

COOLMAX® freshFX™

Bacteriostatic effectiveness and
durability of silver ions



freshFX

Introduction

ADVANSA

Europe's polyester leader

Deriving from a joint venture between DuPont and Sabanci, ADVANSA stands for internationally recognised technological expertise. Thanks to the outstanding know-how and experience of its staff, the company consistently produces polyester resins, filaments and fibres of the highest quality – world-class products you can rely on. ADVANSA: safety, expertise, innovation.

As of November 2004: ADVANSA is a 100 % subsidiary of Sabanci Holding

Take advantage of our technological excellence and world-class brand-name products – and profit from the dynamic creativity of a multicultural enterprise.



Coolmax® has long been the number one fabric for keeping wearers cool, dry and comfortable. Coolmax® freshFX™ fabrics actively suppresses the growth of bacteria which are the root cause of body odour and related smells and is perfectly adapted for application such as sportswear, socks, underwear, medical application ... Around the world athletes of all ages, sizes and capabilities wear Coolmax® to enhance their pleasure and comfort, whilst maintaining the peak of their performance. Increasingly Coolmax® is entering the mainstream of clothing as fashion becomes ever closer related to sportswear, so people can enjoy the benefit of Coolmax® whatever the occasion.

And now Coolmax® comes with a new benefit: **Freshness.**

Coolmax® keeps you cool and comfortable, it also helps to keep you fresh and feeling good whatever you're doing.

Sportswear

Normally perspiration is odourless and evaporates quickly but sportswear captures perspiration and provide an ideal environment for development of micro-organisms.

With Coolmax® freshFX™ the odour from sweat is removed so users feels cool, dry and fresh, even practising the heaviest of exercises.



Intimate apparel

The intimate apparel market mainly made of underwear is a very active and dynamic market in which the final consumer asks for a combination of functionality and design.

Coolmax® freshFX™ is a good response and provides well being and freshness reducing the growth of bacteria and the unpleasant smell they can cause.

Socks

By capturing perspiration and providing an ideal environment for micro-organism development socks can convert perspiration into unpleasant smell. Coolmax® freshFX™ in socks is the answer wherever there is a need for fresh, dry comfort combined with easy care advantages.

Medical application

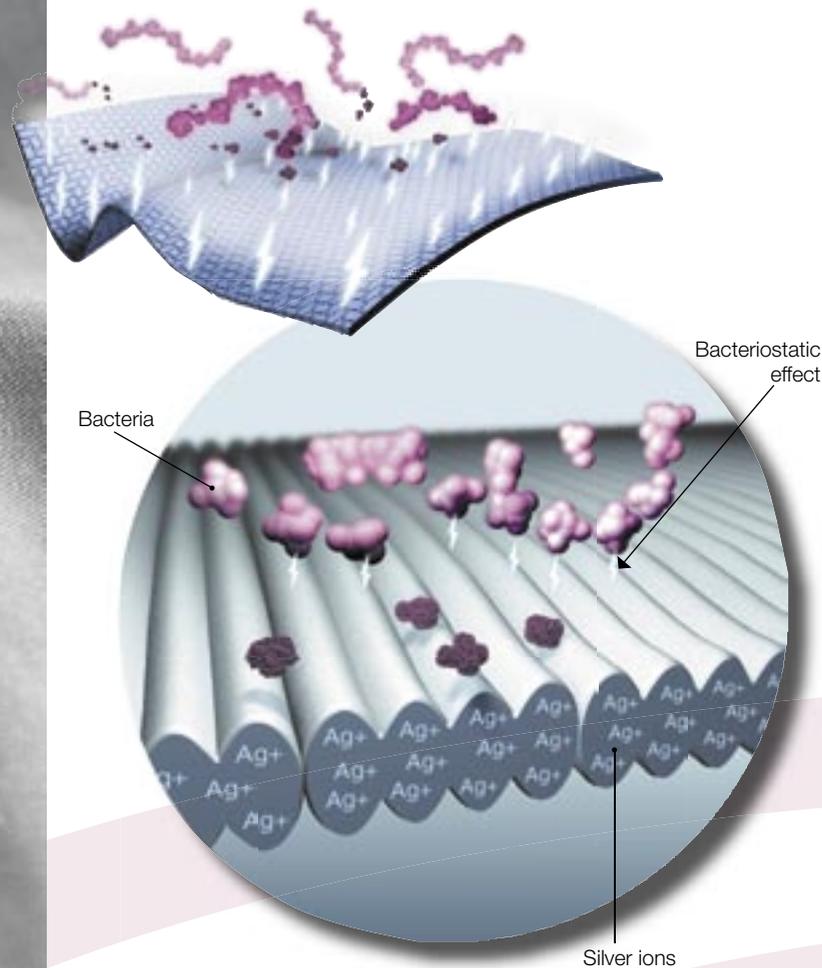
Numerous health professionals have agreed that humidity of the skin and temperature are factor that lead to infections or irritations problems. By using a Coolmax® freshFX™ fabrics next to your skin, you will reduce the humidity level as well as maintaining a good balance of micro-organisms on the surface of the skin.



