

# Heat Stress Guidelines

Health and Safety FCX-HS34 | Release Date 03/16/22

## GUIDANCE

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### OVERVIEW

This guidance document outlines best practices and methods to protect employees from acute health effects associated with heat exposure from the sun or inside a process area.

### GENERAL GUIDANCE

- Identify workers whose daily and permanent tasks are performed outdoors and under direct sun or within areas of the process that are susceptible to ambient or radiant heat exposures.
- Where applicable, use a tool such as heat index (NIOSH App) or Wet Bulb Globe Temperature to identify the level of heat risk for your work area.
- Identify acclimatization (gradually increase exposure over time) plan in the risk assessment for employees working in high-risk environments.
- Modify working schedules according to temperatures, where feasible.
- Include identified heat exposure risks and controls in JHAs, SOPs, JRAs, MOCs, HAZOPs, or other similar written risks assessments.
- Understand the signs and symptoms of the four stages of heat stress

### ACTIONS TO STAY SAFE

- Where risk of heat exposure is identified in the pre-job planning or risk assessment, identify controls such as minimum hydration requirements, location of rest and cooling stations, and scheduled breaks.
- Using and maintaining ventilation controls such as air conditioning in equipment help. If the controls are not functioning, contact a supervisor to determine an operating plan for that piece of equipment.
- Use equipment/tools for heat prevention as designed.
- Provide cooling stations areas such as rooms, tents, trees, etc. that include appropriate controls such as shade or ventilation to provide a cooler area for breaks, where practical.
- Stay hydrated with water and supplement with electrolytes helps your body function properly.
- Use a buddy system and know signs and symptoms of heat illnesses. The symptoms of heat stress are not always evident to the person experiencing them.
- Schedule breaks and rotate workers to reduce exposure/provide rest from working in high heat areas. As risk increases more hydration and rest breaks are needed. Where possible provide cool down areas for breaks.
- Arriving to work Fit for Duty is a key element of managing heat stress.
- It is recommended to eat a balanced diet and do not skip meals as this may deprive the body of vital nutrients or cause the body to lose more water.
- Wearing clothes that are lightweight, lightly colored, and loose-fitting can reduce the risk of heat stress. Depending on the task there is also protective clothing that provides cooling.

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- Having emergency first aid supplies available in areas with high heat stress risk can help if an incident involving heat stress occurs to avoid more significant outcomes. If an employee is experiencing significant heat stress symptoms, (ex. Passing out) consult a medical expert such as an EMT before providing aid.

## Tools for measuring heat stress

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The most effective way to understand heat stress is to evaluate more than just the temperature of the air, as there are multiple environmental factors that can affect the amount of stress that is put on the human body. These factors include, but are limited to humidity, wind speed, and heat from radiant heat sources. Below are the two most common tools that are used to try and better communicate the level of risk based on different combinations of these factors.

- **Heat Index** – Standard weather measurement that identifies what the temperature currently “feels like” based on temperature and humidity. Heat Index can be found in tools such as the NIOSH Heat App or other weather-related sources. The other factors are assumed based on standard conditions in most tools that use heat index to identify risk level. This makes it easy to identify or calculate so it can often be sufficient in areas where extremes are not present. (ex. High quantities of heat from radiant heat sources).
  - NIOSH Heat App - <https://www.cdc.gov/niosh/topics/heatstress/heatapp.html>
    - The NIOSH Heat App uses either automatically gathered weather or manually entered information. Based on this information, it calculates the heat index and identifies the risk level. If work is being performed outdoors and using automated weather information it can be an effective pre-job planning tool, as it will also calculate based on the forecast for the next 12 hours. In addition, it provides a quick reference for information on signs and symptoms to look out for, as well as basic first aid measures.
- **Wet Bulb Globe Temperature (WBGT)** – Measurement that includes multiple, if not all, environmental factors listed above. This makes it a more accurate measure of actual heat stress risk. Due to the complexity of how it is calculated, however, it can be more difficult to determine without the use of devices and/or software that is specifically designed to do so. Even with the added level of complexity, in areas such as those with considerable amount of heat from radiant sources or that are indoors, it is significantly more accurate.
  - If using a handheld device to measure WBGT, ensure you are properly trained and understand how to use it to take the required measurements. Always follow the manual for exact steps required to take measurements. Consult with your site Health and Safety department/Industrial Hygienist if needing assistance with how to use the device or if looking to select a new WBGT measuring device. For devices that measure windspeed always make sure that the device is configured correctly to accurately measure.
  - WBGT measuring devices will require annual calibration to ensure they are accurate.

### Common signs and symptoms to look out for Heat Stress related illnesses:

- Headache
- Nausea

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- Dizziness
- Confusion
- Losing consciousness
- Muscle cramps
- Tiredness or Weakness
- Cold, pale, and clammy skin
- Rash

#### **First Aid supplies for heat stress**

- Cold Packs
  - Recommend being instant cold packs that do not require freezing to use
- Waterproof tape
- Electrolyte packets/tablets
- Thermometer
  - Recommended to be disposable thermometer strips
- Blanket

## **TRAINING REQUIREMENTS**

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Initial and refresher training, as necessary

## **REFERENCES**

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[Heat - Heat-Related Illnesses and First Aid | Occupational Safety and Health Administration \(osha.gov\)](#)

[Heat - Prevention | Occupational Safety and Health Administration \(osha.gov\)](#)

[Heat Stress | NIOSH | CDC](#)