

Transportation of infectious substances and biological substances

2018




Objective

- Differentiate between infectious substances and biological substance for the purposes of transportation
- Describe the types of packaging and documentation appropriate to each
- Be aware of special requirements for other dangerous goods and import/export permits



Transportation of infectious substances and biological substances

- Regulation on the transport of dangerous Goods
 - UN committee of experts on dangerous Goods, UN Model
- Technical institution for safe transport of dangerous Goods- Air international Civil Aviation organization(ICAO)
- Dangerous Goods regulations – International Air Transport Association (IATA)



A working system coordinating with various parties

- Agreement and procedures for the shipment of infectious substances are developed with local customs, air transport, and postal authorities.
 - Include emergency plans in the event of an emergency.
 - Continual liaison between all parties must be maintained to reflect changes in personnel , regulations, local conditions and status of air carriers.

Classification of Infectious Substances

- The three proper shipping names for infectious substances are:
 - Infectious substances, affecting humans, UN 2814
 - Infectious substances affecting animals, UN 2900
 - Biological Substances Category B, UN 3373 (This does not require a Dangerous Good Declaration to ship)



Categories of Infectious Substances

- Category A:
 - Capable of causing permanent disability, life threatening or fatal disease in otherwise health humans or animal
 - Assigned to UN 2814 if cause disease in humans or animal
 - Assigned to UN 2900 if cause disease only animals

Examples of 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
- *Francisella tularensis* (cultures only)

Categories of Infectious Substances

- Category B: an infectious substance which does not meet the criteria for inclusion in category A. Considered to be less risk
 - Assigned to UN 3373
 - However, culture samples are assigned to UN 2814 or UN 3373
 - Culture are result of process of intentionally propagating pathogens



Biological products

- Those product derived from living organisms
 - Used in the prevention, treatment or diagnosis of disease in humans or animals
 - Or for development, experimental or investigational purposes.
 - Not limited to finished or unfinished products such as vaccines.

Patient Specimens

- Human and animal materials collection directly from humans or animals are being transported for research, diagnosis, investigational activities, disease treatment and prevention.



Other Definitions

■ Genetically modified (GM)

- Are micro-organisms and organisms in which genetic material has been purposely altered in a way that does not occur naturally
- Assigned UN 3245 UN 3245

■ Medical or clinical wastes

- are wastes derived from the medical treatment of animals or humans or from bio-research
- assigned to UN 2814 or UN 2900

