In this training material, **GMO** means:

This training material contains the OGTR’s behavioural requirements for these Physical Containment Level 2 (PC2) facilities:

* Laboratory
* Animal Facility
* Invertebrate Facility
* Aquatic Facility
* Constant Temperature Room
* Plant Facility

The requirements apply to all of these PC2 facility types, unless otherwise indicated.

All persons working in PC2 certified containment facilities must comply with these Behavioural Requirements, whether they are dealing with GMOs or not.

**Read the information below, then complete page 7 of this form and submit it to the Facility Manager(s) and the IBC.**

* any genetically modified (GM) animal, plant, invertebrate, aquatic organism or microorganism
* any non-gm animal, plant, invertebrate, aquatic organism or microorganism that contains genetically modified microorganisms (eg. a mouse infected with GM bacteria, or a plant harbouring a GM fungus)
* All reproductive stages and propagative material derived from a GMO: gametes, fertilised eggs, embryos, pollen, seeds, larvae

## **Working with non-GMOs, exempt dealings and PC1 dealings in a PC2 facility**

Persons undertaking work in the facility on non-GMOs, exempt dealings or dealings which may be undertaken in a PC1 facility must comply with these Behavioural Requirements unless:

* procedures are implemented to ensure that non-GMOs, exempt dealings or dealings which may be undertaken in a PC1 facility, are not cross-contaminated with GMO dealings requiring containment in a PC2 facility;
* the above procedures are documented; and
* the primary and any secondary container used to transport any organism out of the facility must be free of contamination with GMOs prior to being transported out of the facility.

Dealings which may be undertaken in a PC1 facility, and where subclauses (bullet points) above are met, may be conducted in accordance with the Behavioural Requirements in this document or the [*Guidelines for Certification of a Physical Containment Level 1 Facility*](https://www.ogtr.gov.au/resources/publications/guidelines-certification-physical-containment-level-1-facility)*.*

**NOTE:** Means of preventing cross-contamination could include physical separation of the work, or separation by working at different times and ensuring any contaminated surfaces are decontaminated prior to working with a different organism.

## **Doors & windows**

Except during the entry and exit of personnel, supplies and/or equipment, doors of the facility must be closed while procedures with GMOs are being conducted. Entrance doors into the facility must remain locked, or the facility must be otherwise secured, when facility personnel are not in attendance.

Dedicated “Emergency Only” exits must not be used to enter nor exit the facility except in an emergency.

Windows must remain closed and locked, or otherwise secured, If the facility has an anteroom (animal, invertebrate and plant facilities), entry to and exit from the facility must be through the anteroom. Dealings with GMOs, other than transport, must not be undertaken in the anteroom.

## **Handling of animals (including aquatic organisms)**

Handling of the GM animals or animals containing GMOs, and any experimental procedures conducted on the animals, must be carried out in a way that minimises the chance of escape of the animals and exposure of people to GMOs. When not being handled, the GM animals or animals containing GMOs must be kept in containers or cages designed to prevent the escape of the animals being contained.

**NOTE:** The facility physical boundaries of the facility alone are not sufficient for containment.

## **Handling of invertebrates**

Handling of the GM invertebrates or invertebrates containing GMOs, and any experimental procedures conducted on the invertebrates, must be carried out in a way that minimizes the chance of escape of the invertebrates and exposure of people to GMOs. When not being handled, the GM invertebrates or invertebrates containing GMOs must be kept in containers designed to prevent the escape of the invertebrates and contain any micro-organisms being contained.

**NOTE:** The physical boundaries of the facility alone are not sufficient for containment.

## **Handling of plants**

The following must be handled in a way to ensure that they are contained within the facility and are not be taken out of the facility on clothing/shoes and body.

* GM plants;
* viable GM plant material; and
* plants or parts of plants containing GM micro-organisms.

**NOTE:** The facility physical boundaries alone may not be sufficient for containment. For example, a GM flowering plant may require that, before flowering, all inflorescence are wholly enclosed in bags designed to prevent escape of viable pollen and seed, or the use of plant growth cabinets.

## **Handling of GM micro-organisms**

If any proposed dealings in the facility with GM micro-organisms will produce aerosols containing Risk Group 2 GM  micro-organisms, then these dealings must be performed in either a biological safety cabinet or other equipment specifically approved in writing by the Regulator that is designed to contain aerosols.

**NOTE:**  Procedures with GM micro-organisms such as centrifuging and vortexing in sealed tubes does not need to be performed in a biological safety cabinet, provided that the tubes are only opened in a biological safety cabinet.

Where any Class I or Class I biological safety cabinet is installed and used for procedures with GMOs, it must be used and decontaminated in accordance with the requirements of AS 2252.4.

