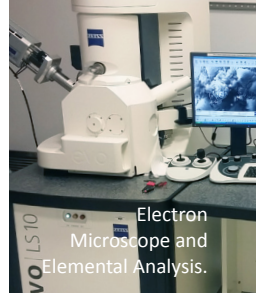
The market standard for reusable protection against blood and viral penetration.

# Cleanroom



# 06

# Testing Capabilities



## Performance Wear

- UPF
- Air permeability
- Liquid moisture management properties
- Drying time/moisture analyzer
- Drying rate/heated plate
- Water vapor resistance

## Medical Barrier

- Hydrostatic
- Impact penetration
- Spray
- Actual industrial laundering
- Actual autoclave sterilization
- Durability processing capability
- AAMI PB-70 Certified
- EN 13795 Certified

## Microelectronics & Pharmaceutical

- Cleanroom laundry
- Helmke drum
- Body box
- Pore size
- Static decay
- Surface resistivity

## Microbiological Lab

- Biosafety level 2 laboratory
- Standard testing includes:
- Viral and synthetic blood penetration  
ASTM F1671 and ASTM F1670
- Antimicrobial testing ASTM E2149, AATCC 100 and AATCC 147

## Military/Uniform

- Flame resistance
- Wind resistance
- Dynamic absorption
- Chemical penetration tests
- High visibility
- Ewing washer
- Color and near Infra-red measurement

## Worsted Apparel

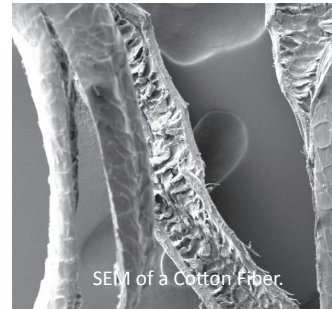
- Fiber analysis
- Overall yarn performance
- Fiber dyeing and color consistency (K-Match)

## Fire Service

- Total Heat Loss (THL)
- Resistance to evaporative heat loss (Ret)
- UV exposure
- Physical characteristics
- Vertical Flame resistance
- Air permeability
- Liquid penetration and absorption resistance
- Liquid chemicals resistance

## Contract Fabrics

- ACT voluntary performance guidelines
- Flame resistance Cal TB 117, NFPA 701 and MVSS 302
- Abrasion resistance ASTM D4157 and D3511
- Stain repellency



# 07 | Burlington's Heritage

**1923**

Burlington® Mills founded by J. Spencer Love - an innovator from the beginning.

**1967**

New technologies developed: "Come clean" soil release process, anti static finishes, synthetic permanent-press and FR fabrics.

**1998**

Burlington® designs and installs the only ISO Class 2 cleanroom laundry inside a textile manufacturing facility with a Helmke Drum and Bodybox testing.

**1955**

First textile company to advertise on national network television.

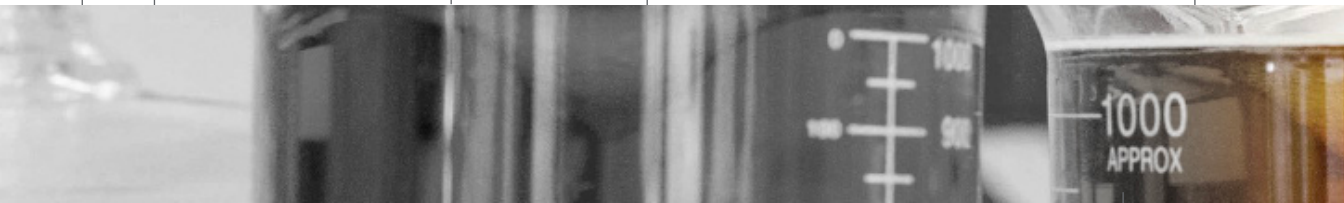
**INDUSTRY 1<sup>st</sup>**

**INDUSTRY 1<sup>st</sup>**

**1987**

Introduced the K-Match™ system that produces consistent shade matching and becomes the industry standard.

**INDUSTRY 1<sup>st</sup>**



**1959**

Burlington® patents the dye jet.

**INDUSTRY 1<sup>st</sup>**

**1962**

Largest textile company in the world.

**1989**

Burlington® patents printing process on Nomex® fiber.

Versatech® - super fine microfiber yarn engineered.

**1997**

XALT™ - Xtreme All weather Laminate Technology high tech waterproof, breathable, windproof composite fabric system is developed.

**1986**

Developed Ultrex® Waterproof system - combining fabric, finish and coating technology.

**1993**

Partners with Intera to introduce hydrophilic chemistry for polyester and nylon fibers. MCS® is born.

## 2004

Safety Components introduces WeatherMAX™ outdoor technical fabrics for marine and awning.

## 2007

Jiaxing Burlington Textile Co. Ltd. (JBT) opens near Shanghai, China.

## 2009

Easy Wool - revolutionary technology, allowing fine worsted garments to be truly washable.

## 2012

Burlington® patents Sigma 4-Star, an FR fabric made from a fiber blend.

Burlington® becomes a bluesign® system partner.

## 2018

MCS® Hybrid Cool launches. Instant cooling by absorbing heat energy.

## 2019

Launch of PF Zero™ - a non-fluorocarbon based water and stain repellent finish.

Odorblock technology launches. A non-antimicrobial metal free chemistry for hygienic freshness.

## 2006

Burlington® Labs launches.

## 2008

First to commercialize and launch fabric application of insect repellent technology with (4th generation) No Fly Zone®.

## 2010

Versatech FR & Stealth – Patented flame resistant technology, engineered with near infrared & durable water repellency.

## 2016

The next generation of XALT™ launches.

Burlington® engineers No Fly Zone® FR Workwear.

## 2014

Safety Components patents PBI Max, flame resistant fabric.

XALT™ HC medical laminate and tape technology for the operating theater is developed.

## 2020

5 million Level 2 Surgical Gowns supplied to FEMA during COVID-19 pandemic.

**INDUSTRY 1<sup>st</sup>**



# 08 | Partnerships

Burlington® partners with Gateway University Research Park in Greensboro, NC for a novel joint venture between NC A&T and UNCG designed to facilitate collaborations between world-class researchers and businesses and to move scientific discoveries from the lab to the marketplace.

- **Full access to Nanoscience laboratories including:**

- BSL-3 Nanobiology cleanroom
- Nanobiophysics
- Nanochemistry



- **Characterization and analytical instruments including:**

- Zeiss EVO LS SEM
- Oxford INCA X-Act EDS System
- Agilent 240 GCMS
- Agilent FTIR with Single Point Detector
- Zeiss Auriga FIB FE SEM
- Zeiss SMT® Orion Helium Ion microscope



- **Visualization and computing facility**

- **Ability to participate in joint research with faculty, staff and students**



## Partner With Us – Licensing

In today's fast paced global economy, recognizable brands and trademarks are more valuable than ever. The Burlington® brand exemplifies high quality and is proven to build consumer confidence and add value to labeled products.

The strength and selling power of the Burlington® Labs brands can help you expand and succeed with new products and enhance the reputation of your business through licensing partnerships.

 **Burlington® LABS**

 **NO FLY ZONE®**  
INSECT REPELLENT TECHNOLOGY

By  Burlington®



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MCS®, No Fly Zone®, Durepel®, Invisible Barrier™,  
Raepel™, Bioguard®, Synatural™, EasyWool™,  
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