

# International shipment of biological and potentially infectious substances - Main requirements

EU / OIE Reference Laboratory for Brucellosis  
FAO Reference Centre for Brucellosis  
ANSES – Maisons-Alfort, France



The 4<sup>th</sup> FAO-APHCA/OIE/DLD  
Regional Workshop on Brucellosis Diagnosis and Control  
in Asia and Pacific Region  
- Proficiency Test and Ways Forward for the Region  
Chiang Mai, Thailand, 19-21 March, 2014





The 3<sup>rd</sup> FAO-APHCA/OIE Regional Workshop on Brucellosis Diagnosis and Control  
with an Emphasis on *B. melitensis* (in collaboration with DLD)  
(Sukhothai and Phitsanulok Provinces, Thailand, 21-25 November 2010)

## Conclusions and Recommendations

17. That a request to provide the member countries with technical know-how and handling methods on packaging/shipping materials (including specimen containers) for diagnosis to regional or international Reference Laboratories was made and noted for consideration for future support by FAO-APHCA and OIE Asia-Pacific Office.

## Why should samples be correctly prepared for transport?

- **To prevent any contamination** (humans, animals, environment)
- **To ensure compliance with international regulations**
- **To prevent rejection, useless delays, destruction at customs...**
- **To ensure conservation during shipment ( temperature?)**

**Samples sent should arrive safely  
and  
in good conditions to the receiver!**

**Shipments are costly!  
Make sure they are OK!**

- Biological and potentially infectious substances

## CATEGORIZATION

- Shipment

## PACKAGING, MARKINGS, LABELS

- International requirements

## DOCUMENTS

➤ Biological and potentially infectious substances  
**CATEGORIZATION**

According to the OIE Terrestrial Manual:

Definitions of specimens **to be transported**

- Infectious substances:
  - Category A
  - Category B
- Cultures
- Patient specimens (human or animal)
- Biological products
- Genetically modified micro-organisms and organisms
- Medical or clinical waste

# CATEGORIZATION

- Infectious substances:
  - Category A
    - An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal diseases in otherwise healthy humans or animals
  - Category B
    - An infectious substance which does not meet the criteria for inclusion in Category A
- Cultures
  - Cultures are the result of a process by which pathogens are intentionally propagated
- Patient specimens ( human or animal)
  - Transported for the purpose of research, diagnosis ...Minimal likelihood that pathogens are present!
- Biological products
  - Derived from living organisms, manufactured and distributed in accordance with requirements of appropriate national authorities

# CATEGORIZATION

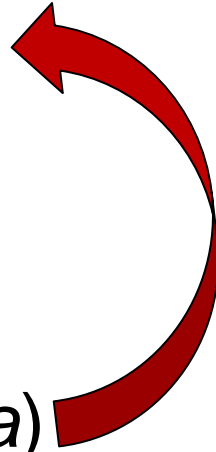
– Infectious substances:

- Category A
- Category B


– Cultures (*Brucella*)

~~– Patient specimens (human or animal)~~

– Biological products





- Biological products: reagents ? Vaccines?  
Others: DNA? Sera?
- if known or reasonably believed to contain infectious substances:  
     Category A or Category B accordingly
- If not, they are not concerned by the Dangerous Goods Regulation



Some are considered as **biohazard** in certain parts of the world only!

