Requirements for Transport of GMOs

(excerpt from Part 1 of the Guidelines for the Transport, Storage and Disposal of GMOs version 1.1 issued 2 June 2011)

1.1 Requirements for Transport of PC1 GMOs

This Part applies to the following dealings with GMOs:

* NLRDs that are listed in Part 1 of Schedule 3 of the Regulations ; or
* any other dealings that are permitted, in writing, by the Regulator to be conducted in authorised PC1 facilities or transported under this Part of these guidelines.

1.1.1 PC1 General Requirements

Where any Specific Requirements (Parts 1.1.2, 1.1.3 or 1.1.4) applicable to the dealings conflicts with a General Requirement, the Specific Requirement prevails.

Labelling

1. A person or accredited organisation supplying the GMO for transport must label the material to be transported in a manner capable of notifying any other handler of the material that the item to be transported is, or contains a GMO.
2. Where transport is being undertaken by a service provider then the outermost container must be labelled to clearly show the name, address and contact details of the sender, so that the sender can be contacted should the container be lost, damaged or misdirected.

Loss, spill or escape of GMOs during transport

1. In the event of the escape, unintentional release, spill, leak, or loss of GMOs, including failure of the GMOs to be delivered to the recipient:

* 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 Regulator as soon as reasonably practicable.

Accounting requirements

1. Procedures must be in place to ensure that all GMOs or the number of primary containers of cultures of GMOs transported, can be accounted for and that a loss of GMOs during transport, or the failure of delivery, can be detected. These procedures must be implemented for all transport events, except where transport takes place entirely within a building and the GMOs are accompanied by a person mentioned in an IBC’s record of assessment as having the appropriate training and experience to deal with the GMOs at all times.

Security arrangements

1. Access to the GMOs must be restricted, by any means that is effective, to only a person or class of persons mentioned in an IBC’s record of assessment as having the appropriate training and experience to deal with the GMOs. This includes situations where containers are left for collection in a loading area, or left unattended prior to decontamination.

NOTE: Access in such cases could be restricted, for example, by keeping the containers in a locked area until collection.

Decontamination of containers

1. The external surface of the outermost container must be decontaminated prior to transport.

NOTE: Where appropriate, visual inspection of the container(s) may be used to confirm whether decontamination is necessary (e.g. in the case of macroscopic organisms which are easy to see).

1. Containers must be decontaminated after transport.

Packaging with coolants

1. If the material being transported is to be cooled using dry ice, liquid nitrogen or any other coolant that will release a gas, then a mechanism to allow the escape of the gas must be included. If water ice is used as a coolant then the outer packaging should be constructed so as to prevent any leakage. All containers must be able to withstand the temperatures to which they will be subjected.

1.1.2 PC1 GM micro-organisms (including plants or animals containing GM micro-organisms)

The following requirements, in addition to the General Requirements (Part 1.1.1), apply to the transport of GM micro-organisms (including GM or non-GM plants or GM or non-GM animals containing GM micro-organisms) to which Part 1.1 of these guidelines apply.

Containment

1. GM micro-organisms to be transported, including plants or animals containing GM micro-organisms, must be wholly contained inside a sealed, unbreakable primary container.

Labelling

1. Animals containing GM micro-organisms or their containers must be tagged or labelled so as to indicate that they contain GMOs. Large animals, such as pigs, sheep, cattle etc., must be individually tagged (e.g. by microchip, tattoos, ear tags or ear notches).
2. Plants containing GM micro-organisms or their containers must be tagged or labelled so as to indicate that they contain GMOs.

Decontamination of material transported with GM micro-organisms

1. Any materials transported with the GM micro-organisms (such as soil, anti-desiccation agents or soil substitute in the case of plants, or bedding materials or feed in the case of animals) must be either retained with the organisms under containment or decontaminated after transport has occurred.

1.1.3 PC1 GM animals not containing GM micro-organisms

The following requirements, in addition to the General Requirements (Part 1.1.1), apply to the transport of GM animals that do not contain GM micro-organisms.

NOTE: Animals containing PC1 GM micro-organisms are dealt with under Part 1.1.2.

