LA TROBE UNIVERSITY

RESEARCH OFFICE
ETHICS, INTEGRITY AND BIOSAFETY
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Guidelines for the Transport of Biological Material

La Trobe Institutional Biosafety Committee

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Approval

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1.0 Introduction and scope

This guideline is for use by University researchers who may need to transport biological materials. The purpose of this guideline is to provide information and requirements for the transport of biological materials that may be hazards and includes transport requirements for infectious material, diagnostic samples, genetically modified organisms (GMOs) and quarantine material.

This guideline considers relevant legislative and university policies ensuring that researchers have relevant information to be compliant with requirements and safe working procedures when transporting biological material.

2.0 Responsibilities

All personnel involved in the packaging, labelling and shipping of biological materials must be appropriately trained, certified, competent and knowledgeable of the relevant national, regional and international regulations.

Further information and assistance can be obtained from your Laboratory / Facility Manager or the Research Office.

Research Office:	biosafety@latrobe.edu.au (03) 9479 1443

Biological materials should be transported to ensure a rapid and reliable system for delivery to the recipient using individuals such as professional logistics service providers that are trained and competent in the shipping and transportation process.

The efficient transport and transfer of biological materials requires co-ordination between the sender (shipper, consignor), the logistic providers, the carrier and the recipient (consignee) to ensure safe transport and arrival on time and in proper condition.

The sender (shipper, consignor) is responsible for providing the applicable documentation (e.g. certifications, permits) required by the national authorities of the countries of export, transhipment and import as well as ensuring that the shipment also complies with all other applicable regulations, such as:

1. **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity (CBD):**

Biological material containing genetic resources as defined under the CBD may be subject to Access and Benefit-Sharing legislation in both the country where it is sourced and the country where it is sent.

2. **CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora):** All import, export, re-export and introduction from the sea of species covered by the Convention has to be authorised through a licensing system. Resolution Conf. 12.3. (Rev.CoP18) on Permits and Certificates, contains a section XII, regarding the use of simplified procedures to issue permits and certificates (**E-Res-12-03-R18.pdf**).

Procedures for incidents such as spills or theft of materials during transportation and any other realistic and foreseeable emergencies should be part of a risk management system in order to respond adequately to emergencies.

Decision trees for the transport requirements of biological materials are provided in **Appendix 1**.

3.0 Biological hazards are dangerous goods

Biological material may be hazardous. A biological hazard, or biohazard, is a biological substance that poses a threat to the health of living organisms (i.e. humans and animals) and/or the environment. This could include a sample of a microorganism, virus or toxin (from a biological source) that can affect human or animal health. A biohazard could also be a plant or animal that is potentially harmful to the environment (e.g. noxious weeds, insect pests).

Genetically modified organisms are considered biological hazards until such time as the Gene Technology Regulator has assessed them to pose negligible risk to human health or the environment.

The transport of biological material is regulated by a variety of legislation. This is because different types of biological materials may be considered dangerous goods. The relevant transport legislation to be followed depends on whether transport will be by air, post, road or rail, and whether the biological material is infectious, genetically modified or a biosecurity/quarantine item.

The intent of all transport regulations is to ensure that biological material is packaged in a manner to prevent escape during transport. Please note that the transport of live animals is not regulated under transport of biological material regulations, however any infectious tissues derived from animals will fall under the transport regulations. The transport of genetically modified animals is regulated under the *Gene Technology Act 2000* in accordance with the Office of the Gene Technology Regulator (OGTR) *Guidelines for the Transport, Storage and Disposal of GMOs*.

Dangerous goods are classified according to criteria determined by the United Nations. There are nine classes of dangerous goods (**Figure 1**):

Class 1 - Explosives

Class 2 - Gases

Class 3 - Flammable Liquids

Class 4 - Flammable Solids

Class 5 - Oxidising Agents and Organic Peroxides

Class 6 - Toxic and Infectious Substances

Class 7 - Radioactive Materials

Class 8 - Corrosives

Class 9 - Miscellaneous.

Infectious or potentially infectious biological materials are classified as dangerous goods under Class 6 - Toxic and Infectious substances. These are substances known or reasonably expected to contain pathogens or toxins derived from biological material that can cause disease in humans or animals.

Note: toxins from plant, animal or bacterial sources are considered under Class 6.1 toxic substances in the Dangerous Goods Regulations. Examples of Class 6.2 infectious substances include biological products, cultures, patient specimens and medical or clinical wastes.

Transport of non-infectious GMOs fall under Class 9 -Miscellaneous dangerous goods miscellaneous dangerous substances and articles, including environmentally hazardous substances, but must also adhere to the OGTR *Guidelines for the Transport, Storage and Disposal of GMOs*.