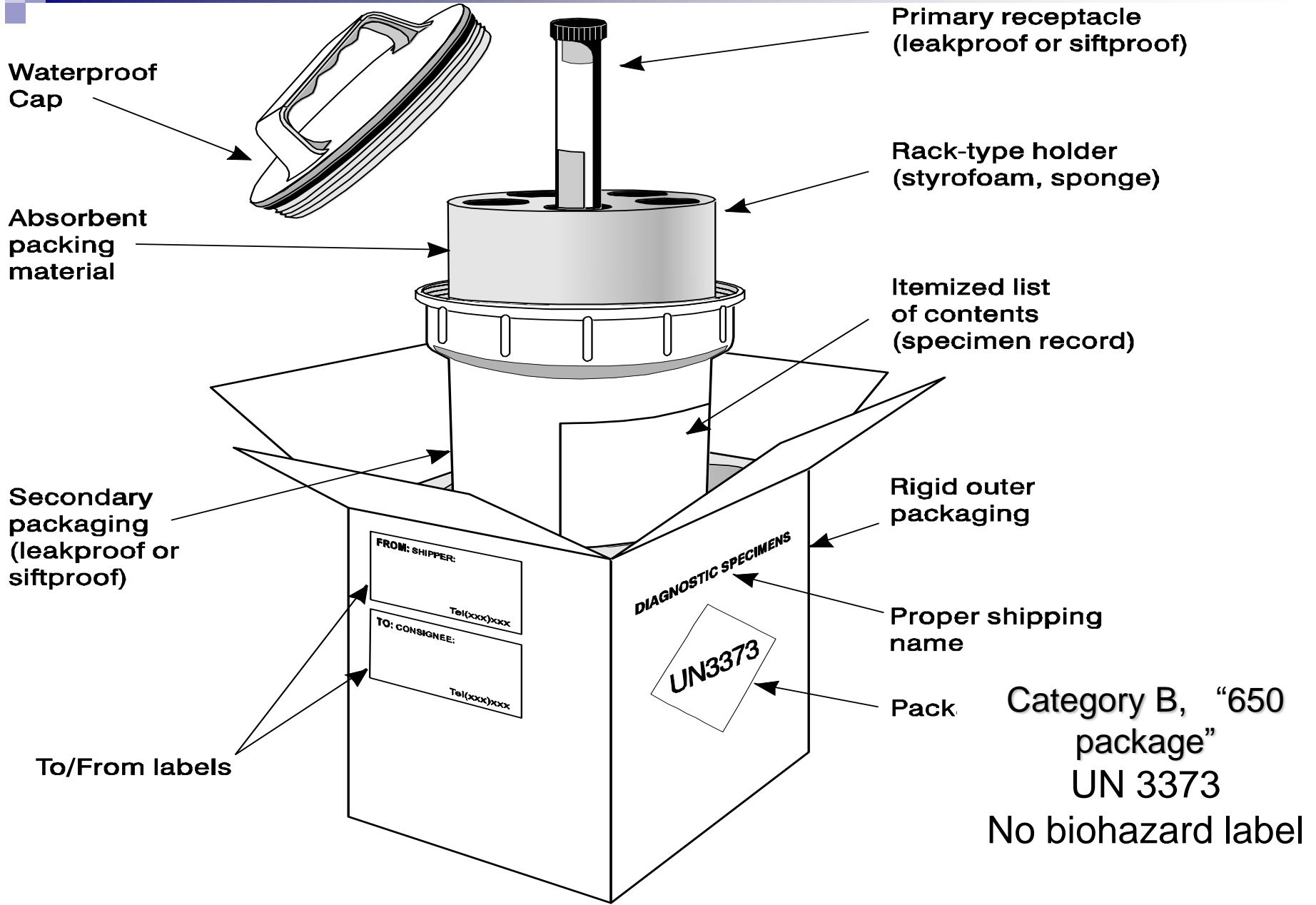


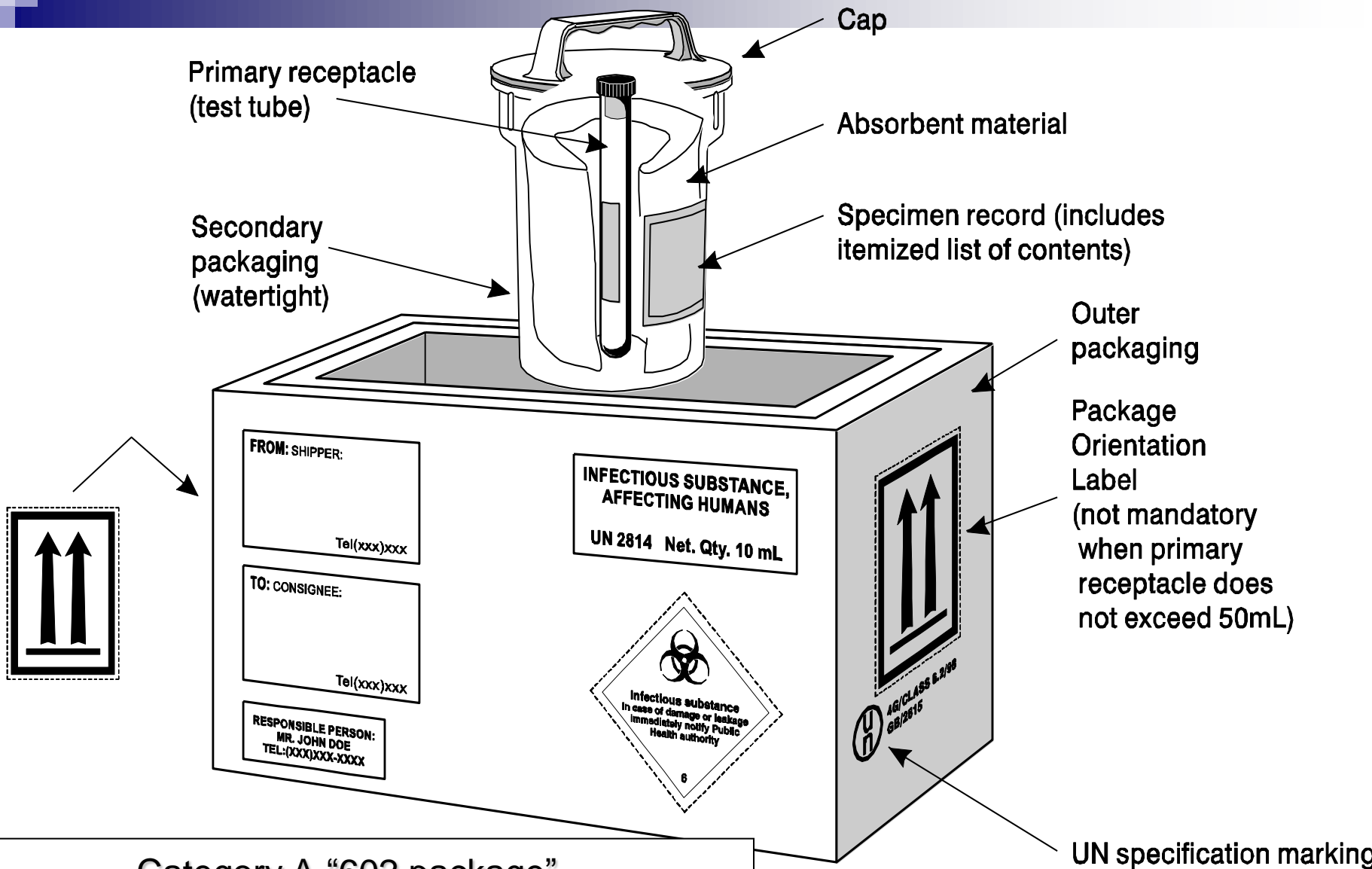
Packaging Requirements for infectious Substances