Containment

1. GM animals to be transported must be wholly contained inside a sealed, unbreakable primary container.

NOTE: The type of containment necessary to prevent the GM animals from escaping will vary depending on the type of animal being transported. For example, in the case of transgenic mice, the primary container may be a cage that is closed or taped to enable it to maintain its integrity under all reasonably expected conditions of transport. For large grazing animals, such as sheep, cattle, horses etc., a sealed trailer, truck or specialised livestock transport vehicle may be used as the primary container.

1. GM large grazing animals, such as sheep, cattle, horses etc., may be herded or led between two authorised physical containment facilities, or between a transport vehicle and an authorised physical containment facility, provided:

* the animals are supervised and adequately controlled to prevent their escape (e.g. by the use of temporary fencing, closed gates, or by keeping doors closed in a corridor); and
* the distance being travelled is reasonably short (e.g. transfer from a vehicle to a room in an adjacent building, or transfer across a road between two PC1 Large Grazing Animal facilities where the person conducting the transfer is able to control all movements of people, traffic, and other animals on the road).

Labelling

1. GM animals or container(s) of GM animals must be tagged or labelled so as to indicate that they are GMOs. Large animals, such as pigs, sheep, cattle etc., must be individually tagged (e.g. by microchip, tattoos, ear tags or ear notches).

Segregation

1. GM and non-GM animals, capable of interbreeding, must be kept physically separated from each other during transport unless they form part of the same dealing. If the separation fails, then any non-GM animals must be transported in accordance with the requirements in these guidelines as if they were GM animals.

Decontamination of containers

1. After the transport of animals, containers must be decontaminated, including by ensuring no individual animals are hidden in any bedding or media.

1.1.4 PC1 GM plants not containing GM micro-organisms

The following requirements, in addition to the General Requirements (Part 1.1.1), apply to the transport of GM plants that do not contain GM micro-organisms.

NOTE: Plants containing GM micro-organisms are dealt with under Part 1.1.2.

Containment

1. GM plants and GM plant material containing living cells must be wholly contained inside a sealed, unbreakable primary container, e.g. leaves or roots in soil.

NOTE: In the case of non-viable GM plant material containing living cells, ‘sealed’ means able to contain the material, e.g. a wheeled bin with a lid that is not leak proof or airtight, but is secured so that it would not fall open if the bin tipped over, and would not allow any of the GM plant material in the bin to escape.

A sealed, unbreakable container can also be a pot, provided that there are no spores, pollen, seeds or cones from GM plants.

Labelling

1. GM plants and other viable GM plant material must be labelled to indicate that they are GMOs. This may be achieved by labelling plants or containers as appropriate.

Decontamination of material transported with the GMOs

1. Any materials transported with the GM plant material (such as soil, anti-desiccation agents, soil substitute, or water) must be either retained with the GM plant materials under containment or decontaminated after transport has occurred.

1.2 Requirements for Transport of PC2 GMOs

This Part applies to the following dealings with GMOs:

* NLRDs that are listed in Part 2 of Schedule 3 of the Regulations; and
* any other dealings that are permitted, in writing, by the Regulator to be conducted in authorised PC2 facilities or transported under this Part of these guidelines.

1. Dealings that are permitted to be conducted in an authorised PC1 physical containment facility but which are conducted in an authorised PC2 physical containment facility, may be transported according to the requirements relating to the transport of dealings conducted in an authorised PC1 physical containment facility under Part 1.1 of these guidelines, provided:

* procedures are implemented to ensure that PC1 dealings are not cross-contaminated or mixed with GMO dealings that are required to be contained in an authorised PC2 physical containment facility; and
* the above procedures are documented.

1. If the above documented procedures to prevent cross-contamination are not in place, then PC1 dealings conducted in an authorised PC2 physical containment facility must be transported in accordance with the PC2 transport requirements below.

1.2.1 PC2 General Requirements

These General Requirements apply to all dealings with GMOs to which Part 1.2 of these guidelines apply. Where any Specific Requirements (Parts 1.2.2, 1.2.3 and 1.2.4) applicable to the dealings conflicts with a General Requirement, the Specific Requirement prevails.

Labelling

1. A person or accredited organisation supplying the GMO for transport must label the material to be transported in a manner capable of notifying any other handler of the material that the item to be transported is, or contains a GMO.
2. The outermost container must be labelled to clearly show the name, address and contact details of the sender, so that the sender can be contacted should the container be lost, damaged or misdirected.

