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The National Institute for Occupational Safety and Health (NIOSH)

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OSHA–NIOSH Heat Safety Tool App

The OSHA-NIOSH Heat Safety Tool is a useful resource for planning outdoor work activities based on how hot it feels throughout the day. Featuring real-time heat index and hourly forecasts, specific to your location, as well as occupational safety and health recommendations from OSHA and NIOSH.

The OSHA-NIOSH Heat Safety Tool features:

- A visual indicator of the current heat index and associated risk levels specific to your current geographical location
- Precautionary recommendations specific to heat index-associated risk levels
- An interactive, hourly forecast of heat index values, risk level, and recommendations for planning outdoor work activities in advance
- Editable location, temperature, and humidity controls for calculation of variable conditions
- Signs and symptoms and first aid information for heat-related illnesses

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FAQs

What is the Heat Index?

The heat index is a measure of how hot it feels when relative humidity is taken into account along with the actual air temperature. It is important to note that, since heat index values were devised for shady, light wind conditions, that exposure to full sunshine can increase heat index values by up to 15°F.

The National Weather Service uses the heat index values to issue heat alerts to the general public. However, workers in hot environments experience heat stress from a combination of environmental factors and metabolic heat from the tasks they are performing. Therefore, OSHA-modified heat index cutoffs, used in the app, create heat index-associated protective measure specifically for worksites.

When should I use the heat index?

The heat index and wet bulb globe temperature (WBGT) are both used to measure environmental temperature. NIOSH recommends the use of wet bulb globe temperature (WBGT) to determine the Recommended Exposure Limits (RELs) for acclimatized workers and the Recommended Alert Limits (RALs) for unacclimatized workers in hot environments. However, we realize that workers and many small businesses will not have access to the resources necessary to determine WBGT. In these cases using the heat index is a viable alternative. WBGT is determined by measuring dry air temperature, humidity, and radiant energy; and used to calculate a thermal load on the worker. While the literature provides plenty of evidence regarding WBGT's accuracy and common usage in industrial settings; the simplicity of the heat index makes it a good option for many outdoor work environments (as long as there are no additional radiant heat sources, such as, fires or hot machinery).

Is monitoring the heat index enough to keep workers safe?

Use of the heat index (or WBGT) is important, but due to a variety of other factors affecting risk, it cannot be solely relied upon to prevent heat stress among workers. For example, employers should: (1) reduce workplace heat stress by implementing engineering and work practice controls; (2) train workers before hot outdoor work begins; (3) ensure that workers are acclimatized before they work in a hot environment; (4) provide the means for appropriate hydration of workers; (5) ensure and encourage workers to take appropriate rest breaks to cool down and hydrate; and (6) give workers the opportunity to limit exposure to direct sun or other radiant heat sources by providing shaded areas as needed.

The heat index can be used as a screening tool, so that supervisors and workers can more easily recognize when additional preventive options should be implemented. For example, as the heat index increases then more water and rest breaks may become necessary. In addition, if conditions are of extreme risk, then it may be necessary to reschedule non-essential work.

How do I use the OSHA-NIOSH Heat Safety Tool app?

This app provides recommendations to prevent heat-related illnesses and reduce heat stress in outdoor workers based on local weather conditions used to calculate the heat index.

Heat Index – If your location services is enabled, the temperature and humidity data will automatically download and the current heat index will be displayed. Beneath the calculated heat index is the associated "Precautions" button for the risk level. By clicking on "Precautions", you will arrive on a screen with risk level-specific recommendations.

Hourly Heat Index Forecast – If you are interested in planning your work activities for the entire shift around the heat index, there is an hourly feature that will allow you to scroll through and determine the hottest hours of the day along with the corresponding risk level and precautions.

Symptoms and First Aid – At the bottom of your app screen you will always have easy access to heat-related illness symptoms and first aid.

More – The "More Tips" provides information about being prepared for emergencies, training, acclimatization, hydration, monitoring workers for heat-related illness, and breaks. There is also a list of risk factors associated with heat-related illnesses.