



Flinders University

# Standard Operating Procedure Transport of Genetically Modified Plants

|                           |  |                      |
|---------------------------|--|----------------------|
| <b>SOP Number:</b>        | <b>SOP prepared by:</b>  | <b>Date created:</b> |
| IBC_SOP_2                 | Jess Hall  | December 2015        |
| <b>IBC approval date:</b> | <b>Contact:</b>  | <b>Review date:</b>  |
| 17/02/2016                | <a href="mailto:ibcadmin@flinders.edu.au">ibcadmin@flinders.edu.au</a> | December 2020        |

## 1. Relevant Legislation and Policies

- *Gene Technology Act 2000*
- *Gene Technology Regulations 2011*
- *Guidelines for the Transport, Storage and Disposal of GMOs*
- *Commonwealth Quarantine Act 1908*
- *Flinders University Policy on Research Practice 2001*

## 2. Biosafety Policy

- Flinders University is accredited by the Office of the Gene Technology Regulator (OGTR) under Section 92 of the *Gene Technology Act 2000* (the *Act*). Any person wishing to undertake work involving gene technology and/or Genetically Modified Organisms (GMOs) at the University must seek and receive approval from the Flinders University Institutional Biosafety Committee (IBC) before commencing work. All work involving GMOs must be conducted in accordance with the *Act*, the *Gene Technology Regulations 2011* (the *Regulations*) and associated guidelines. Application forms can be found on the Flinders University biosafety website:  
<http://www.flinders.edu.au/research/researcher-support/ebi/biosafety/resources/forms.cfm>
- All staff and students involved in research with GMOs must attend Biosafety Training Day once every three years, or when the *Gene Technology Act* and *Regulations* are updated.

## 3. Safe Work Method Statement

Refer to Risk Assessments (RA), Safe Work Method Statements (SWMS) and Safety Data Sheets (SDS) for substances, processes and plant equipment where appropriate. All Notifiable Low Risk Dealings (NLRDs) must have an accompanying risk assessment approved by the Institutional Biosafety Committee.

## 4. Before Work Commences

- Ensure that you have approval to transport GMOs as part of your approved IBC project (see section 5 below for activities considered to be 'transport').
- RA, SWMS and SDS – ensure you have read and understood for all substances, processes and plant equipment being used.
- Ensure that you are aware of the locations of the following in the work area(s):
  - Spill kit
  - Fire extinguisher

- Eye wash and safety shower
- Exits
- Required PPE
- Unintentional release flowchart (in PC facilities)

### 5. Transport Requiring Approval Under the Gene Technology Act 2001

As defined in the OGTR *Guidelines for the Transport, Storage and Disposal of GMOs*, transport includes ALL of the following:

- movement of GMOs from one certified physical containment (PC) facility to another;
- movement of GMOs between a certified PC facility and a storage location outside of an authorised PC facility;
- movement of GMOs imported into Australia from the Australian border to: a certified PC facility; storage outside of a certified PC facility; a point of export from Australia; or to a place where the GMOs are to be decontaminated or disposed of;
- movement of GMOs to be exported from Australia from the time that the GMOs leave a certified PC facility or a storage location outside of an authorised PC facility until the GMOs have left Australia;
- movement of GMOs between a place of storage to another place of storage;
- movement of GMOs between any points specified in a licence;
- movement of GMOs from any point specified in a licence to an authorised PC facility; and
- movement of GMOs or waste containing GMOs from a certified PC facility, or from storage outside of a certified PC facility, to a place where the GMOs are to be decontaminated or disposed of (e.g. to an autoclave or incinerator).

### 6. Requirements for Transport of GM Plants

**The following requirements apply to the transport of GM plants that do not contain GM microorganisms. For plants that contain GM microorganisms, please refer to the *SOP for Transport of Genetically Modified Microorganisms*.**

GM plants may only be transported to another PC facility of the same containment level (or higher), or to a place for decontamination/destruction. GM plants cannot be stored outside of a PC facility. Seeds can be stored in a locked location outside of a PC facility.

#### **Packaging/containment:**

- GM plants and GM plant material (e.g. leaves or roots in soil) must be wholly contained inside a sealed, unbreakable primary container.
- GM plants and GM plant material that is viable\*\* (e.g. seeds, spores, pollen) must also be packed inside a sealed, unbreakable secondary container during transport.  
\*\*see definitions (p. 5) for further description of viable organisms (whole or part).
- All packaging of GMOs for transport must occur within the PC facility that the GMO is currently housed in. GMOs must not be removed from transport containers outside of the destination PC facility.

- Following use for transport, the primary and secondary containers must either be decontaminated before reuse or disposal, or disposed of via the biohazard (yellow) waste stream.

### **Labelling:**

- The Biological Sciences PC2 plant facility has implemented a labelling program to assist with the appropriate labelling of GM plants. The picture below indicates the level of detail considered suitable for GM plants housed and transported from the PC2 plant facility, including IBC Reference Number, identification stating that the plant is a GMO, plant genus, species and strain details, date of planting and full name of the Chief Researcher/contact person.



Example of GM plant label in Biological Sciences PC2 plant facility.

- Before transport occurs, GM materials must be clearly labelled to indicate to other handlers that the item to be transported is, or contains a GMO.
- Before transport occurs, 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 when the transport takes place entirely within one building, or when waste containing viable GMOs is being transported for the purposes of decontamination or disposal.

### **Accounting requirements:**

- Procedures must be in place to ensure that all transported GMOs can be accounted for. This is to ensure that loss of GMOs during transport, or the failure of delivery, can be detected.
  - When the researcher is transporting the GMOs, this can be achieved by counting and recording all GMOs or primary containers both before transport occurs, and again once the GMOs have reached the final transport destination.
  - When GMOs are being transported by a courier to an external recipient, the Flinders researcher should count and record the number of GMOs before transport, and should contact the intended recipient (preferably via email) to confirm in writing that the same number of GMOs has been received.