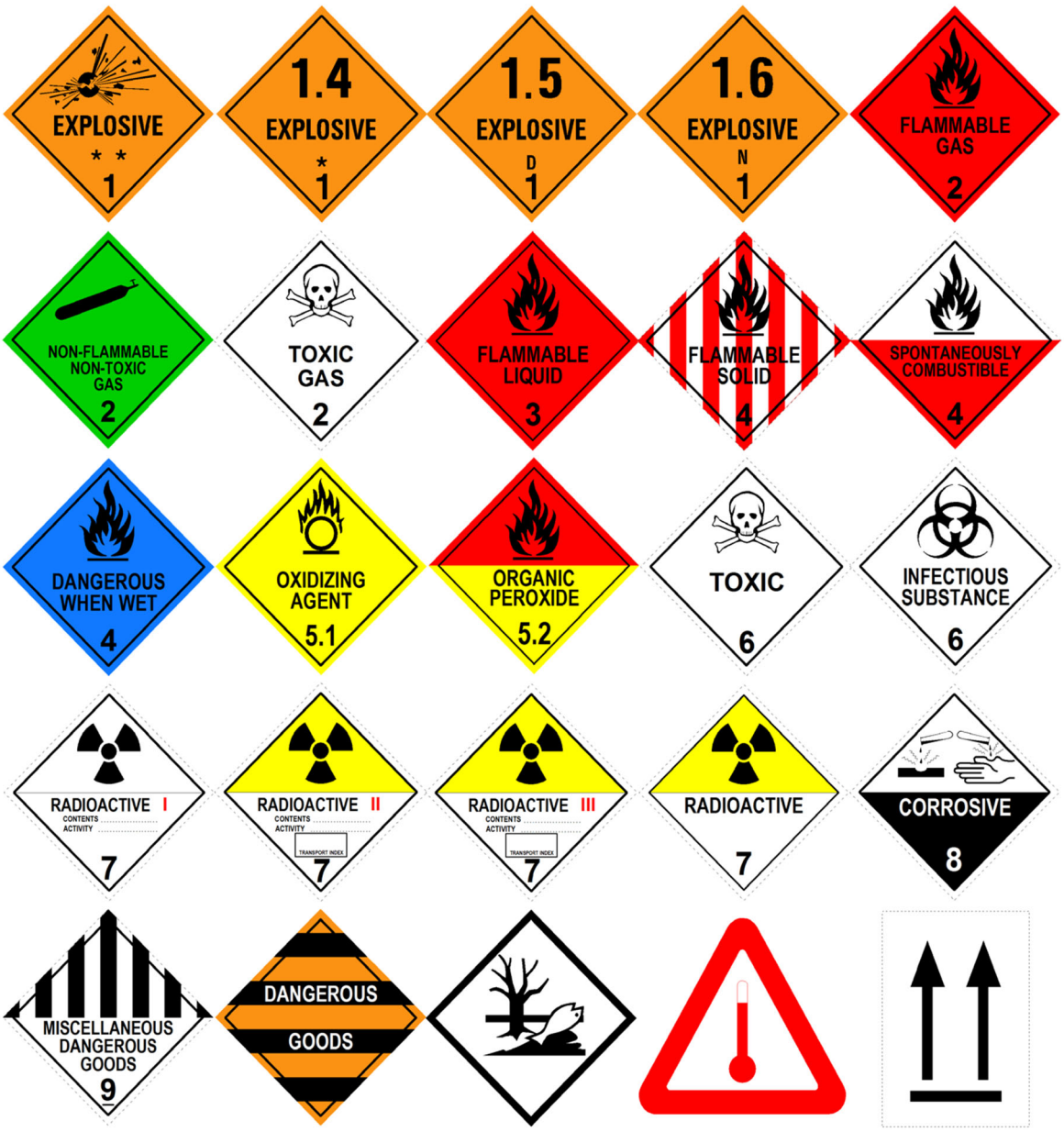


Figure 1. Signage used for the 9 classes of dangerous goods.

4.0 Transport categories of biological material

Biological material is classified into three categories for the purposes of transportation. When transported they must meet certain packaging requirements and be labelled to ensure accurate information is available about the dangerous goods and allow effective response in an emergency. This includes one or more of a class label, subsidiary risk label or mixed class label, which have a specific format, design and colour in accordance with the Dangerous Goods Regulations and an identification number (a UN Number) assigned to the dangerous goods by the United Nations Committee of Experts on the Transport of Dangerous Goods (**Table 1**).

Table 1. Summary of classification, categories, identification and packaging of biological material for transport.

DANGEROUS GOODS CLASSIFICATIONS	CATEGORY	PROPER SHIPPING NAME[1]	UN NUMBER[1]	PACKING INSTRUCTIONS/PACKAGING REQUIREMENTS
Class 6, Division 6.2	Category A	Infectious substance, affecting humans	UN 2814	P620
		Infectious substance, affecting animals	UN 2900	
Class 6, Division 6.2	Category B	Biological substance, Category B	UN 3373	P650
Class 6, Division 6.2	Exempt human/animal specimens	Exempt human/animal specimens	N/A	Triple packaging
Items not subject to dangerous good regulations	Biological materials not subject to dangerous good regulations	N/A	N/A	N/A
Class 9	GMOs not classified as either Category A or Category B infectious substances	Genetically Modified Organisms (GMOs) or Genetically Modified Microorganisms (GMMOs)	UN 3245	P904 (ICAO/IATA PI 959)

1. Dangerous goods are assigned UN numbers and proper shipping names according to their hazard classification and condition under the Dangerous Goods Regulations. *Source:* World Organisation for Animal Health (OIE) (2018). – **Manual of Diagnostic Tests and Vaccines for Terrestrial Animals**. 8th Edition.

The three categories for the transport of biological hazards are defined below.

4.1 CATEGORY A INFECTIOUS SUBSTANCES

Category A substances are likely to contain pathogens (bacteria, fungi, viruses) capable of causing permanent disability, life-threatening or fatal disease to humans or animals. The UN Number for Category A Infectious Substances is UN 2814.

Cultures of infectious substances affecting humans (e.g. Hepatitis B virus) or animals (e.g. African swine fever virus) are assigned to UN 2900. Indicative examples of infectious substances included in Category A are provided in **Appendix 2**.

4.2 CATEGORY B BIOLOGICAL SUBSTANCES

Category B Biological Substances include human or animal specimens which do not contain pathogens in Category A fall into Category B; and must be assigned to UN 3373 'Biological substance, Category B' (e.g. blood, tissue, tissue fluids etc.).

4.3 THE EXEMPT CATEGORY / CATEGORY C

The Exempt Category (Exempt Biological) is not regulated for transport as a dangerous good but considered to be biological material where there is a minimal likelihood that pathogens are present (e.g. some diagnostic samples such as urine). However, these specimens still need to meet certain packaging and marking requirements detailed below.

In Australia there is another category, **Category C**. This category of biological material is defined in the Australian Standard *AS4834 Packaging for surface transport of biological material that may cause disease in humans, animals and plants*. Category C only applies to the surface transport of biological materials within Australia (i.e. by road and rail). If this material is transported by air, then the IATA regulations for Exempt patient specimens is to be followed.

GMOs not meeting the definition of an infectious substance are classified in Class 9 (Miscellaneous dangerous substances and articles, including environmentally hazardous substances) UN 3245. The transport of GMOs is described in detail below.

5.0 Principles of packaging and labelling dangerous goods for transport

The dangerous goods regulations provide details of the packaging and labelling requirements for the transport of biological material. Importantly, the packaging and labelling for all Class 6.2 infectious substances must meet CASA/IATA requirements (**Figures 2** to **4**).

You are not allowed to pack Category A and/or Category B biological material for transport by air unless you have done a Civil Aviation Safety Authority (CASA) approved training course. This certification must be renewed every 2 years.

In general, the minimum requirements for the transport of specimens of Class 6.2 material follows the principle triple packaging, consisting of three layers of which either the secondary or the outer packaging must be rigid. The three layers are:

1. A Primary receptacle.
2. A secondary receptacle.
3. An outer packaging.

Packaging must be IATA approved. That is, they will be stamped with an official approval and meet certain transportation quality specifications.

Contact your local Laboratory/Facility Manager for information on who is CASA approved for packaging biological material. This may include the use of a certified courier company.

5.1 PRIMARY RECEPTACLE

A primary receptacle must be leak-proof for liquids or sift-proof for solids. Primary receptacle(s) must be packed into the secondary packaging with enough absorbent material (e.g. cellulose wadding, paper towels, house-hold paper, cotton balls etc.) to absorb all fluid in case of breakage. Even though the regulations do not prohibit glass, primary receptacles should preferably be non- breakable. In addition, they must not contain any sharps (e.g. vacutainer with needle), particularly when using soft secondary or outer containers. If screw cap vials are used, they shall be secured (e.g. tape). A flip-top vial must not be used as a primary receptacle.

5.2 SECONDARY PACKAGING

A second durable, leak-proof packaging to enclose and protect the primary receptacle(s) is required as the second later of containment (e.g. sealed plastic bag, plastic container, screw cap can).

The Dangerous Goods Regulations require the primary receptacle or the secondary packaging to be capable of withstanding certain conditions during transport. For example, the primary receptacle or the secondary packaging shall be capable of withstanding, without leakage, an internal pressure of 95 kPa (0.95 bar) in the range of –40°C to +55°C.

5.3 OUTER PACKAGING

Secondary packaging must be placed inside outer shipping packaging (e.g. sturdy insulated fibre board box) with suitable cushioning material. Outer packaging protects the contents from outside influences, such as physical damage, while in transit.

Where coolants are required, please see the notes provided in Section 8.0.

