Guidance Sheet 2: Dangerous Goods Classification System

Dangerous Goods are substances that are corrosive, flammable, explosive, spontaneously combustible, toxic, and oxidising or water reactive. These goods can be deadly and can seriously damage property and the environment. Therefore, it’s important that they are stored and handled safely.

Petrol, LPG, paints, pesticides and acids are examples of commonly used dangerous goods.

They are defined in the *Dangerous Goods Act 1985* and are classified in the Australian Code for the Transport of Dangerous Goods by Road and Rail (Dangerous Goods Code) according to their common hazardous properties.

## Classes of Dangerous Goods

Each substance or article of Dangerous Goods named in the Code is assigned to a particular Class relating to its primary hazardous property. The Classes are as follows:

## Class 1: Explosives

**Explosive pictogram**

Explosives range from those that are extremely hazardous with a mass explosion hazard such as TNT, Gunpowder etc.

## Flammable Gas, Non Flammable gas and Toxic gas pictogramsClass 2 Gases: Compressed, Liquefied or Dissolved Under Pressure

Class 2 is subdivided into the following three Divisions:

**2.1** Flammable gases i.e. acetylene and most Aerosols.

**2.2** Non-flammable, non-toxic gases i.e. helium and oxygen.

**2.3** Toxic gases i.e. chlorine.

## Class 3: Flammable Liquids

**Flammable liquid pictogram**

Liquids which can burn and have a Flash Point (not boiling point) below 60.5°C i.e. acetone and kerosene.

## Class 4: Flammable Solids etc.

**Flammable solids, spontaneous combustion, dangerous when wet pictograms**

Class 4 is sub-divided into the following three Divisions:

**4.1** Flammable solids i.e. phosphorous (red).

**4.2** Substances liable to (white) spontaneous combustion i.e. phosphorus.

**4.3** Substances that, when they come in contact, emit

flammable gases i.e. sodium with water.

## Class 5: Oxidising Agents and Organic Peroxides

Oxidising agents and organic peroxides pictograms

Class 5 is sub-divided into the following two Divisions:

**5.1** Oxidizing agents i.e. ammonium dichromate.

**5.2** Organic peroxides i.e. ethyl methyl ketone peroxide.

## Class 6: Toxic and Infectious Substances

Toxic substances and infectious substances pictograms

Class 6 is sub-divided into the following two Divisions:

**6.1** Toxic substances i.e. cyanides, arsenic compounds and lead acetate.

**6.2** Infectious substances i.e. vaccines and pathology specimens.

## Class 7: Radioactive Materials

Radioactive materials pictograms  Substances and articles which spontaneously emit radiation greater than 70 kilobecquerel per kilogram i.e. uranium oxide.

## Class 8: Corrosive Substances and Articles

Corrosive substances pictograms

This class is not further sub-divided but it includes both acids and bases/alkalis which can react dangerously i.e. hydrochloric acid, sodium hydroxide and batteries containing acid.

## Class 9: Miscellaneous Dangerous Goods

Miscellaneous dangerous goods pictogram

Dangerous substances and articles that do not fit into the above categories i.e. dry ice, asbestos and environmentally hazardous substances.

## Subsidiary Risk

Many dangerous goods present the hazards of more than one Class or Division. Such goods are assigned to a Class according to their primary hazard. The other hazard or hazards are referred to as Subsidiary Risks.

Examples:

**Methanol** is a highly flammable liquid that is also toxic. It meets the classification criteria for both Class 3 and Division 6.1. As its flammability is its primary hazard, Methanol is assigned to Class 3. It is also shown in the Australian Dangerous Goods Code as having a Subsidiary Risk of 6.1 to cover its toxicity hazard.



**Nitric Acid**, Red, Fuming is corrosive, a strong oxidising agent and toxic. It meets the classification criteria for Classes 8, 5.1 and 6.1. As its corrosivity, is its primary hazard, Nitric Acid, Red, Fuming is assigned to Class 8. However, it is also allocated Subsidiary Risks of 5.1 and 6.1 to cover the other hazards.



