

On behalf of:



Federal Ministry
for the Environment, Nature Conservation,
Building and Nuclear Safety

of the Federal Republic of Germany



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for Environmental Protection in Central and Eastern Europe, the Caucasus and Central Asia
Project No. 29513**

Improvement of Handling Medical Waste in Healthcare Facilities in two Pilot Regions of the Russian Federation

**Technical Guidelines:
Transport of Infectious Clinical Waste (UN 3291)**

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ON BEHALF OF THE
FEDERAL ENVIRONMENT AGENCY

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List of Abbreviations and Definitions (ADR)

ADR "European Agreement concerning the International Carriage of Dangerous Goods by Road", United Nations 2013.

Bag "Bag" means a flexible packaging made of paper, plastics film, textiles, woven material or other suitable material.

Carrier "Carrier" means the enterprise which carries out the transport operation with or without a transport contract.

Combined Packaging

"Combination Packaging" means a combination of packaging for transport purposes, consisting of one or more inner packaging secured in an outer packing

Consignee "Consignee" means the consignee according to the contract for carriage. If the consignee designates a third party in accordance with the provisions applicable to the contract for carriage, this person shall be deemed to be the consignee within the meaning of ADR. If the transport operation takes place without a contract for carriage, the enterprise which takes charge of the dangerous goods on arrival shall be deemed to be the consignee;

Consignor "Consignor" means the enterprise which consigns dangerous goods either on its own behalf or for a third party. If the transport operation is carried out under a contract for carriage, consignor means the consignor according to the contract for carriage (waste generator).

Cultures "Cultures" are the result of a process by which pathogens are intentionally propagated.

Gross Weight

The total weight of a package or a shipment, including goods and packaging.

IBC "Intermediate bulk container" (IBC) means a rigid, or flexible portable packaging, other than those specified in Chapter 6.1 of the ADR, that:

- (a) has a capacity of:
 - (i) not more than 3 m³ for solids and liquids of packing groups II and III;
 - (ii) is designed for mechanical handling;
- (b) is resistant to the stresses produced in handling and transport as determined by the tests specified in Chapter 6.5 of the ADR

Inner Packaging

"Inner packaging" means a packaging for which an outer packaging is required for carriage.

Large Packaging (LP)

"Large packaging" means a packaging consisting of an outer packaging which contains articles or inner packaging and which

- (a) is designed for mechanical handling;
- (b) exceeds 400 kg net mass or 450 litres capacity but has a volume of not more than 3 m³.

Outer Packaging

"Outer packaging" means the outer protection of the composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packaging.

Packaging (P)

"Packaging" means the receptacle and any other components or materials necessary for the receptacle to perform its containment function.

Packaging Group (PG)

"Packing group" means a group to which, for packing purposes, certain substances may be assigned in accordance with their degree of danger.

UN Model Regulations

"UN Model Regulations" means the Model Regulations annexed to the fifteenth revised edition of the Recommendations on the Transport of Dangerous Goods published by the United Nations (ST/SG/AC.10/1/Rev.17); 2013

UN number

"UN number" means the four-figure identification number of the substance or article taken from the United Nation Model Regulations.

Medical or Clinical wastes

"Medical or clinical wastes" are wastes derived from the medical treatment of animals or humans or from bio-research.

N.O.S Not other specified

Waste "Wastes" means substances, solutions, mixtures or articles for which no direct use is envisaged but which are transported for reprocessing, dumping, elimination by incineration or other methods of disposal.

Acknowledgement

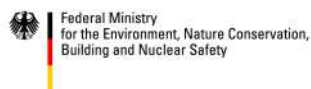
The extracts from the *Recommendations on the Transport of Dangerous Goods, Model Regulations*, 18th revised edition, New York and Geneva, United Nations, 2013 (http://www.unece.org/trans/danger/publi/unrec/rev18/18files_e.html) and *the ADR, European Agreement concerning the international carriage of dangerous goods by road*, applicable as from 1 January 2013, Economic Commission for Europe Committee on Inland Transport, New York and Geneva, United Nations, 2012 are reproduced by kind permission of the United Nations (<http://www.unece.org/trans/danger/publi/adr/adr2013/13contentse.html>).

Additional practical Information:

Any query concerning the application of AR should be directed to the relevant competent authority. Additional information may be found on the UNECE Transport Division website on the following page: <http://www.unece.org/trans/danger/danger.htm>.

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On behalf of:



of the Federal Republic of Germany



1 Scope and Applicability

1.1 Scope

The hazardous properties of Infectious Waste should be clearly stated so that people of all stages of the transport chain are aware of them. This information should always follow the Waste so that people can recognise the risks, avoid accidental mishandling and have the right kind of personal protective equipment (PPE) at their disposal in case of spillages or leakage. Infectious Waste can be transported without causing unnecessary risk if handled properly and with care.

This document is intended to provide guidance on how to package and transport Infectious Waste (classified as UN 3291) on public roads. Postal, airline and shipping of Infectious Waste is not considered by this document, because it is subject to special international or national regulations.

These guidelines are based on the UN “Recommendations on the Transport of Dangerous Goods”, Model Regulations, 18th revised edition, 2013 (short UN Model Regulations) and the more detailed “European Agreement concerning the International Carriage of Dangerous Goods by Road”, 2013 or ADR, which both govern trans-national transport of hazardous materials. The structure of ADR is consistent with that of the United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations, the International Maritime Dangerous Goods Code (IMDG Code) and the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID).

The “UN Model Regulations” are addressed to governments and international organisations concerned with the regulation of the transport of dangerous goods.

The Contracting Parties to ADR 2013 are Albania, Andorra, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia (FYR of), Malta, Moldova, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Tunisia, Turkey, Ukraine, United Kingdom. Beside the EU countries also a number of non-EU countries have also adopted Annexes A and B of ADR as the basis for their national legislation.

The international regulations distinguish between Infectious Waste of Category A and B. Category A includes the highly infectious bacteria, viruses and parasites like Lassa virus, Marburg virus, Cultures from Laboratories, Ebola virus etc. which are not subject to this document (see Annex 2). It is recommended that “Category A” waste is treated at the place of generation and must not be transported on public roads. Details on the transportation of this Category A waste can be found in the WHO document: “Guidance on regulations for the Transport of infectious substances”, 2009.

Scope of this guideline is infectious waste of Category B such as:

- HIV (not in cultures generated in a lab)
- HBV (not in cultures generated in a lab)
- HCV (not in cultures generated in a lab) etc.

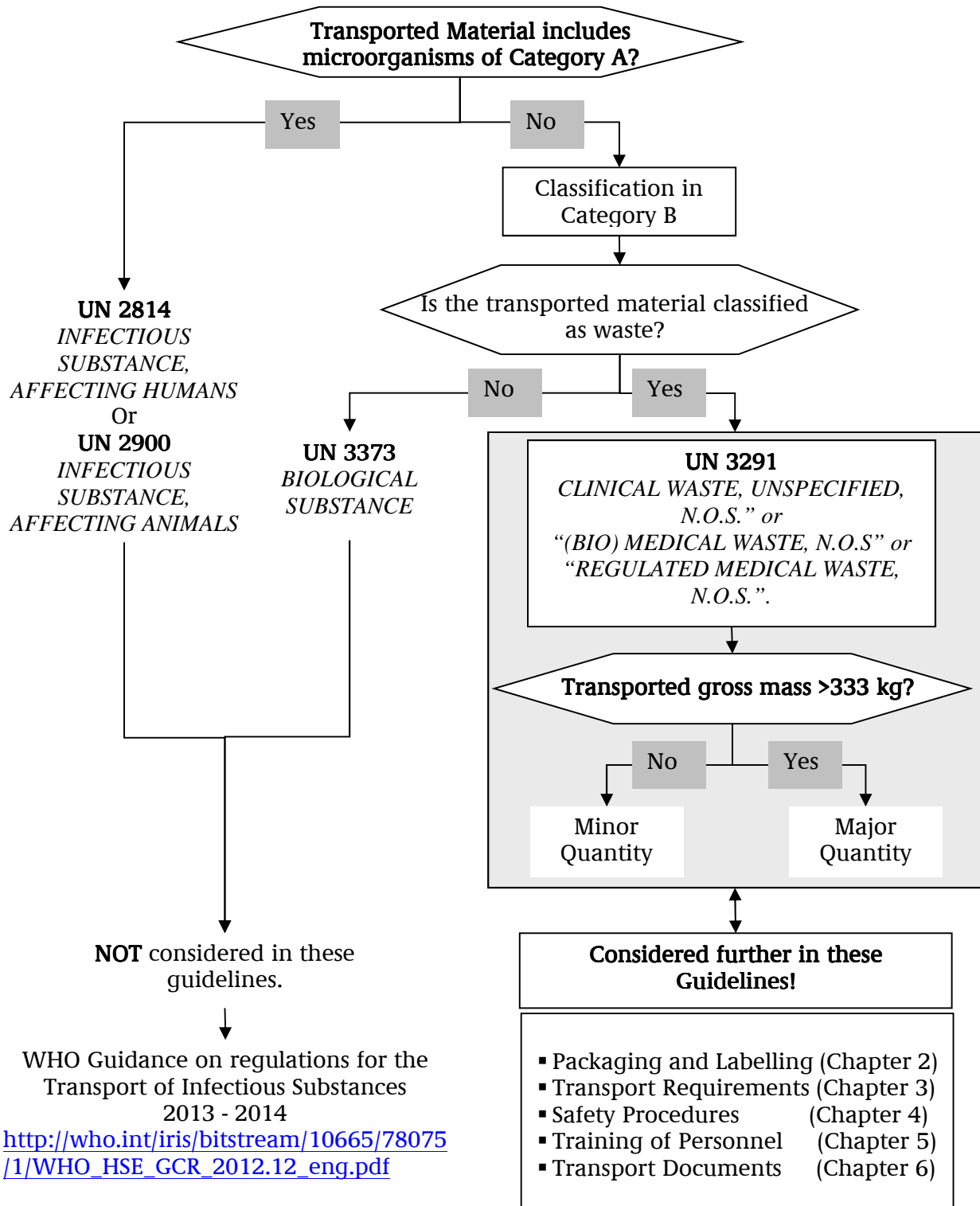
Category B infectious waste contains bacteria, viruses and parasites which are *NOT* listed in the table of Category A (Annex 2). There is no specific table on Category B substances!

