

MINISTRY OF STATE FOR MUNICIPALITIES AND ENVIRONMENTAL AFFAIRS

Ministerial Order No. 1 of 2001 with respect to Managing Waste Hazardous to Health Care

The minister for municipalities and environmental affairs,

having examined law no. 21 of 1996 with respect to the environment, as amended by legislative decree no.8 of 1997,

and decree no. 14 of 2001 with respect to ministerial appointments,

and the order of the minister for housing, municipalities and environment no.10 of 1998 with respect to the licensing fees issued the environmental affairs authority and the services it provides,

and order of the minister for housing, municipalities and environment no. 10 of 1999 with respect to the environmental standards (air and water),

and upon the submission of the director general of environment affairs,

HERBY ORDERS:

Chapter One

DEFINITIONS

Article 1

For the purpose of implementing the provisions of this order, the following terms and expressions shall have meanings assigned against each, unless otherwise indicated in the context:

(a) WASTE

It shall mean the waste hazardous to the health care being disposed of or to be disposed.

(b) WASTE MANAGEMENT

It shall mean all the operations which occur to the waste from the generation time until being disposed of, including the collection, storage, transport and treatment operations in addition to the subsequent care to the disposal or burial locations of such waste.

(c) HEALTH CARE HAZARDOUS WASTE

It shall mean the waste resulting from various health care activities in all nursing, treatment and diagnostic forms including laboratories, research centers, dental treatment, veterinary treatment activities, products and drugs of pharmaceutical factories and warehouses, all without prejudice to the limitation indicated in the schedules to be issued by an Order of the Minister for Health in co-ordination with the Minister for Municipalities and Environmental Affairs.

Such waste shall be divided as follows according to their type:

1. **PARTS, REMAINS AND SECRETIONS OF THE HUMAN AND ANIMAL ORGANS**

They shall mean the waste which contains human organs, parts, human or animal tissues, genetic or placental tissues, any other liquids, secretions, body refuse or animal carcasses.

2. **CONTAGIOUS WASTE**

It shall mean the waste which leads to the spread of contagious diseases due to their contamination with bacteria, parasites, fungi in addition to the remains of materials used for medical purposes.

3. **CHEMICAL WASTE**

It shall mean the solid, liquid or gaseous materials resulting from diagnostic or laboratory activities or used in cleaning, disinfecting or sterilization purposes if such materials cause corrosion to the other materials or if the value of its hydrogen S is less than pH2 or greater than pH12, poisonous to the genes or leads to the disturbance of its structure.

4. **SHARP WASTE**

It shall mean the waste which contains sharp materials i.e. needles, surgical scalpels, saws, blades, broken glass or any other sharp items that may cause cuts, wounds, or stings to the body.

5. **DRUG WASTE**

It shall mean the waste resulting from the production or preparation of damaged or expired pharmaceutical products, drugs or medicines.

6. **WASTE CONTAMINATED WITH RADIOACTIVE MATERIALS**

It shall mean any solid, liquid or gaseous material contaminated with nucleus of radioactive material resulting from its use in examining human tissues and liquids, and in diagnosing, determining and treatment of tumors.

(d) **STORAGE**

It shall mean the temporary storage of waste in special places determined according to conditions to be defined by the Environment Authority for the purpose of collection before transportation or treatment.

(e) WASTE CLASSIFICATION

It shall mean the operation of classifying waste according to the nature of their contents and in accordance with their classification provided for in Article 1 (6) of this Order which is carried out by the product during the collection and packing stages of such waste.

(f) TREATMENT UNIT

It shall mean the facility in which the operations for altering the biological or chemical characteristics of the waste take place using suitable techniques for the purpose of limiting the hazards of such wastes and reduce the possibility of spreading diseases because thereof.

(g) WASTE INCINERATION

It shall mean the controlled ignition process of solid, liquid and gaseous waste to produce gases and limited quantities of non-flammable materials.

(h) HEALTH FACILITY

It shall mean any hospital, clinic, medical center, pharmaceutical company, medical research center, laboratory, pharmacy, drug warehouse, public or private convalescence home.

