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SHIPPERS' PROGRAMME 2015-2016



Module 2

Categorization and Identification of Infectious Substances



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Overview

- ☣ Dangerous goods classes
- ☣ Substance categories for division 6.2
- ☣ UN Numbers
- ☣ Proper Shipping Names
- ☣ Exercise: Categorization and identification of infectious substances



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What are the three (four) dangerous goods classes which are relevant to shippers of infectious substances?



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Dangerous goods classes

Class 2: Gases

Division 2.2: Non-flammable, non-toxic gases
Refrigerated liquid nitrogen (refrigeration)

Class 3: Flammable liquids

Ethanol (preservation)

Class 6: Toxic and infectious substances

Division 6.1: Toxic substances
Division 6.2: Infectious substances

Class 9: Miscellaneous dangerous substances and articles, including environmentally hazardous substances

Dry ice (refrigeration)
Genetically modified microorganisms and organisms (not classified under 6.2)



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**What are the three
substance categories for division 6.2?**



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Substance categories (division 6.2)

Category A (infectious substances)

Ebola virus

Bacillus anthracis (culture only)
(see list provided in exercise)

Category B (biological substances)

Bacillus anthracis (patient specimen)

Highly pathogenic avian influenza virus (patient specimen)

Exempt human/animal specimens

Medical assessment has determined a minimal likelihood that pathogens are present

Pregnancy test

Drug screening





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Category A infectious substances

This table is available in
the document:

*Guidance on regulations
for the
Transport of Infectious
Substances
2015-2016*



(http://www.who.int/ihr/publications/who_hse_ihr_2015.2/en/)

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
UN Number and Proper Shipping Name	Microorganism (technical name)
UN 2814 Infectious substance, affecting humans	<i>Bacillus anthracis</i> (cultures only)
	<i>Brucella abortus</i> (cultures only)
	<i>Brucella melitensis</i> (cultures only)
	<i>Brucella suis</i> (cultures only)
	<i>Burkholderia mallei</i> – <i>Pseudomonas mallei</i> – glanders (cultures only)
	<i>Burkholderia pseudomallei</i> – <i>Pseudomonas pseudomallei</i> (cultures only)
	<i>Chlamydia psittaci</i> – avian strains (cultures only)
	<i>Clostridium botulinum</i> (cultures only)
	<i>Coccidioides immitis</i> (cultures only)
	<i>Coxiella burnetii</i> (cultures only)
	Crimean-Congo haemorrhagic fever virus
	Dengue virus (cultures only)
	Eastern equine encephalitis virus (cultures only)
	<i>Escherichia coli</i> , verotoxigenic (cultures only) ¹
	Ebola virus
	Flexal virus
	<i>Francisella tularensis</i> (cultures only)
	Guanarito virus
	Hantaan virus
	Hantaviruses causing haemorrhagic fever with renal syndrome
	Hendra virus
	Hepatitis B virus (cultures only)
	Herpes B virus (cultures only)
	Human immunodeficiency virus (cultures only)
	Highly pathogenic avian influenza virus (cultures only)
	Japanese encephalitis virus (cultures only)
	Junin virus
	Kyasanur Forest disease virus
	Lassa virus
	Machupo virus
	Marburg virus
	Monkeypox virus

¹ For surface transport (ADR) nevertheless, when cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B



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Category A infectious substances

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INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
UN Number and Proper Shipping Name	Microorganism (technical name)
UN 2814 Infectious substance, affecting humans	<i>Mycobacterium tuberculosis</i> (cultures only) ¹ Nipah virus Omsk haemorrhagic fever virus Poliovirus (cultures only) Rabies virus (cultures only) <i>Rickettsia prowazekii</i> (cultures only) <i>Rickettsia rickettsii</i> (cultures only) Rift Valley fever virus (cultures only) Russian spring-summer encephalitis virus (cultures only) Sabia virus <i>Shigella dysenteriae</i> type 1 (cultures only) ¹ Tick-borne encephalitis virus (cultures only) Variola virus Venezuelan equine encephalitis virus (cultures only) West Nile virus (cultures only) Yellow fever virus (cultures only) <i>Yersinia pestis</i> (cultures only)
UN 2900 Infectious substance, 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) <i>Mycoplasma mycoides</i> – contagious bovine pleuropneumonia (cultures only) Peste des petits ruminants (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)

(http://www.who.int/ihr/publications/who_hse_ihr_2015.2/en/)

¹ For surface transport (ADR) nevertheless, when cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B



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Exemptions

Exemptions		
1.	Substances that do not contain infectious substances or that are unlikely to cause disease in humans or animals	There are NO packaging requirements for these full 'Exemptions'
2.	Substances containing microorganisms that are not pathogenic to humans or animals	
3.	Substances in which any pathogens present have been neutralized or inactivated such that they no longer pose a health risk	
4.	Environmental samples (including food and water samples) that are not considered to pose a significant risk of infection	
5.	Dried blood spots and faecal occult blood screening samples	
6.	Blood and/or blood components which have been collected for the purposes of transfusion or for the preparation of blood products to be used for transfusion or transplantation and any tissues or organs intended for use in transplantation	
7.	Decontaminated medical or clinical waste	
8.	A professional judgement has determined that there is only a minimal likelihood that pathogens are present	Triple package



