

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) REQUIREMENTS:

TRANSPORT OF HAZARDOUS AND BIOLOGICAL SAMPLES

Presented by:

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During

*Training workshop on OIE Standards for collection
and shipping of pathological specimen*

In

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1. PRE-TEST

INTRODUCTION

- WHO has put together guidelines to facilitate compliance with international regulations for transport of infectious substances and patient specimen by all modes of transport, nationally and internationally ensuring safe packaging and transportation
- WHO guidelines tally with the National and International Transport Regulations
- Safe packaging and transportation protects person packing, those in the postal, airline and other transport mode by avoiding breakage or leaks in the package



INTRODUCTION

- Packaging of infectious substances should ensure minimal potential damage of the package but also the integrity of the specimen
- Timely and accurate specimen processing is important for integrity
- Proper and accurate labeling is very important to avoid exposure
- The above are important for accurate and timely diagnosis



AIMS AND GOALS OF DANGEROUS GOODS REGULATION

Purpose:

- Establish procedures for shippers, freight forwarders and consignees
- Reduce transport risks
- Safety is the reason for the development of dangerous goods regulations




INTERNATIONAL REGULATIONS

- The basis of all national and international regulations for the safe transport of dangerous goods are the Recommendations (“Specification”) of the “UN Committee of Experts for Transportation of Dangerous Goods” (UNCETDG) of the UN Economic and social council, as published in “The Orange Book”.
- The WHO regulations are reflected in the international law through agreements



INTERNATIONAL REGULATIONS

There are five different (relevant) Modal Authorities who each publish their own regulation manuals in which they follow "The Orange Book". These are the:

- The *Technical Instructions for the Safe Transport of Dangerous Goods by Air* published by the *International Civil Aviation Authority* (ICAO).
 - The *International Maritime Dangerous Goods Code* (IMDG) published by the *International Maritime Organization* (IMO).
 - The *European Agreement concerning the International Carriage of Dangerous Goods by Road* (ADR) published by The *United Nations Economic Commission for Europe* (UNCE).
 - The *International Agreement for the Carriage of Dangerous goods by Rail* (RID) published by The *Intergovernmental Organization for International Carriage of Dangerous Goods by Rail* (OTIF).
 - The *Hazardous Materials Regulations* (Title 49 CFR Parts 100-185) published by The *Office of Hazardous Materials Safety*, US DOT.
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TYPES OF TRANSPORTS

- Air: The International Civil Aviation Organization (ICAO) provides *Technical Instructions for the Safe Transport of Dangerous Goods by Air* regulations for controlling transportation of goods by air and *apply to all international flights*.
- The **IATA** is an international association that provides the *Dangerous Goods Regulations* which incorporate the ICAO and any other restrictions.
- National flights are controlled under National Civil Aviation Authorities, which usually follow ICAO and any other
- The variations for states and operators are controlled by ICAO and IATA



TYPES OF TRANSPORTS

- Rail The *International Carriage of Dangerous Goods by Rail* (RID) regulations apply to only Europe, Middle East and North Africa and 25 countries of EU through Council Directive 96/94/EC
- Road The *European Agreement concerning the International Carriage of Dangerous Goods by Road* (ADR) is for 40 countries.
- Sea The International Maritime Organization (IMO) provides the *International Maritime Dangerous Goods Code* which applies to 155 countries which are contracting parties to the *International Convention for safety of Life in the Sea* (SOLAS)
- Post The Universal Postal Union (UPU) provides the *Letter Post Manual* regulations



PACKING GROUPS

Dangerous Goods are assigned to a packing group according to their danger:

- Group I: high
- Group II: medium
- Group III: low
- However, Infectious substances (class 6.2) are not assigned to a packing group.
- Dry ice usually used in packing class 6.2 falls in Group III



CLASSIFICATION OF DANGEROUS GOODS

There are nine classes of Dangerous Goods with subdivisions within certain classes.

- Class 1 – Explosives
- Class 2 – Gases
- Class 3 – Flammable Liquids
- Class 4 – Flammable Solids
- Class 5 – Oxidizing Substances and Organic Peroxides
- Class 6 – Toxic and Infectious Substances
 - Division 6.1 – Toxic substances
 - Division 6.2 – Infectious substances
- Class 7 – Radioactive Material
- Class 8 – Corrosives
- Class 9 – Miscellaneous Dangerous Goods (dry ice)



TRAINING OBJECTIVE

- This training will concentrate on Class 6.2 Infectious substances and Class 9 Miscellaneous Dangerous Goods (dry ice) which are of interest to us.
- This training will also consider air transportation based on IATA regulations



CLASS 9 – MISCELLANEOUS DANGEROUS GOODS

- Miscellaneous Dangerous Goods that cannot be included in any of the other eight classes
- Solid carbon dioxide (dry ice) is a dangerous good
- Dry ice is assigned UN 1845
- The packing requirements for dry ice are found in Packing Instruction 904 (PI 904).
- Packing Group III