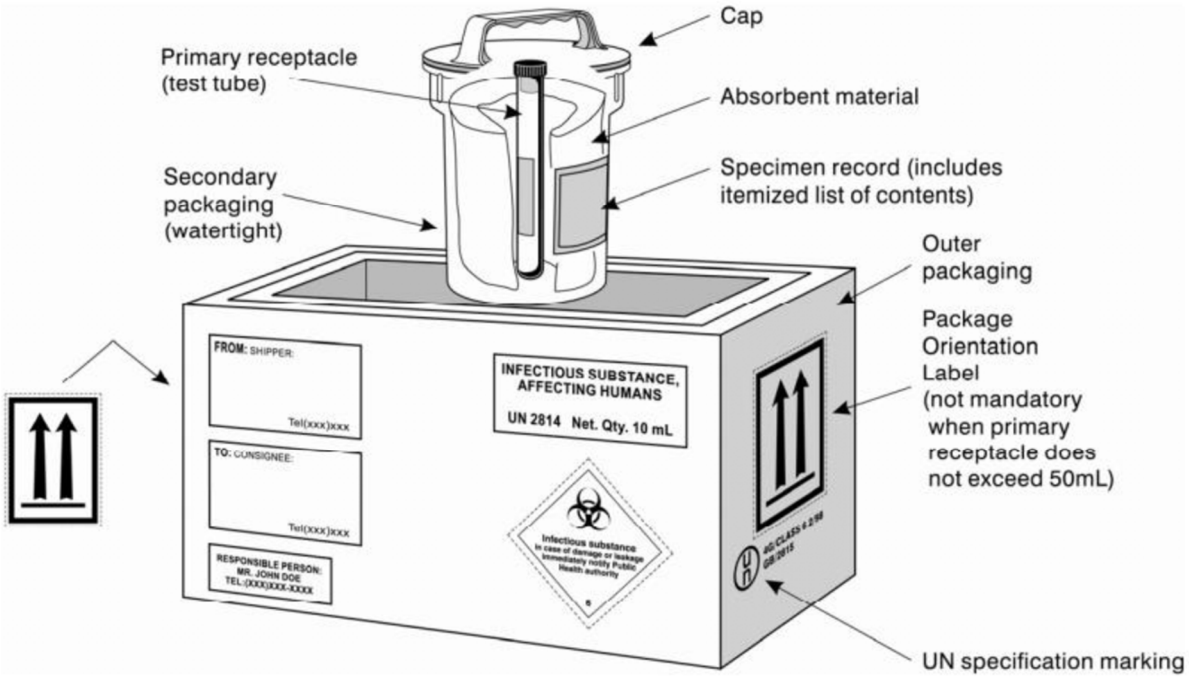


Figure 2. Example of triple packaging system for the packaging and labelling of Category A, UN2874 and UN2900 infectious substances (*Source: IATA*)

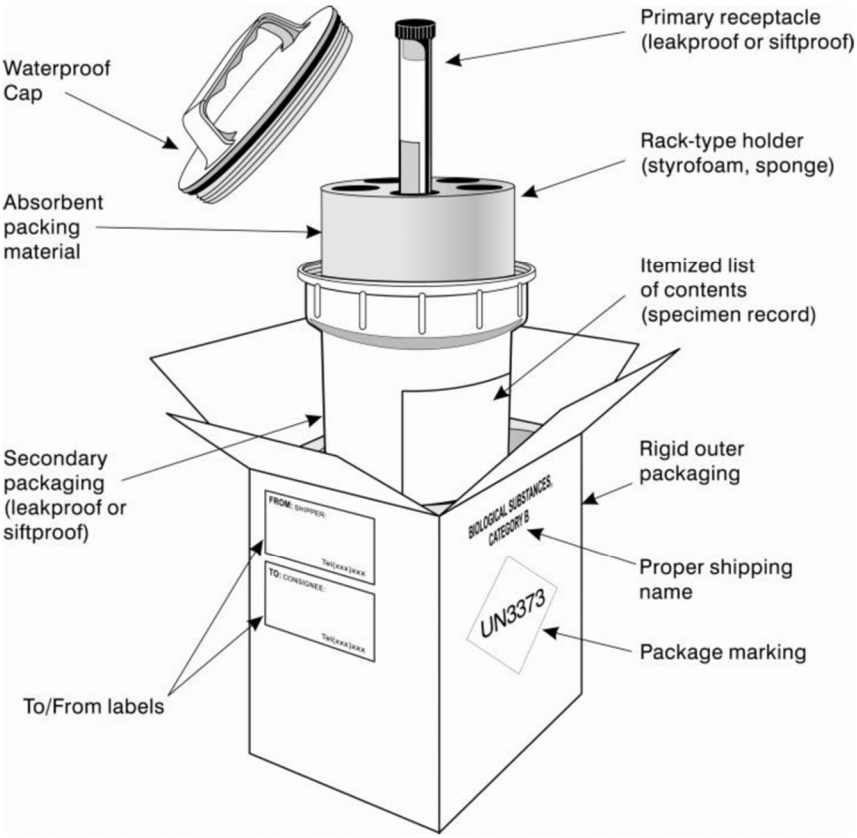


Figure 3. Example of the triple packaging system for the packing and labelling of Category B, UN3373 infectious substances (*Source: IATA*).

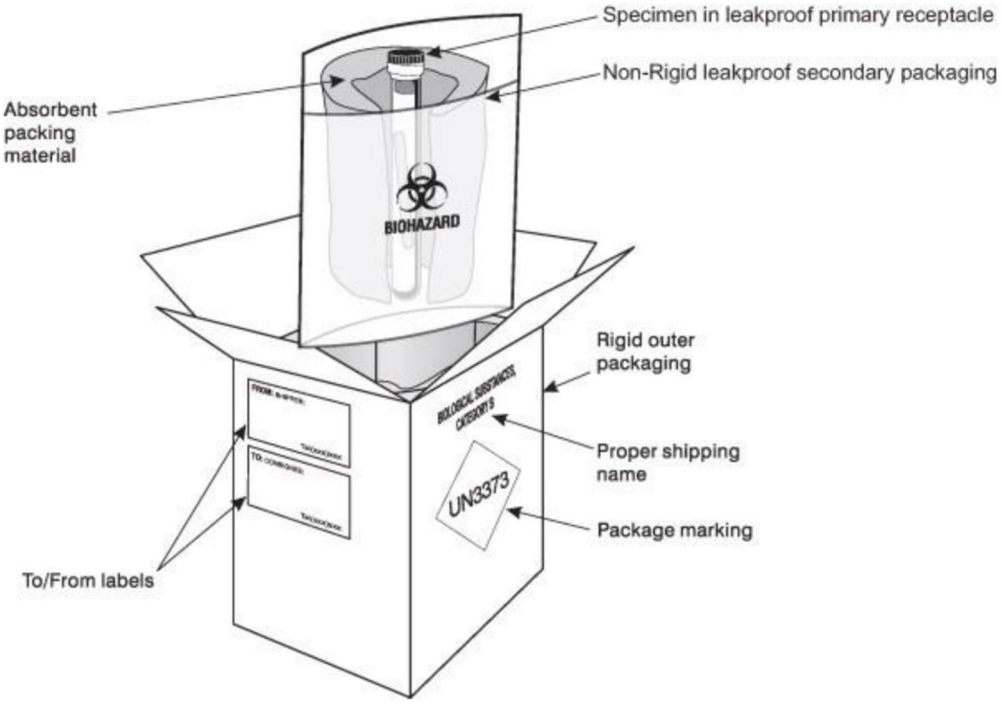


Figure 4. Example of the triple packaging system for the packing and labelling of Category B, UN3373 infectious substances with non-rigid leakproof secondary packaging (*Source: IATA*).