**Check before !**

## – Infectious substances:

- Category A
- Category B

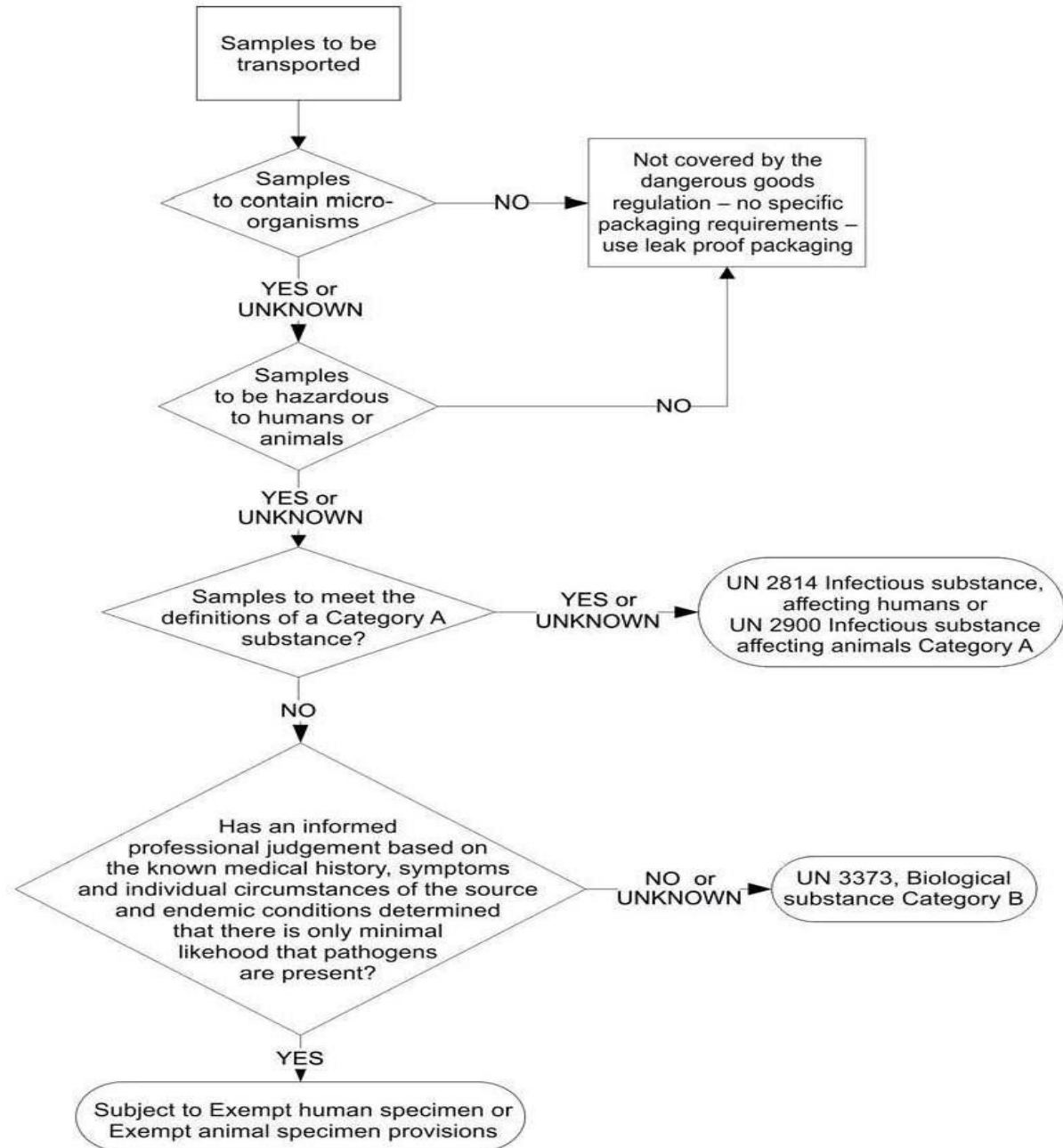
# CATEGORIZATION

## DECISION TREE

OIE Terrestrial Manual  
(version adopted  
May 2013)

