Carriage and Packaging of Dangerous Goods Health and Safety

Copy No:

The information contained in this DAT is for training purposes.
Managers must ensure that staff who prepare products for transport by road, air or sea are trained in the correct packing and labelling of the containers. These must meet all regulatory requirements as described below.

This procedure shall apply to the carriage of all dangerous goods: By road, as defined by the ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road; and by air as defined by the IATA Dangerous Goods Regulations.

The only materials which NHSBT require to be transported in the course of normal business which may fall into the scope of ADR and IATA are blood, tissue, clinical waste and/or diagnostic samples. These are normally exempt from the regulations but may fall into them if packed with dry ice or in a cryogenic gas. Please contact the Health and Safety DGSA for further advice.

Each sending Department must identify such materials and is responsible for the correct classification, packaging, documentation and transport arrangements.

Routine NHSBT Transport should **not** be used for the transportation of material that falls within the full scope of the Regulations. A suitable third party carrier should be used wherever practicable.

For infectious substances the material to be transported must be assessed and designated as Category A or B.

Category A infectious substances

Category A is defined as 'An infectious substance which is carried in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals.' This definition is supported by an indicative list, which is to found at the end of this document. Such materials must be packed appropriately in UN approved packaging for class 6.2 substances.

If a Category A substance is to be transported by road, by sea or by air, please contact the Health and Safety DGSA for advice on packing instructions.

Category B diagnostic / clinical specimens transported for diagnostic or investigative purposes only

Category B is defined as 'An infectious substance which does not meet the criteria for inclusion in Category A. Infectious substances in Category B shall be assigned to UN No. 3373. The proper shipping name of UN No. 3373 is "BIOLOGICAL SUBSTANCE, CATEGORY B".

By Road:

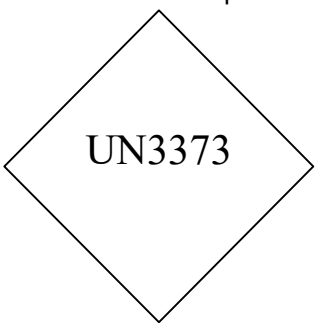
Known positive samples for diagnostic or investigative purposes should be classified as Category B and must be transported and packaged according to ADR Packing Instruction (PI) 650. If done so, no other requirements of ADR are applicable. PI 650 is defined below.

According to this instruction it must be packaged under the following conditions:

1. The packaging shall be of good quality, strong enough to withstand the shocks and loadings normally encountered during carriage. Packagings shall be constructed and closed to prevent any loss of contents that might be caused under normal conditions of carriage by vibration or by changes in temperature, humidity or pressure.
2. Packaging shall consist of at least 3 components:
    a. A primary receptacle containing specimen
    b. A Secondary packaging; and
    c. An Outer packing

Of which either the secondary or the outer pack must be rigid.

3. Primary receptacles shall be packed in secondary packagings in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents into the secondary packaging. Secondary packagings shall be secured in outer packagings with suitable cushioning material. Any leakage of the contents shall not compromise the integrity of the cushioning material or of the outer packaging.
4. For carriage, the mark illustrated below shall be displayed on the external surface of the outer packaging on a background of contrasting colour and shall be clearly visible and legible. The mark shall be in the form of a square set at an angle of 45° (i.e. diamond shaped) with minimum dimensions of 50mm by 50mm; the width of the line shall be at least 2mm and the letters and numbers shall be at least 6mm high. The proper shipping name "BIOLOGICAL SUBSTANCE, CATEGORY B" in letters at least 6mm high shall be marked on the outer packaging adjacent to the diamond-shaped mark.



