

burlingtonfabrics.com



 **Burlington**[®]

RESEARCH & DEVELOPMENT TIMELINE

1960

1965 The new three million dollar central research and development facility near Greensboro, NC begins construction.

The company employs more than 400 scientists and other technical personnel in research and development.

1966 The new Greensboro Research Center focuses on four areas:

- New fiber and yarn development
- New product development
- Long range research and technical planning
- Central laboratories and testing

1967 Technologies developed:

- “Come clean” soil release process
- New synthetic permanent-press fabric
- Flame resistant fabric
- Anti static finishes

1968 New areas of investigation:

- Engineering sciences
- Electron microscopy
- Chemical synthesis
- Extrusion technology
- Production of polypropylene yarn for weaving

1970

1970-71 Floor space at Burlington® Research Center is doubled. Major areas of research include:

- Textile fibers
- Chemistry
- Dyeing and finishing improvements
- Process control
- Mechanical innovations
- Composite structures
- Plastic technology
- Flame retardancy of fabrics
- Waste treatment improvements

1974 Burlington® leads the way in textured yarn innovation.

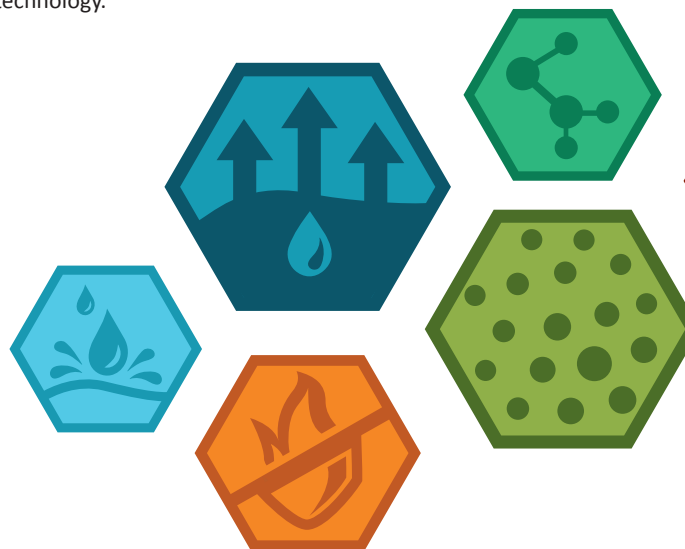
1976 A program is designed to incorporate new technology.

1980

1986 The Ultrex® Waterproof system is developed. This 3 part system combines fabric, finish and coating technology.

1987 The K-Match™ system that produces consistent shade matching becomes the industry standard.

1989 Versatech®, our super fine microfiber yarn is engineered for the optimum balance of windproofness, breatheability and water resistance.



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

1990

1993 Burlington® partners with Intera to introduce hydrophilic chemistry for polyester and nylon fibers. MCS® is born.

1997 Xtreme All weather Laminate Technology (Xalt™) high tech waterproof, breathable, windproof composite fabric system, is developed.

1998 Burlington® designs and installs the only ISO class 2 cleanroom laundry with Body-Box testing capability in a textile manufacturing facility.

2000

2006 Burlington® Labs is launched.

2008 No Fly Zone® Insect Repellent Technology launches.

2009 Easy Wool - Established revolutionary technology, allowing fine worsted garments to be truly washable.

2010

2010 Versatech FR & Stealth – Patented flame resistant technology, engineered with near infrared & durable water repellency.

2012 Burlington® patents Sigma 4-Star, a flame resistant fabric made from a proprietary four fiber blend.

Burlington® becomes a bluesign® system partner.

2014 Burlington® patents PBI Max, a fiber yarn technology providing the strongest fire-service outer shell fabric

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

2015 MCS® AC is launched. Advanced active cooling through moisture activation.

New Partnerships:

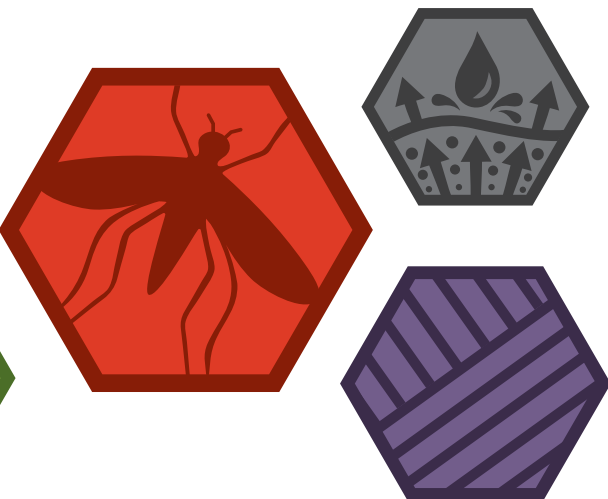
Exclusive woven partner working with Thread™ International, recycled 100% polyester and poly fabric blends.