### *Brucella* examples:

- serum samples
- Cultures
- Organs from + animals



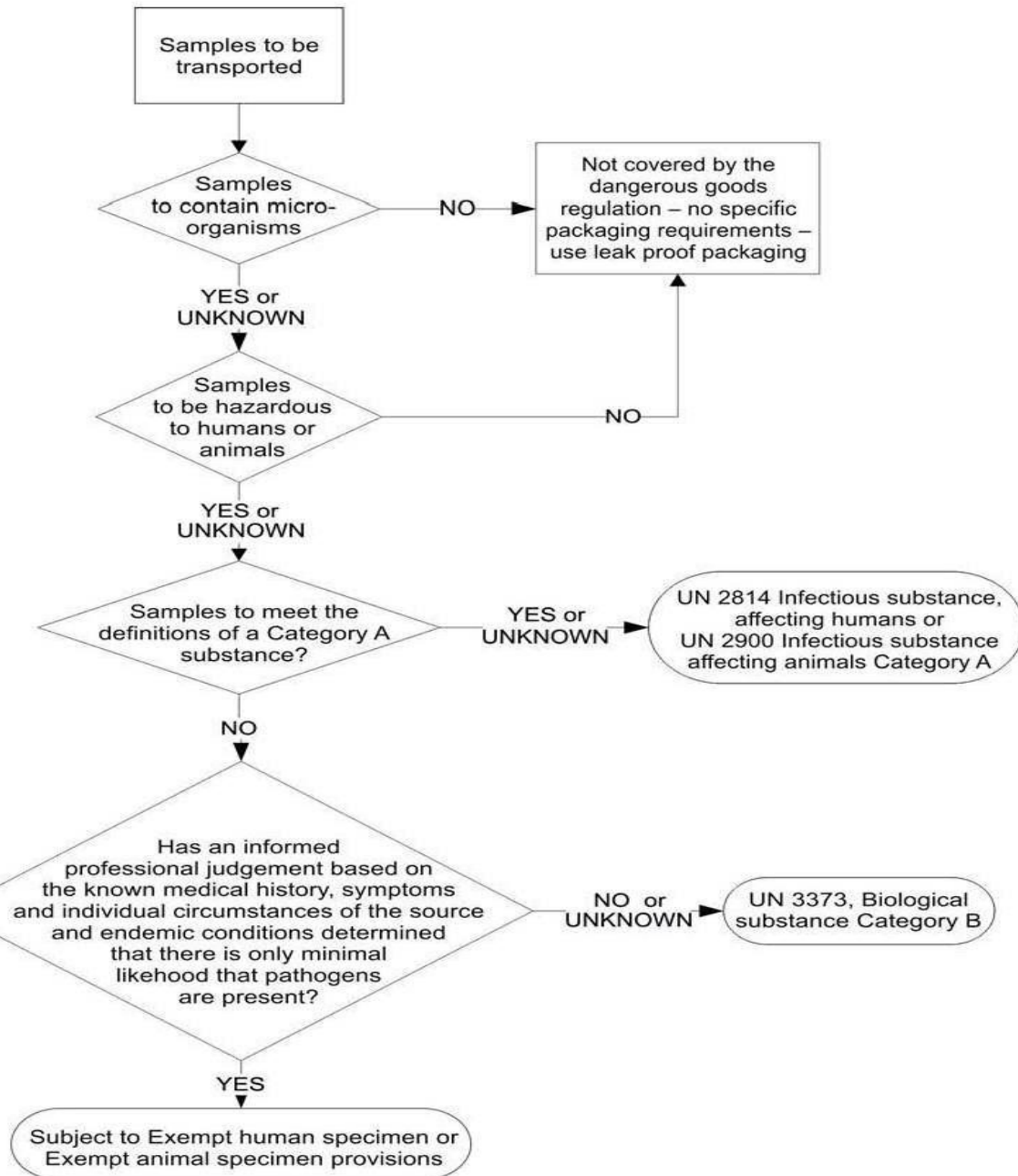
# CATEGORIZATION

## DECISION TREE

OIE Terrestrial Manual  
(version adopted  
May 2013)

*Brucella* examples:

- serum samples  
no specific requirement
- Cultures  
Category A  
(UN2814/UN2900)
- Organs from + animals  
Category A  
(UN2814/UN2900)



