

**Safe Science =
Good Science**
March 29, 2023

Cryogenic Burns

A cryogenic burn is when skin is exposed to extreme cold such as liquid nitrogen. The typical range cryogenic liquids are kept range from 120°C to 195.8°C.

Cryogenic burns are different from heat or chemical burns. When our cells get too cold, the liquid inside freezes, damaging the structural integrity of the cells. Due to the damage, the cells do not go back to the way they were when thawed. Once the damage is done, it can become permanent. Longer exposure times can lead to frostbite.

If exposed to extreme cold, medical assistance should be obtained as soon as possible. Do not provide first aid. The safest thing is to do nothing, but loosely cover the wound on the way to a medical facility. Treatment needs to be supervised by a medical professional.

In the Event of a Fire

- Use the fire extinguisher if trained. Training provided through Public Safety call 502 852 3473
- If you cannot use the fire extinguisher or the fire is too big evacuate and call 911.
- The safety shower can be used to douse someone who is on fire and limit exposure.

For questions or concerns please call DEHS at 852 6670 or email dehsubm@louisville.edu

Burn Awareness

Two common types of burns that can happen in the laboratory are thermal and chemical burns. Thermal burns occur due to contact with a hot surface, fire, hot liquids, or an explosion. Chemical burns involve skin or eye contact with strong acids, corrosive, caustic, or alkaloid chemicals.

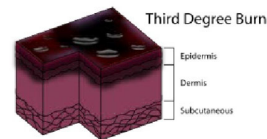
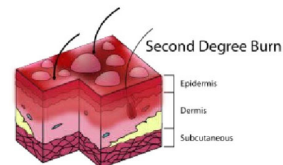
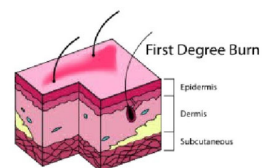
Level of Burn Severity

First Degree – These burns are considered the least serious out of the three levels of severity. They affect the outside layer of the skin (epidermis). The burn site will appear red, painful, dry, and no blisters. A mild sunburn is an example of a first-degree burn. Usually there are no long-term effects to the skin or body.

Second Degree – These burns involve the epidermis and part of the dermis layer of the skin. The burn appears red, blistered, and may be swollen and painful.

Third Degree – The most serious type of burn, these burns destroy the epidermis and dermis and may go into the subcutaneous tissue. The burn site may appear white or charred.

Types of burns



<https://www.scribd.com/document/49854668>

First Aid

First Degree – Most can be treated with over-the-counter ointments or medicines. See a doctor if there is a large area of skin affected, on a major joint, or face.

Second Degree – Run the affected area under cool water for 15 minutes. Over-the-counter ointments and medications can be used. Seek medical attention if the burn affects a large area, hands, face, feet, groin area, or buttocks.

Third Degree – Seek immediate medical attention. If possible, raise the affected area above the heart and get transported to a hospital. Do not remove clothing as this can pull the burned skin.



DO NOT apply ice to a burn because it deepens the injury.