

HANDLING & STORAGE OF VEGETABLE PROTEIN MEALS - GUIDELINES & CHECKLIST

These guidelines have been jointly written by the Stock Feed Manufacturers' Council of Australia and the Australian Oilseed Federation. They provide assistance to users of vegetable protein meals in the storage and handling of these materials and compliance with relevant dangerous goods regulations.

Under the UN dangerous goods classification system, vegetable protein meals come under the definition of seedcake

UN 1386 SEED CAKE with more than 1.5% oil and not more than 11% moisture Class 4.2 Packing Group III (includes Soybean Meal and Canola Meal)


Due to this classification, the vegetable protein meals used by the stockfeed industry become dangerous goods due to their potential for spontaneous combustion. As storers and handlers of these protein meals, stock feed manufacturers must comply with specific requirements of the dangerous goods legislation. Raw materials falling under this definition include canola meal, soybean meal, cottonseed meal, palm kernel, sunflower meal, copra meal and full fat soybean meal.

BRIEF FACTS

These are spontaneously combustible substances. The main risk is fire or explosion. Exposure to air may lead to spontaneous combustion which may re-ignite after the fire is extinguished. Fires may produce irritating, poisonous or toxic gasses which can affect the eyes, skin and respiratory tract.

In storage and during transfer these substances can also present a dust hazard.

Issues around spontaneously combustible substances include: facility registration and fire protection, staff training and risk management.

SEED CAKE	
UN No 1386	
HAZCHEM 1 [Z]	

INTRODUCTION

This document is based on the Dangerous Goods (Storage and Handling) Regulations 2012 Victoria. Whilst reference is made to the sections of the Victorian regulations, the principles provided within this document have application for regulations in other Australian States and Territories.

This document acts to provide guidance; the reader needs to take account of the actual regulations applying to their operational site. For further clarification on regulations the reader is referred to the relevant occupational health and safety authority operating within their State or Territory.

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The following guidelines relate to the most significant sections of the dangerous goods regulations that apply to seedcake. Due to the large volumes of seedcake that is typically stored by stock feed manufacturing facilities, the dangerous goods legislation imposes obligations to ensure that the risks of spontaneous combustion are managed. The relevant section of the Dangerous Goods (Storage and Handling) Regulations 2012 Victoria are referenced, for example r. 56 relates to material safety data sheets. Within this document, the term seedcake is used and refers to relevant vegetable protein meals.

It should be noted that although these guidelines are written to provide information on the storage and handling of seedcake, there are a number of other raw materials and products handled by the feed industry that are classed as dangerous goods, these include materials such as:

- Fish meal where no antioxidant has been included
- Some organic acids
- Some feed additives
- LPG
- Other fuels and chemicals

Appropriate controls need to be in place to meet handling and storage regulations for these materials.

These guidelines do not include dangerous goods requirements relating to the transport of vegetable protein meals.

GUIDELINES

MATERIAL SAFETY DATA SHEETS

r. 56

- Current (less than 5 years old)
- Accessible to employees

The feed mill must obtain current MSDS for raw materials received onto the site. Current is seen as having been dated by the supplier within the last 5 years.

The MSDS must be readily accessible to all persons at the site, this includes employees, contractors, emergency services personnel and any other person on the site.

The MSDS will identify all dangerous goods and their classification. Suppliers of seedcake must supply an MSDS.

QUANTITY OF MATERIAL

- Quantity of spontaneously combustible material held in storage (capacity of storage silos)-
_____ kilos
- Additional storage in packages

The requirements of the dangerous goods legislation increases as the quantity of the seedcake stored and handled at the premises increases. Typically, feed mills would be classified into one of the following storage location categories due to the volumes of seedcake stored:

Minor Storage	less than 1,000kg of seedcake stored
Placarding Quantity	more than 1,000kg of seedcake stored
Manifest Quantity	more than 10,000kg of seedcake stored

You are required to keep a register for dangerous goods kept at the premises. This is simply a list of dangerous goods. Refer below for the requirement to maintain a manifest of dangerous goods.

MORE THAN 10,000 KILOS

- Notification to Authority

r. 66

Where the amount of seedcake stored exceeds 10,000kg, WorkSafe Victoria (equivalent authorities in other states) is to be notified of the presence of these dangerous goods. This notice must be in writing and identify the site occupier and contact details, dangerous goods and the maximum amount stored, the class and description of the dangerous goods.

A new notice is to be provided to WorkSafe Victoria at least every 2 years. Other state and territory authorities require similar notification renewal at specified intervals.

- Documented Emergency Management Plan r. 55
 - Prepared in consultation with Fire Services
 - Readily available

Where the amount of seedcake stored exceeds 10,000kg, the site must have an Emergency Management Plan. This is a written plan developed with the advice of the emergency services authority. In many locations this will be the local Metropolitan Fire Brigade or Country Fire Authority.

The Emergency Management Plan is to be readily available, communicated to staff, as well as management of adjacent premises.