CLASS 6.2. INFECTIOUS SUBSTANCES

- Infectious substance = Infectious materials; substances known or are reasonably expected to contain pathogens
 - Category A – Cause permanent disability, life-threatening or fatal disease to health humans or animals.
 - Causing disease to humans and animals are assigned **UN2814** e.g. Ebola, Lassa and Marburg. Shipping name; ***INFECTIOUS SUBSTANCES AFFECTING HUMANS***
 - Causing disease to only animals **UN2900** e.g. FMD and ASF cultures. Shipping name ***INFECTIOUS AGENTS AFFECTING ANIMALS only***
 - Category B – Infectious substances which do not fit in category A and are assigned **UN3373** e.g. Specimen of anthrax, brucellosis and FMD. Shipping name; ***BIOLOGICAL SUBSTANCES, CATEGORY B***



CLASS 6.2.INFECTIOUS SUBSTANCES

- Pathogens; microorganisms and other agents such as prions which can cause disease to humans and animals except those *exempted*
- BIOLOGICAL SUBSTANCES, CATEGORY B are materials directly collected from human or animals for research, diagnosis, investigations treatment and prevention
- Cultures are internationally propagated pathogens



CLASS 6.2. INFECTIOUS SUBSTANCES

- Biological products 1) those which are manufactured and packaged in accordance with the requirements of appropriate national authorities and transported for the purposes of final packaging or distribution, and use for ***personal health care by medical professionals*** or individuals. (Not subject to Regulations)
- 2) those which do not fall under paragraph (a) and are known or reasonably believed to contain infectious substances (IS) and which meet the criteria for inclusion in Category A or Category B. (Must be shipped as UN 2814, UN 2900, or UN 3373 as appropriate)



CLASS 6.2.INFECTIOUS SUBSTANCES

- Genetically modified microorganisms and organisms; genetic material is modified and if it can cause alteration to humans or animals it is *UN3245*
- Medical or clinical wastes; wastes derived from medical treatment of animals and humans or from biological research.
 - Waste from Category A shall be assigned *UN2814* and *UN2900*.
 - Category B wastes or considered of low risk is assigned *UN3291*



EXEMPTIONS - NOT SUBJECT TO REGULATIONS

- Substances that do not contain infectious substances
- Substances containing organisms that are non pathogenic
- Substances containing neutralized or inactivated pathogens
- Environmental samples that pose no risk of infection
- Blood or blood components collected for transfusion
- Tissues or organs cleared for transplantation
- Dried blood spots and faecal occult blood screening tests
- Decontaminated medical or clinical waste
- "Exempt" human or animal specimens (min packaging and marking)

EXEMPT HUMAN/ANIMAL PATIENT SPECIMENS:

- These are specimens for which there is minimal likelihood that pathogens are present
packaging: less stringent triple packaging ("PI 650-like")
- no DG documentation required
- a professional judgment is required to determine if a substance is exempt under this paragraph



RESPONSIBILITIES IN GOODS TRANSPORTATION

1. Shipper (consignor)
2. Operator (carrier, freight forwarder)
3. Receiver (consignee)



1. RESPONSIBILITIES OF THE SHIPPER


- Ensure that the articles or substances are not prohibited for transport
- Identify
- Classify
- Mark
- Label
- Package
- Document the articles offered for transport
- Apply all packaging requirements

Manufacturers and distributors of *packaging* must provide information regarding procedures to be followed to assemble the package correctly



BEFORE SHIPPING INFECTIOUS SUBSTANCES

In addition, the shipper must:

- Make arrangements with the consignee (receiver)
 - Make arrangements with the operator (carrier)
 - Send the consignee all necessary documentation including import/export permits (sometimes the consignee needs to obtain the import permit), dispatch and shipping documents
 - Be aware of and follow State and Operator Variations, the right of countries and airlines to be more restrictive than the regulations.
- 


SHIPPER'S ROLE

The shipper is responsible for

- Classifying Dangerous Goods
- Providing accurate and complete identification of the Dangerous Goods
- Using the packing that corresponds to the class of Dangerous Goods



2. RESPONSIBILITIES OF THE OPERATOR (CARRIER, AIRLINE)

- Follow a consignment verification list prior to acceptance of the package.
 - Inspect the package
 - Reject the goods if an error is noted
 - Notify the shipper if there are errors in labeling/marketing or in the accompanying documentation
 - Provides necessary shipping forms and instructions to the shipper
 - Storage, loading, inspection, reporting of incidents and accidents, security, recordkeeping
- 

3. RESPONSIBILITIES OF THE CONSIGNEE

- Obtain all required permits/import licenses
- Provide to the shipper all required licenses and/or letters of authorization
- Arranges for timely and efficient collection on arrival
- Should acknowledge receipt to the sender



NOTE THAT;

- All infectious substances may be transported by air – there are no exceptions
- Dry ice and liquid nitrogen are dangerous goods
- Diagnostic specimens may contain infectious substances. The ***term diagnostic specimen*** is not used any longer in the context of transport regulations
- The transport of live animals that have been intentionally infected is prohibited
- The carriage of Dangerous Goods on board an aircraft in checked or carry-on baggage or on a person is strictly prohibited and is enforced by international air carriers.
- The use of diplomatic pouches to transport infectious substances is equally prohibited.



