Temperature Extremes - Cold

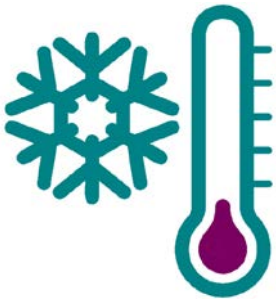
Safety Meeting Packet

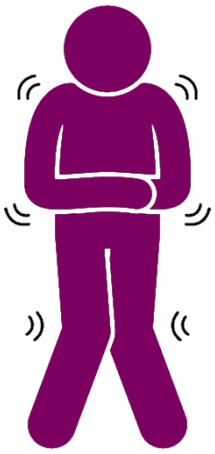
Cold-related occupational illnesses are significant concerns for employees who are required to work outdoors in winter weather or in environments that are artificially cold. Low temperatures and increased wind chill cause the body to lose heat quickly and make it difficult to maintain core temperatures. Prolonged exposure to extreme cold can result in permanent brain, tissue damage, or even death.

Environmental Risk Factors

There are many risk factors that could lead to a decrease in core body temperature and cold-related illnesses. Some risk factors include:

- Low air temperatures
- High-velocity winds / wind chill
- Humidity
- Contact with cold water, materials, or substances





Personal Risk Factors

Some people have characteristics that make them sensitive or vulnerable to cold-related medical conditions. Examples of personal risk factors include:

- Age and weight
- Body conditioning
- Physical fitness
- Use of drugs or alcohol
- Other pre-existing medical conditions

Common Cold Health Hazards

Prolonged exposure to extreme cold can have a significant impact on the health of workers. It is important for workers to be aware of cold-related conditions and their symptoms.

Trench / Immersion Foot

Trench foot, or immersion foot, is an illness that affects a worker's feet. It is the result of prolonged exposure to wet and cold conditions. For example, working in wet socks or shoes in the cold for a long period of time may cause this illness. If the feet are constantly in damp conditions, trench foot can occur even at air temperatures up to 60°F. Since wet feet lose heat quickly, the body constricts blood vessels to shut down circulation in the feet. Eventually, the skin tissue begins to deteriorate from lack of oxygen and nutrients and a buildup of toxins.

The National Institute for Occupational Safety and Health (NIOSH) identifies the following symptoms and recommends the following first-aid:

Symptoms

- Reddening of the skin, blisters, or ulcers
- Numbness, swelling, tingling pain
- Leg cramps
- Bleeding under the skin
- Gangrene (the foot may turn dark purple, blue, or gray)

First-Aid

- Remove shoes/boots and wet socks
- Thoroughly dry feet
- Apply heat packs to the affected area or soak in warm water for up to 5 minutes
- Do not wear socks while sleeping or resting
- Keep feet elevated & avoid walking, to prevent additional tissue damage.

Chillblains

Repeated exposure to cold temperatures may cause skin sores or red bumps that are the result of inflammation of small blood vessels in the skin. Affected areas of the skin may be itchy and swollen and a person may develop painful blisters containing clear fluid.

NIOSH identifies the following symptoms and recommends the following first-aid:

Symptoms

- Redness & itching
- Blistering & ulceration in severe cases
- Inflammation

First-Aid

- Do not scratch affected areas
- Warm the skin slowly
- Corticosteroid creams may be used to relieve itching & swelling
- Keep blisters and ulcers clean and covered at all times

Frostbite

Frostbite occurs when the skin and underlying tissue freeze from exposure to cold, windy weather. Body tissue may become permanently damaged and can result in amputation. Frostbite commonly affects the nose, ears, cheeks, chin, and upper and lower extremities. Unprotected skin is the most susceptible but frostbite may even occur on skin shielded clothing if the temperature is cold enough. Skin can change from yellow or white, to blue or black in extreme cases. Exposed skin may sting, burn, itch, or feel hard or cool to the touch. NIOSH identifies the following symptoms and recommends the following first-aid:

Symptoms

- Numbness, aching, itching, tingling, or stinging
- Joint and muscle stiffness
- Bluish-white or pale, hardened, & waxy-looking skin

First-Aid

- Use body heat to warm the affected area and get some place warm as soon as possible
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator.
- Dip the affected area in warm but not hot water
- Avoid walking on frostbitten feet or toes and do not rub or massage frostbitten tissue because it may cause more damage.

Hypothermia

Hypothermia results when the core body temperature drops below 95°F. In these cases, the body is losing heat faster than heat can be produced. Most often, it occurs at extreme cold temperatures, but may also develop if a person gets too cold from rain, sweating, or submersion in cold water. Lowered body temperature can cause poor physical movement, shivering, poor speech, bluish skin, and fatigue or drowsiness.

NIOSH identifies the following symptoms and recommends the following first-aid:

Symptoms

- Shivering & fatigue
- Loss of coordination, confusion, & disorientation
- Blue skin and dilated pupils
- Slowed pulse and breathing
- Loss of consciousness

First-Aid

- Seek medical assistance immediately
- Find warm shelter and remove any wet clothing
- Start by warming the center of the body (chest, neck, head, & groin) with an electric blanket or skin-to-skin contact under dry blankets, towels, or clothing
- Try giving warm beverages if the person is conscious
- Keep the person dry and wrapped in a warm blanket
- Begin cardiopulmonary resuscitation (CPR) if the person is not breathing or has no pulse

Worker Training

It is recommended that employers educate their workers about preventing cold-related illnesses and the warning signs of these illnesses.

- Provide an overview of the different types of cold-related illnesses.
- Prolonged exposure to extreme cold can result in serious medical emergencies, the following are tips to help prevent illnesses.
    - Allow frequent, short breaks in warm, dry shelters if possible.
    - Provide radiant heaters to help combat cold external temperatures.
    - Ensure proper clothing is worn by all employees, including: extra layers, hats, gloves, and dry socks and boots.

- Train employees to monitor and spot symptoms of cold illnesses
- If employee is believed to be sick, take the following precautions.
    - Move employee to dry place
    - Remove wet clothing
    - Give employee extra layers to increase temperature
    - DO NOT cover face
    - If employee is not responding or is believed to have serious health issues, please call 911 immediately.

For additional information please consult the following:

- OSHA Publication - Cold Stress Guide
- NIOSH - Cold Stress - Cold Related Illnesses
- OSHA Standard: 29 CFR 1910.151 - Medical Services and First Aid
- OSHA Standard: 29 CFR 1926.21 - Safety training and education
- OSHA Act of 1970, Sec. 5 - Duties

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Safety Meeting Attendance Acknowledgement

Company Name _____

Department / Division _____

Meeting Date & Time _____ _____ ☐ AM ☐ PM

Meeting Location _____

Name & Title of Individual Conducting Meeting _____

Key Meeting Discussion Points / Important Reminders

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Internal Procedures Reviewed:

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By signing this document, you confirm your attendance at the meeting and acknowledge the issues addressed above!

Employees in Attendance		
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Employees not present: _____

Suggestions/Recommendations to improve workplace safety and health: _____

Actions Taken: _____

Manager/Supervisor: _____ Date: _____

Disclaimer:

The information provided above was assembled using multiple resources. However, these materials do not contain ALL the information available regarding the required safety standards under local, provincial, state, or federal law for your industry.