



Australian Government

Department of Education, Employment and Workplace Relations

FDFOP2028A Operate a mixing or blending process

Revision Number: 1

FDFOP2028A Operate a mixing or blending process

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to combine ingredients and additives in the correct quantities and sequence and to operate and shut down mixing and blending equipment to achieve the required mix characteristics.
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Application of the Unit

Application of the unit	This unit has application in a production environment within the food processing industry. Mixes may include concentrated pre-mixes or bulk blends. The output of this process may be a product requiring further processing or for external use. This unit is appropriate to select where the mixing or blending process is a stand-alone process and involves an understanding of addition method and sequence. Where mixing is an in-line component of a larger process, this unit is not appropriate. Where the mixing process does not require a detailed understanding of sequencing or ingredient characteristics, FDFOP1004A Prepare basic mixes, may be more appropriate. When operators are required to perform batch or product changeover procedures as part of this work process, the procedures should be used to customise the application of this unit. Where more detailed changeovers are carried out, FDFOP2011A Conduct routine maintenance, should be selected.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare the mixing or blending equipment and process for operation	1.1. Materials are confirmed and available to meet production requirements 1.2. Pre-mixes are prepared as required 1.3. Cleaning and maintenance requirements and status are identified and confirmed 1.4. Machine components and related attachments are fitted and adjusted to meet operating requirements 1.5. Processing or operating parameters are entered as required to meet production requirements 1.6. Equipment performance is checked and adjusted as required 1.7. Pre-start checks are carried out as required by workplace requirements
2. Operate and monitor the mixing or blending process	2.1. Ingredients and additives are delivered to the mixer in the required quantities and sequence to meet recipe specifications 2.2. The mixing or blending process is started and operated according to workplace procedures 2.3. Equipment is monitored to identify variation in operating conditions 2.4. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements 2.5. The mixing process is monitored to confirm that specifications are met 2.6. Out-of-specification product or process outcomes are identified, rectified and/or reported to maintain the process within specification 2.7. Mix is transferred to required production or storage location 2.8. The work area is maintained according to housekeeping standards 2.9. Work is conducted in accordance with workplace environmental guidelines 2.10. Workplace records are maintained according to workplace recording requirements
3. Shut down the mixing or blending process	3.1. The appropriate shutdown procedure is identified 3.2. The process is shut down according to workplace procedures 3.3. Maintenance requirements are identified and

ELEMENT	PERFORMANCE CRITERIA
	reported

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Ability to:

- access workplace information to identify mixing/blending requirements
- select, fit and use personal protective clothing and/or equipment
- confirm supply of necessary materials and services
- conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational
- add/load materials in correct quantities and sequence, such as monitoring automatic ingredient addition and/or manual addition
- start, monitor and adjust mixing or blending process equipment to achieve required outcomes, including monitoring flow rates/quantity, time or temperature and mix/blending settings
- monitor/control points and conduct inspections as required to confirm process remains within specification
- monitor supply and flow of ingredients and additives to and from the mixing or blending process
- pace mixing/blending to meet production requirements
- take corrective action in response to out-of-specification results
- respond to and/or report equipment failure within level of responsibility
- locate emergency stop functions on equipment
- follow isolation and lock out or tag out procedures as required to take process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility
- complete workplace records as required
- demonstrate batch or product changeovers
- maintain work area to meet housekeeping standards
- use process control systems according to enterprise procedures
- collect samples and conduct tests according to enterprise procedures
- label and store pre-mixes and/or mixes according to enterprise procedures
- conduct routine maintenance according to enterprise procedures
- clean and sanitise equipment according to enterprise procedures
- use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor

REQUIRED SKILLS AND KNOWLEDGE

- work cooperatively within a culturally diverse workforce

Required knowledge

Knowledge of:

- purpose and basic principles of preparing mixes and blends, including the characteristics and basic function of ingredients and additives used, method and sequence of ingredient addition required to achieve required blend characteristics, and where relevant, the purpose of conditioning, maturation or holding stages required prior to further processing of the mix
- basic understanding of specific gravity and bulk density as appropriate for ingredients used
- basic operating principles of mixing/blending equipment, including main equipment components, status and purpose of guards, equipment operating capacities and applications, the purpose and location of sensors and related feedback instrumentation, and awareness of calibration schedules for scales and related weighing/measuring equipment
- services required and action to take if services are not available
- the flow of the mixing process and the effect of mix preparation on downstream processes
- procedures for requisitioning, receiving and returning ingredients from stores
- ingredient handling requirements and shelf-life or coding
- quality characteristics required of ingredients and additives and their effect on mixing process performance, including methods used to condition or prepare ingredients prior to addition
- methods used to monitor the blending or mixing process, including inspecting, measuring, and testing as required by the process
- inspection or test points (control points) in the process and the related procedures and recording requirements, such as:
 - flow rates
 - ingredient/additive addition sequence
 - times/temperatures and agitator speeds
 - required characteristics of blend, such as viscosity, appearance and temperature
- required attributes of the mixed or blended output, such as chemical, texture and flavour profiles as required
- the effect of the mixing or blending parameters, such as temperature and length of mix time on mixing outcome
- contamination and food safety risks associated with the process and related control measures, including product compatibility and cross contamination risks and associated cleaning requirements, as well as common allergens used in mixes prepared
- operating requirements and parameters and corrective action required where operation is outside specified operating parameters