PERMITS

- Customs agents generally require import permits or licenses
- It is generally the shipper's responsibility to obtain permits/licenses
- Permits/Licenses are delivered for clearly identified, specific shipments
- It is imperative to understand the provisions contained in a permit/license



PACKAGING, MARKING, LABELING AND DOCUMENTATION

- Category A and B pose different risks therefore require varied packaging details
- Requirements are determined by UNCETDG and designated depending on Packaging Instructions e.g. Category A, PI602 and B PI650.
- NB.
 - Category A and B can not be carried in diplomatic pouch
 - Do not put different goods in inner package
 - Shippers should ensure safe arrival of package without presenting a hazard



PACKING: DEFINITIONS

- **PACKAGE:** the complete product of the packing operation consisting of the packaging and its contents prepared for transport
- **PACKAGING:** receptacles and any other components or materials necessary for the receptacle to perform its containment function and to ensure compliance with the minimum packing requirements of the Regulations
- **PACKING:** The art and operation by which articles or substances are enveloped in wrappings and/or enclosed in packaging or otherwise secured



PACKING

- It is the *Shipper's responsibility* to ensure that all packages are prepared in accordance with all applicable packing requirements for Dangerous Goods
- Use only packing materials that comply with packing specifications
- Restrict the total quantity in a package to the limits specified in the Regulations
- Assemble the package exactly as specified
- Remove or fully delete all inappropriate labels or markings



PI650

- Shippers of Category B Infectious substances must comply with the Regulations.
- The packaging must consist of three components: (a) a primary receptacle(s); (b) a secondary packaging; and (c) a rigid outer packaging as described
- An itemized list of contents must be enclosed between the secondary packaging and the outer packaging.
- A Shipper's Declaration for Dangerous Goods is not required.




PI904


- When carbon dioxide, (solid) dry ice is used in air transport, it must be in packaging designed and constructed to permit the release of carbon dioxide gas and to prevent a build-up of pressure that could rupture the packaging.
- The net weight of the carbon dioxide, solid (dry ice) must be marked on the outside of the package.
- Dry ice **MUST NOT** be placed inside the primary or secondary packaging!!
- Put dry ice between the secondary and outer package



REFRIGERATED OR FROZEN SUBSTANCES

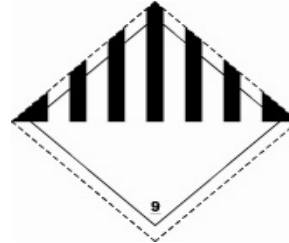
- Ice or dry ice must be placed outside the secondary packaging or in the outer packaging or an overpack.
 - If dry ice is used, the packaging must be designed and constructed to permit the release of carbon dioxide gas and to prevent a build-up of pressure that could rupture the packaging.
 - Interior supports must be provided to secure the secondary packaging in its original position after the ice or dry ice has dissipated.
 - If ice is used, the outside packaging or overpack must be leakproof.
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MARKING AND LABELING

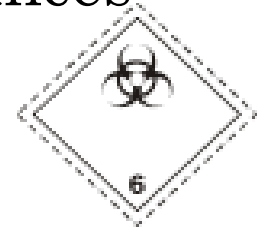
- English must be used in addition to the language required by the State of Origin.
 - Delete or cover any improper or unnecessary markings.
 - All required markings must be visible and placed on the package or overpack so that they are not covered or obscured by any part of, or attachment to, the packaging or any other label or marking.
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MARKING AND LABELING

- Hazard label for dry ice

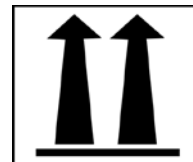


- Hazard label for Category A infectious substances



-  4G/Class 6.2/10/GB/2470

- Orientation label to be placed on two opposite sides



MARKING AND LABELING

SHIPPER

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CONSIGNEE

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Infectious Substance
Affecting Humans
UN 2814 Net Qty 40 ml

Dry Ice X 15 Kgs Net
Un 1845 Classe9

Emergency Contact 24h/24h
Dr. Chrisostom Ayebazibwe
+256 772 626215

TRIPLE PACKAGING SUMMARY

Category A (PI 602)

- Leak proof primary
- Leak proof secondary
- 95 kPa pressure test
- Rigid outer
- Minimum 100 mm x 100mm
- Absorbent material
- 9 meter drop test
- 7 kg penetration test
- UN marks and labels
- Full DG documentation



Category B (PI 650)

- Leak proof primary
- Leak proof secondary
- 95 kPa pressure test
- Rigid outer
- at least one surface : min 100 mm x 100 mm
- Absorbent material
- 1.2 meter drop test
- 3373 mark



Exempt human or animal specimens

- Leakproof primary
- Leakproof secondary
- Adequate outer
- at least one surface: min 100 mm x 100 mm
- Absorbent material

UN MARKING SYSTEM

- The U.N. marking system indicates several characteristics of the packaging, as well as information on the test levels the packaging has successfully passed. Because these test levels are related to the hazard level and physical and chemical characteristics of the substance to be filled, the markings also indicate some of the properties of the materials that may be packed in each container.