6.0 Transport of exempt biological and Category C biologicals

This category is not regulated as a dangerous good for transport but considered to be biological material where there is a minimal likelihood that pathogens are present. Examples include:

- Biological materials containing microorganisms that are unlikely to cause disease in humans or animals
- Biological materials that do not contain infectious substances (i.e. are not Category A)
- Substances in a form where any pathogens are inactive (e.g. fixed/preserved material)
- Environmental samples including food and water that are not considered to pose a risk of infection
- Dried blood spots for diagnostic testing
- Specimens or samples from human or animals with non-infectious diseases for the purposes of testing (i.e. there is a minimal likelihood that pathogens are present).

6.1 PACKAGING AND LABELLING

Exempt/Category C biological material should also be packaged using the triple packaging system (**Figure 5**). Material must be packaged in a leak-proof primary receptacle (e.g. capped tube). If there are multiple primary receptacles, they should be secured together (e.g. by a rubber band) to prevent damage. Alternatively, the tubes can be individually wrapped or separated to prevent contact.

The primary receptacles must also be packaged in a leak-proof secondary package (e.g. plastic box or screw-capped jar). A hard, outer package must be used for transport (e.g. plastic esky).

A sufficient amount of absorbent material (i.e. enough to absorb the total volume of liquid specimens) should be placed between the primary and secondary receptacles. If also transporting with coolants such as dry ice, liquid nitrogen or any other coolant that may release a gas, then ventilated packaging and associated labelling is required. Please consult with your CASA/IATA authorised packager.

Packages must be labelled with a description of the material (i.e. either Exempt Human Specimens or Exempt Animal Specimens) and include the name and address of sender (do not use PO Box numbers), the name and address of receiver (do not use PO Box numbers), any orientation labels if the package contains 50mL or more of liquid. You must also complete any documentation required by the courier or Australia Post as well as the destination country.

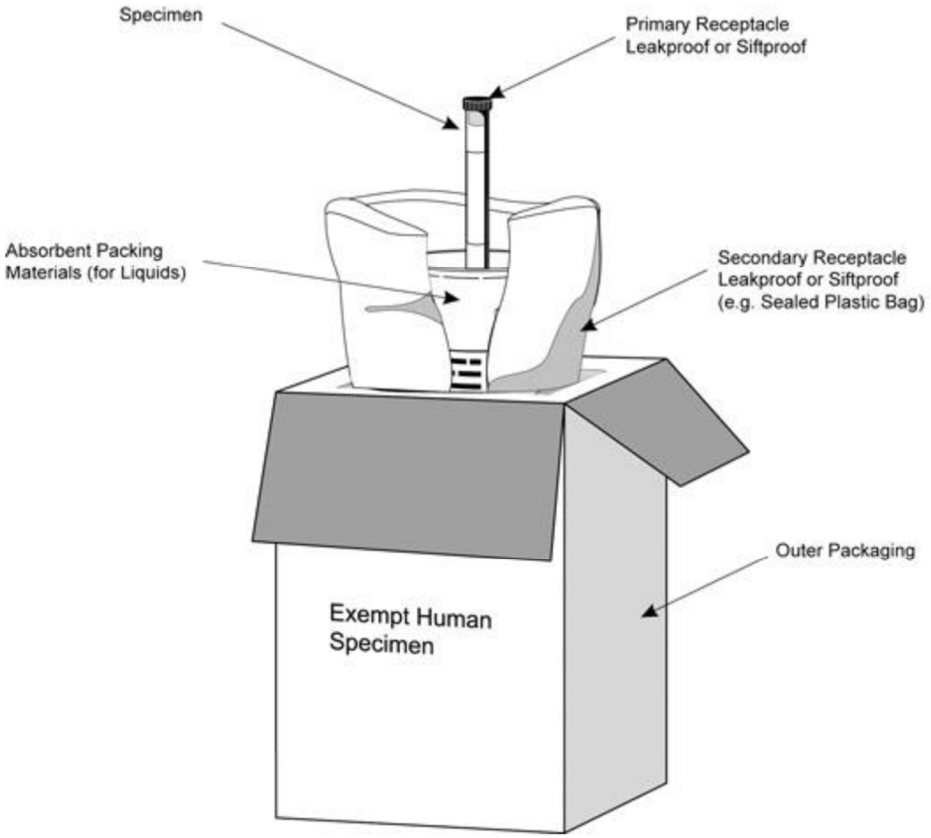


Figure 5. Example of the triple packaging system for the packing and labelling of Exempt specimens (*Source: IATA*)

6.2 TRANSPORT THROUGH THE POST

Exempt category biological material can be sent by post so long as it is acceptable in the destination country.

If you send your biological material by post it may be transported by road, air or sea or any combination of the three (i.e. multimodal transport). If your material is going overseas, other countries may have different requirements to those in Australia. NOTE: some countries will not accept any biological material through the post. It is your responsibility to determine requirements. See the **International Post Guide** for more information.

When using Australia Post to send mail and packages, it is likely to include air transport for a portion of the journey. As such, the packaging must meet IATA requirements. In addition to this, Australia Post has its own marking requirements and shipper's declaration form.

6.3 TRANSPORT BY AIR

The Exempt Category (e.g. Exempt Human Specimens and Exempt Animal Specimens) is not considered a dangerous good, however the dangerous goods regulations stipulate that an element of professional judgment is required to determine if a substance is Exempt.

The LTIBC expects persons wanting to transport Exempt category material to follow best practice and to consult with an approved CASA/IATA packager.

NOTE: You can carry certain exempt packages on commercial flights, but the airline must be notified in advance. Ultimately it is the pilot's decision whether the package will be allowed on the plane, and they have the right to refuse at time of check-in.

6.4 TRANSPORT BY ROAD OR RAIL

When transporting Exempt material, a copy of all documentation and any coolants should go between the secondary and outer packaging. Documentation must be accessible to the transporter without opening the inner package.

The package must be secured to the vehicle so that it will remain in position under adverse conditions (e.g. accidents and/or during heavy braking). Packages should be segregated from other material and be of sufficient quality and strong enough to withstand 'normal' transport conditions.

The above requirements for road and rail transport of Exempt Category material are also reflected requirements as set out in AS 4834 *Packaging for surface transport of biological material that may cause disease in humans, animals and plants*. Appendix E of this Australian Standard has a sample declaration form that can be used for Exempt Category material. IATA also provide a dangerous goods shipping declaration:

https://www.iata.org/en/programs/cargo/dgr/shippers-declaration

7.0 Contaminated items, medical or clinical waste

Medical or clinical waste containing Category A infectious substances should be assigned to UN 2814 or UN 2900 as appropriate. Solid medical waste containing Category A infectious substances generated from the medical treatment of humans or veterinary treatment of animals may be assigned to UN 3549. It should be noted that Medical or clinical waste from bioresearch or liquid waste must not be assigned to UN3549.

Medical or clinical waste containing Category B infectious substances should be assigned to UN 3291.

Materials or equipment that maybe contaminated with Category A or Category B infectious substances must also be transported in accordance with the Dangerous Goods Regulations. Examples of the classification, categories and package identification of contaminated items are provided in **Table 2**.

Table 2. Summary of classification, categories, identification and packaging requirements of contaminated items with infectious substances[1].

