

Guideline: Handling & Storage of Vegetable Protein Meals

This guideline was originally jointly written by the Stock Feed Manufacturers' Council of Australia and the Australian Oilseed Federation in 2017. This current version takes into account updated regulations. This guideline aids users of vegetable protein meals in the storage and handling of these materials and compliance with relevant dangerous goods regulations. These guidelines do not include dangerous goods requirements relating to the transport of vegetable protein meals.

Under the Australian Dangerous Goods Code, 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, Hazchem 1Y

or

UN 2217 SEED CAKE with not more than 1.5% oil and not more than 11% moisture.
Class 4.2, Packing Group III, Hazchem 1Y (includes Soybean Meal)

Due to this classification, the vegetable protein meals used by the stockfeed industry become dangerous goods due to their potential for spontaneous combustion if more than 1,000kg is stored. 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. Please note that different moisture and oil percentages can change the classification for some meals (refer to ADG 7.7 section 2.4.3.2 for testing for classification as class/division 4.2, and ADG 7.7 special provision 142 for solvent extracted soya bean meal).

Brief Facts

These are spontaneously combustible substances. The main risk is fire and/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.

Facilities storing these products must consider their requirements for risk management, staff training, fire protections and possibly facility registration.

SEED CAKE

UN No

1386

HAZCHEM

1Y



Hazchem the letter **1** indicates that a **coarse water spray** is to be used as the extinguishing media; the **Y** indicates that there is the **Risk of Violent Reaction or Explosion** and the recommended emergency services personal protective equipment is **Full fire kit and breathing apparatus**

INTRODUCTION

While this document is referenced to the Dangerous Goods (Storage and Handling) Regulations 2000 Victoria, the principles provided within this document have application for regulations in other Australian States and Territories. This document acts to provide guidance only, 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 WorkSafe authority operating within their State or Territory.

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 2000 Victoria are referenced, for example [r. 438] relates to 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

SAFETY DATA SHEETS (SDS) [r. 438]

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

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

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

QUANTITY OF MATERIAL

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.

- Quantity of spontaneously combustible material held in storage
 - Capacity of storage silos kilos
 - Additional storage in packages

The requirements of the dangerous goods legislation increase as the quantity of the seedcake stored and handled at the premises increases. Classifications as per volume 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
Fire Protection Quantity	more than 20,000kg of seedcake stored

MINOR STORAGE QUANTITY: LESS THAN 10,000 KILOS

LESS THAN 10,000 KILOS [r. 444]¹

There is no requirement to notify WorkSafe or have emergency services consultation. 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.

Documented Emergency Plan

- Evacuation procedures [r. 405]
- Manifest and Emergency Plan readily available

MANIFEST QUANTITY: MORE THAN 10,000 KILOS

Notification to Authority [r. 506]

Relevant state WorkSafe authorities are 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. 437]

- Prepared in consultation with Fire Services
- Readily available

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.

¹ Reference to relevant section of Dangerous Goods (Storage and Handling) Regulations 2000, Victoria.

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 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

FIRE PROTECTION QUANTITY: MORE THAN 20,000 KILOS

If 20,000 kilos or more: [r. 436]

In addition to the above Manifest Quantity requirements, the following is required:

- 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 upon 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 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 firefighting, fire alarms and firefighting equipment.

INCIDENT REPORTING

Formal notification procedures within Emergency Plan

- Model Workplace Health and Safety Bill (Safe Work Australia) 2022
- Records of incidents investigation [r. 445]

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. 419]

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.

- Suitable foundations and supports
- Installed to prevent stress on container, pipe work or equipment
- Protected from corrosion
- Inspected at intervals sufficient to ensure integrity and serviceability
- Inspection records maintained

INFORMATION, INSTRUCTION, TRAINING AND SUPERVISION [r. 402]

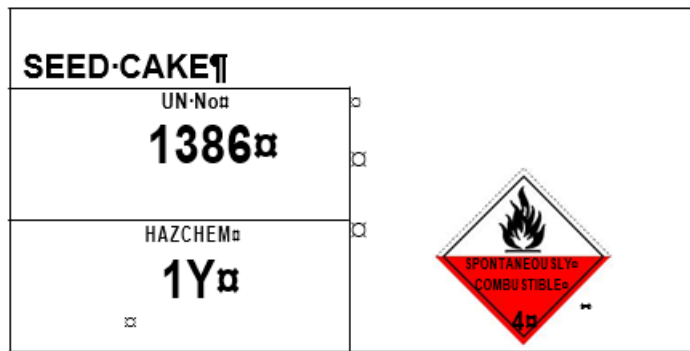
Handling and storage of dangerous goods needs to be part of the site's training program. Employees responsible for the storage and handling of seedcake need to be trained in dangerous goods handling as part of their induction training.

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

- 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
 - Emergency plans

PLACARDING [r. 429, 430]

- Outer warning placarding HAZCHEM at every road entry, if 1,000 kilos or more on site.
- Bulk placarding on vessel, where capacity of the bulk container is more than 1,000 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 Class 4 “spontaneous combustion” placarding placed on them. Signage also applies to areas storing seedcake in bags or bulka bags where the quantity exceeds 1,000kg.

FIRST AID FACILITIES AND EMERGENCY EQUIPMENT

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

- 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.

VENTILATION AND ATMOSPHERIC EMISSIONS [r. 425]

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 to prevent the escape of contaminants into the work area.
- Discharge points should be located 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.



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USEFUL PUBLICATIONS AND PHRASES

- Dangerous Goods (Storage and Handling) Regulations 2000 (VIC)
- Code of Practice Storage and Handling of Dangerous Goods 2005 (NSW)
- Work Storage and Handling of Workplace Dangerous Goods, March 2021, (NOHSC)
- Australian Code for the Transport of Dangerous Goods by Road & Rail, ed. 7.7, 2020 (NTC)

CONTACTS

SafeWork Australia – www.safeworkaustralia.gov.au

WorkSafe Victoria - www.worksafe.vic.gov.au

WorkSafe Tasmania – www.worksafe.tas.gov.au

WorkSafe Queensland – www.worksafe.qld.gov.au

SafeWork South Australia – www.safework.sa.gov.au

WorkSafe Northern Territory – www.worksafe.nt.gov.au

SafeWork New South Wales – www.safework.nse.gov.au

WorkSafe Western Australia (Department of Mines, Industry Regulation and Safety) – www.commerce.qa.gov.au

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