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UNITING AVIATION

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Annex 18

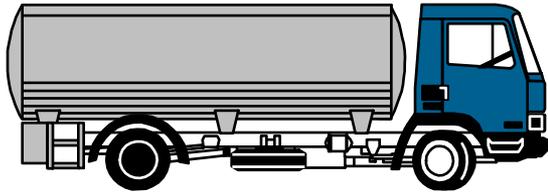
The Safe Transport of Dangerous Goods by Air

Katherine Rooney
Cargo Safety Section

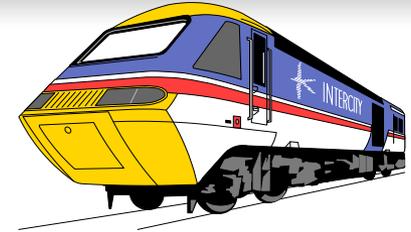


What are dangerous goods?

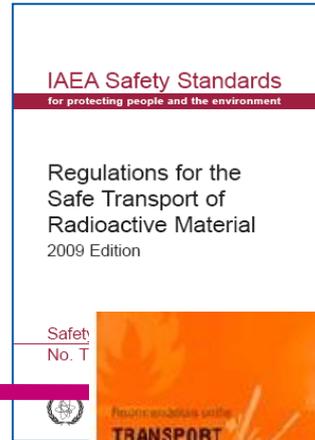
- Articles or substances which are capable of posing a **risk to health, safety, property** or the **environment** and which are classified in the list of dangerous goods



Road



Rail



IAEA Safety Standards
for protecting people and the environment

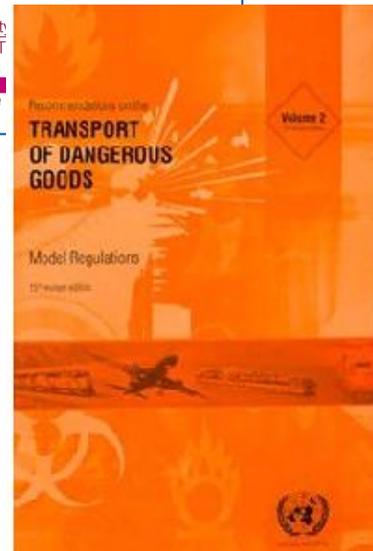
Regulations for the
Safe Transport of
Radioactive Material
2009 Edition

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Technical Instructions
for the Safe Transport of
Dangerous Goods by Air

Air

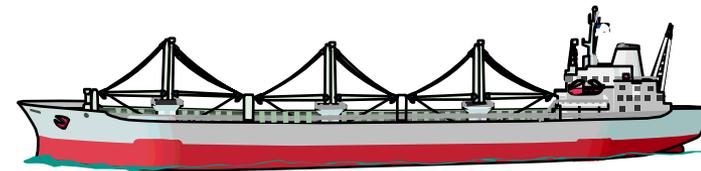
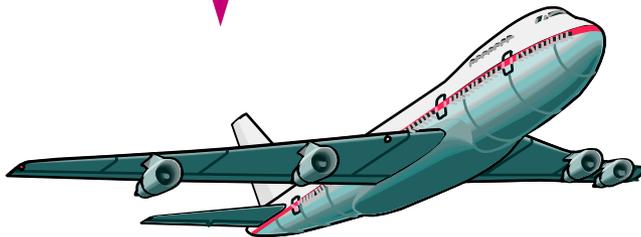


