



## A Safe Method of Use 12 HSNO Class 5.1 - Oxidising Compounds

**Purpose:** This Safe Method of Use applies to **principal investigators (PIs), sector managers, designated laboratory person (DLPs)**, technical staff and students who use laboratories within the University of Auckland.

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### A. Incompatibilities

1. HSNO Class 5.1 compounds **shall** NOT be stored with HSNO Class 3 Flammable Liquids, HSNO Class 4 Reactive Solids or HSNO Class 5.2 Organic Peroxides.
2. Store well away from any combustible organic compound - preferably in a metal cabinet. Strong oxidisers such as metal peroxides, perchlorates and nitrates react violently with combustible organic compounds such as alcohols, aldehydes, ethers, and hydrocarbons.

### B. Storage

1. HSNO Class 5.1 compounds **shall** NOT be stored with HSNO Class 3 Flammable Liquids, HSNO Class 4 Reactive Solids or HSNO Class 5.2 Organic Peroxides.
2. Store separately from any combustible organic compound - preferably store UN Class 5.1 compounds in a separate metal cabinet. Strong oxidisers such as metal peroxides, perchlorates and nitrates react violently with combustible organic compounds such as alcohols, aldehydes, ethers, and hydrocarbons.
3. Segregation may also be provided for single containers by storage inside a segregation device (such as a sealable plastic box).

### C. Use

1. Ensure that these compounds are used well away from low flash point solvent or any fine ground organic compound.
2. These compounds often have a strong corrosive action and **shall** be used in a fume hood.
3. Safety Glasses **shall** be worn when handling these compounds

4. Perchloric acid digestions **shall** be conducted only in fume hoods which have ducting certified for work with perchlorates.
5. Care should be taken when using strong oxidising agents such as metal peroxides, perchlorates and nitrates and concentrated nitric acid as these compounds can react violently with combustible organic compounds.

#### **D. Disposal**

1. Disposal of UN Class 5.1 compounds **shall** be undertaken by a licensed chemical waste contractor.
2. Please contact Hazards and Containment Manager to arrange for disposal.
3. HSNO Class 5.1 compounds **shall** be packed separately for disposal.

#### **E. Spills**

1. Consult MSDS for correct clean up procedure
2. Use correct gloves
3. If liquid, use absorbent material in spill kits to wipe up – wiping from outside of spill toward centre.
4. Place used absorbent material in impermeable/airtight container
5. Solids can be placed directly impermeable/airtight container
6. Inform Laboratory Manager and arrange for immediate disposal

## Appendix 1: A Representative List of Oxidising Compounds

### Bromates

Potassium bromate	Sodium bromate	
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### Dichromates

Ammonium dichromate	Potassium dichromate	Sodium dichromate
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### Nitrates

Aluminium nitrate	Ammonium nitrate	Ammonium nitrate fertilisers
Barium nitrate	Bismuth nitrate	Cadmium nitrate
Calcium nitrate	Cerium (III) nitrate	Chromium nitrate
Cobalt nitrate	Copper nitrate	Ferric nitrate
Lanthanum nitrate	Lead nitrate	Lithium nitrate
Magnesium nitrate	Manganese nitrate	Nickel nitrate
Potassium nitrate	Silver nitrate	Sodium nitrate
Strontium nitrate	Zinc nitrate	Zirconium nitrate

### Persulphates

Ammonium persulphate	Potassium persulphate	
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### Perborates

Potassium perborate	Sodium peroxoborate	
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### Perchlorates, chlorates and chlorites

Barium perchlorate	Lead perchlorate	Magnesium perchlorate
Perchloric acid	Potassium chlorate	Sodium chlorate
Sodium chlorite	Sodium perchlorate	

### Hypochlorites

Calcium hypochlorite	Sodium hypochlorite	
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### Iodates and Periodates

Calcium iodate	Periodic Acid	Potassium periodate
Sodium periodate		

### Oxides and Peroxides

Barium peroxide	Calcium peroxide	Chromium trioxide (anhydrous)
Hydrogen peroxide	Lead dioxide	Potassium superoxide
Silver oxide	Sodium peroxide	Urea hydrogen peroxide

### Miscellaneous

Dichloroisocyanuric acid	Trichloroisocyanuric acid	Bismuth oxynitrate
Cerium (IV) sulphate	Potassium permanganate	Sodium percarbonate
Sodium permanganate	Sodium persulphate	

### Oxidising Acids

Perchloric acid	Periodic acid	
Concentrated Sulphuric acid	Concentrated Nitric acid	Chromic acid

### Nitrites

Potassium nitrite	Sodium nitrite	
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