



No. DGMS(Tech) Circular (SOMA)/ 02

Dhanbad, dated 22/04/2026

To  
The Owner, Agent and Managers of all Mines

**Subject: Heat Wave in Summer and Precautions Against Accidents/Incidents Due to Exposure to High Temperature**

**I. Introduction**

During peak summer seasons, high atmospheric temperatures have led to numerous incidents affecting mine workers, including fatalities. Heat stress (also known as "thermal strain") is a variety of health-related illnesses caused by excessive exposure to heat on the human body. Heat stress is a combination of heat generated by the human body and heat gained from the environment. In mining, environmental heat stress is caused by hot weather, working in the sun, near underground hot strata or other heat sources. Heat stress also depends upon the type of clothing worn (especially protective clothing), humidity in the environment, and the miner's work load. These factors affect miners' deep body temperature, heart rate, sweating and sweat evaporation rate. Working in high temperatures may not only cause heat illness and even death, but also loss of concentration leading to lowered productivity, and mistakes which can lead to accidents.

DGMS has circulated guidelines time to time on heat wave in summer and precautions against accident/incidents due to exposure to high temperature, which are as follows:

1. Circular No. DGMS (Tech) Circular (MAMID)/01 Dhanbad, dated 06/05/2015, addressed "Accidents/Incidences due to exposure to high atmospheric temperature."
2. The physiological effects of exposure to high atmospheric temperatures during the summer months and the guidelines for dealing with the situation were outlined in Circular No. DGMS (Tech) Circular (OH)/01, Dhanbad dated 24th April 2023.
3. Circular No. DGMS (Tech) Circular (OH)/01, Dhanbad, dated 19/04/2024, outlined recognizing the Symptoms of Heat Stress and taking preventive measures, Do's and Don'ts while treating the person with symptoms of Heat Stress. These issued guidelines shall be strictly followed.
4. Circular No. DGMS (Tech) Circular (OH)/03, Dhanbad, dated 25/04/2025, outlined physiological effects of high atmospheric temperature dealing with high temperature, precautions for women worker and precautions for children in creches training. These issued guidelines shall be strictly followed.

**II. Assessing the heat risk**

- a) Several factors can influence the heat load on the body. These include:
  - i. air temperature (WB and DB);
  - ii. radiant heat;
  - iii. humidity;
  - iv. air movement;

- v. the level of physical work; and
- vi. the amount and type of clothing being worn.

b) The following health conditions of persons employed are more susceptible to be affected due to exposure to high temperature environments:

- i. pre-existing medical conditions e.g. diabetes; hypertension etc.
- ii. use of medication which affect thermo-regulation;
- iii. physical fitness;
- iv. Acclimatisation
- v. obesity (overweight people have less tolerance to heat);
- vi. age (tolerance to heat decreases with age);
- vii. previous heat illness, demonstrating an individual's susceptibility;
- viii. chronic skin disorders, which can impair temperature regulation;
- ix. habitual alcohol abuse, with increased risk of dehydration.

### III. Acclimatisation

Employees who will be exposed to high effective temperatures throughout the course of the shift need to be acclimatised to the conditions. Most workers become acclimatised over about one week, however acclimatisation decays quickly, tolerance decreases even over two days and disappears completely over about two weeks. New or returning workers (after >7 days absence) must not be deployed full-time in hot areas immediately.

Follow staged exposure:

- Day 1–2: 20–30% of normal workload in heat
- Day 3–4: 40–60% workload
- Day 5–6: 60–80% workload
- Day 7 onwards: Full workload

For very high heat conditions, extend acclimatization to 10–14 days.

### IV. Signs and symptoms and treatment of heat illness

During work in hot conditions, the human thermo-regulatory system tries to maintain the body core temperature at 98.6°F ( 37°C). It does this by increasing blood flow to the skin to carry heat away from the core, and by causing sweating, the evaporation of which cools the skin and hence the blood. If this control is lost and the core temperature begins to rise, various physiological effects progressively result.

Initial symptoms are :

- i. loss of interest in the task;
- ii. difficulty in remaining alert; and
- iii. the desire to seek more comfortable surroundings. Suppression of this desire may result in irritability.

These initial symptoms progress to a loss of co-ordination and dexterity, presenting significant safety and productivity implications.

### V. Safe behaviours prior to work

To minimise the effects of heat, employees need to present themselves for work in good condition. This includes:

- i. Maintaining a healthy diet and optimum weight;
- ii. Ensuring a good quality rest period prior to attending work;
- iii. Eating prior to attending work, as this aids hydration.
- iv. Avoiding drinking alcohol 8-12 hours before the start of the shift;

- v. Avoiding taking strenuous exercise immediately before or after the shift;
- vi. Avoiding taking caffeine before the shift i.e., coffee, tea;
- vii. Increasing fluid intake prior to the start of the shift by drinking non-caffeine based drinks i.e., water, milk and fruit juice to ensure proper hydration. It should be noted that the lighter the colour of the urine, the better the level of hydration;
- viii. Informing the medical department if on regular medication or if suffering from a medical condition.

#### **VI. Administering suitable work practices:**

Follow these work practices to help prevent heat stress:

- i. If work of a physical nature is to be carried out in hot conditions, adequate manpower must be deployed to permit work sharing
- ii. Rotate personnel on hot jobs.
- iii. Provide readily accessible cool rest shelters.
- iv. Provide cool drinking water at 10 to 15°C. Drink lightly salted water.
- v. Provide and encourage all workers to drink a cup of water every 15 to 20 minutes.
- vi. Ensure workers are adequately supervised and actively monitored for signs of dehydration and heat-related illnesses.
- vii. Ensure workers who are to work in hot and humid areas are acclimatised.
- viii. Workers should be trained in identifying the causes and symptoms of heat stress.
- ix. Arrangements must be made for first aid, with specific training being required for the recognition and treatment of heat illness.

#### **VII. Conclusion**

Exposure of mine workers to high atmospheric temperatures is not merely an occupational health concern but a significant contributor to accidents and unsafe behaviour in mines. Heat stress impairs physical capacity, judgment, alertness, and reaction time, thereby increasing the likelihood of human error, unsafe acts, and serious incidents. The progression from minor conditions like heat rash to life-threatening heat stroke underscores the need for systematic and preventive intervention.

Ultimately, prevention of heat-related incidents requires a holistic approach combining workplace control measures with worker participation. Therefore, the mine management shall take suitable measures to prevent the workers from exposure to high atmospheric temperatures, as it has adverse effects on health. Strict adherence to these guidelines will not only reduce cases of heat illness but also significantly minimize accidents arising from impaired judgment and unsafe behaviour, thereby ensuring safer and more productive mining operations during high-temperature conditions.

**Let's stay cool, stay safe, and committed to a secure work environment this summer!**

  
(Ujjwal Tah)  
**Chief Inspector Mines &  
Director General of Mines Safety**