

OSHA HEAT NEP

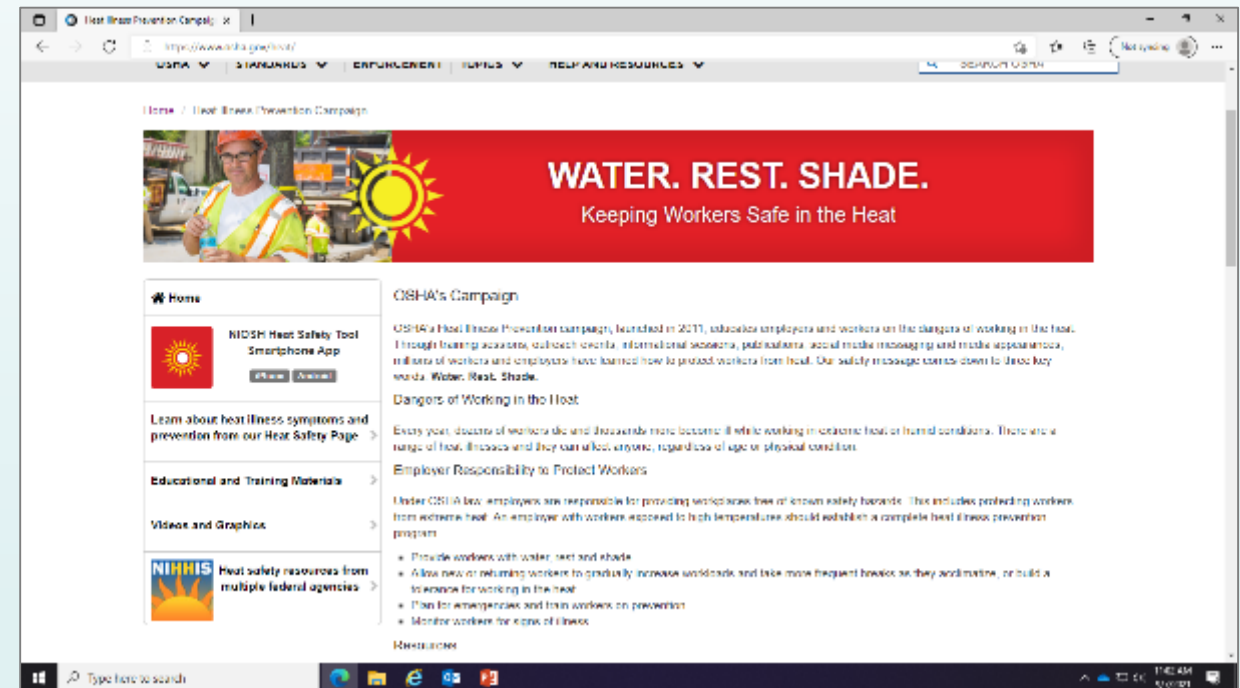
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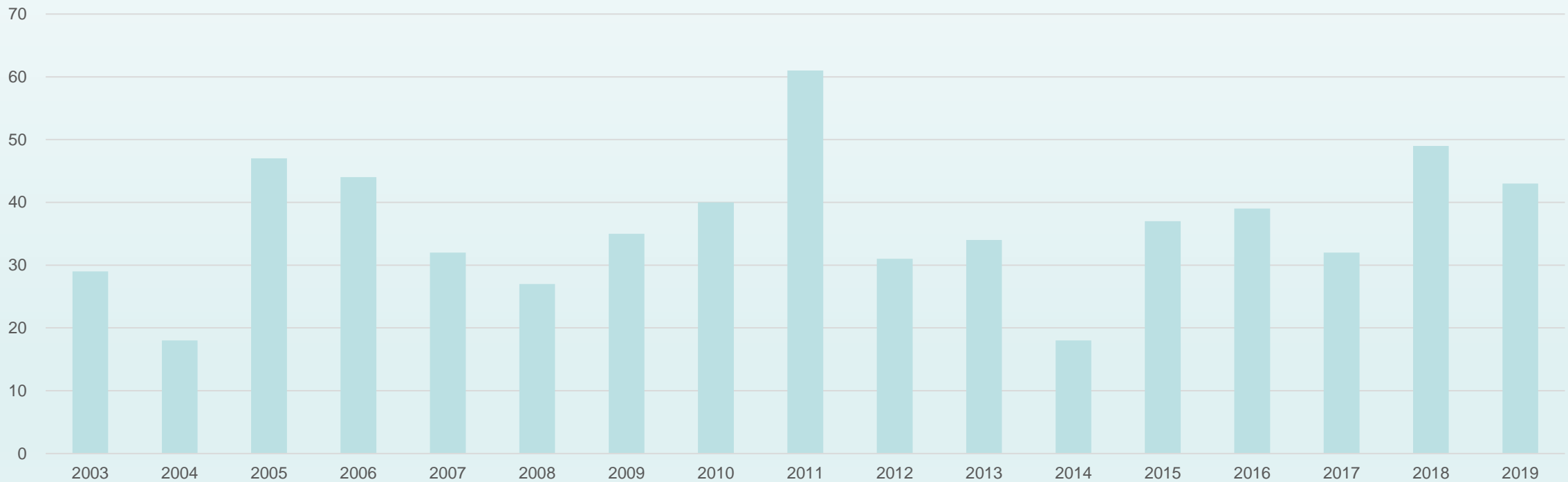
HEAT National Emphasis Program