Recommendations on the
TRANSPORT
OF DANGEROUS
GOODS

Model Regulations

Volume 2

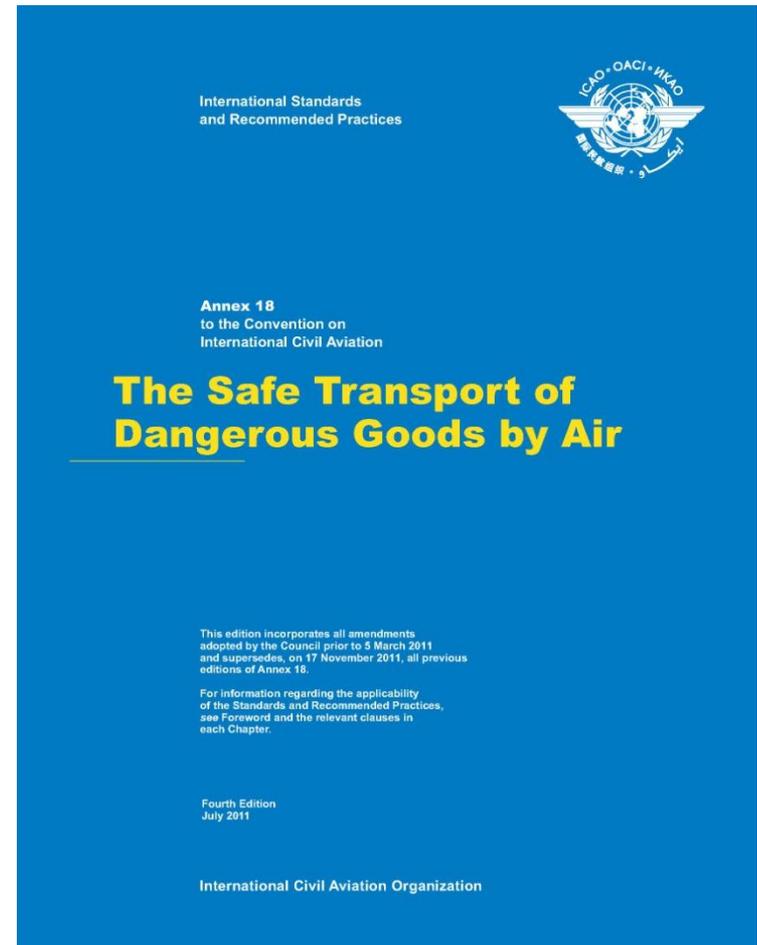
Sea





Annex 18

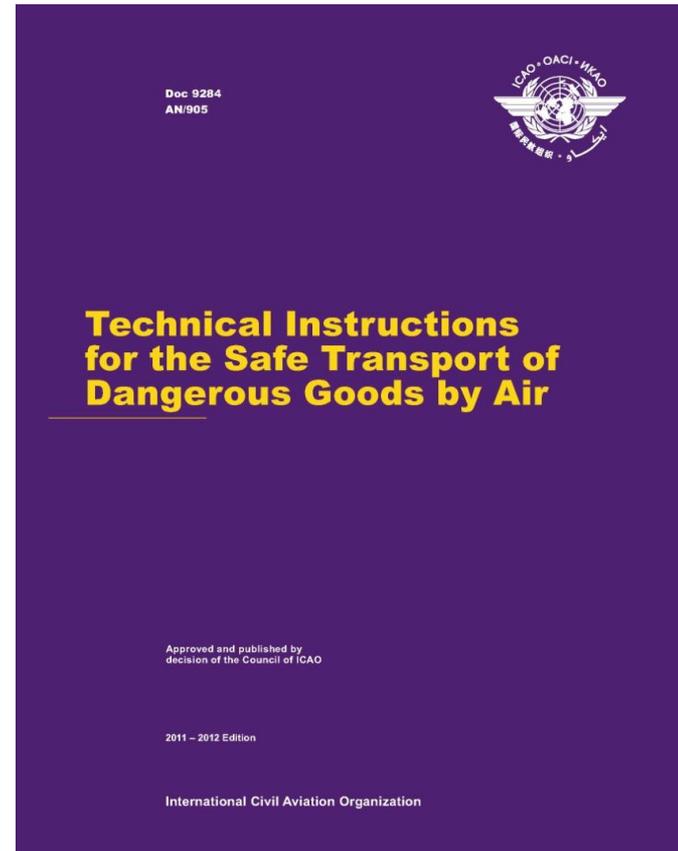
- *The Safe Transport of Dangerous Goods by Air*
- “The Standards and Recommended Practices of this Annex shall be applicable to all international operations of civil aircraft.”





Technical Instructions

- *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284)
- Issued every two years to reflect UN cycle
- “Each Contracting State shall take the necessary measures to achieve compliance with the detailed provisions contained in the Technical Instructions.” (*Annex 18, 2.2.1*)





Hazards.....