(i) PRODUCER

It shall mean health facility carrying on an activity that may result in the production of waste.

(j) CARRIER

It shall mean any natural or corporate person or entity involved in the waste transportation business.

(k) TRANSPORTATION FORM

It shall mean the form for transporting waste from the producer to the waste treatment unit, which contains all the information, determined by the Environment Authority and includes the signature of the producer, carrier and the waste treatment unit. Such form shall accompany the transported waste consignment until being delivered to the treatment unit.

(l) PEAK HOURS

They shall mean the period of time in which trucks and heavy plant are not allowed to operate on all or certain roads as determined by the General Directorate of Traffic and Licensing in this respect.

Chapter Two

PURPOSE OF THE ORDER AND SCOPE OF APPLICATION

Article 2

This order aims to lay down proper rules of control and supervision of the production, storage, carriage, treatment and disposal of waste for the purpose of controlling such waste and preventing the spread of its harmful damage to health and the environment until they are disposed of in a proper environmental manner.

This Order also aims to encourage and develop this type of waste treatment process for the purpose of maintaining public health and avoiding pollution of the environment.

Article 3

This Order shall be applicable to every product, carrier, treatment unit or person involved in disposal whenever from his activity relates totally or partially to waste.

Radioactive waste or materials that are contaminated with the radioactive materials shall be exempted from this Order.

Article 4

Without prejudice to the Schedules issued upon an Order and according to the provisions of Article (14) of Legislative Decree No. (21) of 1996 with respect to the Environment, the Director General of the Environment Authority shall issue the required periodical circulars, terms and conditions for the management of waste and shall update such terms and conditions whenever the need arises for the purpose of ensuring the effective implementation thereof.

Chapter Three

PRODUCER'S DUTIES

Article 5

The waste producer shall seek to reduce the generation levels of such waste in quantity and quality through developing the appliances and equipment used, adopt and use a clean technology, select the alternatives and raw materials that cause less damage to the environment and public health.

Article 6

The waste producer shall seek to record and classify the waste according to the following categories:

- (a) **Contagious Waste**
- (b) **Sharp Materials Waste**
- (c) **Chemical Drug Waste:** It includes damaged and expired drugs.
- (d) **Chemical Laboratory Waste:** It includes chemicals used in laboratories.
- (e) **Bed Item waste:** It includes bed-sheets, blankets, containers for receiving the patients secretions not infected with contagious diseases and their intestine waste.
- (f) **Mortuary and Laboratory room Waste:** It includes clothings, contaminated covers, Petri Dishes and containers used to deal with biological tissues and bacteria.

Article 7

Every producer shall allocate specific areas within the health facility to collect or store waste. Such areas shall fulfill the safety conditions, which provide protection of the environment and to human health from hazardous effects that may result from such waste, in accordance with the storage conditions determined by the Environment Authority.

Article 8

Every producer shall, on a daily basis, separate and classify waste within the storage areas located within its establishment, pack each type of such wastes in special bags and containers with suitable adhesive cards placed on them giving details of their contents and hazards according to the conditions determined by the Environment Authority. It shall be prohibited to leave the above-mentioned waste in the bags and containers for a period exceeding 24 hours in the collection area before its transportation outside the health facility.

Article 9

The health facility may establish and operate waste treatment units within the establishment provided that the Environmental Authority shall approve the treatment method, technical specifications of such units and the operating programmes provided that they shall comply with the rules and regulations for the treatment units provided for in Chapter Five of this Order.

Article 10

The waste producer shall abide by the following before transporting such waste outside the health facility:

(a)	To ensure the safety and soundness of all the bags and containers which contain the aforesaid waste, place the suitable adhesive labels on them according to the rules and regulations provided for in Article (8) of this Order.
(b)	Not to allow the transport of any consignment of waste outside the health facility without the use of the carriage form which is prescribed by the Environment Authority, provided that this form shall accompany the consignment at all times.
(c)	Not to deliver any waste consignment to a carrier that is not licenced by the Environment Authority.
(d)	To ensure delivering the waste consignment to treatment units having a permit to this effect from the Environment Authority.