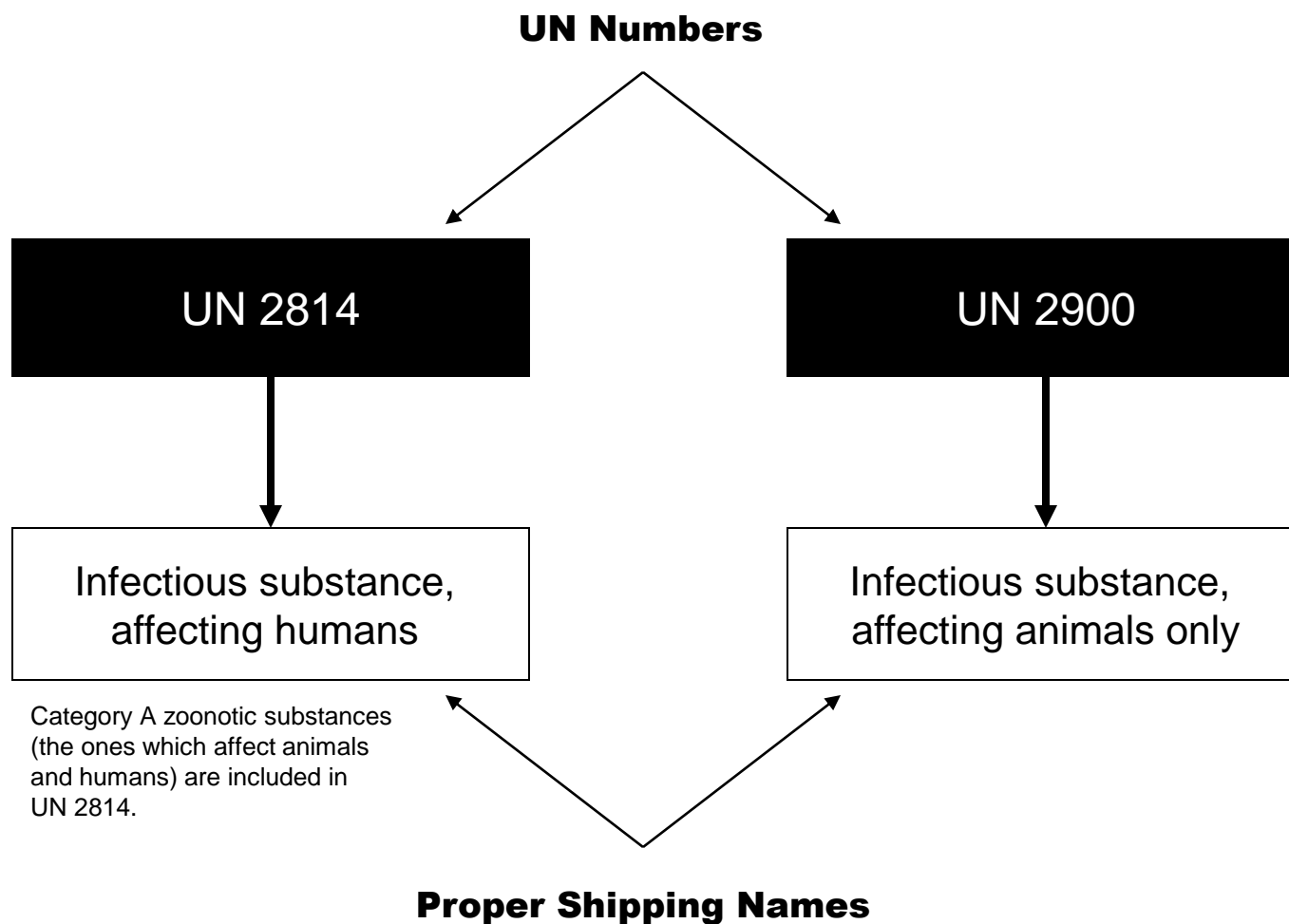
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What are the UN Numbers and Proper Shipping Names for Category A infectious substances?



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Category A – infectious substances





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What are the UN Numbers and Proper Shipping Names for Category B biological substances?



