



# Safety After The Storm

## Cold Stress



### What Is Extreme Cold?

In regions relatively unaccustomed to winter weather, near-freezing temperatures are considered “extreme cold.” Extreme cold is a dangerous situation that can result in health emergencies. Workers in cold environments or in regions of extreme cold may be at risk of cold stress.

### Sources of Heat Loss

There are several potential sources of heat loss:

- **Radiation** – the loss of body heat to the colder air in the environment
- **Conduction** – the loss of body heat due to contact with something cold
- **Convection** – when warm molecules against the surface of the body are moved away and replaced with cold molecules (for example, wind chill)
- **Evaporation** – the loss of heat or fluid from sweating and respiration

### Consequences of Extreme Cold Exposure

When you are exposed to extreme cold, your body tries to conserve heat by shifting blood from your extremities to major internal organs, or your core. You may be unaware of your deteriorating condition, so watch for these symptoms in yourself and others:

- Decreased mental alertness, such as difficulty focusing on tasks
- Loss of mobility and dexterity
- Feeling extremely tired
- Feeling the effects of the cold more quickly
- Becoming irritable or angry
- Losing dexterity or coordination
- Slurring words, dropping tools or equipment, tripping, or having difficulty walking or standing

### Hypothermia

Hypothermia can be fatal if it is not caught and treated quickly.

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### Symptoms

- Intense shivering
- Exhaustion or drowsiness
- Unable to move well or think clearly
- Confusion, memory loss, slurred speech, euphoria or collapsing

### Treatment

Get medical attention immediately. If medical attention is not available, or while you are waiting, begin trying to warm the person. Bring them to a warm room or shelter and remove any wet clothing.

Do **NOT** immerse hypothermic individuals in warm or hot water. It may stop a victim's heart.

### Frostbite

Frostbite occurs when skin tissue freezes. Victims are often unaware of their condition until someone else points it out, because frozen tissue is numb.

### Symptoms

- An initial burning sensation
- Coldness, numbness or tingling
- White or grayish-yellow skin
- Skin that feels unusually firm or waxy

### Treatment

Get medical attention as soon as possible. If medical attention is not available, or while you are waiting, begin warming the affected area of the body. Get the victim into a warm room, do not let them walk on frostbitten feet or toes, and DO NOT rub or massage the frostbitten area.

### Trench Foot

Trench foot occurs when you combine cold with water exposure.

### Symptoms

- Severe pain, tingling or itching in feet and legs
- Swelling, blisters or reduced touch sensation

### Treatment

To prevent trench foot, keep your shoes and socks dry. If trench foot occurs, treat it in the same manner as frostbite.

### Chilblains

Chilblains are painful inflammation of small blood vessels in your skin that occur in response to sudden warming from cold temperatures.

### Symptoms

- Possible blistering
- Swelling of skin
- Burning sensation on your skin
- Changes in skin color (red to dark blue)
- Possible ulceration

### Treatment

Treatment typically consists of corticosteroid creams, blood pressure medication, and infection prevention.

### Preventing Cold Stress

You can prevent cold stress by using work practice controls and

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appropriate clothing. Take frequent breaks in a warm area. Keep clothing dry. Stay hydrated and increase your calorie intake.

### Safety Precautions to Be Considered

- Wear appropriate clothing
  - Several layers of loose clothing
  - Maintain circulation
- Make sure to protect ears, face, hands and feet in extremely cold or wet weather
  - Boots should be waterproof and insulated
  - Keep head covered
- Take breaks in dry, warm areas
- Carry extra clothes
- Monitor physical condition

### References

<http://www.cdc.gov/niosh/topics/coldstress/>

<http://www.cdc.gov/niosh/docs/2010-115/pdfs/2010-115.pdf>

### About UL

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