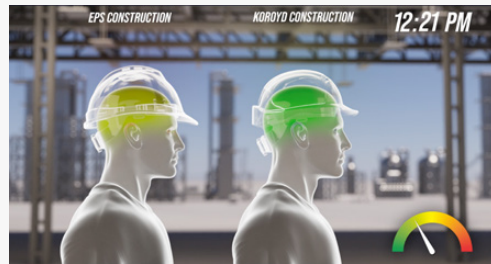
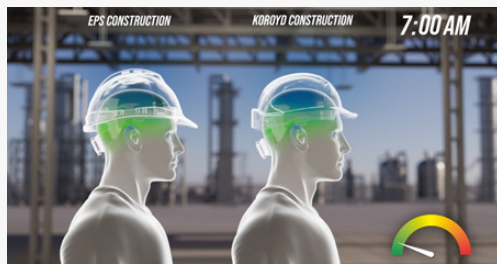


PROTECTION WITHOUT COMPROMISE



KOROYD-integrated industrial safety helmets show a heat index reduction of up to 8°F / 4.5°C. KOROYD-integrated safety helmets are poised to answer the demands of a warming world and protect workers by reducing heat stress.

WHAT IS HEAT STRESS?



The body works hard to regulate temperature, primarily through evaporation of sweat. Thermoregulation keeps deep body temperature at safe levels of between 37°C ± 1°C. Heat stress is a state that occurs when the body is unable to cool itself effectively.



WHY DOES IT MATTER?

Heat stress is increasingly a crucial safety issue, particularly for outdoor workers. According to Page and Sheppard (2019), heat shocks significantly increase accident rates, while Hancock and Vasmatzidis (2003) found a link between heat stress and decrease of cognitive performance.

This crucial reality of heat-related worker protection is not lost on regulatory bodies and industry leaders. With OSHA considering a federal heat standard in the US, and several states already enforcing OSHA-approved state policies, employers and regulating bodies alike are making moves toward protecting workers from heat-related injuries and fatalities. According to the Centers for Disease Control and Prevention, an average of 658 heat-related deaths occur each year, while the Bureau of Labor Statistics reports that 436 work-related deaths due to environmental heat exposure occurred between 2011 and 2021 in the US alone.

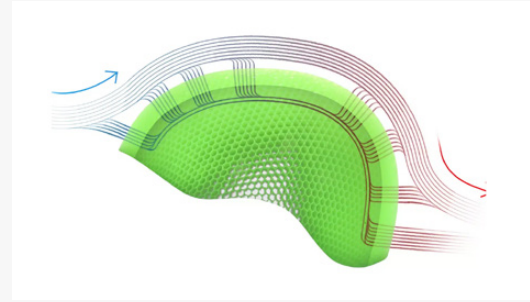
ABOUT THE STUDY

KOROYD developed a test method to evaluate the thermal comfort of industrial helmets, using a head form replicating human sweat. Using a head form with a semipermeable membrane passable only by water vapor, the KOROYD team was able to simulate human thermoregulation in a controlled and reproducible way. In the test, a water basin was heated to 37°C, allowing the team to mimic skin temperature and humidity buildup.

The helmets were tested at room temperature, the head form temperature was set at 37°C. Both the humidity and temperature were tracked over one hour. Using sensors across the head form, the team measured temperature, relative humidity, and absolute humidity, and used the data to calculate the heat index (HI).

INNOVATING HELMETS FOR REDUCED HEAT STRESS

As heat-related injuries and fatalities mount, it is imperative to find innovative solutions to worker protection. As part of a continued mission to advance the standard of protective solutions, KOROYD has completed a rigorous test protocol to evaluate the thermal comfort of industrial helmets, with stunning results. According to the test results, KOROYD integrated industrial safety helmets show a heat index reduction of up to 4.5°C / 8°F. Solutions like KOROYD-integrated safety helmets are poised to answer the demands of a warming world and protect workers while reducing heat stress.



HEAT INDEX REDUCTION

-4.5°C

UP TO

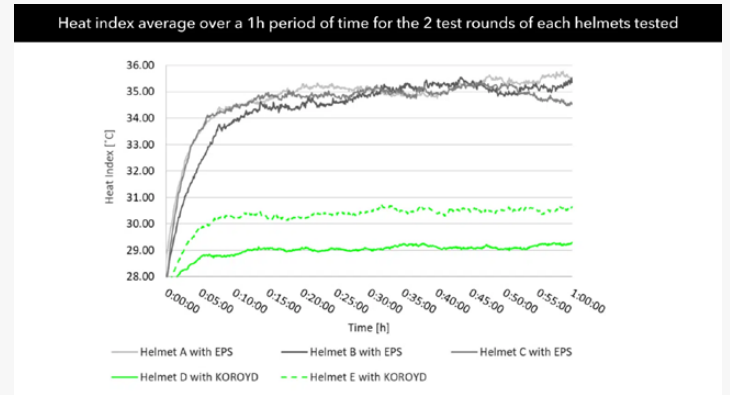
-8°F

UP TO

TEST SETUP

KOROYD developed a test method to evaluate the thermal comfort of industrial helmets, using a head form replicating human sweat. Using a head form with a semipermeable membrane passable only by water vapor, the KOROYD team was able to simulate human thermoregulation in a controlled and reproducible way. In the test, a water basin was heated to 37°C, allowing the team to mimic skin temperature and humidity buildup.

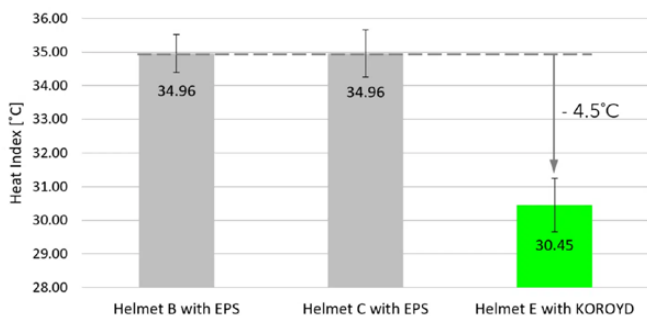
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WHAT IS THE HEAT INDEX?

The heat index (HI), also called “apparent temperature,” is a measure of how a temperature feels to the human body, more accurately representing when air temperature and relative humidity combine to exponentially increase the perceived temperature and related dangerous heat levels.

ANSI Z89 Type II Climbing Style Helmets - EPS vs KOROYD



RESULT

According to the test results, there is a significant reduction of the heat index in KOROYD integrated safety helmets compared to helmets with traditional EPS constructions. Industrial safety helmets with KOROYD integration have a heat index reduction of up to 8 degrees Fahrenheit / 4.5 degrees Celsius.

As demonstrated by the test results, using KOROYD construction in a helmet better supports the body's ability to thermoregulate, unlike traditional insulating EPS foams used in many high performance safety helmets. Heat and humidity rise and evaporate through KOROYD's unique tubular structure, which is 95% air, improving the feeling of comfort during long periods of usage and reducing the risk of heat-related injuries and fatalities. In hot and humid environments, KOROYD can improve the release of heat by allowing air circulation and sweat evaporation. Crucially, this can also help prevent the temptation of short term removal of PPE, another open door to injuries and fatalities.