

**Code of Practice
for the Management of Clinical Waste**
- Small Clinical Waste Producers

(Published under Section 35 of the Waste Disposal Ordinance)

Environmental Protection Department
The Hong Kong Special Administrative Region Government
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PREFACE

This Code of Practice is a statutory document published under Section 35 of the Waste Disposal Ordinance (Cap. 354) by the Secretary for the Environment after consultation with the Advisory Council on the Environment. The purpose of this Code is to provide guidance to small clinical waste producers to assist them to comply with the legal requirements of the Waste Disposal Ordinance and the Waste Disposal (Clinical Waste) (General) Regulation. Clinical waste is potentially dangerous because it may contain infectious materials and sharps. It is important to exercise special caution in the handling and management of clinical waste so as to minimize any danger to public health or risk of pollution to the environment.

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1. INTRODUCTION

Clinical waste arises from a number of sources, including hospitals and clinics, medical and dental surgeries, veterinary practices, medical teaching establishments, medical research and laboratories, and nursing homes. Clinical waste is potentially dangerous because it may contain infectious materials and sharps such as needles. In addition, clinical waste containing human organs and body parts may be offensive in nature. It is therefore important to exercise special caution in the handling and management of clinical waste in order to minimize its potential danger to public health or pollution to the environment.

This Code of Practice (“Code”) is designed to provide guidance to small clinical waste producers (“waste producers”) to assist them to comply with the legal requirements of the Waste Disposal Ordinance (Cap. 354) and the Waste Disposal (Clinical Waste) (General) Regulation (“the Regulation”). As major and small waste producers have different modes of operation, a separate *“Code of Practice for the Management of Clinical Waste - Major Clinical Waste Producers and Waste Collectors”* has also been published to provide guidance to major waste producers. A list of major and small waste producers is given at Annex A.

2. THE DUTY OF CARE OF CLINICAL WASTE PRODUCERS

Waste producers have a duty of care to take the following measures in managing the clinical waste generated from their premises :

- Segregate clinical waste from other waste streams and prevent clinical waste from entering the disposal chain of municipal solid waste;
- Package and label clinical waste properly to enable easy identification;
- Provide safe and secure temporary storage area for clinical waste; and
- Ensure their staff take all necessary safety measures in handling clinical waste, and provide sufficient training to them.

Specifically, the Regulation requires all waste producers to arrange for their clinical waste to be properly disposed of. Waste producers are deemed to have discharged the duty if they consign the waste to a licensed clinical waste collector ("licensed collector"), or arrange the waste to be delivered to a collection point or licensed clinical waste disposal facility ("licensed disposal facility") according to the requirements specified in the Regulation. The Regulation also requires waste producers to keep records of the clinical waste consigned to licensed collectors or delivered to a collection point or licensed disposal facility, and to produce such records for inspection upon request by the Director of Environmental Protection ("the Director").

3. DEFINITION OF CLINICAL WASTE

3.1 Types of Clinical Waste

Under the Waste Disposal Ordinance, clinical waste means waste consisting of any substance, matter or thing generated in connection with -

- a dental, medical, nursing or veterinary practice;
- any other practice, or establishment (howsoever described), that provides medical care and services for the sick, injured, infirm or those who require medical treatment;
- dental, medical, nursing, veterinary, pathological or pharmaceutical research; or
- a dental, medical, veterinary or pathological laboratory practice,

and which consists wholly or partly of any of the materials specified in one or more of the groups listed below :

Group 1 - Used or Contaminated Sharps

Syringes, needles¹, cartridges, ampoules and other sharp instruments which have been used or which have become contaminated with any other group of clinical waste.

¹ Needles include acupuncture needles.

Group 2 - Laboratory Waste

Unsterilized laboratory stock cultures, or cultures, of infectious agents and potentially infectious waste with significant health risk from dental, medical, veterinary or pathological laboratories.