If the facility is a Constant Temperature Room, any GMOs must remain in a sealed primary container while in the facility, except for:

* GM animal tissue cultures which do not contain GM micro-organisms
* GM multi-cellular plant tissue cultures which do not contain any GM microorganisms
* Whole GM plants that do not contain any GM microorganisms and do not contain any pollen, seed or other propagule may be contained in pots which will function as a primary container

## **Personal protective equipment**

The following personal protective equipment must be worn by personnel undertaking dealings in the facility:

* [protective clothing](https://myuni.adelaide.edu.au/courses/48262/pages/behavioural-requirements?module_item_id=1611398#kl_popup_6_content) to afford protection to the arms and front part of the body;

**NOTE:**  A rear-fastening gown is preferable, and

* disposable gloves, when dealing with GM microorganisms, viral vectors or GMOs where the unmodified parent organism fits into the classification of Risk Group 2 organisms, as described in AS/NZS 2243.3.

**NOTE:**  Consideration should be given to the wearing of appropriate forms of eye protection.

 If the work in the facility involves GM micro-organisms, or there is contact with GMOs that could persist on clothing or equipment, then personal protective equipment must be worn and must be removed before leaving the facility and disposed of or stored in designated storage or hanging provisions

Personal protection equipment, with the exception of gloves, may be worn if moving directly to another containment facility, certified to at least PC2 by the Regulator, that is directly connected to the facility or is connected by a corridor, stairs or other space that is not a public thoroughfare and in which there is negligible risk of the release of the GMOs or of cross-contamination should other personnel be encountered or contacted in the corridor.

If working in an invertebrate facility, personnel must check their clothing, hair and exposed skin for any invertebrates and, if present, the invertebrates must be removed  before exiting from the facility

## **Decontamination**

Decontamination must be undertaken in accordance with Section 3.1 of the Regulator’s [*Guidelines for the Transport, Storage and Disposal of GMOs*](https://www.ogtr.gov.au/resources/publications/guidelines-transport-storage-and-disposal-gmos)as in force from time to time unless otherwise approved in writing by the Regulator. This includes material being transported to another location for decontamination.

All decontamination procedures conducted inside the facility must be carried out by authorized and appropriately trained personnel.

GMOs, non-GMOs containing GMOs, or any wastes containing GMOs must be decontaminated prior to disposal if the method of disposal is not also the method of decontamination. This includes animal carcasses containing GM microorganisms.

In the case of macroscopic GMOs, visual inspection of container(s) may be used to confirm whether decontamination is necessary. For example, if the GMOs are drosophila, zebrafish or large plant seeds, visual inspection would be adequate to assess contamination

Work benches and surfaces where procedures involving GMOs have taken place must be decontaminated when the dealings are completed.  Equipment directly used in procedures involving GMOs and equipment suspected to be contaminated must be decontaminated when the dealings are completed.

Soil or other growth media that has been used to grow GM plants or plants hosting GM micro-organisms must be decontaminated prior to re-use. This may be achieved by physical removal of all GM plant material, including any GM propagative material, provided no GM microorganisms remain in the soil or growth medium

Equipment contaminated with or suspected to be contaminated with GMOs must be decontaminated before being removed from the facility, except if the equipment is being transported for the purposes of decontamination in accordance with the Regulator’s [*Guidelines for the Transport, Storage and Disposal of GMOs*](https://www.ogtr.gov.au/resources/publications/guidelines-transport-storage-and-disposal-gmos)*,* as in force from time to time, and other relevant guidelines issued by the Regulator.

Personal protective equipment contaminated with or suspected to be contaminated with GMOs must be taken off as soon as practicable and decontaminated prior to reuse or disposal. Protective clothing that is known to be free of GMOs (not contaminated with GMOs) may be washed using normal laundry methods. Gloves must be disposed of after use and prior to exiting the facility.

Persons who have been performing procedures with GMOs in the facility or who have contaminated their hands with GMOs, must decontaminate their hands before leaving the facility.

**NOTE:**This may include the use of soap and water, if appropriate. If wash-basins are to be used, the use of hand operated taps is not acceptable, as they are a ready source of contamination.  Soap and other decontamination agents should be dispensed from hands free dispensers.

All liquid effluent. Including run-off that contains or is suspected of containing GMOs must be decontaminated prior to disposal.

**NOTE:** Decontamination of liquid effluent may be by filtration, if it is effective in removing the GMOs from effluent.

## **Spills or escapes of GMOs**

Documented procedures must be in place to decontaminate any spills involving GMOs inside the facility. The procedures must be made available to the Regulator if requested.

If a spill of GMOs or any material containing GMOs occurs inside the facility, the spills procedures must be implemented to decontaminate the spill as soon as reasonably practicable.

If a GM animal, invertebrate or aquatic organism, or any of these containing GMOs, escapes within the facility, is must be captured and returned to its container or cage, or euthanized.