PurThread Technologies provides embedded antimicrobial and anti-odor protection to fabrics through an EPA registered, non-nano ionic, silver salt.

Nester Hosiery launches No Fly Zone® in performance socks.

2016 The next generation of XALT™ is launched.

Burlington® engineers No Fly Zone® FR Workwear.





INSECT REPELLENCY



NO FLY ZONE®

Insect repellent technology that works as an odorless contact insecticide and repellent. It is effective against mosquitoes, ticks, ants, chiggers, flies and midges.



REPELLENCY



DUREPEL® ECO

A highly durable, environmentally engineered finish that provides water repellency free of fluorocarbon compounds.



DUREPEL® PLUS

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



INVISIBLE BARRIER™

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



RAEPEL™

Liquid and stain repellency engineered for the uniform market to be durable to both dry-cleaning and home-laundry.



WATERPROOF BREATHABLE



XALT™

XALT™ GS (Garment System) is a matrix of the typical soft-shell and hard-shell garments, taking the best components of each, while using an invisible barrier seam structure. This revolutionary seam technology is not exposed or traditionally taped, and utilizes innovative laminated fabrics to produce a highly engineered garment.

PERFORMANCE TECHNOLOGIES



ANTIMICROBIAL



BIOGUARD®

Minimizes odor, provides hygienic freshness, maintains the ecological balance and prevents the deterioration and discoloration of fabrics

Four Technologies Utilized:

- Zinc
- Silver
- Silane Based Quaternary Ammonium
- Microban



MOISTURE CONTROL SYSTEM®



MCS® ACTIVE COOLING

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



MCS® ADAPTIVE

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



MCS® BLOCKER

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



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.



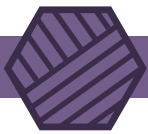
MCS® MOISTURE CONTROL SYSTEM

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



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.



FIBER & YARN TECHNOLOGIES

REPREVE®

REPREVE®

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

ECO CIRCLE™

ECO 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.

SEAQUAL™

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.

PURTHREAD®

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.

37.5™

PURTHREAD®

Using patent-pending, next generation technology, PurThread improves on existing antimicrobial textile solutions by embedding EPA registered, non-nano silver salts into fibers at the molten stage of production yielding unsurpassed efficacy, durability and versatility to textile product designers and manufacturers.

37.5™

A technology that uses millions of active particles to capture and release moisture vapor - helping you zone in on a personal microclimate of ideal relative humidity and core body temperature for maximum performance.

SYNATURAL™ COOL

SYNATURAL™ COOL

A permanent, high performance polyester fiber technology utilizing a cross sectional fiber that speeds up moisture adsorption and diffusion. Synatural™ Cool fabrics are comfortable, soft, dry and breathable.

WeatherMAX®
What Fabric Can Do™

WEATHERMAX®

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

PERFORMANCE TECHNOLOGIES

easyWOOL™

EASYWOOL™

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

CORDURA®
combat wool™
F A B R I C

COMBAT WOOL™

Merino Wool and CORDURA® nylon are combined to produce a fabric that offers the comfort, aesthetics and performance of wool with the strength and durability of nylon.



FIRE PROTECTION



PBI MAX™

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



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.



BODYSHIELD®

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



CONTAMINATION CONTROL



MAXIMA®

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



C CLASS™

High performance, reusable contamination control fabrics, that are engineered for cleanroom manufacturing environments. These non-linting particle contamination barrier fabrics also offer a high degree of surface resistivity and static decay protection.



XALT™ HC

Provides protection against both viral and synthetic blood penetration.

INNOVATION & TECHNOLOGY PROVIDER

Burlington® Labs is a world leader in providing a continuous stream of innovation and technology to our customers. With 15 laboratories throughout our organization, we have the capability to ensure that your products meet/exceed the level of performance required. Our labs offer capabilities that differentiate us in various technical markets.