Note: "potentially infectious waste with significant health risk from dental, medical, veterinary or pathological laboratories" refers to those unsterilized materials or devices used to culture, transfer, inoculate or mix the laboratory stock cultures, or cultures, of infectious agents. Examples include culture dish, bottle, flask, tube, pipette, pipette tip, inoculation loop and inoculation wire.

Group 3 - Human and Animal Tissues

All human and animal tissues, organs and body parts as well as dead animals, but excluding -

- (a) dead animals and animal tissues, organs and body parts arising from a veterinary practice or a Chinese medicine practice; and
- (b) teeth arising from a dental practice.

Note: Group 3 clinical waste is not intended to cover small quantities of human and animal tissues which cannot be completely separated from items such as dressings.

Group 4 - Infectious Materials

Infectious materials from patients with the following pathogens - Crimean/Congo haemorrhagic fever, Ebola, Guanarito, Hendra, Junin, Kyasanur forest disease, Lassa fever, Machupo, Marburg, Nipah, Omsk, Russian spring-summer encephalitis, Sabia, Variola viruses; Herpesvirus simiae (B virus); and Severe Acute Respiratory Syndrome Coronavirus. Any materials contaminated by the above infectious materials are also classified as Group 4 waste.

Note: The Director may, by notice published in the Gazette, amend the list of pathogens under this group.

Group 5 - Dressings

Surgical dressings, swabs and all other waste dribbling with blood, caked with blood or containing free-flowing blood.

Group 6 - Other Wastes

Such other wastes as specified by the Director by notice published in the Gazette if in his opinion such wastes -

- (a) are likely to be contaminated with infectious materials from patients falling within such case definition as specified in the notice; and
- (b) may pose a significant health risk.

3.2 What Are Not Clinical Waste

For the avoidance of doubt, the following wastes are not classified as clinical waste and waste producers should observe relevant legal requirements applicable to the handling of these wastes :

- Radioactive waste, whether arising from medical sources or not, as defined under the Radiation (Control of Radioactive Substances) Regulations (Cap. 303A);
- Chemical waste as defined under the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C) including cytotoxic drugs;

Note: "Cytotoxic drug" means a drug which has the capability of selectively killing cells while they are dividing. Cytotoxic drugs in bulk or of significant residual volume in containers (e.g. unused or partially used drugs in ampoules or syringes) are regarded as chemical waste and should be disposed of according to the Waste Disposal (Chemical Waste) (General) Regulation. Significant residual volume means more than 3% volume of the container filled with the drugs. Ampoules or syringes with less than 3% volume filled with cytotoxic drugs can be placed in sharps boxes and disposed of as Group 1 clinical waste. Such sharps boxes (i.e. with sharps contaminated with residual amount of cytotoxic drugs) should be disposed of by incineration and not by any other methods.

- Dead animals and animal tissues, organs and body parts arising from veterinary practices, abattoirs, pet shops, farms, wholesale and retail markets, Chinese medicine practices, or domestic sources; and
- Human corpses.

4. SEGREGATION, PACKAGING AND LABELLING OF CLINICAL WASTE

4.1 Segregation

Clinical waste should be segregated from municipal solid waste or other waste streams at the point of arising and packaged properly for on-site temporary storage in a safe and secure manner pending delivery to a collection point or licensed disposal facility. Different groups of clinical waste should be handled differently according to their packaging requirements as specified in section 4.2 of this Code.

4.2 Packaging

Containers for packaging of clinical waste must be leak-proof, impervious to moisture and strong enough to prevent tearing or bursting under normal handling to ensure that waste handlers and the public are protected from exposure to the waste. Such containers should be of one-trip type and should not be reused. The containers should be sealed off before leaving the waste producers' premises. The appropriate types of containers with specified colour-coding for different groups of clinical waste are set out in Table 1.

Groups of Clinical Waste	Type(s) of Container	Colour	Sealing
Group 1 - Used or contaminated sharps	Sharps box	YELLOW or combination of WHITE and YELLOW	Proprietary closure
Group 3 - Human and animal tissues	Heavy duty plastic bag	YELLOW	Plastic tie
Group 2 - Laboratory waste Group 4 - Infectious materials Group 5 - Dressings Group 6 - Other wastes	Heavy duty plastic bag	RED	Plastic tie

Table 1: Packaging Requirements for Different Groups of Clinical Waste.

