

# Hazardous and dangerous goods

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Internationally agreed regulations impact the movement of hazardous goods by road, rail, sea and air. These goods are sub-divided into classes which define the hazard and identify the possible threats posed during transportation. There are nine classes of goods, some being further sub-divided. They are: -

- **Class 1:** Explosives - explosive substances, explosive articles, and pyrotechnic devices. Includes ammunition, fireworks, detonators, etc.
- **Class 2:** Gases - transported as compressed, liquefied, refrigerated liquefied or gas in solution. Includes aerosols. This class has three divisions:
  - Flammable gases i.e. butane, propane;
  - Non-flammable, non-toxic gases i.e. oxygen, liquid nitrogen, compressed air; toxic gases i.e. chlorine, coal gas.
- **Class 3:** Flammable liquids - includes liquids with a boiling point of 35 degrees C or less or a flash point of 60.5 degrees C or less. Examples are Petrol, Alcohol, etc.
- **Class 4:** Flammable solids - substances liable to spontaneous combustion and substances that, in contact with water, emit flammable gases. This class has 3 divisions:
  - flammable solids such as hexamine solid fuel tablets for camping stoves;
  - Reactive substances and desensitised explosives.
  - Substances liable to spontaneous combustion under the conditions encountered in air transport such as Phosphorus that burns by itself when exposed to air.
  - Substances that, in contact with water emit flammable gases. I.e. "Dangerous when wet". Examples are sodium, zinc particles etc.
- **Class 5:** Oxidizing Substances and Organic Peroxides. This class has two divisions:
  - Oxidizing substances - substances, which themselves are not necessarily combustible, but which by yielding oxygen, may cause or contribute to the
  - Combustion of other material. An example is a generator that produces oxygen by chemical reaction.
  - 5.2 Organic peroxides - these are thermally unstable substance which may undergo heat generating, self accelerating decomposition - which may be explosive, rapid, sensitive to impact or friction or react dangerously with other substances. An example is Hydrogen Peroxide.
- **Class 6:** Toxic and Infectious Substances. This class has two divisions:
  - Toxic substances - those substances are liable to cause death or injury if swallowed, inhaled or absorbed through the skin. Examples are pesticides and poisons.
  - Infectious substances - those are known to contain, or reasonably expected to contain, pathogens.
- **Class 7:** Radioactive material – For example the waste of X-ray machines.
- **Class 8:** Corrosives - substances which, in the event of leakage, can cause severe damage by chemical action when in contact with living tissue or materially damage other freight, containers or the aircraft. Examples are mercury, battery acids etc.
- **Class 9:** Miscellaneous Substances and Articles - Substances that have a hazard in transport, but are not covered by any of the other Classes; such as magnetic articles, which can have an impact on the aircraft's compass. Internal combustion engines, dry ice (solid carbon dioxide), etc.

It is the responsibility of the sender to know if the goods are hazardous. Some humanitarian aid organisations will advise or have an indicative list for the goods that they may need to move. In case of doubt, the nearest Certified Dangerous Goods Shipper should be consulted for advice and direction.

As a general guide the following points are relevant:

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- Where hazardous goods are concerned, legislation will normally cover packaging and labelling. These regulations place a responsibility on the sender of the goods. It should be remembered that if the goods have come from outside the destination country, there may be need for further labelling and perhaps repackaging to reflect any local requirements.
- Hazardous goods transported in bulk loads, e.g. full tanker load vehicles, tank containers transported on trucks, or bulk carriers, are also normally subjected to legislative constraints. The transit medium must conform to construction regulations and be appropriately marked. Information cards and other relevant information must usually be carried, giving full details of the load, emergency procedures.
- Appropriate safety equipment must be carried, and there may be regulations concerning vehicle parking. If the journey has to be split appropriate arrangements need to be made for the temporary storage of the goods.
- Dangerous goods in packages or in bulk, for example chlorite, will often be covered by specific safety legislation.
- Certain items are prohibited from being transported at the same time in a common container or vehicle.