DANGEROUS GOODS CLASSIFICATIONS	CATEGORY	PROPER SHIPPING NAME[2]	UN NUMBER[2]	PACKING INSTRUCTIONS/PACKAGING REQUIREMENTS
Class 6, Division 6.2	Category A	Medical[2] devices or equipment contaminated with or containing infectious substances in Category A	UN2814, UN2900 as appropriate	Must be marked "Used Medical Device" or "Used Medical Equipment"
Class 6, Division 6.2	Exemption when condition is met	Medical[3] devices, medical equipment	N/A	Triple packaging recommended
Class 6, Division 6.2	Category A	Solid medical[3] waste, Category A, affecting humans; Solid Medical[3] waste, Category A, affecting animals only	UN3549	Packaging Instructions P622
Class 6, Division 6.2	Category B	Unspecified clinical waste (not otherwise specified); medical waste, regulated medical waste	UN3291	Packaging Instructions P621

1. Source: World Organisation for Animal Health (OIE) (2018). – **Manual of Diagnostic Tests and Vaccines for Terrestrial Animals**. 8th Edition.
2. Dangerous goods are assigned UN numbers and proper shipping names according to their hazard classification and condition under the Dangerous Goods Regulations.
3. Including those used for veterinary application.

8.0 Coolants

Refrigerants may be used to stabilise specimens during transport. Ice, ice packs or dry ice can be placed outside the secondary receptacle. Wet ice can be placed in a leak-proof container; the outer packaging or overpack must also be leak-proof.

Dry ice (solid carbon dioxide) must not be placed inside the primary or secondary receptacle because of the risk of explosion. A specially designed insulated packaging may be used to contain dry ice, typically a polystyrene or waxed-treated cardboard box to prevent leakage and maintain temperature. The packaging must permit the release of carbon dioxide gas if dry ice is used and the package (the outer packaging or the overpack) shall be marked “UN 1845” and “Carbon dioxide, solid as coolant” or “Dry ice as coolant” and the weight of the dry ice in Kilograms should also be indicated on the labelling. The package must also bear the Class 9 – Miscellaneous dangerous goods hazard label.

NOTE: The secondary receptacle must be secured within the outer package to maintain the original orientation of the inner packages after the refrigerant has melted or dissipated.

If liquid nitrogen is used as a refrigerant, additional requirements must be followed according to the relevant regulations for dangerous goods (Division 2.2, UN 1977).

If the material must be kept cool for inter-campus transport, and where public transport is considered, then frozen ice blocks or gel packs may be used. You must NOT carry dry ice or liquid nitrogen on public transport as they are considered dangerous goods. It is not recommended to use wet ice as it melts and may leak unless appropriate containers are used (see notes above).

9.0 Transport of quarantine material

If your biological material is subject to a Permit issued by the Department of Agriculture, Water and the Environment or under an Approved Arrangement then you must read and follow the conditions of that permit or arrangement. This includes any packaging, labelling and/or accompanying documentation that may be required or any restrictions such as only transport between Approved Arrangements or facilities listed in Approved Arrangements. You MUST comply with these requirements. All quarantine material must be double contained and in a hard spill-proof outer container as a minimal requirement.

The LTIBC requires persons wanting to transport quarantine material to follow any conditions as directed by the Department of Agriculture, Water and the Environment and to consult with their Laboratory/Facility Manager.

10.0 Transport of GMOs

The transport of GMOs must adhere to the appropriate guidelines and/or regulations. NOTE: GMOs are not subject to dangerous goods regulations when licenced by the OGTR or authorised for use by the competent authorities of the countries of transit and destination.

10.1 INTERNATIONAL TRANSPORT OF GMOS

GMOs transported internationally must be packed and labelled according to IATA Packing Instruction 904, or for infectious GMOs Packing Instruction 620. Please refer to your local certified CASA/IATA packager.

GMOs not meeting the definition of an infectious substance (e.g. genetically modified seeds) are classified in Class 9 (Miscellaneous dangerous substances and articles, including environmentally hazardous substances) UN 3245.

10.2 DOMESTIC TRANSPORT OF GMOS

The transport of genetically modified material must adhere to the **OGTR Guidelines for the Transport Storage and Disposal (TSD) of GMOs** as well as the Dangerous Goods Regulations.

The transport of a GMO is a 'dealing' as defined in the *Gene Technology Act 2000* and the *Gene Technology Regulations 2001*. As such, **you must have an approval** from the La Trobe Institutional Biosafety Committee (Exempt Dealings or Notifiable Low Risk Dealings) or from the Gene Technology Regulator (Licenced Dealings). Records of Assessment or Licence Conditions may provide specific conditions regarding the transport of GMOs.

Check with your Laboratory / Facility Manager for local Standard Operating Procedures for the Transport of GMOs.

10.3 GENERAL REQUIREMENTS FOR GMO TRANSPORT-CONTAINMENT

GMOs to be transported must be wholly contained inside a sealed, unbreakable primary container. NOTE: The type of containment necessary to prevent the GMOs from escaping will vary depending on the type of GMO being transported. For example, in the case of transgenic mice that do not contain GM microorganisms, 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.

10.4 GENERAL REQUIREMENTS FOR GMO TRANSPORT-PACKAGING

The principle of triple packaging as described above should be considered. The type of packaging will be dependent on the Category of GMO (e.g. Category A infectious GMO versus biological material not subject to dangerous goods regulations). Further, when transporting GM and non-GM materials then they should be appropriately segregated. For example, when transporting GM and non-GM animals, capable of interbreeding, they 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-GMOs must be transported in accordance with the requirements in these guidelines as if they were GMOs.

10.5 GENERAL REQUIREMENTS FOR GMO TRANSPORT-LABELLING

At a minimum, a person supplying a 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.

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. See the requirements for packaging biological material as described above.

10.6 GENERAL REQUIREMENTS FOR GMO TRANSPORT-ACCOUNTING

Procedures must be in place to ensure that all GMOs or the number of primary containers of GMOs transported, can be accounted for and that a loss of GMOs during transport, or the failure of delivery, can be detected. Typically, a consignment is accompanied with a 'Chain of Custody' form that is used as a record of transport (see **Appendix A3** for an example).

TRANSPORT RECORDS ARE AUDITABLE DOCUMENTS.

The OGTR may request copies of any transport records as part of their Monitoring and Evaluation.

Accounting 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.

10.7 GENERAL REQUIREMENTS FOR GMO TRANSPORT-EMERGENCY RESPONSE

Procedures for incidents such as spills or theft of materials during transportation and any other realistic and foreseeable emergencies should be part of a risk management system in order to respond adequately to emergencies. When transporting biological cultures or liquids a biological spill kit should be considered to accompany transport. In all cases, an Emergency Response Procedure should accompany any GMO transport (see **Appendix A4** for an example).

10.8 GENERAL REQUIREMENTS FOR GMO TRANSPORT-SECURITY

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.

10.9 GENERAL REQUIREMENTS FOR GMO TRANSPORT-DECONTAMINATION OF CONTAINERS

It is a requirement under the OGTR Guidelines for the Transport, Storage and Disposal of GMOs that the external surface of the outermost container be decontaminated **prior to transport**. NOTE: Where appropriate, visual inspection of the container(s) may be used to confirm whether decontamination is necessary

All containers must be decontaminated after transport. This may include the containers being disposed of through a biological waste stream or wiped with an appropriate decontamination solution.

11.0 Transport of biological material between La Trobe campuses

Low risk biological material may be transported by person by any means within and between La Trobe Campuses and sites providing the material does not meet the definition of Category A or Category B infectious material, and it is accompanied by an authorised or qualified person[1] who is familiar with the contents of the package and is confident in procedures to clean up any spills and notifications to relevant authorities (i.e. LTIBC and/or OGTR). Transport of GMOs must be in accordance with the OGTR Guidelines for the Transport, Storage and Disposal of GMOs (also see **Section 10**).