Triple Packaging

- Primary receptacle
 - Labeled primary water tight, leak proof receptacle containing the specimen.
 - The receptacle is wrapped in enough absorbent material to absorb all fluid in case of breakage.
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- Secondary receptacle
 - Durable, water tight, leak proof receptacle containing primary receptacle.
- Outer shipping package
 - Rigid, bearing forms, permits, etc.

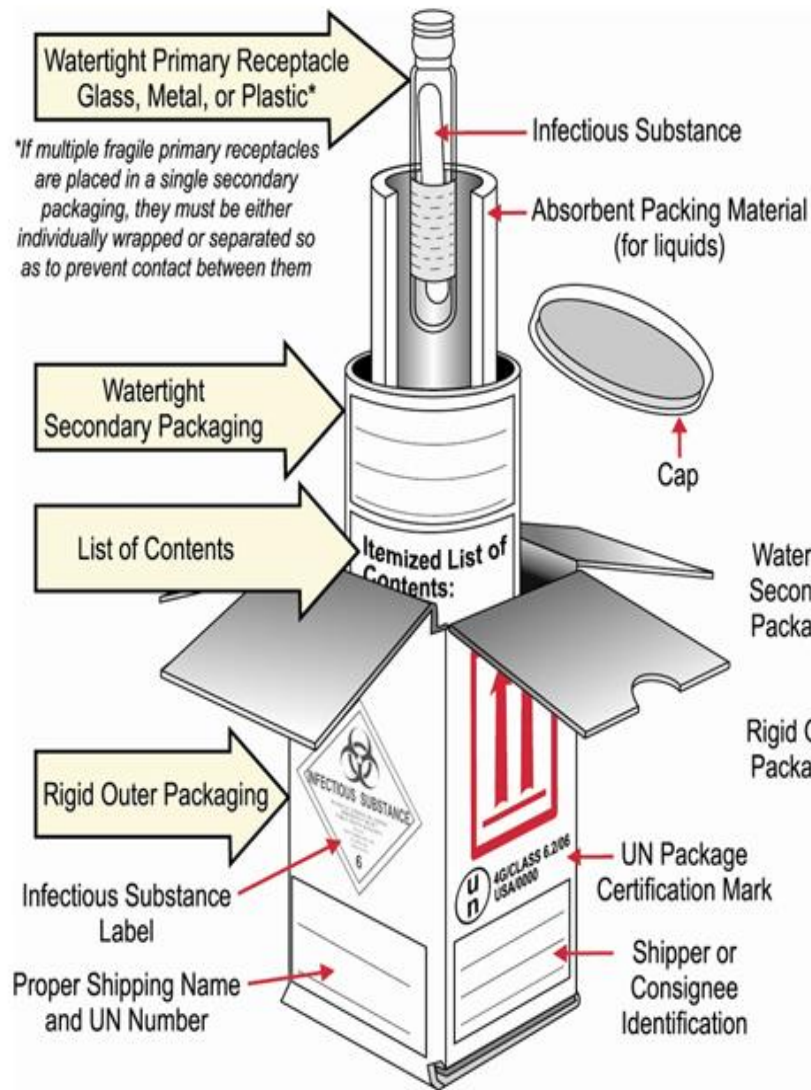




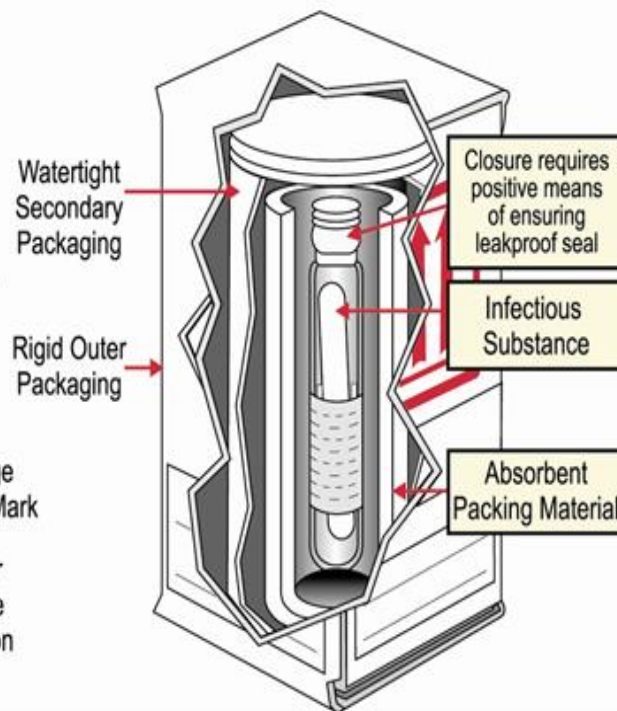
Category A "602 package"
Labels: UN 2814 UN 2900 Biohazard

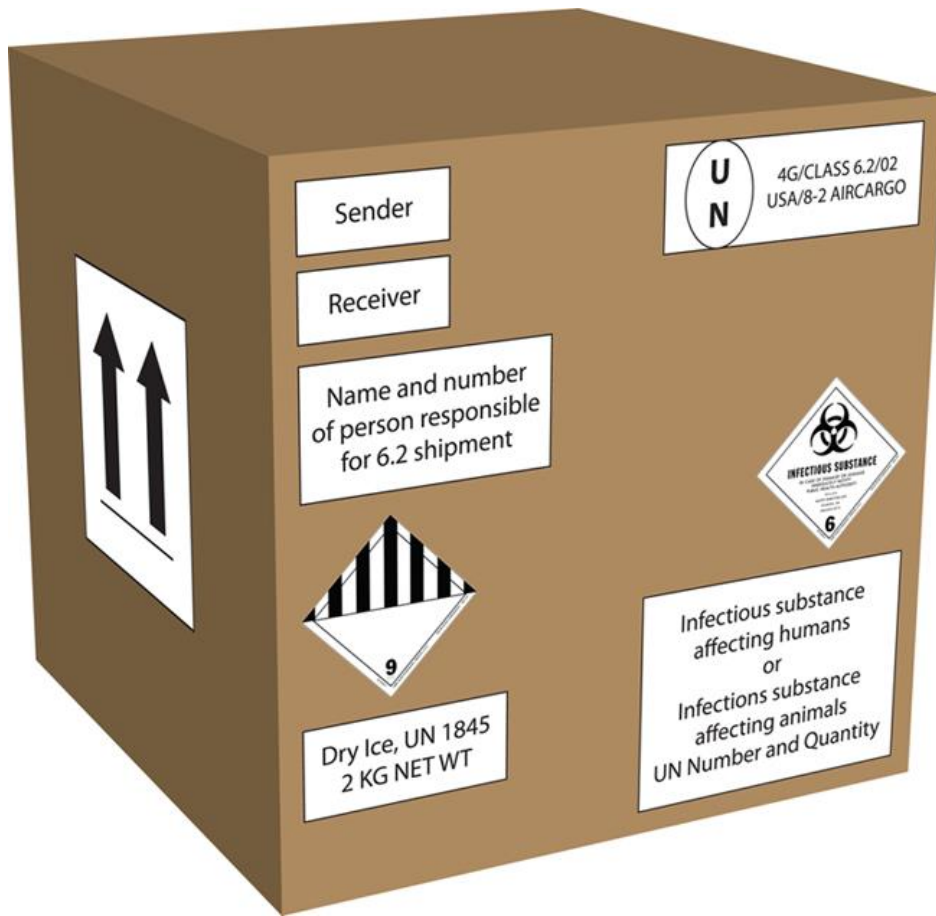
Triple Packaging

UN Certified
Bio Bottle



Cross Section of Closed Package





Packaging Requirement for Biological products

- In accordance with the requirements of appropriate national authorities.
- They may have special licensing requirements.
- Basic triple packaging, meets IATA packaging Instruction 650
- May contain up to 500ml not to exceed 4L
- Labels marked with diamond with UN 3373 and Biological substance, category B.



Conclusion

- The safe expeditious shipment of diagnostic specimens and infectious agents begins with the development of a working system between the sender, postal or airline officials, customs and the receiving laboratory.
- When such mutual agreements and understandings are made, common major encountered problems are prevented before they occur.
- Laboratory personnel have the responsibility to become familiar with the appropriated transport regulations for the microorganisms and specimens with which they work

**Thank you for your
attention**

