Classification of Dangerous Substances

What follows is a glossary of terms and definitions which provide essential information with regard to classifying dangerous substances.

Quantity

200 tonnes of a dangerous substance is clearly more of a hazard than 2 tonnes

Physical Properties

- Solid – stays where it is
- Liquid - flows to take the shape of its container
- Gas – will expand to fill the entire volume it is contained within
- Pressure – with liquid or gas, if it's under high pressure it will spray out, forming a jet and causing a large release very quickly
- Temperature – things that are very hot, as well as being more likely to explode and/or burn, can burn human tissue, eg, hot oil. Very cold substances, such as liquid nitrogen, can also cause serious burns.

Chemical Properties

Explosive - solid, liquid, pasty or gelatinous substances and preparations which may react exothermically without atmospheric oxygen, thereby quickly evolving gases, and which under defined test conditions detonate, quickly deflagrate, or, upon heating, explode when partially confined.

Oxidising - substances and preparations which give rise to a highly exothermic reaction in contact with other substances, particularly flammable substances.

Extremely Flammable - liquid substances and preparations having an extremely low flash point and a low boiling point, and gaseous substances and preparations which are flammable in contact with air at ambient temperature and pressure.

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Highly Flammable - the following substances and preparations, namely:

(a) substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy;

(b) solid substances and preparations which may readily catch fire after brief contact with a source of ignition, and which continue to burn or to be consumed after removal of the source of ignition,

c) liquid substances and preparations having a very low flash point, or

(d) substances and preparations which, in contact with water or damp air, evolve extremely flammable gases in dangerous quantities.

- Flammable - Liquid substances and preparations having a low flash point.

Health Effects (Short and Long Term)

Very Toxic - Substances and preparations which in very low quantities cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin.

Toxic - Substances and preparations which in low quantities cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin.

Harmful - Substances and preparations which may cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin.

Corrosive - Substances and preparations which may, on contact with living tissues, destroy them.

Irritant - Non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, may cause inflammation.

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Sensitising - Substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction by hypersensitization, such that on further exposure to the substance or preparation, characteristic adverse effects are produced.

Carcinogenic - Substances and preparations which, if they are inhaled or ingested, or if they penetrate the skin, may induce cancer or increase its incidence.

Mutagenic - Substances and preparations which, if they are inhaled or ingested, or if they penetrate the skin, may induce heritable genetic defects or increase their incidence.

- Toxic for reproduction - Substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may produce or increase the incidence of non-heritable adverse effects in the progeny and/or of male or female reproductive functions or capacity.

- Asphyxiant - an asphyxiant gas is a non-toxic or minimally toxic gas which reduces or displaces the normal oxygen concentration in breathing air. Prolonged breathing of oxygen depleted air can lead to death by asphyxiation (suffocation). Because asphyxiant gases are relatively inert and odourless, their presence in high concentration may not be noticed until the effects of elevated blood carbon dioxide (hypercapnia) are recognized by the body.

Causing damage to the environment

- Water
- Land
- Air
- Bio diversity
  - Fauna
  - Flora
  - Protected species
  - Natural Habitats