The emergency plan should include the following matters:
Site and Hazard Detail 1. Name, location, address and nature of operations 2. Detailed map of the facility and surrounding area 3. Inventory of Schedule 2 materials 4. Maximum/minimum number of persons expected at the facility 5. Infrastructure likely to be affected by an incident 6. Emergency planning assumptions 7. Description of measures to control the consequence of each hazard and major incident
Command Structure and Personnel 8. Details of emergency contact personnel 9. Allocation of personnel for implementing the plan 10. Arrangements for “mutual aid” between adjacent facilities
Notifications 11. Procedures for providing early warning of an incident 12. Details of on-site and off-site warning systems 13. Contact details for the emergency services 14. Details of on-site communications systems
Resources 15. Details of emergency resources on-site 16. Arrangement for obtaining additional external resources
Procedures 17. Procedures for safe evacuation and muster of personnel 18. Details of control points and procedures for essential services 19. Procedures for containment of any incident 20. Procedures for decontamination following an incident

- Manifest **r. 45**
- If 20,000 kilos or more: **r. 54 & 55**
 - Operational fire protection system
 - Fire protection report from emergency services authority

The manifest provides information to the fire brigade in the event of an emergency. The dangerous goods register and manifest can be the same document. As well as listing the dangerous goods, the manifest identifies the storage capacity for each dangerous goods material. Even though silos may rarely ever be full, the manifest is based on storage capacity.

The manifest must distinguish between bulk and packed dangerous goods. For example if canola meal is stored in both bulk silos, bulka bags and 40kg bags, each storage location needs to be identified.

The quantity of each seedcake held in storage determines the additional requirements that need to be met. The Checklist shown as Appendix 1 identifies the additional storage and handling requirements based on storage quantity.

Where the amount of seedcake exceeds 20,000kg, the site is required to have an operational fire protection system.

The site is required to gain the advice of the emergency services authority in relation to the adequacy of the fire protection system. This advice needs to be in the form of a report. In many locations this will be the local Metropolitan Fire Brigade or Country Fire Authority.

The fire protection system includes water supply for fire fighting, fire alarms and fire fighting equipment.

LESS THAN 10,000 KILOS	r. 62
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- Documented Emergency Plan
 - Evacuation procedures
- Manifest and Emergency Plan readily available

Where less than 10,000kg of seedcake is stored, the site is still required to have a documented Emergency Management Plan and retention of a dangerous goods manifest.

There is however no requirement to notify WorkSafe or to have the Emergency Plan developed in consultation with the relevant emergency services authority.

INCIDENT REPORTING

- Formal notification procedures within Emergency Plan **r. 66**
 - Dangerous Goods Act 1985 (police or fire services)
 - Occupational Health and Safety Act 2004
- Records of incidents investigation **r. 63**

The site where dangerous goods are stored must respond to an emergency at the premises where the products are stored. This includes:

- Immediate action to assess and control any risk.
- Site evacuation
- Notification of emergency services as per the Emergency Plan.

All emergency incidents and their investigation are to be recorded.

CONTAINERS FOR BULK DANGEROUS GOODS	r. 38
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- Suitable foundations and supports
- Installed to prevent stress on container, pipe work or equipment
- Protected from corrosion
- Inspected at intervals sufficient to insure integrity and serviceability
- Inspection records maintained

Bulk silos and bins must be suitable for the storage of seedcake. These must be maintained to prevent any entry of moisture. The storage silos or bins must be inspected on a regular basis to confirm their continuing integrity; inspections must be recorded and retained.

INFORMATION, INSTRUCTION, TRAINING AND SUPERVISION r. 25

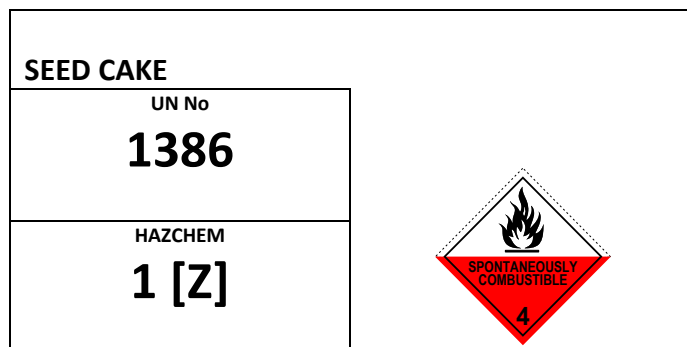
- Records of induction and training of persons who handle dangerous goods
- Information made available to Health and Safety Representative
- Information covers:
 - Nature of hazards, properties and risks
 - Purpose, use & maintenance of means of control of risks
 - Permit systems
 - Emergency plans
 - PPE

Handling and storage of dangerous goods needs to be part of the sites training program. Employees responsible for the storage and handling of seedcake need to be trained in dangerous goods handling as part of their induction training. Training records need to be kept for a minimum 5 years.