- New Heat Initiative Memo-Signed September 1, 2021 (*archived*)
- Expands on Heat Campaign launched in 2011
- Heat NEP Effective Date: April 8, 2022 (operating for 3 years)



BLS – Fatal occupational injuries related to environmental heat

Fatal occupational injuries



Heat Initiative Elements: BLS Data

Industry	NAICS	Average fatality cases 2011-2019	Average cases with days away
Agriculture, forestry, fishing and hunting	11XXXX	5	113
Mining	21XXXX	1	80
Construction	23XXXX	13	567
Manufacturing	31XXXX – 33XXXX	4	426
Administrative and support and waste management and remediation services, landscaping	561XXX	6	306
Transportation and warehousing	48XXXX- 49XXXX	4	297

Why is Heat a Hazard to Workers?

The body cools by perspiring and circulating blood closer to the skin. In most environments it is a very effective method for maintaining body temperature.

When the air temperature approaches body temperature and the relative humidity approaches the dew point the body's cooling plan loses effectiveness.



What happens to the body?

- The body perspires profusely and the body loses salts and fluids
- The body stores the heat and the core temperature rises
- The heart rate increases
- Muscles cramp
- Dizziness and confusion
- Weakness and fatigue
- Nausea
- The body stops sweating

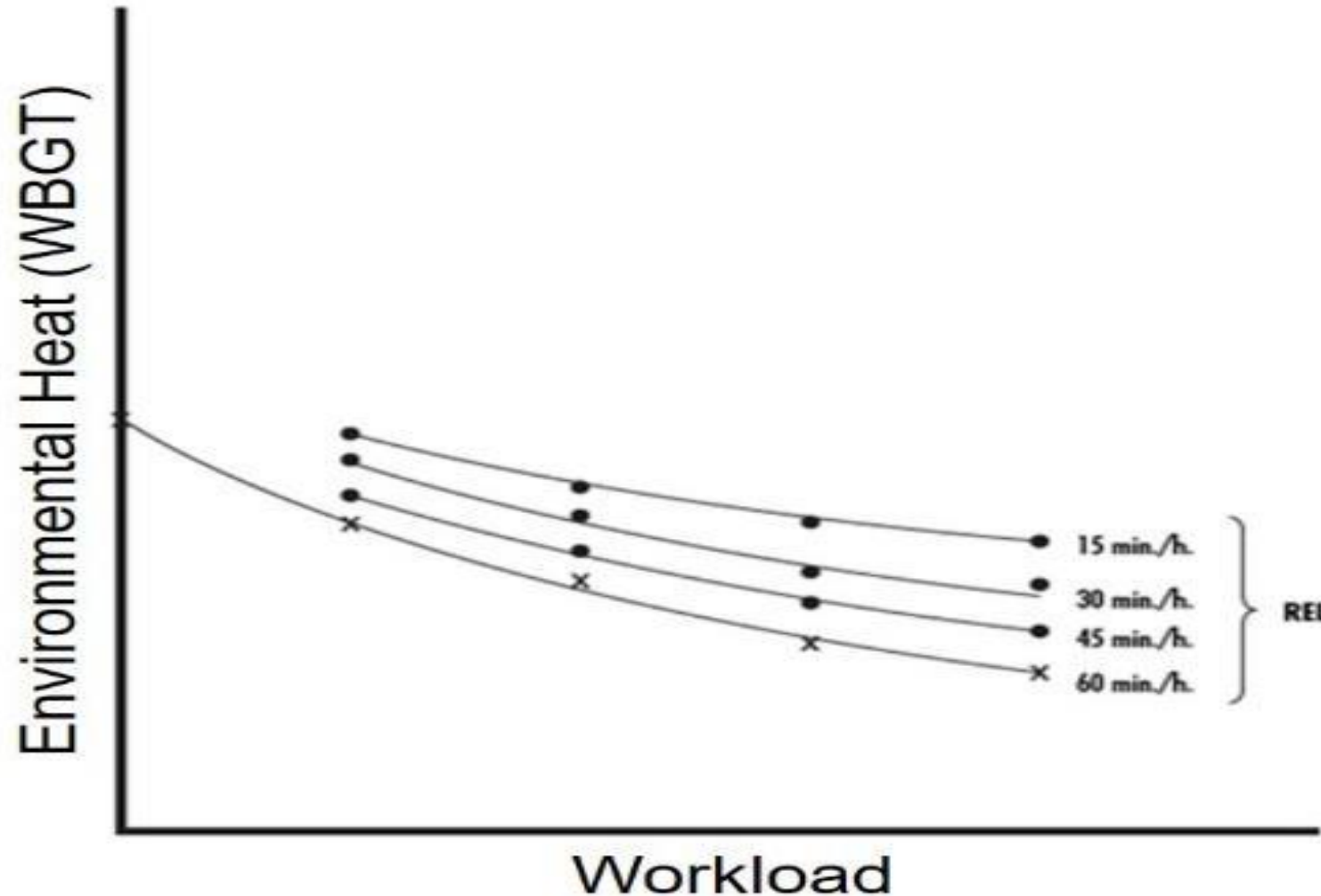


How do I know if it is too hot?

- Temperature rises
- Humidity increases
- Sun gets stronger
- Air movement stops
- Torches, motors, pumps, heaters add heat
- Work clothes and PPE keep in body heat
