

Technical Absorbents

The Absorbent Solutions Provider



*A world of excellence in
super absorbent product solutions*



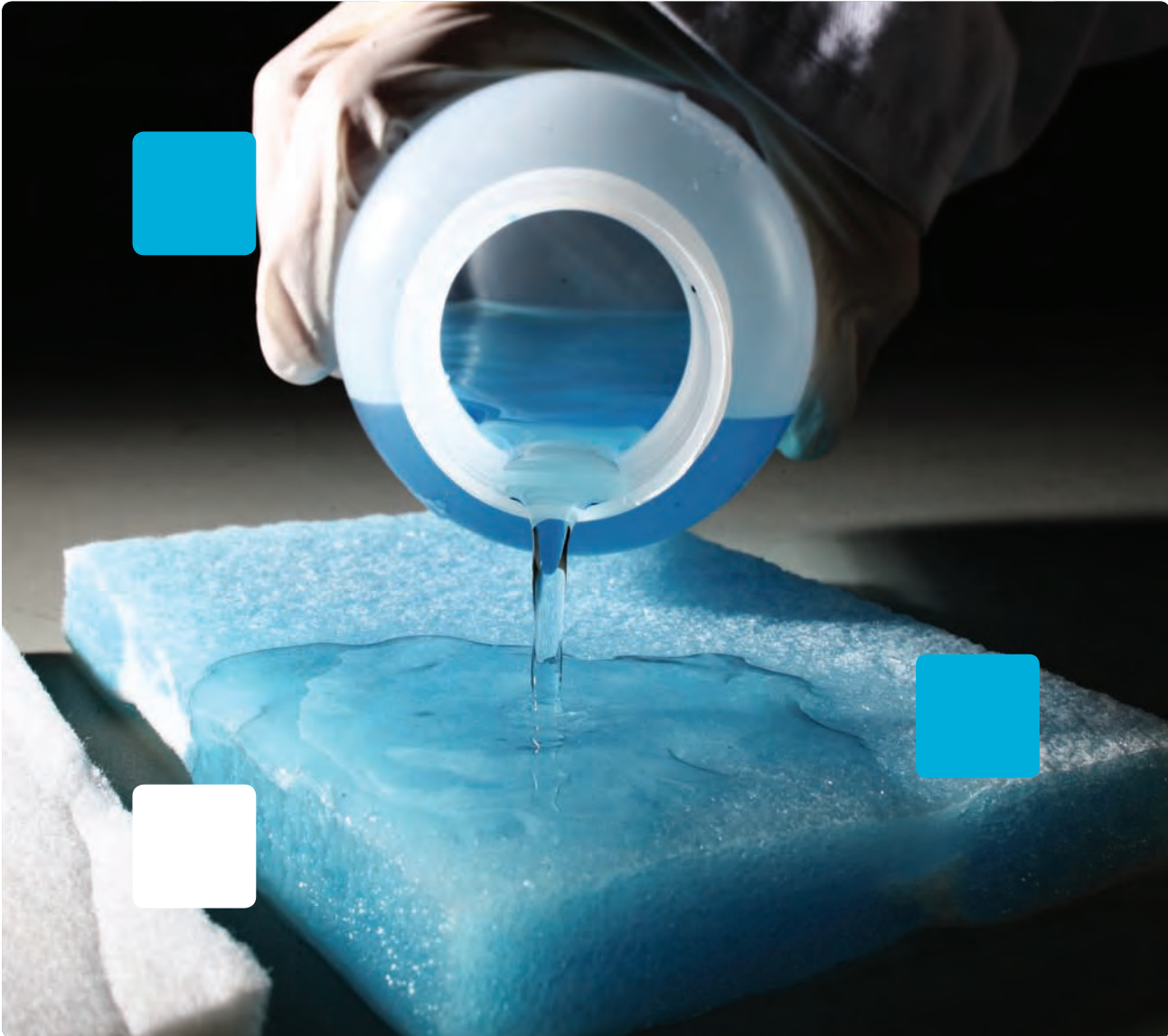


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When performance matters...

At Technical Absorbents Limited (TAL) we are proud to have offered world class levels of innovation, development and supply of Super Absorbent Fibre (SAF), converted nonwovens, wovens, yarns and tapes for over 20 years. Our fibrous super absorbent technology is used in a wide range of applications which demand versatility, consistency and exacting levels of absorption performance. From advanced wound care dressings and nonwoven filtration media, to agrotextiles and fabrics for performance apparel, we have a portfolio of solutions to meet a wide array of requirements across a diverse range of markets and applications.