Transport between campuses of Category A or Category B infectious materials must be undertaken by authorised dangerous goods transport providers.

[1] An Authorised or Qualified Person-A person who has acquired through training, qualifications or experience, or a combination of these, the knowledge and skill enabling that person to accomplish the relevant task competently.

12.0 Transport of biological material within a La Trobe campus

All biohazards and GMOs may be transported within a campus provided the material has been packaged and labelled correctly and transport is undertaken by an authorised or qualified person[1].

All GMOs must be transported in accordance with the OGTR Guidelines for Transport, Storage and Disposal as described above (**Table 3**).

Table 3. Transport requirements within a La Trobe campus.

TRANSPORT REQUIREMENT	RELEVANT SECTION	BETWEEN ROOMS WITHIN A BUILDING	BETWEEN FLOORS WITHIN A BUILDING	BETWEEN BUILDINGS (TRANSIT VIA CONNECTING CORRIDOR)	BETWEEN BUILDINGS (TRANSITING OUTSIDE)
Double Containment	10.3	✓	✓	✓	✓
Packaging	10.4	Recommended	Recommended	Recommended	✓
Labelling	10.5	✓	✓	✓	✓
Accounting	10.6	–	–	–	✓
Emergency Response	10.7	Recommended	Recommended	Recommended	✓
Security/Restricted Access	10.8	✓	✓	✓	✓
Decontaminate Containers	10.9	✓	✓	✓	✓

13.0 Relevant documentation

13.1 LEGISLATION

Gene Technology Act (2000): is a national scheme for the regulation of genetically modified organisms in Australia, in order to protect the health and safety of Australians and the Australian environment by identifying risks posed by or as a result of gene technology, and to manage those risks by regulating certain dealings with genetically modified organisms.

Biosecurity Act (2015): explains how Australia manages biosecurity threats to plant, animal and human health.

Dangerous Goods Act (1985): defines which substances are dangerous goods and provides for regulations on their possession, handling, storage and transport.

Dangerous Goods (Transport by Road or Rail) Regulations 2018: sets out the obligations of people involved in transporting dangerous goods by land and gives effect to the standards, requirements and procedures of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

International Air Traffic Association (IATA) Dangerous Goods Regulations: International air transport regulations.

13.2 RELEVANT UNIVERSITY POLICIES AND PROCEDURES

Biosafety and Biosecurity Policy**:** is to inform all staff, students, visitors and contractors of the University, La Trobe's commitment to providing governance and oversight in effectively managing the actual and potential biosafety and/or biosecurity risks associated with the University's biological research and teaching activities to:

- ensure the health and safety of university personnel, the community and the environment
- promote best practices in research and teaching
- ensure adherence and compliance with the principles of research integrity, relevant biosafety and biosecurity legislation, and other regulatory requirements.

Biosafety and Biosecurity Procedure**:** provides persons undertaking activities with biological agents the framework, methodology, processes and approvals to ensure persons:

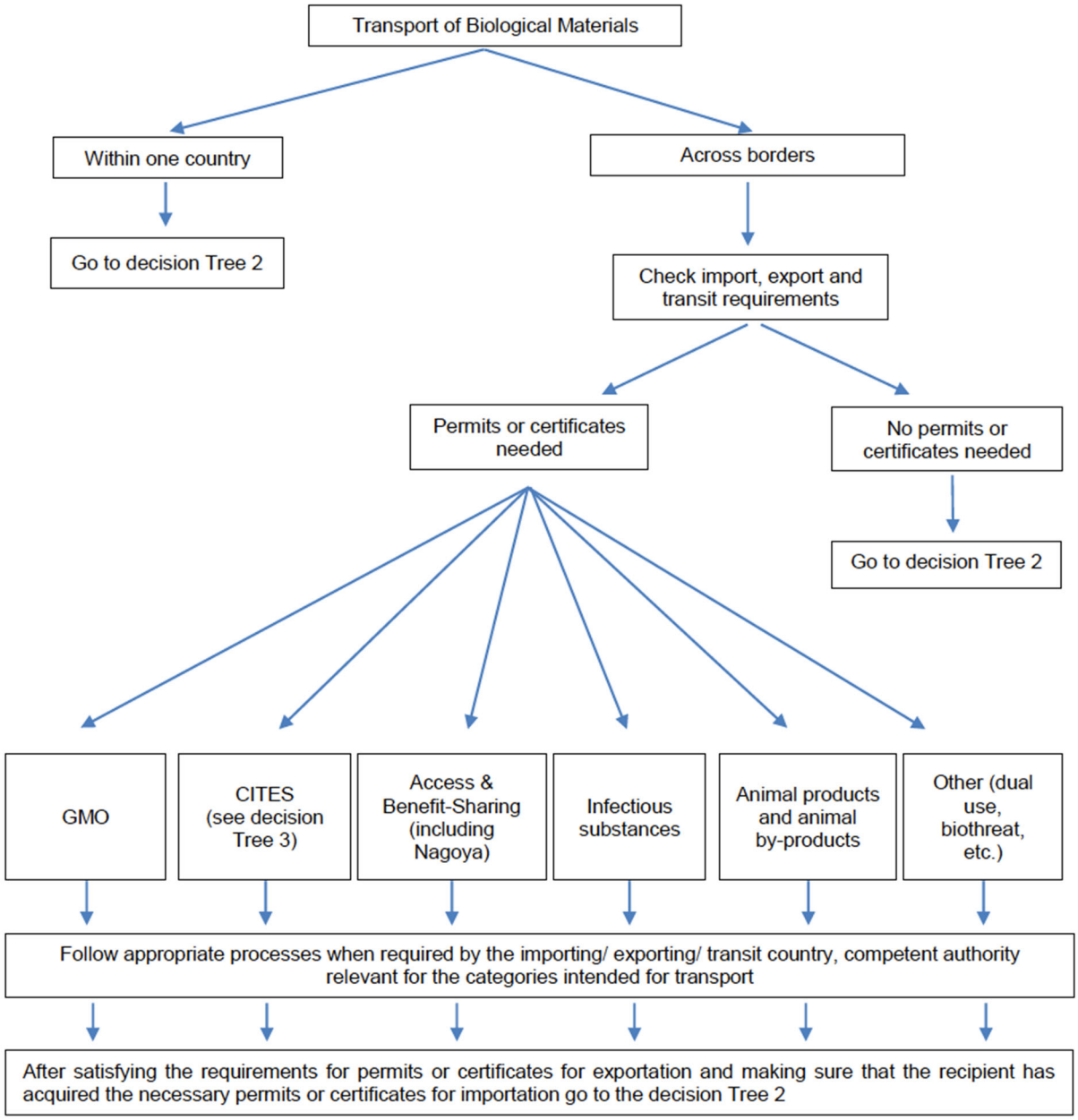
- know and understand their obligations
- are able to comply with relevant legislation and university policies and procedures
- undertake activities within a best practice and compliant framework; and

- are willing to comply.

