

City University of Hong Kong

Chemical Waste Disposal System

The main strategy for compliance relies upon a knowledge of the waste type and quantity that we are producing and putting it into the correct pail or diluting (for very small quantity of weak acid and alkali waste only) and flushing it down the sink in Phase 2 (Purple Zone, MMW Building and Sports Complex) only. In Phase 1 (Green, Blue, Yellow Zones, AM, CYC, FYW Buildings), all wastes must be collected in pails, stored and delivered to the chemical waste disposer, Enviropace Ltd. The detailed duties for this system follow.

Each department has one or more persons appointed as Chemical Waste Person In-charge (CWI) who can advise you on departmental methods (list of names attached – Appendix B). Every lecturer who makes out a laboratory sheet and every researcher needs to identify the nature and quantity of chemical waste that this work is producing and a suitable disposal method.

The System

The master table in Appendix A, Schedule of Substances and Chemicals under control of EPD's publication "A Guide to the Chemical Waste Control Scheme" determines the disposal method. There must be a separate pail or container for every item listed in Part A. These will be provided on request from the CWI on an one off basis.

The mineral oils and toxic salts in aqueous solution pails will take care of Part B substances and the acids, alkalis and corrosive compounds will go into the sinks (Phase 2 only) after suitable dilution has been specified by the lecturer.

New substances being synthesized etc. will need to be assessed for hazard and risk before a disposal method is determined. In the absence of a risk assessment it will always be assumed that the substance requires a separate pail.

Suggested Waste Streams (other than sinks)

Each of the following groups of material should be held in separated containers:

- Non-halo-solvent
- Halo-solvent
- Acid
- Lub Oil
- Nitric Acid
- Fluoroboric Acid
- Etchant
- Alkali, Fixer & Developer
- Iron(iii) Chloride, Etchant
- Alkali, Sodium Hydroxide
- Alkaline with Metal
- Acid Organic, Etchant
- Cutting Fluid
- Pesticide in Hexane
- Non-halo-acrylic
- Bromine Solution
- Solid Material with Mercury
- Lean Organic
- Ammonia Solution

N.B. Acetic and Formic acids are organic acids. It is suggested after consultation with Enviropace that there is no reason why these two acids with concentration less than 10% by weight cannot go down to the neutralization plant through the sinks.

In addition, for Phase 1 there will be an additional pail for inorganic acids.

Summary of Responsibilities

I. Lecturers and Principal Investigators are responsible for:

- Identifying the quantity, nature and disposal method for chemical waste
- *Ensuring chemical containers bottles are adequately rinsed before disposal*

II. Users (every person who produces chemical wastes) are responsible for:

- Following the methods prescribed for waste disposal in I above, i.e. correct pail / container or dilution
- Transporting waste from the laboratory to the waste storage area
- Failure to follow the correct waste disposal procedure will result in a verbal warning, repeated lapses will eventually lead to dismissal from laboratory work
- Any person breaching the Ordinance will be personally responsible for any fine following a successful prosecution
- *Not disposing chemical containers / bottles which are not adequately rinsed for safe disposal*

III. Chemical Waste Person In-charge (CWIs) (Appendix B) are responsible for:

- Requesting the correct pails or containers from FMO
- Testing the incompatibility of the waste in the pail
- Temporarily storing the waste within the laboratory
- *Rinsing empty chemical containers / bottles to render them safe for disposal as a general waste*

IV. The Facilities Manager (Safety & Ambiance) is responsible for:

- *Providing guidance on the overall management of chemical waste, including new chemical waste (for application of disposal, please see Appendix C)*
- Evaluating the operation for regulatory compliance
- Securing chemical waste disposal permits
- Co-ordinating chemical waste disposal in SCM, SDS, MPU & FMO
- Providing waste containers, labels and other accessories which are supplied from CWTC
- Managing the waste storage areas for SCM, SDS, MPU & FMO
- Preparing waste for transportation to the disposal site including the log sheet for SCM, SDS, MPU & FMO
- *Providing temporary chemical waste (liquid and regular items) disposal service for FSE departments*

Remarks:

| | | |
|------|---|-------------------------------------|
| CWI | - | Chemical Waste Person In-charge |
| CWTC | - | Chemical Waste Treatment Centre |
| EPD | - | Environmental Protection Department |
| FMO | - | Facilities Management Office |
| FSE | - | Faculty of Science and Engineering |
| MPU | - | Media Production Unit |
| SDS | - | Student Development Services |
| SCM | - | School of Creative Media |