Since inception in 1993, TAL has endeavoured to achieve excellence throughout every aspect of the business. This has been recognized externally with ISO 9001 Quality Management System, ISO 140001 Environmental Management System and OHSAS 18001 Occupational Health and Safety Management accreditations. Through continual investment in its core technology, and commitment to providing unsurpassed levels of customer service and development support, TAL will continue to be the partner of choice for companies requiring excellence in their supply of super absorbent product solutions.



At the heart of our super absorbent solutions business, is our Super Absorbent Fibre (SAF). This is manufactured using the latest state-of-the-art production methods and control protocols. As a result, we are able to offer our loyal customer base a wide range of extremely high performing and versatile SAF grades. Each grade has its own unique features and characteristics, resulting in different levels of absorption performance and conversion suitability.

The core technology...

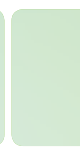
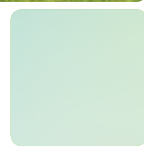
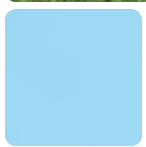
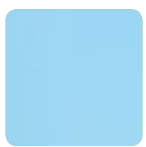
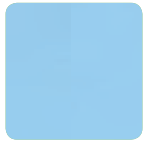
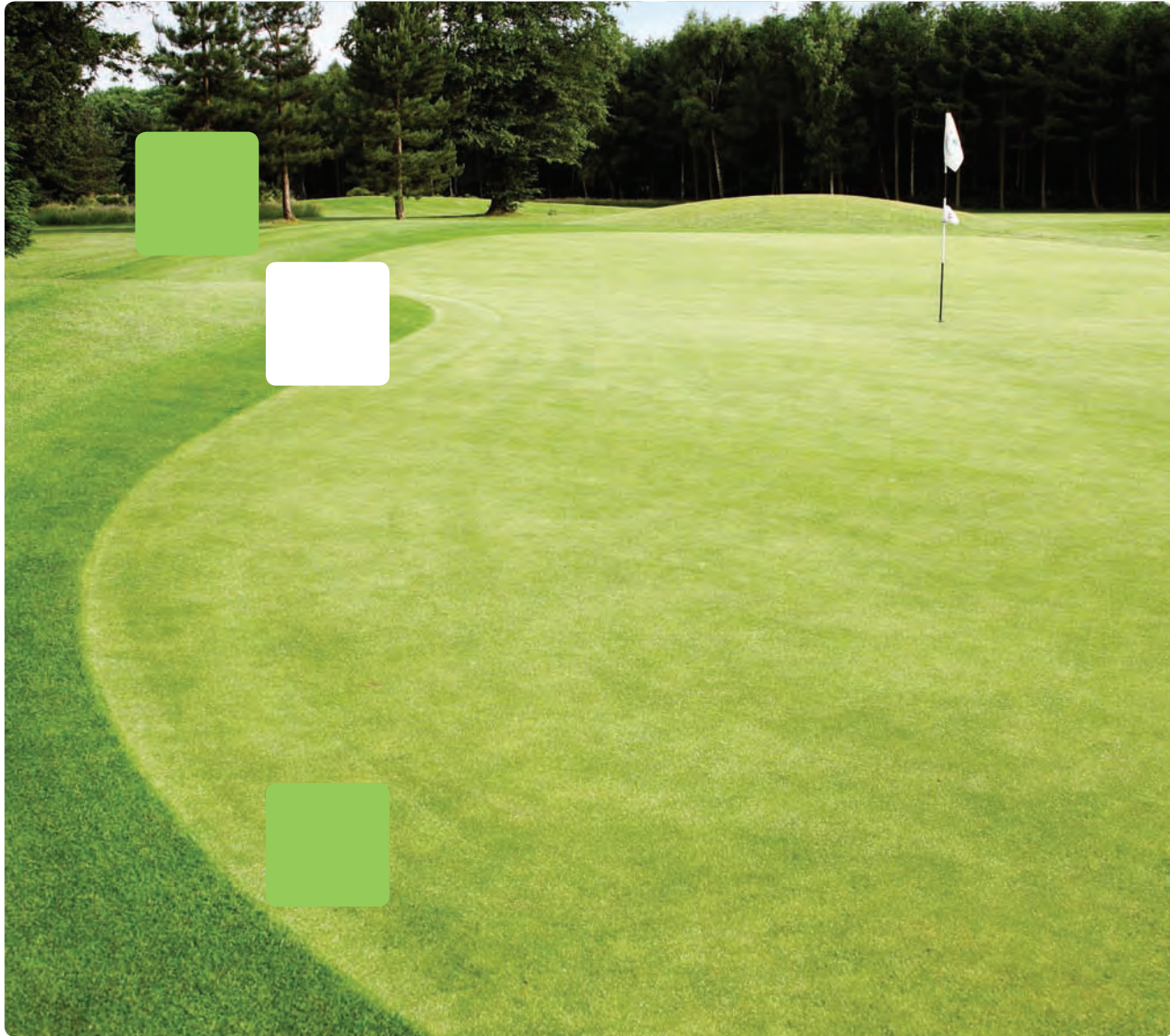
In addition to our SAF product range, we have also established a network of specialist fibre converters, roll-goods and end product manufacturers. This allows us to offer a portfolio of SAF-containing nonwovens, wovens, yarns and tapes, for those customers unable to process fibre. Bespoke solutions can also be tailored to meet exacting specifications if required. It is this level of versatility and expertise that has made TAL renowned within the industry and its reputation continues to go from strength-to-strength.

