

# IAC 2207 GROUND SERVICE MANAGEMENT

## SHIPPING DANGEROUS GOODS



## Unit 7 Dangerous Goods

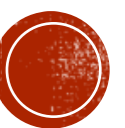


# THING TO THINK

"Education is the most  
powerful weapon  
we can use to  
change the world."

— Nelson Mandela





# BASIC PROCEDURES

**GSA ACCEPT PASSENGER'S BAG DURING CHECK-IN PROCESS BY**

**1. GSA INSPECT THE BAG ; SHOULD BE IN ACCEPTABLE CONDITION (GOOD CONDITION) WHICH CAN AVOID BOTH BAGGAGE HANDLING PROBLEMS AND AIRLINES EXPENSES FOR A DAMAGED BAGGAGE**

**EACH PIECE OF BAGGAGE SHOULD HAVE NAME TAG (TO INDICATE THE OWNER)**



# UNACCEPTABLE CHECK-IN ITEMS

**2. GSA SHOULD INFORM PASSENGER NOT TO LOAD MEDICINES AND MEDICAL SUPPLIES INCLUDE VALUABLES SUCH AS JEWELRY AND IMPORTANT DOCUMENTS**

**BACAUSE THEIR BAG COULD BE DELAYED OR LOST**

**3. GSA ATTACH LIMITED RELEASE TAG IF NEEDED AND LET PASSENGER SIGN THE LIMITED RELEASE FORM**



**PLEASE DO NOT PLACE ANY OF THESE VALUABLES IN YOUR CHECKED BAGGAGE!**



**Camera**



**Laptop  
Computer**



**Mobile  
phone**



**Jewelry**



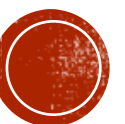
**Cash & Gold**



# 1. INTERNATIONAL DG REGULATORY REFERENCES

## Carriage of Dangerous Goods by Air-Legal Basis

- Airlines use the **IATA Dangerous Goods Regulations Manual** as a daily reference tool.
- The carriage of DG is managed with **strictest compliance** with international regulations adopted by the aviation industry
- **U.N. Committee of Experts (CoE)** develops recommended procedures for the transport of all types of dangerous goods except radioactive materials.



# 1. INTERNATIONAL DG REGULATORY REFERENCES

+ **The International Atomic Energy Agency (IAEA)** develops recommended procedures for the transport of radioactive materials.

+ **ICAO** and a division of the United Nations, has used these recommendations as the basis for developing the Technical Instructions for the Safe Transport of Dangerous Goods by air, also called ICAO-Technical Instructions (ICAO-T.I.) which codified in **Annexes 18**





# 1. INTERNATIONAL DG REGULATORY REFERENCES

**IATA DGR** applicable to;

- All airlines that are members or members of IATA
- All airlines that are party to IATA interline traffic agreement cargo
- All shippers and agents
- IATA updates the DGR every year based on changes in the U.N.'s recommendations on shipping dangerous goods by air, and any amendments to regulations developed by ICAO



## 2. RESTRICTIONS AND LIMITATIONS

### Forbidden Dangerous Goods

#### Any substance that;

- +Liable to explode
- +Reacts dangerously
- +Produces a flame or dangerous evolution of heat
- +Emits dangerous toxic, corrosive or flammable gases or vapors

Must not be carried on aircrafts under any circumstance and are named as forbidden dangerous goods



## 2. RESTRICTIONS AND LIMITATIONS

### Hidden Dangerous Goods

Items in or around our homes and workplaces that have potential of being a DG when shipped by air;

- +PGSA should seek confirmation from pax to prevent DG being loaded onto aircraft or taken onboard
- +A package that has visible frost or is very cold to touch may contain dry ice
- +**Aerosol spray can** may make a rattle sound during handling
- +**Toolbox** May contain explosives, compressed gases, aerosols, flammable gases (butane cylinders or torches), flammable adhesives or paints, corrosive liquids (acids or caustic cleaning compounds).



