SAFETY FACT SHEET - OXIDISERS

1. HOW CAN YOU IDENTIFY THEM?

GHS for Oxidiser

2. EXACTLY WHAT ARE OXIDISERS?

Oxidiser refers to any chemicals that cause the ignition of combustible materials without an external source of ignition. When mixed with combustible materials, an oxidiser increases the rate of burning of these materials when the mixtures are ignited. They can evolve oxygen, and therefore support combustion in an oxygen-free atmosphere. They are usually unstable or reactive.

3. POTENTIAL HAZARDS OF OXIDISERS

- Increases the burning rate of combustible materials
- Cause spontaneous ignition of combustible materials
- Decompose rapidly
- Evolve or emit hazardous gases
- Undergo decomposition which can result in an explosion
- React explosively if mixed with incompatible materials or if involve in expose fire

Some Common Oxidisers

Inorganic Peroxides are non-combustible, but react vigorously with water to release oxygen. Reaction with organic and oxidisable substances may cause fire.

Organic Peroxides are often unstable, highly reactive, and extremely flammable in the dry, crystalline state. They are highly sensitive to heat, friction, impact, light, and strong oxidizing and reducing agents.

Nitrates are not combustible but enhance combustion of other substances. They give off irritating or toxic fumes (or gases) in a fire. Some nitrates may become shock sensitive when mixed with organic materials.

Perchlorates are stable under normal conditions, but may become explosive when mixed with combustible materials.

Others: Nitrites, Chlorates, Chlorites, Hypochlorites, Dichromates, Permanganates, Chromium oxides.

(Note: There are many oxidisers and this list is by no means exhaustive. Always refer to SDS for more detailed information.)

4. EXPOSURE HAZARDS

Fire and explosion poses the most severe and likely hazards of oxidisers. Other hazards will depend on type, concentration and possible exposure routes of oxidisers. Generally, the hazards for inhalation and Ingestion can cause severe respiratory and/or gastrointestinal tract injuries and skin contact will lead to redness and irritation and possibly burns.

5. ENGINEERING AND VENTILATION CONTROLS

Conduct procedures in chemical fume cupboards or inert atmosphere chamber to protect against hazardous exposure. Used of an additional safety shield is highly recommended if there is a risk of explosion.

6. PERSONAL PROTECTIVE EQUIPMENT

Use suitable chemical eye protection, butyl rubber, neoprene, nitrile, or polyethylene gloves. Lab coats, covered shoes and respirators if airborne release likely.

7. WORKING WITH ANY OXIDISING AGENTS

READ and understand the SDS because **e**ach oxidiser you work with may require different handling procedures. The following guidelines are just that - guidelines.

- Conduct a risk assessment before handling oxidisers. Identify the potential hazards and existing risk control measures. Identify a suitable reducing agent for the oxidisers.
- Keep oxidisers away from combustible materials; violent reactions may occur when oxidizers are mixed with or contaminated by combustible materials (e.g. wood, paper).
- Be careful when mixing oxidising agents and combustible materials for research. Use very small amounts to reduce exotherm and control the reaction.
- Minimize the amount of oxidisers used and stored.
- Store oxidisers in a spill tray and away from organic, flammable, dehydrating, oil, grease or reducing agents.
- Do not store oxidisers in wooden cabinets or on wooden shelves.
- Do not return unused material to the original container.
- Provide secondary containment for strong oxidising acids such as perchloric and chromic acid.
- Do not use corks or rubber stoppers.
- Keep containers in well-ventilated, cool areas out of direct sunlight.
- Check containers often for leaks, damage and spills.
- Keep containers closed.

8. LABELING REQUIREMENTS

Label storage cabinets or areas with appropriate descriptor: OXIDISER. Use GHS labels.

In addition to the storage cabinet, the bottle containing the oxidiser is to be labelled as well using GHS labels.

9. SPILL AND ACCIDENT PROCEDURES

Know your spill procedure. Attend to spill as soon as possible. Report any spills or injuries to your supervisor immediately.

10. WASTE DISPOSAL

Disposal of oxidiser is a huge problem. Improper disposal may result in incomprehensible consequences. It is preferable for oxidisers to be reacted with a suitable reducing agent prior to disposal (Perform Risk Assessment). The following is some incompatible chemicals for oxidisers but it is the responsibility of the waste generator to ensure that the residue waste does not react with the bulk waste in the carboy.

A list of incompatible substances is posted for reference. You are to check with SDS or with your supervisor before the disposal.

No oxidiser shall be disposed of into the sewer.

Examples of Chemical Incompatible list

ammonium nitrate	acids, metal powders, flammable liquids, chlorates, nitrites, sulphur, finely divided organic combustible materials
azides	acids
Bromine, chlorine	ammonia, acetylene, butadiene, hydrocarbons, hydrogen, sodium
carbon, activated	calcium hypochlorite, oxidizing agents
chlorates	ammonium salts, acids, metal powders, sulphur, finely divided organic or combustible materials
chromic acid	acetic acid, naphthalene, camphor, glycerin, turpentine, alcohols, flammable liquids in general
copper sulphate	Acids, ammonia, aluminium, hydroxylamine
hydrogen peroxide	copper, chromium, iron, most metals or their salts, alcohols, acetone,organic materials, aniline, nitromethane, flammable liquids, oxidizing gases
hypochlorites	acids, activated carbon
nitrates	sulphuric acid
nitric acid (conc.)	acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulphide, flammable liquids, flammable gases
perchloric acid	acetic anhydride, bismuth and its alloys, ethanol, paper, wood
peroxides(organic)	acids, avoid friction or shock
potassium chlorate	acids
potassium perchlorate	acids
potassium permanganate	glycerin, ethylene glycol, benzaldehyde, sulphuric acid
sodium nitrate	ammonium salts
sodium nitrite	ammonium salts
sodium peroxide	ethanol, methanol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethyl acetate, methyl acetate, furfural
sulphuric acid	potassium chlorate, potassium perchlorate, potassium permanganate (or compounds with similar light metals, such as sodium, lithium, etc.)