Article 11

- (a) A producer who has a waste management unit inside his health facilities shall maintain a special register in which shall be entered the details provided for in Article 23 of this Order.
- (b) A producer who does not have a waste treatment unit shall maintain a special register in which shall be entered the types and quantities of waste being transported outside the health facility, date of such transport, carrier's name and treatment unit to which the transport took place. The producer shall submit a quarterly report to this effect to the Environment Authority.

Chapter Four

WASTE CARRIER

Article 12

A natural or corporate person shall not carry on the business of transporting waste without having a licence from the Environment Authority.

Article 13

An application to obtain the licence referred to in the preceding Paragraph shall be submitted by the concerned person or by his legal representative to the Environment Authority by using the prescribed form and upon payment of the required fee. Such application shall be accompanied by the following details and documents:

- (a) Number of the licence applicant's workers and proof of their experience in handling such waste.
- (b) A statement of the necessary precautionary measures for preventing the leakage of waste in the course of transportation and a statement of how to deal with unexpected contingencies and accidents that may be faced by the carrier in the course of carriage so as to ensure protecting public health and environment.
- (c) Any of other details or documents that the Environment Authority deems necessary to be submitted.

Article 14

The term of the licence issued to the waste carrier shall be a renewable period of one year. Such licence shall not be assigned in favour of a third party without the prior written approval of the Environment Authority.

Article 15

A waste carrier shall comply with the following:

- (a) Not to carry any waste that is unaccompanied by a carriage form duly completed by the producer.
- (b) Not to carry any chemical waste that is unaccompanied by its own safety details form subject to complying with the chemical safety conditions determined by the Environment Authority.
- (c) Not to carry any containers nor bags that do not fulfill the packing requirements provided for in Article 8 of this order.
- (d) Not to store waste.
- (e) Not to transport waste to a waste treatment unit that is not licensed by the Environment Authority.
- (f) To display the guidance marks required by the Environment Authority for the method of transport.
- (g) To repack the carried waste in case of damage to the packing in the course of transportation.
- (h) Not to carry waste during peak hours.
- (i) To submit the transport schedule and to indicate the route if so requested by the Environment Authority.

- (j) To disinfect the part assigned in the vehicle for waste transport in case of leakage.
- (k) Waste shall be carried by vehicles that fulfill the requirements determined by the General Traffic and Licensing Directorate.

Article 16

A waste carrier shall maintain the carriage form for a period of one year and shall submit it to the Environment Authority no later than two week from the date of requesting it.

Article 17

The Environment authority may cancel, withdraw or suspend the effectiveness of a licence for a period not exceeding 3 months, as the case may be, by a substantiated decision in the following events:

- (a) If the licence is issued on the basis of false details.
- (b) If the licensee violates the licence conditions, provisions of this Order or requirements issued by the Environment Authority concerning it.
- (c) If the transport operations result in unexpected environmental effects at the time of issuing the license or produce serious environmental damages.

Chapter Five

WASTE TREATMENT UNIT

Article 18

Without prejudice to the provisions of the Constructional Organization of Buildings Law promulgated by Legislative Decree No.13 of Year 1977 and its Implementing Regulations, an application to obtain a licence for setting up a new waste treatment unit shall be accompanied by evidence of the approval of the Environment Authority of such action. In all cases, no waste treatment unit shall be managed without a permit issued by the Environment Authority.

Article 19

An application to obtain the licence referred to in the preceding Article shall be filed by the concerned person or by his legal representative with the Environment Authority using the prescribed form and after payment of the prescribed fees. Such application shall be accompanied by the following documents and details:

- (a) Form of Evaluation of Industrial Projects Environmental Effects duly completed according to the form approved by the Environment Authority.
- (b) Details of the precautionary measures and contingency plan due to be followed upon operation and in countering unexpected conditions to ensure protection of the environment and public health.
- (c) Number of the waste treatment unit's personnel, details of their experience and evidence of their full awareness of the unit's operation.
- (d) Any other details or documents that the Environment Authority deems necessary to be submitted.