- Explosive
- Flammable
- Corrosive
- Toxic
- Radioactive
- **Infectious substances**



Infectious substances

- Includes:
 - Infectious substances
 - Patient specimens
 - Cultures
 - Biological products
 - Medical or clinical waste



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 disease to humans or animals in otherwise healthy humans or animals



Mycobacterium tuberculosis



Classification

- Infectious substances assigned to Category A and which cause disease in humans or both in humans and animals must be assigned to UN 2814
 - **UN 2814: Infectious substances, affecting humans**
- Infectious substances assigned to Category A and which cause disease only in animals must be assigned to UN 2900
 - **UN 2900: Infectious substances, affecting animals only**



Assignment to UN2814 or UN2900

- Known medical history of the source human or animal
- Endemic local conditions
- Symptoms of patient or animal
- Professional judgement concerning individual circumstances of source human or animal



UN Number and Proper Shipping Name	Micro-organism
UN 2814	Bacillus anthracis (cultures only)
Infectious substances affecting humans	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



Category B

- An infectious substance which does not meet the criteria for inclusion in Category A
- Infectious substances in Category B must be assigned to **UN 3373**
- The proper shipping name of **UN 3373** is **Biological substance – Category B**



Patient specimens

- Patient specimens for which there is minimal likelihood that pathogens are present are not subject to these Instructions if specimen is transported in a packaging
 - which will prevent any leakage
 - which is marked with the words **“Exempt human specimen”** or **“Exempt animal specimen”**, as appropriate



Professional judgement to be used

- Blood or urine tests to monitor cholesterol levels, blood glucose levels, hormone levels, or prostate specific antibodies (PSA);
- Those required to monitor organ function such as heart, liver or kidney function for humans or animals with non-infectious diseases, or therapeutic drug monitoring;
- Those conducted for insurance or employment purposes and are intended to determine the presence of drugs or alcohol;
- Pregnancy test; biopsies to detect cancer; and antibody detection in humans or animals.



Classification of medical/clinical wastes

- Medical or clinical wastes which are reasonably believed to have a low probability of containing infectious substance must also be assigned to:

UN 3291

Clinical Waste, unspecified, n.o.s.

(or)

(Bio) Medical Waste, n.o.s.

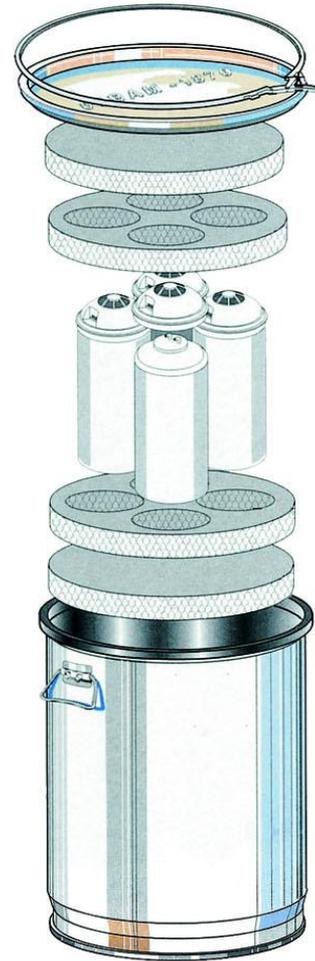
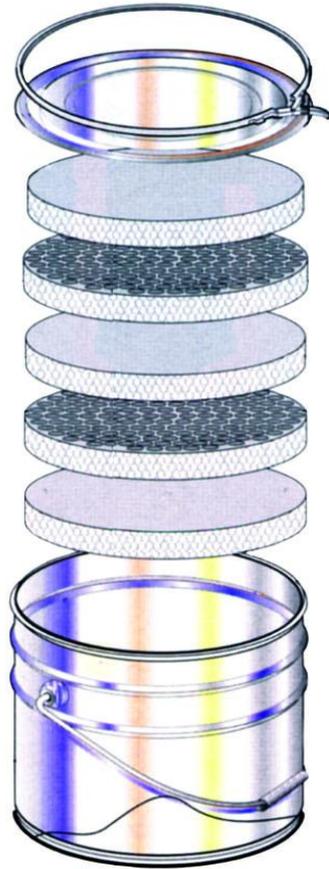
(or)

Regulated medical waste, n.o.s.



