New protective undergarment reduces the risk of cancer among firefighters

The Swedish Firefighters' Cancer Foundation today presents a study of a new protective undergarment that reduces the risk of occupational cancer diagnoses in firefighters. The study was conducted by Chalmers, Lund University and IVL Swedish Environmental Research Institute. The report's results show that the protective undergarment reduces the amount of the carcinogenic PAH substances to 1/1000 compared to 1/15 for the firefighters' standard undergarment.

The number of deaths from cancer among people under the age of 75 is up to three times as high among firefighters compared with the general population and thus constitutes a major work environment hazard. The main reason behind the high incidence of cancer among firefighters is that fire fumes contain polycyclic aromatic hydrocarbons (PAHs), carcinogenic substances, which penetrate the firefighters' standard equipment and are absorbed by the skin. The protective undergarment is an innovation of high-tech adsorbent material with activated carbon, which binds the hazardous substances in the gas. The undergarment significantly reduces the skin's exposure to the toxic substances found in fire smoke, which aims to reduce the incidence of cancer among firefighters.

- As a firefighter and cancer survivor, I am extremely happy with what we have achieved. I have lost many colleagues in cancer, but hopefully we will now see a change. Now we can get the protective undergarment for firefighters around the Nordics and eventually I hope it can reach firefighters all over the world. This means that firefighters can continue to save lives, without an unreasonably high risk of cancer, says Anders Cederberg, chairman of the Swedish Firefighters' Cancer Foundation.

The report "Testing of clothing for protection of firefighters against exposure to polycyclic aromatic hydrocarbons in fire smoke", which is presented today, compiles tests of the Protective Equipment's protection factor against PAH and has been carried out by Lars Ekberg, adj. prof., CIT Energy Management (Chalmers Industriteknik), Sarka Langer, adj. prof., IVL Swedish Environmental Research Institute and Bo Strandberg, associate professor, occupational and environmental medicine, Lund University.

In summary, the results clearly show that the adsorptive undergarments provide a significant reduction of the amount of PAH that penetrates the protective clothing to the skin compared to the standard equipment that firefighters use today. The standard undergarment reduced the amount of PAH that penetrated the protective clothing to the skin to an average of 1/15 of the total amount of PAH in the fire smoke. When the standard undergarment was replaced with the new adsorptive undergarment, the amount of PAH was reduced to less than 1/1000 when the undergarment was new and 1/600 when the undergarment had been used for ten smoke dives with intermediate washes.

- We have always been convinced of the undergarment's protective ability, but it is of course important that we now have the protection factor established through scientific tests. We can thus make the protective undergarment available to the market, which in a first phase is limited to the Nordic region. Production on a larger scale can begin as early as the autumn with the capacity to supply all Nordic firefighters within three to six months, says Thomas Dedering, CEO of CPP Garments.

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About The Swedish Firefighters' Cancer Foundation

The Swedish Firefighters' Cancer Foundation raises funds and promotes research that shows a connection between continuous exposure to fire smoke and cancer. One goal is to promote research that shows how chemicals in fire smoke are developed and absorbed through the skin and airways. The foundation's purpose is to raise money for scientific research that aims to minimize the cancer risk for firefighters.

About CPP Garments

CPP Garments (Carbon Personal Protection Sweden AB) was founded in 2019 and is responsible for the production and marketing of a new protective undergarment for firefighters. The protective undergarment is a Swedish innovation that is founded on military technology and research with production in Germany. The undergarment is produced in adsorptive material with four layers of fabric where one of the layers consists of activated carbon. The product has been tested on three occasions at under the supervision of CIT Chalmers in Gothenburg. The last test has been independent on behalf of the The Swedish Firefighters' Cancer Foundation with results documented in the report "Test of clothing for protection of firefighters against exposure to polycyclic aromatic hydrocarbons in fire smoke".