- Lifting, moving, carrying causes the body to burn calories and produce heat



NIOSH Heat Stress Exposure Limits



Formal exposure limits explicitly acknowledge the exertional component of heat stress

Personal Risk Factors

- Some workers handle heat stress less effectively than others. Heat intolerance happens for a variety of reasons. Personal risk factors include:
- Obesity (body mass index ≥ 30 kg/m²)
- Diabetes
- High blood pressure
- Heart disease
- Lower level of physical fitness
- Use of certain medications such as diuretics (water pills) and some psychiatric or blood pressure medicines
- Some medications can result in a worker's inability to feel heat conditions and/or the inability to sweat, so symptoms of heat stress may not be evident.
- Alcohol use
- Use of illicit drugs such as opioids, methamphetamine, or cocaine

Acclimatization



- The term "workers who are new to working in warm environments" includes the following groups:
- New, temporary, or existing employees who start new work activities:
 - in warm or hot environments
 - while wearing additional clothing (e.g., chemical protective clothing)
 - with increased physical activity
- Workers returning to work environments with potential exposure to heat hazards after an absence of one week or more for example returning from any kind of extended leave.
- Workers who continue working through seasonal changes when temperatures first begin to increase in the spring or early summer.
- Workers who work on days when the weather is significantly warmer than on previous days (i.e., heat wave).

