Safe Method of Use 17
UN Class 8 - Corrosive Chemicals

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.

Please note:

- **UN Class 5 compounds and Toxic compounds may have very corrosive properties (eg Perchloric acid and Phenol).**
- **Concentrated nitric is a strong oxidising agent and shall be stored and handled appropriately.**
- **See specific Safe Method of Use for Hydrofluoric Acid**

A. Incompatibilities

- HSNO Class 8 compounds **shall** not be stored with HSNO Class 3, 4 or 5 compounds.

B. Storage

- HSNO Class 8 compounds **shall** not be stored with HSNO Class 3, 4 or 5 compounds.
- Acids **shall** be stored separately from alkalis.
- Strong mineral acids can react violently with organic compounds and bases and **shall** not be stored with bases or organic compounds.
- All containers of strong mineral acids and phosphorous and sulphur halides **shall** be checked annually to ensure adequate labelling.
- Refer to SMOU for Oxidisers for specific recommendations concerning perchloric acid.

C. Use

- Fume hoods **shall** always be used when handling concentrated acids
- Safety Glasses and/or face shields **shall** always be worn when handling any corrosive liquid or solid.
• When diluting acid, ALWAYS add acid to water ("A comes before W") not water to acid.

D. Personal Protective Equipment

• Fume hoods **shall** always be used when handling concentrated acids

• Eye protection and/or face shields **shall** always be worn when handling corrosives

• Face shields, plastic coats and rubber gloves should be worn when handling bulk acids

E. Disposal

• Concentrated acids or bases **shall** never be discharged to sewer

• Disposal of concentrated acids or bases **shall** be undertaken by a licensed chemical waste contractor

• Please contact Hazards and Containment Manager to arrange for disposal.

F. Spills

• Use correct gloves

• Neutralise acids with a large volume of sodium bicarbonate or sodium carbonate which will neutralise and absorb liquid leaving a solid which can be swept up.

• Neutralise alkali spills with dilute acetic acid and absorb with absorbent or sawdust.

• Use absorbent material in spill kits to wipe up solvent – wiping from outside of spill toward centre

• Place used absorbent material in impermeable/airtight container

• Inform Laboratory Manager and arrange for immediate disposal
# Appendix 1: Representative List of UN Class 8 - Corrosives

## Acids

### Organic Acids and derivatives

<table>
<thead>
<tr>
<th>Acetic acid</th>
<th>Acetic anhydride</th>
<th>Acetyl Bromide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetyl iodide</td>
<td>Benzenesulfonyl chloride</td>
<td>Benzoyl chloride</td>
</tr>
<tr>
<td>n-Butyric acid</td>
<td>n-Butyric anhydride</td>
<td>Bromoacetic acid</td>
</tr>
<tr>
<td>NN-Dimethylcarbamoyl chloride</td>
<td>Diphenylmethyl Bromide</td>
<td>Formic acid</td>
</tr>
<tr>
<td>Propionic acid</td>
<td>Propenoic acid</td>
<td>Propionic anhydride</td>
</tr>
<tr>
<td>Thioglycolic acid</td>
<td>Thymol</td>
<td>Toluene trichloride</td>
</tr>
<tr>
<td>Trichloroacetic acid</td>
<td>Trifluoroacetic acid</td>
<td></td>
</tr>
</tbody>
</table>

### Mineral Acids

<table>
<thead>
<tr>
<th>Fluoroboric acid</th>
<th>Fluorophosphoric acid</th>
<th>Fluorosilicic acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrobromic acid</td>
<td>Hydroiodic acid</td>
<td>Hydrochloric Acid</td>
</tr>
<tr>
<td>Hydrofluoric acid</td>
<td>Hydrophosphoric acid</td>
<td>Nitric Acid</td>
</tr>
<tr>
<td>Orthophosphoric acid</td>
<td>Sulphuric Acid</td>
<td>Sulphurous acid</td>
</tr>
<tr>
<td>Tetrachloroaouric acid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Other Acidic compounds

<table>
<thead>
<tr>
<th>Aluminium bromide</th>
<th>Aluminium chloride</th>
<th>Antimony Pentachloride</th>
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</thead>
<tbody>
<tr>
<td>Antimony pentafluoride</td>
<td>Antimony trichloride</td>
<td>Boron Tribromide</td>
</tr>
<tr>
<td>Boron trifluoride</td>
<td>Bromine</td>
<td>Chromium fluoride</td>
</tr>
<tr>
<td>Chromium oxychloride</td>
<td>Copper (II) chloride</td>
<td>Iodine chloride</td>
</tr>
<tr>
<td>Iodine trichloride</td>
<td>Iron (III) chloride</td>
<td>Molybdenum pentachloride</td>
</tr>
<tr>
<td>Phosphorous pentoxide</td>
<td>Phosphoryl tribromide</td>
<td>Phosphorous trioxide</td>
</tr>
<tr>
<td>Phosphoryl bromide</td>
<td>Phosphorous pentabromide</td>
<td>Phosphoryl trichloride</td>
</tr>
<tr>
<td>Potassium hydrogen sulfate</td>
<td>Potassium sulphide</td>
<td>Silicon tetrachloride</td>
</tr>
<tr>
<td>Sodium hydrogen difluoride</td>
<td>Sodium sulphide</td>
<td>Sulfur trioxide</td>
</tr>
<tr>
<td>Sulfuryl chloride</td>
<td>Thionyl chloride</td>
<td>Tin (IV) chloride</td>
</tr>
<tr>
<td>Vanadium oxytrichloride</td>
<td>Vanadium tetrachloride</td>
<td>Vanadium trichloride</td>
</tr>
<tr>
<td>Zinc chloride</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Bases

<table>
<thead>
<tr>
<th>Ammonia</th>
<th>Ammonium cerium sulphate</th>
<th>Ammonium hydrogen difluoride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium polysulphide solution</td>
<td>Caesium hydroxide</td>
<td>Lithium hydroxide</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>Sodium hypochlorite</td>
<td>Sodium hydroxide</td>
</tr>
<tr>
<td>Tetramethylammonium hydroxide</td>
<td>2-(2-Aminoethylpiperazine)</td>
<td>N-aminoethylpiperazine</td>
</tr>
<tr>
<td>NN-Dimethylbenzylamine</td>
<td>Cyclohexylamine</td>
<td>Di (n-butyl)amine</td>
</tr>
<tr>
<td>Dicyclohexylamine</td>
<td>Diethylenetriamine</td>
<td>N,N-Diethylenediamine</td>
</tr>
<tr>
<td>2-Dimethylaminoethanol</td>
<td>N,N-Dimethylcyclohexylamine</td>
<td>Dipropylenetriamine</td>
</tr>
<tr>
<td>Ethanolamine</td>
<td>Ethylenediamine</td>
<td>Hexamethylenediamine</td>
</tr>
<tr>
<td>Hydrazine</td>
<td>Hydrazine hydrate</td>
<td>Propylenediamine</td>
</tr>
<tr>
<td>Tetraethylenepentamine</td>
<td>Tributylamine</td>
<td>Triethylenetetramine</td>
</tr>
<tr>
<td>Trimethylcyclohexylamine</td>
<td>Trimethylhexamethylenediamine</td>
<td></td>
</tr>
</tbody>
</table>