How to Beat the Heat

Attempting to beat the heat in a steel mill is a dynamic, ongoing, recurring, ever-changing and evolving thing, and it is not static nor does it merely look at one successful run of events. The fact is, it's hot, and making steel certainly doesn't cool anything off for workers. Hazard recognition and controls must remain in place to prevent heat-related emergencies.

Before digging into the data, it should be reiterated why it is important to educate, administrate and regulate preventive measures as they relate to heat. It's really quite simple: people matter. In fact, that's the whole reason and rationale behind safety and safe work practices. If coworkers, teammates and employees fail to be protected, injuries and incidents will occur. Safety is a priority and should be valued as such.

It is important to know that the time to plan and develop a heat stress prevention program to protect workers is before high temperatures set in. However, many companies and personnel still rely on just hydration and/or a variety of sports drinks for electrolyte replenishment.

With summer temperatures, the dangers of working outside during hot weather increase. Knowing how to work safely in hot weather can help prevent heat-related emergencies (Fig. 1). The most serious heat-related disorder, according to The National Institute for Occupational Safety and Health (NIOSH), is heat stroke. Heat stroke occurs when the body can no longer control its temperature. When this occurs, NIOSH reports that body temperature can rise to 106°F or higher within 10 to 15 minutes. If emergency treatment is not provided, heat stroke can cause permanent disability or death. This is why it's important to commit to putting the right things in place to prevent any and all types/levels of heat-related emergencies. Good heat safety programs include: engineering and administrative controls, proper training/education and an expectation from management to try new things to help all exposed personnel stay incident- and injury-free in a hot environment.

Why Have a Program?

Statistics show that thousands of workers suffer from heat-related emergencies annually. Ask the following five questions to start thinking about a program:

Figure 1

Contributors to heat-related illness.

Hazards are ever-present in the steel plant environment, and a heightened awareness and emphasis on safety is a necessary priority for our industry. This monthly column, coordinated by members of the AIST Safety & Health Technology Committee, focuses on procedures and practices to promote a safe working environment for everyone.

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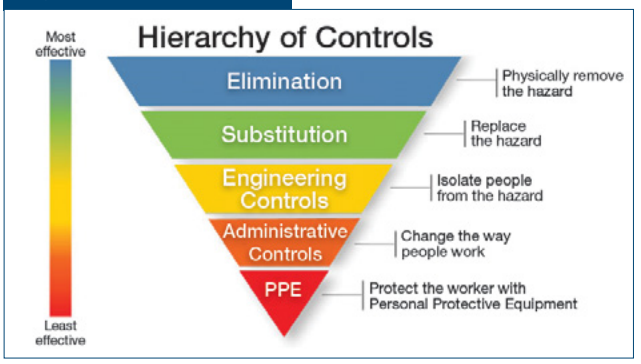
Comments are welcome. If you have questions about this topic or other safety issues, please contact safetyfirst@aist.org. Please include your full name, company name, mailing address and email in all correspondence.

Figure 2



The National Institute for Occupational Safety and Health's "Hierarchy of Controls."

1. What constitutes a good program?
2. Can the exposure be eliminated?
3. What are the hazards?
4. Where are the hazards?
5. Who is exposed?

These questions help formulate the information and needs surrounding a given program. For example, NIOSH's "Hierarchy of Controls" illustrates this (Fig. 2).

The common and constant goal is to not have incidents and injuries, and it is crucial to work through this process with each hazard individually. In order to assess a heat hazard, ask the following questions:

- Can the hazard be eliminated?
- Can something else be done?
- Can something be changed?
- Can a rule, process or procedure be put in place?
- Should personal protective equipment be used?

A job safety/hazard analysis should be conducted before any new task is started. If heat is a hazard for that job, then the teammates need to be reminded of the potential for heat exhaustion and/or stroke. When a teammate starts showing symptoms of heat-related illness, they should be immediately removed from the source. To beat the heat, it needs to be understood why heat affects the human body in the way it does, why staying hydrated and eating right are important, why rest is crucial, why more frequent breaks should be taken, etc. An example of this might be supplying fresh fruit for additional natural vitamins and sugars in addition to hydration. People come in all shapes and sizes and what works for some might not work for others, but every little bit of effort helps.

Overexertion

Overexertion accounts for about 3.3 million emergency department visits every year in the United States and symptoms can be heightened in the heat. It is encouraged to stop and take a break if any of the following symptoms occur:

- Dizziness.
- Sore muscles.
- An unusually high pulse.
- Profuse sweating.
- Feeling very hot.
- Lower abdominal pain.
- Nausea.

Regulatory Information

In 2018, the Occupational Safety and Health Administration (OSHA) issued more than 20 citations for heat stress hazards, despite lacking a specific regulation covering heat stress. Most of these were General Duty Clause violations and were issued with maximum allowable penalties. Serious violation cases are routinely fined the maximum single violation penalty in 2019 of US$13,260. Employers can face even more costly violations and penalties. For example, in California, the state's heat illness prevention standard is the second-most frequently cited year after year.

Conclusion

Don't wait to find out if plans to protect workers against heat-related illnesses will realistically work. By the time an illness or fatality occurs, it's too late. Workers need to be educated to ensure their accurate understanding of the why's. Hazard recognition, analysis, controls and actions are all required to prevent injuries. It's important to do everything possible to prevent heat-related emergencies, because the workers are worth it and the people really do matter.

References

1. National Institute for Occupational Safety and Health (NIOSH), *Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments,* February 2016.
2. U.S. Occupational Safety and Health Administration (OSHA), "Chapter 4 – Heat Stress," *OSHA Technical Manual.* ✦