

WEBINAR

Joining forces for firefighter health

Exploring the Firefighter Cancer Innovation Network



**FIREFIGHTER
CANCER**

Webinar will start
in a few minutes



Dr. Oliver Zech

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Raimund Bolg

Publicly certified
Textile Cleaning Expert



Berthold Birnthaler

Director
Birnthaler Chemisch
Technische Produkte



HeiQ at a glance



GLOBAL & DIVERSE

CAPABLE & AWARDED

BRANDED & TRUSTED



Rent-a-scientist – HeiQ material innovation services

- HeiQ RAS' scientists in Germany have been successfully offering **rent a scientist**® services since 1995
- Successful innovation track record in chemistry, biology, medical technology, life sciences, material sciences, production, process technology and environmental technology.



rent a scientist®

services consist of:



Innovation services

- Innovation networks
- Grant management



R&D services

- Technical solutions on behalf of customers
- Taylor-made application development around HeiQ technologies



Central innovation program (Zentrales Innovationsprogramm ZIM)



The Central Innovation program for SMEs (ZIM) is a nationwide, technology- and industry-open German funding program for SMEs and research institutions



ZIM cooperation projects



ZIM cooperation networks



Gefördert durch:



Bundesministerium
für Wirtschaft
und Klimaschutz

aufgrund eines Beschlusses
des Deutschen Bundestages



International ZIM-network structure



DIFFERENT PARTNERS ALONG A VALUE CHAIN

- ✓ To live synergies
- ✓ To bring innovations forward
- ✓ To network
- ✓ To obtain/expand market access



Network-management



Emphasis



PROFILE SHARPENING

- ✓ Regular networking meetings
- ✓ Competence analysis network and network partners
- ✓ State of the art research
- ✓ Market research
- ✓ Organize impulse lectures
- ✓ Identification of skills gaps



PUBLIC RELATIONS

- ✓ Website
- ✓ Flyer
- ✓ Press releases
- ✓ Roll-Up
- ✓ Fairs



COLLABORATION

- ✓ Cooperations
- ✓ Development
- ✓ R&D Projects
- ✓ Funding projects



HeiQ RAS innovation networks

✓ Plastic-free buildings:  GEBÄUDE O.K.	✓ Less microplastic from technical textiles:  MINUTEX	✓ CO ₂ emission reduction in the brick industry:  GO2030
✓ Paper-based building materials:  BAUPROPAPIER	✓ Bio-based (green) coatings:  GO2GREEN	✓ Energy and resource saving building glass:  GREEN BAUGLAS
✓ Recycled building materials:  RECYBAU	✓ Mineral 3D-printing:  MD3D DIGITAL UND FUNKTIONSBEZOGEN	

Network partners:



Firefighter Cancer Innovation Network

WHY?

July 2011

More than 56,000 first responders, volunteers, and others with health problems stemming from 9/11

March 2019:

2,355 deaths associated with 9/11-related health problems till 2019.

CNN, 2019

September 2023:

over 27,000 certified people with a 9/11-certified cancer

CBS, 2023

2019

WHY?

“This is your opportunity to write a final chapter for these men and women who fought for 18 years – they fought when nobody believed they were sick, they fought when nobody believed their sickness was caused by 9/11, they fought when nobody thought their health care was worth paying for, they fought every step of the way.”

Jon Stewart, 2019



Cancer risk



Hazardous substances

Non-Hodgkin's lymphoma

Bladder

Liver

Polycyclic aromatic hydrocarbons

Skin

Multiple myeloma

Testicular

Breast

Head and neck

Benzene

Tyroid

Brain

Others...

“Continued improvements to personal protective equipment, adherence to safety measures in the fire service, and protective policies and legislation are imperative to keeping firefighters safe.”

Lee et al., 2023



Firefighters have a **9%** greater risk of being diagnosed with cancer
and a **14%** higher risk of dying from cancer.

Daniels et al., 2014

Change of lung cancer diagnoses or death increases with amount of time spent at fires and chances of leukaemia death increases with number of fire runs.

Reviewed in Sidossis et al., 2023



“Continued improvements to personal protective equipment, adherence to safety measures in the fire service, and protective policies and legislation are imperative to keeping firefighters safe.”

Lee et al., 2023



FIREFIGHTER CANCER

**Together
One Innovation Network**





We see the solution in building an innovation network amongst emergency personnel, federations, unions, research institutes, and companies in the field of occupational safety to promote projects and innovative products and processes.