## 2. RESTRICTIONS AND LIMITATIONS

### Hidden Dangerous Goods

#### Examples of DG in pax bag are;

- + **Automobile part:** may contain wet batteries, engines, carburetors or fuel tanks that contain fuel, or tire inflation devices with compressed gases
- + **Breathing apparatus:** may indicate cylinders or chemical oxygen generators or refrigerated liquefied oxygen
- + **Camping equipment:** may contain flammable gases, flammable liquids or solids,



## 2. RESTRICTIONS AND LIMITATIONS

### Hidden Dangerous Goods

- **Diagnostic specimens:** biological substances are any human or animal material, blood components, tissue and tissue fluids, may contain infectious substances.
- **Diving equipment (SCUBA):** may include air cylinders that contain compressed air or special gas mixture
- **Frozen food:** may be packed in carbon dioxide solid (dry ice) that can adversely affect live animals and humans. If dry ice melt it turn into carbon dioxide gas that can make a person become unconscious or die.



## 2. RESTRICTIONS AND LIMITATIONS

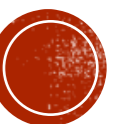
### Dangerous Goods Carried by Pax or Crew

**Pax or Crew** : must not carry DG

- As or in checked bag or in carry-on bag
- On their person
- Even though goods acceptable with approval

**PGSA**: must be provided with information on;

- General descriptions often used for items in pax bag of hidden DG
- DG labels, marking
- DG manual carried by pax



# DANGEROUS GOODS

**The IATA (DGR)** Dangerous Goods are articles or substances which are capable of posing a risk to health, safety, property or the environment .

- **FLIGHT SAFETY**
- **EQUIPMENT**
- **PASSENGERS AND CREW'S HEALTH**

**CAN BE DIVIDED IN TO 9 CLASSES**



- **Class 1** Explosive items – dynamite, firework , Ammunition



- **Class 2** Flammable gasses, toxic gasses, and non-flammable gasses this class can divided in to 3 types

-Type 1 Flammable gases :butane

-Type 2 Toxic gases: tear gas

-Type 3 Non-flammable gases: fire extinguisher





- **Class 3** Flammable liquid – close cup flash point of not more than 65.6 degree Celsius :lacquers ,paints alcohol ,thinners , petroleum products



- **Class 4** Flammable solids, spontaneous combustible, and dangerous when wet items

Type 1 Flammable solids: matches



**Type 1 Flammable solids: matches**

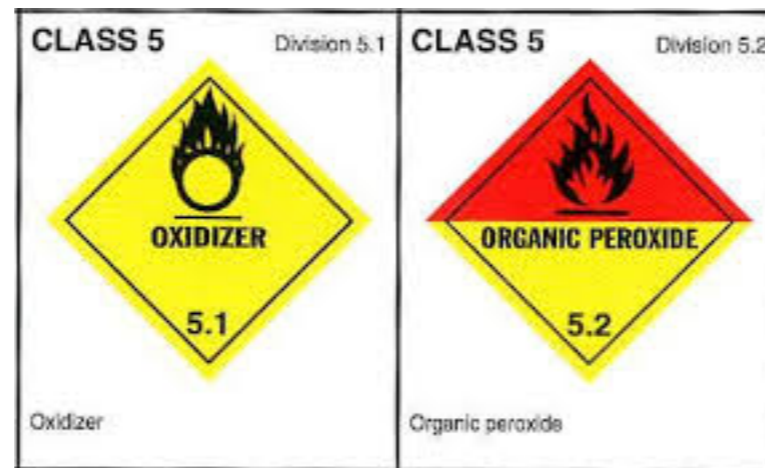
**Type 2 spontaneous combustible: unprocessed fiber**

**Type 3 dangerous when wet items : items includes sodium**

**That burn easily when exposed to water**



**Class 5 Oxidizers and organic peroxide – household bleach, *tert*-butyl alcohol use as a solvent or paint-remover ingredients**



**Class 6 Toxic and Infectious substances – cyanide, SARS, H1N1 viruses**



- **Class 7** Radioactive materials (Radioactive Materials)




