The site's Health and Safety Representative must be provided with information relevant to dangerous goods storage and handling.

PLACARDING	r. 47, 48 & 49
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- Outer warning placarding **HAZCHEM** at every road entry, if 1000 kilos or more on site
- Bulk placarding on vessel, where capacity of the bulk container (receiver) is more than 500 kilos.



Hazchem warning signs are required to be placed at each road entry to the site.

Storage silos and bins for seedcake are to have Schedule 4 “spontaneous combustion” placarding placed on them. Signage also applies to areas storing seedcake in bags or bulka bags where the quantity exceeds 500kg.

FIRST AID FACILITIES AND EMERGENCY EQUIPMENT

- Emergency equipment available and maintained
- First aid facilities available and maintained

Emergency equipment for fire protection and response, as well as first aid facilities are essential risk control measures should combustion occur involving stored seedcake. The design, quantity and location of emergency equipment/materials will need to be appropriate to the quantities and storage conditions of the seedcake at the premises.

To ensure that all emergency equipment is operational in readiness for an actual emergency it must be regularly checked and maintained.

VENTILATION AND ATMOSPHERIC EMISSIONS

- Natural or mechanical ventilation for storages located indoors.

It is recommended that expert advice is sought when determining adequate ventilation requirements for storages of seedcake located indoors and the following principles should be considered:

Mechanical extraction of atmospheric contaminants at the source is usually more effective in providing a safe working atmosphere than the provision of general ventilation.

Extraction vents should be placed and have sufficient capacity under all atmospheric conditions so as to prevent the escape of contaminants into the work area.

Discharge points should be located so as to prevent further contamination of work areas.

Extraction ducting should not be linked to multiple items of plant if there is any likelihood of fire spreading through the ducting. Provision against flash back may be required.

USEFUL PUBLICATIONS AND PHRASES

- Dangerous Goods (Storage and Handling) Regulations 2000
- Code of Practice Storage and Handling of Dangerous Goods
- Step by Step Guide to Safe Handling of Chemicals in the Workplace

CONTACTS

WorkSafe Victoria - Dangerous Goods Unit
Website - www.worksafe.vic.gov.au

APPENDIX 1 CHECKLIST DANGEROUS GOODS REQUIREMENTS BASED ON STORAGE VOLUME HELD ON SITE

Requirement	< 1,000kg	> 1,000kg	> 10,000kg	> 20,000kg
Material Safety Data Sheets				
Obtained, and current (less than 5 years old)	✓	✓	✓	✓
Accessible to all employees and emergency services personnel	✓	✓	✓	✓
Register of Dangerous Goods				
Register kept listing all dangerous goods stored handled at the workplace	✓	✓	✓	✓
Determine Storage Location Classification				
Calculate the quantity of dangerous goods (bulk and packaged) stored or handle on site and determine the Dangerous Goods Storage classification for the workplace	✓	✓	✓	✓
Notify the health & safety authority if the Dangerous Goods Storage classification is classed as a 'Manifest Quantity' (NSW & Vic) or a 'Large Dangerous Goods Location' (Qld)			✓	✓
Risk Management				
Hazard identification carried out	✓	✓	✓	✓
Risk assessment carried out and documented	✓	✓	✓	✓
Risk assessment reviewed at intervals not exceeding 5 years	✓	✓	✓	✓
Risk control measures determined and implemented	✓	✓	✓	✓
Placarding, Manifest and Site Plan				
Placards for bulk dangerous goods class 4.2 on each container > 500kg	✓	✓	✓	✓
Placards for packaged dangerous goods class 4.2 storage areas > 1,000kg		✓	✓	✓
'HAZCHEM' Outer Warning Placard		✓	✓	✓
Manifest prepared and located near the Outer Warning Placard at front of premises			✓	✓
Plan of the premises prepared and located with the Manifest			✓	✓

Fire Protection and Fire Fighting Equipment				
Request written advice from the emergency service authority in relation the design of the fire protection system (Victoria only)				✓
Install fire protection system with regard to written advice from the emergency services authority (Victoria only)				✓
Designed and constructed for the quantities and storage conditions of class 4.2	✓	✓	✓	✓
Uses fighting media that is compatible with class 4.2	✓	✓	✓	✓
Emergency Preparedness				
Procedures in place for responding to all emergencies	✓	✓	✓	✓
Documented Emergency Management Plan prepared in conjunction with the emergency services authority			✓	✓
Emergency Response				
Respond to emergencies with immediate action in accordance with established emergency procedures	✓	✓	✓	✓
Accidents (fire or explosion) relating to class 4.2 to reported to the emergency services or police and to the health & safety authority	✓	✓	✓	✓
Incident investigations to be carried out, documented and records retained for 5 years	✓	✓	✓	✓
Induction, Information, Training and Supervision				
Provide appropriate induction, information, training and supervision to all people involved in the storage and handling of dangerous goods	✓	✓	✓	✓
Records of training to be kept	✓	✓	✓	✓