Combination of actions

Politics



Research



Innovation



Different partners along a value chain

- ✓ To live synergies
- ✓ To bring innovations forward
- ✓ To network
- ✓ To obtain/expand market access



Application for international ZIM network planned in February

First kick-off meeting planned in June



JOIN OUR NETWORK!

**Emergency
personnel**

**Federations
& Unions**

**Research
institutes**

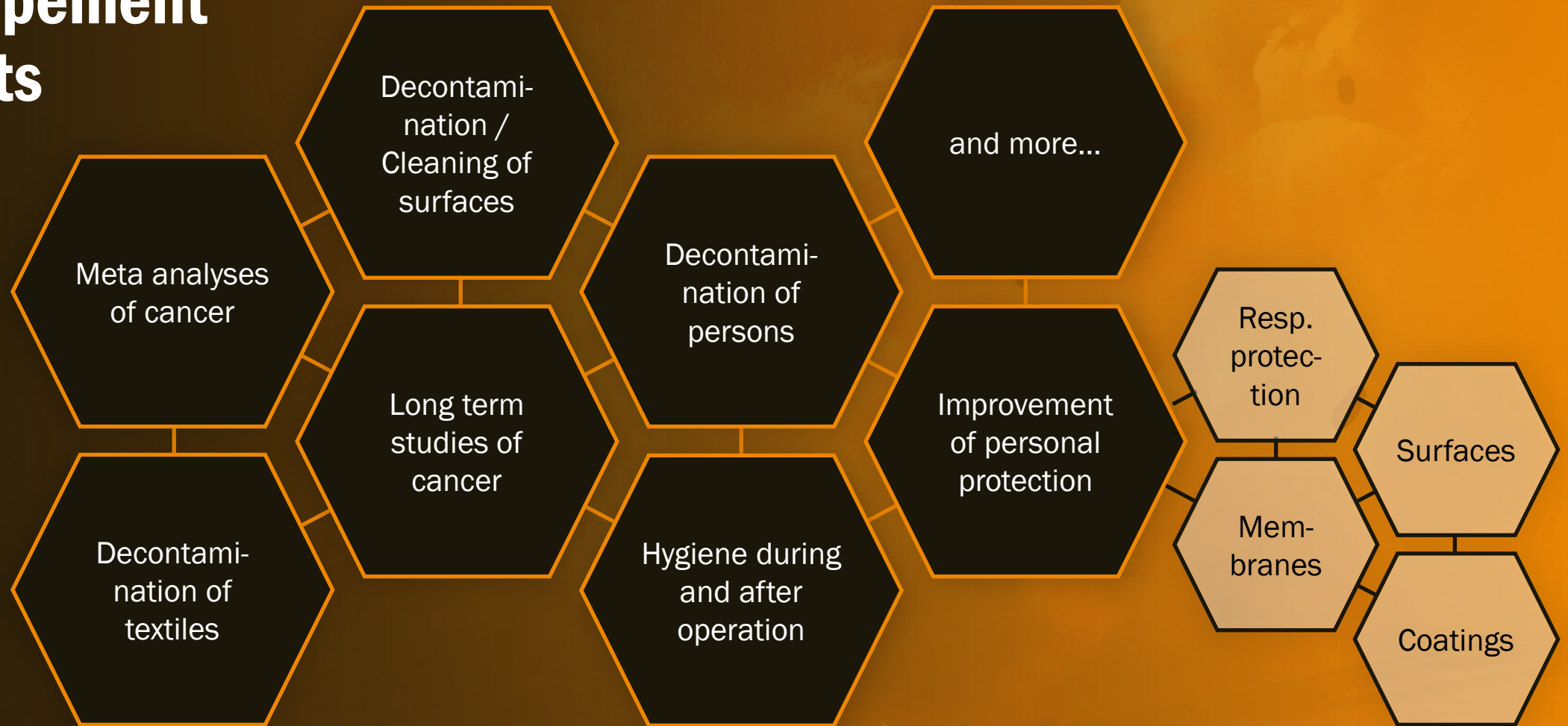
Companies

Our goal is to improve the protection of firefighters who often risk their lives & health



- ✓ Global cooperations for a global problem
- ✓ Awareness-raising
- ✓ Recognition as an occupational disease
- ✓ Research & Development projects

Research & Development projects



What can WE do for making a change?



