

INSPIRED BY NATURE

E.COOLINE reacts similar to the human body cooling its temperature by evaporation of sweat. Rapidly and easily, the high-tech fleece COOLINE SX<sup>3</sup> stores water inside which is only released by evaporation. You stay dry and cool.

Save energy! E.COOLINE sweats for you. Feel cool and save energy for work. Despite heat you remain healthier and more active.



EASY HANDLING

- Immerse 5-10 seconds in about 1 liter of water
- Press slightly and wrap in towel
- Start cooling
- The cooling effect will last up to 20 hours

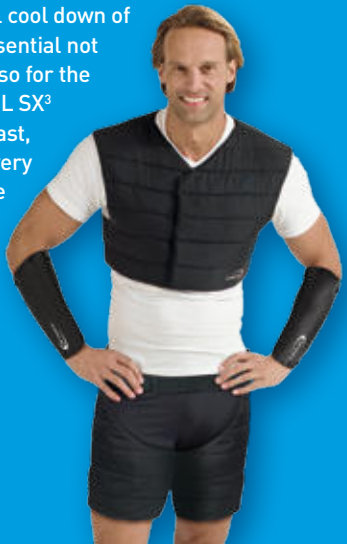


Climate neutral company powered by ClimatePartner®

VERY IMPORTANT: RECOVERY!

Recovery is the more and more important factor after a fire fighting operation. Especially with operations in the summer, with fire or after operations with chemical protective suits it is very important to get a professional and fast recovery. The recommended time frame for breaks between one and the next operation is often not possible due to lack of staff.

Therefore a fast and professional cool down of the body is crucial and can be essential not only for the next operation but also for the firefighters life . The POWERCOOL SX<sup>3</sup> COOLING SUIT of E.COOLINE is fast, easy , mobile and flexible. Recovery is much faster and more effective with this suit and can be done without logistic effort where ever it is needed.



- 1 Shirt-vest available in black. Cooling vest available in blue
- 2 Signal vests with reflective tapes, available in neon yellow and bright orange
- 3 Helmet inlay, available for all standard work helmets. Basecap, available in five colors
- 4 Bandana, headband, neckband or wristbands, available in different colors



PCS PERSONAL COOLING SYSTEM

- MORE PERFORMANCE
- BETTER HEALTH
- IMPROVED REGENERATION



www.klarelinie.de

WWW.E-COOLINE.DE



PLEASE CONTACT US FOR FURTHER INFORMATION ON OUR WIDE RANGE OF E.COOLINE PRODUCTS.



WWW.E-COOLINE.DE



COOLEST FIREFIGHTER ALIVE





# SAFETY HEALTH

## 12 °C COOLER

E.COOLINE® is a professional cooling system consisting of high-tech textiles which, if soaked with water, generate a cooling effect depending on ambient and body temperature. The E.COOLINE system mimics the natural temperature regulation of the body. You feel much better and fitter, no matter whether working indoors or outdoors.

## SWEATING CONSUMES ENERGY

Regardless of high outside temperatures, more than 70% of energy are transformed into heat during physical work. In heat, this means that the body is extremely strained and consumes a lot of energy by thermoregulation.



## HEAT PROTECTION FOR BETTER HEALTH, SAFETY AND PERFORMANCE

E.COOLINE provides a simple and effective way of cooling. The high-tech product is able to bind high quantities of water in seconds. The water thus stored is only released by evaporation. Due to its special engineering, the product does not drip – even under mechanical pressure. Don't be afraid to get wet.

The effect developed by evaporation cools the body in a natural and individual way: more cooling at high temperatures, less cooling at low temperatures. You will not suffer from "cold shock". Your body will be cooled slowly and the intensity of the cooling effect will adjust to the ambient temperature. After some time, you will no longer perceive the cooling effect because your body has acclimatized.

