

Unit 54: Safe Handling of Liquid Nitrogen

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| Level: | 2 |
| Unit type: | Optional (Life Sciences) |
| Credit value: | 1 |
| Guided learning hours: | 8 |

Unit summary

This unit aims to give learners an understanding of the uses and hazards of liquid nitrogen, how to handle and transport liquid nitrogen safely and the processes for dealing with a critical incident involving liquid nitrogen. The unit also covers the skills required to fill a Dewar container with liquid nitrogen safely and in accordance with the standard operating procedure.

Unit assessment requirements

There are no specific assessment requirements for this unit. Please refer to the assessment strategy in *Annexe B*.

Additional information

Learning outcome 1 refers to the use of liquid nitrogen in own workplace.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria outline the requirements that the learner is expected to meet to achieve the learning outcomes and the unit.

| Learning outcomes | | Assessment criteria | | Evidence type | Portfolio reference | Date |
|-------------------|----------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------|------|
| 1 | Understand the uses and hazards of liquid nitrogen in your workplace | 1.1 | Undertake formal training in liquid nitrogen safety as required by own workplace | | | |
| | | 1.2 | Describe the characteristics of liquid nitrogen and gaseous nitrogen | | | |
| | | 1.3 | Explain the uses and safe storage | | | |
| | | 1.4 | Describe the standard operating procedures for the cryopreservation facility | | | |
| | | 1.5 | Explain the potential hazards and steps to be taken to minimise risk | | | |
| | | 1.6 | Describe the systems in place for monitoring and maintaining the oxygen level where liquid nitrogen is in use | | | |
| | | 1.7 | Explain the different types of storage containers, how they are monitored and maintained and when and how they should be used | | | |

| Learning outcomes | | Assessment criteria | | Evidence type | Portfolio reference | Date |
|-------------------|-----------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------|------|
| | | 1.8 | Describe the types of samples that are kept in cryostorage, the requirements for consent and for blood screening tests prior to storage and how the records for samples are maintained, updated, and audited | | | |
| | | 1.9 | Describe the potential cross contamination risks for samples kept under liquid nitrogen | | | |
| 2 | Understand how to handle and transport liquid nitrogen safely in your workplace | 2.1 | Describe the standard operating procedures for handling and transport of liquid nitrogen | | | |
| | | 2.2 | Explain the importance of wearing appropriate PPE and the PPE that should be worn | | | |
| | | 2.3 | Explain the environmental issues that must be considered | | | |
| | | 2.4 | Explain how to transport liquid nitrogen safely | | | |
| | | 2.5 | Describe how to minimise splashes and spills | | | |
| 3 | Understand the processes for dealing with a critical incident involving liquid nitrogen | 3.1 | Describe the emergency procedures and action to take in the event of critical incidents involving liquid nitrogen | | | |

| Learning outcomes | | Assessment criteria | | Evidence type | Portfolio reference | Date |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------|---------------|---------------------|------|
| 4 | Be able to fill a Dewar container with liquid nitrogen in your workplace safely and in accordance with the standard operating procedure | 4.1 | Select and wear appropriate personal protective equipment | | | |
| | | 4.2 | Measure and record the level of liquid nitrogen in the Dewar container | | | |
| | | 4.3 | Use safe practices when filling a Dewar container with liquid nitrogen | | | |

Learner name: _____

Date: _____

Learner signature: _____

Date: _____

Assessor signature: _____

Date: _____

Internal verifier signature: _____

Date: _____

(if sampled)