EXAMPLE OF UN MARKING/PROPER SHIPPING NAME (PSN)



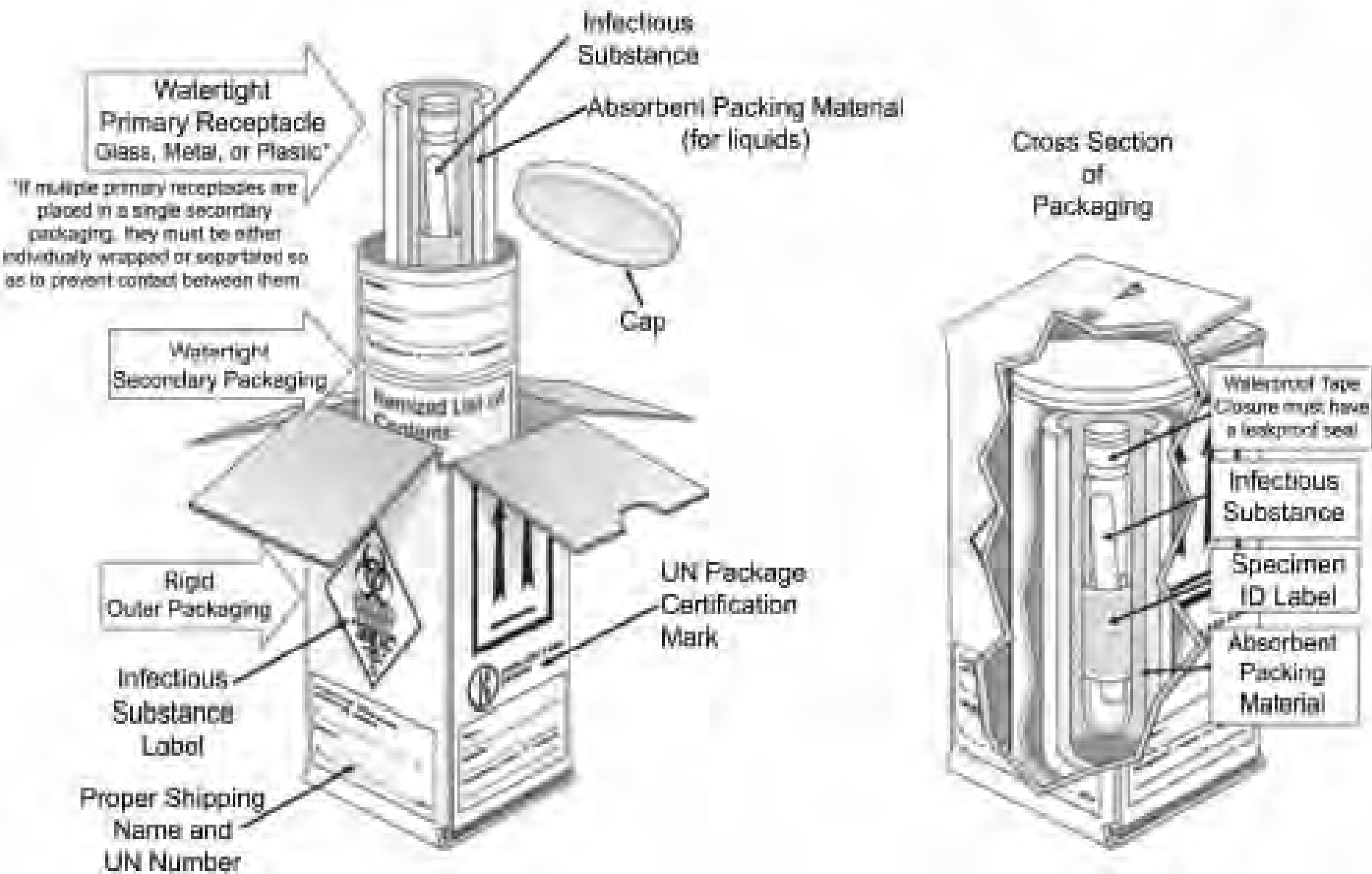
4G/Class 6.2/11/GB/2470

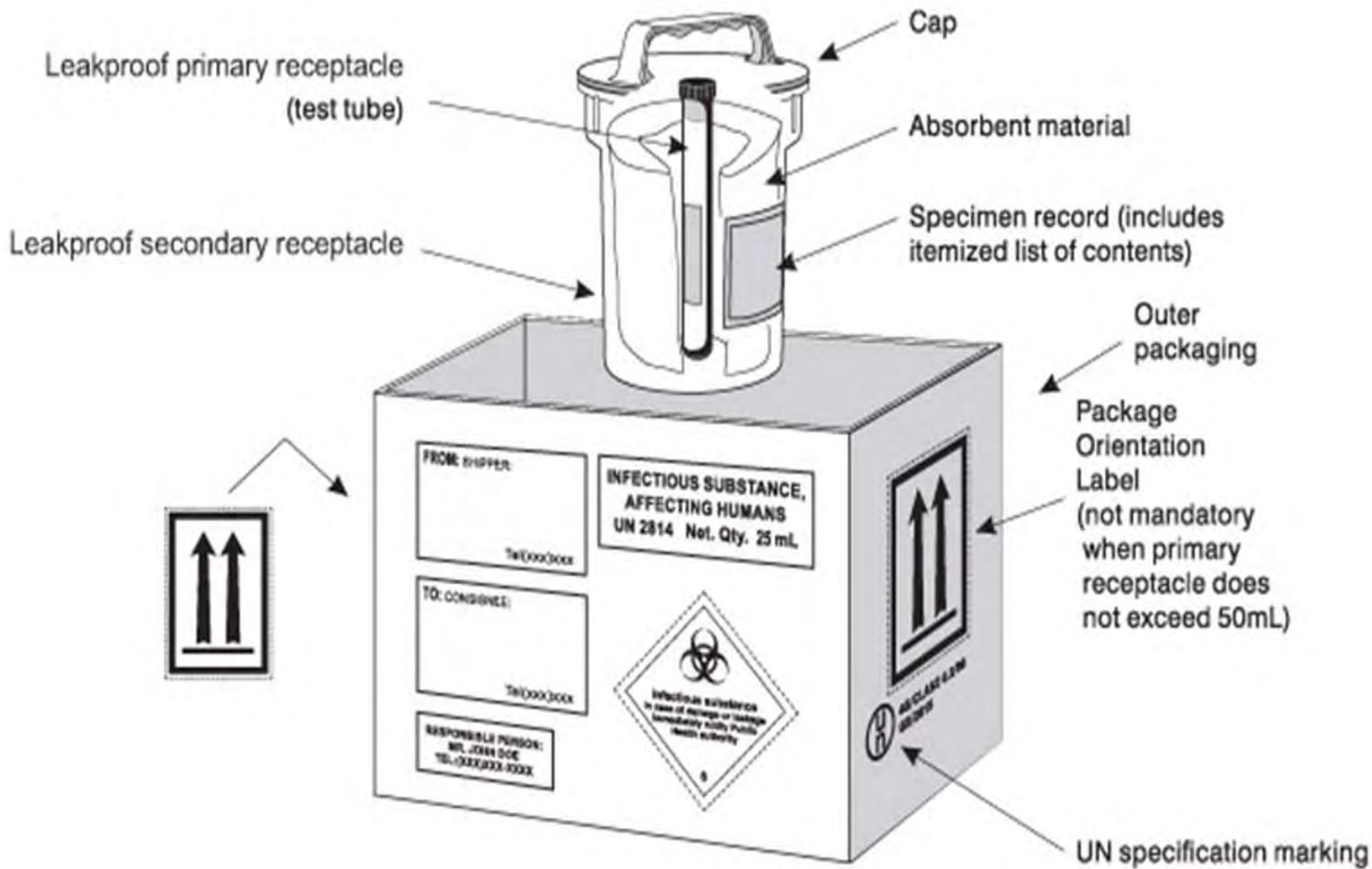
This marking comprises:

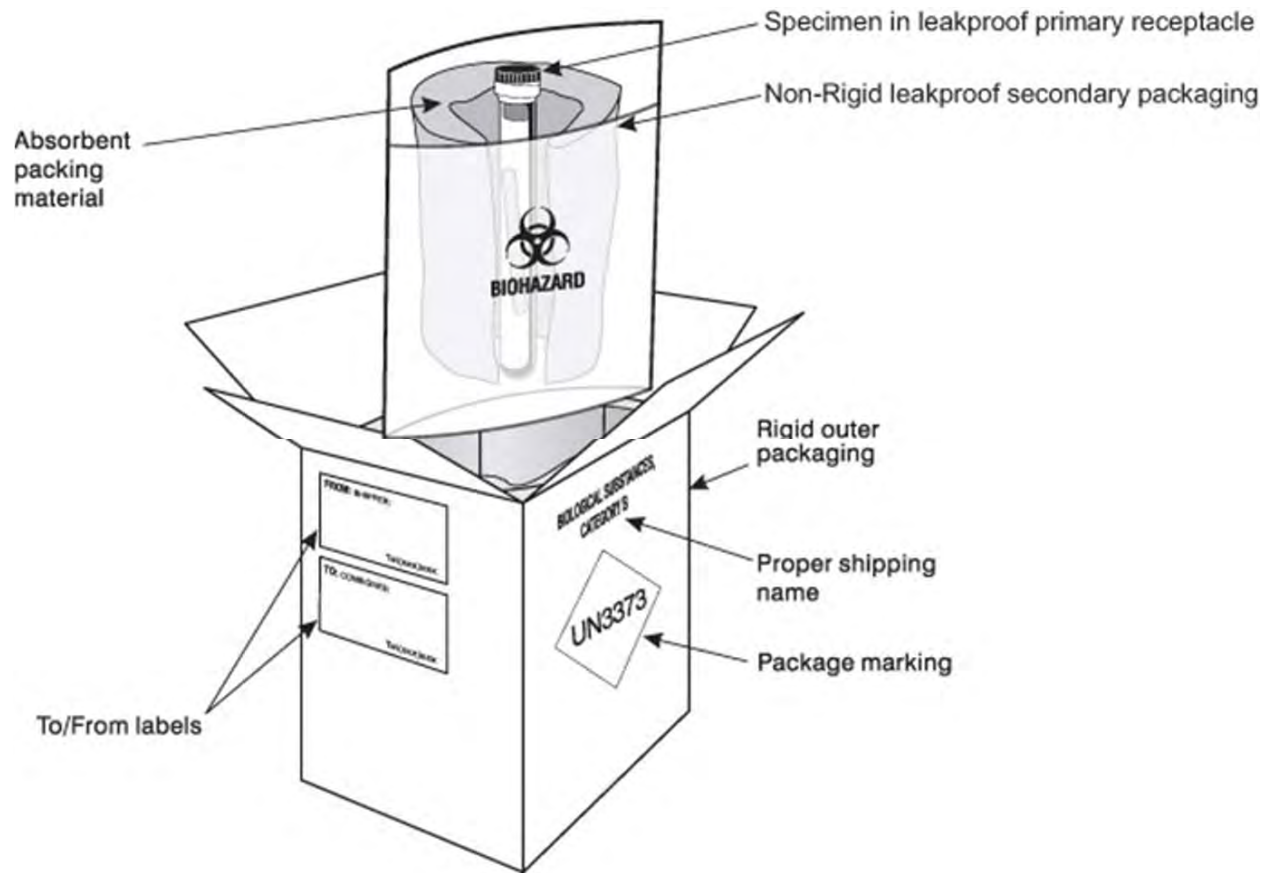
- the United Nations packaging symbol
- an indication of the type of packaging (in this example a fibreboard box (4G))
- an indication that the packaging has been specially tested to ensure that it meets the requirements for Category A infectious substances (Class 6.2)
- the last two digits of the year of manufacture (in this example 2011)
- the competent state authority that has authorized the allocation of the mark (in this example GB, signifying Great Britain)
- the manufacturer's code specified by the competent authority (in this example 2470)

