

2182 Control membrane processing in food manufacture

SQA Unit Code

H3NX 04

Level 2

SCQF Level 5

SCQF Credit value 5

Unit Summary

This unit is about the important activities of controlling and operating membrane processing equipment. Complying with health and safety, regulatory and environmental requirements are essential features of this unit.

Membrane plants are complex multi-stage pieces of equipment that represent significant capital expenditure, they operate at high pressure and can include relatively fragile and sensitive components (membranes) that require specialist skill and knowledge to operate. Cleaning is an integral part of the process and cleaning routines must be strictly adhered to in order to ensure optimum performance from the plant and maximise the working life of the membranes.

In order to be assessed as competent you must demonstrate to your assessor that you can consistently perform to the requirements set out below. Your performance evidence must include at least one observation by your assessor.

You must be able to:	You need to show:
<p>1. Prepare to start up and control membrane processing</p> <p>This means you:</p> <p>Monitor and adhere to hygiene, health and safety, regulatory and environmental procedures</p> <p>Establish and maintain effective spoken and written communication with your managers and colleagues</p> <p>Ensure that all necessary plant, equipment, materials and services are available and fit for use</p>	<p>Evidence must be work-based, simulation alone is only allowed where shown in <i>bold italics</i></p> <p>Evidence of preparing to start up and control membrane processing in accordance with workplace procedures</p>
<p>2. Control membrane processing plant</p> <p>This means you:</p>	<p>Evidence of controlling membrane processing plant in accordance with workplace procedures</p>

<p>Ensure that required instrumentation is working correctly and take relevant action in response to any identified faults</p> <p>Start up is in accordance with procedures and results in efficient use of resources</p> <p>Ensure that plant settings are compatible with optimum achievable performance</p> <p>Ensure that permeate flux rates are adequately monitored and recorded</p> <p>Make the necessary equipment performance checks in accordance with procedures and regulatory requirements</p> <p>Evaluate faults for impact on operations and take prompt relevant action within the limits of your own authority</p> <p>Complete the necessary documentation accurately and legibly and process it correctly</p>	
<p>3. Prepare to shut down plant and equipment</p> <p>This means you:</p> <p>Check and follow hygiene, health and safety and environmental procedures</p> <p>Make sure that when plant is shut down product losses are minimised whilst avoiding potential product contamination from flushing</p>	<p>Evidence of preparing to shut down plant and equipment in accordance with workplace procedures</p>
<p>4. Implement shut down procedures</p> <p>This means you:</p> <p>Shut down chosen plant, equipment and associated services in line with procedures</p> <p>Make sure that plant and equipment are safe, secure and fit for purpose so that operations can continue when necessary or be cleaned as appropriate</p>	<p>Evidence of implementing shut down procedures in accordance with workplace procedures</p>

<p>Complete the necessary documentation accurately and clearly and process it correctly Keep up effective spoken and written communication with your managers and colleagues</p>	
<p>5. Implement cleaning operations</p> <p>This means you:</p> <p>Wear correct personal protective equipment Set up the plant for cleaning</p> <p>Use correct cleaning products at correct concentrations and temperatures</p> <p>Ensure compliance with operating procedures and manufacturers instructions</p> <p>Complete the cleaning operation safely and leave the plant in a suitable condition to receive the next batch of product or complete shut down as appropriate</p>	<p>Evidence of implementing cleaning operations in accordance with workplace procedures</p>

<p>You need to know and understand: Evidence of knowledge and understanding should be collected during observation of performance in the workplace. Where it cannot be collected by observing performance, other assessment methods should be used.</p>
<ol style="list-style-type: none"> 1. What the standards of health and safety and hygiene that you are required to work to are and why it is important that you do so 2. What are the relevant regulatory requirements and mandatory equipment checks that need to be undertaken at start up 3. How to minimise the use of water whilst maintaining adequate equipment performance and minimising the impact of your operation on effluent generation 4. What the limits of your own authority and competence are and why it is important to work within them 5. What the lines and methods of effective communication are and why it is important to use them 6. What the documentation requirements are and why it is important to meet them 7. How to access and interpret the relevant plant, process, equipment, materials specifications 8. The importance of flux (flow rate) measurements

9. The terms permeate and retentate and the differences between them
10. How the process works and what the function of each item of plant is
11. What the main types of equipment malfunction are and their corrective actions
12. What the correct procedures for start up and shut down are and why it is important to follow them
13. How faults can impact on operations
14. Why it is important to use correct chemicals and cleaning procedures

Evidence of performance may employ examples of the following assessment:

- observation
- written and oral questioning;
- evidence from company systems (e.g. Food Safety Management System)
- reviewing the outcomes of work
- checking any records of documents completed
- checking accounts of work that the candidate or others have written