14.0 Appendices

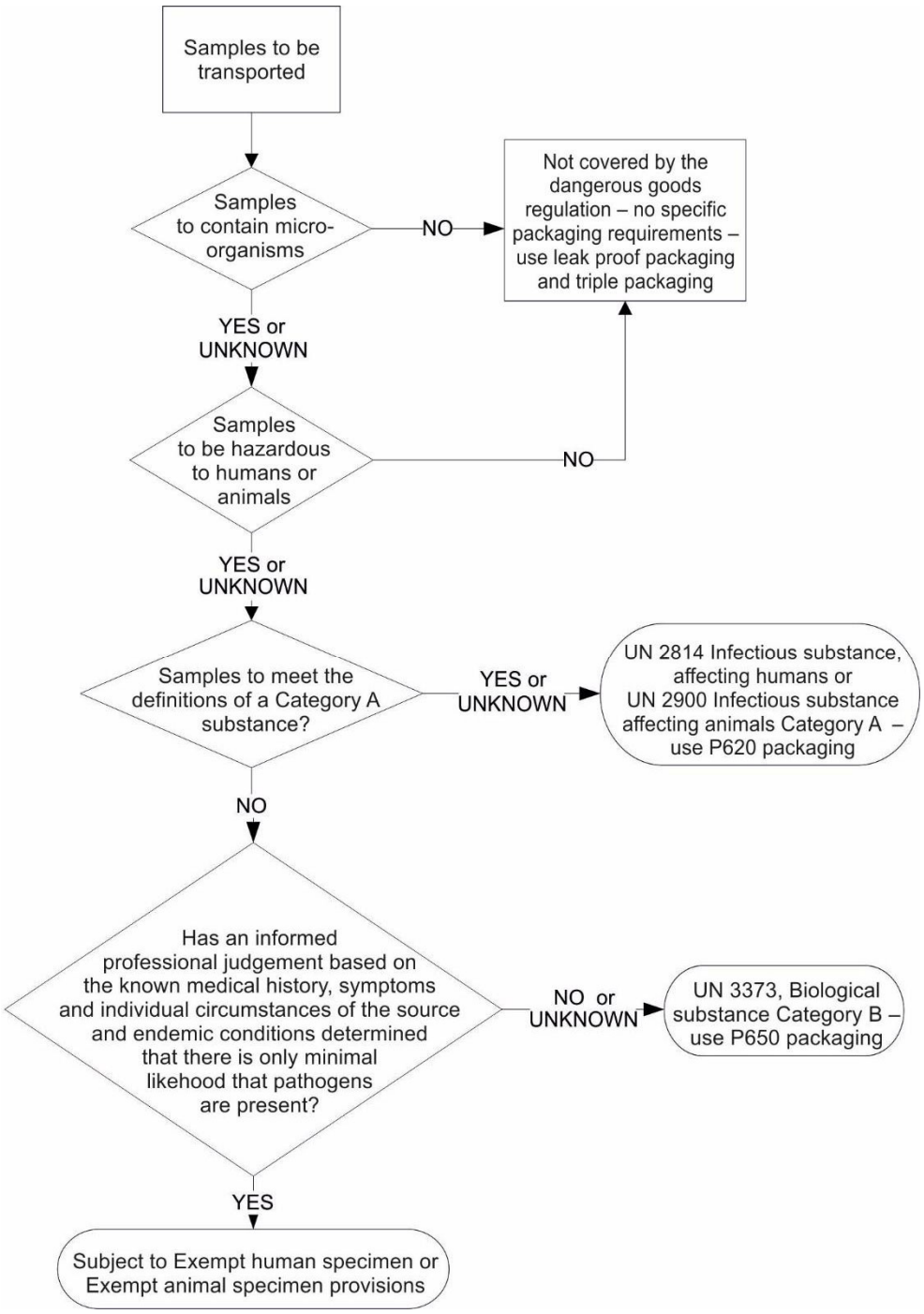
A1. DECISION TREES FOR THE TRANSPORT REQUIREMENTS OF BIOLOGICAL MATERIALS

DECISION TREE 1



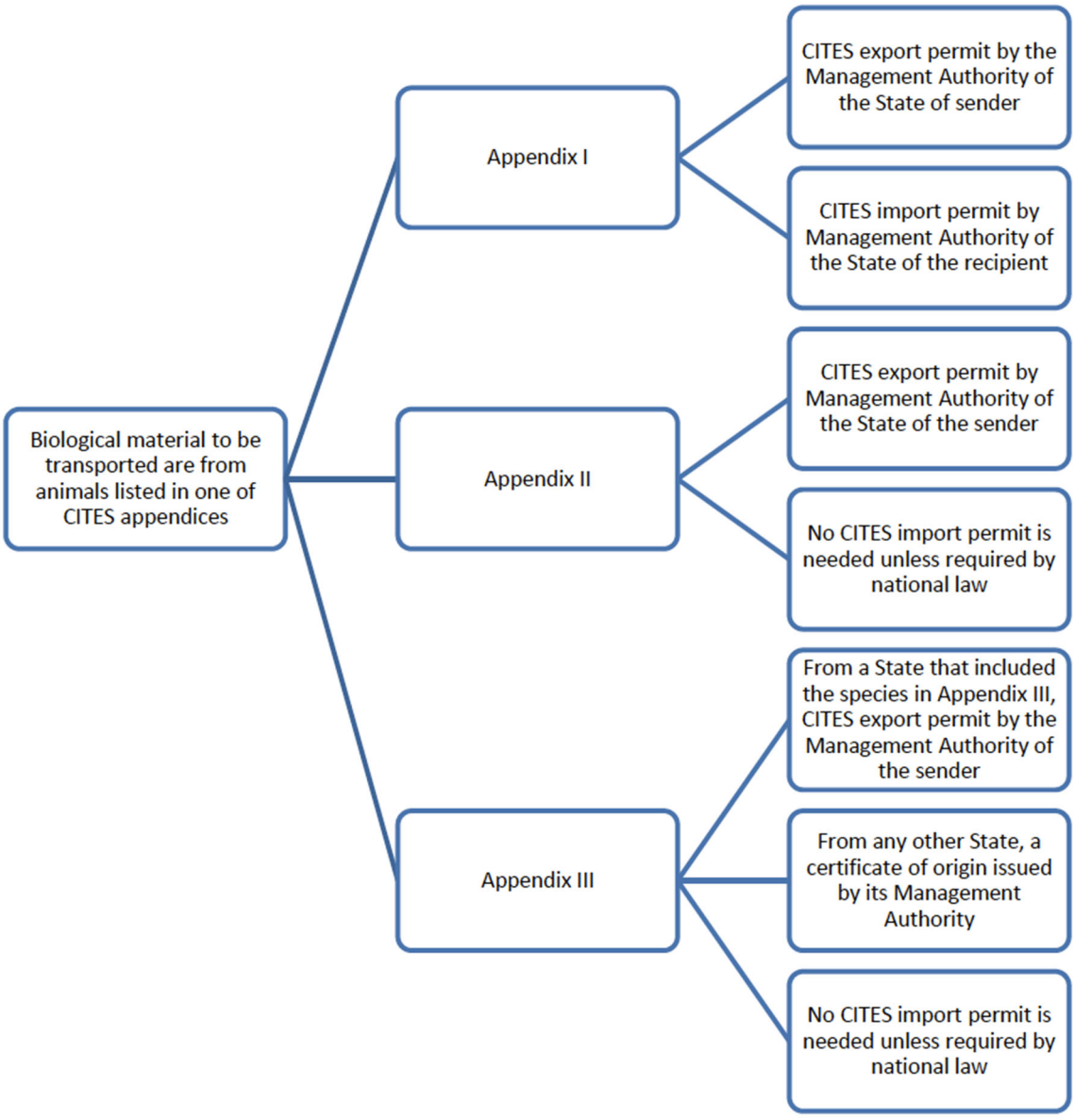
Source: World Organisation for Animal Health (OIE) (2018). – Manual of Diagnostic Tests and Vaccines for Terrestrial Animals. 8th Edition.