- **Class 8** Corrosive items – battery acid



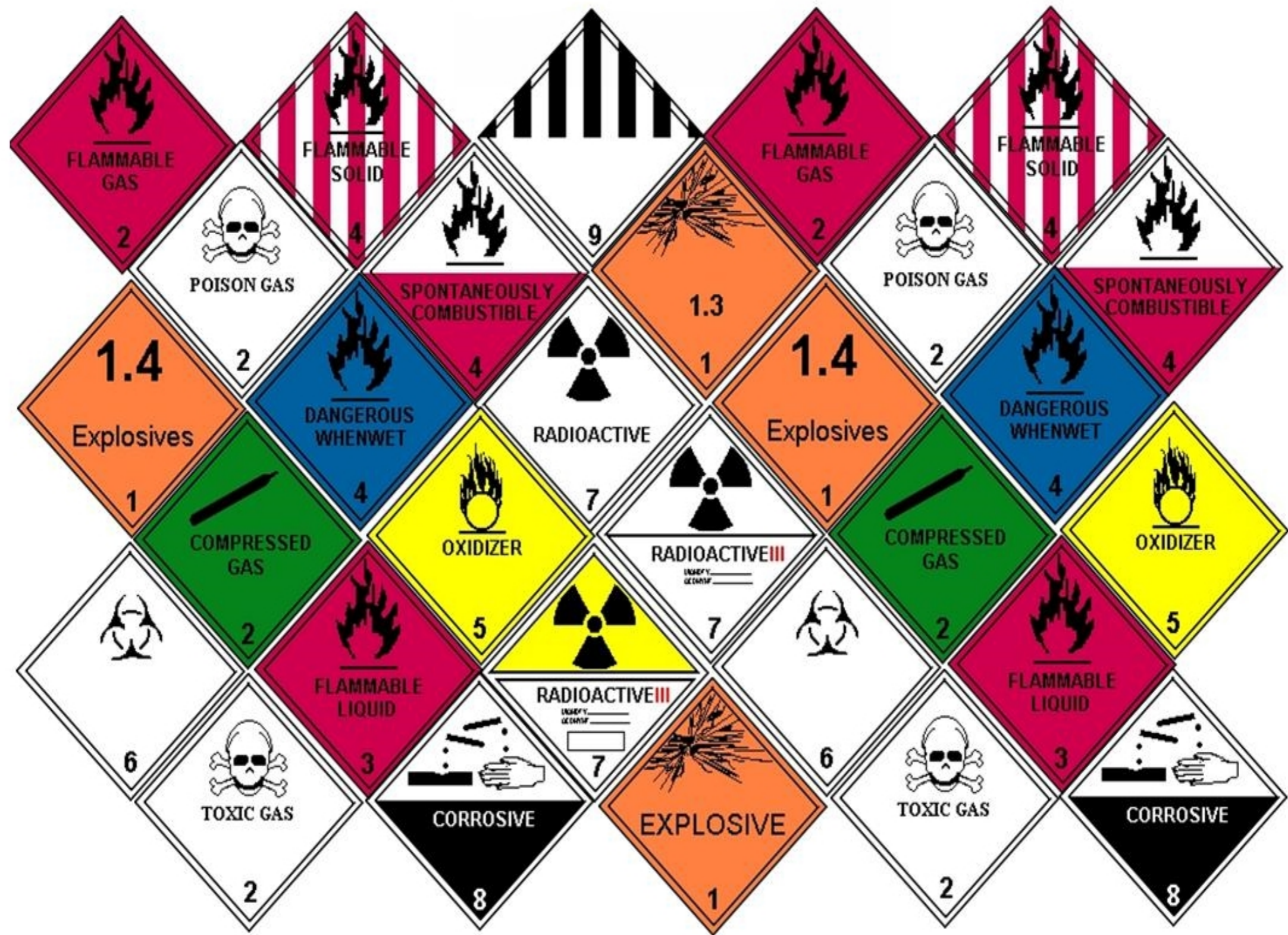
**Class 9** Miscellaneous items  
other hazardous materials that are not included in  
Class 1 to 8 such as magnetized material, lots of dry  
ice