NOTE: The table in Annex 2 of these guidelines is not exhaustive. Infectious substances, including new or emerging pathogens, which do not appear in the table but which meet the same criteria shall be assigned to Category A. In addition, if there is doubt as to whether or not a substance meets the criteria it shall be included in Category A.

In accordance to the UN Model Regulations and ADR, Infectious Waste of Category B is assigned as Class 6.2 UN 3291 substance – namely: *CLINICAL WASTE, UNSPECIFIED, N.O.S.” or “(BIO) MEDICAL WASTE, N.O.S” or “REGULATED MEDICAL WASTE, N.O.S.”*^a (N.O.S. = Not Otherwise Specified). The heading of Class 6.2 covers infectious substances. Infectious substances are substances which are known or are reasonably expected to contain pathogens.

The following flow chart illustrates the scope and content of these guidelines:

Figure 1: Scope and content of this guideline



1.2 Exemptions and Limits

Because of the low risk they present, the following substances of biological origin are exempted from dangerous goods requirements and regulations:

- Substances that do not contain infectious substances or will not cause disease in humans or animals
- Environmental samples (including food and water samples) that are not considered to pose a significant risk of infection
- Blood and/or blood components collected and shipped for the purposes of transfusion and/or transplantation
- Dried blood spots and faecal occult blood screening
- Substances in a form in which any pathogens present have been neutralized or inactivated such that they no longer pose a health risk - decontaminated medical or clinical wastes!
- Low risk Infectious Waste shall not be packed together with other goods. This does not apply to substances added as coolants, e.g. ice, dry ice or refrigerated liquid nitrogen.

Transport requirements for minor quantities of correctly packaged Infectious Waste UN3291 (i.e. transported in quantities of not more than 333 kg gross mass) have limited restrictions which are described in Chapter 3.3, 4 and 6 of these guidelines.

Transport “on foot” of infectious waste or sharps of UN 3291 e.g. from private generators or from kindergarten, schools etc. after immunization campaigns does not have to be transported in accordance to the UN or ADR provisions but still has to be packed and transported in safe manner (e.g. inner and outer packaging).

Recommendation: The based UN Model regulations and ADR apply wherever the United Nations or European systems for the transport of infectious substances has been adopted. WHO encourages all countries to adopt this system, and recommends those that have not yet done so to follow its provisions. However, the principles described above are not intended to supersede national or local requirements.

2 Packaging and Labelling Instructions

2.1 Packing instructions

Dangerous goods shall be packed in good quality packaging, which shall be strong enough to withstand the shocks and loading normally encountered during carriage, including trans-shipment between transport units and between transport units and storage areas. Packaging shall be constructed and closed so as to prevent any loss of contents when prepared for transport which might be caused under normal conditions of transport, by vibration, or by changes in temperature, humidity or pressure (resulting from altitude, for example). Packaging shall be closed in accordance with the information provided by the manufacturer.

Carriage in Bulk Container

Wastes of UN No. 3291 can be contained within a *closed* bulk container. Bulk carriage of clinical waste will usually be in the form of plastic bags loosely loaded into the back of a van or lorry. These bulk containers should be designed and constructed so as to be strong enough to withstand the shocks and loadings normally encountered during transport.² Closed bulk container means a totally closed bulk container having a rigid roof, sidewalls, end walls and floor. It includes an opening roof, side or end wall that can be closed during transport and fitted with a locking device.³

The plastic liner shall be UN type tested and approved sealed leak-proof tested for solids of packing group II and marked in accordance with chapter 2.2.1.⁴

Carriage in Combination Packages

Combination Packages consist of an outer and an inner packaging such as a bag and plastic container.

Inner packaging such as plastic liners shall be packed in an outer packaging in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents into the outer packaging. Inner packaging that is liable to break or be punctured easily, such as those made of glass, porcelain or stoneware or of certain plastics materials, etc., shall be secured in outer packaging with suitable cushioning material. Any leakage of the contents shall not substantially impair the protective properties of the cushioning material or of the outer packaging.⁵

Outer Packages of infectious substances in Category B shall meet the United Nations class 6.2 specifications and comply with Packing Instruction “Package” P621 / “Intermediate Bulk Container” IBC620 / “Large Packaging” LP621 – depending on the kind of packaging (see Annex 7.5).⁶ The packaging has to meet the following specifications:

- Rigid & puncture proofed,
- Leak proofed,
- Providing of sufficient absorbent material to absorb the entire amount of any liquid present
- Packaging is capable of retaining liquids and
- Should have a cover.

Packaging intended to contain sharp objects such as broken glass and needles shall be resistant to puncture and be able to retain liquids. A detailed description of testing procedures can be found in the UN Model Regulations and ADR and must be certificated by an authorised organisation. This UN packaging code ensures that the infectious waste is safely packed.


Before an empty packaging is returned to the consignor, or sent elsewhere, it shall be thoroughly disinfected or sterilized and any label or marking indicating that it had contained an infectious substance shall be removed or obliterated.⁷

2.2 Packaging Markings

2.2.1 UN Marking

The outer packaging shall bear the United Nations packaging specification marking, which indicates that the packaging has passed the performance tests to the satisfaction of the competent authority. The manufacturing company shall provide a test certificate. Users shall be provided with clear instructions as to how the package should be filled and prepared for transport.

Figure 2: Example for an UN packaging marking on packaging:

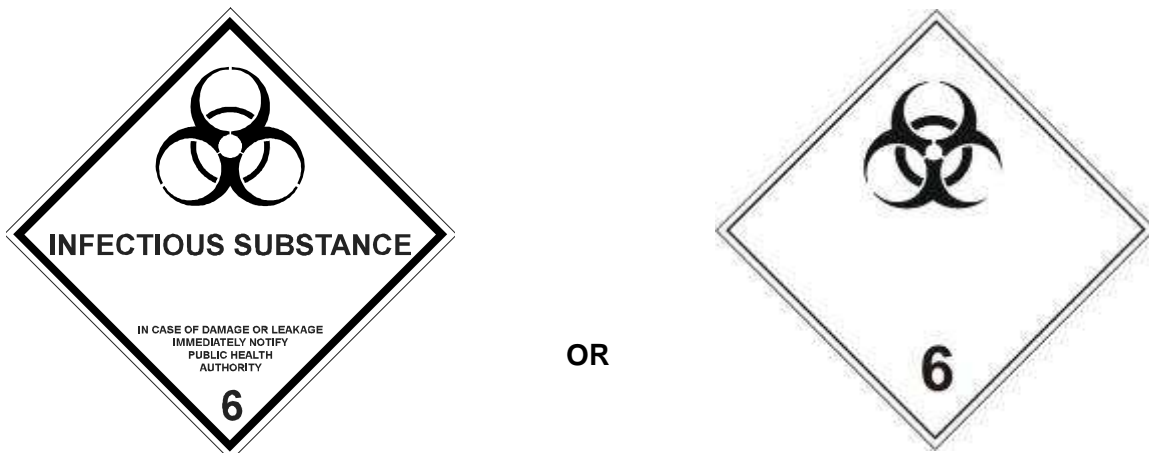
	4H2/Y94/S/08/GB/2470 Maximum Gross Mass 94 KG																		
This marking comprises:																			
UN	the United Nations packaging symbol																		
4H2	Indication of the type of packaging:																		
	<table border="1"> <thead> <tr> <th>1st digit</th> <th>2nd digit</th> <th>3rd digit</th> </tr> </thead> <tbody> <tr> <td>1 - Drum</td> <td>A - Steel</td> <td>1 - Non-removable head</td> </tr> <tr> <td>2 - Barrels</td> <td>B - Aluminium</td> <td>2 - Removable head</td> </tr> <tr> <td>3 - Jerry Can</td> <td>G - Cardboard</td> <td></td> </tr> <tr> <td>4 - Box</td> <td>H - Plastic</td> <td></td> </tr> <tr> <td>5 - Bag</td> <td>...</td> <td></td> </tr> </tbody> </table>	1 st digit	2 nd digit	3 rd digit	1 - Drum	A - Steel	1 - Non-removable head	2 - Barrels	B - Aluminium	2 - Removable head	3 - Jerry Can	G - Cardboard		4 - Box	H - Plastic		5 - Bag	...	
1 st digit	2 nd digit	3 rd digit																	
1 - Drum	A - Steel	1 - Non-removable head																	
2 - Barrels	B - Aluminium	2 - Removable head																	
3 - Jerry Can	G - Cardboard																		
4 - Box	H - Plastic																		
5 - Bag	...																		
	4H2 = Box made of plastic with a removable head.																		
Y94	Indication that the packaging has been specially tested to ensure that it meets the requirements for Category B infectious substances (Class 6.2). Y = acceptable for Packaging Group II and III substances only 94 = For Solids: the gross mass in kg for which the packaging was tested: 94 kg.																		
S	For use with solids only: S = Solid.																		
08	The last two digits of the year of manufacture: 2008																		
GB	The competent state authority that has authorized the allocation of the mark: GB = Great Britain.																		
2470	The manufacturer's code specified by the competent authority.																		

2.2.2 Infectious Substances Label

Infectious Substances classified in Class 6.2 shall be labelled as follows:⁸

The lower half of the label may bear the inscriptions: “INFECTIOUS SUBSTANCE” and “In case of damage or leakage immediately notify Public Health Authority”; Symbol (three crescents superimposed on a circle) and inscriptions: black; Background: white; Figure “6” in bottom corner.

Figure 3: Labelling of Infectious Substances Class 6.2



In addition to the label conforming to model No. 6.2, infectious substances packages shall bear any other label required by the nature of the contents.

