**Title**

Explain the Fritz continuous buttermaking process in a dairy processing operation

**Level**

5

**Credits**

20

**Purpose**

This theory-based unit standard is for experienced people carrying out milk products processing in a dairy processing operation.

People credited with this unit are able to explain: properties of raw materials, and butters made by the Fritz continuous buttermaking process; the handling and processing of raw materials used for the manufacture of Fritz butter products; and the Fritz continuous buttermaking process for the manufacture of butter products.

**Classification**

Dairy Processing > Milk Products

**Available grade**

Achieved

**Explanatory notes**

1. **Legislation**
   

2. **For assessment against this unit standard it is expected that the candidate will be experienced in the operation of Fritz buttermaking plant.** This experience will include the handling of raw materials for the processing and packaging of the finished product.
Outcomes and evidence requirements

Outcome 1

Explain properties of raw materials, and butters made by the Fritz continuous buttermaking process.

Evidence requirements

1.1 Milk components are explained in terms of their influence on the Fritz continuous buttermaking process and on properties of the final products.

Range milk components include but are not limited to – sterols, vitamins, phospholipids, colouring compounds, fatty acids (short, medium, long, unsaturated), melting properties and crystallisation of triglycerides, seasonal variation.

1.2 Lipolysis and oxidation of milkfat are explained in terms of their influence on final butter flavour and shelf-life.

1.3 Conditions for microbial contamination, growth and control are explained in terms of achieving butter and buttermilk specifications.

Range contamination includes but is not limited to – pathogens, psychrotrophs, coliforms, thermophiles, yeasts and moulds.

Outcome 2

Explain the handling and processing of raw materials used for the manufacture of Fritz butter products.

Evidence requirements

2.1 Milk and cream handling are explained in terms of manufacturing and meeting final product specifications of Fritz butter products.

Range product specifications may include but are not limited to – emulsion stability, fat globule membrane, gelling, microbial growth, lipolysis, solids.

2.2 The purposes of cream treatment are explained in terms of manufacturing and meeting final product specifications of Fritz butter products.

Range purposes include but are not limited to – flavour management, pasteurisation, lipase inactivation, cream crystallisation, shelf-life.

2.3 Cream treatment equipment is explained in terms of their operating principles.

Range equipment includes but is not limited to – Flavourtech, Vacreators.
2.4 Cream treatment is explained in terms of the factors influencing taint removal, fat globule size, and fat losses.

Range factors include but are not limited to – strip rate, temperature, pressure and vacuum, taint type, taint concentration, fat recovery.

2.5 Cream treatment and silo holding are explained in terms of control of cream crystallisation for Fritz buttermaking.

Range control includes but is not limited to – solid fat content, fat content consistency, silo agitation, seasonal variation.

Outcome 3

Explain the Fritz continuous buttermaking process for the manufacture of butter products.

Evidence requirements

3.1 The components of Fritz buttermaking equipment are explained in terms of the operating principles.

Range components include but are not limited to – cream pump, cream heating plate heat exchanger, churning, buttermilk separation, working, vacuum, ingredient dosing, butter pump.

3.2 Cream process variables are explained in terms of their effect on composition control and hardness of Fritz butter.

Range variables include but are not limited to – fat content, solids content, temperature, fat globule size, solid fat content, fat recovery.

3.3 Butter machine variables are explained in terms of their effect on composition control and hardness of Fritz butter.

Range variables include but are not limited to – throughput, cream heating plate heat exchanger, churning section, buttermilk separation, working sections, vacuum, ingredient dosing, machine starting and stopping.

3.4 Butter packing and handling are explained in terms of colour and body defects and unit load shape and stability.

Range butter packing and handling includes but is not limited to – butter pumping, buffer storage, pack filling, palletisation.

3.5 Cleaning and clean in place of Fritz buttermaking equipment is explained in terms of factors affecting cleaning performance and operator safety.

Range factors include but are not limited to – fat recovery, cleaning, anti-stick, sanitiser.
3.6 Quality control and final product grading are explained in terms of the manufacture of Fritz butter products’ customer product purchase specifications.

Range quality control and grading includes but is not limited to – trace back, sensory evaluation, statistical grading.

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<th>Planned review date</th>
<th>31 December 2020</th>
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| Status information and last date for assessment for superseded versions |
|---------------------------|-------------------|-------------------|
| Process                  | Version | Date            | Last Date for Assessment |
| Registration             | 1       | 10 January 1994 | 31 December 2012       |
| Revision                 | 2       | 16 September 1997 | 31 December 2012       |
| Review                   | 3       | 5 July 1999     | 31 December 2012       |
| Revision                 | 4       | 13 June 2003    | 31 December 2012       |
| Rollover and Revision    | 5       | 20 June 2006    | 31 December 2014       |
| Rollover                 | 6       | 17 July 2009    | 31 December 2016       |
| Review                   | 7       | 18 June 2015    | N/A                  |

Consent and Moderation Requirements (CMR) reference 0022

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Please note
Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard
Please contact the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.