Group 1 Waste - Used or Contaminated Sharps

All used or contaminated sharps should be put into sharps boxes. The specifications of a typical sharps box are given in Annex B. Small waste producers may use other containers as sharps boxes provided that the containers are rigid, non-fragile, puncture-resistant, shatter-proof and leak-proof.

Group 3 Waste - Human and Animal Tissues

Human and animal tissues, organs and body parts should be put into YELLOW plastic bags. Such waste if generated in small quantity may be placed together with other groups of waste in RED plastic bags provided that they would not generate nuisance such as obnoxious odour. Specifications of the plastic bags are provided in Annex B.

Other Groups of Clinical Waste

Group 2, 4, 5 and 6 clinical waste may be placed together in RED plastic bags. Properly sealed sharps boxes may also be put into RED plastic bags for disposal.

4.3 Sealing of Containers

Containers of clinical waste should not be filled above the warning line indicating between 70% and 80% of their maximum volume before sealing. The packaging and sealing should be conducted with care to ensure that no clinical waste adheres to the external surface of the containers.

Sharps containers should be properly sealed by the proprietary closure/tape. Plastic bags should be sealed by tying the neck securely to prevent spillage. The swan-neck sealing method as shown in Figure 1 is recommended.

No staple or unprotected metallic wire tie should be used for sealing or tagging of plastic bags with clinical waste, so as to prevent injury to waste handlers and damage to other bags. Metallic wire tie fully wrapped with plastic is acceptable for use in sealing plastic bags. If the clinical waste contains liquids, thermal sealing of the plastic bags is recommended to prevent spillage.

4.4 Labelling

Every container of clinical waste must bear a label as specified in Annex C. The label must be securely affixed or pre-printed on a prominent position of the container which allows the information on the label to be read easily.

5. STORAGE OF CLINICAL WASTE

Waste producers should provide suitable area for temporary storage of clinical waste on the premises from which the waste is generated. A waste producer should not remove any clinical waste from his premises to another place for storage, except to a collection point.

Storage area for clinical waste should be designed to prevent unauthorized access and to maintain proper sanitary conditions free of pests and vermin. There should be impermeable sills in the area to contain any leakage or spillage of waste. The area should be adequately ventilated and dedicated for storage of clinical waste only. An example of a small clinical waste storage cupboard is provided in Figure 2.