The package markings

- (a) shall be readily visible and legible;
- (b) shall be able to withstand open weather exposure without a substantial reduction in effectiveness.

The label shall be in the form of a square set at an angle of 45° (diamond-shaped) with minimum dimensions of 100 mm by 100 mm. It has a line of the same colour as the symbol, 5 mm inside the edge and running parallel with it.

Figure 4: Label Examples



3 Transport

Waste generators of infectious substances shall ensure that packages are prepared in such a manner that they arrive at their destination in good condition and present no hazard to persons or animals during carriage.⁹

3.1 General Requirements for Carriage¹⁰

The vehicle should not be used for any other loads apart from empty or filled containers with Infectious Waste. The internal surfaces of any vehicle used for this purpose should be easy to clean. Vehicles should be equipped with spillage cleaning kits and appropriate personal protective equipment for the carrier's use.

Infectious Waste must not be packed together with other goods. This does not apply to substances added as coolants, e.g. ice, dry ice or refrigerated liquid nitrogen. Packages shall be loaded on to closed or sheeted vehicles or into closed or sheeted containers.

The carrier must ensure that the vehicle is properly equipped and that the carrier is supplied with a valid certificate of approval for the transport unit. The vehicle carrier must carry written instructions from the consignor relating to appropriate actions to be taken in the event of incidents or accidents involving the vehicle carrying the dangerous goods.

3.1.1 Vehicle Specifications

In general the vehicle for transporting hazardous waste should be roadworthy, labelled in accordance to the hazardous class 6.2 and the load should be secured in order to prevent accidents and spillages.

Any vehicle used to transport infectious healthcare waste UN 3291 should fulfil the following design criteria:¹¹

- The body of the vehicle should be of a suitable size commensurate with the design of the vehicle.
- There should be a bulkhead between the driver's cabin and the vehicle body, which is designed to retain the load if the vehicle is involved in a collision.
- There should be a suitable system for securing the load during transport (e.g. lashing straps).
- Empty plastic bags, suitable protective clothing, cleaning equipment, tools, and disinfectant, together with special kits for dealing with liquid spills, should be carried in a separate compartment in the vehicle.
- The internal finish of the vehicle should allow it to be steam-cleaned, and the internal angles should be rounded.
- The vehicle should be marked with the name and address of the waste carrier.
- The international hazard sign should be displayed on the vehicle or container, as well as an emergency telephone number.

3.1.2 Packaging

The following should be considered:

- 1) Packages shall be so stowed that they are readily accessible.
- 2) Outer packages shall not be stacked.
- 3) When packages are to be carried at an ambient temperature of not more than 15°C or refrigerated, the temperature shall be maintained when unloading or during storage.
- 4) Packages shall be stored only in cool places away from sources of heat.
- 5) Packages shall be UN approved (UN Code displayed & certificated).
- 6) Rigid and leak-proof packaging complying with a number of requirements and tests such as:¹²
 - a) Drop Test;
 - b) Leakproofness Test;
 - c) Internal pressure (hydraulic) test;
 - d) Stackable Test.

3.1.3 Carriage

Apart from members of the vehicle crew, no passengers may be carried in transport units carrying dangerous goods. The crew of the vehicle shall know how to use the fire-fighting appliances. The crew may not open any package's containing dangerous goods. Smoking shall be prohibited during handling operations in the vicinity of vehicles and inside the vehicles.

Except where the engine has to be used to drive the pumps or other appliances for loading or unloading the vehicle and the laws of the country in which the vehicle is operating permit such use, the engine shall be shut off during loading and unloading operations.

No transport unit carrying dangerous goods may be parked without the parking brakes being applied. Furthermore suitable measures must be taken to prevent an uncontrolled release of any dangerous goods that may have escaped. If infectious waste has been spilled in a vehicle or container, it must be thoroughly cleaned and, if necessary, disinfected or decontaminated.¹³ Any other goods and articles carried in the same vehicle or container shall be examined for possible contamination.

It is recommended that containers and vehicles are cleaned daily:

- Wash the vehicle / container thoroughly with water and soap.
- Leave the detergent for 10 minute and rinse with water.
- In case of spillages clean in accordance with spillage procedure (disinfect with chloride solution).

3.2 Transport of Major Quantities

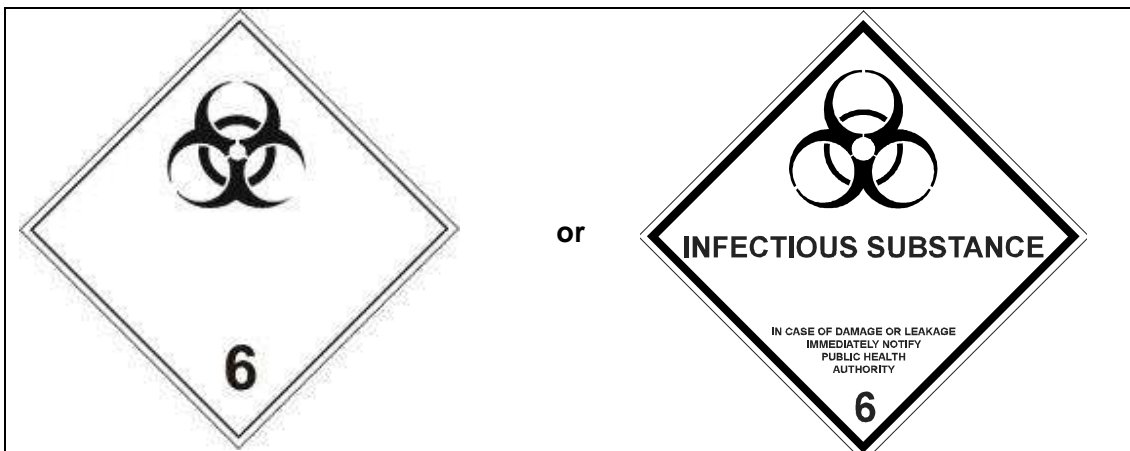
3.2.1 Labelling of vehicle

If more than 333 kg gross weight of packaged Infectious Waste (or any quantity carried in bulk) with the UN No. 3291 in a single vehicle is transported, placards and warning plates must be provided, as represented in following illustrations.

A placard shall:¹⁴

- a) be in the form of a square set at an angle of 45° (diamond-shaped) with minimum dimensions of 250 mm by 250 mm, with a line of the same colour as the symbol running 12,5 mm inside the edge and parallel with it;
- b) A placard shall contain an Infectious Symbol: three black crescents superimposed on a circle with a white background and the digit of Class “6” in bottom corner (not less than 25 mm high);
- c) Not obligate: Wording “INFECTIOUS SUBSTANCE” and “In Case of Damage or Leakage Immediately Notify Public Health Authority”

Figure 5: Vehicle Placards



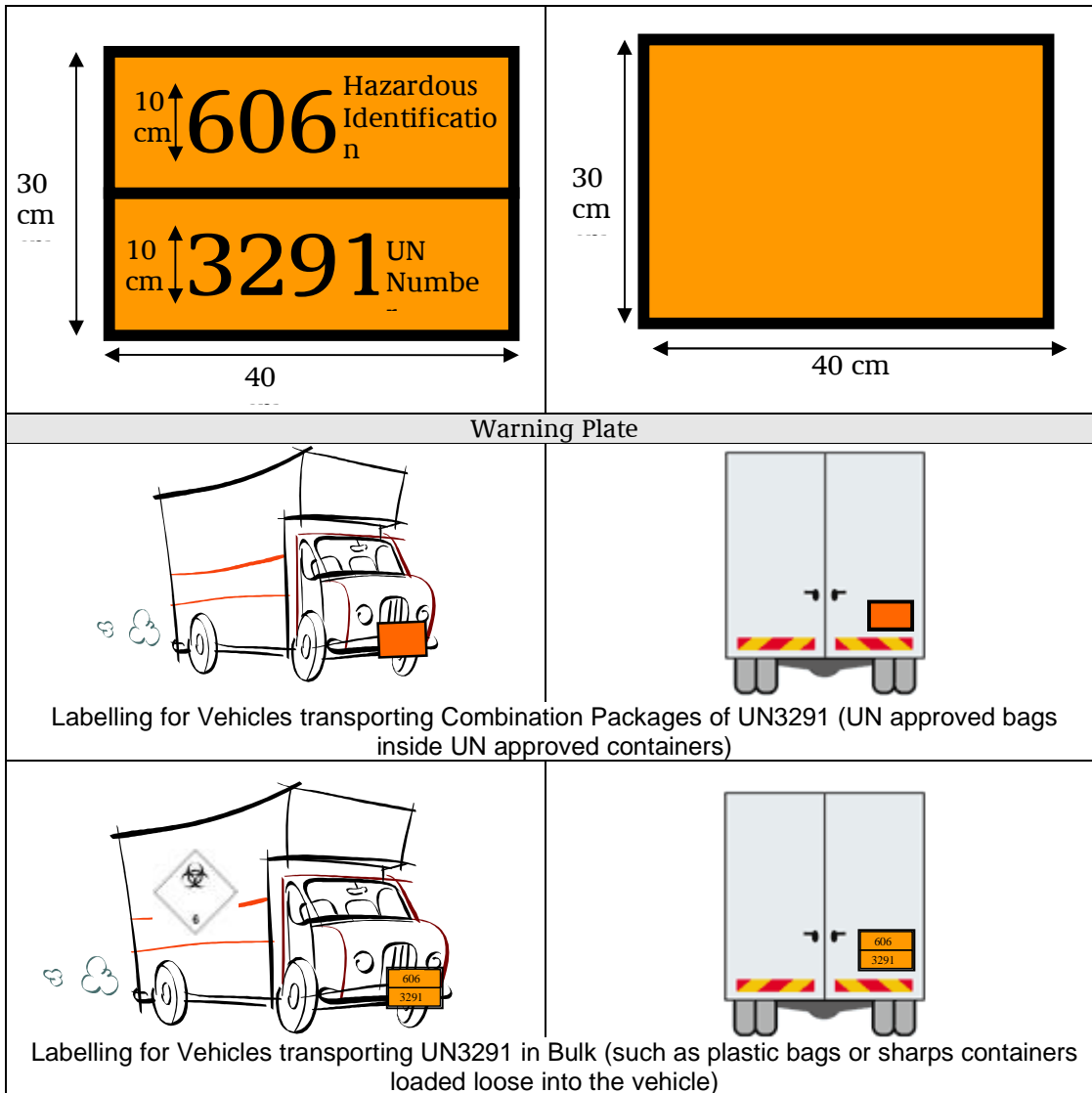
Specifications of the warning plates (ADR):¹⁵

The reflectorized orange-coloured plates shall be of 40 cm base and of 30 cm high; they shall have a black border of 15 mm wide. The orange-coloured plates may be separated in their middle with a black horizontal line of 15 mm thickness.

