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Occupational Safety and Health Administration  
U.S. Department of Labor  
200 Constitution Avenue NW  
Washington, DC 20210

January 25, 2022

RE: Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings: [OSHA-2021-0009](#)

Dear Assistant Secretary Parker:

The Chlorine Institute (“CI” or “The Institute”) is a 190-member, not-for-profit trade association of chlor-alkali producers worldwide. The Institute’s producer members account for majority of the chlorine production capacity in the U.S., along with the majority of chlorine repackagers, caustic soda and caustic potash production, and hydrochloric acid production. The Institute’s mission chemicals are used throughout the U.S. economy and are paramount to the protection of public health.

In the October 27, 2021, Federal Register Notice, Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings, the Occupational Safety and Health Administration (“OSHA”) detailed the hazards of heat in workplace settings and asked a series of questions on how current employers are mitigating such hazards. In this letter, I will detail mitigation practices currently in place at various CI member companies.

The Chlorine Institute’s membership is diverse in terms of company size, geographic location, and production process. Some CI members have one location, while others are multinational organizations with many sites. The number of people employed at member companies ranges from a couple dozen to thousands. CI members have locations near the Canadian border, Mexican border, in Puerto Rico, near both the Pacific and Atlantic coasts and everywhere in

between. Additionally, some CI members produce their products at one integrated chemical complex with multiple employers present, while others are owner/operators in remote locations.

I contacted CI members to learn of how they are mitigating heat hazards. The examples below are a compilation of those conversations and are cross-referenced to the numbered questions in the Federal Register Notice, Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings (“Heat FRN”). The information below is a non-scientific sampling of mitigation methods. Not all mitigation measures of all CI members are captured in this letter.

### **Assessment**

Question 40 in the Heat FRN states “What metrics are currently being used to monitor and assess hazardous heat exposure in the workplace (e.g., heat index, ambient temperature, WBGT)?” CI members have used ambient temperature, humidity, wet bulb temperature, heat index and category of work to monitor daily heat hazards. Production facilities are often mostly outside. Some production equipment is enclosed; control rooms and maintenance shops are generally indoors as well. The category of work metric is a measure of the physical vigor of an activity. In combination with the other metrics, physically vigorous work may be rescheduled if the metrics indicate it is too hot, based on heat index, wet bulb, humidity, and/or ambient temperature.

### **Management**

#### *Injury and Illness Prevention*

The Heat FRN poses these questions:

- “(38) What efforts are employers currently taking to prevent occupational heat-related illness in their workplace? Please provide examples and data.”
- “(39) How effective have employers been in preventing occupational heat-related illness in their workplaces, and how are employer-driven heat injury and illness prevention programs being evaluated?”

The first step in heat injury and illness prevention is a heat hazard assessment and policy. Many CI members are located in the Gulf Coast region and already have defined policies, borne out of rigorous heat hazard assessments.

Elaborating on the aforementioned category of work, some CI members have categorized work tasks by the amount of energy expended. For example, one member company has defined heavy

work as highly physical tasks like lifting large loads, shoveling, or pushing heavy items. Light work includes walking without a load, observing, and supervising. Moderate work falls between these categories. With these definitions, this organization built a Work/Rest from Heat matrix that has heat category on the Y-axis and defined work/rest from heat cycles and water intake based on category or work. An example of one company's categorization is included as an enclosure.

Other facilities stop non-critical work during the hottest part of the day when pre-determined metrics cross a threshold. Coupled with the heat policy, the safe work permitting process includes heat hazard mitigation. Heat advisories are disseminated to workers through email, text messages, and posted signs at the entrance of process areas. Mandatory breaks, recommended water and electrolyte consumption, and cooling stations during high heat situations are also common.

Personal protective equipment ("PPE") is used for various tasks. Depending on the facility and task, this can include fire-retardant clothing, non-reactive liquid-repelling chemical barriers, hard hats, goggles, steel-toed boots, and/or long sleeves. Such PPE can contribute to raising body temperatures in addition to environmental factors. Through the safe work permitting process, and also the work categorization, tasks requiring PPE that could raise body heat to dangerous levels are assessed and scheduled to 1) restrict duration of the task and/or 2) schedule at time when ambient temperatures are lower.

