

date:

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# Safety Instructions for the use of Liquid Nitrogen (LN<sub>2</sub>)



## Hazards for Humans and Environment



**Eye contact** already with **vapor** may cause a **stinging sensation**

**Skin contact** with liquid or cold metal **cause freezing / frostbites** of exposed tissue

Act as **asphyxian**: May cause dizziness, unconsciousness, excitation, headaches.

Affected persons do not feel asphyxiation

## Protective Measures and Rules of Behaviour



Use **faceshield** or special eye-protection. Optical glasses are not allowed

Use adequate **protective gloves** (Kevlar or leather)

Use **closed shoes** from leather

**Never close tightly container**: they can **explode** due to pressure build up

Keep LN<sub>2</sub> only in **well ventilated places**

Measure fill level: Enter solid plastic dip stick & remove it: condensing water indicates level

Cell storage: Fill 1.2 ml cryovials with 1 ml medium/cells/cryoprotection

Transfer vials into "Mr. Frosty" for slow cool down to -20 °C (better -80 °C)

Clip fastly vials into cane-holder and place this in the canister (colour-code)

Cell removal: Get off vial from cane - do not expose other vials to ambient temp.

When LN<sub>2</sub> entered into vial, tap can spring off explosively. Use faceshield

Thaw up at 37 °C in dry bath and change medium to remove cryoprotection

LN<sub>2</sub> withdrawal: Use the dipper to transfer LN<sub>2</sub> into a small Dewar (or stainless steel bowl)

Refill Dewar: Avoid spilling of LN<sub>2</sub> over the vacuum cap near the neck (→ damage of sealing)

Do not overfill Dewar with LN<sub>2</sub>

Filling up a warm Dewar: Add a small quantity LN<sub>2</sub> to cool Dewar down (~ 2 h) before fill up

## In Case of Emergency (☎ 066)

### Contact with:



... **clothes**: Take off immediately all contaminated clothing (S 27). Ventilate contaminated clothes

... **skin**: Treat for frostbite by gently warming affected areas

... **eyes**: Rinse eyes immediately for at least 15 min (eye shower), seek medical advice (S 26)

**Inhalation**: Remove victim to fresh air, calm him/her down, seek medical advice

## Waste

LN<sub>2</sub> can be filled back into the storage Dewar or let it evaporate in a well ventilated place