### **Security arrangements:**

- Access to GMOs must be restricted, by any means that is effective, to only persons approved by the IBC to handle the GMO.
  - This can be achieved by keeping containers in a locked area until collection, or by an approved person accompanying GMOs at all times during transport.

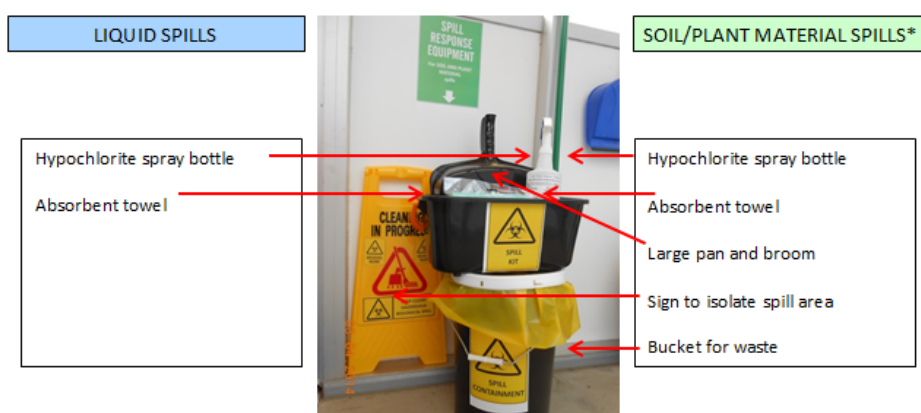
### **Decontamination:**

- Any materials transported with the GM plant material (e.g. soil, anti-desiccation agents, soil substitute or water) must be either retained with the GM plant materials under containment, or must be decontaminated after transport has occurred.
- All containers used for transport of GMOs must be decontaminated after transport.

**Loss, spill or escape of GMOs during transport:**

In the event of an unintentional release, spill, leak or loss of GMOs, including failure of GMOs to be delivered to an intended recipient:

- Within Flinders University, refer to the spill or unintentional release flowchart available within each PC facility on campus, and also from the Biosafety website: <http://www.flinders.edu.au/research/researcher-support/ebi/biosafety/resources/forms.cfm>
- If safe to do so, contain and decontaminate spilt plant material and take steps to return GMOs to containment or render them non-viable. A facility-specific response protocol and spill kit is available in the PC2 plant facility anteroom.



PC2 plant facility spill kit

- Any real or suspected unintentional release of GMOs outside of a certified PC facility must be reported to the IBC Chairperson (Pam Sykes - ph. 0408722674) or IBC Executive Officer (Jess Hall - ph. 72218353) as soon as reasonably practicable.

NOTE: a person preparing a PC2 GMO for transport should consider whether the transported material should be accompanied by instructions on how to decontaminate the material in the event of a spill/leak, as well as any equipment or decontamination agent necessary to undertake the decontamination.

**7. Contacts, Definitions and References**

**Contacts:**

| Position              | Name          | Contact details  |
|-----------------------|---------------|--|
| IBC Executive Officer | Jess Hall     | <a href="mailto:ibcadmin@flinders.edu.au">ibcadmin@flinders.edu.au</a><br>ph. 72218353           |
| IBC Chair             | Melissa Brown | <a href="mailto:melissa.brown@flinders.edu.au">melissa.brown@flinders.edu.au</a><br>ph. 82012747 |

**Definitions:**

- **Physical containment (PC) facility:** There are four levels of physical containment applied to facilities certified by the Regulator (PC1–PC4). These are arranged in order of ascending stringency of containment requirements, which reflect the level of risk involved in the dealings that can be undertaken at each level. The required PC level for the containment of a dealing is governed by the *Act* and the *Regulations*.
- **Primary container:** A container immediately surrounding the GMO.
- **Sealed:** Able to contain all GMOs or the reproductive material of GM plants or GM aquatic organisms (including pollen or gametes) being transported or stored, and able to remain closed during all reasonably expected conditions of transport and storage.
- **Secondary container:** The container immediately surrounding the primary container.
- **Unbreakable:** Able to withstand all reasonably expected conditions of transport and storage such as: the forces, shocks and impacts expected during handling; or changes of temperature, humidity or air pressure.
- **Viable:**
  - **Microorganisms, cells and cell cultures** – able to survive or multiply even though resuscitation procedures may be required (e.g. when sub-lethally damaged by being frozen, dried, heated or affected by chemicals, including decontamination agents).
  - **Other organisms, whole or part** – able to live and grow independently of its parent or source organism, or able to reproduce or contribute genetic material to reproduction (e.g. sperm, ova, pollen, seeds, vegetative propagules).

**References:**

- *Guidelines for the Transport, Storage and Disposal of GMOs:*  
<http://www.ogtr.gov.au/internet/ogtr/publishing.nsf/Content/tsd-guidelines-toc>
- *Flinders University Biosafety Manual* (March 2015):  
[http://www.flinders.edu.au/about\\_research\\_files/Documents/ebi/ibc/Flinders%20University%20Biosafety%20Manual.pdf](http://www.flinders.edu.au/about_research_files/Documents/ebi/ibc/Flinders%20University%20Biosafety%20Manual.pdf)

**8. SOP Review**

This SOP currently applies to transport of GMOs from dealings approved by the Flinders University Institutional Biosafety Committee. This SOP will be reviewed every 5 years, but will also be updated more frequently as policies, procedures and requirements change.