Generating
a project idea
together with
research institutes
& experts in
their field



Support by
federations &
unions and
emergency
personnel



Collecting
knowledge
through exchange
(e.g. network or
project meetings)



Getting help
and support to
push project
ideas ahead
(testing methods,
knowledge, etc.)



HeiQ RAS is
in charge of
management
and funding
so that you can
focus on your task

We need you!

**Time to get in touch
& join our network!**



Do you have an idea of how to protect our firefighters?



Do you want to contribute towards protecting our firefighters?



Do you want to generate a project that is eligible for funding?



Are you looking for partners for your project?



Do you know somebody who would be a perfect fit for our network?



Do you want to be part of a change?

Planned Network Management team



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We are looking forward to welcoming you to our emerging Firefighter Cancer Innovation Network!



Fire department & environmental protection products

Berthold Birnthaler

Director of Birnthaler Chemisch Technische Produkte

Fire department & environmental protection products



New product development: DekoRolli RC ®

Decontamination shower combined
with a roll container substructure

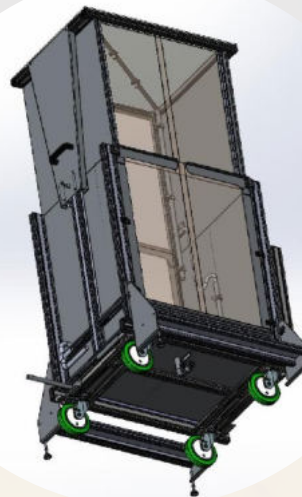
Europalett dimensions as base area

Construction out of solid steel
and aluminum

Extendible up to 2,50 m in height

Modular system

Compatibel with standard fire department roll
container sizes (common in logistics vehicles)

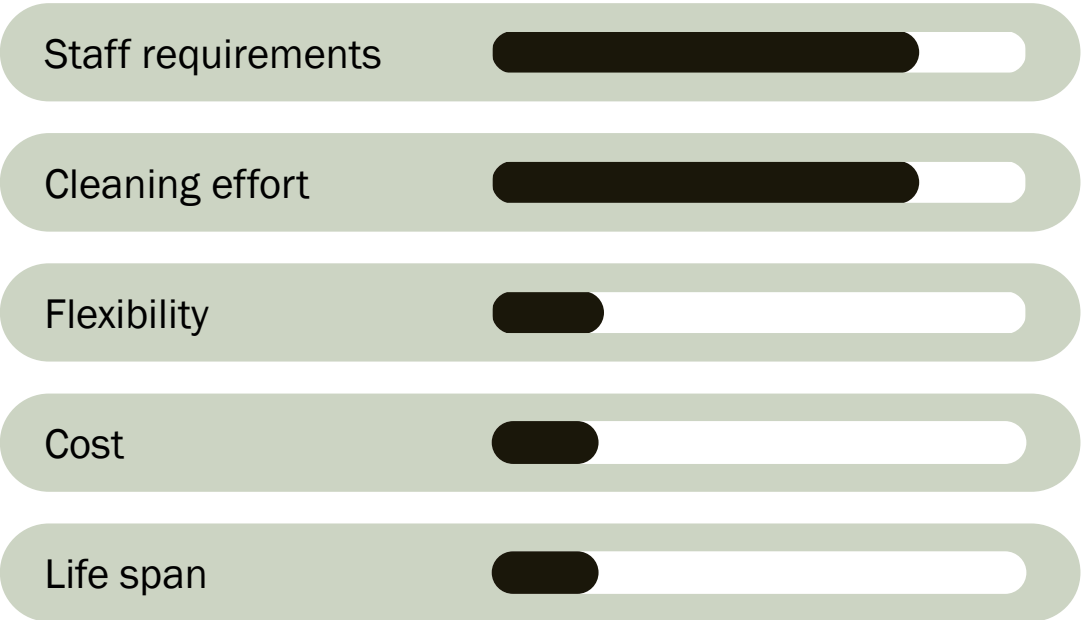
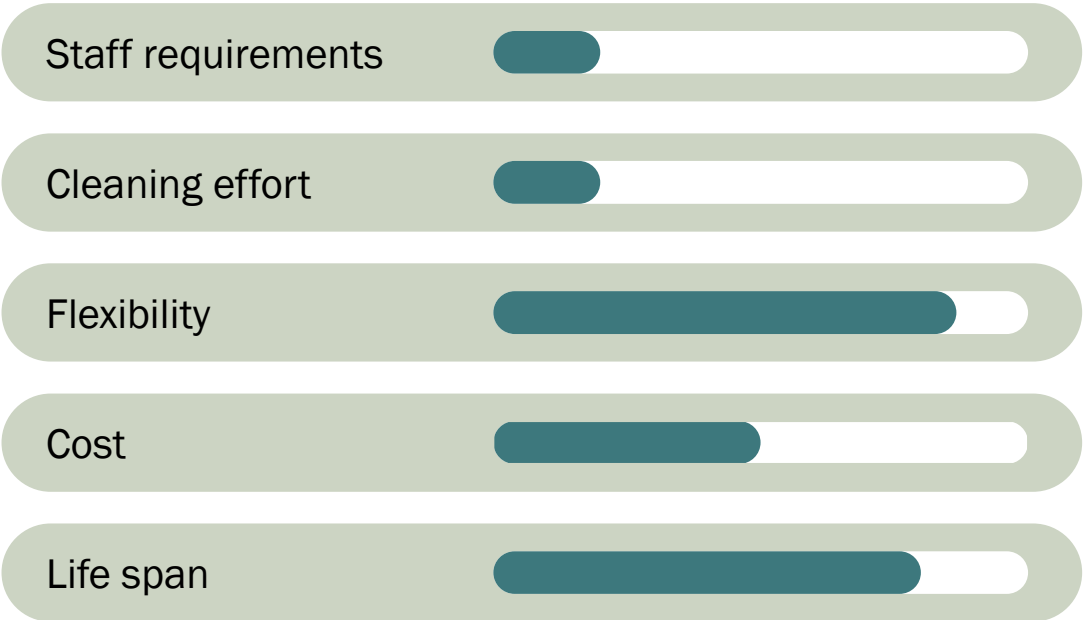


