Appendix 1: Chemical Storage, Segregation and Labelling

Class	Dangerous Goods Symbol & Classification (SDS Section 14)	GHS Symbol & Hazard Codes (SDS Section 3)	Chemical Storage – Cabinet Type	Warning Sign (to be displayed on the cabinet, including suggested wording)	Description
	Not applicable	 Chemicals with no GHS symbol, or the Health Hazard Symbol only.	**General storage / shelving**	None	**General storage** These chemicals can be stored on open shelves.
Class 3 – Flammable liquid	 **Class 3 Flammable Liquids**	 H224 Extremely flammable liquid and vapour. H225 Highly flammable liquid and vapour.	**Fire resisting cabinet**	 Flammable Liquid	**Flammable liquids** These must be stored in a dedicated fire resisting cabinet, used for Class 3 flammable liquids only (see SDS Section 14). *Do not store other flammable materials in this cabinet, (e.g. any Class 4 Flammable solids – see below).* Flammable liquids must not be stored in refrigerators unless it is **spark-proof** and labelled. A maximum of 50 litres of extremely, highly flammable and those flammable liquids with a

		H226 Flammable liquid and vapour.			flashpoint below the maximum ambient temperature of work area may be kept in a laboratory/ workshop. No more than 250 litres for other flammable liquids with a higher flashpoint of up to 55°C may be stored in a laboratory/ workshop. Flammable liquids should be returned to the fire resisting cabinet immediately after use. 500ml working volume may be kept on open bench, then returned to the storage area overnight. Empty flammable containers should be stored in the same way as full containers until removed to the waste store. Flammable liquids with **secondary hazards** (e.g. toxic/ corrosive) should be stored in a separate fire resisting cabinet. If it can be *safely stored within the flammable cabinet*, it should be on a separate shelf, in a secondary container or drip tray; refer to the SDS.

<table>
<tr>
<td rowspan="2">Class 4 – Flammable solids
4.1 Flammable solid</td>
<td>Class 4.1
Flammable solids</td>
<td> 
H228 Flammable solid.
H206* Fire, blast projection hazard; increased risk of explosion if desensitizing agent is reduced.
H207* Fire or projection hazard; increased risk of explosionif desensitising agent is reduced.
H208* Fire hazard; increased risk of explosion if desensitizing agent is reduced.</td>
<td rowspan="2">Fire-resisting Cabinet</td>
<td rowspan="2"> 
Flammable solid
  </td>
<td rowspan="2">These chemicals should be stored in a dedicated fire resisting cabinet, used for Class 4.1 chemicals only (see SDS Section 14). Do not store them with flammable liquids.

Flammable solids (4.1)
These are readily combustible solids that can be ignited by brief contact with a source of ignition, or are sensitive to friction, and that will continue to burn after removal of the source of ignition.

Desensitised explosives* (4.1B)
These are explosive substances which are wetted, diluted, dissolved, or suspended with a phlegmatiser to suppress their explosive properties. Care must be taken that the phlegmatiser does not dry out during long term storage. The manufacturer should provide information about the shelf-life and instructions on verifying desensitization. Examples include picric acid, urea nitrate and 1- Hydroxybenzotriazole (Hobt).

These substances should be stored in a locked cabinet and regularly inspected for signs of drying (e.g. around bottle stoppers and caps and within the bottle) and the checks documented. Any leaks of spills should be dealt with immediately.

Self-reactive substances. These are thermally unstable liquid or solid substances or mixtures liable</td>
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<tr>
<td> 
Class 4.1
Self-reactive substances and mixtures</td>
<td> 
H242 Heating may cause a fire.</td>
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<tr><td></td><td></td><td></td><td></td><td></td><td>to undergo a strong exothermic decomposition even without the participation of oxygen (air). Examples include various azo compounds.</td></tr>
<tr><td rowspan="2">Class 4 – Flammable solids
4.2 Sponteniously combustible substance</td><td> 
Class 4.2
Pyrophoric liquids and solids</td><td> 
H250 Catches fire spontaneously if exposed to air.</td><td rowspan="2">Fire resisting cabinet</td><td rowspan="2"> 
Spontaneously combustible
  </td><td rowspan="2">In small quantities, these should be stored in a dedicated fire resisting cabinet, used for Class 4.2 chemical only (see SDS Section 14). Do not store them with flammable liquids.

Class 4.2 includes pyrophoric liquids and solids and self-heating substances and mixtures.

Pyrophoric solids and liquids
A pyrophoric liquid or solid is a substance which, even in small quantities, is liable to ignite within 5 minutes of coming into contact with air. Pyrophoric substances have packaging that is designed to exclude air. If air enters a damaged package the substance may start to burn at room temperature or when gently heated. Examples include yellow phosphorus and some metal alkyls.

