

PRIMARY EFFECT	Thermal Protection		Prime Range	Vital Protection		Everyday Protection			
	Heat and Flame	Metal Splashes		Workwear	Fire fighter	Upholstery	Curtains & Drapes	Mattress	Bedding Items
Hygiene & Barrier Effects	Stain Protection	Medical Protection	Fluorine free water repel PHOBOTEK®/ZELAN™	EN ISO 4920 : 2012 AATCC 22 : 2017 Spray test	EN ISO 811 : 2018 Hydrostatic pressure	EN ISO 4920 : 2012 AATCC 22 : 2017 Spray test	AATCC 130 Stain Release		
	Medical Protection	Barrier Effects PHOBOL®	Barrier Effects PHOBOL®	AATCC 42 : 2017 Spray Impact test	AATCC 127 : 2018 EN ISO 811 : 2018 Hydrostatic pressure	AATCC 35 : 2018 Rain test			
Environmental Protection	Cold	Rain / foul weather	Body Odor Protection Antimicro-bials	EN ISO 4920 : 2012 AATCC 22 : 2017	JIS L 1902 : 2015 ISO 20743 : 2013	EN ISO 4920 : 2012 AATCC 35 : 2018			
	High Visibility	Cold flexible protective coating DICRYLAN® / PHOBOL®	Sun	EN ISO 20471 : 2016	EN 13758-1-2 : 2007	EN ISO 4920 : 2012 AATCC 22 : 2017			
Chemical Protection	Acid + alkali repell	PHOBOL® / PHOBOTEK® / ZELAN™	Artistic	EN 13034 : 2009 14325 : 2018	EN 13758-1-2 : 2007	EN 13034 : 2009 14325 : 2018			
	Electric Arc	PHOBOL® / PHOBOTEK® / ZELAN™	Solvent Repelecy	EN 61482-1-2 : 2014	ASTM F 1959 : 2014	EN 61482-1-2 : 2014			
Sun	UV-SUN™	Standard : EN 1149	AS 4399 : 2020	EN 13758-1-2 : 2007	ASTM D 6603 : 2019	AS 4399 : 2020			
	High Visibility Dyes for PES TERASIL® FF	High visibility protective coating DICRYLAN® / PHOBOL®	EN 29865 : 1993 AATCC 35 : 2018	EN ISO 4920 : 2012 AATCC 22 : 2017	EN 343 : 2019	EN ISO 4920 : 2012 AATCC 22 : 2017			
Welding	EN ISO 11611 : 2015	EN ISO 11612 : 2015	EN 469 : 2020	ASTM F 2733 : 2021	ISO 9185 : 2007	EN 1021-1-2 : 2014	BS 5867-2 : 2008 EN 13773 : 2003	EN 597-1-2 : 2016 BS 7177 : 2008	EN ISO 12952 : 2012 BS 7175 : 1998
	EN 61482-1-2 : 2014	ASTM F 1959 : 2014	NFPA 70E : 2021						
NTPA	1992 : 2018								
ASTM F 1680 : 2017	ISO 16603 : 2004 ISO 16604 : 2004	ASTM E 2149 : 2020	AS 4399 : 2020	EN 13758-1-2 : 2007	ASTM D 6603 : 2019	AS 4399 : 2020			
	ASTM F 1680 : 2017 ISO 16603 : 2004 ISO 16604 : 2004	ASTM E 2149 : 2020	AS 4399 : 2020	EN 13758-1-2 : 2007	ASTM D 6603 : 2019	AS 4399 : 2020			
ISO 17299-2	ISO 17299-3	ISO 17299-2	ISO 17299-3	ISO 17299-2	ISO 17299-3	ISO 17299-2			
	ISO 17299-3	ISO 17299-2	ISO 17299-3	ISO 17299-2	ISO 17299-3	ISO 17299-2			
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**HUNTSMAN**

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Textile Effects

# Protection Effects

Performance and Protection. **Every day. Any wear.**



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**At Huntsman Textile Effects, environment, health and safety (EHS) is a top priority. We are known for world-class product stewardship that supports full compliance with regulations and voluntary schemes. Thanks to our longstanding commitment to R&D, EHS and compliance, we can help you stay ahead of the latest requirements, including bluesign®, ZDHC, GOTS and Standard 100 by OEKO-TEX®.**