## Dangerous Goods Classes and Divisions

1.1, 1.2, 1.3	EXPLOSIVES				
1.4	Substances and articles which present no particular hazard		2.3	TOXIC GASES	
1.5	Very insensitive substances which have a mass explosion hazard		3	FLAMMABLE LIQUIDS	
1.6	Extremely insensitive articles which do not have a mass explosion hazard		4.1	FLAMMABLE SOLIDS	
2.1	FLAMMABLE GASES		4.2	SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION	
2.2	NON-FLAMMABLE NON-TOXIC GASES		4.3	SUBSTANCES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES	
2.2 Sub-risk 5.1	OXIDISING GAS (Oxygen and Nitrous Oxide - only for road or rail transport or for storage in Australia)		5.1	OXIDIZING SUBSTANCES	
5.2	New Label, ORGANIC PEROXIDES		6.1	TOXIC SUBSTANCES	
	Old Label (not permissible after 1 January 2011)		6.2	INFECTIOUS SUBSTANCES	
7	RADIOACTIVE MATERIAL (Category I)		7 Cont	FISSILE MATERIAL	
	RADIOACTIVE MATERIAL (Category II or III)		8	CORROSIVE SUBSTANCES	
			9	MISCELLANEOUS DANGEROUS SUBSTANCES & ARTICLES	
				MIXED CLASSES (for road or rail transport or for storage in Australia)	
				ELEVATED TEMPERATURE SUBSTANCES	
				ENVIRONMENTALLY HAZARDOUS SUBSTANCES	







# HANDLING LABELS

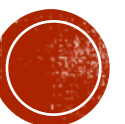


## **Cargo Aircraft Only (Forbidden in passenger aircraft)**

This Label is required on all consignments containing dangerous goods that can only be shipped on a cargo aircraft.



**MAGNETIZED MATERIAL  
THIS LABEL TO INDICATES THAT THE  
CONTENTS WITHIN THE PACKAGE  
INCLUDE MAGNETIZED MATERIAL  
THAT CAN AFFECT THE PERFORMANCE  
OF AIRCRAFT INSTRUMENTS**





**LOW TEMPERATURE LIQUID GASES.  
SEVERE COLD BURN OR FROSTBITE IF ONE  
COMES INTO PHYSICAL CONTACT**



**KEEP DG AWAY  
FROM HEAT SOURCE**





**DIRECTION ;SHOW DIRECTION THAT  
DG MUST BE POSITIONED DURING  
TRANSPORT**



**SHIPMENT CONTAINING LITHIUM METAL  
OR LITHIUM ION-TYPE BATTERY**



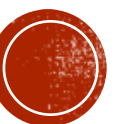
# ACCEPTABLE DANGEROUS GOODS WITHOUT DECLARATION

THERE ARE FEW THAT ALLOWED TO CARRIED ON BOARD WITH NO NEED TO INFORM THE AIRLINE GSA MUST BE AWARE CAUSE SECURITY RULES DIFFER FROM COUNTRY

-**ALCOHOLIC BEVERAGES** MUST NOT OVER AMOUNT ALLOWED

-**MEDICINES AND TOILETRIES** ; HAIR GEL, SPRAY, PERFUME

-A MAXIMUM OF 1 **CATALYTIC HAIR CURLER** FOR CHK AND CARRY ON



**-A SMALL CARBON DIOXIDE GAS CYLINDER FOR MEDICAL PURPOSE**

**-A SURGICALLY IMPLANTED CARDIAC PACEMAKER FOR MEDICAL PURPOSE**

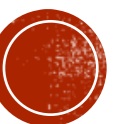
**-A SMALL MEDICAL OR CLINICAL THERMOMETER AS CHK OR CARRY-ON MUST BE KEPT IN PROTECTIVE CASE**



# ACCEPTABLE DANGEROUS GOODS THAT REQUIRE DECLARATION

**PASSENGERS ARE REQUIRE TO INFORM GSA**

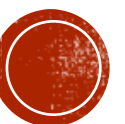
- BATTERY OPERATED WHEELCHAIRS WITH NON-SPILLABLE BATTERY**
- Securely-packed ammunition cartridge for sporting purpose not exceed 5 kgs checked bag only**
- Perishable-packed in dry ice not exceed 2 kgs allow in checked bag or carry-on**