REQUIRED SKILLS AND KNOWLEDGE

- typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems
- common causes of variation and corrective action required
- occupational health and safety (OHS) hazards and controls
- requirements of different shutdowns as appropriate to the blending or mixing process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage
- product or process changeover procedures and responsibilities
- isolation, lock out and tag out procedures and responsibilities
- procedures and responsibility for reporting production and performance information
- environmental issues and controls relevant to the mixing or blending process, including waste or rework collection and handling procedures related to the process
- basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment
- characteristics of solutions, suspensions and emulsions where relevant
- sampling and testing associated with process monitoring and control where relevant
- product labelling and storage requirements where relevant
- routine maintenance procedures where relevant
- cleaning and sanitation procedures where relevant

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

Assessment must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit must be achieved in accordance with food safety standards and regulations.

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

Evidence of ability to:

- prepare premixes for mixing or blending
- conduct pre-start checks on machinery used for mixing or blending
- start, operate, monitor and adjust process equipment to achieve required quality outcomes
- take corrective action in response to typical faults and inconsistencies
- complete workplace records as required
- apply safe work practices and identify OHS hazards and controls
- safely shut down equipment
- apply food safety procedures.

Context of and specific resources for assessment

Assessment must occur in a real or simulated workplace where the assessee has access to:

- personal protective clothing and equipment
- work procedures including advice on safe work practices, food safety, quality and environmental requirements, stock flow systems, production schedules, batch/recipe instructions
- information on equipment capacity and operating parameters
- production schedule/batch/recipe instructions
- specifications, control points and processing parameters
- mixing/blending process equipment, services and related storage facilities as required
- ingredients and additives required for the mixing/blending process
- sampling schedules and test procedures and equipment as required

EVIDENCE GUIDE	
	• cleaning procedures, materials and equipment as required.
Method of assessment	This unit should be assessed together with core units and other units of competency relevant to the function or work role. Examples could be: • FDFOP2003A Clean equipment in place • FDFOP2004A Clean and sanitise equipment • FDFOP2011A Conduct routine maintenance • FDFOP2013A Apply sampling procedures • FDFOP2030A Operate a process control interface • PMLTEST300B Perform basic tests.
Guidance information for assessment	To ensure consistency in one's performance, competency should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.

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.

Policies and procedures

Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements

Legislative requirements

Legislative requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes:

- the Food Standards Code, including labelling, weights and measures legislation
- legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity

When applied to the pharmaceutical industry, relevant Good Manufacturing Practice (GMP) codes apply in place of the Food Standards Code and reference to food safety is replaced by GMP

Workplace information

Workplace information may include:

- standard operating procedures (SOPs)
- specifications
- production schedules and instructions
- manufacturers' advice
- consignment notes
- verification procedures
- standard forms and reports

Mixing or blending equipment

Equipment typically includes:

- measuring and weighing equipment, such as scales, load cells
- dosing equipment
- mixers
- pumps
- in-line homogenisers

RANGE STATEMENT	
	• conveyors • bulk materials transfer and materials handling equipment • storage facilities Common mixer types include: • ribbon and vertical screw mixers/conveyors
Mixes	Mixes typically includes: • concentrated pre-mixes • pastes and cocktails • bulk mixes/blends Materials may include: • bulk and non-bulk ingredients and additives
Processes	Where this unit applies to preparation of dough, related processes may include: • extruding • stamping • cutting Where this unit applies to cake and confectionery mix preparation, related processes may include: • aeration
Ingredient addition	Ingredient addition may involve operation of: • automatic materials transfer equipment • dosing equipment and/or be manually loaded
Operation of equipment and processes	Operation of equipment and processes may require: • the use of process control panels and systems
Shutdown procedures	Shutdown procedures may include: • cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew)
Services	Services are appropriate to the process to be operated. Typical examples include: • power • steam • fuel • vacuum

RANGE STATEMENT

	compressed and instrumentation air
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Unit Sector(s)

Unit sector	Operational
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		