- First dye maker worldwide to operate its plants under global EHS and ISO 14001 quality management standards
- bluesign® system partner
- Contributor to the ZDHC Roadmap to Zero Program
- Member of ETAD and TEGEWA
- Pioneer in achieving GOTS approval for products
- Provides a dedicated team of experts to ensure REACH implementation



**Providing the right protection for professionals who serve the community is imperative. Technical textiles used for protection have complex requirements. To function effectively, they need both the right mix of products and the right processes. Huntsman Textile Effects brings the competence, know-how and products to provide unparalleled performance in protective gear. Our focus is on providing customers with cost-effective and sustainable innovations that deliver what they promise.**

#### PROFESSIONAL PROTECTION THAT LASTS

Protective wear must keep the wearer both safe and comfortable while performing their duties in extreme situations. This calls for a combination of performance requirements.

	<b>Chemical Protection</b> <i>Putting protection into textiles</i>	Protective clothing for the chemical industry has to be resistant to acids, alkalis and solvents. The range of PHOBOL® repellents meets these stringent requirements.
	<b>Fire Damage Prevention</b> <i>Life-saving protection and comfort</i>	Protective wear for high-risk professions can be treated with PYROVATEX® flame retardants to prevent fire damage while retaining the original fabric's softness.
	<b>Ballistic Performance Upgrades</b> <i>Saving lives with innovation</i>	Bulletproof and safety equipment made of para-aramid fabric are less effective when wet. PHOBOL® water repellent is recommended for this critical application.
	<b>High Visibility Shades</b> <i>Putting people in the right light</i>	TERASIL® FF fluorescent disperse dyes deliver the luminosity needed to meet high-visibility performance standards on polyester and its blends.
	<b>Barrier Effects</b> <i>Protecting those who protect us</i>	The range of PHOBOL® water, alcohol and blood repellent effects, supported by Scieissant's bioactive AGION® microbial, offers the highest levels of protection for front-line medical workers.

#### DURABILITY WHEN YOU NEED IT MOST

Getting the right shades and superior all-round fastness in combination with protective finishes, such as flame retardants (FR), is essential in this rough and tough market segment.

<b>Cellulosic Fibers</b> <i>Premium vat dyes</i>	NOVASOL® vat dyes ensure the highest fastness levels with exceptional durability under extreme conditions. They are also very compatible with a wide range of finishings.
<b>Cellulosic Fibers</b> <i>Reactive dyes</i>	NOVACRON® reactive dyes are renowned for their efficiency and fastness. Textile mills appreciate the optimized production costs, significantly reduced reprocessing and enhanced fabric quality.
<b>Cellulosic Fibers and Blends</b> <i>Sustainable reactive dyes</i>	The unique range of revolutionary AVITERA® SE tri-reactive dyes for cotton and other cellulosic fibers adds new standards of environmental sustainability to top-quality results.
<b>Meta-aramid and Modacrylic FR Fibers</b> <i>Cationic dyes</i>	MAXILON® cationic dyes provide a wide range of shades from brilliant to dull. This compact range is also suitable for discontinuous applications with exceptional wet fastness properties.

#### HIGH PERFORMANCE PROCESSING AT ITS BEST

Complete your end-to-end solution for protection effects with our high-performance pretreatment, dyeing and finishing products. When used together, these compatible products offer synergies that make the manufacturing process more efficient and enhance the protection qualities of the end-use article.

<b>Pretreatment</b> <i>SYN PREP concept</i>	Pretreatment is a prerequisite for high-performance synthetic finishing. Our SYN PREP concept delivers sustainable and worry-free preparation of fabrics for high-performance finishing.
<b>Dyeing</b> <i>PES Save concept</i>	Our highly efficient polyester dyeing system enables pre-scouring, dyeing and reduction clearing in one bath, helping mills achieve considerable savings in water, energy and time.
<b>Finishing</b> <i>Static-free production</i>	ZEROSTAT® antistatic agents reduce fabric processing issues, especially in cutting and sewing, by allowing easier laying, separation and manipulation of multiple fabric layers.