Acclimatization

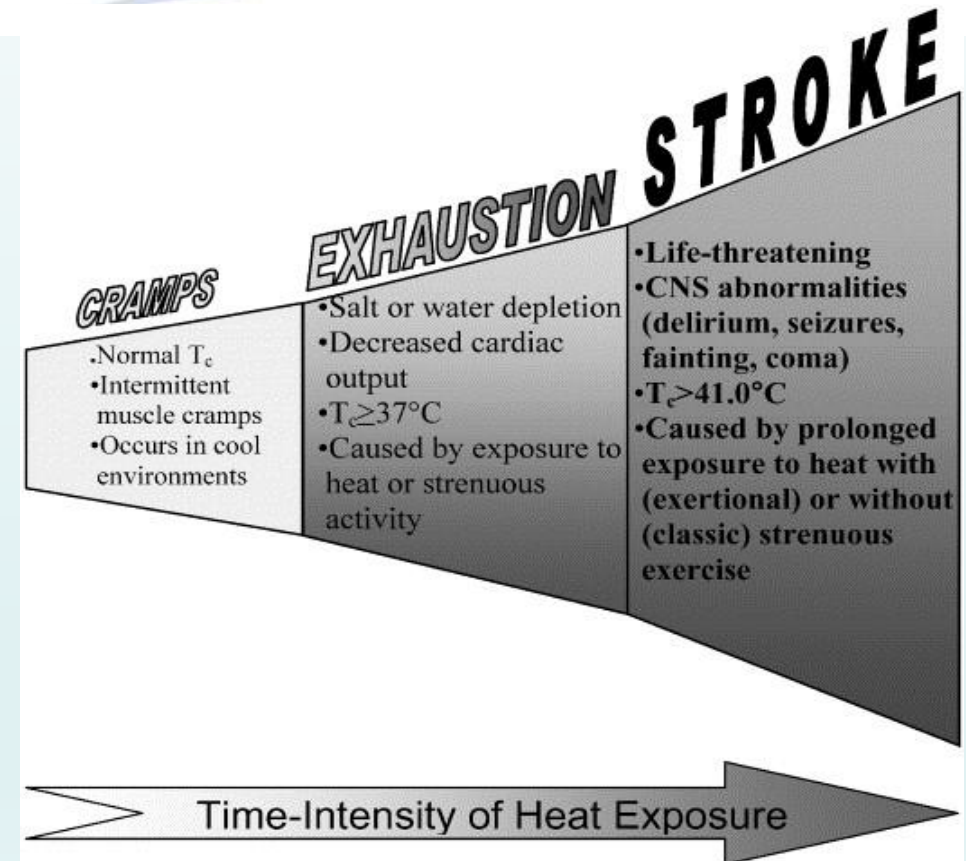
Acclimatization results from the following changes in the way the body works:

- Body produces more sweat → more evaporative cooling
- Sweat contains less salt loss → less likely to develop electrolyte imbalances and heat cramps
- Body is more efficient at getting rid of heat → slower heart rate and slower body temperature increase
- More blood flows to the skin → more efficient cooling through the skin

Unacclimated Workers	Acclimated Workers
Do not sweat efficiently.	Sweating rate is higher, which helps dissipate heat through evaporative cooling.
Sweat contains more salt.	Sweat contains less salt, which prevents development of electrolyte imbalances.
Body temperature and heart rate increase more quickly when working.	Maintain lower body temperature and heart rate.
Blood flow not optimized for heat dissipation.	Increased blood flow to skin to lose heat through body surface.