If the size and construction of the vehicle are such that the available surface area is insufficient to affix these orange-coloured plates, their dimensions may be reduced to 300 mm for the base, 120 mm for the height and 10 mm for the black border.

The hazard identification number (606 = infectious substance) and the UN number shall consist of black digits 10 cm high and of 15 mm stroke thickness. The hazard identification number and the UN number shall be indelible and shall remain legible after 15 minute' engulfment in fire. The warning plate must be provided on front side and back side of the vehicle:

Figure 6: Labelling of Vehicles



3.2.2 Safety Equipment

In accordance to chapter 8.1.5 ADR every transport unit carrying dangerous goods must be equipped with:

- a wheel chock of a size suited to the maximum mass of the vehicle and to the diameter of the wheel;
- two self-standing warning signs;
- eye rinsing liquid.

For each member of the vehicle crew:

- a warning vest (e.g. as described in the EN 471 standard);
- portable lighting apparatus;
- a pair of protective gloves; and
- eye protection (e.g. protective goggles).

Recommended spillage kit:

- Gloves & mask,
- Absorbent material (for fluids),
- Shovel (small),
- 2 yellow bags,
- Disinfectant (chloride based).

3.3 Transport of Minor Quantities

Exemptions for transporting quantities below 333 kg gross weight of UN 3291:

- a) No placarding and marking of vehicles.
- b) No Instructions in Writing.
- c) No requirements concerning the construction and approval of vehicles.
- d) No requirements of Specific Training – General Training is required.

3.3.1 Labelling of Vehicle




For quantities less than 333 kg of Infectious Waste (UN Number 3291) transported, no specific labelling of the vehicle is required but is recommended.

3.3.2 Safety Equipment

For minor amounts (less than 333 kg gross of Infectious Waste with the UN Number 3291) transported, the same requirements for Safety Equipment for major amounts is recommended.

The following describes the procedures for the transport of minor quantities of Infectious Waste UN 3291 from small healthcare facilities, households or immunisation campaigns on the public road in a safe manner.

Figure 7: Procedures for the transport of minor quantities

<p>Step 1: Inner packaging</p> <p>All of the infectious waste shall be securely contained in suitable packaging such as marked yellow bags and sharps containers, which should be clearly labelled with the source and date of generation etc. This becomes known as the “Inner Packaging”.</p>	
<p>Step 2: Outer packaging</p> <p>The inner packaging must be placed in a suitable outer package. This outer package does not need to be approved by the UN but must meet the following criteria:</p> <ul style="list-style-type: none"> • It must be rigid. • It must be capable of being enclosed (have a lid). • It should be watertight. • It can be reused but must be cleaned and disinfected on a regular basis. <p>The outer package should be made from a material that is easy to clean and disinfect and can be any colour but yellow is recommended. Also marking of the lid with the international Infectious Waste symbol is recommended. Inner and outer packages when used together are known as a “Combination Package”.</p>	
<p>Step 3: Loading the waste into the vehicle</p> <p>The combination package, with the lid placed firmly on, should be loaded carefully into the vehicle for transport to the Infectious Waste storage or treatment area. The container must be placed in a separate compartment from the carrier and any passengers such as in the boot and care should be taken not to load it with items such as food or heavy objects that could damage the combination package during transit.</p>	
<p>NOTE:</p> <p>The carriage of the waste container (combination package) in the same compartment as the carrier or passengers (such as on the back seat or passenger’s seat) is strictly forbidden. The carriage of Infectious Waste in just bags or sharps containers (e.g. just the inner packaging) which is then loaded loose into the vehicle is also strictly forbidden.</p>	

4 Safety Procedures

Safety measures should be considered from the request for transport up to the delivery at the end-point, including the cleaning of the vehicle afterwards. All levels of personnel involved should be well informed and these people should share the responsibility. Safety measures should include organisational, personnel and engineering aspects, and co-operation between operational staff during the transport should be emphasized.

4.1 Responsibilities

It is the responsibility of the consignor to see that:

- Goods are classified according to national and international regulations.
- The limitations on the transport of certain goods are respected.
- The goods are properly packed and marked.
- The appropriate documents are attached to the goods.

The responsibilities of the Carrier are:¹⁶

Carriers and their staff shall fully understand all applicable regulations for the packing, labelling, transport and documentation of consignments of infectious substances and further more:

- To equip the vehicle to meet national and international regulations,
- To see that the workers and carriers are trained to transport dangerous goods,
- To plan the transport, e.g., to select routes avoiding dense residential areas, and to arrange supervision during parking.

If the carrier finds any error in the labelling or documentation, he shall immediately notify the consignor or consignee so that the appropriate corrective measures may be taken.

The driver of a vehicle is responsible for:

- Having necessary documents for the load at hand.
- Accepting only undamaged marked or labelled packages and containers.
- Not stacking packages on top of each other.
- Checking that he is well informed about the transport details.
- Ensuring during loading/unloading operations that the containers are not damaged.
- Following the instructions given, such as the use of personal protective equipment, and not undertaking certain tasks alone.

Drivers are forbidden from opening any packages containing dangerous goods (Waste bags etc).

The driver must ensure his load is secured so as to prevent it overturning, moving or spilling during transport. If a spillage is found to have occurred it must be cleaned up as soon as possible and before any further reloading takes place.

Smoking is strictly forbidden during loading/unloading & inside the vehicle.



4.2 Organising safety measures

4.2.1 Transport Order

If the transport order does or is suspected to contain dangerous goods, the consignor should be reminded of the need to label the goods according to regulations and to prepare documents which include instructions in the local language in case of emergency or spillage.

Authorised transport companies shall develop checklists of different aspects of information, which the consignor can use to describe the load in order to facilitate the communication between different stages of the transport chain.

If the cargo is transported as bulk transport, a special check should be made that the vehicle is properly equipped, that proper placards are chosen, that the vehicle and its pipes and connections are empty and clean, and that the protective equipment is intended for those hazards the transported goods can cause (such as provision of the right type of filter for the carrier's gas mask).

4.2.2 Loading

Before leaving the loading place, all documents should be checked. Always remove old documents from the vehicle to avoid any misunderstanding in case of an emergency. The packages and containers should not be broken, and the actual amount should be the same as stated in the documents.

Dangerous goods should always be well attached to avoid load movements during transport. If necessary attach placards to the vehicle. A sketch of the load showing where the dangerous goods are situated could save time in unloading.

4.2.3 Delivery

It should be checked that loaded dangerous goods have not moved and that the packages/containers are not leaking. If there is a spillage, the cleaning instructions described in Chapter 5.3.1 should be followed. It should be checked that the name(s) of the goods and the amounts correspond to those in documents. The documents must be given to the receiver of the cargo and the placards removed when they are no longer needed.

Dangerous goods can be delivered only to the authorised persons / companies and should not be left without surveillance.

4.3 Incident Measures¹⁷

Accidents and incidents are unplanned and uncontrolled events which could, or have, led to people being injured, damage of equipment or other loss. Accidents are not mysterious events, there is always a reason for them and they can be prevented. Emergency situations cannot be totally avoided. To avoid further negative impacts, staff have to respond in a planned and qualified way to the emergency situation. As an aid during an accident emergency situation that may occur or arise during carriage, instructions in writing shall be carried in the vehicle crew's cab and shall be readily available. The instructions shall be provided in language(s) that each member can read and understand before the commencement of the journey.

4.3.1 Actions in event of an accident or emergency

In the event of an accident or emergency that may occur or arise during carriage, the members of the vehicle crew shall take the following actions where safe and practicable to do so:

- Apply the braking system, stop the engine and isolate the battery by activating the master switch where available;
- Avoid sources of ignition, in particular, do not smoke or switch on any electrical equipment;
- Inform the appropriate emergency services, giving as much information about the incident or accident and substances involved as possible;
- Put on the warning vest and place the self-standing warning signs as appropriate;
- Keep the transport documents readily available for responders on arrival;
- Do not walk into or touch spilled substances and avoid inhalation of fumes, smoke, dusts and vapours by staying up wind;
- Where appropriate and safe to do so, use the fire extinguishers to put out small/initial fires in tyres, brakes and engine compartments;
- Fires in load compartments shall not be tackled by members of the vehicle crew;
- Where appropriate and safe to do so, use on-board equipment to prevent leakages into the aquatic environment or the sewage system and to contain spillages;
- Move away from the vicinity of the accident or emergency, advise other persons to move away and follow the advice of the emergency services;
- Remove any contaminated clothing and used contaminated protective equipment and dispose of it safely.

4.3.2 Spillage Procedure

The appropriate response in the event of exposure to any infectious substance is to wash or disinfect the affected area as soon as possible, regardless of the agent. Even if an infectious substance comes into contact with non-intact skin, washing of the affected area with soap and water or with an antiseptic solution can reduce the risk of infection. Medical advice should be obtained any time there is a suspected exposure to infectious substances resulting from a damaged package. The following procedure for clean-up can be used for spills of all infectious substances including blood.¹⁸

1. put on gown, apron and rubber gloves;
2. clean the surface area with water and detergent using a disposable cleaning cloth;
3. dispose of the cleaning cloth in the appropriate leak-proof waste container;
4. disinfect the area. (NB sodium hypochlorite can be used for disinfection; concentrations ranging from 0,05% to of 0,5% are suggested);
5. remove the rubber gloves and apron and dispose of both items into appropriate container for further cleaning and disinfection;
6. remove gown and place it into appropriate container;
7. perform hand hygiene.