## United Nations (UN) Number

Each Dangerous Goods item listed in the Australian Dangerous Goods Code is assigned a unique number, known as the UN Number (United Nations Number or UN No.).For example:

* UN No. 1090 Acetone
* UN No. 1789 Hydrochloric Acid

Some UN numbers apply to groups of substances having similar hazardous properties that are not covered by specific chemical entity entries. For example:

* UN No. 1263 Paint
* UN No. 1993 Flammable Liquid
* N.O.S. (Not Otherwise Specified)

## Packing Group

Dangerous Goods of some Classes are further divided into Packing Groups according to the degree of danger they present, as follows:

* Packing Group Ι **Great Danger**
* Packing Group ΙΙ **Medium Danger**
* Packing Group ΙΙΙ **Minor Danger**
* ‘Packing Group’ (referred to as ‘Packaging Group’ in earlier versions of the Regulations and Code) does not apply to those Classes/Divisions of Dangerous Good against which ‘Not applicable’ appears in the table below.

The greater the degree of danger, the more stringent the packaging requirement for the substance.

The following Class/Packing Groups may be encountered:

| **Class/Division** | **Packing Group/s** |
| --- | --- |
| 1 | Not applicable |
| 2 | Not applicable |
| 3 | Ι, ΙΙ or ΙΙΙ |
| 4 | Ι, ΙΙ or ΙΙΙ |
| 5.1 | Ι, ΙΙ or ΙΙΙ |
| 5.2 | ΙΙ only |
| 6.1 | Ι, ΙΙ or ΙΙΙ |
| 6.2 | N/A |
| 7 | N/A |
| 8 | Ι, ΙΙ or ΙΙΙ |
| 9 | ΙΙ or ΙΙΙ |

### New Labelling Requirements Effective From 1 January 2017

From 1 January 2017, the classification and labelling of chemicals in Australia will be subject to the Globally Harmonised System (GHS), which is a single internationally agreed system of chemical classification and hazard communication through labelling of containers and provision of Safety Data Sheets (SDS).

Under the GHS, hazards will be communicated to chemical users through nine hazard pictograms that represent the physical, health and environmental hazards. Information about the hazards will also be communicated using a combination of signal words, hazard statements and precautionary statements.

Chemicals purchased after 1 January 2017 from commercial suppliers will be labelled according to the GHS and similarly, safety data sheets will be provided in the GHS compliant format. Although not yet mandatory, manufacturers and importers have begun using the GHS for classification, labelling and safety data sheets of workplace hazardous chemicals. In the interim either the GHS or the existing classification, labelling and MSDS system for hazardous substances and dangerous goods can be used and chemicals currently stored in manufacturer or supplier containers do not need to be relabelled according to the GHS system and these will be progressively replaced.

## GHS Symbols and meanings

| Respiratory  hazard, carcinogencity GHS symbol | Aspiratory or respiratory hazard, carcinogenicity, mutagenicity |
| --- | --- |
| Hazardous to the environment GHS symbol | Hazardous to the environment |
| May cause immediate health effect to skin, eyes and respiratory system GHS symbol. | May cause immediate health effect – skin, eye, respiratory |
| Toxic GHS symbol | Acute toxicity via oral, dermal or inhalation |
| Corrosive GHS symbol | Corrosive, skin damage, eye damage |
| Compressed gas or dissolved gas GHS symbol | Compressed, liquefied or dissolved gases |
| Oxidising substance GHS symbol | Oxidising substances |
| Flammable GHS symbol | Flammable, pyrophoric, self heating substances; water reactive |
| Corrosive GHS Symbol | Explosives, self-reactive substances, organic peroxides |

## What Schools Need To Do To Comply

Chemicals that have been decanted or stored in another container will need to be labelled according to the GHS requirements. The minimum information to be included on the label is:

* Product Name
* Hazard Pictogram or Hazard Statement

Labels for decanted chemicals can be printed using the [ChemWatch](https://edugate.eduweb.vic.gov.au/Services/HR/Pages/ChemwatchMSDSdb.aspx) SDS database (GOLDFFX) for which the Department has a subscription usage licence to provide full licence access to all of the Department's Secondary and P-12 schools.

Chemical storage segregation requirements will remain the same; and labels and pictograms on chemical storage cupboards that align with DG requirements can continue to be used.

More information on chemicals can be found at Safe Work Australia’s [Classification and labelling for workplace hazardous chemicals and the Department’s](https://www.safeworkaustralia.gov.au/doc/classification-and-labelling-workplace-hazardous-chemicals-poster) [Chemical Management](http://www.education.vic.gov.au/school/principals/management/Pages/chemicalmgt.aspx) page.

**Further information** and advice can be obtained by contacting the **Department’s OHS Advisory** **Service** on 1300 074 715or e-mail: [safety@edumail.vic.gov.au](mailto:safety@edumail.vic.gov.au).