How does it work ?

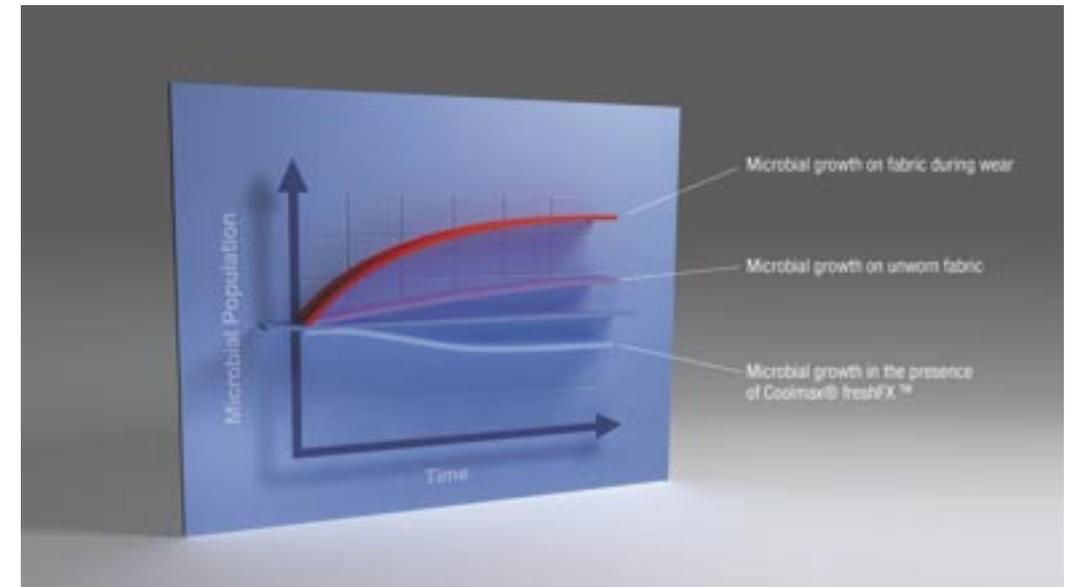
For centuries, silver has been recognised for its purification qualities. As far back as ancient Egypt and early Roman civilisations silver was a valuable and natural source of cleanliness. Modern medicine has adopted much of this knowledge and uses silver in a wide variety of applications.

By incorporating a silver-based additive to Coolmax®, ADVANSA can offer freshness too, as Coolmax® freshFX™.



Effectiveness & Mechanism of Action

The active ingredient in Coolmax® freshFX™ qualifying fibres is a durable, non-migratory silver-based antimicrobial additive. This additive has been proven by the supplier to be highly effective in the laboratory against a wide range of microorganisms, including bacteria, fungi and algae. When incorporated into approved materials, such as polyester staple and filament, it has been shown to impact bacteriostatic, fungistatic and algistatic properties to the material, and to articles, such as garments, containing the approved material.