DECISION TREE 2



Source: World Organisation for Animal Health (OIE) (2018). – **Manual of Diagnostic Tests and Vaccines for Terrestrial Animals**. 8th Edition.

DECISION TREE 3



Source: World Organisation for Animal Health (OIE) (2018). – **Manual of Diagnostic Tests and Vaccines for Terrestrial Animals**. 8th Edition.

A2. INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A

UN number and proper shipping name	Microorganism
UN2814 Infectious substance, affecting humans	*Bacillus anthracis* (cultures only)[1]
	Brucella abortus (cultures only)
	Brucella melitensis (cultures only)
	Brucella suis (cultures only)
	Burkholderia mallei – glanders (cultures only)
	Burkholderia pseudomallei (cultures only)
	Chlamydia psittaci – avian strains (cultures only)
	Clostridium botulinum (cultures only)
	Coccidioides immitis (cultures only)
	Coxiella burnetii (cultures only)
	Crimean–Congo haemorrhagic fever virus
	Dengue virus (cultures only)
	Eastern equine encephalomyelitis virus (cultures only)
	Escherichia coli, verotoxigenic (cultures only)[2]
	Ebola virus
	Flexal virus
	Francisella tularensis (cultures only)
	Guanarito virus
	Hantaan virus
	Hantaviruses causing haemorrhagic fever with renal syndrome
	Hendra virus
	Hepatitis B virus (cultures only)
	Herpes B virus (cultures only)
	Human immunodeficiency virus (cultures only)
	Highly pathogenic avian influenza virus (cultures only)
	Japanese encephalitis virus (cultures only)
	Junin virus
	Kyasanur Forest disease virus
	Lassa virus
	Machupo virus
	Marburg virus
	Monkeypox virus
	Mycobacterium tuberculosis (cultures only)
	Nipah virus
	Omsk haemorrhagic fever virus
	Poliovirus (cultures only)
	Rabies virus (cultures only)
	Rickettsia prowazekii (cultures only)
	Rickettsia rickettsii (cultures only)
	Rift Valley fever virus (cultures only)
	Russian spring–summer encephalitis virus (cultures only)
	Sabia virus
	Shigella dysenteriae type 1 (cultures only)
	Tick-borne encephalitis virus (cultures only)
	Variola virus
	Venezuelan equine encephalitis virus (cultures only)
	West Nile virus (cultures only)
	Yellow fever virus (cultures only)

UN number and proper shipping name	Microorganism
	Yersinia pestis (cultures only)
UN2900 Infectious substance, affecting animals only[3]	African swine fever virus (cultures only)
	Avian paramyxovirus Type 1 – Velogenic Newcastle disease virus (cultures only)
	Classical swine fever virus (cultures only)
	Foot and mouth disease virus (cultures only)
	Lumpy skin disease virus (cultures only)
	Mycoplasma mycoides – contagious bovine pleuropneumonia (cultures only)
	Peste des petits ruminants virus (cultures only)
	Rinderpest virus (cultures only)
	Sheep-pox virus (cultures only)
	Goat-pox virus (cultures only)
	Swine vesicular disease virus (cultures only)
	Vesicular stomatitis virus (cultures only)

1. This is considered a 'dual use organism' and is subject to regulation under the *National Health and Security Act 2007*.
2. For surface transport only, when the cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B.
3. Some of these diseases are nationally notifiable in Australia and may require special approvals from the Australian Government.

Source: World Organisation for Animal Health (OIE) (2018). – **Manual of Diagnostic Tests and Vaccines for Terrestrial Animals**. 8th Edition.

A3. EXAMPLE CHAIN OF CUSTODY FORM TO ACCOMPANY THE TRANSPORT OF GENETICALLY MODIFIED ORGANISMS

Note: The transport of all genetically modified organisms (GMOs) must be in accordance with the Office of the Gene Technology Regulator's (OGTR) current '**Guidelines for the Transport, Storage and Disposal of GMOs**'.

GMO Transport Record

This GMO TRANSPORT RECORD is in accordance with the OGTR Guidelines for Transport, Storage and Disposal as authorised by the La Trobe Institutional Biosafety Committee in the Record of Assessment: NLRD <<<XXXXX>>>

SENDERS INFORMATION

Name of Sender:	
Senders Position:	
Senders Address:	
Senders Phone Number:	
Senders E-mail Address:	
Emergency Contact Name and Number:	

RECIPIENTS INFORMATION

☐ Internal ☐ External	
Name of Recipient:	
Recipients Position:	
Recipients Address:	
Recipients Phone Number:	
Recipients E-mail Address:	

CONSIGNMENT NOTE / AIRWAY BILL

Name of Transporter:	
Consignment Note / Airway bill Number:	

TRANSPORT CONDITIONS

In accordance with the OGTR Guidelines for Transport Storage and Disposal.

Prior to dispatch consignment checked by:

_____

_____

Upon receipt consignment checked and approved by:

_____

_____

Please retain a **fully signed** copy of this form once consignment has been checked and approved. Send a scanned copy back to <<<XXXXXX>>>>:

Page 1 of 2

GMO Transport Record

TRANSPORT LIST

Item Number	Item Description	Amount
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

ACCOUNTING LIST FOR TRANSPORT OF ANIMALS

Stock ID	Quantity	Sex	Description	Box ID

A4. EXAMPLE EMERGENCY RESPONSE FORM TO ACCOMPANY THE TRANSPORT OF GENETICALLY MODIFIED ORGANISMS

Note: The transport of all genetically modified organisms (GMOs) must be in accordance with the Office of the Gene Technology Regulator's (OGTR) current '**Guidelines for the Transport, Storage and Disposal of GMOs**'.

Emergency Response Procedure

Transport of Genetically Modified Organisms

In the event of a transport emergency* involving a GMO (or waste material) the following procedure must be followed

* A transport emergency is an incident where the transported material is released from its original container.

1. Transport personnel must contact the following persons with details of the incident immediately:

   <<<NAME of Primary Contact>>> (<<<Organisation Name>>>)
   (mob +61-XXXX XXX XXX)

   <<<NAME of Secondary Contact>>> (<<<Organisation Name>>>)
   (mob +61-XXXX XXX XXX)

2. Where any GMO has been released or escaped from the primary container:
   - The GMO must be contained and recovered as best and as quickly as possible. The containers should then be placed in a secondary sealable container.
   - Both the primary and secondary container must be labelled with "GMO" and include the details of any labels from the original containers including contact numbers and any identifying codes.
   - A **<<<Organisation Name>>>** representative shall endeavour to be present on site during the containment and clean-up operations. However, the absence of a **<<<Organisation Name>>>** representative should not prevent measures for containment and clean up being carried out as quickly and safely as possible.
   - Obtain instructions from your **<<<Organisation Name>>>** contact on what to do with the recovered material.
3. The exact location of the escape shall be described to **<<<Organisation Name>>>** including GPS location, street location, and distance to landmarks etc. so that the area may be monitored.
4. If instructed to do so, follow any and all instructions of the Institutional Biosafety Committee and/or Office of the Gene Technology Regulator.