New product development: DekoRolli RC ®

DekoRolli RC®



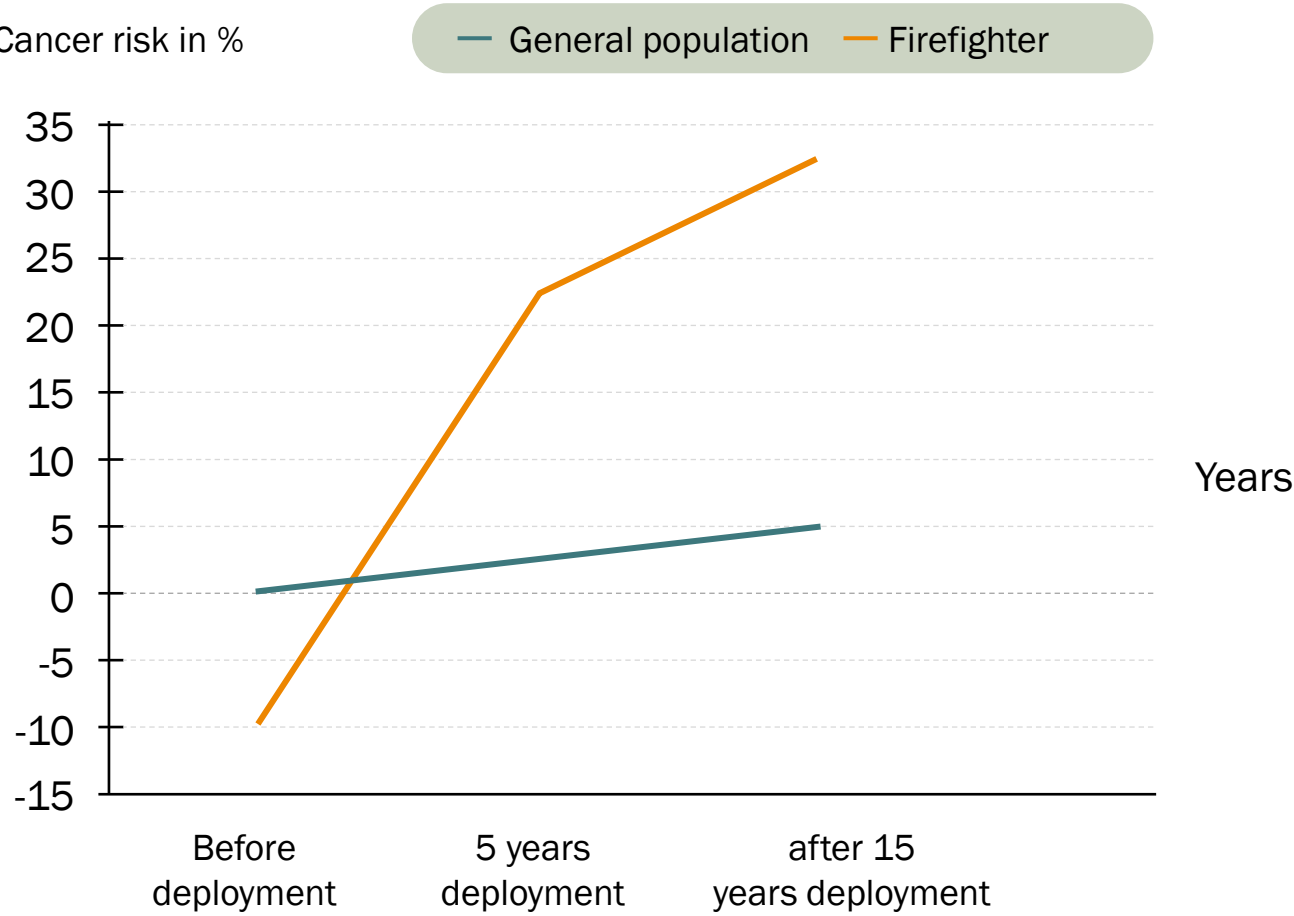
Other decontamination showers





Cancer – A danger apart from fire

Cancer risk in %



Source: Tee L. Guidotti George Washington University / Prof. Dr. Susan Shaw

Birnthaler



Poisonous substances
in fire smoke

- cling onto clothing
- attire must be cleaned right after use



After 15 years of service
the **cancer rate in firefighters**
increases by 30% compared
to the average citizen



Cancer is recognized as an
occupational disease in
Canada and Denmark



**The emergency
services come
into contact with:**

Acids

Hydrocyanic acid

Alkalis

Chlorine

Solvents

Dioxinsammonia

Aerosols

Formaldehyde

Asbestos

Hydrocarbons

Firefighter cancer – View from the cleaning perspective

Raimund Bolg | Public sworn Textile Cleaning Expert

Firefighter and other PPE



My workplace



Inspection in the event of unusual damage to textiles from the hospitality, healthcare, workwear, PPE or private clothing industries



Expertise for insurance companies in the event of damage caused by natural forces or fire



Neutral expert opinions for courts in disputes involving damage to textiles

Impressions



Firefighter and other PPE



PPE for firefighters has developed over the last few years into a very complex protective clothing that requires special care



Multi-layer fabric structures require special cleaning and decontamination programs to remove contaminants from fires



Special washing processes to remove polycyclic aromatic hydrocarbons as completely as possible