SAF facts...

- its levels of super absorbency are unsurpassed
- it is available in a wide range of highly absorbent grades
- its performance can be fine tuned
- it can be easily converted through existing nonwoven and textile routes
- it integrates extremely well into final fabric constructions
- it provides consistent levels of performance
- it is a non-irritant and can be used in applications demanding robust toxicological profiling
- it is FDA approved
- it doesn't melt, and withstands temperature to 200 °C

At present, SAF is already used in: water management agrotexiles; water-blocking geotextiles; water-swellaable yarns and tapes for cable applications; water/particulate removal nonwoven filtration media; nonwovens for disposable hygiene products; wound care dressings; absorbent pads for food packaging and sweat management fabrics for performance apparel. However, its potential is endless.

Our team of Technical and Applications Development Specialists have a wealth of experience and expertise in the super absorbents industry, and their understanding of technological innovation and product development is second-to-none. Whatever sector you're in, they will be happy to help create a solution that meets your requirements.





The innovative way to ensure optimal water and nutrient conditions...

Our Agrotas range of SAF and converted products allow you to achieve optimum nurturing and growth conditions whilst effectively reducing overall water usage. Our unique fibrous technology creates new possibilities for the development of fabrics that can be used as both temporary and long-term solutions, even in areas of low water availability. Such fabrics are designed to achieve highly controlled delivery of water and nutrients to root systems, whilst significantly reducing evaporative loss and water seepage. SAF can also be dosed directly to the soil.

The advantages of Agrotas...

- ease of handling and installation
- wide range of formats
- fabrics for short and long-term use
- new opportunities for crop development
- accurate, consistent nutrient distribution
- reduced re-watering periods
- enhanced crop establishment times

Application examples...

Liner fabrics

These tailored fabrics can be cut to shape and used to line the base of potted plants and hanging baskets, and can even be used in vertical gardens. They work by absorbing the necessary quantity of water which then provides an optimum moisture environment for growth. Using this technology can decrease water usage by up to 50% and significantly reduces the need for re-watering. Fertilizer can also be added to the water to aid the control of dosage levels.

Surface fabrics

Such fabrics are designed to be positioned around the plant on top of the soil. They offer additional benefits in reducing weed growth and improving the overall thermal regulation of the soil environment.

Ground fabrics

Durable fabrics developed to be buried below ground level. Studies have shown up to 30% annual reductions in water usage for large grassed areas. Such fabrics have been designed for ease of installation – typically 15-20 cm below the surface – and do not biodegrade or lose performance over the long-term. Modifications to the fabrics can be made, e.g. incorporating seeds and other growth factors, so that the ideal growing environment is available within a single format to which just water is added.



Cabletas

Optimum protection from water ingress

Our Cabletas range consists of SAF and converted spun yarns and tapes which provide the optimum moisture penetration barrier. This unique, dry active system completely prevents water passage along the cable from a joint or point of sheath damage. The yarn or tape will rapidly absorb the liquid at the point of entry and swell to form a gel, blocking any further water ingress or transportation of water. As a result, any damage is minimal, fully contained and easy to locate and repair. Such highly effective protection is easily achieved by integrating the technology into the cable during the manufacturing process.

The advantages of Cabletas...

- fast water absorption and gelling rates
- high absorption capacity and gel viscosity
- excellent long-term stability
- extreme temperature tolerance
- durability in harsh operating conditions
- easy cable installation and maintenance

Application examples...