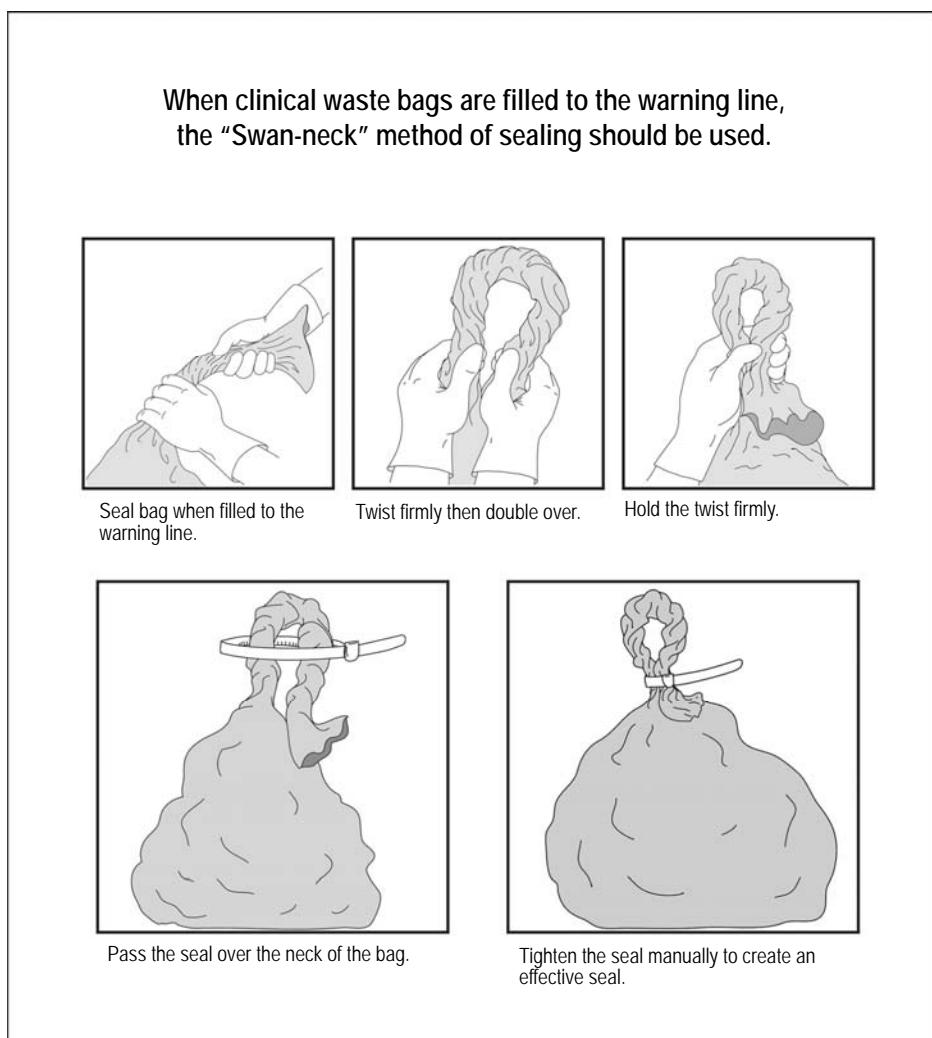


Figure 1: Sealing Method for Clinical Waste Bags.

Prolonged storage of clinical waste on the premises should be avoided. Group 3 waste (Human and Animal Tissues) should be stored under refrigeration to prevent nuisance such as obnoxious odour. Storage of such waste in a preservative agent may also be used. In such circumstances, both the waste and the preservative agent should be disposed of as chemical waste in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. Group 4 waste (Infectious Materials), if any, should be collected for disposal as soon as practicable.