TESTING CAPABILITIES

Performance Wear

- UPF
- Air permeability
- Hydrostatic
- Hydrophilicity
- Breathability

Medical Barrier

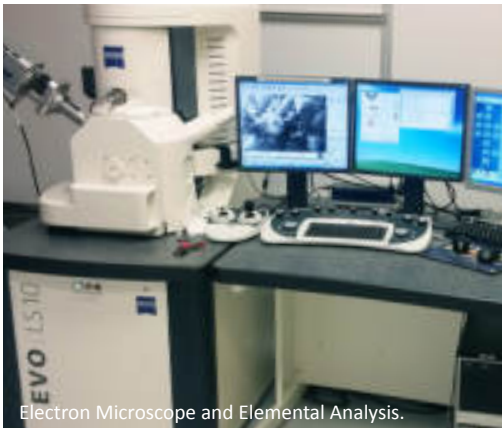
- Hydrostatic
- Impact penetration
- Spray
- Actual industrial laundering
- Actual autoclave sterilization
- Durability processing capability

Microelectronics & Pharmaceutical

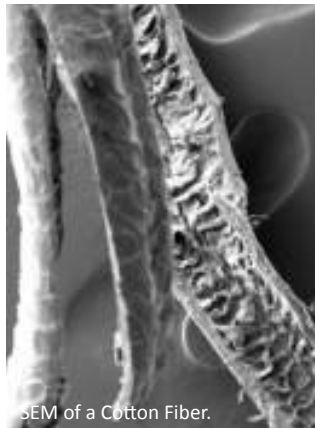
- Cleanroom laundry
- Helmke drum
- Body box
- Pore size
- Static decay
- Surface resistivity

Military/Uniform

- Flame resistance
- Wind resistance
- Dynamic absorption
- Chemical penetration tests
- High visibility
- Ewing washer



Electron Microscope and Elemental Analysis.



SEM of a Cotton Fiber.



Break-Open Resistance to Flame.

Worsted Apparel

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

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

Fire Service

- Utilizing inherent flame resistant fibers and blends
- Optimizing yarns and fabric constructions
- Engineered for maximum thermal protection, performance and comfort
- Flame resistance, durability tensile and tear strength

Contract Fabrics

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

Analytical & Fabric Analysis

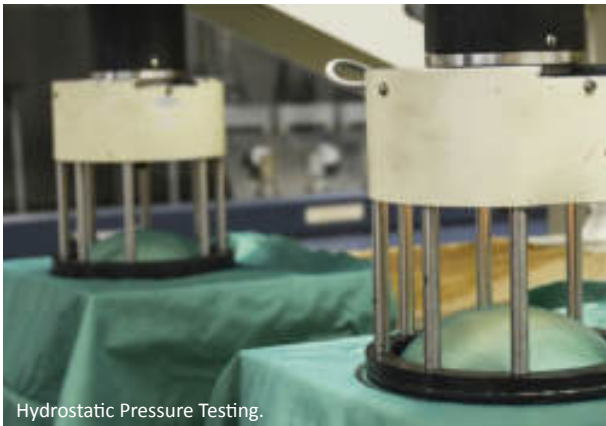
- Electron and optical microscopy
- Thermal analysis
- Liquid chromatography
- Fiber ID
- Cross sectional analysis
- Yarn twist and construction

Printing

- Various blends of cotton, polyester, nylon, acrylic, and aramids
- 16 color capability
- A leader of patented near infrared technology (nIR)
- Capability to produce reflective separations through the shortwave infrared (SWIR) range of the spectrum
- US and global military pattern capability

Air Bag/Aerospace/Industrial

- Utilizes various international standards
- High pressure air permeability under dynamic and static conditions
- Air retention for coated products



Hydrostatic Pressure Testing.



ISO Class 2 Cleanroom.

PARTNERSHIPS



The Jiaxing Burlington® Textile Co., our overseas synthetic manufacturing facility, is certified as a bluesign® system partner. The bluesign® standards is a comprehensive Input Stream Management System that covers all environmental, health and safety aspects along the textile manufacturing chain. Burlington® fabrics that carry the bluesign® approved fabric label meet this strict criteria and are certified as using bluesign® approved dyes, chemicals and raw materials.