Power cabling

Water-blocking is generally required only in medium and high voltage cables that use cross-linked polyethylene (XLPE) insulation. In copper cabling, water can ingress into the cable by diffusion through the outer polyethylene sheath. These cables are typically laid underground in areas likely to be damp and wet, so the risk is high. The presence of water will degrade signal strength due to capacitance changes.

Optical cabling

We achieve water-blocking protection of an optical cable core by surrounding it with a dry water-swellaable tape and/or yarn, that will stop entry and migration of water should the cables outer jacket be breached. This protective measure maintains the mechanical integrity of the cable itself, preventing ice crush from within the cable, fungus growth or corrosion of metallic cable members when present. The water-blocking protection is placed in the buffer tubes with the optical fibre during manufacture of the cable.







Consistently outstanding water and particulate removal



A significant reason for the majority of oil and fuel system failures is the presence of high water levels, in dispersed and free water form. Our Filtratas range of products allows you to achieve optimum levels of water and particulate removal in aviation and automotive fuels and a wide range of oils. SAF is the key component for a wide range of unique, enhanced nonwoven filter media fabrics. Such fabrics help eradicate the effects of water contamination in critical performance situations. Their versatility enables real cost savings over traditional cellulosic-based absorption media and offers full compliance potential to stringent international filtration standards – particularly in the aviation fuel and hydraulic oil markets.

The advantages of Filtratas...

- bespoke design for your application
- aviation, automotive and hydraulic applications
- industry leading dispersed and free water removal rates
- international compliance standards
- reduced contaminant damage to parts
- extended oil working life

Application examples...

Aviation fuel – monitor cartridges

SAF-based monitor cartridges incorporate a multi-layer nonwoven composite containing our fibrous technology structure. This has an MSEP Rating of (ASTM D3948) – >90 and is compliant to IP 1583 specifications. Such cartridges have been designed to reduce particulates to < 0.3 mg/litre of solids in effluent and reduce free and dispersed water to <5 ppm. The system flow is halted when the media is hit with a localised slug of water and a gel block is formed. Presence of water/solids in the incoming fuel gives rise to an increase in pressure differential, or a decrease in the flow rate, as the cartridges reach their maximum capacity for solids, water or a combination of both.

Automotive diesel – filter cartridges and spin on oil filter media

These filter cartridge systems are based on pleated particulate layers composited with a multi-layer SAF-based fabric, and have been designed to remove free and emulsified water to less than 2 ppm. They have high water absorbing capacity, and effectively filter silt and other particulates with no media migration or linting. In addition, the SAF component offers an antimicrobial function and does not affect oil additives.

Hydraulic oil – high bulk SAF-based nonwoven filter media

These filter media are designed to provide excellent particulate and water removal performance. As a result, they reduce oil mutagenicity and the risk of contaminant damage to parts, and machinery – thus extending the working life of the oil. They are combined with other synthetic filter elements within the main housing unit and can be used in both static and portable systems. Suitable for use with a wide range of oil types, including waste oils, they can remove dispersed and free water to <150ppm in minutes. Such filter systems can be by-pass or full-flow based.





Unparalleled long-term water-blocking performance

Our SAF technology is the key component in a range of geosynthetic membrane fabric technologies and is an ideal way of achieving water-blocking functionality for both short and long-term applications. It can be converted into a wide range of formats for use in a spectrum of industries requiring critical water sealant solutions. Such fabrics benefit from an even absorbency distribution profile and are designed to act as a complete water barrier. The fabrics work by absorbing water until the membrane swells. At a certain point, this then becomes an impermeable barrier to water, completely alleviating the problems of flooding and water seepage.

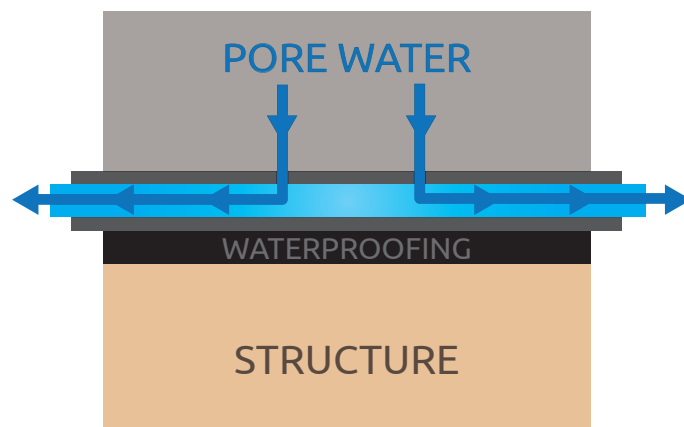
The advantages of Geotas...