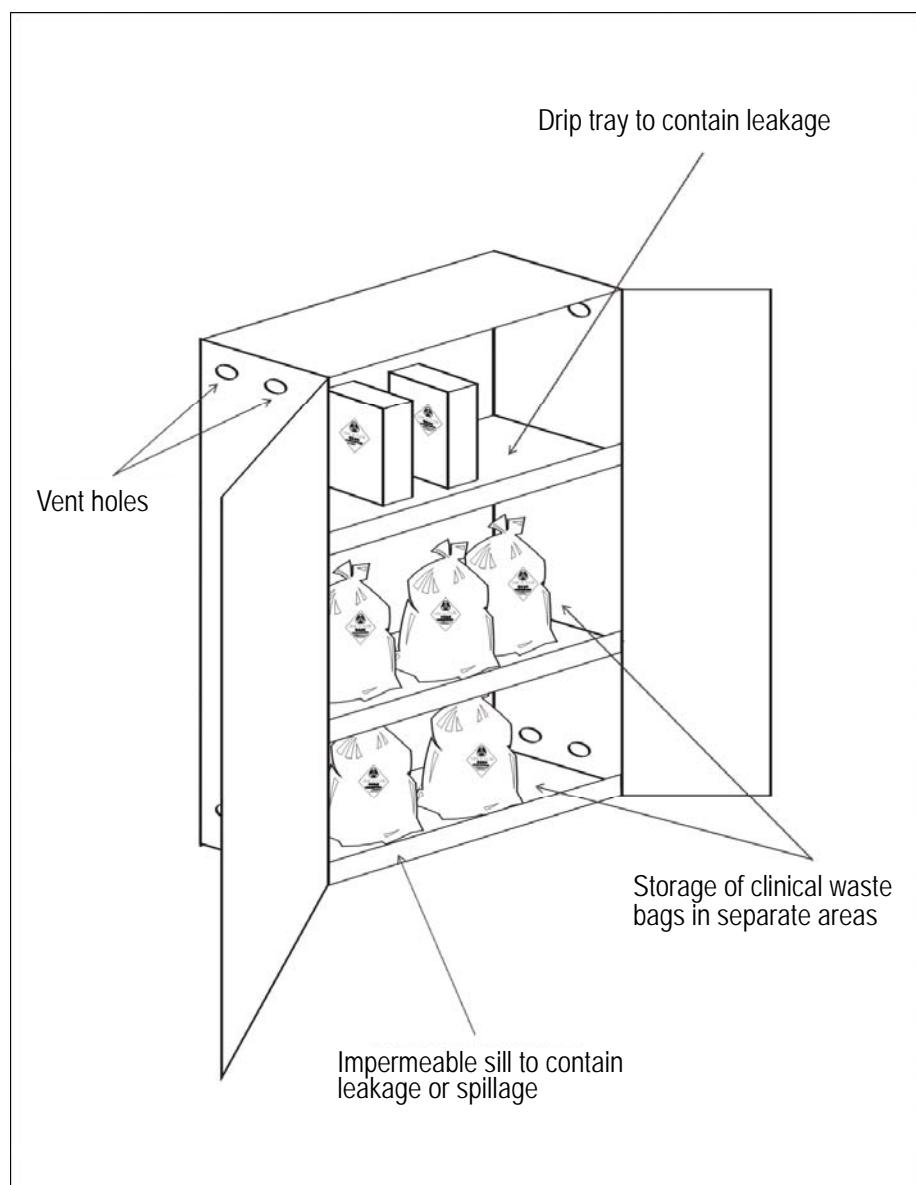


Figure 2: Schematic Drawing of a Clinical Waste Storage Cupboard.

6. COLLECTION AND TRANSPORTATION OF CLINICAL WASTE

6.1 Collection of Clinical Waste by Licensed Collectors

Clinical waste must not be collected or disposed of together with municipal solid waste or other types of wastes.

Clinical waste must be collected and transported by licensed collectors to licensed disposal facilities for proper disposal. A licensed collector is required to comply with the requirements specified in waste collection licence and in full compliance with the regulatory requirements. A list of licensed collectors is available at the homepage of the Environmental Protection Department, which will be updated from time to time.

Licensed collectors may provide services to waste producers for packaging and labelling of clinical waste, including the provision of waste containers (sharps boxes or bags). In such circumstances, the licensed collectors should properly package and label the waste in accordance with the requirements as set out in section 4 of this Code before removing the waste from the producers' premises. Waste containers provided by licensed collectors should bear the licensed collectors' names for identification of the responsible licensed collectors.

6.2 Delivery of Clinical Waste by Healthcare Professionals

Waste producers who are healthcare professionals² may deliver their clinical waste to a collection point or licensed disposal facility. They may ask their employees who are also healthcare professionals to deliver the waste on their behalf. A waste collection licence is not required for such delivery of clinical waste. However, the waste delivery is subject to the requirements specified in the Regulation, which include the following :

- They must not carry more than 5 kg of clinical waste at any one time;
- No Group 4 waste must be delivered;

² Healthcare professionals include registered medical practitioners, dentists and veterinary surgeons, registered or listed Chinese medicine practitioners, and registered or enrolled nurses as defined in the Waste Disposal (Clinical Waste) (General) Regulation.

- Group 1 waste must be packaged in containers that are puncture-resistant, shatter-proof and leak-proof (e.g. sharps boxes);
- Other groups of clinical waste must be packaged in containers that are made of rigid material, impervious to moisture and leak-proof, and that will not rip, tear or burst under normal conditions of handling;
- The clinical waste must be properly packaged to prevent spillage, and the containers must be labelled in accordance with the specifications set out in Annex C;
- Only private car³ within the meaning of the Road Traffic Ordinance (Cap. 374) must be used as a means of transport in delivering the clinical waste; and
- The clinical waste must be delivered directly to a collection point or licensed disposal facility within 24 hours and must not be left unattended during the delivery.