## Category A – Infectious substances Proper shipping names (PSN)

**UN2814**



Infectious substance,  
affecting humans

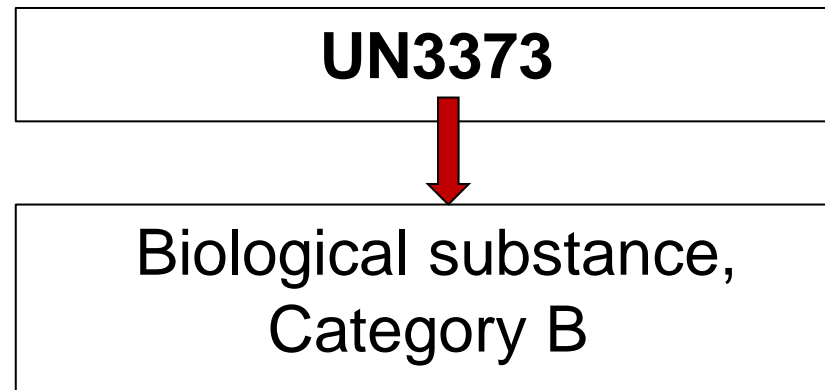
**UN2900**



Infectious substance,  
affecting animals only



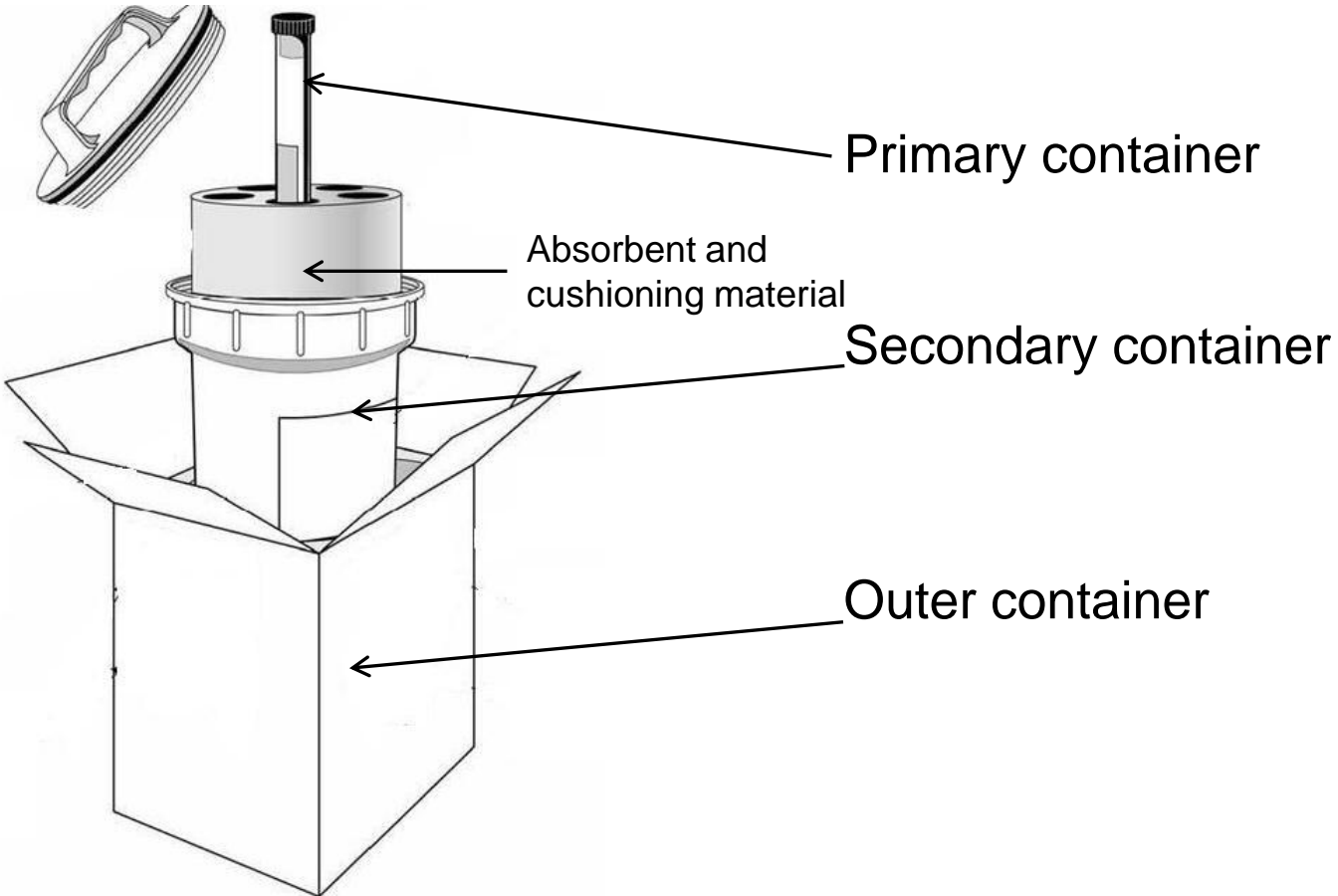
## Category B – Infectious substances Proper shipping names (PSN)