This is not required where transport takes place entirely within a building, or when clinical or infectious waste containing viable GMOs is being transported to a place of decontamination by a transport, storage or disposal service provider licensed or otherwise authorised to do so under state or territory legislation.

Loss, spill or escape of GMOs during transport

1. In the event of the escape, unintentional release, spill, leak, or loss of GMOs, including failure of the GMOs to be delivered to the recipient:

* 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 Regulator as soon as reasonably practicable.

NOTE: A person consigning the GMO for transport should consider whether the transported material should be accompanied by:

* instructions on how to decontaminate any material in the event of a spill or leak;
* sufficient volume of effective decontamination agent to decontaminate any spill;
* appropriate protective clothing for persons undertaking the decontamination; and
* any other equipment necessary to undertake decontamination.

Accounting requirements

1. Procedures must be in place to ensure that all GMOs or, for micro-organisms and cell cultures, the number of primary containers of cultures of GMOs transported, can be accounted for and that a loss of GMOs during transport, or the failure of delivery, can be detected. These procedures must be implemented for all transport events, except where transport takes place entirely within a building and the GMOs are accompanied by a person or class of persons mentioned in an IBC’s record of assessment as having the appropriate training and experience to deal with the GMOs at all times.

Security arrangements

1. Access to the GMOs must be restricted, by any means that is effective, to only a person or class of persons mentioned in an IBC’s record of assessment as having the appropriate training and experience to deal with the GMOs. This includes situations where containers are left for collection in a loading area, or left unattended prior to decontamination.

NOTE: Access in such cases could be restricted, for example, by keeping the containers in a locked area until collection.

Decontamination of containers

1. The external surface of the primary and any required secondary container must be decontaminated prior to transport.

NOTE: Where appropriate, visual inspection of the container(s) may be used to confirm whether decontamination is necessary (e.g. in the case of macroscopic organisms which are easy to see).

1. Containers must be decontaminated after transport.

Packaging with coolants

1. If the material being transported is to be cooled using dry ice, liquid nitrogen or any other coolant that will release a gas, then a mechanism to allow the escape of the gas must be included. If water ice is used as a coolant then the outer packaging should be constructed so as to prevent any leakage. All containers must be able to withstand the temperatures to which they will be subjected.

NOTE: When transporting with coolants, it is preferable for coolants to be used outside of the secondary container.

1.2.2 PC2 GM micro-organisms (including plants or animals containing GM micro-organisms)

The following requirements, in addition to the General Requirements (Part 1.2.1), apply to the transport of GM micro-organisms (including GM or non-GM plants or GM or non-GM animals containing GM micro-organisms) to which Part 1.2 of these guidelines apply.

NOTE: Consideration should be given to alternatives to the transport of animals or plants that host pathogenic GM micro-organisms, such as transporting cultures of the micro-organisms for later inoculation.

Containment

1. GM micro-organisms to be transported, including plants or animals containing GM micro-organisms, must be wholly contained inside a sealed, unbreakable primary container.

When transporting animals or plants that require ventilation during transport and which contain GM micro-organisms that could form aerosols during transport, consideration must be given to whether the vents of the primary or secondary containers should be HEPA-filtered.

1. The primary container must be packed inside a sealed, unbreakable secondary container. Secondary containment is not required for small animals containing GM micro-organisms (e.g. mice) when transported in a sealed cage fitted with HEPA-filtered vents.

NOTE: The type of containment necessary to prevent the GM micro-organisms from escaping will vary depending on the type of organism being transported. For example, dry waste containing GMOs that does not contain sharps may be contained in two sealed plastic bags that are supported inside a third, unsealed, rigid-sided container that protects the bags from being torn or pierced during transport.

Containment of waste transported inside the same building

1. Waste being transported for decontamination inside the same building, and which has no substantive amount of liquid containing GMOs, and will not give rise to aerosols containing GMOs during transport, must be contained in two unbreakable containers, at least one of which must be sealed.

NOTE: For waste transported in accordance with this requirement, a ‘sealed’ container means one that is able to contain the waste material. An example would be waste in a sealed bag, placed inside a wheeled bin with a lid that is not leak proof or airtight, but is secured so that it would not fall open if the bin tipped over, and would not allow any of the waste in the bin to escape.

