

Office of Occupational Health and Safety, Animal Welfare and Environmental Protection

**University of Würzburg**

# Safety Guidelines

in accordance with Section 14 *Gefahrstoffverordnung* (directive on hazardous substances, GefStoffV)

**Liquid Nitrogen (N2)**

Last update:

Workplace/activity:

|  |  |
| --- | --- |
| **Scope** | |
|  | Safe handling of **liquid nitrogen (N2)**.  Nitrogen is a colourless, odourless and tasteless gas that condenses to a colourless liquid at −196 °C. |
| Safety, health and environmental risks | |
| warnung-vor-ersticken | * + - * **Asphyxiation:** Nitrogen displaces oxygen from the ambient air → danger of asphyxiation, in particular when liquid nitrogen is being decanted or transferred from one container to another in a room that has poor ventilation.       * **Frostbite injuries or cold burns:**   When direct contact occurs. Eye contact may result in severe eye damage. |
| Safety practices | |
| L:\StabsstelleAU\Fischer\Ingrid\Betriebsanweisungen\Symbole\M06.WMF  http://cdn-4.seton.de/ProduktImages/400px/61/_m/DMNE_Gebotschild_2061_M.gif  L:\StabsstelleAU\Fischer\Ingrid\Betriebsanweisungen\Symbole\M01.WMF | **Personnel must receive training from a person in charge before being allowed to handle liquid nitrogen.**   * Decant or transfer liquid nitrogen only in suitable rooms with sufficient air changes. * Before entering liquid nitrogen rooms, always check the control panel of the ventilation system to ensure that the system is working properly. * Use only containers made specifically for cryogenic liquids. * Take precautions to prevent containers holding liquid nitrogen from tipping over; protect containers from exposure to shock or high temperatures. * Wear a face shield or safety glasses with side shields that provide sufficient protection; wear protective clothing (lab apron) and protective gloves. * When kept or handled in open containers, liquid nitrogen will cause oxygen to condense from the ambient air through an exchange of heat. This will lead to a gradual accumulation of strongly oxidising oxygen due to which spontaneous combustion may occur on contact with highly flammable materials. |
| **What to do in hazardous situations** | |
|  | * When the oxygen monitoring system triggers an alert, leave the room as quickly as possible, allow plenty of fresh air into the room. * Always wait until the person in charge has given you the ‘all clear’ before returning to the affected room. |
| **What to do after an accident, first aid** | |
|  | * When providing first aid, always ensure your own safety. * Immediately supply the victim with fresh air. * If the victim is not breathing, immediately administer artificial respiration (keep in mind to ensure your own safety). * Call emergency medical services. * Seek immediate medical attention for cold burns.   **Emergency number: 112**  First aider: |

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Date Signature

June 2021