SCHEDULE OF SUBSTANCES AND CHEMICALS

| Part A | Code | |
|--|-------|--|
| Any substance to which the Antibiotics Ordinance (Cap. 137) applies | 30 | Organo mercury compounds |
| Asbestos | 09 | Organo tin compounds |
| Dangerous drugs (as defined in the Dangerous Drugs Ordinance (Cap. 134)) | 10 | Paints |
| Dangerous goods, category 2, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 02 | Pesticides (as defined in the Register referred to in Section 4(a) of the Pesticides Ordinance (Cap. 133)) |
| Dangerous goods, category 6, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 04 | Pharmaceutical products and medicines, NES |
| Dangerous goods, category 9, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 14 | Phosphorus compounds excluding phosphates |
| Dibenzofurans | 19 | Selenium compounds |
| Dioxins | 19 | Silver compounds |
| Pesticides (as defined in the Register referred to in Section 4(b) of the Pesticides Ordinance (Cap. 133)) | 06 | Sulphides |
| Poisons (Part I) (as defined in the Pharmacy and Poisons Ordinance (Cap. 138)) | 20 | Thallium and its compounds |
| Polychlorinated biphenyls | 29 | Tin compounds |
| | | Vanadium compounds |
| | | Zinc compounds |
| | | |
| Part B | | Acids, alkalis and corrosive compounds |
| Antimony and its compounds | 66 | Acetic acid above 10% acetic acid by weight |
| Arsenic compounds | 66 | Acids or acidic solutions, NES with acidity equivalent to above 5% nitric acid by weight |
| Barium compounds | 66 | Ammonia solution above 10% ammonia by weight |
| Beryllium and its compounds | 66 | Bases or alkaline solutions, NES, with alkalinity equivalent to above 1% sodium hydroxide by weight |
| Boron compounds | 66 | Chromic acid above 1% chromic acid by weight |
| Cadmium and its compounds | 66 | Fluoroboric acid above 5% fluoroboric acid by weight |
| Chromium bearing solid tannery waste | 56 | Formic acid above 10% formic acid by weight |
| Chromium and its compounds, NES | 66 | Hydrochloric acid above 5% hydrochloric acid by weight |
| Cobalt and its compounds | 66 | Hydrofluoric acid above 0.1% hydrofluoric acid by weight |
| Copper compounds/copper etchant | 66/76 | Hydrogen peroxide solution above 8% hydrogen peroxide by weight |
| Cyanides | 96 | Nitric acid above 5% nitric acid by weight |
| Dangerous goods, category 3, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 38 | Perchloric acid above 5% perchloric acid by weight |
| Dangerous goods, category 4, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 36 | Phosphoric acid above 5% phosphoric acid by weight |
| Dangerous goods, category 5, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 33 | Potassium hydroxide solution above 1% potassium hydroxide by weight |
| Dangerous goods, category 7, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 35 | Potassium hypochlorite solution above 5% active chlorine |
| Dangerous goods, category 8, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 34 | Sodium hydroxide solution above 1% sodium hydroxide by weight |
| Dangerous goods, category 10, NES .. (As defined in the Dangerous Goods Ordinance (Cap. 295)) .. | 39 | Sodium hypochlorite solution above 5% active chlorine |
| Halogenated organic solvents and compounds | 49 | Sulphuric acid above 5% sulphuric acid by weight |
| Lead and its compounds | 66 | |
| Manganese and its compounds | 66 | |
| Mercury and its compounds | 66 | |
| Mineral oils employed for engine lubrication | 73 | |
| Mineral oils, NES | 63 | |
| Nickel and its compounds | 66 | |
| Non-halogenated organic solvents and compounds | 43 | |
| Organo lead compounds | 86 | |

NES = Not elsewhere specified



Chemical Waste Person-in-charges of FSE:

Mr S W Wong (AP)

Mr Joseph Wong (BC)

Mr C L Lau (BCH)

Ms Helen Ng (BCH)

Ms Polis Wong (EE)

Mrs S C Lee (MEEM)

Request for New Chemical Waste Disposal

Company Name : City University of Hong Kong
 CWPN : #9311-268-C2864-01
 Department :
 Contact Person (CWI) :
 Phone No. :

| Item No. | Chemical Name | Chemical Formula | Physical State (S/M/L) | pH Value | Container Size(ml) | Container Type (G/P/M) | Type of Liq (G/P/M) | Quantity (# of Container) | Amount (Kg/L) | WPS1/WPS2 (Specify process if WPS2) | one-off/frequency | Other information/Remarks |
|----------|---------------|------------------|------------------------|----------|--------------------|------------------------|---------------------|---------------------------|---------------|-------------------------------------|-------------------|---------------------------|
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Note: S=Solid M=Sludge L=Liquid;
 G=Glass P=Plastic M=Metallic

WPS1: for Unwanted/Expired raw Chemicals;
 WPS2: for Wastes Produced from Lab Testing

Signature of CWI : _____

Date : _____