



EUROPEAN AVIATION SAFETY AGENCY  
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE  
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

## **Dangerous Goods in the cabin; passenger and crew provisions and general overview of the regulations**

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CC/CS Workshop

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► Do you think you have dangerous goods with you right now?



## DC8 UPS 2006 Philadelphia



## LAX Laptop



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## What is a battery?

- Two or more cells electrically connected together and fitted with devices necessary for use. A single cell lithium battery is a "cell".

- Types:

- Lithium Metal
- Lithium Ion





## Battery for Electrical Bike





## Laptop battery test

- <http://www.youtube.com/watch?v=pizFsY0yjss>



## Iphone incident in Australia





## E-cigarretes – FedEx 2009



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## Lithium Battery Production Growth

- From 625 million batteries in 2000 to 8 billion batteries in 2020!!

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## Lithium ion and lithium metal

- UN 3090, Lithium metal batteries
- UN 3480, Lithium ion batteries
- UN 3091, Lithium metal batteries contained in equipment
- UN 3091, Lithium metal batteries packed with equipment
- UN 3481, Lithium ion batteries contained in equipment
- UN 3481, Lithium ion batteries packed with equipment.

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## When are they dangerous?

- Short-circuits
- Damaged
- Defective
- Non UN tested
- If there is a fire close-by
- If unstable due to mechanical forces?

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## Cylinder Explosion in Dubai



## Dangerous Goods

- 200,000 NEED to be transported.
- Land - 10% to 15% of the goods are dangerous goods – less accidents than regular goods.







## Classes of Dangerous Goods

### Class 1 Explosives

Fireworks, flares, detonators, fuses, dynamite, ammunition, material for expeditions, security briefcases containing fireworks and materials for fireworks in general



### Class 2 Gases

Aerosols (hair spray), self-defence sprays, camping gas, extinguishers, breathing devices, oxygen bottles for diving...



### Class 3 Flammable liquids

Paint, fuel, lighter refills, adhesives, nail polish remover (acetone)...



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## Classes of Dangerous Goods

Class 4 Flammable solids; substances liable to spontaneous combustion; substances which, in contact with water, emit flammable gases

Matches, solid nitroglycerin mixture...



### Class 5 Oxidizing substances & organic peroxides

Oxygen generators, bleaching powder, peroxides and some fertilisers...



### Class 6 Toxic and infectious substances

Incapacitating devices, samples for diagnosis, vaccines, virus cultures or bacteria, insecticides, pesticides...



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## Classes of Dangerous Goods

### Class 7 Radioactive material

Pharmaceutical products w/ radioactive isotopes



### Class 8 Corrosive substances

Dye, acids, thermometers (6.1 related)



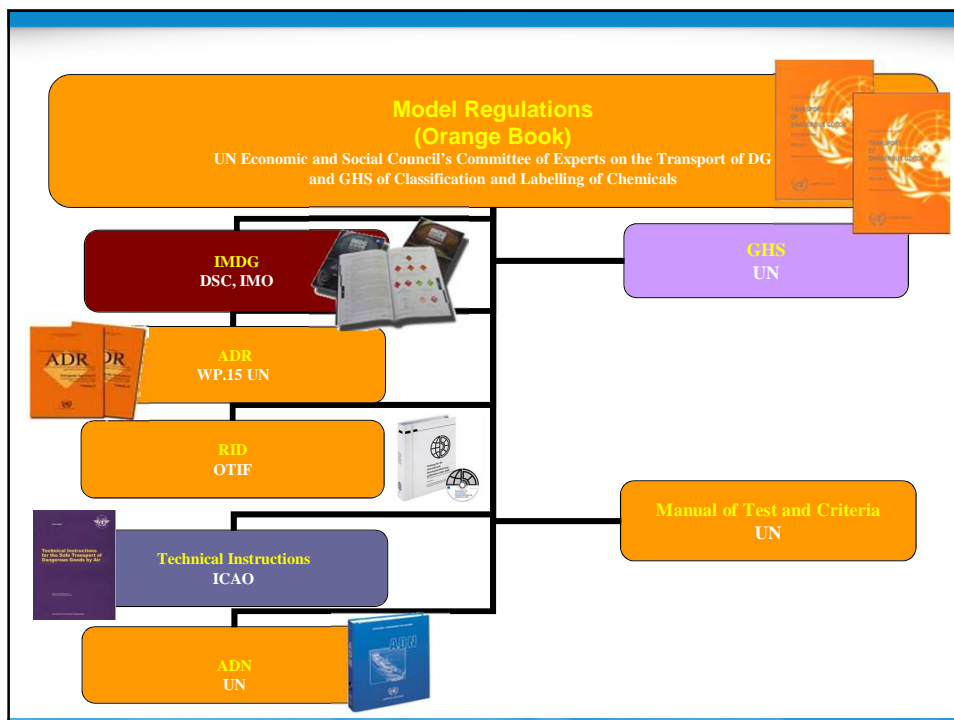
### Class 9 Miscellaneous dangerous substances and Articles

