

# HONG KONG GREEN PRINTED CIRCUIT BOARD COMPANY

# Environmental Instruction

## Waste Management

### (EI-03)

**Revision No. : 1**

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## Revision History

[illegible]

**1.0 Purpose**

This instruction outlines the practices to be adopted for waste management and to comply with legal and other requirements.

**2.0 Scope**

This instruction is applicable to all activities and operations at the company which generates wastes and includes the best practice procedures for managing:

- Solid Waste; and
- Chemical Wastes.

Some solid wastes in which HKGPCB produces include:

- General refuse from office activities
- Metal wastes such as copper residues from deburr process, activated carbon and tin balls from plating process.
- Wastes from general operations (e.g. gloves, wiper, tape filter, etc.)
- Wastes from production process (e.g. diazo films from film preparation, prepreg cut outs, backup boards, dust filters, drill bit, aluminum sheets and panel edge from drilling process)
- Recyclable wastes (e.g. paper, plastic bottles, aluminum cans, etc.)
- Packaging materials (e.g. polyfoam, paper for cushioning, plastic strips, paper box and vacuum packing bag)

Some chemical wastes in which HKGPCB produces include wastes from:

- Caustic soda, MPP, PAC, sulphuric acid, polymer, hydrogen peroxide and activated carbon used in wastewater treatment systems
- Cupric ammonium complex from etching process
- Empty chemical containers
- Paint, acetylene, adhesives, lube oil, hydraulic oil, aerosols, heat transfer oil and organic solvents used in general building maintenance.
- Plating chemicals (e.g. alkaline cleaner, UMT stabilizer, palladium, organic reducer, copper sulphate, formaldehyde, stabilizer for electroless process, boric acid, citric acid, hydrogen peroxide, copper balls, sodium chloride, etc.)
- Manganese oxide from desmear process

**3.0 Procedure****3.1 Application for permits/licences**

The EMR shall ensure that:

- a chemical waste producer licence is obtained for the company, and that the licence covers all the types of chemical waste produced by the company.

**3.2 Typical type of wastes throughout production processes****3.2.1 Solid wastes**

- Recycled paper
- Packaging materials
- Damaged printed circuit boards
- Plastic containers for dry-film
- Plastic racks
- Wasted copper sheets
- Damaged drill head / cutter / covering sheets
- Wooden pallets
- Plastic sheets (e.g. from Lay-up / Pressing processes)

**3.2.2 Chemical wastes**

- Spent acid
- Spent alkali
- Spent plating solutions
- Spent etching solutions
- Spent solder mask
- Spent Entek materials

**3.3 Practices for Waste Management****3.3.1 General Waste Management****A. Segregation**

- i. Segregate the following solid wastes for disposal or recycling:
  - Non-recyclable solid wastes (general refuse)
  - Paper wastes (do not place non-recyclable paper including carbon paper, plastic laminated paper, glossy paper and contaminated papers in the recycle paper container)
  - Packaging wastes (plastic, cartons) for reuse and recycling
  - Wooden pallets for recycling
  - Metal wastes (e.g. copper foil, aluminium sheets) for recycling
  - Food waste
  - Bulky items (e.g. furniture, machinery)
- ii. Clearly labelled containers must be located for the initial collection of these wastes as near as conveniently possible to the point of generation.
- iii. A designated member of staff (usually cleaning staff / contractor) should be assigned to collect the wastes and transfer them to the bulk waste storage area regularly.

**B. Storage**

The following practices should be followed for the storage of solid wastes:

- i. Segregate chemical waste and general waste in accordance with the allowable waste types listed on the containers.
- ii. Store all waste containers in dedicated storage areas.
- iii. Put lids/covers on all containers stored outside.
- iv. Label all waste containers and waste storage areas.
- v. Store all waste containers on sealed ground to avoid land contamination
- vi. Make sure waste containers are collected when they are full.
- vii. Use containers that are strong enough to protect waste from wind, rain, scavengers and vandals.

The following practices should be avoided for the storage of solid wastes:

- i. The use of rusty, broken or leaky containers for the storage of solid waste
- ii. Allowing waste to lie around that can be blown off site resulting in litter.
- iii. Allow rainwater to enter waste containers where leachate may arise and contaminate surface waters.

**C. Disposal of Waste**

When containers are observed to be full, a designated member of staff should arrange for a collection to be made by the waste disposal contractor.

**3.3.2 Chemical Wastes**

- A. Register with Environmental Protection Department (EPD) as Chemical Waste Producer and apply for a revision if the types of chemical waste to be disposed of change.
- B. Appoint licensed collector(s) (from EPD's list of approved registered chemical waste collectors) to collect and dispose of chemical wastes
- C. Maintain records (trip tickets) of chemical wastes generated / collected.
- D. Adopt alternative working practices / processes to eliminate / reduce / generate less toxic chemical wastes
- E. Adopt storage, handling, transportation and disposal practices in accordance to the EPD publication "*Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*".
  - Provide appropriate wastes containers for each type of chemical waste generated on site. (Use container with capacity less than 450 litre unless specification approved by EPD.)
  - Ensure that containers are in good condition, closed/ sealed.
  - Put chemical waste labels with the appropriate information (in Chinese and English) on chemical waste containers
  - maintain waste containers upright to minimise spillage/leakage.
  - Designate separate storage facilities for incompatible chemical waste, and provide these areas with prominent signage, lock, etc.

- Provide secondary containment (e.g. drip trays or impermeable floor and bunding) and adequate ventilation for storage areas. (Capacity of the secondary containment should be able to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored, whichever is greatest.)
- Provide storage area with impermeable floor and bunding, and adequate ventilation.

F. Provide storage facilities for vehicle batteries and/or battery acids

#### 4.0 Monitoring and Checking

The EMR shall ensure that:

- waste facilities specified in this EI are provided adequately and operated in satisfactory conditions; and
- Waste management practices specified in this EI are followed by staff and contractors.

The Production Manager or his / her delegate shall:

- Check weekly if practices in Section 3.2 are correctly and fully implemented by random visual inspection, and note down the observation in the inspection checklist.
- When nonconformity are identified corrective action measures are defined and implemented in accordance with EP-07 Enquiry / Complaint / Nonconformity Handling.

#### 5.0 Records

Record Description	Record Location/ Retention Responsibility	Minimum Retention Time
Lists of chemicals wastes and storage locations (Refer to Production Manager)	Production Manager	Two previous versions
Information on waste collection company and frequency of collection locations (Refer to individual trip-ticket records and general waste collection records from subcontractor)	Production Manager / EMR	3 years
MSDS for all chemicals and DGs (Refer to Production Manager)	Production Manager	3 years
Trip Tickets (Refer to Production Manager)	Production Manager	3 years
Visual Inspection Records (Refer to EF-EP07-01 if found)	Production Manager	3 years

any nonconformity)		
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**6.0 Appendix**

Nil.