Article 20

A waste treatment unit shall comply with the requirements and criteria to be determined by the Environment Authority, particularly the following:

- (a) Not to accept any waste from a carrier that does not have a licence from the Environment Authority.
- (b) Not to accept any waste that is not accompanied by a duly completed and signed carriage form from the producer and carrier and ensuring the consignment's conformity with the details indicated in the form.
- (c) Not to accept any chemical waste that is not accompanied by the safety details thereof.
- (d) To repack the waste originally packaged in containers and bags where they are damaged if the situation requires temporary storage prior to their treatment in the treatment unit.
- (v) To dispose of the waste and sludge arising from the treatment process at the waste disposal sites determined by the Environmental Authority.
- (f) To measure the concentration of emission in the air arising from the treatment process on the dates and according to the standards indicated in Schedules 1.2.3 which are attached to this Order.
- (g) To measure the concentration of contaminants in the industrial discharge water arising from the treatment process released into the sea every three months according to the standards indicated in Schedule 5 of Ministerial order No.10 of 1998 with respect to Environmental Standards (Air and Water).

- (h) To measure the concentration of contaminants in sludge and sold waste arising from the waste treatment process on the dates and according to the standards determined by the Environment Authority.
- (i) To notify the Environment Authority of every change of the ownership, management and operation of the waste treatment unit within 15 days from the date of such change.
- (j) To furnish the Environment Authority with the required documents or other details within 15 days from the date of such request.

Article 21

Upon using the incineration technology in waste treatment, a treatment unit shall comply with the following:

- (a) All the emissions from the chimney to the air shall be colourless and free from heavy smoke in all cases.
- (b) Not to allow the leakage of any disgusting odours from the emissions produced by the chimney outside the borders of the incineration site.
- (c) The levels of concentrations emitted into the air shall not exceed the standards indicated in Schedules 1, 2 and 3 which are attached to this order.

Article 22

Subject to development of the waste treatment technologies, the waste treatment unit may use any treatment technology provided that the prior approval of the Environment Authority shall be obtained.

Article 23

The waste treatment unit shall maintain the waste carriage from and register which the Environment Authority deems necessary to maintain for a period of 3 years. In particular it shall maintain for the same period a register called the Operation Register in which the following shall be entered:

- (a) A description of the type of each waste consignment received, quantity thereof, producer's name, carrier's name, date of hand-over and treatment date.
- (b) A description of the waste produced from the treatment process, its quantity, method and location of disposal thereof.
- (c) Results of the measurements of the concentration of emissions in the air arising from the treatment process.

- (d) Results of the analysis of concentration in sludge and solid waste arising from the treatment process.
- (e) Results of the analysis of the concentration of contaminants in the discharge water arising from the treatment process and released in the sea.

Article 24

The waste treatment unit shall submit a periodical report about its activities to the Environment Authority every three months with effect from the commencement of the unit's operation and whenever this is so requested by the Authority during the period fixed thereby. The report shall contain the details, measurements and analyses referred to in the preceding Article.

Article 25

The Environment Authority may cancel the management licence for the waste treatment unit, withdrawal or suspension thereof for a period of 3 months, as the case may be by a substantiated decision in the following cases:

- (a) If the licensed unit violates the provisions of this Order or requirements issued by the Environment Authority for implementation thereof or the standards indicated in the Schedules which are attached to this Order.
- (b) If any indicators appear to indicate the damages to the environmental systems surrounding the unit or public health.
- (c) If the tests or measurements show the ineffectiveness, unsuitability or inadequacy of the technology on the basis of which the licence is issued or that which was previously approved by the Authority.

Article 26

The treatment units shall be answerable for the damages arising from their failure to comply with their obligations set forth in this Order or as a result of breach of the licence conditions or because of the acts constituting the violation.

Chapter Six

WASTE IMPORT AND EXPORT

Article 27

It shall be prohibited for any natural or corporate person to import waste for the purpose of treatment or disposal thereof inside the State of Bahrain.

It shall also be prohibited to allow the entry of such waste or the transit thereof inside the State's territory for any purpose without prejudice to the provisions of international and regional agreements to which the State of Bahrain is a party.