Self-heating substances and mixtures
Oxidative self-heating substances may react with the air and so raise the temperature to the point at which spontaneous combustion takes place. This is normally a slow process which can be controlled by restricting the pack size, limiting storage duration, monitoring temperatures, or excluding air.</td></tr>
<tr><td> 
Class 4.2
Self-heating substances and mixtures</td><td> 
H251 Self-heating: may catch fire.
H252 Self-heating in large quantities; may catch fire.</td></tr>
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Class 4 – Flammable solids 4.3 Substances and mixtures which, in contact with water, emit flammabale	 **Class 4.3 Dangerous when wet**	 H260 In contact with water releases flammable gases which may ignite spontaneously. H261 In contact with water releases flammable gases.	**Fire resisting cabinet**	 Dangerous when wet 	**Dangerous when wet** In small quantities these should be stored in a dedicated fire resisting cabinet, used for Class 4.3 chemicals (see SDS Section 14). **Do not store with flammable liquids.** These substances react with water and evolve flammable gases. Fire involving or in the vicinity of such materials should not be tackled with water. Examples include calcium carbide, metal hydrides, powders of reactive metals such as magnesium or aluminium, and alkali metals such as sodium and potassium.
Class 5 – Oxidising substances **5.1 Oxidising substance**	 **Class 5.1 Oxidising Substance**	 **Oxidiser** H271 May cause fire or explosion: strong oxidiser. H272 May intensify fire; oxidiser.	**Corrosive cabinet**	 Oxidiser	**Oxidiser** These should be stored in a dedicated corrosive cabinet, used for Class 5.1 chemicals (see SDS Section 14). Do not store them in a wooden cupboard. Some oxidisers are incompatible from each other and need to be stored apart, check the SDS (Section 10). These may be solid or liquid. Oxidisers may be very reactive and should be stored separately from other chemicals. Never store oxidisers with flammable liquids (*their symbols look similar*), reducing agents

					or near combustible materials (e.g. paper/ cardboard).
Class 5 – Oxidising substances 5.2 – Organic perosides	 **Class 5.2** **Organic peroxides**	 H242 Heating may cause a fire.	**Fire resisting cabinet**	 Organic peroxide 	**Organic peroxides** These should be stored in a dedicated fire resisting cabinet, used for Class 5.2 chemicals (see SDS Section 14). Minimise the quantity stored and contact your H&S Lead. Some organic peroxides require temperature control. The manufacturer should provide information about the shelf-life and instructions on verifying desensitization, where applicable. Organic peroxides* are a particularly reactive type of oxidising substance. They may be solids, liquids, or pastes, and have one or more of the following properties: • liable to explosive decomposition. • burn rapidly and intensely even in the absence of oxygen. • sensitive to impact or friction. • react dangerously with other substances. • decompose at comparatively low temperatures and/or cause spontaneous ignition if spilt onto combustible material. Organic peroxides must be stored separately from flammable, corrosive and toxic materials.

Class 6 – Toxic substances	 **Class 6.1 Toxic substances**	 **H340 May cause genetic defects.** **H341 Suspected of causing genetic defects.** **H350 May cause cancer.** H351 Suspected of causing cancer. H360 May damage fertility or the unborn child. H361 Suspected of damaging fertility or the unborn child. **H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.**	**Metal cabinet, lockable with a bund**	 CMR and asthmagens	**Mutagens, Carcinogens & Reprotoxic substances and asthmagens only.** These chemicals must be stored in a **locked** cabinet with access restricted to authorised, trained users. Where fumes or odours can be evolved, they must be stored in cabinets with adequate **extraction ventilation**. An inventory of chemicals stored within the cabinet must be maintained. The quantities stored must be kept to a minimum.

Class 6 – Toxic substances	 **Class 6.1 Toxic substances**	 **H300 Fatal if swallowed.** **H310 Fatal in contact with skin.** **H330 Fatal if inhaled.** H301 Toxic if swallowed. H311 Toxic in contact with skin. H331 Toxic if inhaled.  H370 Causes damage to organs. H371 May cause damage to organs. H372 Causes damage to organs through prolonged or repeated exposure. H373 May cause damage to organs through prolonged or repeated exposure.	**Metal cabinet, lockable with a bund** **Ventilated cabinet**	 Toxic, non-halogenated  Toxic, halogenated	These are substances which if inhaled, ingested, or absorbed through the skin may cause serious adverse health effects. In the event of fire, there may be a failure of many containers due to the effects of flame and heat, as well as posing an immediate threat to anybody in the vicinity, e.g. firefighters. The toxic substance can also be spread large distances in the plume of smoke, or it may be washed into watercourses by firefighting operations. **Non-flammable, halogenated solvents** Do not store with flammable liquids or other organic liquids as violent reactions may occur with some solvents.

		H304 May be fatal if swallowed and enters airways H305 May be harmful if swallowed and enters airways.			