NOTE: Detailed information on disinfectants and their recommended use can be found in Laboratory biosafety manual, 3rd ed., Geneva, World Health Organization, 2004.

4.3.3 Incident Reporting

After every spillage, injury or any other accident and incident, a report shall be written and provided to the person in charge. The report should include the nature of the accident or incident, where and when it occurred, which staff was directly involved and other relevant circumstances. An anonymous quarterly report about all accidents and incidents should be sent quarterly to the authority.

Incidents that result in an injury (accident) and incidents that either result in damage or no consequence (near miss/unsafe incidents) are to be reported and a cause analysis conducted so that remedial action can be taken to rectify the situation. All persons have the responsibility to report accidents and unsafe incidents to their supervisor and/or Health and Safety Representative (see Annex 7.6). Completed reports shall be sent to the responsible person in charge (e.g. Health and Safety Officer) for review and recording.

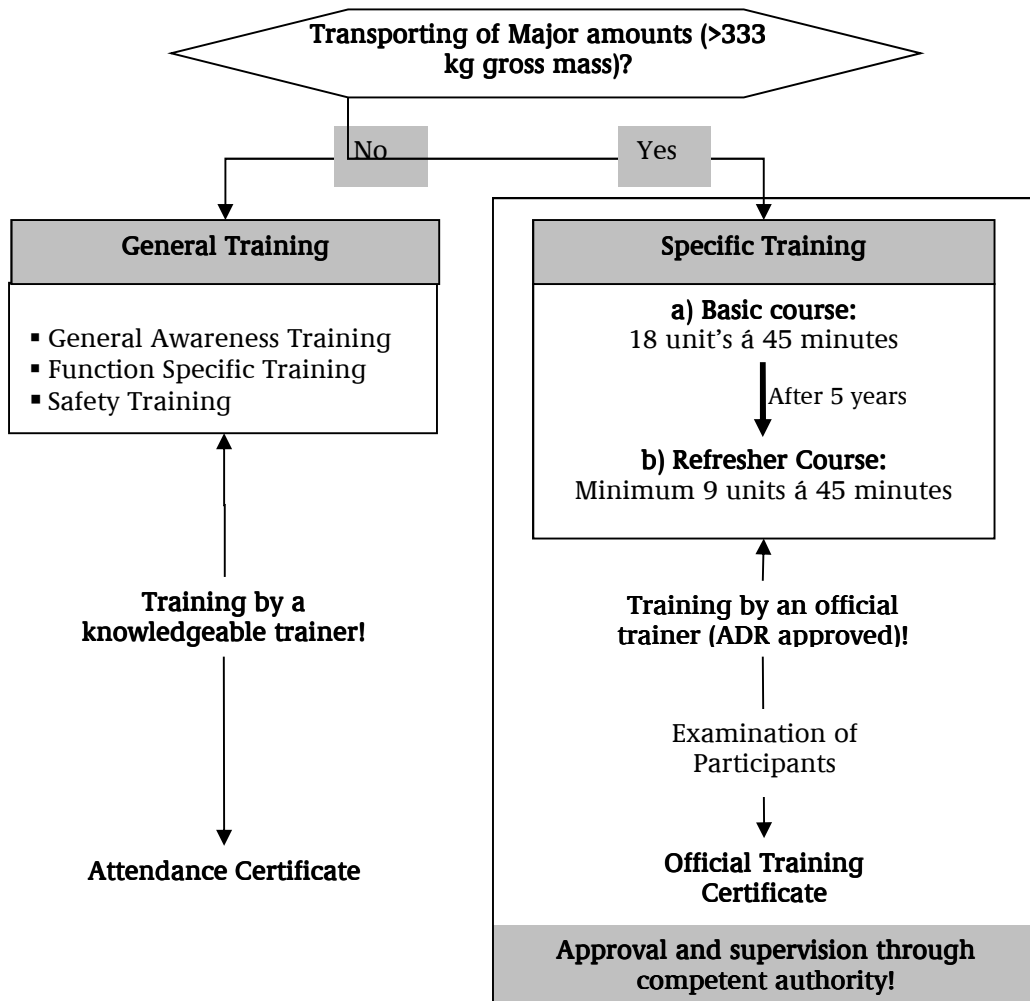
5 Training of Transport Staff

Training and awareness are important for all personnel involved in the transport of UN 3291 Category B infectious substances. Training of personnel, for example via consultation of guidance documents like this one, while not formally required by the modal regulations, is recommended and encouraged. Only through appropriate guidance and training can Consignors ensure that the classification of the substance to be shipped is correct, and that proper packaging is selected and prepared. Carriers and other employers of transport workers should train their personnel in the appropriate procedures for recognizing and handling packages containing dangerous goods.

This chapter is based on Chapter 1.3 of the UN Model Regulations “Training” and Chapter 8.2 of the ADR “Requirements concerning the training of the vehicle crew”.

Persons whose duties concern the carriage of dangerous goods by road shall have received training in the requirements governing the carriage of such goods appropriate to their responsibilities and duties. This requirement shall apply to individuals such as personnel who are employed by the road vehicle operator or the waste generator, personnel who load or unload dangerous goods, personnel in freight forwarding or shipping agencies and drivers of vehicles other than drivers holding a certificate involved in the carriage of dangerous goods by road.

Figure 8: Training needs



5.1 General Training for driving crew (carrying minor quantities of UN3291)

For the transport of minor quantities (< 333 kg gross weight) Category B Infectious Waste (UN3291) there is a requirement that clear instructions on the use of the packaging is supplied to the user; this is regarded as sufficient “training” for the shipping of these substances. However, as UN 3291 waste is considered as dangerous goods then personnel must also be trained in the proper procedures for their transport.

Only through appropriate guidance and training can shippers ensure that the classification of the substance to be shipped is correct, and that proper packaging is selected and prepared. Carriers and other employers of transport workers should train their personnel in the appropriate procedures for recognising and handling packages containing infectious substances and in how to address spills and protect themselves from exposure.

Carriers of minor amounts must have received “General Training” as outlined below and their attendance certificate should be part of the transport documents:

General awareness training

Personnel shall be familiar with the general requirements of the provisions for the carriage of dangerous goods.

Function-specific training

Personnel shall receive detailed training, commensurate directly with their duties and responsibilities in the requirements of the regulations concerning the carriage of dangerous goods. Where the carriage of dangerous goods involves a multimodal transport operation, the personnel shall be made aware of the requirements concerning other transport modes.

Safety training

Commensurate with the degree of risk of injury or exposure arising from an incident involving the carriage of dangerous goods, including loading and unloading, personnel shall receive training covering the hazards and dangers presented by dangerous goods.

The training provided shall aim to make personnel aware of the safe handling and emergency response procedures.

Details of all the training undertaken shall be kept by both the employer and the employee and shall be verified upon commencing a new employment. The training shall be periodically supplemented with refresher training in order to take account of changes in regulations.

The following training program is recommended only and not binding. Training programs can vary in time and duration as long as the minimum requirements as described are fulfilled.

Schedule	Contents
09:30 -10:00	Welcome of Participants
10:00 -10:45	Legal Regulations & Classification
10:45 -11:00	Break
11:00 -11:45	Risks of infectious waste & Occupational Safety
11:45 -12:00	Break
12:00 -12:45	Transport Requirements & Documentation

12:45 -13:45	Lunch
13:15 -15:00	Workshop: Transport, Documentation, Spillages
15:00 -15:30	Training Evaluation & Handing over of Certificates

5.2 Specific Training for Major Amounts of UN 3291

In accordance with ADR, specific training is applicable for any carrier which transports more than 333 kg gross mass of UN 3291 waste at once in a transport vehicle.¹⁹

The necessary knowledge and skills shall be imparted by training covering theoretical courses and practical exercises. The knowledge shall be tested by an examination. The training provider shall ensure that the training instructors have a good knowledge of, and take into consideration, recent developments in regulations and training requirements relating to the carriage of dangerous goods. The training shall be practice-related.

By means of appropriate endorsements on his certificate made every *five years* by the competent authority or by any organisation recognized by that authority, a vehicle driver shall be able to show that he has in the year before the date of expiry of his certificate completed refresher training and has passed any corresponding examination. The new period of validity shall begin with the date of expiry of the certificate.

Initial and refresher training shall be given in the form of a basic course and, when applicable, specialisation courses. The minimum duration of the theoretical element of each initial course or part of the comprehensive course shall be as follows:

a) Basic course 18 teaching units

The total duration of the comprehensive course may be determined by the competent authority, who shall maintain the duration of the basic course. Teaching units are intended to last 45 minutes. Normally, not more than eight teaching units are permitted on each day of the course.

The individual practical exercises shall take place in connection with the theoretical training, and shall at least cover first aid, fire-fighting and what to do in case of an incident or accident. The basic course should consist of 18 teaching units. Subjects to be covered by the basic course will be, at least:

- a) General requirements governing the carriage of dangerous goods;
- b) Main types of hazard;
- c) Information on environmental protection in the control of the transfer of wastes;
- d) Preventive and safety measures appropriate to the various types of hazard;
- e) What to do after an accident (first aid, road safety, basic knowledge about the use of protective equipment, etc.);
- f) Marking, labelling, placarding and orange-coloured plate marking;
- g) What a driver should and should not do during the carriage of dangerous goods;
- h) Purpose and the method of operation of technical equipment on vehicles;
- i) Prohibitions on mixed loading in the same vehicle or container;
- j) Precautions to be taken during loading and unloading of dangerous goods;
- k) General information concerning civil liability;

- l) Information on multimodal transport operations;
- m) Handling and stowage of packages;
- n) Traffic restrictions in tunnels and instructions on behaviour in tunnels (prevention and safety, action in the event of fire or other emergencies, etc.);
- o) Security awareness.

b) Refresher course

Refresher training undertaken at regular intervals serves the purpose of bringing the drivers' knowledge up to date; it shall cover new technical, legal and substance-related developments. It shall have been completed before the period referred to the basic course has expired.