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Category B – biological substances

UN Number

UN 3373



Biological substance,
Category B

Proper Shipping Name





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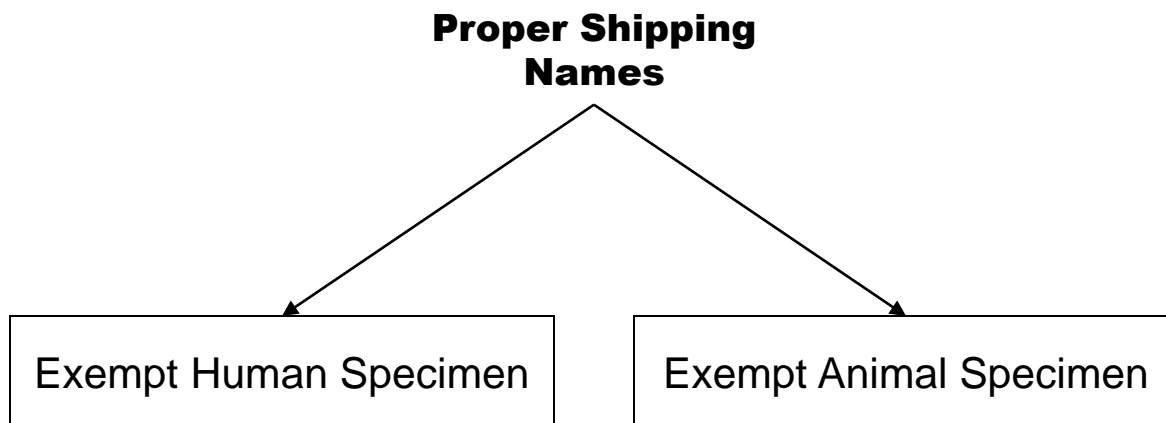
**Does the exempt category have a
UN Number and a
Proper Shipping Name?**



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Exempt substances

Exempt substances do not have a UN Number





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Dangerous goods table (new table, version 2015)

LIST OF DANGEROUS GOODS RELATED TO THE TRANSPORT OF INFECTIOUS SUBSTANCES														
Proper Shipping Name	UN No.	Class or division	Subsidiary Risk	Hazard Labels	State variations	Operator variations	Special provisions	UN packing group	Passenger and cargo aircraft		Cargo aircraft only			
									Limited quantity		Packing instruction	Max. net qty per package	Packing instruction	Max. net qty per package
1	2	3	4	5	6	7	8	9	10		12	13	14	15
Aviation regulated liquid, n.o.s.	3334	9		Miscellaneous			A27		Y964	30 kg G	906	100 l	906	220 l
Biological substance, Category B	3373	6.2			GB5				–	–	see 650		see 650	
(Bio) medical waste	3291	6.2		Infectious subst.			A117	II	–	–	622	No limit	622	No limit
Carbon dioxide, solid	1845	9		Miscellaneous			A48 A151		–	–	954	200 kg	954	200 kg
Dry ice														
Clinical waste, unspecified, n.o.s.	3291	6.2		Infectious subst.			A117	II	–	–	622	No limit	622	No limit
Ethanol	1170	3		Flamm. liquid			A3	II	Y341	1 litre	353	5 litres	364	60 litres
Ethanol solution							A58							
Ethyl alcohol							A180	III	Y344	10 litres	355	60 litres	366	220 litres
Ethyl alcohol solution														
Formaldehyde solution, with not less than 25% formaldehyde	2209	8		Corrosive	US4			III	Y841	1 litre	852	1 litre	856	60 litres
Formaldehyde solution	1198	3	8	Flamm. liquid & Corrosive			A180	III	Y342	1 litre	354	5 litres	365	60 litres
Genetically modified micro-organisms	3245	9		Miscellaneous			A47		–	–	959	No limit	959	No limit
Genetically modified organisms														
Infectious substance, affecting animals only	2900	6.2		Infectious subst.	AU3, CA5, VU2		A81 A140		–	–	620	50 ml or 50 g	620	4 litres or 4 kg
Infectious substance, affecting humans	2814	6.2		Infectious subst.	AU3, CA5, VU2		A81 A140		–	–	620	50 ml or 50 g	620	4 litres or 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	Y342	1 litre	352	1 litre	364	60 litres
Nitrogen, refrigerated liquid	1977	2.2		Non-flammable gas			A152		–	–	202	50 kg	202	500 kg
Regulated medical waste, n.o.s.	3291	6.2		Infectious subst.			A117	II	–	–	622	No limit	622	No limit



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Exercise
**Categorization and identification of
infectious substances**



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Exercise:

Categorization and identification

Please complete the table below by classifying and listing the shipping name and number for each situation.

Situation	Categorization	Proper Shipping Name	UN Number
Patient presents with suspected case of Hepatitis B virus and blood samples are sent			
Sending a culture of <i>Mycobacterium tuberculosis</i> to a reference laboratory			
Ebola virus has been found in bats and samples which have not been cultured are being shipped			
A medical professional declares that samples collected for a human drug test have only minimal likelihood of containing pathogens			



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Exercise:

Categorization and identification

Please complete the table below by classifying and listing the shipping name and number for each situation.

Situation	Categorization	Proper Shipping Name	UN Number
Patient presents with suspected case of Hepatitis B virus and blood samples are sent	Category B	Biological substance, Category B	UN 3373
Sending a culture of <i>Mycobacterium tuberculosis</i> to a reference laboratory	Category A	Infectious substance, affecting humans	UN 2814
Ebola virus has been found in bats and samples which have not been cultured are being shipped	Category A	Infectious substance, affecting humans	UN 2814
A medical professional declares that samples collected for a human drug test have only minimal likelihood of containing pathogens	Exempt	Exempt human specimen	-----



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Questions and comments