Heat Related Illness

- Heat Cramps
- Heat Syncope/fainting
- Heat Rash
- Heat Exhaustion
- Heat Stroke



Heat Incident

- A construction worker had returned to work after a four to five week layoff.
- He had been constructing formwork in an area open to full sun on the site starting at 7:00 am.
- On his first day back on the job he strove hard to make a good impression and only took one break to eat a banana and drink water.
- During the middle of the afternoon, the heat index rose to 99°F.
- As he prepared to leave for the day just before 3:00 pm, he collapsed and was transported to the hospital. He was admitted to the hospital with a core temperature over 106°F. He was hospitalized for several days for heat stroke and fortunately he recovered.



Heat Incident

						Calculations		
Time	Dry Bulb Temp (°F)	Relative Humidity (%)	Solar Irradiance**	Wind Speed (MPH)	Station Pressure (inHg)	Heat Index*	WBGT (°F)***	WBGT (°C)
7:54	83	72	990	0	29.91	89	95.1	35.06
8:54	85	68	990	6	29.93	92	85	29.44
9:54	86	63	990	5	29.92	92	86.1	30.05
10:54	88	61	980	6	29.91	96	87.3	30.72
11:54	89	59	980	8	29.91	97	87.1	30.61
12:54	90	59	980	9	29.9	99	87.6	30.89
13:54	91	54	710	9	29.88	99	86.4	30.22
14:54	91	52	990	6	29.87	98	88	31.11
Max	91	52	990	0	29.87	89	85	29.44
Min	83	72	990	9	29.3	99	95.1	31.11

Heat Incident



- Metabolic Rate – Working with lifting heavy wood, hammering/cutting
- Rest – Limited break time
- Shade – Worked in direct sunlight without shade
- Hydration – Only took one break during the day
- Acclimatization – Was off for 4-5 weeks

Heat NEP: Inspection Procedures

- On **heat priority days** (when the heat index is expected to be **80 degrees F or higher**):
 - During any programmed or unprogrammed inspections, CSHOs should inquire about heat-related hazard prevention programs
 - Provide compliance assistance where needed
- On any day that the **NWS** has announced a heat **advisory or warning**, for the local area: <https://www.weather.gov/safety/heat-ww>
 - Conduct programmed inspections at targeted industries
- May expand inspection scope if heat hazards are present

Heat NEP: Heat Program Considerations

- Is there a written program?
- Did the employer monitor ambient temperature(s) and work exertion levels at worksite?
- Was there access to water, rest, shade, breaks?
- Did the employer provide time for acclimatization of new and returning workers?
- Was a “buddy” system in place on hot days?
- Were administrative controls used (earlier start times, and employee/job rotation) to limit heat exposures?
- Did the employer provide training on heat illness signs, how to report signs and symptoms, first aid, how to contact emergency personnel, prevention, and the importance of hydration?

Heat NEP: Regulations Review

- General Duty Clause 5(a)(1) or HAL (Hazard Alert Letter)
- Other applicable standards:
 - **Recordkeeping:** 1904.7(b)(5) and 1926.22
 - **Personal Protective Equipment:** 1910.132 and 1926.28
 - **Sanitation:** 1910.141, 1915.88, 1917.127, 1918.95, 1926.51, and 1928.110
 - **Medical Services and First Aid:** 1910.151 and 1926.23.
 - **Safety & Health Program** (frequent safety & health inspections): 1926.21 and 1926.20

What can we do?

Employers can-

- Engineering controls- such as?
- Administrative controls- such as?
- Is there PPE?
- Provide Training- such as?