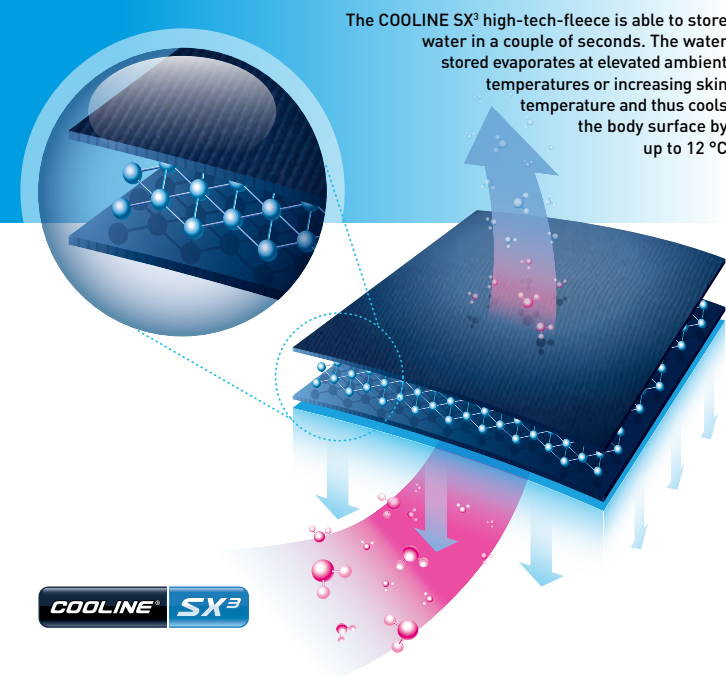
Depending on ambient and body temperatures, the cooling effect lasts up to 20 hours.

## AVOID HEAT STRESS

Heat stress is a high risk for the health and safety of firefighters. Exposed to high temperatures they often have problems to perform and concentrate efficiently. Protective clothing and equipment even increases the strain on the body. To save other peoples life the firefighter should be in his best condition.

The opposite is the normal case: The STATT study of the ministry of interior of Baden-Wuerttemberg shows that the body temperature of 60% of the firefighters was at 38 - 39 °C (fever!). This happened after 25 min of a fire fighting operation. The dramatic situation also showed that the fluid loss in this time was 900-1.400 ml and the heart frequency was over the max. recommended rate. The physical and psychic stress of the situation in extreme cases increases the body's strain.

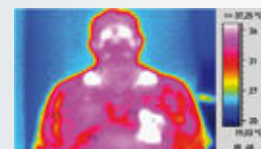
Furthermore there are low possibilities for recovery because of the tight personnel situation at most fire departments.



Studies with thermal imaging cameras confirm significantly less stress wearing E.COOLINE



Ø 29,3 °C  
WITH COOLING



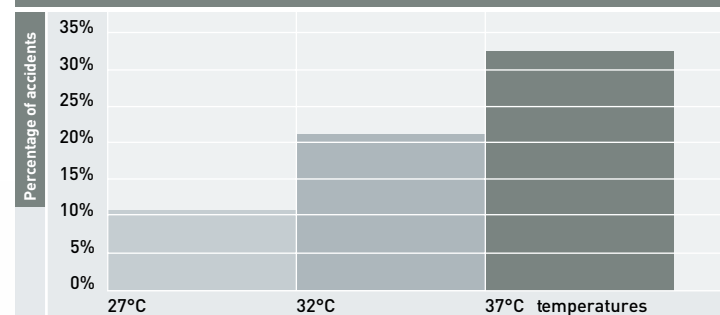
Ø 35,9 °C  
WITHOUT COOLING

## 12% INCREASE IN PRODUCTIVITY

The Kiel Institute for Economy informs that 12% of productivity is lost by heat. E.COOLINE provides a simple and effective solution. Endurance tests carried out in scientific studies confirmed an increase in performance of up to 10%. Additionally, the cooling textiles help to improve the cardiovascular and metabolic systems and minimize health risks.

To protect firefighter from health risks by heat insurances have issued recommendations to wear cooling vests.

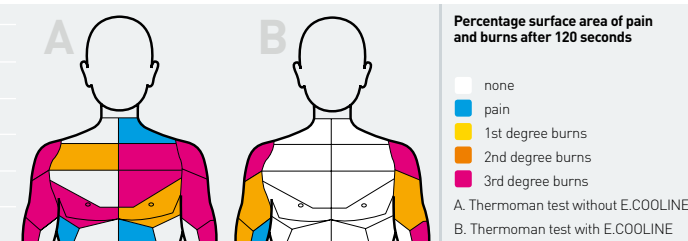
### LOSS OF CONCENTRATION BY HEAT



A study carried out by the German Federal Highway Research Institute determined that the accident risk increased by 30% in case of high temperatures in cars. In addition, heat in cars resulted in less concentration. With ambient temperatures of 30 °C, driving faults already increased by 20%.

Source: dpa

### THERMOKINETIC STUDY



- The "THERMOMAN" study conducted by the Swiss national research institute Empa – Materials Science and Technology in St. Gallen confirmed the effectiveness of E.COOLINE. The parts of the body protected by E.COOLINE showed a lower temperature rise than those not protected by the new high-tech fleece.
- At 5 kW/m², 10 kW/m² and a flash over, the results of the Empa measurements determined additionally that there existed no elevated risk of steam burns despite the water quantities bound in E.COOLINE.

Cf: Empa study report n° 204 959 of 2.2.2006