### *Emergency Management*

The Heat FRN asks:

- "(84) How do organizations in both indoor and outdoor work environments currently deal with heat-illness emergencies if they arise?" and
- "(91) How do employers currently involve workers in heat injury and illness prevention?"

Heat illness emergency management begins with recognition of heat illness symptoms. Prior to starting work at CI member facility locations, workers are trained on workplace hazards, including heat. Workers are trained to look for heat illness symptoms they themselves may experience and in their fellow employees. Periodic refreshers are given. Additionally, many facilities have emergency response teams who are trained in first aid and who are on-call during operating hours.

## *OSHA's Role in Preventing Heat Injuries and Illness*

The Heat FRN poses the question “(27) Are OSHA's existing efforts and authorities adequate or effective in protecting workers from hazardous heat in indoor and outdoor work settings?” In a word, yes. OSHA regulations include the general duty clause. Due to the general focus on safety and the added incentive of existing OSHA regulations, CI members have already assessed (and continue to assess) heat hazards and proactively implemented mitigating measures. OSHA has great resources on its Heat webpage<sup>1</sup> and timely heat hazards social media campaigns. OSHA should continue to provide resources and use the general duty clause as necessary to address heat hazards in workplaces.

CI and OSHA have a shared goal – a safe workplace. CI members will continue to mitigate heat hazards and we look forward to additional voluntary efforts from OSHA. Thank you for your time and attention, and we look forward to providing any further information as requested.

Sincerely,

A handwritten signature in blue ink that reads "Robyn Brooks". The signature is written in a cursive, flowing style.

Robyn Brooks | Vice President - Health, Environment, Safety and Security

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<sup>1</sup> OSHA Heat Hazards webpage - <https://www.osha.gov/heat-exposure/hazards>

# Enclosure – Example heat assessment, categorization, and policy excerpt

## Example Heat Assessment, Categorization, and Policy Excerpt

### Definitions

*Heavy Work* means work which requires 350 or higher kcal/hr (kilocalories per hour). Examples include shovel work, frequent heavy lifting of over 150 lbs., or frequent heavy pushing of over 150 lbs.

*Moderate Work* means work which requires 200 to 350 kcal/hr (kilocalories per hour). The vast majority of Hawkins production, warehouse, maintenance, and delivery work falls into this category.

*Light Work* means work which requires up to 200 kcal/hr (kilocalories per hour). Examples of light work are walking without a load, supervising, observing, or other support functions.

*Beat the Heat Rounds* are regular observations by supervisors and managers conducted specifically to evaluate employee health related to heat injuries. The frequency of these rounds are defined in Appendix 2 of this policy.

### Facility Requirements

Every facility shall provide the following during periods where work at elevated temperatures is performed:

- Access to cool potable water throughout the work day.
- Access to sports drink in order to replenish electrolytes lost from sweat.
- A company-approved water bottle which can be kept on the production floor or in warehouse areas to hold water or sports drink.
- A shaded area with temperatures below 71 degrees Fahrenheit Wet Bulb for respite from the heat.
- Where operations permit, fans or other methods of air movement.
- A thermometer capable of displaying Wet Bulb temperature.

Additionally, managers and supervisors must take physical work factors into account when making assignments or organizing work. A chart accounting for work and rest periods for different levels of work is included in the appendix of this policy.

## Work / Rest and Water Consumption Table

Easy Work	Moderate Work	Heavy Work
Walking without a load	Most Production, Warehouse, Maintenance and Delivery work	Shovel work
Observation / supervision	Forklift Operations	Frequent Heavy Lifting (over 150 lbs)
	Material Handling	Frequent Heavy Pushing (over 150 lbs)
	Pumping, filling, labeling	

Heat Category	Wet Bulb	Easy Work		Moderate Work		Heavy Work	
		Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)
1	<72	NL	0.5	NL	0.75	40/20	0.75
2	72-75	NL	0.5	50/10	0.75	30/30	1
3	76-79	NL	0.5	40/20	0.75	30/30	1
4	80-85	NL	0.75	30/30	1	20/40	1
5	86+	30/30	1	20/40	1	10/50	1

Key:

NL = No limit on working time in that condition.

qt/hr = How many quarts of water per hour should be consumed. At 0.5 qt/hr an employee should consume one gallon of water per eight hour shift. At 1 qt/hr an employee should consume two gallons of water per eight hour shift.

