

Procedures for Handling Liquid Nitrogen (LN2)

Liquid Nitrogen is a cryogenic material with three main hazards: asphyxiation, frostbite, and explosion. Death by asphyxiation can occur if the liquid is allowed to boil off or is spilled in confined, poorly ventilated areas. When in the liquid or cold gas phase, it can cause severe frostbite to the eyes and skin. Do not touch frosted pipes, valves or other metal parts that have been in contact with LN2. Generally, frostbite is accompanied with discoloration of the skin, along with burning and/or tingling sensations, partial or complete numbness, and possibly intense pain. If you observe any of these symptoms, immediately remove the affected body part from the LN2 transfer system and warm them by contact with other body parts or with running water.

Protect your eyes with safety goggles and cover skin to prevent contact with the liquid or cold gas. Protective gloves that can be quickly and easily removed and long sleeves are recommended for arm protection. Wear cuff-less trousers over shoes (no sandals or open-toe shoes). If accidental exposure occurs that causes an injury, a physician should be consulted immediately.

Liquid Nitrogen is cold enough to condense liquid oxygen from the air. It can also freeze water vapor from the air into ice. Ice can clog tubes, leading to a pressure explosion.

LN2 may only be dispensed into dewars specifically designed for LN2 use. This excludes any home thermos designed for coffee, etc. All glass dewars must be wrapped with tape to avoid flying glass if the dewar is broken. Do not dispense or transport LN2 in a container that can be easily be broken or spilled; certain plastics can shatter easily when chilled to extremely low temperatures.

For additional information, please contact the Environmental Health and Safety Department at EHS@wpi.edu.