## ➤ Shipment

# PACKAGING, MARKINGS, LABELS

## Triple packaging – 3 levels of containment

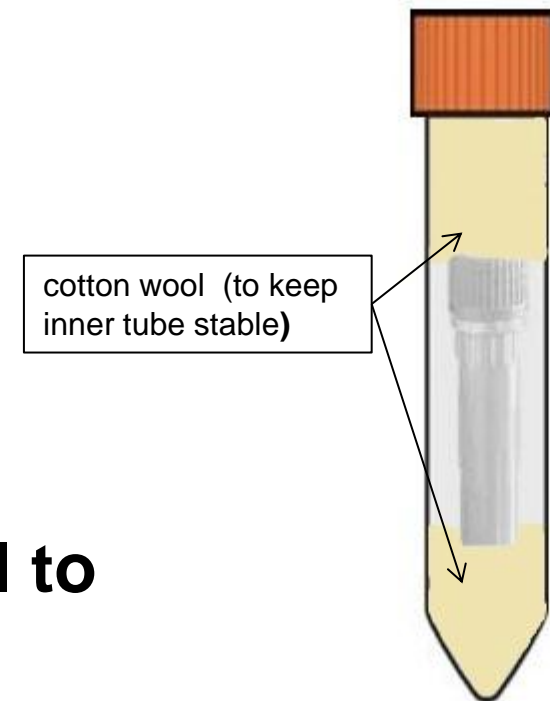




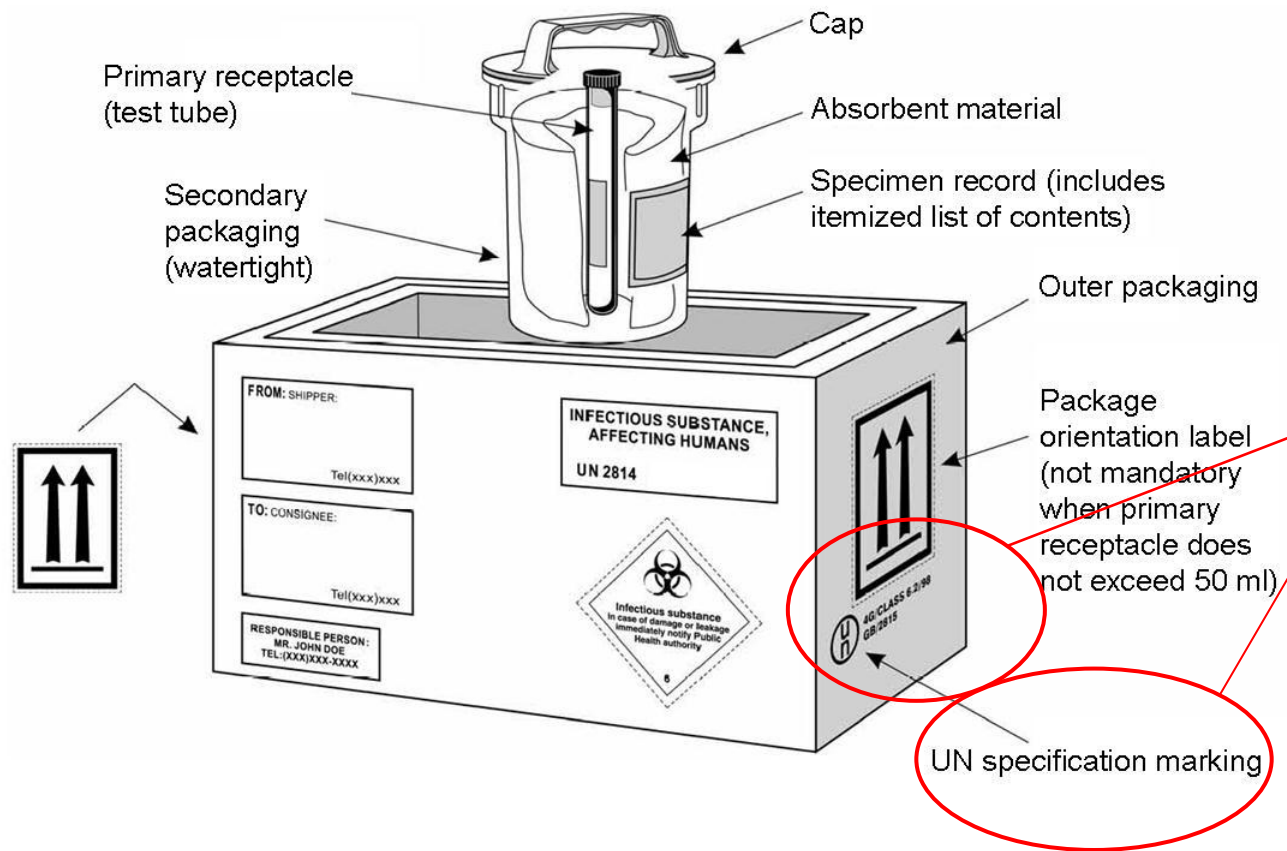
## Conditioning the samples in the primary container:

- **Avoid use of glass if possible, prefer plastic capped primary containers**
- **Prevent leaking / breaking (avoid shocks!)**
- **Use enough absorbent material to contain all liquid if necessary**
- **Label/identify the sample**

### Example

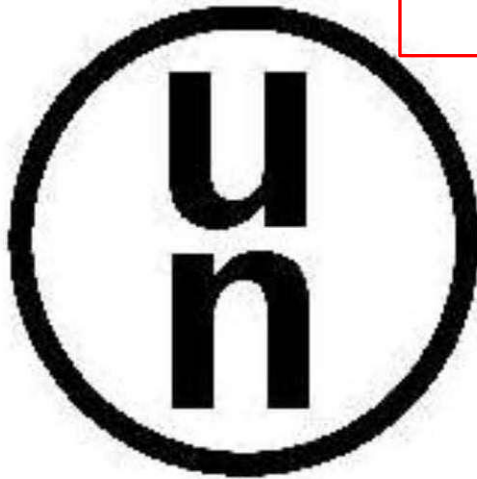


## Category A – UN 2814/UN 2900 Packing Instructions 620 (PI 620)



**IMPORTANT**

Outer package type:      Fiberboard (4G)  
                                     Solid plastic box (4H2)  
                                     Plastic drum (1H2)  
                                     ...



