

## NSW mining and extractives industry

WHAT IS HEAT STRESS?	WHY IS HEAT STRESS A HEALTH HAZARD?	HOW DO I ASSESS POTENTIAL EXPOSURE TO HEAT STRESS?	WHAT ARE THE HEALTH MONITORING REQUIREMENTS FOR THE HEALTH HAZARD
<p>Heat stress occurs ‘when a worker’s environment (air temperature, radiant temperature, humidity and air velocity), clothing and work activity interact to produce a tendency for body temperature to rise’ (Parsons, 1998) <sup>1</sup>.</p>	<p>Exposure to hot work environments can lead to a number of acute illnesses including:</p> <ul style="list-style-type: none"> <li>■ prickly heat</li> <li>■ heat cramps (salt loss)</li> <li>■ fainting</li> <li>■ heat exhaustion</li> <li>■ heat stroke.</li> </ul> <p>Heat stroke refers to failure of the body’s heat regulation system that results in rapidly rising core body temperature. This ultimately leads to collapse, loss of</p>	<p>NSW Work Health and Safety (Mines &amp; Petroleum) Regulation 2014 requires underground mines to implement control measures to manage heat stress in places in the mine where people travel and work where the wet bulb globe temperature (WBGT) exceeds 27° C.</p> <p><b>Exposure risk assessment</b></p> <p>Assessment methods for heat exposure utilise a heat stress index such as the WBGT or the basic effective temperature (BET). These assessments consider:</p> <ul style="list-style-type: none"> <li>■ air temperature</li> <li>■ air velocity</li> <li>■ humidity.</li> </ul> <p>In addition, exposure assessment should consider:</p>	<p>There is no legislated requirement for a health monitoring program, however it is good practice to institute a health monitoring program for workers exposed to heat stress<sup>4</sup>. A program should include a preplacement medical assessment and periodic medical assessments.</p> <p><b>Physiological monitoring</b></p> <p>Physiological monitoring may form part of the risk management process for work in areas above 30°C. Physiological monitoring</p>

<sup>1</sup> <http://www.ohsbok.org.au>

<sup>4</sup> <https://www.cdc.gov>

consciousness and convulsions<sup>2</sup>.

Without prompt attention, heat stroke can be fatal.

High core body temperature also causes fatigue, decreased productivity, reduced muscular performance and also degraded mental performance<sup>3</sup>.

- heat generated by the body due to work (metabolic load),
- heat generated by equipment (radiant heat) and
- clothing which prevents evaporation of sweat (important for regulating body heat).

The Australian Institute of Occupational Hygienists recommends a three-stage approach to risk assessment using air temperatures as trigger points.

WBTs between 25°- 27° C a qualitative assessment using a basic thermal risk assessment is sufficient. If this assessment identifies a potential problem or for WBTs between 27°-30°C, assessment by an expert is recommended. Above 30°C physiological monitoring is recommended (see health monitoring requirements). For more information on the appropriate exposure risk assessment and health monitoring requirements, specialist knowledge should be sought.

should be undertaken by a trained or competent person such as an occupational health nurse.

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<sup>2</sup> [www.aioh.org.au](http://www.aioh.org.au)

<sup>3</sup> [Leveritt, Heat stress in mining](#)