Article 28

It shall not be permitted without a permission from the concerned administrative authority after co-ordination with the Environment Authority to let waste carrying ships to pass through the territorial waters of the State of Bahrain and the contiguous area. The Environment Authority shall after reference to such authority learn about the date of entry and departure of such ships and any violations that they may commit.

Article 29

No natural or corporate person shall export waste without a licence for this purpose from the Environment Authority.

Article 30

An application for obtaining the licence referred to in the preceding Article shall be filed by the concerned person or by his legal representative with the Environment Authority on the prescribed form and after payment of the required fee. The application shall be accompanied by the following particulars and documents:

- (a) A statement of the kind of waste required to be exported and the party to whom such waste is to be exported.
- (b) Evidence of approval by the treatment unit in the state to which the consignment is exported for having got delivery of the waste consignment required to be exported.

Article 31

Waste carriage operations across the borders of the State of Bahrain shall take place in accordance with the relevant laws and provisions of international and regional agreements applicable in this respect particularly the Basle Agreement with respect to Control of Hazardous Waste and Disposal Thereof Across Borders of 1989 which was ratified by Legislative Decree No. 11 of 1992.

Chapter Seven

GENERAL PROVISIONS

Article 32

The waste treatment unit subject to the provisions of this Order on the effective date thereof shall settle their affairs in compliance with the requirements and standards provided for in this Order and the attached Schedules within two years from the effective date thereof.

Such units shall within a maximum period of 6 months from the effective date of this order draw up the necessary plans for settling their conditions provided that these plans shall include details of their programmes, stages of implementation and period fixed for implementing each thereof.

The Environment Authority shall decide upon such plans within 3 months from the date of their submission thereto. The said Authority shall be empowered to request the concerned persons to provide any necessary documents or details required for this purpose. It shall also have the power to make any alterations to such plan. The aforesaid units shall commence the implementation of the approved plan during one month from the date of notifying them of the approval of such plans by the Environment Authority.

The said units shall give notice to the Authority of the completion of each phase of completing the implementation of the entire programme within 15 days from the date of completing each phase and from the date of completing implementation of the programme.

Article 33

The Environment Authority may, when necessary, agree to extending the grace period given for settling the affairs for no more than one year upon an application to be filed by the concerned persons or their representatives to the Environment Authority at least six months before the expiry of the two years period provided for in the preceding Article, provided that such application shall include the reasons for extension and the actions taken for applying this Order.

The Environment Authority shall ascertain the validity of the particulars provided and seriousness of setting the business conditions.

Article 34

Subject to the provisions of Article 26 of Legislative Decree No. 21 of the Year 1996 with respect to the Environment, any person who violates the provisions of this Order and the attached Schedules shall be liable for the penalties provided for in Article 29 of the aforesaid Legislative Decree.

Article 35

The Director General of Environmental Affairs shall implement this Order which shall come into effect 3 months after the date of its publication in the Official Gazette.

Signed: Jawad Salem Al Arrayyed,
Minister of State for Municipalities and
Environment Affairs

SCHEDULE NO. (1)

STANDARDS OF EMISSIONS ARISING FROM INCINERATION OF WASTE THAT IS HAZARDOUS TO THE HEALTH CARE WITH A CAPACITY AMOUNTING TO LESS THAN 1 TON/ PER HOUR*

EMISSIONS	STANDARDS
Total Plankton particles **	30 Miligram/Metre ³
Carbon Monoxide **	50 Miligram/Metre ³
Carbon Dioxide ***	300 Miligram/Metre ³
Hydrogen Chloride ***	30 Miligram/Metre ³
Organic Compounds ***	20 Miligram/Metre ³
Dioxin and Phyorin **** (In operating units with design capacity of more than 50kg/hour)	1 Nano Gram/Metre Equal Toxic Value (ETV) Refer to Table No. 2
Cadmium and its compounds ***** (referred to as Cadmium)	0,1 Miligram/Metre ³
Mercury and its compounds ***** (referred to as Mercury)	0,1 Miligram/Metre ³
Other heavy metal and their compounds Referred to as Metal ***** [total of each Pb (Lead) As (Arsenic), CR (Chrome)]	0,1 Miligram/Metre ³

* Applicable to incinerators with a capacity of less than 1,000 Kilogramme/hour (10,000 Kilogram/Day).