The duration of the refresher training including individual practical exercises shall be of at least two days for comprehensive training course, or at least 9 training units á 45 minutes. Normally, not more than eight teaching units shall be permitted on each training day.

A driver may replace a refresher training course and examination with the corresponding initial training course and examination.

5.3 Approval of Training

The training courses shall be subject to approval by the competent authority. Approval shall only be given with regard to applications submitted in writing. The following documents shall be attached to the application for approval:

- a) A detailed training programme specifying the subjects taught and indicating the time schedule and planned teaching methods;
- b) Qualifications and fields of activities of the teaching personnel;
- c) Information on the premises where the courses take place and on the teaching materials as well as on the facilities for the practical exercises;
- d) Conditions of participation in the courses, such as number of participants.

The competent authority shall organize the supervision of training and examinations. Approval shall be granted in writing by the competent authority subject to the following conditions:

- The training shall be given in conformity with the application documents;
- The competent authority shall be granted the right to send authorized persons to be present at the training courses and examinations;
- The competent authority shall be advised in time of the dates and the places of the individual training courses;
- The approval may be withdrawn if the conditions of approval are not complied with.

5.4 Examinations and Certification

a) Initial basic course

After completion of the basic training, including the practical exercises, an examination shall be held on the basic course. In the examination, the candidate has to prove that he has the knowledge, insight and skill for the practice of professional driver of vehicles carrying dangerous

goods as provided in the basic training course. For this purpose the competent authority, or the examination body approved by that authority, shall prepare a catalogue of questions.

Questions in the examination shall be drawn from this catalogue. The candidates shall not have any knowledge of the questions selected from the catalogue prior to the examination. A single examination for comprehensive courses may be held and the competent authority shall supervise the modalities of the examination.

The examination shall take the form of a written examination or a combination of a written and oral examination. Each candidate shall be asked at least 25 written questions. The duration of the examination shall be at least 45 minutes. The questions may be of a varying degree of difficulty and be allocated a different weighting.

b) Refresher Training

After having undertaken refresher training the candidate shall be allowed to take part in the corresponding examination. In the examination at least 15 questions shall be asked with respect to the refresher training – the duration at least 30 minutes.

Certificate of driver's training

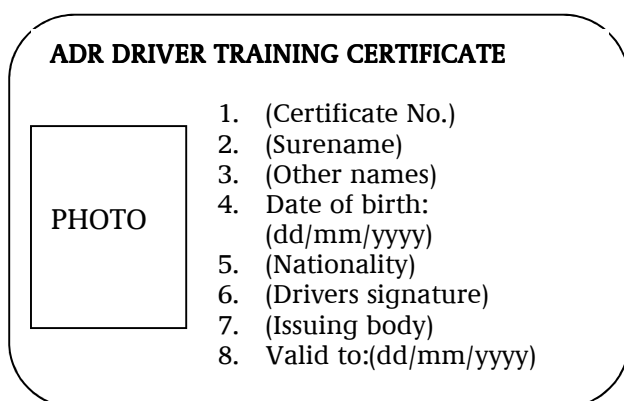
The certificate shall be issued after completion of a basic training course, provided the candidate has successfully passed the examination.

The certificate shall be renewed if the candidate furnishes proof of his participation in refresher training and if he has passed an examination.

The certificate shall have the layout of the model below. It is recommended that the format shall be in accordance with ISO 7810:2003 ID-1 and it shall be made of plastic. The colour shall be white with black lettering. It shall include an additional security feature such as a hologram, UV printing or guilloche patterns. –the certificate shall be prepared in the language of one of the languages of the country of the competent authority which issued the certificate. If none of these languages is English, French or German, the title of the certificate, the title of item 8 and the titles on the back shall also be drawn up in English, French or German.

Figure 9: Example of Driver Certificate

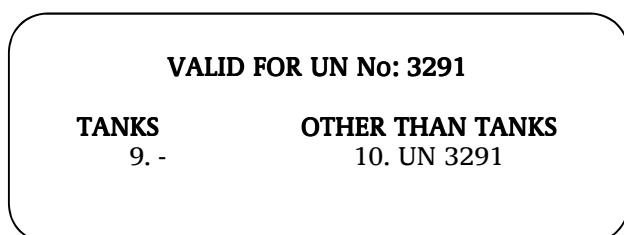
Front:



ADR DRIVER TRAINING CERTIFICATE

PHOTO	1. (Certificate No.)
	2. (Surname)
	3. (Other names)
	4. Date of birth: (dd/mm/yyyy)
	5. (Nationality)
	6. (Drivers signature)
	7. (Issuing body)
	8. Valid to:(dd/mm/yyyy)

Back:



VALID FOR UN No: 3291

TANKS	OTHER THAN TANKS
9. -	10. UN 3291

6 Transport Documents

The hazardous properties of infectious waste should be clearly stated so that people at all stages of the transport chain are aware of them. This information enables people to recognize the risks, avoid accidental mishandling and have the right kind of the personal protection at their disposal in case of leakage. The driver must ensure that the transport documentation is carried in the emergency information holder provided in the cabin of the vehicle, and make it available to members of the emergency services and other authorised persons upon request

The Carrier should check that the following documents are attached:

Document	Major Quantities (> 333 kg)*	Minor Quantities (< 333 kg)*
1) General Carriage Information (Chapter 6.1)	X	X
2) Consignment Note (Chapter 6.2)	X	X
3) Transport Emergency Card (Chapter 6.3)	X	X
4) Drivers licence	X (specific)	X (general)
5) Certificate of approval given by technical inspection for the vehicle (Certificate issued by the relevant authority)	X	-
6) Labels and placards for the vehicle (Chapter 3.2)	X	-
7) Packing certificate of the container (UN approved Packaging delivered by the Manufacturer)	X	-
8) Transport staff training certificate (Chapter 5)	X (specific)	X (general)

* Gross weight

6.1 Sample General Carriage Information

The transport document(s) shall contain the following information:

- Contact details of the consignee.
- The appropriate shipping name: CLINICAL WASTE, UNSPECIFIED, N.O.S." or "(BIO) MEDICAL WASTE, N.O.S"
- The Class and, when assigned, the category in this class of the goods: Class 6.2. UN number and, where assigned, packing group for the substance: UN 3291.
- The total quantity of dangerous goods covered by document (by volume or mass, as appropriate).
- The name and address of the consignor (Generators I Collection Points)

A sample of a "General Carriage Information" document is illustrated in the following:

Sample: General Carriage Information²⁰

1. Consignee (Transport Entity)

Date:

--	--	--	--	--	--

(Day, Month, Year)


Name: _____

Street: _____

City: _____

Telephone: _____

2. Classification and proper shipping name of transported Waste:

UN No.	Shipping Name	Class	Packaging Group	Hazardous Sign
3291	"CLINICAL WASTE, UNSPECIFIED, N.O.S." or "(BIO) MEDICAL WASTE, N.O.S"	6.2	II	

3. Total Carriage Amount:

Load not exceeding the exemption limits 333 kg gross weight.²¹

OR

Total quantity of load in volume or as gross mass or net mass: _____

5. Contact Details of Consignor (Generator I Collection Points):

No.	Name	Street	City	Telephone

6.2 Sample Consignment Note

There are four copies of the signed Consignment Note (in different colours): one for the Generator (1) and one for the Carrier (2), one for the Treatment Site (3) and one for the Relevant Authority (4).

Consignment Note in accordance to ADR

Date of collection:

--	--	--	--	--	--

 (Day, Month, Year)

 Consignor (Generator) – name and address

 Waste Carrier – name and address

Date of Receipt:

--	--	--	--	--	--

 (Day, Month, Year)

 Consignee (Treatment site) – name and address

Waste Description:

UN No. and type packaging	Proper shipping Name	Gross weight (kg)

I hereby declare that the contents of the consignment are fully and accurately described like above by the proper shipping name and are classified packaged, marked and labelled / placarded and are in all respects in proper condition according to applicable International and National Governmental Regulations. I declare that all of the applicable requirements have been met.

Signature Consignor

*Signature
 Waste Carrier*

*Signature Consignee
 (Treatment Site)*

6.3 Sample Transport Emergency Card

The “Transport Emergency Card” provides guidance on initial actions for fire crews when they first arrive at the scene of a hazardous waste transport accident without having appropriate and reliable product specific emergency information at hand.

UN 3291 CLINICAL WASTE, UNSPECIFIED, N.O.S. or (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S

ADR Class 6.2

Packing group II

1. Characteristics

- Hazardous to skin, eyes and air passages.
- Biohazard - Infectious to humans and/or animals. Serious risk of soil and water contamination.

2. Personal Protection

- Protection suit.
- Filtering Respiratory Protection, Gloves and goggles.
- Closed shoes.

3. Intervention Actions

3.1 General

- Keep upwind. Put on protective equipment before entering danger area.
- Minimise number of personnel in risk area.
- People and animals who may be contaminated, should be kept isolated pending medical/veterinary examination

3.2 Spillage:

- Stop leaks if possible.
- Contain spillage by any means available.
- Absorb liquid in sand or earth or any other suitable material.
- If substance has entered a water course or sewer, inform the responsible authority.

3.3 Fire (involving the substance):

- Let breached containers burn. Prevent the fire spreading with water spray.
- Minimise use of extinguishing media and contain run off.
- Remove undamaged containers away from heat radiation

4. First Aid

- If substance has got into eyes, wash out with water for at least 15 minutes and seek immediate medical attention.
- Remove contaminated clothing immediately and drench affected skin with plenty of water.
- Persons who have been in contact with the substance or have inhaled fumes should get immediate medical attention. Pass on all available safety information.
- First aid action must be undertaken only by responders wearing the appropriate personal protection.
- Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus.