**4G/CLASS 6.2/05**  
**GB/2470**



**4G/CLASS 6.2/05**  
**GB/2470**

Tests ensuring requirements for Category A (Class 6.2) :

Pressure test at 95 kPa

Drop test from 9 m

Puncture test at 7 kg

Stacking test

...



**4G/CLASS 6.2/05**  
**GB/2470**

Last two digits of year of  
manufacture



**4G/CLASS 6.2/05**  
**GB/2470**

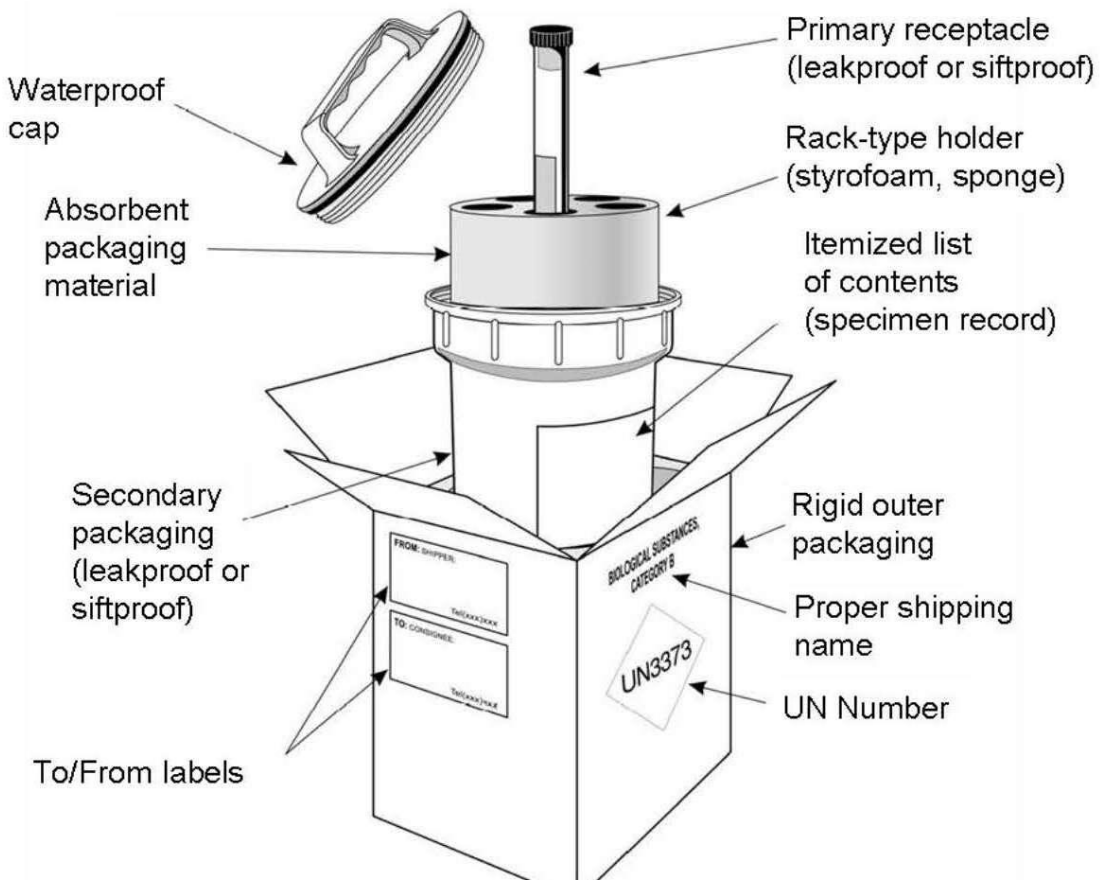
Code of country authorizing  
this mark

Manufacturer code



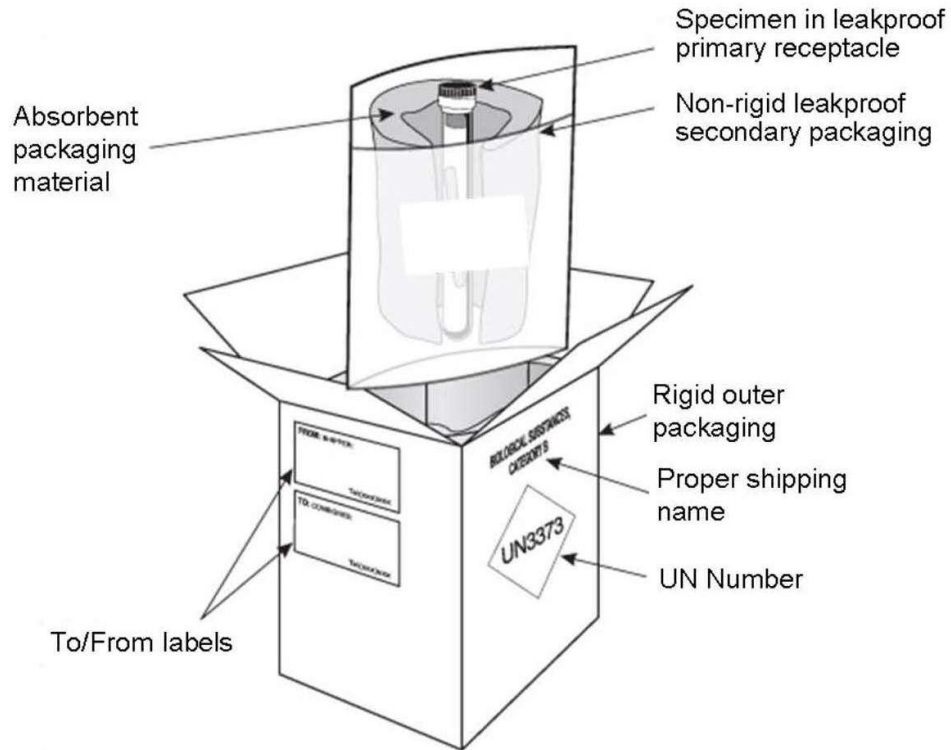
**4G/CLASS 6.2/05**  
**GB/2470**

## Category B – UN 3373 Packing Instructions 650 (PI 650)





## Category B – UN 3373 Packing Instructions 650 (PI 650)



# MARKING AND LABELS

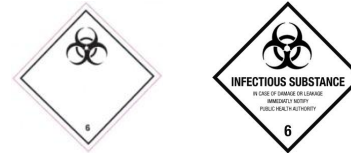
## Category A – UN 2814 / UN 2900

### MARKINGS

- **Shipper's** name and address
- **Receiver's** name and address
- Name and 24 h telephone No. of **responsible person**
- Proper Shipping Name
- UN Number
- Net Quantity
- UN Specification markings

### LABELS

- Infectious substance label



- Orientation arrows



- **Cargo Aircraft Only** (if cargo aircraft only)

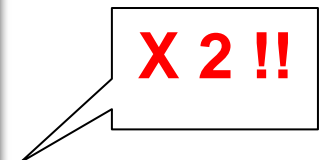
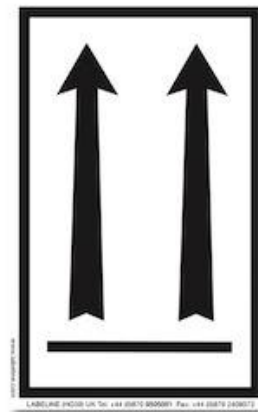


# MARKING AND LABELS

## Category A – UN 2814 / UN 2900



– And some others that may be necessary



## Category B – UN 3373

### MARKINGS

- **Shipper's** name and address
- **Receiver's** name and address