In the event of the escape, unintentional release, spill, leak, or loss of GMOs outside of the facility:

* efforts must be implemented as soon as reasonably practicable to locate and/or retrieve the GMOs and return the GMOs to containment or render them non-viable; and
* the incident must be reported to the IBC and the Regulator as soon as practicable. Refer to the [Incidents web page](https://www.adelaide.edu.au/research-services/ethics-compliance-integrity/gene-technology/gmo-dealings#incidents) for details.

Any decontamination of GMOs must be in accordance with the requirements listed in the Regulator’s [*Guidelines for the Transport, Storage and Disposal of GMOs*](https://www.ogtr.gov.au/resources/publications/guidelines-transport-storage-and-disposal-gmos)as in force from time to time.

## **Labelling**

All containers of GMOs must be clearly labelled so as to indicate that they contain GMOs. Any unlabelled material must be treated as a GMO and handled in accordance with these requirements.

**NOTE:**Labelling enables the separation of GM work from non-GM work and enhances the control of GMOs within the facility.

All organisms (animals, invertebrates and plants) that are GM, or contain GM organisms (including microorganisms) or other GM material must be identified as GMOs. This may be achieved by attaching labels to cages, containers and/or[trays](https://myuni.adelaide.edu.au/courses/48262/pages/behavioural-requirements?module_item_id=1611398#kl_popup_7_content), as relevant. Also, in GM plants labels can be attached. Additionally, large animals must be clearly marked so they can be readily identified (e.g. tattoo, permanent tag, microchip or permanent brand). Anything that cannot be identified as a GMO, or a non-GMO must be treated as a GMO and handled in accordance with these requirements.

A documented system of accounting for the number of GMOs in the facility must be used. The documentation must be made available to the Regulator if requested

## **Removal and storage of GMOs**

Transport and storage of all GMOs outside of the facility must be conducted in accordance with the Regulator’s [*Guidelines for the Transport, Storage and Disposal of GMOs*](https://www.ogtr.gov.au/resources/publications/guidelines-transport-storage-and-disposal-gmos)*,* as in force from time to time, and other relevant guidelines issued by the Regulator. Refer to the [Gene Technology website](https://www.adelaide.edu.au/research-services/ethics-compliance-integrity/gene-technology/gmo-dealings#transport-storage-disposal) for further information.

All cultures of GMOs being stored inside the facility must be sealed during storage to prevent dissemination of the GMOs.

**NOTE:**The type of container necessary to prevent the GMOs from escaping will vary depending on the type of organisms being stored.

Whole live GM plants must NOT be stored outside of the facility without permission, in writing, from the Regulator. This restriction does not apply to GM pollen, GM seeds, GM tubers, GM bulbs, GM corms or dormant GM stems.

GMOs which require containment in a PC2 facility, and any other organism potentially cross-contaminated with GMOs requiring PC2 containment, must not be removed from the facility unless:

* they are to be transported to another containment facility certified by the Regulator to at least PC2;
* they are to be transported to another location for storage;
* they are to be transported to another location to be decontaminated prior to disposal or disposed of where the method of disposal is also the method of decontamination;
* written permission has been given by the Regulator for transport to another destination within Australia; or
* subject to obtaining any required permits, they are to be transported to the Australian border for export.

Storage of any PC1 or PC2 GMOs outside of a certified facility must be approved by the IBC.

## **Standards referenced in this document**

‘AS’ followed by a number or other identification is a reference to the Australian Standard so numbered or identified.

‘AS/NZS’ followed by a number or other identification is a reference to the Australian/New Zealand Standard so numbered or identified.

Refer to the most recent issue of the standards.

|  |  |
| --- | --- |
| AS/NZS 2243.3  | Safety in laboratories Part 3: Microbiological safety and containment   |
| AS 2252.4   | Controlled environments Part 4: Biological safety cabinets Classes I and II – Installation and use (BS 5726:2005, MOD)  |

# Your details

This section must be completed by the person undertaking the training.

|  |  |  |  |
| --- | --- | --- | --- |
| **First name:** |  | **UofA ID:** |  |
| **Last name:** |  | **School:** |  |
| **Your role:** | [ ]  Research staff [ ]  Facility staff[ ]  Postgraduate student [ ]  Hons or Undergraduate student [ ]  External visitor [ ]  Other:  |
| **Are you working with GMOs in the PC2 facility?** | **[ ]** Yes:GMO dealing ID: | **[ ]** No  |
| **Declaration:****By signing this form, I acknowledge that I have read and understood the behavioural requirements above as is required in accordance with the Gene Technology Act 2000. I understand and agree to comply with my obligations in relation to these guidelines.** |
| **Signature:** Entering initials is acceptable if submitting this document electronically: |  |
| **Date:** |  |

# How to submit this Record of Training

Provide a copy of this Record of Training to the Facility Manager for each PC2 facility you will be working in, and also submit a copy to the IBC using [this link](https://app.smartsheet.com/b/form/84b7f8ba77b24be9b9023a3c373e0814)