5. Essential Precautions for Product Recovery

- Recover spilled product in hermetically sealed container.

6.4 Sample Vehicle Checklist

The carrier should fill out the checklist before starting the tour. After the checks the carrier should hand over the checklist to the responsible person (shipper).

A. Technical Vehicle Check		Checked (5 days)				
		1	2	3	4	5
1. Brakes are working.						
2. Tread depth of tyres is sufficient.						
3. Tyres Pressures are correct.						
4. Windows and mirrors are clean.						
5. Windscreen wipers are working.						
6. Lights and indicators are working.						
7. No visual damage of the car.						
B. Safety Equipment						
8. ABC Fire extinguisher is available & serviceable.						
9. First Aid Kit is available.						
10. Spillage kit is available and complete: Absorbent material, shovel, 2 yellow bags, disinfectant & gloves.						
11. Loading safety equipment is available and functioning (Lashing Strap).						
12. Warning triangle available and ready for use.						
13. Vehicle Placards are undamaged and visible.						
14. Warning Plates are undamaged and visible.						
C. Documentation						
15. Driver licence and certificate are available.						
16. General Carriage Information complete and available.						
17. Consignment Note (dangerous goods transport document) available.						
18. Container / vehicle packing certificate available.						
19. Emergency Card (Emergency and spillage procedure) available and within easy reach.						
Date and Signature for each day						
1 st day: Date / Signature		↑	↑	↑	↑	↑
2 nd day: Date / Signature		↑	↑	↑	↑	↑
3 rd day: Date / Signature		↑	↑	↑	↑	↑
4 th day: Date / Signature		↑	↑	↑	↑	↑
5 th day: Date / Signature		↑	↑	↑	↑	↑

Remarks

7 Annex

7.1 Examples of infectious substances included in Category A

The table provided below is an indicative list taken from the 17th edition of the United Nations Model Regulations respectively ADR as the tables are the same.

Note:

If the waste which is transporting does NOT contain any of the following micro organisms below they can be classified as Category B.

"Cultures" are the result of a process by which pathogens are intentionally propagated.

For transport on public roads (ADR) nevertheless, when the cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B.

ADR, Chapter 2.2.62.1.4.1, 2013:

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
UN Number and name	Micro organism
<p>UN No. 2814</p> <p>Infectious substances affecting humans</p>	<p>Bacillus anthracis (cultures only)</p> <p>Brucella abortus (cultures only)</p> <p>Brucella melitensis (cultures only)</p> <p>Brucella suis (cultures only)</p> <p>Burkholderia mallei - Pseudomonas mallei – Glanders (cultures only)</p> <p>Burkholderia pseudomallei – Pseudomonas pseudomallei (cultures only)</p> <p>Chlamydia psittaci - avian strains (cultures only)</p> <p>Clostridium botulinum (cultures only)</p> <p>Coccidioides immitis (cultures only)</p> <p>Coxiella burnetii (cultures only)</p> <p>Crimean-Congo haemorrhagic fever virus</p> <p>Dengue virus (cultures only)</p> <p>Eastern equine encephalitis virus (cultures only)</p> <p>Escherichia coli, verotoxigenic (cultures only)</p> <p>Ebola virus</p> <p>Flexal virus</p> <p>Francisella tularensis (cultures only)</p> <p>Guanarito virus</p> <p>Hantaan virus</p> <p>Hantavirus causing haemorrhagic fever with renal syndrome</p> <p>Hendra virus</p> <p>Hepatitis B virus (cultures only)</p> <p>Herpes B virus (cultures only)</p> <p>Human immunodeficiency virus (cultures only)</p> <p>Highly pathogenic avian influenza virus (cultures only)</p> <p>Japanese Encephalitis virus (cultures only)</p> <p>Junin virus</p> <p>Kyasanur Forest disease virus</p> <p>Lassa virus</p> <p>Machupo virus</p> <p>Marburg virus</p>

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
UN Number and name	Micro organism
	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) Yersinia pestis (cultures only)
UN No. 2900 Infectious substances affecting animals only	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) Goatpox virus (cultures only) Swine vesicular disease virus (cultures only) Vesicular stomatitis virus (cultures only)

*Nevertheless, when the cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B.

7.2 Infectious Microorganisms included in Category B

Category B: An infectious substance which does not meet the criteria for inclusion in Category A (Annex 7.1).²²

7.3 Coding Summary for UN 3291

The following Tables give the relevant and applicable special provisions, either in the form of complete information or in coded form. The codes cross-refer to detailed information that is to be found in the Part, Chapter, Section and/or Sub-section indicated in the explanatory notes below. An empty cell means either that there is no special provision and that only the general requirements apply, or that the carriage restriction indicated in the explanatory notes is in force. The applicable general requirements are not referred to in the corresponding cells. The explanatory notes below indicate for every column the Part(s), Chapter(s), Section(s) and/or Sub-section(s) where these are to be found.


7.3.1 UN Model Regulation

Chapter 3.2:

No.	Heading	Code	Information / Description
(1) (2)	UN No.	3291	CLINICAL WASTE UNSPECIFIED, N.O.S. or (BIO-) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE N.O.S.
(3)	Class or division	6.2	Transport class: Infectious substances, Subcategory of class 6.2: Clinical Waste
(4)	Subsidiary risk	-	-
(5)	Packaging group	II	Medium danger
(6)	Special provisions	-	-
(7a)	Limited quantities	0	"0" signifies that no exemption from the provisions of ADR packaging instructions exists for limited quantities.
(7b)	Excepted quantities	E0	Not permitted as Excepted Quantity.
(8)	Packaging instructions	P621	Instructions for packaging and receptacles (sharp boxes etc)
		IBC 620	Instructions for Intermediate bulk container
		LP 621	Instructions for Large Packaging
(9)	Special packaging provisions	-	-
(10)	Bulk Containers - Instructions	BK2	The transport in closed bulk containers is permitted.
(11)	Special provision	-	-

7.3.2 ADR

Chapter 3.2 Table A:

No.	Heading	Code	Information / Description
(1) (2)	UN No.	3291	CLINICAL WASTE UNSPECIFIED, N.O.S. or (BIO-) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE N.O.S.
(3a)	Class	6.2	Transport class: Infectious substances
(3b)	Classification code	I3	Subcategory of class 6.2: Clinical Waste
(4)	Packaging group	II	Medium danger
(5)	Label Packaging	6.2	 <p>The image shows a diamond-shaped biohazard label. At the top is the biohazard symbol (three interlocking circles). Below it, the text reads "INFECTIOUS SUBSTANCE". At the bottom, there is a small number "6".</p>
(6)	Special provisions	565	Unspecified wastes resulting from medical/veterinary treatment of humans/animals or from biological research, and which are unlikely to contain substances of Class 6.2 shall be assigned to this entry. Decontaminated clinical wastes or wastes resulting from biological research which previously contained infectious substances are not subject

No.	Heading	Code	Information / Description
			to the requirements of Class 6.2.
(7)	Limited quantities	LQ0	"LQ0" signifies that no exemption from the provisions of ADR packaging instructions exists for limited quantities.
(8)	Packaging instructions	P621	Instructions for packaging and receptacles (sharp boxes etc)
		IBC 620	Instructions for Intermediate bulk container
		LP 621	Instructions for Large Packaging
(9a)	Special packaging provision	-	-
(9b)	Mixed packaging provisions	MP6	Shall not be packed together with other goods. This does not apply to substances added as coolants, e.g. ice, dry ice or refrigerated liquid nitrogen.
(10)	Portable Tanks and bulk containers "Instructions"	BK2	Carriage in bulk in closed bulk containers is permitted.
(11)	Portable Tanks and bulk containers "Special provisions"	-	-
(15)	Transport category (Tunnel restriction code)	2 (-)	Maximum total quantity per transport unit (vehicle): 333 kg (no tunnel restriction)
(16)	Packages	V1	Packages shall be loaded on to closed or sheeted vehicles or into closed or sheeted containers.
(17)	Bulk	VV11	Carriage in bulk is permitted in specially equipped vehicles and containers in a manner which avoids risks to humans, animals and the environment, e.g. by loading the wastes in bags or by airtight connections.
(18)	Loading, unloading, handling	CV13	If any substances have leaked and been spilled in a vehicle or container, it may not be re-used until after it has been thoroughly cleaned and, if necessary, disinfected or decontaminated. Any other goods and articles carried in the same vehicle or container shall be examined for possible contamination.
		CV25	(1) Packages shall be so stowed that they are readily accessible. (2) When packages are to be carried at an ambient temperature of not more than 15 °C or refrigerated, the temperature shall be maintained when unloading or during storage.

No.	Heading	Code	Information / Description
			(3) Packages shall be stored only in cool places away from sources of heat.
		CV28	Precautions with respect to foodstuffs, other articles of consumption and animal feeds shall be taken.
(19)	Operation	S3	<p>Special provisions concerning the carriage of infectious substances:</p> <p>Apart from members of the vehicle crew, no passengers may be carried in transport units carrying dangerous goods.</p> <p>The crew of the vehicle shall know how to use the fire-fighting appliances.</p> <p>A driver or a driver's assistant may not open a package containing dangerous goods.</p> <p>Smoking shall be prohibited during handling operations in the vicinity of vehicles and inside the vehicles.</p> <p>Except where the engine has to be used to drive the pumps or other appliances for loading or unloading the vehicle and the laws of the country in which the vehicle is operating permit such use, the engine shall be shut off during loading and unloading operations.</p> <p>No transport unit carrying dangerous goods may be parked without the parking brakes being applied.</p>
(20)	Hazard identification number	606	Infectious Substance: Contains a two or three figures number which shall appear on the upper part of the orange-coloured plate.

