
DAIRY TECHNOLOGY
**Identify raw materials and products and
describe a spray drier process used in
the dairy industry**

level:	4
credit:	18
final date for comment:	July 2009
expiry date:	December 2010
sub-field:	Dairy Manufacturing
replacement information:	This unit standard and unit standard 21802 replaced unit standard 767.
purpose:	People credited with this unit standard are able to: identify the components of the key raw material(s) and their influences on the spray drier process and the product; describe the properties and methods of handling concentrated dairy products; describe spray drying and transport procedures for dairy products; and identify product properties and process control points that affect these properties for a spray dried dairy product.
entry information:	Recommended: Unit 4831, <i>Explain evaporation and spray drying of dairy products in the dairy industry</i> , or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA and industry.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Industry Training Organisation.
special notes:	1 Definitions <i>WPC</i> refers to whey protection concentrate; <i>MPC</i> refers to milk protein concentrate; <i>organisational requirements</i> refer to instructions to staff on policy and procedures which are documented in memo and/or manual format and are available in the workplace. These include but are not limited to site-specific and company standard operating procedures, food safety and quality management requirements;

DAIRY TECHNOLOGY
**Identify raw materials and products and
describe a spray drier process used in
the dairy industry**

- 2 Work must be carried out in accordance with organisational requirements, production requirements, licensing requirements, legislative requirements and industrial awards and agreements.
- 3 Legislative requirements in this unit standard include but are not limited to compliance with Animal Products Act 1999, Animal Products (Dairy) Regulations 2005, Food Act 1981, relevant codes of practice, and subsequent amendments.

Elements and Performance Criteria

element 1

Identify the components of the key raw material(s) and their influences on the spray drier process and the product.

performance criteria

- 1.1 The components of the raw material(s) are identified in terms of their proportions and factors affecting these proportions.

Range: components may include but are not limited to – fat, protein, lactose, minerals, vitamins, water;
factors influencing composition may include but are not limited to – genetic, physiological and/or seasonal, environmental, material supplier, material type and/or form, pre-evaporation processes, pre-drier processes.
- 1.2 The components and properties of the raw material(s) are identified in terms of their influences on the spray drier process and on the product.
- 1.3 Deteriorative effects on the raw material(s) are identified in terms of their relevance to product quality.

DAIRY TECHNOLOGY
Identify raw materials and products and
describe a spray drier process used in
the dairy industry

element 2

Describe the properties and methods of handling concentrated dairy products used in a spray drier process.

performance criteria

2.1 The components of a concentrate handling system are described in terms of their functions.

Range: components may include but are not limited to – buffer tanks, filters, concentrate heater, high pressure pump, homogeniser.

2.2 Properties of concentrated dairy products are described in terms of factors affecting viscosity.

element 3

Describe spray drying and transport procedures for spray dried dairy products.

performance criteria

3.1 The components of a spray drier are described in terms of their functions and principles of operation.

Range: components may include but are not limited to – atomisers, primary drying chambers, secondary drying, powder and air separation.

3.2 Transport procedures for milk powders after spray drying are described in terms of the types of systems used and their advantages and disadvantages in terms of flexibility of use and suitability for different product types.

Range: systems may include but are not limited to – bucket elevators, vibrating tube, pneumatic (lean and dense phase).

3.3 Drier cleaning is described in terms of organisational requirements.

DAIRY TECHNOLOGY
Identify raw materials and products and
describe a spray drier process used in
the dairy industry

element 4

Identify product properties and process control points that affect these properties for a spray dried dairy product.

performance criteria

- 4.1 Potential microbial hazards in the spray drier process are identified in terms of microbial growth requirements and possible control strategies.
- 4.2 Product attributes are identified for a spray dried dairy product, in terms of their relevance to the manufacturer and the customer.
- 4.3 Process control points are identified in terms of manufacturing requirements for a spray dried dairy product.

Range: manufacturing requirements are identified for key unit operations for one selected product;
unit operations may include but are not limited to – raw materials treatment and handling, concentrate handling, spray drying;
selected products may include but are not limited to – skim milk powder, whole milk powder, a nutritional powder, buttermilk powder, WPC, MPC, caseinate, lactose;
evidence is required for one product.

- 4.4 Process control points for a spray dried dairy product are identified in terms of their effects on the product.

Range: effects may include but are not limited to – chemical, physical, microbiological and sensory properties.

Comments on this unit standard

Please contact the New Zealand Industry Training Organisation mail@nzito.co.nz if you wish to suggest changes to the content of this unit standard.

Please Note

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

DAIRY TECHNOLOGY
Identify raw materials and products and
describe a spray drier process used in
the dairy industry

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0022 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.