Packaging for Cat A

- A leak-proof primary receptacle(s) containing the specimen;
- A leak-proof secondary packaging; and
- An outer packaging of adequate strength for its capacity, mass and intended use, and with at least one surface having minimum dimensions of 100mm x 100mm







Absorbent material

- Must be placed between the primary receptacle and secondary packaging
- Must be sufficient to absorb the entire contents of all primary receptacles.



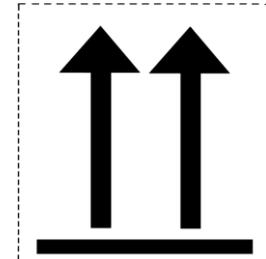
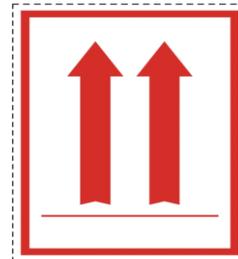
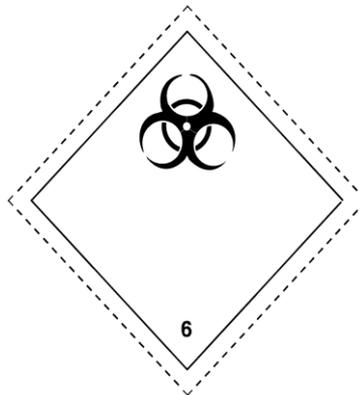
If refrigerated or frozen....

- Most frequently used refrigerants are ‘Dry Ice’ and ‘Liquid Nitrogen’
- For ‘Dry Ice’, the outer packaging must allow the release of carbon dioxide gas
- For ‘Liquid Nitrogen’, the shippers must use plastic primary receptacles, which can withstand very low temperatures



Marking and labelling

- Primary Hazard
- Subsidiary Risk Label when required
- Orientation labels on opposite sides on combination packages containing more than 50 mL of liquid in the package
- “Cargo Aircraft Only” label if applicable





Packagings for Category B

- UN 3373 Biological substance – Category B are similar to these for Category A infectious substances, except that they have not been officially tested and no “Package Specification Markings” are required





PHEIC and Ebola

- Transport of infectious substances for diagnosis
 - UN 2814 Infectious substance, affecting humans
 - PI 620
 - UN specification packaging
- Transport of infected persons
- Transport of infected corpses



Problems....

- Availability of packaging
- Cost
- Export/import controls
- Trained personnel
- Potential security issue



‘High consequence’ dangerous goods

- Those with potential for misuse in a terrorist event and which may produce serious consequences
 - Mass casualties
 - Mass destruction
 - Mass socio-economic disruption
- Only to be offered to operators appropriately identified



Indicative list

- Explosives
- Toxic gases
- Infectious substances, Category A
- Radioactive material of high activity



Security plans

- Assessment of vulnerabilities, including inter-modal transfer, temporary transit storage, handling and distribution
- Record keeping
- Operating practices e.g. access to dg in temporary storage, proximity to vulnerable infrastructure
- Distribution of documentation to be limited as far as possible – but NOT to impact on safety



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DGP Working Group

DGP Working Group on Training

DGP Working Group on Lithium Batteries

Multidisciplinary Lithium Battery Transport Coordination Meetings

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Dangerous Goods

Latest Updates

10 September 2015
Addendum/Corrigendum No. 2 to the Technical Instructions (2015/2016 Edition)

en

26 May 2015
Addendum No. 1 to the Technical Instructions (2015/2016 Edition)

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20 November 2014
Corrigendum No. 1 to the Technical Instructions (2015/2016 Edition)

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2 June 2014
Corrigendum No. 1 to the Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481, 2013/2014 Edition)

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31 December 2013
Corrigendum No. 3 to the Technical Instructions (2013/2014 Edition)

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5 August 2013

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National Authority for Dangerous Goods Transport by Air

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