



HSE BULLETIN

Issue 57, May 2022

Heat Stress

How does the body react to heat?

The body reacts to heat by increasing the blood flow to the skin's surface, and by sweating. This results in cooling as sweat evaporates from the body's surface and heat is carried to the surface of the body from within by the increased blood flow. Heat can also be lost by radiation and convection from the body's surface.

When the temperature raise, so does the stress that heat put on your body. Heat, when combined with other stresses such as hard physical work, loss of fluid fatigue or some preexisting medical condition may lead to heat related illness, injuries, disabilities and even death.

Heat Related Illness

- Heat Syncope
- Heat Exhaustion
- Heat Stroke

Risk Factors for Heat Illness

- High temperature and humidity, direct sun
- exposure, no breeze or wind
- Heavy physical labor
- No recent exposure to hot workplaces
- Low liquid intake
- Waterproof clothing

Assessing the Heat Stress

Thermal Work Limit (TWL) is an index of heat stress that gives a measure of safe work rate based on existing environmental conditions (temperature, humidity, wind speed).

- It is used to guide the protection of workers in high temperatures and harsh working conditions.
- The lower the TWL value, the harsher is the working condition.

Thermal Work Limit (TWL): A Thermal Work Limit (TWL) is an index of heat stress that gives a measure of safe work rates based on existing environmental conditions (temperature, humidity, wind speed, etc.).

Employee Responsibilities:

- Properly hydrate before, during, and after work.
- Drink at least 2 liters every 2-3 hours in summer.
- Be watchful for symptoms (self and others).
- Co-workers should recognize what's happening and intervene. A worker heading into heatstroke will no longer realize what's happening to them.
- Wear appropriate clothing and PPE where applicable.
- Be aware when using any PPE that prevents sweat from evaporating.

Control Interventions, Rest-Work and Rehydration Schedules			
Working Zones	Interventions	Rehydration Schedule (per hr)	Work-rest Schedule (minutes)
Low Risk Unrestricted Zone TWL: 140 - 220 <	No limits on self-paced work* for educated, hydrated workers.	Light Work 600 ml - 1 Litre / hr	Safe for all continuous self-paced work*
Medium Risk Cautionary Zone TWL: 115 - 140	Cautionary zone indicates situations in which environmental conditions require additional precautions. <ul style="list-style-type: none"> • Practicable Engineering control measures to reduce heat stress should be implemented e.g. provide shade, improve ventilation etc. • Working alone to be avoided • No unacclimatised person to work* • Ensure adequate fluid intakes appropriate for type of work 	Light Work 1-1.2 Litres / hr	Safe for continuous self-paced light work*
		Heavy Work > 1.2 Litres / hr *	Continuous paced work 45 work - 15 rest
High Risk Zone TWL: < 115	<ul style="list-style-type: none"> • Strict Work/Rest cycling required • No person to work alone • No unacclimatised person to work* • High Risk induction required emphasising hydration and identifying signs of heat strain • Provide personal water bottle (2 litre capacity) on-site at all times 	All Work >1.2 Litres / hr *	Light work* 45 work - 15 rest Heavy work* 20 work - 40 rest



**HEAT-RELATED ILLNESSES ARE PREVENTABLE!
HAVE A SAFE SUMMER 2022**

