

### What is Frostbite?

It's called frostbite when the skin freezes. This condition happens when you are exposed to temperatures below the freezing point of the skin. Frostbite can happen in cold wind, rain or snow. The most common body parts to get frostbite are the cheeks, ears, nose, hands and feet. Once a part of the body has had frostbite, it's more likely to happen again.

- Skin will first become red and swollen, and will feel like it is stinging or burning.
- If the skin doesn't become protected or warmed, it will start to feel like it's tingling and will look grey.
- If the skin freezes, the area will have no feeling and will be shiny and white.

When the temperature and wind chill factor are at or below 0°C (32°F), blood vessels close to the skin start to constrict and blood is moved away from the extremities. This constriction helps to preserve the body's core temperature. In extreme cold or when exposed to cold for long periods, this protective strategy can reduce blood flow in some areas of the body to dangerously low levels. This lack of blood leads to the eventual freezing of skin tissue in the affected areas. At these temperatures, exposed skin will begin to freeze.

There are four different degrees of frostbite.

**First-degree** is called frostnip and only affects the surface of the skin that is frozen. There is itching and pain, then the skin develops white, red and yellow patches and becomes numb. The area affected usually does not become permanently damaged, as only the skin's top layers are affected. Long-term insensitivity to both heat and cold can sometimes happen.

**Second-degree** frostbite may cause the skin to freeze and harden. The deep tissues are not affected, remaining soft and normal. Second-degree injury usually blisters 1–2 days after becoming frozen. The blisters may become hard and blackened, but usually appear worse than they are. Most of the injuries heal in one month, but the area may become permanently insensitive to both heat and cold.

**Third and fourth-degree** frostbite usually happens when skin freezing continues past 12 days, causing deeper damage. The muscles, tendons, blood vessels and nerves all freeze; the skin is hard and waxy. Use of the area is lost

temporarily, and in severe cases, permanently. The deep frostbite results in areas of purplish blisters, which turn black and are generally blood-filled. Nerve damage in the area can result in a loss of feeling. The extent of the damage done to the area by the deep frostbite may take several months to assess. This often delays surgery to remove the dead tissue. Extreme frostbite may result in fingers and toes being amputated if the area becomes infected with gangrene.

### How to Treat Frostbite

If you or a co-worker comes in from outside complaining that hands, feet or other body parts are sore, here's what to do:

- Gently remove any clothing covering the area
- Change into dry, warm clothing
- Slowly warm up the area by gently covering it with your hand
- Use warm (not hot) water to slowly warm affected body parts
- If your hand or fingers are frostbitten, place them in the opposite armpit to warm
- Do not massage or rub snow on frostbitten skin
- Seek medical advice immediately if your skin is white, waxy or feels numb

Caution should be taken to not rapidly warm up the affected area until further refreezing is prevented. To avoid getting frostbite, dress appropriately and try to cover any skin that is exposed to inclement weather as much as possible.

### Legislation

Section 6-7(5) of the Occupational Health and Safety Regulations, 2020 states: When a worker is required to work in thermal conditions that are different from those associated with the worker's normal duties, an employer or contractor shall provide, and require the worker to use, any suitable clothing or other personal protective equipment that is necessary to protect the health and safety of the worker."

When working outside in inclement weather conditions, make sure to refer to any policies and procedures that your company may have and refer to the relevant legislation in the OHS Regulations, 2020.