5. At least one side of the package must have a minimum dimension of 100 mm x 100 mm.
6. Packaging shall be capable of successfully passing the drop test at a height of 1.2m. Following the appropriate drop test sequence, there shall be no leakage from the primary receptacle(s) which shall remain protected by absorbent material, when required, in the secondary packaging.
7. *For liquid substances:*
    a. Primary and secondary container must be leak proof
    b. If multiple fragile primary receptacles are placed in a single secondary packaging, they shall be either individually wrapped or separated to prevent contact between them;
    c. Absorbent material shall be placed between the primary receptacles(s) and the secondary packaging. The absorbent material shall be in quantity sufficient to absorb the entire contents of the primary receptacle(s) so that any release of the liquid substance will not compromise the integrity of the cushioning material or of the outer packaging;
    d. Primary or secondary container must be able to with stand, without leakage, an internal pressure of 95 kPA
8. *For solid substances:*
    a. Primary and secondary packaging must be sift proof
    b. If multiple fragile primary samples are placed in a single secondary packaging, they shall be either individually wrapped or separated to prevent contact between the;
    c. If there is any doubt as to whether or not residual liquid may be present in the primary receptacle during carriage then a packing suitable for liquids, including absorbent materials, shall be used.
9. *Refrigerated or frozen specimens: Ice, dry ice and liquid nitrogen:*
    a. When dry ice or liquid nitrogen is used to keep specimens cold, all applicable requirements of ADR shall be met. When used, ice or dry ice shall be placed outside the secondary packagings or in the outer packaging or an overpack. Interior supports must be provided to secure the secondary packagings in the original position after the ice or dry ice has dissipated. If ice is used, the outside packaging or overpack must be leakproof. If dry ice is used, the packaging must be designed and constructed to permit the release of the gas. If the package contains dry ice then mark with DRY ICE (the UN number and associated hazard label for dry ice is not required).

b. The primary receptacle and the secondary packaging must maintain their integrity at the temperature of the refrigerant used as well as the temperatures and the pressures, which could result if refrigeration were lost.

10. Infectious substances assigned to UN No. 3373 which are packed and packages which are marked in accordance with this packing instruction are not subject to any other requirement in ADR.

By Air:

When goods are to be transported by air, reference should be made to any State or Operator variations that also may apply.

For air transport, on passenger and cargo aircraft the PI 650 as above for transport by road applies **with the following additional requirements.**

For liquids

- Primary receptacle(s) must not contain more than 1 litre. The outer packaging must not contain more than 4 litres. This quantity excludes ice, dry ice or liquid nitrogen when used to keep specimens cold.
- The pressure requirements above have the added phrase of '.....within the range of -40°C to 55°C (-40°F to 130°F)

For Solids

- Primary receptacle(s) – as well as being siftproof – must not exceed the outer packaging weight limit;
- Except for packages containing body parts, organs or whole bodies, the outer packaging must not contain more than 4 kg. This quantity excludes ice, dry ice or liquid nitrogen when used to keep specimens cold.

An itemised list of contents must be enclosed between the secondary packaging and the outer packaging.

A Shipper's Declaration for Dangerous Goods is not required.

Infectious substances assigned to UN No. 3373 which are packed and packages which are marked in accordance with this packing instruction are not subject to any other requirement in the IATA regulations except for the following:-

a) The name and address of the shipper and of the consignee must be provided on each package;

b) The name and telephone number of a person responsible must be provided on the air waybill or on the package;

Note: when the shipper or consignee is also the 'person responsible' as referred to in b) above, the name and address need only be marked only once in order to satisfy the name and address marking provisions in both a) and b), above.

If an Air Waybill is used, the "Nature and Quantity of Goods" box must show "UN 3373", the text "BIOLOGICAL SUBSTANCE, CATEGORY B" and the number of packages. If dry ice is being used in these packages, the following information must also be contained in the Air Waybill "Nature and Quantity of Goods" section in the following order:

UN 1845

Proper shipping name (Dry Ice or Carbon Dioxide, Solid)

The net weight of dry ice in each package.

The net weight of dry ice must be marked on the outside of each package.

Packages containing liquids must display package orientation labels (must be at least 74 mm x 105 mm in size and show two black or red arrows on a white or suitable contrasting background). The labels must be fixed on at least two opposite sides to show the proper orientation for the primary receptacle to be in the upright position.