Textile Effects

Professional Protection and Comfort

Integrated solutions for workwear and personal protection equipment
Personal protective textiles, workwear for many, are protective garments designed to protect the wearer’s body from injury for job-related occupational safety and health purposes. The needs of this market are clearly defined, as first and foremost they must meet stringent standards legally, and also meet industry specific protection levels. Over and above that, the market requirements revolve around cost effective performance such as function, comfort and durability as well as the need for reliability and sustainability.

Professional Protection and Comfort

Providing the right protection for people who serve the community is imperative. Protective garments have complex requirements and need both the right mix of products and the right processes for them to function effectively. Huntsman Textile Effects has the competence, know-how and ideal mix to provide the ultimate in protective gear. Our focus is on providing customers with cost-effective sustainable innovations that deliver what they promise.

The ultimate combination of Protection, Durability and Comfort

For those in need of protective wear, a combination of performance requirements is essential. These garments are worn in and sometimes subjected to extreme situations that require the wearer to be comfortable to perform his/her duties optimally and have the reassurance that the effects are reliable and lasting. The three pillars of protective clothing are:

PROFESSIONAL PROTECTION
- Water, dirt, oil and chemicals
- Fire and heat
- Rain and foul weather
- Abrasion
- Visibility
- UV radiation
- Electrostatic discharge
- Ballistics

Against numerous hazards

ARTICLE DURABILITY
- Pretreatment
- Dyeing solutions

Ensuring best processes and high wash and light fastness

COMFORT AND PERFORMANCE
- Softness
- Moisture management
- Easy care
- Freshness

Effects that enhance the wearing experience
Keeping it clean –
Oil, water and stain protection with best fluorocarbon repellants,
OLEOPHOBOL®, PHOBOTEX® and PHOBOL® ranges

The Smart Protect System (SPS) for customized oil, water and stain protection is the result
of a long-standing successful alliance between Huntsman and DuPont.

- Next generation repellent and soil release finishes deliver maximum performance with
  a minimal environmental footprint
- Based on short-chain chemistry (C6) it provides a step-change reduction in trace
  impurities below the limit of detection without compromising fluorine efficiency

Saving lives with ballistic innovations!

Bulletproof vests are made of a large number of para-aramid fabric layers which prevent
projectiles and fragments from penetrating. In order to achieve high quality and
reproducible effects, optimum finishing is a necessary prerequisite.

- With OLEOPHOBOL®, water absorption is considerably reduced for permanent
  protection through a high ballistic resistance of the wet fabric
Professional Protection

Preventing heat damage with PYROVATEX® flame retardants, the protection you need, the comfort you want!

- Maximum flame and heat protection with unsurpassed comfort
- Treated fabrics do not shrink and will not melt in the presence of heat and flames affording excellent thermal protection
- Outstanding durability to wash and wear
- Fabrics treated with PYROVATEX® maintain their original softness
- Perfect compatibility with other treatments especially barrier effects against water, oil and dirt

Putting people in the right light – high visibility thanks to TERASIL® FF

TERASIL® FF fluorescent disperse dyes provide "luminous" solutions to achieve high visibility performance on PES fabrics and their blends.

- High quality disperse dyes
- Flexibility to choose either exhaust or continuous dyeing
- A wide color choice that spans the shade gamut
- Fluorescent brilliance does not fade thanks to excellent wash and light fastness

Skin care you can wear – High IQ® Sun Protection

Fabrics treated with High IQ® Sun Protection have a built in protection to the sun’s powerful UV rays.

- Ultraviolet Protection Factor (UPF) from 20 to 50, with guaranteed excellent brightness and heat reduction performance
- The integrated ultraviolet skin protection finish is built to last for the lifetime of a garment
- High efficiency in both the UV-A and the UV-B range, ensuring maximum protection against harmful radiation from the sun
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- Thermal Risks
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- Metal splashes
- Electric arc

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  - NFPA 2112: 2007
  - ASTM F 2733: 2009

- Technical profile:
  - Flame and heat protection
    - PYROVATEX®
  - Repellent effects
    - OLEOPHOBOL® / PHOBOTEX® / PHOBOL®
  - Dimension stability and easy care function
    - KNITTEX®
  - Freshness and odor control
    - INVASAN®

- Prime range:
  - Dyeing for highest fastness levels
    - NOVASOL® vat dyes + TERASIL® W and WW disperse dyes
  - Wearing comfort
    - ULTRATEX®, MEGASOFT®, ULTRAPHIL®
  - Durability of the garment
    - TURPEX®, DICRYLAN®

- Differentiating range:
  - Chemical repel
    - OLEOPHOBOL® / PHOBOTEX® / PHOBOL®
  - Protective coating
    - DICRYLAN®
  - Cold flexible protective coating
    - DICRYLAN®
  - High visibility dyes for PES
    - TERASIL® FF
  - Flame retardant
    - PYROVATEX®
  - Fluorine free water repellent
    - PHOBOL®
  - Double side effect
    - HIGH IQ® Active Comfort
  - Freshness
    - INVASAN®
The ultimate colors and effects!