Labelling

1. A biohazard label must be attached to the outermost container when transporting any GMOs where the parent organism satisfies the criteria for classification as a Risk Group 2 organism under Section 3.2 of AS/NZS 2243.3:2010.

This is not required where transport takes place entirely within a building.

1. Animals containing GM micro-organisms or their containers must be tagged or labelled so as to indicate that they contain GMOs. Large animals, such as pigs, sheep, cattle etc., must be individually tagged (e.g. by microchip, tattoos, ear tags or ear notches).
2. Plants containing GM micro-organisms must be labelled to indicate that they contain GMOs. This may be achieved by labelling plants or containers as appropriate.

Decontamination of material transported with GM micro-organisms

1. Any materials transported with the GM micro-organisms (such as soil, anti-desiccation agents or soil substitute in the case of plants, or bedding materials or feed in the case of animals) must be either retained with the organisms under containment or decontaminated after transport has occurred.

1.2.3 PC2 GM animals, not containing GM micro-organisms

The following requirements, in addition to the General Requirements (Part 1.2.1), apply to the transport of GM animals that do not contain GM micro-organisms and to which Part 1.2 of these guidelines apply.

NOTE: Animals containing GM micro-organisms are dealt with under Part 1.2.2.

Containment

1. GM animals to be transported must be wholly contained inside a sealed, unbreakable primary container.

NOTE: The type of containment necessary to prevent the GM animals from escaping will vary depending on the type of animal being transported. For example, the primary container may be a cage that is closed or taped to enable it to maintain its integrity under all reasonably expected requirements of transport. As another example, for livestock, a sealed trailer, truck or specialised livestock transport vehicle may be used as the primary container. For large GM animals, such as pigs, sheep, cattle etc., consideration should be given as to whether a single primary container is sufficient, or whether additional measures might be prudent (e.g. tethering animals inside the vehicle; sedation; or attaching remote tracking devices to the animals).

1. Except for GM *Drosophila (Sophophora) melanogaster*, where transport involves GM invertebrates, the primary container must be packed inside a sealed, unbreakable secondary container.

Labelling

1. GM animals must be tagged or labelled so as to indicate that they are GMOs. Large animals, such as pigs, sheep, cattle etc., must be individually tagged (e.g. by microchip, tattoos, ear tags or ear notches). Small animals must be identified by labelling the cage or container, or individually as above.

Segregation

1. GM and non-GM animals capable of interbreeding, must be kept physically separated from each other unless they form part of the same dealing. If the separation fails, then any non-GM animals must be transported in accordance with the requirements in these guidelines as if they were GM animals.

Decontamination of containers

1. After the transport of small animals, containers must be decontaminated, including by ensuring no individual animals are hidden in any bedding or media.

1.2.4 PC2 GM plants, not containing GM micro-organisms

The following requirements, in addition to the General Requirements (Part 1.2.1), apply to the transport of GM plants that do not contain GM micro-organisms and to which Part 1.2 of these guidelines apply.

NOTE: Plants containing GM micro-organisms are dealt with under Part 1.2.2.

Containment

1. GM plants and GM plant material (e.g. leaves or roots in soil) containing living cells must be wholly contained inside a sealed, unbreakable primary container.

NOTE: In the case of non-viable GM plant material containing living cells, ‘sealed’ means able to contain the material, e.g. a wheeled bin with a lid that is not leak proof or airtight, but is secured so that it would not fall open if the bin tipped over, and would not allow any of the GM plant material in the bin to escape.

A sealed, unbreakable container can also be a pot, provided that there are no spores, pollen, seeds or cones from GM plants.

1. GM plants and GM plant material that is viable must also be packed inside a sealed, unbreakable, secondary container, except when:
   * transported within a building; and
   * the GM plants or GM plant material does not contain spores, pollen, seeds, or cones from GM plants.

Labelling

1. GM plants and other viable GM plant material must be labelled to indicate that they are GMOs. This may be achieved by labelling plants or containers as appropriate.

Decontamination of material transported with the GMOs

1. Any materials transported with the GM plant material (such as soil, anti-desiccation agents, soil substitute, or water) must be either retained with the GM plant materials under containment or decontaminated after transport has occurred.