Users shall be provided with clear instructions as to how the package should be filled and prepared for transport.

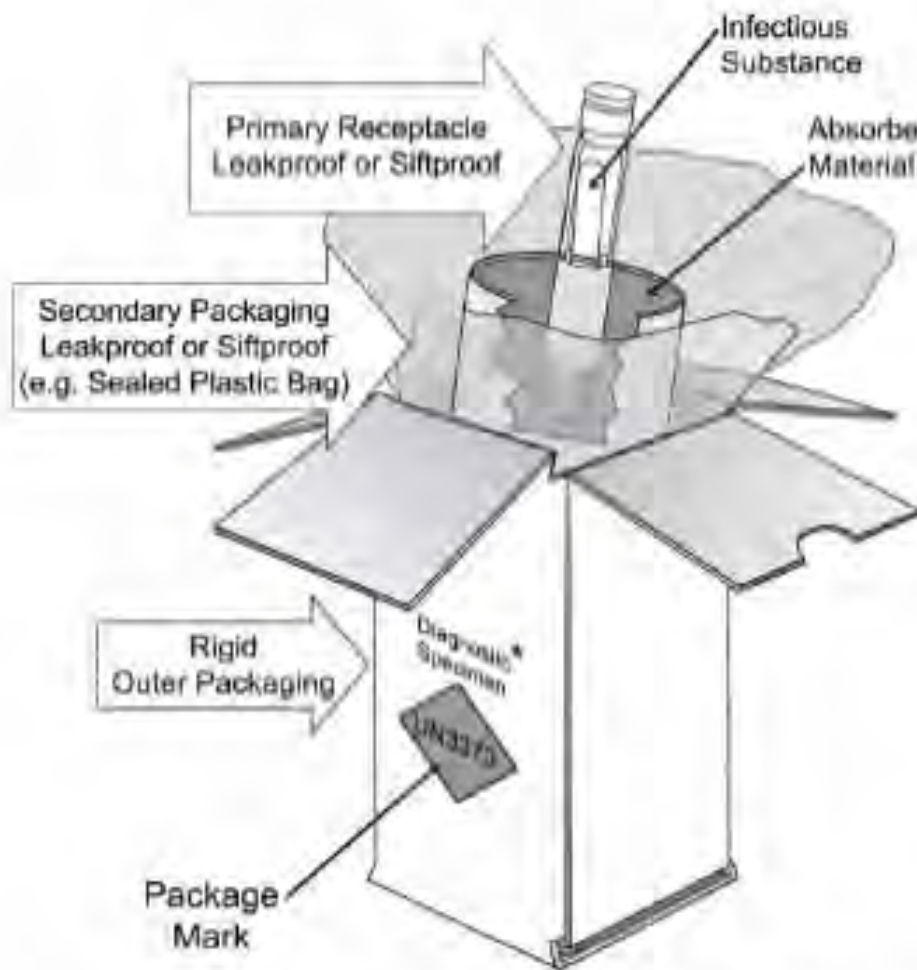
Packing and Labeling of Category A Infectious Substances







Packing and Labeling of Category B Infectious Substances



* The proper shipping name "Diagnostic Specimen" or "Clinical Specimen" must be indicated. Technical name is not necessary.

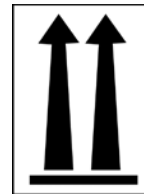
LABELS

There are 2 types of labels:

- Hazard Labels: in the form of a square set at an angle of 45°; required for the majority of dangerous goods in all classes



- Handling Labels: in various rectangular sizes; required either alone or in addition to hazard labels, for some dangerous goods

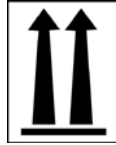


LABELS

- Minimum dimension of labels is 100mm x 100mm
- For small packages the dimensions may be smaller (50mm x 50mm). Remember minimum package is (100mm x 100mm)



PACKAGE ORIENTATION LABELS

- Packages containing infectious substances in liquid form must be packed so that the closure(s) of the inner packaging(s) are upright
- The upright position of the packaging must be indicated by 2 "package orientation labels" affixed on opposite sides of the packaging if the volume of the primary receptacles exceeds 50 ml 
- A label "This side up" or "This end up" may also be displayed on the top cover of the package



OVERPACKS

- “Overpack” is the term used when several packages are combined to form one unit and sent to the same destination by a single shipper.
- When refrigerants are used to protect contents, the overpacks may comprise insulated vessels or flasks.
- Whenever an overpack is used, the required marks and labels shown on the outer packaging must be repeated on the outermost layer of the overpack. This requirement applies to infectious substances in Categories A and B.
- Overpacks are also required to be marked with the word “overpack”.
- The outer packaging must show all markings and labels that are affixed to inner receptacles.