- Name and telephone of **responsible person**  
(on the package **or** on the air waybill!)
- Proper Shipping Name
- UN Number

### LABELS

No labels required (unless shipping with dry ice!)

## Category B – UN 3373



# SPECIAL REMARKS

– Shipping with Dry-Ice (Carbon Dioxide)  
Packages containing **Dry Ice** are to be properly marked and labelled for all who may come in contact with the package during transport. It should be labelled as follows, knowing that the **net weight** is to be marked



**dry ice as coolant**

**UN1845**

**Net quantity \_\_\_\_ kg**

– Flammable liquids (Ethanol)

**Quantity and concentration** will make us consider it as a Dangerous Good or not! If using Flammable liquids for the preservation of a sample, **PLEASE CHECK!**

# LIMITATIONS

Main limitations for shipping Infectious or potentially infectious substances by air:

- Cat. A Substances ( **UN2814 / UN2900**)  
**Maximum 50mL or 50 g per package** (passenger plane)
- Cat. B Substances (**UN3373**)  
**Maximum 4 L or 4 kg per package** ( pass or cargo plane)
- **Multiple** samples (several primary containers may be placed in the same package (individually wrapped or separated to prevent contact))
- **PI620** (the smallest external dimension shall not be less than 10 cm)
- **PI650** (at least one surface of the outer packaging must be 10x10 cm minimum)



