



Australian Government

Department of Education, Employment and Workplace Relations

FDFST4052A Implement and review the manufacturing and processing of edible fats and oils

Release: 2

FDFST4052A Implement and review the manufacturing and processing of edible fats and oils

Modification History

April 2012: Minor typographical corrections.

Unit Descriptor

Unit descriptor	This unit covers the skills and knowledge required to review the production system for manufacturing and processing of edible fats and oils, based on the preparation of product samples.
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Application of the Unit

Application of the unit	This unit applies to food science and technology personnel who have roles in product design, quality assurance and production management. The unit typically applies to staff who have responsibility for maintaining product safety, quality and efficiency in food production in the edible fats and oils sector. This unit includes using knowledge of food science and processes to determine the required food safety, quality and performance required from food production equipment. Depending on the workplace application, liaison may be required with engineering and maintenance specialists.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Review preparation of plant and animal products for oil extraction and processing 2. Monitor processing techniques and technologies to produce fat or oil product 3. Review packaging of fat and oil products 4. Assess the quality, safety and shelf life of fats and oil products 5. Review production processes	1.1 Processing stages used to prepare plant and animal fats and oils are identified 1.2 The principles of pre-treatments for fat and oil processing are established 1.3 Regulatory, quality and safety requirements are established 2.1 Processing techniques and technologies used to produce fat or oil products are identified 2.2 Steps involved in the manufacture of fat or oil product are identified 2.3 Permissible additives used in the production of the fat or oil product are identified 2.4 Appropriate hygiene and sanitation practices are used to produce product 2.5 Data requirements appropriate for food safety, quality and production standards are identified 2.6 Data collection points consistent with equipment capabilities and data requirements are established 2.7 Procedures to deal with non-conformance in relation to process and the final product are developed 2.8 Test runs of fat or oil manufacturing process is conducted and product is checked against requirements 3.1 Suitable packaging requirements for fats and oil products are identified and checked against regulatory, client and enterprise requirements 3.2 Test packaging of fat and oil products is undertaken and checked for safety and conformance to client and enterprise requirements 4.1 A range of testing techniques are performed to assess the safety of fat and oil products 4.2 A range of testing techniques are performed to assess the quality of the fat and oil products 4.3 A range of testing techniques are performed to determine the shelf life of fat and oil products 4.4 Sensory analysis is conducted 4.5 All common hazards and critical control points (CCPs) for the production of products are identified and assessed 5.1 The CCPs and critical limits for product safety are monitored and reviewed according to regulatory and enterprise requirements 5.2 Operating procedures are reviewed for food safety and quality

ELEMENT

PERFORMANCE CRITERIA

- 5.3 The production plan is reviewed against enterprise and client schedules and quality requirements
- 5.4 Environmental impacts and associated costs are reviewed for processing of food products

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills include:**Ability to:**

- recognise the difference between fats and oils
- review the various methods of storage which assist to prolong the shelf life of fats and oils
- apply processing techniques, using commercial materials and equipment
- apply sensory evaluation techniques
- carry out product testing
- review production systems.

Required knowledge includes:**Knowledge of:**

- widely available animal- and plant-based fats and oils and seasonal availability
- the physiological changes that can occur to plant-based products during harvest
- various methods of storage that assists in prolonging the shelf life of animal- and plant-based fats and oils
- principles of pre-treatments as applies to animal- and plant-based fats and oils
- processing techniques and technologies used to produce animal- and plant-based fats and oils
- testing techniques used to identify quality and safety parameters of animal- and plant-based fats and oils
- packaging requirements for animal- and plant-based fats and oils
- sensory analysis parameters for animal- and plant-based fats and oils
- common food spoilage and food poisoning organisms associated with animal- and plant-based fats and oils
- manufacturing of a range of animal- and plant-based fats and oils
- the physiology of animal- and plant-based fats and oils
- methods of storage for animal- and plant-based fats and oils

manufacturing process for animal and plant fats and oils.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

A person who demonstrates competency in this unit must be able to produce samples of edible fats and oils products, and to provide information and data for reviewing the production system

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Critical aspects of assessment must include evidence of the use of commercial processing techniques to produce samples of edible fats and oils, the documentation of packaging and storage arrangements for edible fats and oils, and a review of the production system for food safety and quality.

Context of and specific resources for assessment

Assessment of performance requirements in this unit should be undertaken within the context of food technology and across a range of fat and oil products.. Competency is demonstrated by performance of all stated criteria, including the critical aspects and knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statements applicable to the workplace environment. Assessment must occur in a real or simulated workplace where the assessee has access to:

- Production process and related equipment, manufacturers' advice and operating procedures
- Methods and related software systems as required for collecting data and calculating yields, efficiencies and material variances appropriate to production environment
- Tests used to report relevant product/process information and recorded results

Method of assessment

Evidence may include third party report, portfolio, work documentation produced by the candidate, and written and/or oral questioning to assess knowledge and understanding of the performance criteria and critical aspects for assessment. Assessment should also include wherever possible observation of the candidate oversighting or conducting a range of fat and oil manufacturing processes and tests.

EVIDENCE GUIDE

Guidance information for assessment

Evidence should be gathered over a period of time in a range of actual or simulated environments.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Occupational health and safety requirements

Federal and state legislation, regulations, and codes of practice
Enterprise requirements
Safety Data Sheets (SDSs) for hazardous substances

Regulations

Australian and international standards including:

- industry guidelines and codes of practice
- industry regulations
- Australia New Zealand Food Standards Code
- ISO Standards
- Codex Alimentarius
- Australian Quarantine Inspection Service (AQIS) requirements

State food safety regulations

Materials, equipment and systems

Fats and oils processing chemicals may include extraction solvents, catalysts, hydrogen.

Fats and oils processing equipment may include boiling pans, washing equipment, crushers, extraction, distillation units.

Edible fats and oils

Include tallow, palm oil, oilseed, cooking oils, groundnut oils, mustard oil, safflower oil, sesame oil, soya oil, sunflower oil, other vegetable oils

Testing procedures

Include emulsion testing, sensory (organoleptic) testing, extractive testing for free fatty acids, fatty acid profile,

RANGE STATEMENT	
	peroxide value, polyphenols, sterol composition, moisture and volatiles, unsaponifiable matter, insoluble impurities, flash point, trace metals, residual pesticides, halogenated hydrocarbons.

Unit Sector(s)

Unit sector	Technical
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