



Heat stress...

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SCBA during high outside temperatures...

Summer is calling...

Pullovers and long trousers are replaced by shirts and shorts. Nevertheless, this is not always possible for the fire and rescue service. Especially fires require us to wear heavy protective clothing and SCBA.

However, increased physical stress and high outside temperatures are not only uncomfortable, in combination they are dangerous. An extensive interior attack under heavy equipment brings us close to our physical limits. Heart rate, blood pressure and body temperature quickly rise to critical levels. High outside temperatures hinder quick recreation.

Precautionary, we summarized some basic recommendations to reduce the risk and the effects of heat stress in the following presentation.

Preventive actions...

- **Health & Fitness**

Health & fitness are simply the most important basic requirements for a safe working environment. High outside temperatures underline the importance of this aspects.

- **Ensure back up through ambulance/emergency service**

In Austria, the fire service and the ambulance service are two separate organisations. Therefore, we have to ensure that an ambulance is one the way every time we face situations in which we probably wear SCBA through proper alarm plans and response regulations.



Preventive actions...

- **Short clothes under the protective clothing**

If not required by the manufacturer to reach a higher protection level, only wear short clothes under your personal protective equipment (PPE).

- **Drink, drink, drink,...**

Start drinking as soon as possible. We recommend to store several 0,5l water bottles without carbonate next to all SCBAs. Empty a bottle on the way before you put on your mask.



In action...

- **Time/Distance/Shielding**
Reduce the time in which you and your colleagues are exposed to a hot environment. Keep distance to the fire and utilize the range of your nozzle adequately. Shield yourself from the heat through proper protective equipment, cover or water fog.
- **Take cover and stay low**
Utilize cover and stay low whenever possible. Otherwise your PPE will charge up thermally over time. Once inside your protective clothes the heat can hardly escape.
- **SCBA control procedures**
The officer in charge of SCBA control procedures has to ensure precise surveillance of all crews inside. Furthermore, the crews should be exchanged earlier than usual.

In action...

- **Rapid intervention teams (RIT) / SCBA emergency teams**
Ensure to protect RIT teams and other crews waiting to go in from smoke, heat and the sun. Provide sun protection and seating areas.
- **Exchange RIT**
The rapid intervention teams will be exhausted after a while, waiting outside at high temperatures. However, they need to be ready to give a 110% if necessary. Exchange them with fresh crews frequently.



Recreation...

- **Stick together team...**
Make sure, all crews stay together. No firefighter which operated under SCBA should be left alone or unguarded by colleagues. Otherwise, potential health issues are probably not recognize.
- **Recreation zones**
We recommend to install recreation zones in quiet, shady and smoke free areas offside the incident scene. Seating areas and washing facilities should be provided there.
- **Medical surveillance**
As far as possible medical staff should be present in the recreation zone.

Recreation...

- **Passive cooling & decontamination**
Quickly take off your contaminated PPE before you enter the recreation zone.
Keep the SCBA connected to your mask as long as possible to avoid the inhalation of toxic particles.
Switch to disposable gloves, lay off your jacket, and your helmet.
Finally, take off your mask with the respirator and walk away from the contaminated equipment.



Recreation...

- **Active cooling through water and air**
Provide several buckets or basins with cool water in the recreation area. Hold your forearms into the water and „pump“ - open and close your hands. This will support the cooling effect.

Additional active cooling can be realised through electric fans. Due to their exhaust gases, fans with combustion engines should not be used for this purpose.



Recreation...

- **Drink, drink, drink...**
Maintain your fluid balance. Water, apple juice or sport beverages are a good choice.
- **Fill up your energy reserves**
Simple snacks such as muesli bars can fill up your energy reserves. Furthermore, they can be easily stored in every fire truck.
- **Regeneration**
Do not put on SCBA again as long as you do not feel fully recovered.
We know sometimes it is necessary, but wrong ambition can be dangerous...

