Chemical Waste Management Poster

Reactivity of Chemical Waste

Stability and Reactivity (MSDS Section 10)

There are many chemicals that require specialist waste streams. Information regarding the reactivity of chemicals and their incompatibilities is found within the SDS.

Reactive Chemicals

Nitric Acid – nitric acid is incompatible with strong bases, reducing agents, metals, powdered metals, organic materials, aldehydes, alcohols, cyanides and ammonia. Avoid excess heat or exposure to air/moisture over time.

Explosive Chemicals (Temperature/Pressure):

Picric Acid – incompatible with strong oxidising agents. Chemical poses an explosive hazard when dry. Unstable if heated.

Azides – highly toxic and explosive (shock sensitive). Reacts vigorously with CS_2 bromine, nitric acid, dimethyl sulphate and heavy metals. Reacts with water, highly toxic/explosive hydrogen azide may be released. Avoid heat.

Hydrogen Peroxide (91% by weight) – aggressive oxidiser. May corrode materials. In presence of reducing agent, high concentrations of H_2O_2 will react violently.

Oxidisers - cause ignition of combustible materials without ignition source. Commonly reactive with other oxidisers. Can evolve oxygen therefore fuelling fires.

Thallium Nitrate – avoid heat or shock. Intensifies fires. Incompatible with strong acids, strong reducing agents and combustible materials.

Highly Dangerous Chemicals:

Hydrofluoric Acid – highly corrosive. Poisoning occurring with skin contact. Symptoms may not be immediately apparent. Specialist training required.

Cyanides – highly toxic. Should be segregated and isolated from other users.

Bromine – highly corrosive and reacts vigorously with many other chemicals.

Carcinogenic Chemicals:

Scheduled Carcinogens – must be disposed of as per license agreements.

Dichloromethane – high volatility makes this an acute inhalation hazard. Potentially carcinogenic. Commonly used in paint stripper.

Mixed Waste

While it is best to not generate waste with mixed chemicals from different dangerous goods classes, often it cannot be avoided. It is important to seek expert advice when generating and disposing of mixed class waste.

Waste Classifications

Flammable

Includes solvents such as acetone, ethanol and acetonitrile, mixtures and by-products from synthetic reactions. Sometimes, volatile solvents are mistakenly thought to be flammable. Refer to the SDS for verification.

Flammable Solids

These are solid materials that undergo rapid combustion or are self-reactive. Aluminium powder and other metallic powders are flammable solids.

Spontaneously Combustible

These are materials that will start to combust when they come in contact with air. White phosphorous is spontaneously combustible, as are some forms of activated carbon.

Dangerous When Wet

These are materials that combust or give off toxic vapours when they come into contact with water. Sodium is an example of a material that is dangerous when wet.

Oxidising Agent

Includes nitrates such as ammonium nitrate and chlorates such as potassium chlorate and hypochlorites such as calcium hypochlorite (bleach).

Toxic

Includes acrylamide, ethidium bromide, phenol/chloroform, cadmium and mercury batteries, mercaptoethanol waste, solid paraformaldehyde and other toxic wastes.

Halogenated Solvent

Generally, these have chloro-, bromo- or fluoro- atoms attached. Any contaminants must be identified on the label. Can form explosive mixtures with acetone.

Corrosive Acid

Includes all acids where the corrosive properties are the greatest hazard. Examples include hydrochloric, sulfuric and acetic acid. Some acids are incompatible with other acids and should not be mixed. Waste should be diluted.

Corrosive Base

Includes all bases where the corrosive properties represent the greatest hazard. Some examples are sodium hydroxide and ammonia. Waste should be diluted.

Miscellaneous Non-hazard

This is chemical waste that while not classified as hazardous must still be disposed of via a waste contractor.

Combustible Liquid

Combustible liquids will burn, but are not sufficiently volatile to be classified as flammable. Some examples are diesel and some motor oils.

Cytotoxic

Cytotoxic waste is material or drugs which are harmful to living cells or are carcinogenic, mutagenic and/or teratogenic. Cytotoxic waste includes cytotoxic waste chemicals and materials associated with their use.

Waste Labelling Guidelines

1 SIGNAL WORD

DANGER, WARNING or CAUTION

2 PICTOGRAMS

Picture of hazard type

3 CONTACT DETAILS

To ensure the chemical can be traced to its source in case of emergencies

4 WASTE DETAILS

List of chemicals disposed into waste container.

5 SPECIALIST INFORMATION

Contact details of waste contractor. Contact for specialist waste advice.

6 EPA TRANSPORT CODES

Required to transport Dangerous Goods in Victoria.