Reflective materials and applications require special drying processes to protect the materials and re-activate the water repellent finish

Care & maintenance training



Training firefighters
on the dangers of
polycyclic aromatic
hydrocarbons



Introduction of an
emergency site
hygiene
management
system to avoid
contamination in
the vehicle and at
the fire station



Training of the
emergency
personnel to
prepare the PPE for
care directly when
it is dropped off



Training employees
in decontamination
to select the right
decontamination
programs



Introduction of a
documentation
system for
seamless tracking
of washing and
wearing cycles

PPE for firefighters – Past and now



In the past, the
firefighters with
the dirtiest
clothes were the
heroes

**Awareness
of
firefighter
cancer risk
must be
raised
among
employees**

Firefighting
clothing has the
same protection
class as
respiratory
masks!
Nobody would
think of using
their respirator
mask twice
without
decontamination

Firefighter Cancer Innovation Network

Why is it so important?



You can exchange
best practice
techniques via the
network



You can support each
other with any
problems that arise
during preparation



When procuring new
protective clothing,
you can exchange
experiences with
clothing that has
already been
purchased



It is easier to organize
joint training courses
via the network

Firefighter Cancer Innovation Network

What do I personal expect?



Exchange PPE
processing
experiences



Continually raise
awareness of fire
cancer



Better appreciation
for hygiene processing
and decontamination
of PPE



Development and
continuation of best
practices guidelines
to make
decontamination ever
better, safer and more
gentle

Q&A