Employees can-

- Wear light clothing
- Avoid alcohol and drink more water
- Monitor themselves and co-workers



New PPE is becoming available



V-Gard C1™ Hard Hat uses patent-pending ReflectIR™ Thermal Barrier

Not a product endorsement

Snap Towels/Cooling Towels



Other personal protective equipment



For example:
[Ergodyne](#) Orange Hard Hat Brim with Shade



Bolt - Yellow High Visibility Mesh Sunshade with 50+UPF UV Protection



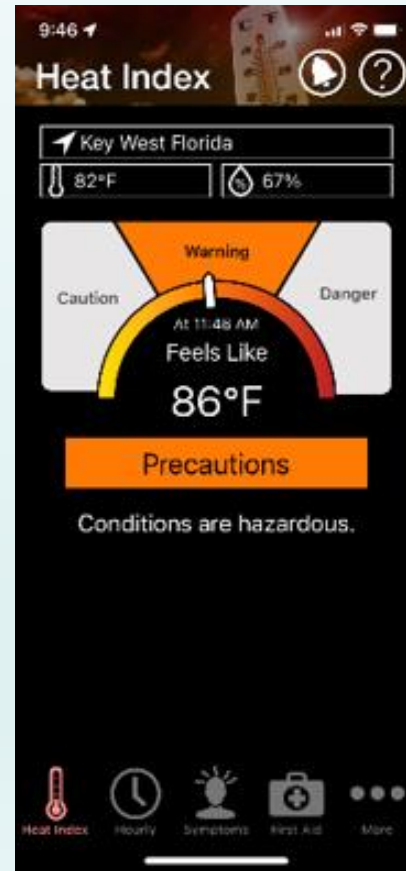
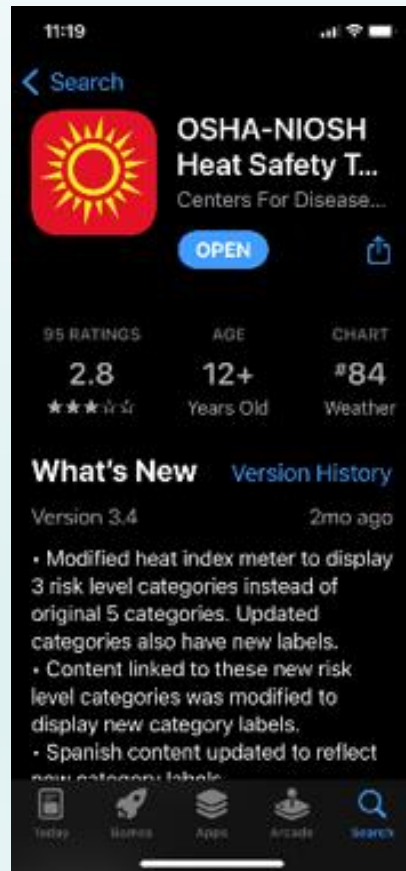


OSHA Heat Safety Tool

- Provides Heat Index
- Displays Risk Level
- Reminders about Protective Measures
- Available in English and Spanish for Android and iPhone



Heat Index: OSHA-NIOSH Heat Safety Tool App



- Caution <80° F
- Warning 80-94° F
- Danger ≥95° F

Occupational Safety and Health Administration

Safety and Health Topics / Heat

Heat



- Home
- Planning and Supervision
- Heat-Related Illnesses & First Aid
- Prevention
- Personal Risk Factors
- Standards

Overview: Working in Outdoor and Indoor Heat Environments

Millions of U.S. workers are exposed to heat in their workplaces. Although illness from exposure to heat is preventable, every year, thousands become sick from occupational heat exposure, and some cases are fatal. **Most outdoor fatalities, 50% to 70%, occur in the first few days of working in warm or hot environments because the body needs to build a tolerance to the heat gradually over time. The process of building tolerance is called heat acclimatization. Lack of acclimatization represents a major risk factor for fatal outcomes.**

Occupational risk factors for heat illness include heavy physical activity, warm or hot environmental conditions, lack of acclimatization, and wearing clothing that holds in

Highlights

- COVID-19 Guidance on the Use of Cloth Face Coverings while Working Outdoors in Hot and Humid Conditions. OSHA, (September 2020).
- COVID-19 Guidance on the Use

*Thank
you!*



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