** Average Daily Value.

*** Measurement of emissions produced every 6 months.

***** Measurement of emissions produced once every year.

SCHEDULE NO. (2)

STANDARDS OF EMISSIONS ARISING FROM INCINERATION OF WASTE THAT IS HAZARDOUS TO THE HEALTH CARE WITH A CAPACITY AMOUNTING TO MORE THAN 1 TON/ PER HOUR*

EMISSIONS	STANDARDS
Total Plankton particles **	30 Miligram/Metre ³
Carbon Monoxide **	50 Miligram/Metre ³
Carbon Dioxide ***	300 Miligram/Metre ³
Hydrogen Chloride ***	30 Miligram/Metre ³
Hydrogen Flouride ***	2 Miligram/Metre ³
Nitric Oxide ***	350 Miligram/Metre ³
Organic Compounds ***	20 Miligram/Metre ³
Dioxin and Phyorin **** (In operating units with design capacity of more that 50kg/hour)	1 Nano Gram/Metre Equal Toxic Value (ETV) Refer to Table No. 2
Cadmium and its compounds **** (referred to ad Cadmium)	0,1 Miligram/Metre ³
Mercury and its compounds **** (reffered to as Mercury)	0,1 Miligram/Metre ³
Other heavy metal and their compounds Referred to as Metal **** [total of each Pb (Lead) As (Arsenic), CR (Chrome)]	0,1 Miligram/Metre ³

* Applicable to incinerators with a capacity of less than 1,000 Kg/hour (10,000 Kg. /Day).

** Average Daily Value.

*** Measurement of emissions produced once every 6 months.

**** Measurement of emissions produced once every year.

SCHEDULE NO. (3)

CALCULATION OF EQUAL TOIXC VALUES OF DIOXIN AND PHYORIN

For the calculation of Equal Toxic Values of Dioxin and Phyorin, calculate the concentration value and multiply them by the equal agent before making the addition operation. The chemicals and various elements equation are listed in the following table:

Chemical Substance (s)	Equation Value
2, 3, 7, 8, Tetrachlorapitrodioxin	1.0
1, 2, 3, 7, 8, Pentachlorapitrodioxin	0.5
1, 2, 3, 4, 7, 8, Hexachlorapitrodioxin	0.1
1, 2, 3, 7, 8, 9, Hexachlorapitrodioxin	0.1
1, 2, 3, 6, 7, 8, Hexachlorapitrodioxin	0.1
1, 2, 3, 4, 6, 7, 8, Heptachlorapitrodioxin	0.01
Octachlorapitrodioxin	0.001
2, 3, 7, 8, Tetrachlorapitrodioxin Phyorin	0.1
2, 3, 4, 7, 8, Pentachlorapitrodioxin Pyorin	0.5
1, 2, 3, 7, 8, Pentachlorapitrodioxin Pyorin	0.05
1, 2, 3, 4, 7, 8, Hexachlorapitrodioxin Pyorin	0.1
1, 2, 3, 7, 8, 9, Hexachlorapitrodioxin Pyorin	0.1
1, 2, 3, 6, 7, 8, Hexachlorapitrodioxin Pyorin	0.1
2, 3, 4, 6, 7, 8, Hexachlorapitrodioxin Pyorin	0.1
1, 2, 3, 4, 6, 7, 8, Heptachlorapitrodioxin Pyorin	0.01
1, 2, 3, 4, 5, 8, 9, Heptachlorapitrodioxin Pyorin	0.01
Octachlorapitrodioxin Phyorin	0.001

The emission levels of dyptro dioxin with multi-chlore and dyptrophorin of multi-chlore particles shall be reduced if possible using advanced techniques. This procedure aims to define the Toxic Equal Value in order not to exceed 0.1 Nano Gram/Metre³.