2. LABELING EXERCISE



SHIPPER'S CHECKLIST

- **A Shipper's Declaration** has ISO A4 format and is printed in red and black on a white background
- Complete the Shipper's Declaration in English
- Complete a minimum of 3 copies of the Shipper's Declaration
- The operator will not accept a declaration that has been altered or amended, unless the alteration or amendment to an entry has been signed by the shipper with the same signature used to sign the document.
- Some carriers require typed or computer generated text
- The maximum net quantity (weight or volume) per package allowed on passenger aircraft is 50 ml or 50 g

DOCUMENTATION

- A shipper's declaration of Dangerous Goods for Category A infectious substances (or for dry ice)
NB. To always be filled in English
- An air waybill

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper		Air Waybill No.				
Consignee		Page of Pages				
I have completed and signed copies of this declaration and it is valid for all consignees.		Shipper's Reference Number (optional)				
TRANSPORT DETAILS		WARNING				
This shipment is within the conditions prescribed for: <input type="checkbox"/> (General) <input type="checkbox"/> (Special)		Failure to comply in all aspects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.				
Airport of Departure		Shipment Type (Delete non-applicable)				
<input type="checkbox"/> PASSENGER AND CARGO AIRCRAFT <input type="checkbox"/> CARGO AIRCRAFT ONLY		<input type="checkbox"/> NON-RADIOACTIVE <input type="checkbox"/> RADIOACTIVE				
Airport of Destination						
NATURE AND QUANTITY OF DANGEROUS GOODS						
Dangerous Goods Identification						
UN or ICAO	Proper Shipping Name	Class or Division	Packing Group	Quantity and Type of Packing	Packing Inst.	Assignment
Additional Handling Information						
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/transported, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.				Name/Title of Signatory		
				Place and Date:		
				Signature (see warning above)		




DOCUMENTATION

- For shipments of Category A samples (PI602) it is mandatory to accurately and fully complete the Shipper's Declaration and the Air Waybill.
- These documents, signed by the shipper, constitute the legal contract between the shipper and the operator/transport company.
- Only the shipper may fill out and sign the Shipper's Declaration. In so doing, the shipper accepts full responsibility for the information provided.



DOCUMENTATION (SHIPPER'S DECLARATION ; SD)

- Shipper: Full name, address and telephone number
 - Consignee: Full name and address; telephone number and name of responsible person
 - Air Waybill Number: Number of Air Waybill to which the declaration form will be attached
 - Page __ of __ pages: Enter the page number and total number of pages of the Shipper's Declaration
 - Aircraft Limitations: Delete the label box which does not apply
 - Shipment Type: Delete “radioactive” if the shipment does not contain radioactive material
 - Additional handling information: Provide emergency contact and name of responsible person
- 

DOCUMENTATION; SHIPPER'S DECLARATION (SD)

Shipper's responsibilities for each shipment:

- Use the proper forms
- Fill out the form accurately, completely and legibly
- While hand written SD is permitted under the regulations, types or computer generated text is required by some carriers
- Sign the form before giving it to the operator
- The signature must be handwritten
- Any modifications or alterations on the forms must be signed by the shipper.



DOCUMENTATION; SD, SHIPPER'S CORRECT FORM

- The Shipper's Declaration Form must be printed in red and black on white paper. The left and right margin diagonal striations must be printed in red.
- In addition to the languages required by the State of Origin, English should be used The Shipper's Declaration Form should be filled out in English.
- The shipper must complete **THREE (3)** copies of the Shipper's Declaration form. The Shipper retains one copy and remits the other copies, with the packages, to the operator.



DOCUMENTATION SD

The section on “**Nature and Quantity of Dangerous Goods**” must be completed in English as follows:

- UN Number: (from Column 2) UN or ID number
- Proper shipping name: (from Column 1) enter the proper shipping name and technical name in brackets. If unknown, write "suspected category A infectious substance"
- Class or division: class or division
- Packing Group: does not apply to infectious substances, but Group III packaging must be used if dry ice is used.
- Secondary Risks: none for infectious substances




DOCUMENTATION


- Quantity and type of Packing: Total net quantity of dangerous goods and outer packaging material
- Packing Instructions:
 - 602 for Category A infectious substances
 - 904 for dry ice



DOCUMENTATION; SD

- **Certification Statement:** The declaration must contain the following certification statement: “I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.” For air transport, the following additional statement is required: “I declare that all applicable air transport requirements have been met.”
 - **Name and title of Signatory:** Enter the name and title of the person signing the declaration.
 - **Place and Date:** Enter the place and date of signing the declaration form
- 

DOCUMENTATION; SD

- **Signature:** The declaration must be signed and dated by the shipper.
 - **Air Waybill number:** Enter the number of the Air Waybill to which the declaration form will be attached.
 - This may be entered or amended by the shipper or by the operator or handling agent.
 - **Departure and destination airports:** Enter the full name of the airports or cities. These may be entered or amended by the shipper, shipper's agent or the operator.
- 

AIR WAYBILL

- This is the standard shipping document for all shipments of goods by air
- The shipper or operator may complete the Air Waybill
- When shipping Category A infectious substances, the Air Waybill must include the following statement: “Dangerous Goods – Shipper's Declaration attached”



AIR WAYBILL

When shipping packages with dry ice under Instruction 650 (shipper's declaration not required), the following must be included, in sequence, in the "Nature and Quantity of Goods" box of the air waybill:

- UN Number
- Proper shipping name
- Class or division
- Subsidiary risk (if any)
- Packing group
- Number of packages and net quantity per package
- Packing instruction

For carbon dioxide it is not necessary to show the packing group and packing instruction on the air waybill



PACKAGE ACCEPTANCE

- Before accepting a package, staff of the shipping company as well as those persons responsible for accepting goods must inspect the package to see whether it has the proper labels and markings, and the documents, to make sure they are filled out correctly.



