

Risk Assessment for Transporting Liquid Nitrogen Dewars

Persons at Risk

People handling dewars
People driving or passengers of vehicle
People in close vicinity

Hazards Identified

Cold gas/liquid (cold burns)
Spillages from overfilled Dewars
Splashes of liquid nitrogen into eyes
Oxygen depletion in confined space/small rooms
Lifting small 'onion' Dewars
Transporting Dewars

Required Control Measures

- (1) Wearing of appropriate PPE: goggles or safety glasses and gloves
- (2) No 'open toed' footwear
- (3) Ensure no loose ends on sleeves, do not wear rings or watches, do not wear shorts or short skirts
- (4) Get assistance to lift 'onion' Dewars if necessary
- (5) Ensure warning sign is displayed on vehicle indicating presence of liquid nitrogen
- (6) Never transport nitrogen in a car; always use a van with a specially sealed cargo area or a car with a trailer/rack
- (7) Ensure 'onion' Dewar is securely held in place in vehicle to prevent movement during transport
- (8) Do not use lifts to transport filled Dewars without first making certain no other passengers are able to access lift. Do not travel in a lift with a filled Dewar – always send it to the correct floor to a waiting colleague.

Training Required

Persons handling liquid nitrogen should be trained in its use

Waste Disposal

N/A

Access Restrictions

Trained personnel only

Emergency Procedures

Spillage of liquid nitrogen - vacate room
Cold Burns - immerse affected part in warm water, seek medical advice
Splashes into eye – seek medical advice
Vehicle accident - any split liquid nitrogen will quickly evaporate harmlessly. Move bystanders away from accident site. Note that there may be white 'smoke' visible briefly from any liquid nitrogen spill – this is just water ice crystals.

Risk Assessment for Using Liquid Nitrogen for Demonstrations in School Classrooms

Persons at Risk

People handling liquid nitrogen

Other people in the same room – teachers and pupils

Hazards Identified

Cold gas/liquid (cold burns)

Spillages from overfilled Dewars

Splashes of liquid nitrogen into eyes

Oxygen depletion in confined space/small rooms

Lifting small 'onion' Dewars

Transporting Dewars

Contact between skin and cold objects

Required Control Measures

(1) Wearing of appropriate PPE: goggles or safety glasses and gloves

(2) No 'open toed' footwear for those handling liquid nitrogen

(3) Ensure no loose ends on sleeves, do not wear rings or watches, do not wear shorts or short skirts for those handling liquid nitrogen

(4) Get assistance to lift 'onion' Dewars if necessary

(5) Do not use lifts to transport filled Dewars without first making certain no other passengers are able to access lift. Do not travel in a lift with a filled Dewar – always send it to the correct floor to a waiting colleague

(6) Do not leave 'onion' Dewars unattended in unlocked classrooms/corridors

(7) Ensure pupils and teachers are warned of and understand the dangers of cold burns before any experiment takes place

(8) If pupils are present, ensure that liquid nitrogen and any objects which have been cooled with it are attended at all times in the classroom by trained personnel

Training Required

Persons handling liquid nitrogen should be trained in its use

Waste Disposal

N/A

Access Restrictions

Trained personnel only

Emergency Procedures

Spillage of liquid nitrogen - vacate room. Any split liquid nitrogen will quickly evaporate harmlessly. Move bystanders away from accident site. Note that there may be white 'smoke' visible briefly from any liquid nitrogen spill – this is just water ice crystals.

Cold Burns - immerse affected part in warm water, seek medical advice

Splashes into eye – seek medical advice

Risk Assessment for handling Neodymium Magnets

Persons at Risk

People handling magnets

Other people in the same room – teachers and pupils

Hazards Identified

Magnets jumping towards each other from very large distances – potential for cuts/blisters on hands

Magnets will chip if they collide leaving sharp edges

Magnets in close proximity to heart pace makers

Children swallowing small magnets

Possible effects on watches/credit cards/other magnetically sensitive items

Required Control Measures

(1) Keep away > 200 mm from heart pacemakers or other sensitive objects

(2) Ensure magnets are kept away from each other

(3) When holding magnets keep a firm grip to prevent them being pulled out of hands

(4) Do not let children have unsupervised access to small magnets

(5) Handle chipped magnets with great care and gloves

(6) When handling larger magnets wear gloves to prevent cuts/blisters to hands in the event of any attraction of magnets to each other

(7) No not place magnets around soft tissue such as an ear or nose as magnets will attract through tissue and cause a crushing injury

Training Required

None

Waste Disposal

N/A

Access Restrictions

None

Emergency Procedures

Cuts/blisters may need first aid treatment

If magnet is suspected of disturbing a pace maker, remove all magnets from near the person. Pace maker is thought to work as normal once magnet is removed.

If magnets are swallowed or in case of crushing injury where magnets can't be removed easily, seek medical attention.