In addition, the healthcare professionals must carry adequate and appropriate first-aid equipment for use in case of injury to any person caused by the clinical waste during the delivery. They must also carry appropriate equipment for cleaning up spilled clinical waste (e.g. spare red bags and sharps boxes) in case of spillage. A recommended list of equipment for cleaning up spilled clinical waste is provided at Annex D. The healthcare professionals should exercise professional judgment in carrying adequate quantity of such equipment by reference to the amount of clinical waste they deliver.

7. COLLECTION POINT

Subject to the authorization granted by the Director, a waste producer may use his premises where he produces clinical waste (e.g. hospital, clinic, medical laboratory) to provide temporary storage area as an “on-site collection point”, for receiving clinical waste generated by him in other

³ Private car means a motor vehicle constructed or adapted for use solely for the carriage of a driver and not more than 7 passengers and their personal effects but does not include an invalid carriage, motor cycle, motor tricycle or taxi.

premises or delivered by other small waste producers.

Waste producer who intended to set up on-site collection points must obtain authorization from the Director and follow such terms and conditions specified in the authorization, and more details can be obtained from the Environmental Protection Department. The objective is to minimize the risks of pollution to the environment and the danger to public health that might be caused by the operation of these collection points.

The delivery of clinical waste from the premises of other small waste producers to the collection point must be conducted by healthcare professionals in accordance with the requirements set out in section 6.2 of this Code. A waste producer who operates an on-site collection point must check and confirm the professional identity of the person who delivers the waste. The operator of an on-site collection point must prepare and issue a copy of the record of waste delivery to the person who delivers the waste. The operator of an on-site collection point must also keep the record and produce it to the Director for inspection upon request. The record must include the following information and as required in the authorization :

- The name, address and telephone number of the person who produced or caused to produce the clinical waste;
- The name, address and telephone number of the person who delivers the clinical waste to the collection point;
- The date and time of delivery of the clinical waste;
- The origin, nature and quantity of the clinical waste; and
- Other particulars relating to the clinical waste as may be specified by the Director in granting the authorization.

8. RECORD KEEPING

Waste producers must keep a record of the clinical waste consigned to a licensed collector or delivered to a collection point or licensed disposal facility, and produce the record to the Director for inspection when so required. The record must include the following information :

- The date of consignment/delivery;
- The quantity of clinical waste consigned/delivered;
- The address of the premises from which the clinical waste is delivered;
- For consignment to a licensed collector, the name of the licensed collector; and
- For delivery to a collection point or licensed disposal facility, the name of the person who delivers the waste, and the name and address of the collection point or disposal facility.

The Director may require a waste producer to produce records of waste consignment or delivery for inspection. Such records may include copy of trip ticket or receipt of waste consignment issued by a licensed collector, or receipt of waste delivery issued by the operator of a collection point or licensed disposal facility. Waste producers must keep such records for 12 months from the date of consignment/delivery.

9. TRAINING AND SAFETY PRECAUTIONS

Waste producers should ensure that their staff receive adequate training in the safe handling of clinical waste, including cleaning-up of spillage. Staff should also be provided with suitable protective equipment to handle clinical waste (see Annex D).

Waste producers should take all such precautions as are necessary for preventing any danger to public health or safety, any pollution to the environment and any nuisance to the neighbouring area that might be caused by the clinical waste generated on their premises.

List of Clinical Waste Producers

Major clinical waste producers:

- Public hospitals, clinics and institutions managed by the Hospital Authority;
- Private hospitals and maternity homes defined under the Hospitals, Nursing Homes and Maternity Homes Registration Ordinance (Cap. 165);
- The Prince Philip Dental Hospital; and
- Government clinics and medical laboratories (whether they are managed by the Department of Health or other Government departments).