- faster absorption and blocking rates
- easy, cost-effective manufacture
- lightweight, quick handling and installation
- complete self-sealing
- no additional edge protection or bonding
- less shedding and wastage
- substantial, compact membrane fabrics

Application examples...

Fabrics from our Geotas range have the ability to separate, filter, reinforce, protect and/or drain, and offer many advantages that are extremely important to demanding civil engineering projects. The fact that they can be supplied in rolls is also a huge benefit when being used on large-scale projects, including:

- *Deep construction insulations*
- *Tunnels*
- *Roads and motorway construction (sub-structures)*
- *Gaskets*
- *Rain water storage*
- *Reservoir sealing*
- *Building insulations.*







Ultimate super absorbency and personal confidence

Personal hygiene products – femme-pads, diapers and incontinence products are an important part of many peoples everyday life. It's essential that these absorbent products are completely comfortable, provide specific, consistent and effective levels of absorbency performance and are totally discreet. Our Hygitas range of SAF and converted nonwovens are the absorbent technology of choice for an array of such products. We can provide a wide range of fibre grades and fabrics, that offer unrivalled versatility and new product development opportunities when consistent absorption performance and media integrity are required - without the need for costly containment systems.

The advantages of Hygitas...

- solutions for feminine hygiene, diapers and adult incontinence
- fast, controlled absorbency
- the ultimate in user comfort
- performance for the heaviest demand
- competitive costs

Application examples....

Femme-hygiene

Our fibre is the super absorbent technology of choice for femme-hygiene products. The fact that it can be used for the production of extremely discreet end products makes it ideal for use in the fabric cores of ultra-thin product lines. This, coupled with low re-wet performance, provides improved user comfort levels, which is a significant purchase consideration in this sector.

Diapers

SAF offers the potential for enhanced and innovative new diaper design, removing the need for complex absorbent containment systems. SAF-integrated nonwoven fabric cores have been designed to provide overall reductions in raw material usage, thus resulting in less environmental impact when disposed. They also provide improved levels of softness and comfort.

Adult incontinence

Disposable incontinence products designed using a SAF-based nonwoven core are very discreet, yet still provide excellent absorption performance. Development projects are also being undertaken to establish a washable material for use in this sector.



Meditas



Optimising moist wound care treatment and recovery

Our SAF technology has been extensively developed for use in advanced moist wound care dressings. Once converted, the resulting versatile, consistently high performing fabrics provide a therapeutic effect and aid healing, especially when used in the treatment of chronic burns and wounds with high exudates. Rapid uptake and retention of exudates from an infected area facilitates the perfect environment for effective management and swift healing, by controlling moisture levels around the wound whilst preventing excess wetting. This is essential in creating an optimum environment to aid the healing process and prevent further bacterial growth. We are already actively engaged in intensive development, and creating solutions for this diverse and challenging market.

The advantages of Meditas...

- unique specifications for bespoke requirements
- easy integration into medical dressings
- unrivalled, consistent absorption
- total control of wound environment
- excellent patient comfort
- less frequent changing of wound dressings
- safe, non-irritant fabrics

Application examples...

Wound care

Selecting SAF as the absorption component affords significant benefits to medical device producers, patients and carers. Its fibrous form creates lightweight, soft and flexible fabrics. These offer precise absorbency control, fluid retention and porosity, with low dust and shedding performance. Enhanced absorption and retention levels also mean dressings need changing less frequently. Our medical fabrics are available in a wide range of formats and can also provide different levels of anti-microbial and anti-inflammatory performance.

Other

Our technology can be used in other medical-related products such as disposable mats for use in operating theatres. It can also be incorporated into diagnostic transportation solutions, such as packaging for medical testing kits and blood, and bodily-fluid testing materials. This ensures any potentially spilled fluid is locked away within the fabric for safe disposal.

Use in stoma care and transdermal applications are in development.





Maximising the condition and shelf-life of perishables

Our technology simply helps keep produce fresher for longer. Regulatory listed, SAF is the key component in a wide range of food contact exudates management fabrics, that effectively lock away loose liquids within their core. Such fabrics have substantive and even super absorbent distribution profiles, offering truly unparalleled levels of consistent absorption and retention performance. They are highly efficient for keeping meat, fish, poultry - and a whole range of other perishable foodstuffs - packaged in optimised conditions whilst both on and off the shelf.

