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Module II
Categorization and Identification of
Infectious Substances

August 2011



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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?

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 goods

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?

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

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
UN Number and Proper Shipping Name	Microorganism
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, verotoxigenic</i> (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 Kysanur 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



Category A Infectious Substances

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
UN Number and Proper Shipping Name	Microorganism
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 type 1</i> (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)

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



Exemptions

Exemptions		
1.	Substances that do not contain infectious substances or will not cause disease in humans or animals	There are NO packaging requirements for these '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.	Blood and/or blood components collected and shipped for the purposes of transfusion and/or transplantation	
6.	Dried blood spots and faecal occult blood screening tests	
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

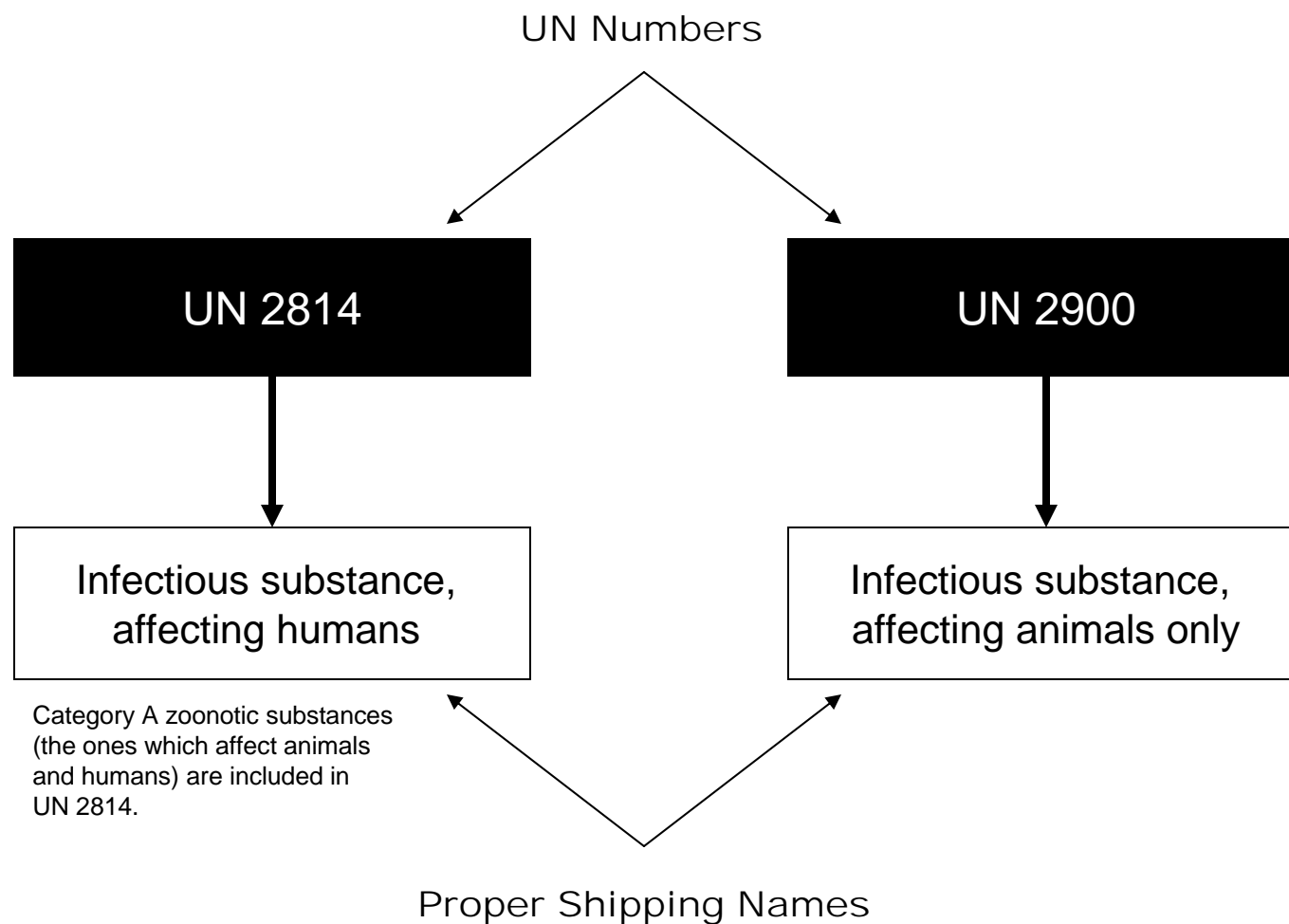




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What are the UN Numbers and Proper
Shipping Names for Category A
infectious substances?