Getting the right shades with superior all-round fastness in this rough and tough trade as well as combining that with protective effects, especially the flame retardants (FR), is an essential requirement for this market segment.

The dye ranges that make it possible:

**NOVASOL® – premium vat dyes**
- Highest fastness in all applications and across the widest color spectrum
- Exemplary in their durability under sometimes extreme conditions
- Compatibility with a whole range of effects from protective to retardants and repellants

**TERASIL® W, WW – disperse dyes for PES**
- Simple and reliable process
- A wide range of colors in very good quality
- Fastness that meets the highest requirements
- Superior reproducibility and excellent build-up means minimal fiber damage, fewer complaints and higher profits

**MAXILON® – for dyeing of meta-aramid and modacrylic FR fibers**
- Wide shade range, brilliant to dull
- Compact range for discontinuous application
- High wet fastness properties

**NOVACRON® – reactive dye range for cotton**
Textile mills appreciate NOVACRON® dyes for their efficiency, for optimizing production costs, significantly reducing reprocessing and effectively enhancing the quality of fabrics.
- NOVACRON® NC for pale shades
- NOVACRON® C for medium shades
- NOVACRON® S for deep shades
- NOVACRON® P for special requirements

**AVITERA® SE – the revolution in reactive dyeing for cotton**
A revolutionary new innovation is a range of tri-reactive dyes for exhaust application on cellulosic fibers. AVITERA® SE dyes are unique, combining new standards of environmental sustainability with top-quality results achieved within the shortest time.
- 50% and more water and energy savings
- Highest reproducibility and shortest time
- Minimize processing costs – raise profitability
- Increase productivity without additional capital
Comfort and Performance

Comfort is mandatory for all those who need protective wear. And, built-in aesthetic effects enhance the performance not only of the garment but also of the wearer.

Silicone enhanced softness with ULTRATEX® and MEGASOFT®

ULTRATEX® SI, FMW and FMI are amino-functional silicone microemulsions that impart high softness and surface smoothness.

- Enhance the overall easy-care properties of woven fabrics
- Reduction in frictional properties for improved sewability during garment manufacture, decreasing the risk of needle damage and hole formation
- Excellent cost / performance ratio

MEGASOFT® CEC softener imparts the typical surface smoothness and drape conferred by polydimeyl siloxane, combined with the high bulk imparted by fatty-acid amides.

- Cold water-dilutable, applied via padding, kiss roll, or dip-spin application methods
- Can be applied together with typical cellulose fiber cross-linking agents and catalysts
- Enhances the overall easy-care properties by ensuring that the physical properties of the treated fabric after chemical cross-linking are retained
- Improves the fabric tear strength and burst strength after cross-linking for better fabric sewability
Comfort and Performance

HIGH IQ® – The brand that inspires confidence

HIGH IQ® Active Comfort™
STAY DRY, KEEP COOL
a cool solution for the active and provides much more comfort during wear
- Spotless on the outside, dry on the inside
- Feel cool
- For a lasting active work-style
The outer surface of the fabric is treated with a hydrophobic finish, making it stain and water-repellent. The hydrophilic inner surface promotes absorbency and distribution of perspiration, which will not be visible on the outside.

HIGH IQ® Cool Comfort
STAY DRY, KEEP COOL
with moisture management finish
- Allows the garment to breathe while transporting moisture away from the body
- Synthetic fibers achieve the breathability and comfort of cotton
- The quick dry reduces post-effort chill leaving the wearer feeling cool and dry

HIGH IQ® Easy Care Plus
WASH AND WEAR SECOND TO NONE
with wrinkle-free, non-iron finish
- Optimized wrinkle-free technology for better crease recovery
- Innovative technology (MXL) for pure cotton garments with minimum shrinkage
- Wrinkle resistance with minimum strength loss and optimum non-iron properties
- A super-soft handle

HIGH IQ® Dry and Clean Comfort
RAIN OR SHINE—CLOTHES STAY FINE
with soil and water protection
- Special waterproof finish provides the garment with a barrier effect, repelling liquids, which simply peel off
- Lasting performance wash after wash
- Protective effect, soft hand, enhancing comfort in wear

HIGH IQ® Active Freshness
KEEPING COOL IN ACTION
with antimicrobial protection
Harnesses the natural, long-lasting antimicrobial properties to maintain the skin’s balance and prevent odors from developing on the fabric through perspiration.
- Integrated antimicrobial deodorant properties
- Confident comfort
- Lasting performance wash after wash

Our world-class product stewardship supports full compliance with norms and legislation and meets the most stringent standards of sustainability. Huntsman Textile Effects sets environment, health and safety (EHS) as its first priority.

- First dyer maker worldwide to operate plants to ISO 14001 with all plants operated to the same global EHS standard
- Founding member of bluesign
- Member of ETAD/TEGEWA
- Pioneers in getting GOTS approval
- Subscribe to Responsible Care
- A dedicated expert team to ensure REACH implementation

Seriously sustainable
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