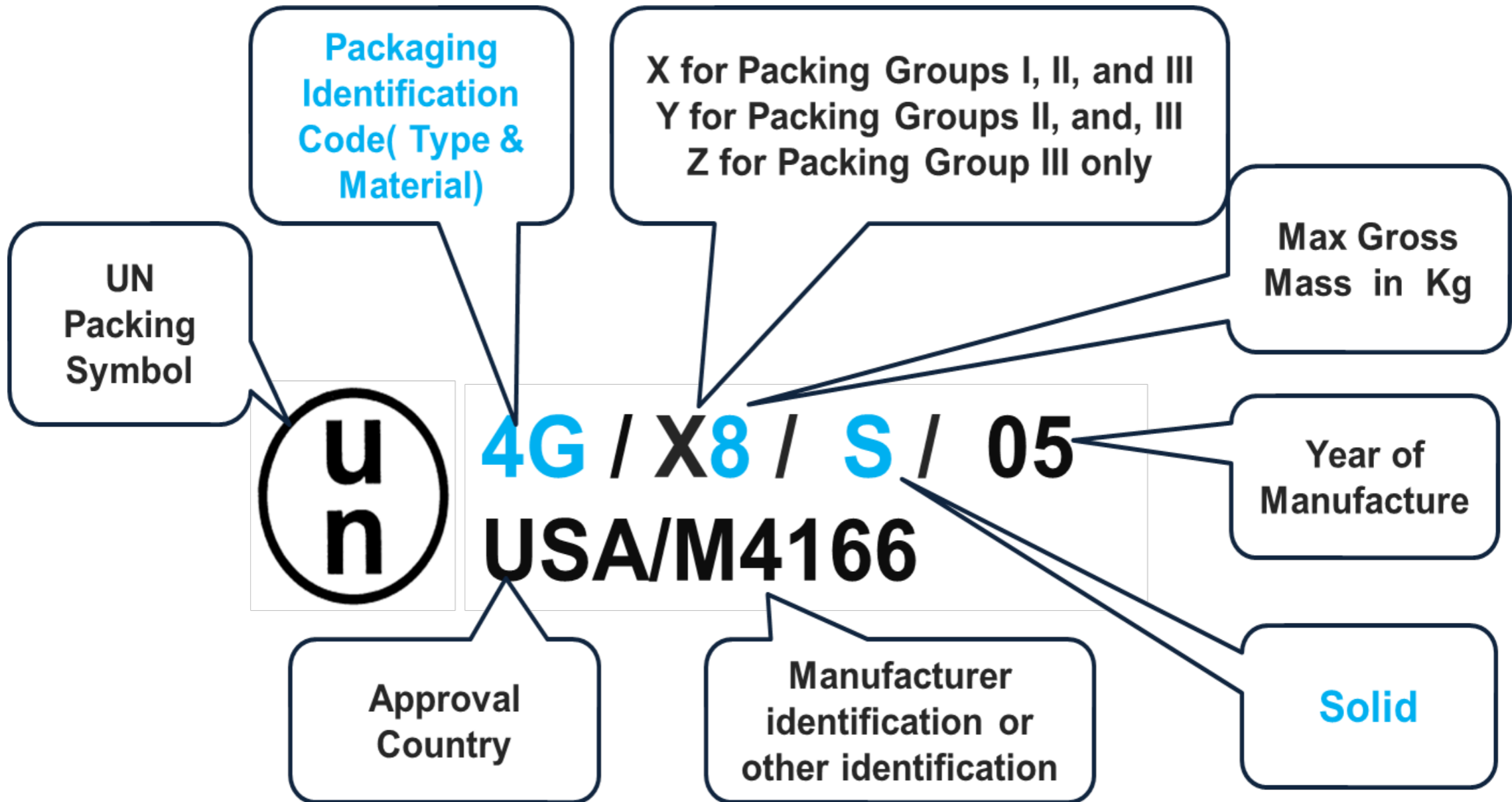


**Pilot in command** should notified the location of

-Battery operated for WCHR with **spillable battery**

-**Mercurial barometer** carry-on only by representative from government and have to keep in strong leak proof bag