## ➤ International requirements

### DOCUMENTS

## Category A – UN 2814 / UN 2900

- **AIR WAYBILL** (usually filled out by the transport company) To be signed by the shipper
- **DANGEROUS GOODS DECLARATION**  
Should be completed and signed by the shipper (usually transport companies pre-fill the form for the shipper)(several original copies)
- **IMPORT / EXPORT PERMITS**  
**Both**, the shipper and the receiver should check on their respective country's requirements
- **LIST OF CONTENTS**
- **INVOICE (FOR CUSTOMS)**

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

(Provide at least two copies to the airline)

Shipper		Air Waybill No.						
		Page of						
		Shipper's Reference Number (optional)						
Consignee								
Two completed and signed copies of this Declaration must be handed to the operator.				WARNING				
<p><b>TRANSPORT DETAILS</b></p> <p>This shipment is within the limitations prescribed for <del>air</del> <u>air</u> (see applicable).</p> <table border="1"> <tr> <td>PASSENGER AND CARGO AIRCRAFT</td> <td>CARGO AIRCRAFT ONLY</td> </tr> </table>				PASSENGER AND CARGO AIRCRAFT	CARGO AIRCRAFT ONLY	Airport of Departure		
PASSENGER AND CARGO AIRCRAFT	CARGO AIRCRAFT ONLY							
Airport of Destination				Shipment Type (Note: non-applicable)				
				<input type="checkbox"/> NON-RADIOACTIVE <input type="checkbox"/> RADIOACTIVE				
<b>NATURE AND QUANTITY OF DANGEROUS GOODS</b>								
Dangerous Goods Identification								
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Packing Group	Quantity and Type of Packing	Packing Inv.	Authorization		
Additional Handling Information			Emergency Response Telephone Number:					
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/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I declare that all of the applicable air transport requirements have been met.				Name/Title of Signatory				
				Place and Date				
				Signature (see warning above)				

## Category A – UN 2814 / UN 2900 IMPORT / EXPORT PERMITS

- Example: France (*Brucella* strains/DNA)
  - Import
    - 1 import permit required
  - Export
    - 2 export permits required

Bio warfare regulations!!

## Category B – UN 3373

- **AIR WAYBILL** (usually filled out by the transport company) To be signed by the shipper  
name and 24h phone number  
of a responsible person
- **IMPORT / EXPORT PERMITS**  
**Both**, the shipper and the receiver should check on their respective country's requirements  
**\* Animal origin!!**
- **LIST OF CONTENTS**
- **INVOICE (FOR CUSTOMS)**



## Category B – UN 3373 IMPORT / EXPORT PERMITS

**Both**, the shipper and the receiver should check on their respective country's requirements

**\* Animal origin!!**

- Example: France
  - Import
    - import permit required **if sample of animal origin**

- Shipment of infectious or potentially infectious substances **needs to be well organized** (shipper/receiver/transport company)
- import/export permits may take a long time
- **Door-to-Door transport**
  - transport by route is not always allowed
  - unexpected handling/customs fees!
- **Let the other party know when the package is picked up/received by e mail as soon as possible**

## International Shipping Regulations:

- UN United Nations
- ICAO (International Civil Aviation Organization)
- IATA (International Air transport Association)
- DGR-Dangerous Goods Regulations
- IMO (International Marine Organization)
- UPU (Universal Postal Union)



+ Different National Regulations may apply!



## FOR MORE INFORMATION

### ➤ WHO

[http://www.who.int/ihr/publications/who\\_hse\\_ihr\\_2012.12/en/](http://www.who.int/ihr/publications/who_hse_ihr_2012.12/en/)

[http://www.who.int/ihr/publications/WHO\\_CDS\\_CSR\\_LYO\\_2004\\_11/en/](http://www.who.int/ihr/publications/WHO_CDS_CSR_LYO_2004_11/en/)

[http://www.who.int/ihr/publications/WHO\\_CDS\\_EPR\\_2006\\_6/en/](http://www.who.int/ihr/publications/WHO_CDS_EPR_2006_6/en/)

<http://www.who.int/csr/delibepidemics/biochemguide/en/>

[http://www.who.int/ihr/i\\_s\\_shipping\\_training/en/](http://www.who.int/ihr/i_s_shipping_training/en/)

### ➤ IATA

<http://www.iata.org/whatwedo/cargo/dgr/Pages/index.aspx>

ขอบคุณครับ



*Thanks for your attention...*