

**Modification history**

Release	Comments
Release 1	This version released with FBP Food, Beverage and Pharmaceutical Training Package version 5.0

FBPOIL3XX8	Operate and monitor a hydrogenation process
<b>Application</b>	<p>This unit of competency describes the skills and knowledge required to set up, operate, adjust and shut down a hydrogenation process to improve the hardness, viscosity, flavour and shelf-life of oils.</p> <p>This unit applies to individuals who apply basic operating principles to the operation and monitoring of a hydrogenation process in an edible oils production environment. Processes may be batch or continuous, and apply to single or multiple product types.</p> <p>All work must be carried out to comply with workplace procedures, in accordance with State/Territory work health and safety, and food safety regulations, legislation and standards that apply to the workplace.</p> <p>No occupational licensing, legislative or certification requirements apply to this unit at the time of publication.</p>
<b>Prerequisite Unit</b>	Nil
<b>Unit Sector</b>	Oil refining (OIL)

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare the hydrogenation and related equipment for operation	1.1 Ensure oil stock and emulsion are available to meet product recipe requirements 1.2 Identify safety requirements and wear appropriate personal protective equipment ensuring correct fit 1.3 Confirm services are available, equipment is cleaned and not locked out 1.4 Acknowledge and load recipe to meet production requirements 1.5 Conduct pre-start checks according to operator instructions
2. Operate and monitor equipment	2.1 Start up and operate the hydrogenation process according to safe operating procedures 2.2 Ensure equipment and hoses are placed for optimal operations and to ensure safety 2.3 Monitor equipment and services to ensure optimal operations 2.4 Identify and report irregularities in equipment operation and report any maintenance requirements 2.5 Confirm that specifications are met at each stage according to production specifications 2.6 Identify, rectify or report out-of-specification product or process outcomes according to workplace procedures 2.7 Maintain the work area according to workplace guidelines Test hydrogenised oil samples to ensure product meets specifications 2.8 Record processing information in required format in line with workplace requirements
3. Shut down the hydrogenation process	3.1 Identify the appropriate shutdown procedure 3.2 Shut down the process safely according to operating procedures 3.3 Identify and report maintenance requirements according to workplace requirements 3.4 Ensure waste is disposed of in line with environmental requirements

<b>Foundation Skills</b>	
<i>This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.</i>	
<b>Skill</b>	<b>Description</b>
Learning	<ul style="list-style-type: none"> <li>Solve routine problems according to workplace guidelines and using experience of past solutions</li> </ul>
Reading	<ul style="list-style-type: none"> <li>Interpret standard operating procedures for the hydrogenation process</li> </ul>
Writing	<ul style="list-style-type: none"> <li>Complete records according to workplace guidelines using electronic, digital and/or paper-based format</li> </ul>
Numeracy	<ul style="list-style-type: none"> <li>Read sample graphs and process gauges</li> <li>Monitor control points for oil temperature, vacuum pressure, flow rates and hydrogenation quantity and agitation</li> </ul>

<b>Unit Mapping Information</b>			
<b>Code and title current version</b>	<b>Code and title previous version</b>	<b>Comments</b>	<b>Equivalence status</b>
FBPOIL3XX8 Operate a hydrogenation process	FBPGPS2006 Operate a hydrogenation process	Unit title and code updated to better match work task  Minor changes to Performance Criteria to clarify intent  Foundation skills refined  Performance Evidence clarified  Minor changes to Knowledge Evidence and Assessment Conditions	Equivalent unit

<b>Links</b>	Companion Volumes, including Implementation Guides, are available at VETNet: <a href="https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=78b15323-cd38-483e-aad7-1159b570a5c4">https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=78b15323-cd38-483e-aad7-1159b570a5c4</a>
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<b>TITLE</b>	<b>Assessment requirements for FBPOIL3XX8 Operate and monitor a hydrogenation process</b>
<b>Performance Evidence</b>	
<p>An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.</p> <p>There must be evidence that the individual has operated and monitored a hydrogenation process to improve the hardness, viscosity, flavour and shelf-life of at least one batch of oil to meet specifications, including:</p> <ul style="list-style-type: none"> <li>• applying safe work practices</li> <li>• making adjustments to the operating parameters to ensure quality outcomes.</li> <li>• taken corrective action in response to typical faults and inconsistencies.</li> </ul>	

<b>Knowledge Evidence</b>	
<p>An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:</p> <ul style="list-style-type: none"> <li>• purpose and basic principles of the hydrogenation process, including a basic understanding of the chemical structure of oil and the effect of hydrogenation on this structure</li> <li>• basic operating principles of equipment, including:             <ul style="list-style-type: none"> <li>• main equipment components</li> <li>• status and purpose of guards</li> <li>• equipment operating capacities and applications</li> <li>• the purpose and location of sensors and related feedback instrumentation</li> </ul> </li> <li>• services required for a hydrogenation process and action to take if services are not available</li> <li>• good manufacturing practices (GMP) relevant to work task</li> <li>• the flow of the hydrogenation process and the effect of outputs on downstream edible oils and fats processes</li> <li>• quality characteristics to be achieved by the hydrogenation process</li> <li>• quality requirements of oil, catalyst and filter aid as used, and effect of variation on hydrogenation process performance</li> <li>• operating requirements and parameters, and corrective action required where operation is outside specified operating parameters</li> <li>• typical equipment faults and related causes, including:             <ul style="list-style-type: none"> <li>• signs and symptoms of faulty equipment</li> <li>• early warning signs of potential problems</li> </ul> </li> <li>• methods used to monitor the hydrogenation process, including inspecting, measuring and testing as required by the process</li> <li>• inspection or test points (control points) in the hydrogenation process, and related procedures and recording requirements</li> <li>• contamination/cross contamination and food safety risks associated with the hydrogenation process and related control measures</li> <li>• common causes of variation and corrective action required</li> <li>• health and safety hazards and controls, including an understanding of the hazards associated with the use of hydrogen</li> <li>• requirements of different shutdowns as appropriate to the hydrogenation process and workplace production requirements, including:             <ul style="list-style-type: none"> <li>• emergency and routine shutdowns</li> <li>• procedures to follow in the event of a power outage</li> </ul> </li> <li>• isolation, lock out and tag out procedures and responsibilities</li> <li>• procedures and responsibility for reporting production and performance information</li> <li>• environmental issues and controls relevant to the hydrogenation process, including waste/rework collection and handling procedures</li> <li>• routine maintenance procedures for hydrogenation equipment</li> <li>• cleaning and tank clearing procedures for hydrogenation equipment</li> <li>• product traceability procedures.</li> </ul>	

<b>Assessment Conditions</b>	
<p>Assessment of skills must take place under the following conditions:</p> <ul style="list-style-type: none"><li>• physical conditions:<ul style="list-style-type: none"><li>• a workplace or an environment that accurately represents workplace conditions</li></ul></li><li>• resources, equipment and materials:<ul style="list-style-type: none"><li>• hydrogenation equipment and related services</li><li>• personal protective clothing and equipment</li><li>• oil, catalyst and filter aid as required for the hydrogenation process</li><li>• sampling schedules, test procedures and equipment</li><li>• cleaning materials and equipment</li></ul></li><li>• specifications:<ul style="list-style-type: none"><li>• work procedures, including advice on safe work practices, food safety, quality and environmental requirements</li><li>• information on equipment capacity and operating parameters</li><li>• production schedule/batch specifications, control points and processing parameters</li><li>• documentation and recording requirements.</li></ul></li></ul> <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p>	

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