COMMON SHIPPING PROBLEMS

- Incorrect documentation
- Lack of training
- Carelessness
- Insufficient/invalid import-export customs papers



DOCUMENTATION AND LABELING FOR A SHIPMENT OF INFECTIOUS SUBSTANCES IN CATEGORY A

- Shipper's Declaration for Dangerous Goods
- Air waybill
- Import/export permit
- Shipper's Training (on transportation of dangerous goods)
- Packing instruction 602
- Weight and volume limitations



INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A

UN 2814 Infectious substances affecting humans

Bacillus anthracis (cultures only)
Brucella abortus (cultures only)
Brucella melitensis (cultures only)
Brucella suis (cultures only)
Burkholderia mallei [Pseudomonas mallei – Glanders](cultures only)
Burkholderia pseudomallei [Pseudomonas pseudomallei] (cultures only)
Chlamydia psittaci [avian strains] (cultures only)
Clostridium botulinum (cultures only)
Coccidioides immitis (cultures only)
Coxiella burnetii (cultures only)
Crimean-Congo hemorrhagic fever virus
Dengue virus (cultures only)
Eastern equine encephalitis virus (cultures only)
Escherichia coli, verotoxigenic (cultures only)
Ebola virus
Flexal virus
Francisella tularensis (cultures only)
Guanarito virus
Hantaan virus
Hanta virus pulmonary 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 hemorrhagic fever virus
Poliovirus (cultures only)
Rabies virus (cultures only)
Rickettsia prowasekii (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)

INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY B

UN 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)



IDENTIFICATION

LIST OF DANGEROUS GOODS RELATED TO THE TRANSPORT OF INFECTIOUS SUBSTANCES

Proper Shipping Name	UN No.	Class or division	Sub-sidiary Risk	Labels	State variations	Operator variations	Special provisions	UN Packaging group	Passenger and cargo aircraft					Cargo aircraft only		
									Packaging instruction	Max. net qty per package	Packaging instruction	Max. net qty per package	Packaging instruction	Max. net qty per package	Limited quantity	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Aviation required liquid n.o.s	3334	9		Miscellaneous			A27 A48		-	-	906		906	2201		
Biological substance, Category B	3373	6.2							-	-	see 650		see 650			
Biomedical waste	3291	6.2		Infectious subst.			A117	II	-	-	622	No limit	622	No limit		
Carbon dioxide, solid Dry ice	1845	9		Miscellaneous			A48 A151	III	-	-	904	200kg	904	200 kg		
Clinical waste, unspecified, n.o.s	3291	6.2		Infectious subst.			A117	II	-	-	622	No limit	622	No limit		
Ethanol Ethanol solution alcohol alcohol solution	1170	3		Flamm. Liquid			A3 A58 A148	II	Y350	11	305	51	307	601		
								III	Y309	101	309	601	310	2201		
Formaldehyde	2209	8		Corrosive				III	Y818	11	818	51	820	601		
Genetically modified micro-organisms Genetically modified organisms	3245	9		Miscellaneous			A47		-	-	913	No limit	913	No limit		
Infectious substance, affecting humans(liquid)	2814	6.2		Infectious subst.			A81 A140		-	-	602	50 ml	602	41		
Infectious substance, affecting humans(solid)	2814	6.2		Infectious subst.			A81 A140		-	-	602	50 g	602	4 kg		
Infectious substance, affecting animals only (liquid)	2900	6.2		Infectious subst.			A81 A140		-	-	602	50 ml	602	41		
Infectious substance, affecting animals only (solid)	2900	6.2		Infectious subst.			A81 A140		-	-	602	50 g	602	4 kg		
Medical waste, n.o.s	3291	6.2		Infectious subst.			A117	II	-	-	622	No limit	622	No limit		
Methanol	1230	3	6.1	Flamm. Liquid			A104 A113	II	Y305	11	305	11	307	601		
Nitrogen, refrigerated liquid	1977	2.2		Non-flammable gas & cryogenic liquid			A152		-	-	202	50 kg	202	500 kg		
Regulated medical waste	3291	6.2		Infectious subst.			A117	II	-	-	622	No limit	622	No limit		

3. SHIPPER DECLARATION EXERCISE,
4. EXERCISE,
5. TEST,
6. COMPETENCY TEST



REFERENCES

- Guidance on regulations for the **Transport of Infectious Substances** 2011–2012 (WHO/HSE/IHR/2010.8)
- Guidelines on regulations for the **Transportation of Infectious Substances** 2007 – 2008 (WHO/CDC/EPR/2007.2)
- **Guiding Principles For The Development Of The Un Model Regulations**, First version (2008)