Category A – Infectious Substances





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

Category B – Biological Substances



UN Number

UN 3373



Biological substance,
Category B

Proper Shipping Name



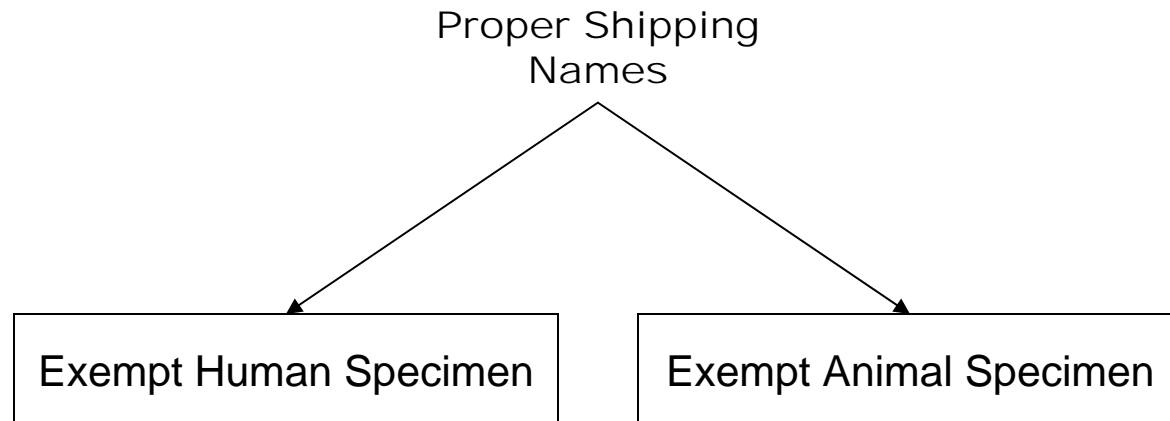


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Does the exempt category have a
UN Number and a
Proper Shipping Name?

Exempt Substances

Exempt substances do not have a UN Number



Dangerous Goods Table

LIST OF DANGEROUS GOODS RELATED TO THE TRANSPORT OF INFECTIOUS SUBSTANCES																
Proper Shipping Name	UN No.	Class or division	Subsidiary Risk	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	Packing instruction	Max net qty per package
									10	11						
Aviation regulated liquid, n.o.s.	3334	9		Miscellaneous			A27 A48		–	–	906	100 l	906	220 l		
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		–	–	954	200 kg	954	200 kg		
Clinical waste, unspecified, n.o.s.	3291	6.2		Infectious subst.			A117	II	–	–	622	No limit	622	No limit		
Ethanol Ethanol solution Ethyl alcohol Ethyl alcohol solution	1170	3		Flamm. liquid			A3 A58 A148	II III	Y305 Y309	11 10 l	305 309	5 l 60 l	307 310	60 l 220 l		
Formaldehyde solution	2209	8		Corrosive				III	Y818	11	818	5 l	820	60 l		
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		–	–	620	50 ml	620	4 l		
Infectious substances, affecting humans (solid)	2814	6.2		Infectious subst.			A81 A140		–	–	620	50 g	620	4 kg		
Infectious substance, affecting animals only (liquid)	2900	6.2		Infectious subst.			A81 A140		–	–	620	50 ml	620	4 l		
Infectious substances, affecting animals only (solid)	2900	6.2		Infectious subst.			A81 A140		–	–	620	50 g	620	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	1 l	307	60 l		
Nitrogen, refrigerated liquid	1977	2.2		Non-flammable gas & cryogenic liquid			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 II

Categorization and Identification of Infectious Substances

Exercise II:

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			
The 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			



Exercise II:

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			
The 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			



Exercise II:

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
The 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			



Exercise II:

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
The 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			



Exercise II:

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
The 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