Heat Stress

Regulations

Although there is no specific Occupational Safety and Health Administration (OSHA) standard for heat stress, employees are protected under the General Duty Clause of the Occupational Safety and Health Act because heat-related illnesses are a serious hazard. The General Duty Clause states that employers are required to “…provide a place of employment free from recognized hazards that are causing or are likely to cause death or serious physical harm to its employees.”

Heat-Related Illness Prevention Safety Tips

American Society of Safety Engineers

As heat stress can cause workplace injuries and illness, it is important for workers to be protected against the heat, sun exposure, and other hazards that could result in severe injury. The American Society of Safety Engineers (ASSE), the 99-year-old safety society with more than 32,000 occupational safety, health, and environmental professional members, suggests employers and employees are aware of the factors that can lead to heat stress, the symptoms of heat exhaustion and heat stroke, preventing heat stress and what can be done for heat-related illnesses.

First, when one’s body is unable to cool by sweating, according to the U.S. Occupational Safety and Health Administration (OSHA), several heat-induced illnesses such as heat stress or exhaustion and the more severe heat stroke can occur and result in death. Factors leading to these conditions include high temperatures, being in direct sun or heat, limited air movement, physical exertion, poor physical condition, some medicines and inadequate tolerance for hot workplaces.

“Heat and humidity can be a serious safety threat to all workers—from lifeguards to agriculture, construction and roadway workers,” ASSE President Darryl C. Hill, PhD, CSP said today. “People should think twice if they begin to feel these symptoms and act quickly.”

Headaches, dizziness, lightheadedness or fainting, weakness and moist skin, mood changes such as irritability or confusion and upset stomach and vomiting are symptoms of heat exhaustion.

Stay Cool

Symptoms of heat stroke include dry, hot skin with no sweating, mental confusion or losing consciousness and seizures or convulsions. To prevent heat stress, officials suggest that you monitor co-workers and yourself. Prevention efforts include blocking out direct sun or other heat sources, using cooling fans or air conditioning and to rest regularly. It is also important to drink lots of water, about one cup every 15 minutes and to wear lightweight, light colored, loose-fitting clothes. It is recommended that if you are in the sun to avoid alcohol, caffeinated drinks and heavy meals. According to OSHA, heat can also cause injury due to accidents related to sweaty palms, fogged up glasses and dizziness. Sunburns are also a hazard of sun and heat exposure. Suggested tips to prevent heat-related illnesses and injuries include:

- Use cooling pads that can be inserted into hard-hats or around the neck to keep the head and neck cool. Vented hardhats or neckbands soaked in cold water can also be used to minimize prolonged heat exposure and prevent the body from overheating.
- Wear protective eyewear that features sufficient ventilation or anti-fog lens coating to reduce lens fogging from the heat. Sweatbands can also be used to prevent perspiration from dripping into the eyes.
- Use gloves with leather palms and cotton or denim backs which allow for an increased air flow and still protect hands. Also, choose gloves with a liner to absorb sweat and prevent perspiration buildup. Some gloves feature strips of nylon mesh or are perforated at the back of the hand for more air flow.

OSHA’s Heat Safety Tool

OSHA now has an app to help supervisors calculate the heat index for their worksite, and based on the heat index, displays a risk level to outdoor workers.

Click Here for More Details
Heat Stress

Follow Simple Rules

- Wear light-colored, loose-fitting, breathable clothing such as cotton, recommends OSHA.
- Take breaks in cooler shaded areas.
- For workers exposed to extreme heat, proper hand protection from burns depends on the temperature and type of work to which workers are exposed.
- To prevent dehydration, another hazard associated with exposure to heat, the National Institute for Occupational Safety and Health recommends that workers drink five to seven ounces of fluids every 15 to 20 minutes. Drink cool water and avoid diuretics such as coffee, tea, alcohol or soda that actually deplete body fluid. Sports drinks are also good for replacing fluid in the body, but use should be monitored due to the high sodium content.

Severe Heat Precautions

A recent Professional Safety journal article titled “Heat Stress—Improving safety in the Arabian Gulf Oil and Gas Industry” describes working in the heat in the State of Qatar and what one company did to index the severity of the heat-related illness problem and the prevention of work practices provided to workers resulting in a reduction of heat stress-related medical treatments. The authors, ASSE member Oliver F. McDonald, CSP, CIH; Nigel J. Shanks, M.D., PhD; and Laurent Fragu, M.S. said heat stress disorders span a spectrum from minor heat stress to heat exhaustion and heat stroke. They noted that the State of Qatar had banned midday working hours for certain employees during the hottest times of the year due to the threat of heat-related disorders.

The authors note the practices used in Qatar to reduce heat-related stress to workers include: allowing workers to become acclimated to the heat; using engineering controls such as cooling, ventilation and shading - difficult due to the daily change in environments; providing personal protective equipment (PPE), such as umbrellas and evaporative bandanas; constant distribution of water in insulated water bottles; work scheduling; employee rotation; self-evaluation; using the buddy system; working in the shade; shielding, air cooling, ventilation and mechanical assistance; water stations placed inside or near rest areas and mandatory breaks.

Dangerous Condition Communications

In addition, heat stress communication materials/safety tips were posted at key work locations and colored flags were flown above the work projects. Materials for the workers were available in several different languages as well as providing employees training to new and existing employees and contractors to explain heat stress symptoms, the heat index system, the color coding and the controls implemented. The program was recognized as a significant positive work practice during a recent company audit.

Heat Index

The heat index is an index that combines air temperature and relative humidity in an attempt to determine the human-perceived equivalent temperature—how it feels. This is sometimes represented as the “real feel” temperature.

<table>
<thead>
<tr>
<th>Temperature (°F)</th>
<th>NOAA national weather service: heat index</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Caution</td>
</tr>
<tr>
<td>85</td>
<td>Extreme Caution</td>
</tr>
<tr>
<td>90</td>
<td>Danger</td>
</tr>
<tr>
<td>95</td>
<td>Extreme Danger</td>
</tr>
</tbody>
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The chart above shows the heat index values corresponding to different combinations of temperature and humidity, with caution levels increasing as the index rises.