The mechanism of action involves the slow release of silver ions from its inorganic cage matrix through ion-exchange. The silver ions can then interact with microbes to disrupt their cellular functions, thereby inhibiting the growth of the microbial colonies. Microbes can feed off of components in human sweat and body oil, resulting in odourous by products. The silver-based additive effectively suppresses the generation of the odourous by inhibiting microbial growth on the fabric.

Expected Degree of Wash Durability to Laundering Conditions

The active ingredient is spun directly into the yarn, rather than being topically applied, and an inorganic cage matrix protects it. Therefore it can be expected to remain effective for the life of the garment even after repeated laundering. So don't just settle for cool, dry, focused and comfortable, feel fresh as well with Coolmax® freshFX™.



General safety Information

Polyester fibre containing an antimicrobial additive has been dermatology tested in fabric through skin patch testing on human volunteers by Haskell Laboratory for Health and Environmental Sciences.

The antimicrobial additive used in ADVANSA polyester yarns is :

- Registered with the US Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as described in the Code of Federal Regulations (C.F.R.) Title 40 Chapter I Part 152.
- Notified and listed under the Biocidal Products Directive (BPD) 98/8/EC from the European Parliament and the Council of 16 February 1998 Concerning the Placement of Biocidal Products on the Market and its accompanying Manual of Decisions.
- Included on the Oeko-Tex Standard 100 lists of « Accepted Active Chemical Products ».

Further details on safety, health and environmental aspects are available from the ADVANSA Product Steward.

Content Guidelines for Odour Shield Fibres in Coolmax® freshFX™ Fabrics

Fabrics certified as Coolmax® freshFX™ combine two innovative technologies/ the Coolmax® moisture management system, and new odour Shield antimicrobial fibres that help to control odours. As with all Coolmax® garments, Coolmax® freshFX™ garments keep the wearer cool and dry, but have the additional benefit of keeping clothes smelling clean and fresh longer.

Odour Shield Fibres

Odour Shield fibres consist of polyester with a spun-in antimicrobial silver additive. Two types of Odour Shield fibres are available :

- Odour Shield polyester staple (1,7 dtex, 38 mm)
- Odour Shield polyester filament yarn

Minimum Content of Odour Shield Fibres

For fabrics with no natural fibre content : 25% of total weight of the content.

If natural fibres are present, then the bacteriostatic odour shield content must either be equal to the natural fibre content by weight, or 25% of the total weight of the fabric, whichever is greater.

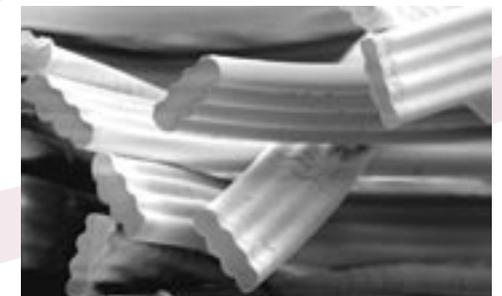
Coolmax® freshFX™ Quality Standards

Information about Coolmax® quality standards and fabric constructions are contained in : Coolmax® technical information is available from your ADVANSA representative.

To be certified as Coolmax® freshFX™, fabrics must meet the Coolmax® quality standards, and they must contain the prescribed percentage (by weight) of Odour Shield fibre. Table 1 presents the Odour Shield content requirements for Coolmax® freshFX™ fabrics/garments.

The filaments in Odour Shield **polyester filament** yarn have a six-channel cross-section designed to move moisture by wicking. Therefore, it can be counted as both a Coolmax® qualifying yarn, and a Coolmax® freshFX™ qualifying yarn.

The Odour Shield **polyester staple** has a round cross-section that does not contribute to moisture management. It can be used to satisfy the Odour Shield content requirement in table 1 only if it is combined within a fabric with one of the Coolmax® technical information appendix A.



This information corresponds to our current knowledge on this subject. It is offered solely to provide possible suggestions for your own consideration. It is not intended, however, to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. This information may be subject to revision as new knowledge and experience becomes available. Since we cannot anticipate all variation in end use conditions, ADVANSA makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a licence to operate under or a recommendation to infringe any patent right.

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