

2021-2022 GRANT RECIPIENT REPORT

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DON B. DAILY SAFETY GRANT

The objective of this study is to investigate heat stress in iron- and steelworkers and provide recommendations to manage heat stress through assessment, control and training.

Heat-related illness can occur indoors, especially in the iron and steel industry. Employees who have to perform a job in a hotter environment near an oven can be exposed to extremely high heat conditions. Wearing heavy protective clothing to prevent skin burns from molten metal can add more to the heat stress. Some types of work clothing prevent the release of heat from the body. Working extended hours near a furnace or oven can be a risk factor for heat stress. Environmental heat measurements underestimate the risk of heat-related illness in these situations. Workers are at risk of heat-related illness when they are new to jobs, have chronic health conditions or they are reassigned to warmer job tasks from job tasks in a colder environment. Employees who have chronic illness like high blood pressure or heart disease, aged or overweight employees, or those who take certain medications may be affected by extreme heat. The objective of this study is to investigate heat stress in iron- and steelworkers and provide recommendations to manage heat stress through assessment, control, and training.

In this research project, the team investigated occupational heat stress in employees working in the iron and steel industry. Additionally, the team reviewed and recommended

preventive measures for worker protection. They prepared training materials for employees and will spread awareness about heat stress prevention.

Three undergraduate students pursuing a degree in occupational safety and health participated in the research project. These students along with Bardhan as a mentor traveled to Gerdau Long Steel North America's mill in Tennessee to conduct heat stress assessment, and analyze data under the supervision of their mentor.

The safety manager and safety specialist at the mill helped Murray State faculty and students in the heat stress project by providing a walkthrough of the mill, assisting in choosing the high-heat areas in the plant where employees are exposed to extreme heat conditions in casting and melting, and supporting the heat stress assessment.

The study yielded the following recommendations: physiological monitoring of employees, engineering controls, administrative and work practice controls, personal protective equipment, training employees on heat stress, and initiatives to reduce heat stress. ♦

Did You Know?

SSAB Teams With Polestar to Develop 100% Climate-Neutral Car

SSAB will join forces with Swedish electric vehicle manufacturer Polestar to help create the world's first truly climate-neutral car, the company announced.

The collaboration effort, dubbed the Polestar 0 project, intends to produce the world's first electric vehicle created with zero CO₂ emissions along the entire supply chain, without the use of carbon offsets, by the year 2030. The companies will explore using SSAB's fossil-free steel in lieu of traditional automotive steel and other carbon-heavy materials.

Polestar chief executive Thomas Ingenlath commented, "We are leveraging innovation and collaboration to address the climate crisis. We are honored that SSAB will collaborate with us in our endeavors to produce a truly climate-neutral Polestar car by 2030. SSAB is showing the way in manufacturing quality steel without carbon dioxide emissions. SSAB's innovative solutions will be invaluable in helping us decarbonize our manufacturing processes and the materials we use."