COMBOIOS DE PORTUGAL

Preparedness for Aggravated Heat Wave Contingencies

(solution development in progress)

Prof. Paulo dos Marques

(Doctor in Occupational Safety and Health)

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RISK CONTEXT

RISK CONTROL

Resources Against Heat Stress

Risk Control by Action Levels, by Temperature Thresholds

	30°C < Max.Temp. ≤ 35°C	35°C < Max.Temp. ≤ 40°C	40°C < Max.Temp. ≤ 45°C	45°C < Max.Temp. ≤ 50°C
Information				
Shading and Air Conditioning				
Specific training				
Air-Cooled Clothes				
Specific Nutrition and Hydration				
Positive discrimination of risk groups staff				
Gradually Acclimatization and efficiency Recovery				
Heat Work Procedures				
Personal Protective Equipment				
Interruption of Activities According to Risk				

Thank you for your attention...
and stay fresh!



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RISK CONTEXT

As average ambient temperatures rise, it is necessary to prepare in advance for living and working during more frequent, prolonged, and hotter heat waves into the next decade, with temperatures that could reach around 35°Celsius (95°F) at sunrise and 50°Celsius (122°F) at midday.

Work will be affected by adverse events such as:

- Air pollution and inhalation of microparticles, ozone, and volatile chemicals;
- Malfunctions and collapse of air conditioning systems;
- Frequent and difficult-to-extinguish fires;
- Sudden health problems due to thermal stress (sunstroke, exhaustion, rhabdomyolysis, syncope, cramps, skin rash, edema), or long-term problems (chronic fatigue, sleep disorders, susceptibility to diabetes and mental, cardiovascular and cerebral diseases, respiratory diseases, and temporary infertility);
- Errors, omissions, and drops in productivity;
- Personal injuries and material damage due to accidents;
- Burned-out engines and other unprecedented adverse events...

RISK CONTROL

To control heat stress, measures must be taken regarding exposure to total heat resulting from the combination of clothing, environment, and body heat generation. To work healthily, with a body temperature close to 37°C (98.6°F), equipment and procedures for hydration and thermoregulation need to be reinforced.

Break times will need to be rearranged according to the need to cool down and hydrate.

Pregnant women, cardiovascular patients, and other at-risk groups should have appropriate measures taken.

Thermal acclimatization and its maintenance, as well as off-duty recovery, will shape life and work discipline.

Specific training and information will be necessary.

Typical air-cooled clothing should be made of comfortable, non-stick fabric that acts as an air pump.

[Sem título]

For exposure to extreme heat, wearable technical garments should be used that are cooled by water or air or moistened or heat-reflective.

Resources Against Heat Stress

Drinking water at room temperature and chilled



Shading and air conditioning



Moistened wearables





Air-cooled clothing



Electrolyte drinks, isotonic drinks and fruit juices





Digestive foods and spices for freshness and thermoregulation



Water-cooled and/or heat-reflective wearables



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