

# PROTECTION DURING A HEAT WAVE

## CONSTRUCTION

The following instructions concern mainly **employees working outdoors** or using **vehicles and construction machinery** during heat wave without air-conditioning systems, which which under certain conditions **may be exposed to thermal stress**



**Thermal stress** occurs in the employee when the ambient is very hot. Combined with strenuous( or not) work, it can cause a sense of intolerance, reduction of employee's attention or even health problems resulting

in deterioration of productivity and work quality, as well as an increased accident probability.

This kind of situation exists as a result of summer's heat wave.

The Heat wave is announced by the National Weather Service. High air temperature surrounding a work place is likely to cause thermal stress.

**The factors that determine thermal stress** are:

- Dry bulb temperature
- Relative humidity
- Air velocity
- Radiation (thermal)
- Work load
- Clothing
- Health status
- Acclimatization of worker: is the normal procedure allowing the adaptation in the hot environment by reducing the basic metabolic rate, increasing sweating and reducing the loss of electrolytes (salts) in sweat. Acclimatization is achieved in 7-10 days.

### RISKS CAUSED BY HEAT WAVE

#### Muscle contractions

They can be observed in employees working in places with high temperature. It is caused by the intense loss of salts and fluids due to sweating. They strongly appear if the employee has been drinking too much water without substituting salts. This condition is not considered to be dangerous. It appears suddenly and has the following symptoms:

- Intense pain and contractions of the abdominal and skeletal muscles
- Skin is pale and moist.

#### Heat exhaustion (collapse from the heat).

Commonly seen in people, who are not accustomed to work in hot and humid environment. Caused by excessive loss of fluids and salts from the body. Symptoms:

- Fatigue, lethargy, weakness and restlessness of the patient
- Headache, fatigue, dizziness, nausea

- Blurry vision
- Face pale, skin cold and clammy, profuse sweating
- Breathing fast and frivolous
- Pulse fast and weak
- Temperature normal or falling
- Painful muscle contractions of the legs and abdomen
- The situation can cause even fainting
- Situation worsens if diarrhea and vomiting occur.

**Heat stroke.** Observed in people, who have been exposed for a long time, to a very hot and humid environment. It is caused by body temperature rise due to failure of eliminating heat when sweating is blocked. It appears suddenly with the following symptoms:

- Exhaustion and restlessness of the patient
- Headache, dizziness and feeling too hot
- Intense thirst and dry mouth
- Hot skin, red (flushing) and dry
- In severe cases bleeding red spots appear
- Pulse rapid and intense
- Pressure slightly elevated
- Breathing deep fast and noisy
- Muscle contractions, cramping, seizures and vomiting
- Sudden loss of consciousness, which rapidly becomes deep
- Coma, death.



### HIGH RISK GROUP

Resistance to thermal stress is reduced for workers having any of the following health problems:

- Heart disease
- Lung disease
- General disorders
  - Diabetes
  - Chronic renal failure
  - Liver disorders
  - Thyroid Dysfunction
  - Uncontrolled hypertension
  - Anemia (congenital hemoglobinopathies)
  - Mental illness under treatment
  - Diseases of the central nervous system

# PRECAUTIONARY INSTRUCTIONS FOR HEAT WAVE

## CONSTRUCTION

- Massive skin disorders
- Obesity (30% above normal weight)
- Taking certain medication
- General situations
  - Women in gestation period
  - Non acclimatized employees (new employees, people returning from illness or vacations)

### PRECAUTIONARY INFORMATION

#### Fluids and salts balance

- Drink plenty of fresh water, more than we are thirsty
- If we are not acclimatized and we sweat a lot we pour some salt in our water (tip of the spoon in one lt bottle)
- Avoid oily and heavy meals as well as alcohol consumption
- Eat some fruits and vegetables

#### Clothing

- Clothes must facilitate body aeration, allowing sweat evaporation and also to be light, comfortable and cotton-made.
- If we work outside or near radiating surfaces, we take care not to leave our body uncovered.
- We use the air conditioning, if available.

#### Working Outdoors

- We don't work half naked under the sun
- We try to work more under the shade
- We always use a hat or a helmet on our head. It protects us from sunstroke
- We build suitable shades to protect against the sun while working wherever this is possible
- We schedule our activities so that the heaviest works are carried out when temperatures are lower
- We reduce workload between 12.00-16.00 when the temperature is high

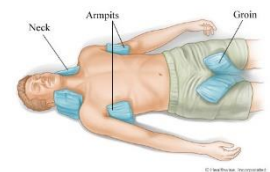


#### Acclimatization

- We give the opportunity in our body to adapt to hot conditions. We will get used to it in a few days.
- When we come back from vacations or even from weekend break, we might have to adapt from the beginning.

#### Work near hot surfaces

- Avoiding or deteriorating as far as possible, staying in places where heat sources are present (boilers etc.)
- We do not remove thermal insulation from hot surfaces
- We report to our supervisor any equipment malfunction, which can thermally charge our working environment (steam leakage etc)
- We regularly maintain our air conditioning/ ventilation systems and reporting any malfunctions.



#### FIRST AID

If we see someone appearing symptoms of a heat stroke such as: discomfort, fatigue, dizziness, cramps etc. **we must immediately ask for medical assistance.** Until it arrives we do the following things:

- We lay the person in the shade and we remove any unnecessary clothes
- We cool his body with cool water or wet clothes
- If the person faints, we place him in a secure recovery position, i.e. facing down with the head to the side where the arm and leg should be folded.

#### Emergency number: 166

*Note: The above instructions are in addition to the organizational measures (breaks and / or work stoppage) that may need to be taken by the Management of the company, in accordance with the relevant circular (OIK. 20716 / 23-6-2015) of the Labor Inspection Body (SEPE) which is still in force according to the new circular No. Prot.217464 / 6-7-2020 of (SEPE).*