

Polygiene

Questions and Answers



Polygiene®
STAYS FRESH



What are the benefits of Polygiene Stays Fresh Technology?

The silver salt (AgCl, silver chloride) in Polygiene inhibits and guards against the growth of odors from microbes such as bacteria, fungus and mildew.

Your garments, footwear and gear will:

- **Stays Fresh** – Polygiene inhibits the growth of odor-causing bacteria for that fresh-all-day feeling. Odor develops when odor-causing bacteria settles into the fabric, mixes with sweat and multiplies.
- **Stays Hygienic** – Polygiene helps prevent odor and prolongs the lifetime of clothing, footwear, gear and wetsuits since the products are treated to resist deterioration by mold fungus and odor-causing bacteria.
- **Have a lifetime effect** – The treatment will last lifetime of the product.
- **Be more climate smart**
 - *Wear More. Wash Less®* – Polygiene treated products can be used several times before washing and can be washed at lower temperatures which means that you save energy, water, time and money.
 - *Longer lifetime of garments, gear and footwear* – Fibers live longer without bacteria and excessive washing, and treated products are not discarded prematurely due to odor.
 - *Less luggage* can be used when traveling.
 - *Recyclable* – Polygiene-treated products can be

recycled when worn-out.

- *Polygiene is bluesign® approved* – the textile industry's demanding environmental certification with a life-cycle approach.

What is Polygiene and how does it work?

- Polygiene is based on silver salt (silver chloride).
- Silver chloride is naturally present in water and soil.
- Polygiene particles have a large amount of silver ions per surface area. Due to the structure of the particles, very small amounts of silver are required for effective treatment.
- Polygiene is co-applied with other treatments to the fabric during the finishing stage. This helps minimize the impact on the environment because additional energy or water is not required.

Any effects when worn next to skin?

- *Background in the healthcare sector* – Polygiene has its heritage in the healthcare sector and has undergone extensive skin sensitivity testing.
- *No interference with bacteria naturally occurring on the skin* – Polygiene is active only on the material's surface and does not interfere with bacteria naturally found on the skin, even when used for long periods of time^{1,2}. Tests also conclude that there is no identified risk from dermal and oral contact with silver treatments.³
- *Polygiene is not nano silver.*

Environmental facts from a life cycle perspective

Production

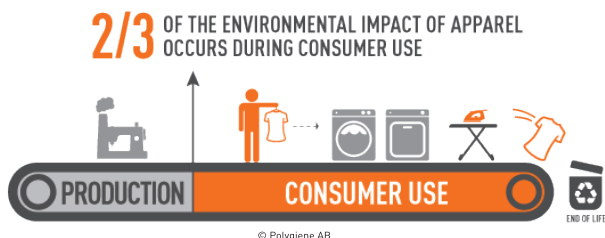
The product is manufactured in the EU with minimal use of resources and in accordance with strict environmental regulations.

Application

As several treatments can be simultaneously applied, no additional water or energy is needed and the impact on the environment is reduced.

In the wastewater treatment plant

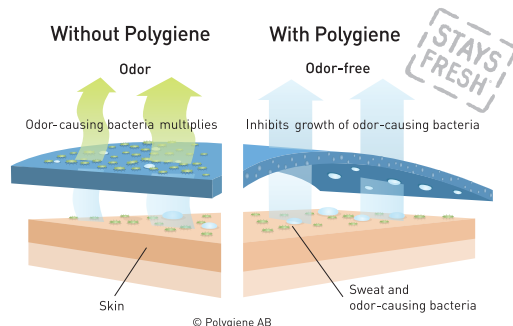
- Polygiene's silver ions are rapidly bound to the sulfur ions of bacteria present in sewage water and create an insoluble bond (inactive silversulfide). The silver ions are therefore deactivated upon reaching the wastewater treatment plant and do not affect the final bacterial and biological rinsing stage.⁷
- According to a study recently conducted by the Danish Ministry of the Environment there is "no specific risk of health effects or biological effects in the aquatic environment arising from the use of silver in textiles".³



When products are used

The best way to reduce a garment's environmental footprint is to wear more and wash less. Polygiene makes this possible.

- **Wear More. Wash Less®** – Consumers are responsible for at least 2/3 of the environmental impact of a product during its life-cycle⁴, primarily due to their laundry habits. Lack of water is an acute problem in most parts of the world. Parts of Europe, the U.S. and Asia are already experiencing shortages of fresh water.⁵
- **Use textiles in a sustainable way** – Man-made fibers like polyester will play an important role in meeting the world's growing demand. We need to use textiles more efficiently, that is, clothing and gear must be made of the more sustainable synthetic fibers that stay fresh, can be washed less and last longer.⁴



- **Lower impact on environment when Polygiene treated products are washed less** – An independent life-cycle assessment (LCA) study shows that using Polygiene-treated polyester textiles more than one time before washing, lowers the product's environmental impact compared to an untreated product that is washed after every use.⁶

Polygiene works actively to educate retailers and consumers about the impact that we all have on the environment through the textile and laundry choices we make. Wear More. Wash Less®, recycle and reuse!

Hard facts

- Polygiene Stays Fresh Technology is bluesign® approved, the textile industry's demanding environmental certification with a life-cycle approach.
- Bluesign is endorsed by Patagonia, The North Face and other leading brands.
- Bluesign is "Highly recommended" by Greenpeace, Germany.
- On the Oeko-Tex 100 list (I–IV) of approved products.
- Registered under the EU Biocidal Product Directive and approved by the US Environmental Protection Agency.
- Meets the requirements of REACH, the EU's chemicals legislation.
- Polygiene treated garments and gear can be recycled in the Eco Circle® system and the Common Threads Garment Recycling Program.

1) Hoefler D and Hammer T. *Antimicrobial active clothes display no adverse effects on the ecological balance of the healthy human skin microflora*, ISRN Dermatology, 2011, 369603

2) Kawai K. *Kawai method for testing skin irritation*. Japan 2010

3) *Assessment of nanosilver in textiles on the Danish market*, Danish Ministry of the Environment, 2012:1432

4) "Welt-dressed?", Cambridge University, UK, 2006.

5) Löfdahl A. *Akut vattenbrist i världens megastäder [Water shortage in the worlds megacities]*, Svenska Dagbladet, Sweden 2012

6) Rasmussen D and Slothuus T. *Environmental Impact Comparison of Silver-Treated Textiles to Non-Treated Textiles. Science of the Overall Environment* (under preparation). DHI, Denmark 2012;11809552.

7) Burkhardt, M et al. *Verhalten von Nanosilber in Kläranlagen und dessen Einfluss auf die Nitrifikationsleistung in Belebtschlamm*. Environmental Sciences Europe, 2010, 22:529–540