# MARKING & LABELING- REQUIREMENTS

**NET QUANTITY OF  
DANGEROUS GOODS  
IN THE PACKAGE**

**PROPER  
SHIPPING NAME  
OF THE CONTENTS**

**CHLOROPRENE, STABILIZED, UN 1991** **NET QTY 10L**

**FULL NAME  
AND ADDRESS  
OF THE SHIPPER  
AND THE CONSIGNEE**

**SHIPPER:  
CHEMIFAX LTD.  
19 WANDSWORTH ROAD  
LONDON S.E. 1 ENGLAND**

**CONSIGNEE:  
FARELL GMBH  
HAGENRING 14  
D-38100 BRAUNSCHWEIG  
GERMANY**

**UN PACKAGING  
SPECIFICATIONS**

**u n 4G/Z3/S/041  
USA/LM0000**



# DANGEROUS GOODS HANDLING

1. WHEN GSA ENCOUNTERS AN ARTICLE WITH A DANGEROUS GOODS LABEL, GSA MUST EXAMINE THE CONTENTS WITHIN THE PACKAGE

2. **IF NOT** ASK PASSENGER TO REMOVE THE STICKER LABEL BEFORE ACCEPTED

3. IF THE LABEL **CORRECTLY** INDICATE GSA MUST ENSURE THE DANGEROUS GOODS ACCEPTANCE REGULATIONS



**4. WHEN CHECK-IN **CAMPING EQUIPMENT**, GSA MUST DETERMINE ,IF THE EQUIPMENT CONTAINS FLAMMABLE LIQUID OR GASES IF FOUND ,MUST ASK TO REMOVE**

**5. WHEN CHECK-IN **DIVING EQUIPMENT** ,GSA MUST MAKE SURE THAT AIR CYLINDER IS EMPTY**

**6. HOUSEHOLD CLEANSER ARE OFTEN CORROSIVE**

**7. PHOTOGRAPHIC EQUIPMENT CONTAINS HARZADOUS CHEMICALS**



## General restrictions for all countries

Various countries have implemented restrictions on the carriage of liquids, aerosols and gels in compliance with new guidelines set by the International Civil Aviation Organization (ICAO).

Examples of liquids, aerosols and gels include:

- All liquids including beverages, soups and syrups
- Gels, including hair and shower gels
- Pastes, including toothpastes
- Creams, lotions and oils
- Contents of aerosol cans, including sprays, shaving foam, deodorants
- Mascara
- Liquid-solid mixtures
- Any other item of similar consistency

Note: The above items are some common examples and are not exhaustive.



The restrictions are as follows:

- Liquids, gels and aerosols will only be allowed **in cabin baggage** if they are kept in containers with volumes of not more than **100 ml each**.
- These containers must be carried in a clear, re-sealable plastic bag. The total volume of the bag must not exceed 1 litre.
- Each person is allowed to carry only one such plastic bag.
- The bag must be removed from cabin baggage and presented to security personnel for visual examination.



- Medications and special dietary requirements, including baby formula:
  - Are permitted in cabin baggage
  - Must be removed from cabin baggage and declared to security personnel at the checkpoint.

These items may be subjected to security checks.

- Customers with prescription medicine are advised to **bring along supporting documentation**

(e.g. ID cards, letters from doctors) as verification.

Some countries have imposed these restrictions on both arrival and departure flights.

This may affect your ability to carry duty-free purchases onboard the aircraft. Customers are advised to check with duty free personnel before making their purchases.



# IMPORTANT

Have you packed any of the following items in your baggage?  
If YES, now is a good time to remove them. Please take a moment to read the following guidelines as our staff process your flight. Thank you.



## DANGEROUS GOODS NOT TO BE TAKEN INTO THE CABIN OR AS CHECKED-IN BAGGAGE

				
"Strike anywhere" matches, "Blue flame" or "Cigar" lighters	Oxygen Cylinders	Camping Stove Containing Flammable Fuel	Flammable Liquids - Paints, Thinners etc.	Oxidizing Materials & Organic Peroxides - Bleaches, Fiber Glass Repair Kits etc.
				
Electric Shock Weapons - Tasers etc.	Poisons - Arsenic, Cyanide, Weed Killer, Bleach etc.	Explosives, Pyrotechnic Materials, Flare	Corrosives - Mercury etc.	Magnetized Materials - Instruments Containing Magnets
				
Battery - Car Batteries etc.	Compressed Gases - Spray Paint, Aerosols, Pepper Spray etc.	Infectious Substances - Live Virus/Bacterial, Blood etc.	Meals-Ready-To-Eat (MRE)	Radioactive Materials

- If you have prohibited items, please declare or hand them over to security personnel.
- Failure to declare dangerous goods/prohibited items may result in civil or criminal penalties and your baggage may not arrive at your destination.
- If in doubt, please do not hesitate to check with the check-in staff.\*

*\*For Staff Only: Please refer to DGR Manual for the conditions of carrying wheelchairs with batteries (including spares).*

Please turn over for more information...



Sorry, but we want to make sure that you aren't taking any bombs etc. inside the premises...



Sorry, but we want to make sure that you aren't taking any bombs etc. outside the premises...