Dry ice, first aid kits, batteries...



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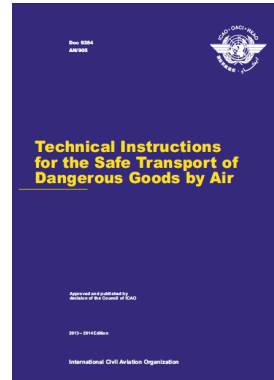
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## Technical Instructions

- IATA 1950
- Mandatory – Chicago Convention Annex 18
- ICAO publishes official texts since 1983 → IATA
- ANC → Panel of Experts
- Different from other transport modes (temperature, pressure...)



## What is in it?

- General provisions (training, exceptions, approvals, mail...)
- Classification of dangerous goods
- DG List, LQ and EQ
- Packing Instructions
- Shipper's responsibilities (package markings, labelling, documentation...)
- Packaging nomenclature, marking requirements and tests
- Operator's responsibilities (Acceptance, storage, loading, decontamination, provision of information...)
- Provisions concerning passengers and crew



## European Rules

- Regulation (EC) No 216/2008 → the Commission should adopt the necessary implementing rules for establishing the conditions for the safe operation of aircraft.
- Commission Regulation 965/2012 (Cover Regulation = OPS) of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council

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## How do we transport dg?

- UN Testing/classification
- Assign a UN Number
- Use proper package
- Watch limits
- Mark and label
- Documentation
- NOTOC
- Train staff



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## Training for all crew members – additional guarantee of safety

Includes (for both non-carriers and carriers):

- General philosophy
- Limitations
- Labelling and marking
- Recognition of undeclared dangerous goods
- Provisions for passengers and crew
- Emergency procedures

Additionally, flight crew members of operators transporting dg:

- List of dangerous goods, storage and loading procedures, pilot's notification

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## Information given to passengers – additional guarantee of safety

**STOP**

**Pour votre sécurité!**  
Pour des raisons de sécurité, le transport de marchandises dangereuses dans les bagages est interdit. Pour de plus amples informations, veuillez contacter votre compagnie aérienne. Nous vous souhaitons un bon voyage.

**For your safety!**  
For safety reasons, dangerous goods may not be carried in passenger baggage. For further information, please contact your airline. We wish you a pleasant flight.

Feux d'artifices et fusées éclairantes Fireworks and light rockets		Cartouches pour soda Soda cartridges	
Bouteilles de camping-gaz Camping gas		Bouteilles de plongée pleines/ lampe de plongée avec batterie connectée Full oxygen cylinders/ connected underwater torches	
Essence et alcool à plus de 70% Gasoline and alcohol exceeding 70%		Peintures et dissolvants Paint and paint thinner	
Batteries de voiture et produits chimiques à usage domestique Car batteries and household chemicals		Poisons Poisons	



Which ones do you think you can carry with you, in your carry-on or check in an aircraft?



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## Part 8 - Technical Instructions

► Totally forbidden:



► Only 1 on the person:



► Cannot be checked:



► Limited:



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# Questions??

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