The advantages of Packtas...

- United States FDA and EFSA listed for use in food-contact materials
- significant improvement of product shelf-life
- allows for constant, controlled temperature
- non-migratory properties allow fabrics to be cut and shaped

Application examples...

Fresh food packaging

Free exudates are one of the main problems with primary packaging of fresh produce. Traditionally, multiple plies of absorbent tissue were used in these applications and stitched laminated to a barrier film material. Although these products were effective and costs were low, they have limited absorbency capacity. They also delaminate when wet and have poor fluid retention.

An increasing global legislative requirement for the total containment of food exudates in pre-packaged foods, has led to more effective solutions being developed. Our technology is a major choice for food packagers looking to best contain liquid exudates within a super absorbent pad or wrap format.

Freeze packaging

SAF is a highly portable way to chill perishable goods. When wet and frozen, our fabrics incorporating this technology have the capability to significantly reduce surrounding temperatures for extended periods. When defrosted thoroughly, all of the free liquid is held by the fabric.





Optimum extreme environment performance

SAF can be converted into a wide range of disposable and durable fabrics for use within performance apparel. Being fibre-based, our fabrics can be precisely tailored into a diverse range of coolant fabric formats that offer the potential for enhanced design and performance. Such fabrics create the optimum conditions to significantly reduce heat stress and fatigue, increase wearer comfort and maximise physical performance – even in the most extreme environments. Solutions that can be worn both next to skin and over outer clothing are available and are based on cooling through evaporation of absorbed water, or cooling through absorption of body perspiration.

The advantages of Komfortas...

- sweat management and resulting coolant benefits
- reduced heat-stress and fatigue
- disposable and washable technologies available
- lightweight for wear in extreme conditions
- durable to withstand challenging environments

Application examples...

Cooling through absorption of body perspiration

Our woven fabric technology provides effective results when wearers are working in challenging environments or wearing heavy outer clothing. It can be converted into a wide range of washable garments which are worn next to the skin under heavy clothing. The fabric stimulates the dissipation of heat and moisture through the rapid absorption and containment of body sweat. The material in touch with the skin remains relatively dry and conducts heat away from the hot areas of the body. Systems based on this core fabric are the perfect solution for the armed forces, fire fighters, police force and for workers undertaking heavy physical work, and can also be employed in sports and other general apparel items.

Cooling through evaporation

This functionality can be achieved by incorporating a SAF-containing absorbent nonwoven within two outer fabrics, thus creating a three-layer absorption cooling fabric. This can then be tailored as required into a final garment which should be worn over outer clothing. In order to activate, the wearer simply pre-soaks the garment with water and wears as normal. As a result of evaporation, the cooling effect occurs. Items made using this technology can be reused through multiple wetting and drying cycles.





The ultimate dust and granular material stabilisation and control system

Our new acrylate-based polymer system aimed at the sand stabilization markets. Permeatec^{DS} can be applied as an aqueous surface spray to dust and loose, granular materials as a means of suppression or to provide a hard, durable surface. The technology has been specifically designed to be dispersed in water, aiding application and improving safety and handling. It is able to coat and bind loose materials, forming a complex web of interlocking particles and polymer, which when dried, form a hard, durable material. The ability to change application rates provides the user with precise control and allows stabilisation levels, strength and durability to be tailored as required.

The advantages of Permeatec^{DS}...

- no hazardous chemical catalysts or activators
- no negative impacts on the environment
- easy to handle and transport
- easy to mix and apply using standard equipment
- application rates can be varied to suit
- dries colourless and sand texture is retained
- no drainage issues or pooling of rain water

Product Format

Permeatec^{DS} is available in a number of formats, dependent upon customer needs and requirements:

- Pre-mixed liquid – ready for direct application
- Fibre Flakes – the most cost effective form for bulk shipping worldwide but requires dissolving at distributors or point of use
- Ultra Concentrate – bulk material suitable for industrial dilution by distributors and bulk users

Application tools and equipment

Permeatec^{DS} has been designed for ease of use. For the prevention of airborne sand and dust, the polymer can be dispersed in water to form a liquid. This can then be applied directly to the treatable area, using all conventional liquid application equipment. Alternatively, where the mix is to be cast or used as a render, it is better to physically mix the product and water with the sand or other granular material. In such a case, all mainstream manual and automated cement/concrete mixing equipment/techniques can be used.



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