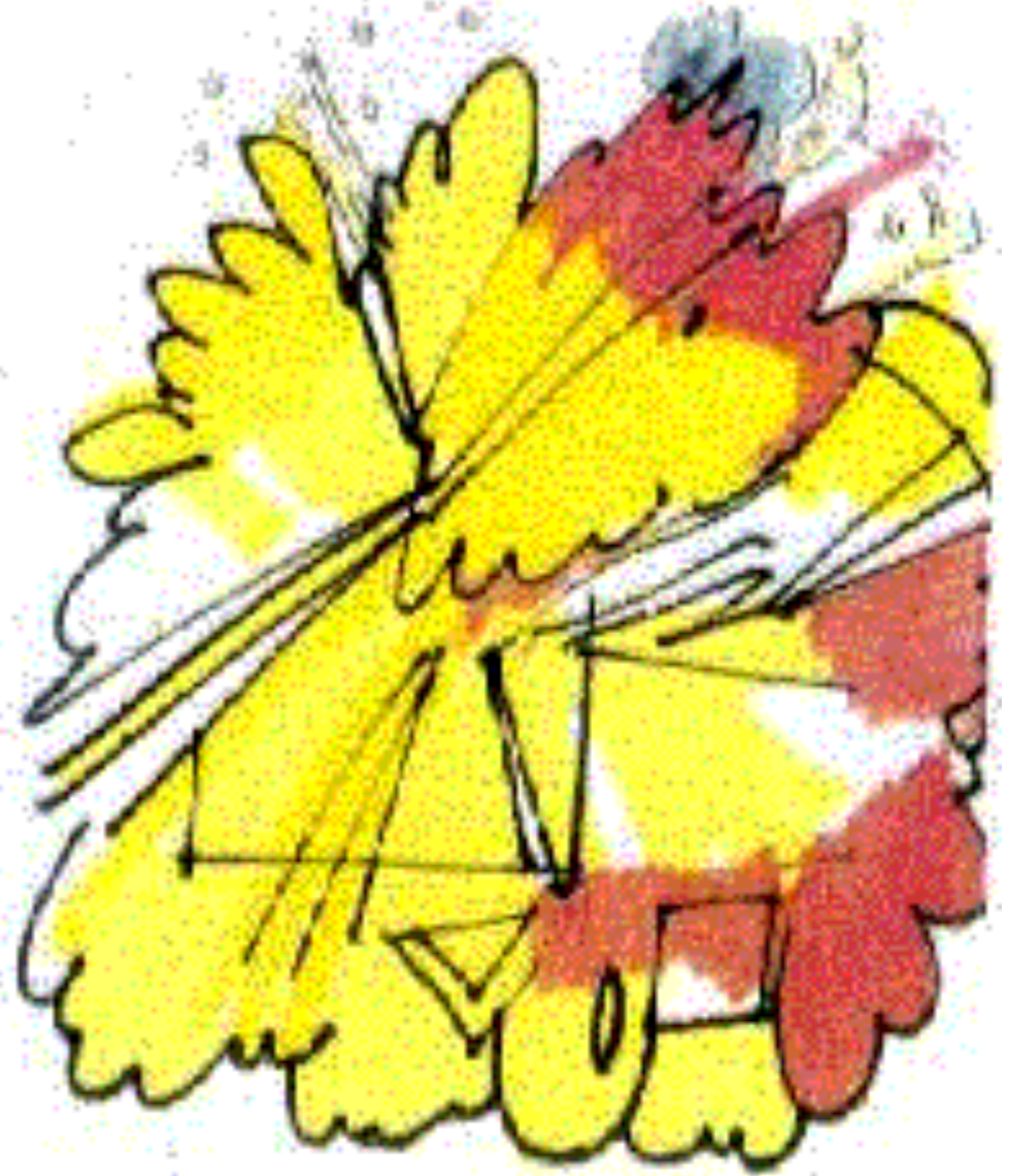
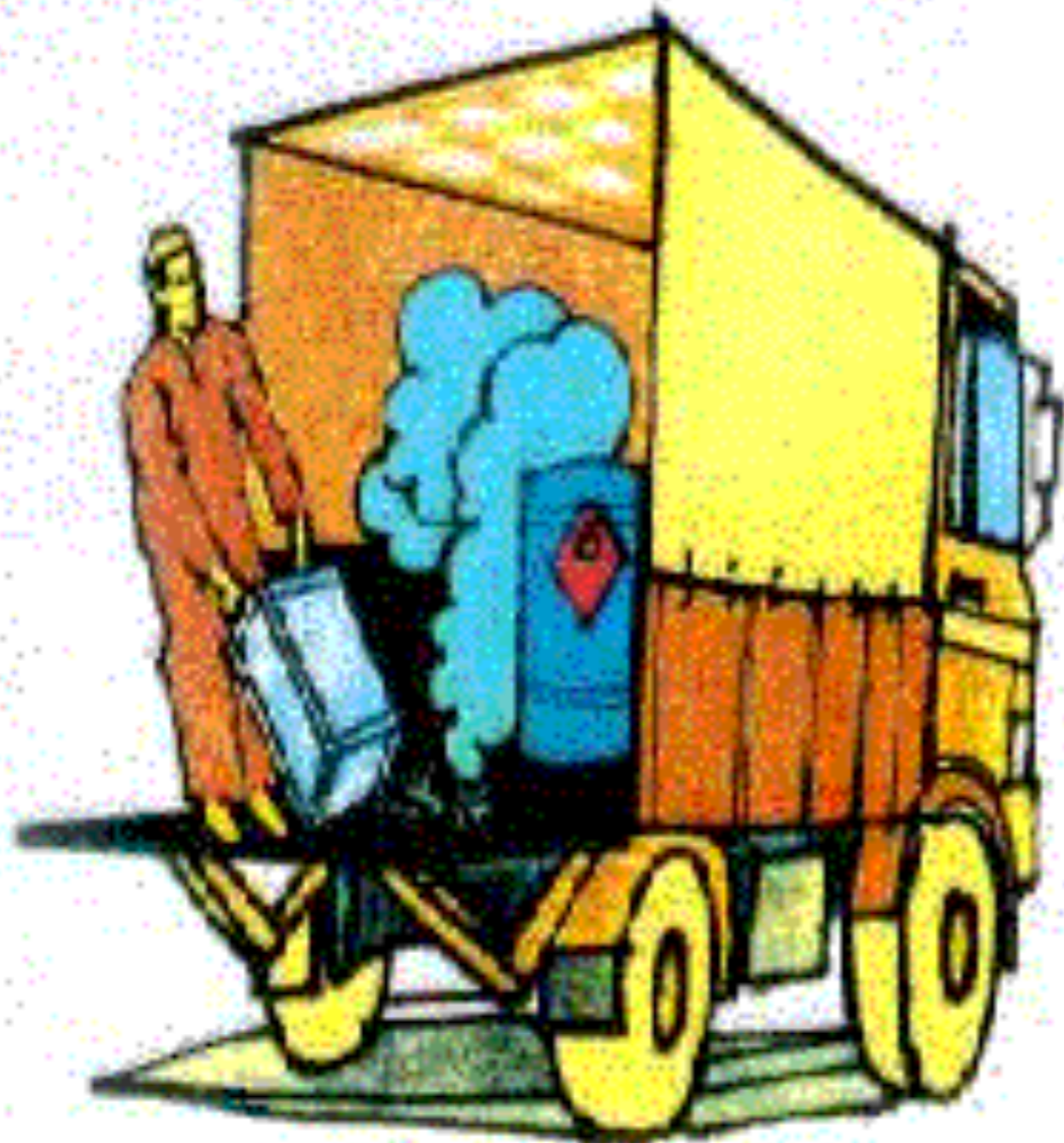
# KEY TERM

**DANGEROUS GOODS** IS A TERM USED INTERNATIONALLY TO IDENTIFY ARTICLES OR A SUBSTANCES THAT COULD BE HAZARDOUS TO FLIGHT SAFETY

**HANDLING LABELS** HELP THE STAFF TO IDENTIFY AND CARRY OUT SPECIAL INSTRUCTIONS FOR HANDLING

**LIMITED RELEASE** DOCUMENTS ISSUED WHEN PAX CHECK IN FRAGILE ,PERISHABLE,OVERSIZED OR OVERWEIGHT BAGGAGE.THE AIRLINE WILL NOT BE HELD RESPONSIBLE FOR ANY DAMAGES





LEAKING CONTAINER IN THE LOAD MAY EXPLODE FROM A SPARK.