**Complete end-to-end solutions for high-performance protection.**

#### LASTING COLORS AND COLOR BLOCKING FOR ENDURING GOOD LOOKS

With longer-lasting colors that won't fade or bleed, our coloration technology keeps your apparel and its wearers looking at their best.

<b>Polyester Fibers and Blends</b> <i>Wash-fast dyes</i>	TERASIL® W and WW dyes offer high wet-fastness performance at up to 95°C wash temperatures for best-in-class home laundering, no color bleeding, and consistent dye take-up on polycotton blends.
<b>Cellulosic Fibers and Blends</b> <i>Sustainable reactive dyes</i>	AVITERA® SE is a unique range of revolutionary tri-reactive dyes for cotton and other cellulosic fibers, adding new standards of environmental sustainability to top-quality results.
<b>Cellulosic Fibers</b> <i>Reactive dyes</i>	NOVACRON® reactive dyes are renowned for their efficiency and fastness. Textile mills appreciate the optimized production costs, significantly reduced reprocessing and enhanced fabric quality.
<b>Polyamide Fibers and Blends</b> <i>Color blocking reactive dyes</i>	ERIOFAST® dyes deliver intense brilliant and deep shades with the highest wet-fastness, enabling dramatic swimwear and sportswear designs.

#### COMFORT AND PERFORMANCE WHEN IT COUNTS THE MOST

Experience the added comfort that only our high-performance finishing chemicals can bring to help you stand out in your market.

<b>Cool Comfort</b> <i>No sweat; keep cool</i>	ULTRAPHIL® finishings accelerate the rate of sweat evaporation without impairing fabric breathability, delivering improved comfort even during vigorous activity.
<b>Easy Care</b> <i>Look smart; feel smart 24/7</i>	Delivering wrinkle-free good looks right out of the dryer, our innovative, high-performing KNITTEX® moist-cure textile finish creates garments that look smart all day, day after day.
<b>Silicone Softeners</b> <i>Feel freedom; enjoy comfort</i>	ULTRATEX® and MEGASOFT® softeners provide enhanced comfort with built-in aesthetic effects, improving both the garment and the wearer's performance.
<b>Odor Control Solutions</b> <i>Start fresh; finish fresh</i>	Scieissant's next-generation LAVA® self-regenerating, non-bioactive odor control solution that provides unparalleled performance in even the most challenging sportswear applications.



**When it comes to life's daily challenges – from food spills to extreme weather – we have a solution for every need. Huntsman Textile Effects brings you years of experience and industry knowledge and an unrivalled portfolio of high-performance protection effects. With multiple solutions that combine to meet every level of protection without compromising on comfort, you benefit from high-performance innovations that deliver sustainability and differentiation.**

#### EVERYDAY PROTECTION YOU CAN COUNT ON

With a full range of reliable and long-lasting protection effects, we help you offer solutions for daily challenges, from the school yard to the ski slope, beach and beyond.

	<b>Stain Protection</b> <i>Intelligent stain management</i>	The comprehensive ranges of PHOBOTEX® and ZELAN™ advanced fluorine-free solutions, developed specifically to protect a wide range of textile end-uses against everyday stains. PHOBOTEX® repellent is part of the HIGH IQ® Repel program.
	<b>Extreme Weather Protection</b> <i>Protection against the elements</i>	ZELAN™ and PHOBOTEX® durable water repellents help mills meet varying levels of repellency for different outdoor end-uses, providing protection against wind, rain or snow.
	<b>Antimicrobial Solutions</b> <i>Smart antimicrobial technology</i>	Scieissant's industry-leading AGION® solutions release their active silver ions only when needed to deliver outstanding antimicrobial performance and unmatched durability.
	<b>Sun Protection</b> <i>Skin care you can wear</i>	Garments treated with finishes from the HIGH IQ® Sun Protect assurance program provide the wearer with a high level of lasting protection from the sun's harmful rays, without compromising on comfort or aesthetics.
	<b>Flame Retardants</b> <i>Reliable protection for the home</i>	Developed for washable and non-washable articles respectively, our ranges of PYROVATEX® and FLOVAN® flame retardants add another dimension of protection to home textiles.