7.4 Packaging Instructions UN3291^{23 24}

7.4.1 Carriage in bulk containers (BK2)

- a) reserved
- b) Closed bulk containers and their openings shall be leak-proof by design. These bulk containers shall have non porous interior surfaces and shall be free from cracks or other features which could damage packagings inside, impede disinfection or permit inadvertent release;
- c) Wastes of UN No. 3291 shall be contained within the closed bulk container in UN type tested and approved sealed leak-proof plastics bags tested for solids of packing group II and marked in accordance with chapter 2.2.1. Such plastics bags shall be capable of passing the tests for tear and impact resistance according to ISO 7765-1:1988 "Plastics film and sheeting - Determination of impact resistance by the free-falling dart method - Part 1: Staircase methods" and ISO 6383-2:1983 "Plastics - Film and sheeting - Determination of

tear resistance. Part 2: Elmendorf method". Each bag shall have an impact resistance of at least 165 g and a tear resistance of at least 480 g in both parallel and perpendicular planes with respect to the length of the bag. The maximum net mass of each plastics bag shall be 30 kg;

- d) Single articles exceeding 30 kg such as soiled mattresses may be carried without the need for a plastics bag when authorized by the competent authority;
- e) Wastes of UN No. 3291 which contain liquids shall only be carried in plastics bags containing sufficient absorbent material to absorb the entire amount of liquid without it spilling in the bulk container;
- f) Wastes of UN No. 3291 containing sharp objects shall only be carried in UN type tested and approved rigid packagings meeting the provisions of packing instructions P621, IBC620 or LP621;
- g) Rigid packagings specified in packing instructions P621, IBC620 or LP621 may also be used. They shall be properly secured to prevent damage during normal conditions of carriage. Wastes carried in rigid packagings and plastics bags together in the same closed bulk container shall be adequately segregated from each other, e.g. by suitable rigid barriers or dividers, mesh nets or otherwise securing, such that they prevent damage to the packagings during normal conditions of carriage;
- h) Wastes of UN No. 3291 in plastics bags shall not be compressed in a closed bulk container in such a way that bags may be rendered no longer leakproof;
- i) The closed bulk container shall be inspected for leakage or spillage after each journey. If any wastes of UN No. 3291 have leaked or been spilled in the closed bulk container, it shall not be re-used until after it has been thoroughly cleaned and, if necessary, disinfected or decontaminated with an appropriate agent. No other goods shall be carried together with UN No. 3291 other than medical or veterinary wastes. Any such other wastes carried in the same closed bulk container shall be inspected for possible contamination.

7.4.2 Package (P621)

This instruction applies to UN 3291.

The following packaging is authorised provided that the general provisions are met:

- (1) Rigid, leakproof packaging meeting the requirements of Chapter 6.1 (ADR) for solids, at the packing group II performance level, provided that there is sufficient absorbent material to absorb the entire amount of liquid present and the packaging is capable of retaining liquids.
- (2) For packages containing larger quantities of liquid, rigid packaging meeting the requirements of Chapter 6.1 at the packing group II performance level for liquids.

Additional requirement:

Packaging intended to contain sharp objects such as broken glass and needles shall be resistant to puncture and retain liquids under the performance test conditions in Chapter 6.1.

7.4.3 Intermediate Bulk Container (IBC 620)

This instruction applies to UN 3291.

The following IBCs are authorised, provided that the general and the special provisions are met:
Rigid, leak-proof IBCs conforming to the packing group II performance level.

Additional requirements:

1. There shall be sufficient absorbent material to absorb the entire amount of liquid present in the IBC.
2. IBCs shall be capable of retaining liquids.
3. IBCs intended to contain sharp objects such as broken glass and needles shall be resistant to puncture.

7.4.4 Large Packaging (LP621)

This instruction applies to UN 3291.

The following large packaging is authorised, provided that the general and special provisions of are met:

- (1) For clinical waste placed in inner packaging: Rigid, leakproof large packaging conforming to the requirements of Chapter 6.6 (ADR) for solids, at the packing group II performance level, provided that there is sufficient absorbent material to absorb the entire amount of liquid present and the large packaging is capable of retaining liquids.
- (2) For packages containing larger quantities of liquid: Large rigid packaging conforming to the requirements of Chapter 6.6, at the packing group II performance level, for liquids.

Additional requirement:

Large packaging intended to contain sharp objects such as broken glass and needles shall be resistant to puncture and retain liquids under the performance test conditions in Chapter 6.6 (ADR).

7.5 Sample of an Incident Report Form

Please mark matching answers with a: .

A Data of the involved person	First name:	Last name:	Date of birth:
	Employee of a healthcare facility? <input type="checkbox"/> Yes, working at healthcare facility: <input type="checkbox"/> No, employee of the contracting company: Does full immunization against Hepatitis A/B exist? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Do not know Does full immunization against Tetanus exist? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Do not know		
B Data of the accident	Date/Time of the accident:	Place of accident:	Other people affected? <input type="checkbox"/> No <input type="checkbox"/> Yes - No.:
	(1) Details of the accident (short description) (2) Type of accident A – Splash: <input type="checkbox"/> Face <input type="checkbox"/> Eye <input type="checkbox"/> Mouth <input type="checkbox"/> Ear <input type="checkbox"/> Nose <input type="checkbox"/> clothes <input type="checkbox"/> Other: B – Needle stick – sharp injury: <input type="checkbox"/> Needle <input type="checkbox"/> Scalpel <input type="checkbox"/> Glass <input type="checkbox"/> Other:..... (3) Was there visible blood? <input type="checkbox"/> Yes <input type="checkbox"/> No (4) Protective clothing worn: <input type="checkbox"/> Gown <input type="checkbox"/> Gloves <input type="checkbox"/> Goggles <input type="checkbox"/> Respirator mask <input type="checkbox"/> Other: (5) Where first aid measures carried out? <input type="checkbox"/> Yes <input type="checkbox"/> No		
C Data of source Healthcare facility	Waste identified as waste from:		
	a) Number of bin: b) Name of Healthcare facility: Tour details:		
D Description of the first aid measures:	Description of First aid measures / post exposure prophylaxis (PEP):		
	Has an HIV / Hepatitis test been made after the Injury? <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Name of Doctor contacted:		
E Confirmation	Injured Person:	Witness:	Officer in charge:
	Name:	Name:	Name:
	Date:	Date:	Date:
	Signature:	Signature:	Signature:

7.6 Bibliography

- (a) CEFIC, European Chemical Industry Council, Brussels, 2011-2013: <http://www.ericards.net>
- (b) European Agreement concerning the international carriage of dangerous goods by road ADR applicable as from 1 January 2011, United Nations, 2010: <http://www.unece.org/trans/danger/publi/adr/adr2013/13contentse.html>
- (c) ILO, International Labour Organisation, Encyclopaedia of Occupational Health and Safety, 4th edition, 1998
- (d) IPCS, International Programme on Chemical Safety and CEC, Commission of the European Communities, International Chemical Safety Cards
- (e) ISO 7765-1:1988 Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 1: Staircase methods, 1988: http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=14629
- (f) UN Recommendations on the Transport of Dangerous Goods; Model Regulations; UNITED NATIONS, 18th revised edition, New York and Geneva, 2013: http://www.unece.org/trans/danger/publi/unrec/rev18/18files_e.html
- (g) WHO, Guidance on regulations for the Transport Infectious Substances, Communicable Disease Surveillance and Response, 2013-2014, 2012: http://www.who.int/csr/resources/publications/biosafety/WHO_HSE_EPR_2008_10/en/index.html
- (h) WHO, Laboratory biosafety manual, 3rd edition, Geneva, World Health Organization, 2004

7.7 Footnotes

- ¹ ADR, European Agreement Concerning the International Carriage of Dangerous Goods by Road, Volume 1, United Nations, 2013
- ² UN Model Regulations Chapter 6.8.4, 2013
- ³ UN Model Regulations Chapter 6.8.1 and 6.8.3.1.5, 2011
- ⁴ UN Model Regulations, Chapter 6.8.3, 2013; ADR, Chapter 7.3.2.6.2 (c), 2013
- ⁵ UN Model Regulations, Chapter 4.1.1.5, 2013; ADR, Chapter 4.1.1.5, 2013
- ⁶ UN Model Regulations and ADR, Chapter 4.1.4, 2013
- ⁷ UN Model Regulations and ADR, Chapter 4.1.8.4, 2013
- ⁸ UN Model Regulations, Chapter 5.2, 2011; ADR, Chapter 3.2, Column (5) "Labels", Chapter 5.2 "Markings and Labelling", 2013
- ⁹ ADR, Chapter 4.1.8.1, 2013
- ¹⁰ UN Model Regulations, Chapter 4.3 and Chapter 7.1, 2011; ADR, Chapter 3.2, 2013
- ¹¹ UN Model Regulations, Chapter 7, 2011; ADR, Chapter 8 and 9, 2013
- ¹² UN Model Regulations and ADR, Chapter 6, 2013
- ¹³ UN Model Regulation Chapter 4.1.8.4 and Chapter 7.1.7, 2011; ADR, Chapter 7.5.11, 2013
- ¹⁴ UN Model Regulation Chapter 5.3.1.2; ADR, Chapter 5.3.1.7
- ¹⁵ ADR, Chapter 5.3.2.2, 2013
- ¹⁶ UN Model Regulations Chapter 7.1.7.2, 2013
- ¹⁷ ADR, Chapter 5.4.3, 2013
- ¹⁸ WHO, Epidemic-prone & pandemic-prone acute respiratory diseases; Infection prevention & control in health-care facilities, 2007
- ¹⁹ ADR, Chapter 8.2.2, 2013
- ²⁰ UN Model Regulation and ADR Chapter 5.4, 2013
- ²¹ ADR, Chapter 1.1.3.6.3, 2013 (applicable for Transport Category 2)
- ²² UN Model Regulations, Chapter 2.6.3, 2011; ADR, Chapter 2.2.62.1.11.1, 2013
- ²³ UN Model Regulations and ADR, Chapter 4.1.4, 2013
- ²⁴ ADR, Chapter 7.3.2.6.2, 2013