Small clinical waste producers:

- Private medical clinics/practices;
- Private dental clinics/practices;
- Private dental, medical, veterinary or pathological laboratories;
- Private Chinese medicine clinics/practices;
- Residential care homes for the elderly;
- Universities with medical teaching or research (including Chinese medicine);
- Pharmaceutical companies with medical research;
- Private veterinary clinics/practices;
- Nursing homes;
- Health and beauty centres where medical practices are conducted; and
- Other relevant organisations.

Specifications for Different Types of Containers for Clinical Waste

1. Sharps box

- Conform with *British Standard BS 7320:1990* in respect of resistance to penetration and resistance to leakage after vertical dropping and toppling or similar specification for sharps containers;
- Capable of being sealed;
- Provided with a handle that is not part of the closure device, wherever practicable;
- Combustible and capable of being safely incinerated, and should not be made from polyvinylchloride (PVC);
- Legibly marked with a horizontal line to indicate when the sharps box is filled to between 70% and 80% of its maximum volume, together with the words "WARNING - DO NOT FILL ABOVE THE LINE", wherever practicable;
- Coloured in yellow or combination of white and yellow; and
- Capable of being marked by indelible ink and securely attached by labels.

2. Heavy duty plastic bag

- With a maximum nominal capacity of 0.1 m³;
- Of minimum gauge of 150 microns if made from low density polyethylene, or 75 microns if made from high density polyethylene or polypropylene, and should not be made from polyvinylchloride (PVC);
- Of suitable size and shape to fit the holder which supports the bag in use;
- Legibly marked with a horizontal line to indicate when the bag is filled to between 70% and 80% of its maximum volume, together with the words "WARNING - DO NOT FILL ABOVE THE LINE";
- Coloured in red (clinical waste other than Group 1 and 3 wastes) or yellow (for Group 3 waste); and
- Capable of being marked by indelible ink and securely attached by labels.

Labelling of Clinical Waste Containers

Each container must bear on the outside of the container a label of such dimensions as are specified in Part 1 below, and the label must contain the symbol specified in Part 2 below.

PART 1 DIMENSIONS OF LABEL

Type of container	Dimensions of label
Sharps container of a capacity of less than 2 Litres	not less than 40 mm x 40 mm
Sharps container of a capacity of 2 Litres or more	not less than 75 mm x 75 mm
Container other than sharps container	not less than 150 mm x 150 mm

PART 2 SYMBOL IN LABEL



Specifications of the symbol:

1. The colours of the symbol must be as follows:

Border - black

Background - white or primary colour of the container

Words and characters - black

International Biohazard sign - black

2. The international biohazard sign appearing in the symbol must have a minimum height as follows:

Type of container	Minimum height
Sharps container of a capacity of less than 2 Litres	16 mm
Sharps container of a capacity of 2 Litres or more	30 mm
Container other than sharps container	60 mm

3. Each of the English words appearing in the symbol must have a minimum height as follows:

Type of container	Minimum height
Sharps container of a capacity of less than 2 Litres	3 mm
Sharps container of a capacity of 2 Litres or more	5 mm
Container other than sharps container	10 mm

4. Each of the Chinese characters appearing in the symbol must have a minimum height as follows:

Type of container	Minimum height
Sharps container of a capacity of less than 2 Litres	4 mm
Sharps container of a capacity of 2 Litres or more	7 mm
Container other than sharps container	15 mm

Equipment for Handling Clinical Waste Spillage

1. Personal Safety and Protective Gear

- Disposable gloves
- Safety glasses or goggles
- Masks
- Eye-wash bottle
- First aid equipment (e.g. antiseptic solution for treating skin and wounds, plasters, scissors, cotton wool)

2. Equipment

- Equipment to pick up or mop up spilled clinical waste (e.g. brush, scoop, mop, dustpan, bucket)
- Absorbent material such as, paper tissues, towel, vermiculite, sawdust
- Disinfectant
- Spare heavy duty plastic bags, sharps boxes and/or rigid sealable containers (as the case may be)

Note: In case there is an injury inflicted during the handling of clinical waste, the person involved should seek medical advice and treatment or attend the emergency unit of a hospital as appropriate.