



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FDFGR4004A Establish and supervise dust control procedures in a grain processing enterprise**

Release 1

## **FDFGR4004A Establish and supervise dust control procedures in a grain processing enterprise**

### **Modification History**

Not applicable.

### **Unit Descriptor**

This Unit applies to the establishment and supervision of dust control procedures in a grain milling enterprise. It includes procedures for the identification of risk factors, establishment of preventative and hygiene measures, use of explosion relief and fire suppression systems and arranging training for employees.

### **Application of the Unit**

This Unit applies to managers and supervisors in grain related enterprises including flour and stock feed mills and grain storage facilities, who have responsibility for the development and detailed implementation of dust control and dust explosion prevention strategies in a grain related enterprise. For milling enterprises, this Unit goes beyond the overview level included in the Unit FDFGR4005A Manage mill logistics and support services.

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

Nil.

### **Employability Skills Information**

This Unit contains employability skills.

### **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

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
1. Monitor dust explosion risk factors	<ul style="list-style-type: none"><li>1.1 Establish and monitor procedures for detecting potential explosive atmosphere.</li><li>1.2 Set procedures for reporting visible dust leaks.</li><li>1.3 Establish and enforce no smoking policy.</li><li>1.4 Establish and monitor reporting regime for potential ignition sources.</li><li>1.5 Establish and supervise manual and automatic temperature, smoke and moisture monitoring for all grain, flour, feed and other byproduct storage.</li><li>1.6 Establish systems to minimise fungal and insect infestation caused temperature increases.</li></ul>
2. Establish dust control procedures	<ul style="list-style-type: none"><li>2.1 Install and monitor dust aspiration or suction ventilation systems.</li><li>2.2 Establish dust checking procedures for all confined spaces.</li><li>2.3 Establish monitoring procedures for dust collector performance and output.</li><li>2.4 Establish procedures for resealing of all dust leaks.</li><li>2.5 Undertake random and periodical checks on performance of dust control procedures.</li><li>2.6 Assess and approve any variation in cleaning and hygiene procedures.</li><li>2.7 Minimise storage of combustible materials in mill.</li><li>2.8 Establish minimum dust levels for mandatory use of personal protective equipment.</li><li>2.9 Establish procedures for monitoring and control of environmental dust release.</li></ul>
3. Integrate equipment use, monitoring and maintenance with dust control procedures	<ul style="list-style-type: none"><li>3.1 Establish regular cleaning schedule for all surfaces in contact with graining or flour.</li><li>3.2 Establish mill equipment condition monitoring schedule with maintenance department.</li><li>3.3 Establish regular lubrication schedules for bearings, pulleys, shafts and other moving and friction surfaces.</li><li>3.4 Use anti-static materials where possible.</li><li>3.5 Establish approval, tagging and monitoring procedures for use of all portable tools and equipment in mill.</li></ul>
4. Establish fire and dust explosion suppression systems	<ul style="list-style-type: none"><li>4.1 Review adequacy of current dust control and dust explosion relief equipment and arrange for any required maintenance.</li><li>4.2 Arrange for any required additional dust control/dust explosion relief equipment in existing protected areas.</li><li>4.3 Investigate potential for use of fire and explosion suppression systems in areas not currently protected.</li><li>4.4 Locate and establish inspection regime for all explosion relief panels.</li></ul>

- 4.5 Set test and maintenance procedures for all existing fire and explosion suppression systems.
- 5. Supervise dust and fire control training
  - 5.1 Identify fire and dust wardens for mill areas.
  - 5.2 Establish emergency procedures.
  - 5.3 Identify dust and fire control content for use in induction training.
  - 5.4 Identify training needs of existing employees.
  - 5.5 Establish dust and fire control training arrangements.

## Required Skills and Knowledge

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

### Required skills include:

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#### Ability to:

- analyse areas and equipment in grain enterprises for dust and fire risk
- schedule housekeeping, training, and maintenance procedures to achieve objectives while minimising impact on production including:
  - scheduling maintenance for dust suppression systems and equipment and explosion relief panels
  - bin/silo inspections and cleaning
- control potential ignition sources
- assess automatic and manual monitoring techniques against enterprise needs.

### Required knowledge includes:

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#### Knowledge of:

- technologies and techniques for controlling grain dust in grain milling, handling and storage facilities including:
  - pneumatic dust collection
  - housekeeping
  - enclosing of equipment
  - use of liquid additives
  - misting and fogging (where permitted)
- advantages and disadvantages of mechanical and pneumatic product conveying
- types of bin/silo and exhaust designs and implications for dust generation and control
- requirements for a grain dust explosion to occur including typical sources in a grain enterprise of:
  - oxygen
  - ignition
  - fuel
  - contained space
- effects of fungal and pest infestation on grain and flour temperature
- minimum explosive concentrations (MEC) for grain dust in the milling or storage operation ( will vary according to the type of grain and particle size)
- location of bin explosion relief panels
- explosion suppression systems
- confined space procedures and regulations.

## Evidence Guide

<p>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.</p>	
<p>Overview of assessment</p>	<p>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.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this Unit</p>	<p>Evidence of ability to:</p> <ul style="list-style-type: none"> <li>• assess equipment and processes for dust explosion and fire risk</li> <li>• into dust and fire control procedures into standard operating procedures for all employees</li> <li>• identify dust and fire control training requirements</li> <li>• consult with internal department heads and external organisations on dust control procedures.</li> </ul>
<p>Context of and specific resources for assessment</p>	<p>Assessment must occur in a real or simulated workplace where the assessee has access to:</p> <ul style="list-style-type: none"> <li>• personal protective clothing and equipment</li> <li>• work procedures, including advice on safe work practices, food safety, quality and environmental requirements</li> <li>• equipment manuals including operating parameters</li> <li>• specifications, control points and processing parameters</li> <li>• break and reduction roll process and related equipment and services</li> <li>• conditioned grain suitable for the break and reduction roll process</li> <li>• sampling schedules and test procedures and equipment as required</li> <li>• documentation and recording requirements and procedures</li> <li>• cleaning procedures, materials and equipment as required.</li> </ul>
<p>Method of assessment</p>	<p>This Unit should be assessed together with core Units and other Units of Competency relevant to the function or work role.</p>
<p>Guidance information for</p>	<p>To ensure consistency of performance, competency</p>

assessment	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.
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## Range Statement

<p>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.</p>	
Mill	The term mill is used to refer to the whole mill site including the actual milling equipment, equipment used for associated processes, and transport, warehouse, maintenance, testing and administration facilities.
Dust	Dust refers to grain, flour and other combustible particles found in a grain enterprise that are capable of suspension in air.
Potential ignition sources	<p>Potential ignition sources are any sources that may generate sparks or sufficient heat to start combustion and include:</p> <ul style="list-style-type: none"> <li>• naked flames</li> <li>• welding</li> <li>• equipment sparking</li> <li>• hot equipment ( motors etc.)</li> <li>• smoking</li> <li>• hot spots in grain and flour storage</li> <li>• static electricity.</li> </ul>
Dust and fire control training arrangements may include:	<ul style="list-style-type: none"> <li>• appointment of internal trainers</li> <li>• training delivered by equipment suppliers</li> <li>• appointment of an external training provider</li> <li>• setting an allocation for dust and fire control training in the training budget</li> <li>• rostering of employees for training</li> <li>• establishing training records</li> <li>• conduct of drills and exercises.</li> </ul>

## **Unit Sector(s)**

Grain Processing