Burlington® has partnered with Gateway University Research Park in Greensboro, NC. This novel joint venture between NC A&T and UNCG is designed to facilitate collaborations between world-class researchers and businesses and to move scientific discoveries from the lab to the marketplace. Our partnership with Gateway allows us the ability to access advanced facilities and tools while collaborating with world-class faculty.

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

- BSL-3 Nanobiology cleanroom
- Nanobiophysics
- Nanochemistry

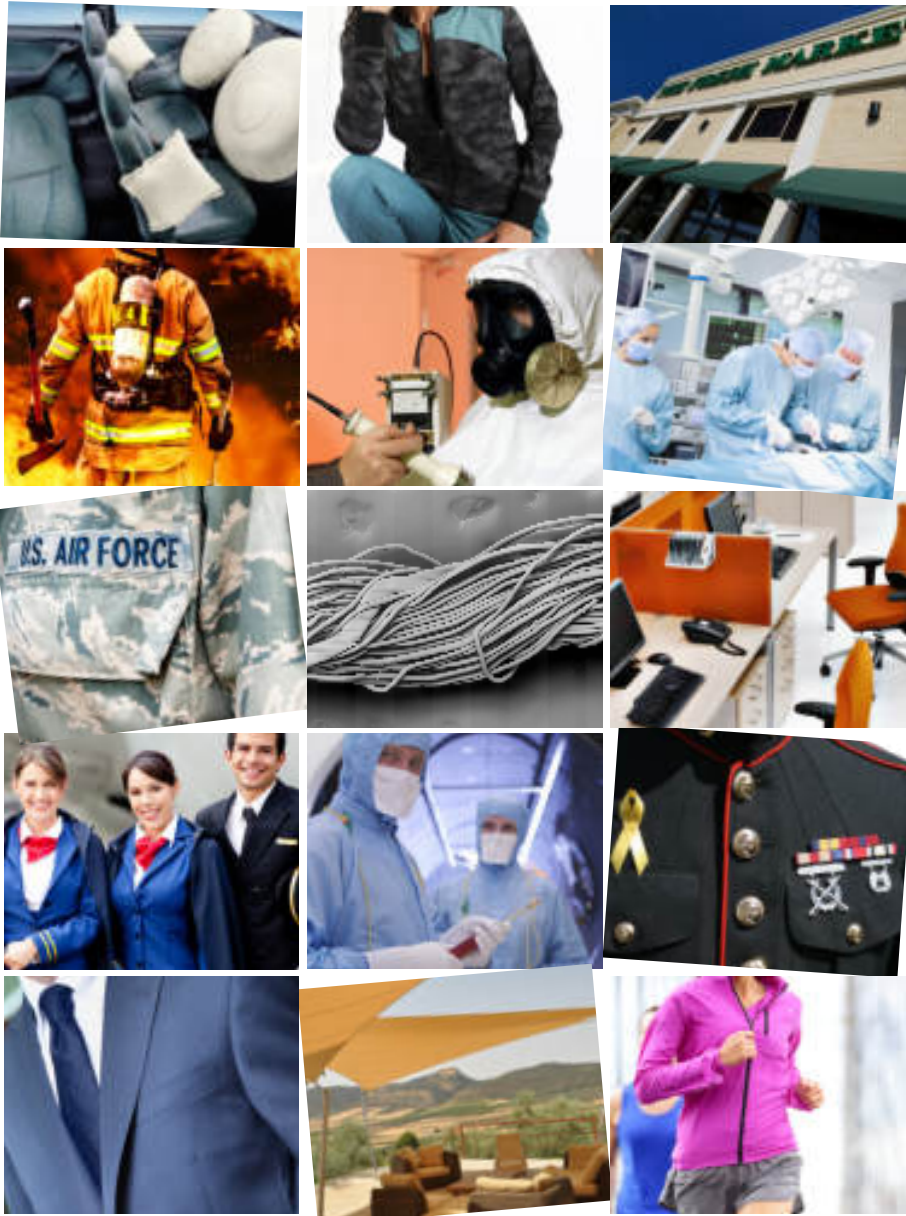
- **Characterization and analytical instruments including:**

- 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**

What can our fabric do for you?



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.



 **Burlington**[®]

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MCS[®], No Fly Zone[®], Durepel[®], Invisible Barrier[™],
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