

Relavance of Bio Medical Waste Management



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Bio-Medical Waste Management (BMWM):

Is any waste generated during the diagnosis, treatment or immunization of human beings or in research activity¹. The waste produced in the course of health care activities carries a higher potential for infection and injury than any other type of waste².

Bio-medical waste generated in hospital falls under two major categories- Non Hazardous and Bio Hazardous.

Non Hazardous waste include Non infected plastic, cardboard, packaging material, paper etc.

Bio-hazardous waste again falls into two types.

1. Infectious waste sharps, non sharps, plastic disposables, liquid waste etc.
2. Non infectious waste- radioactive waste, discarded glass, chemical waste, cytotoxic waste, incinerated waste etc.

Approximately 75-90% of the bio-medical waste is non-hazardous and as harmless as any other

municipal waste. The remaining 10-25% is hazardous and can be injurious to humans or animals and

deleterious to the environment. Most important to realize is if both these types are mixed together

then the whole waste becomes harmful^{3,4}.

Under Environment (Protection) Act 1986:

It is obligatory on the part of the occupier of an institution/clinic generating bio-medical waste, to take all steps to ensure that such waste is handled without any adverse effect to human health and environment.

As per Rule 8(1) of the biomedical waste (management & Handling) a set of rules was introduced to do away with the problem generated by biomedical waste known as "Bio medical waste (Management & Handling) Rules":- 1998. As per the above rule every occupier of an institution

generating,collecting,receiving,storing,transporting,treating,disposing and /or handling bio-medical waste in any other manner providing treatment /service to greater than one thousand patients per month, shall take an application in Form I to the prescribed authority i.e. Board to grant of authorization(briefed later).

The bio-medical waste has been categorized from 1-10 depending on the type of waste produced.

Categories of Bio Medical Waste – Schedule I ⁵
As per Bio Medical waste (Management & Handling) Rules -1998

Waste category No.	Waste Category(type)	Treatment and disposal / Option
Category No.1	Human Anatomical waste (Human tissues, organs, body parts)	Incineration#/ deep burial ##
Category No.2	Animal waste (Animal tissue, organs, body parts, bleeding parts, fluid, blood and experimental animals used in research etc.)	Incineration#/ deep burial ##
Category No.3	Microbiology & Biotechnology Waste (Wastes from laboratory cultures, stocks of specimen of microorganisms live or attenuated vaccines, human and animal cell culture used in research and infectious agents from research ,wastes from production of biological, toxins, dishes and devices used for transfer of cultures)	Local autoclaving/ microwaving/Incineration#
Category No.4	Waste Sharps (Needles and syringes@,scalpels,blades, glass etc.,that may cause puncture and cuts, which includes both used and unused sharps)	Disinfection(chemical treatment *, autoclaving / microwaving and mutilations/Shredding **) ---"
Category No.5	Discarded Medicines and Cytotoxic Drugs (Waste comprising of outdated ,contaminated and discarded medicines)	
Category No.6	(Soiled) Waste (Items contaminated with blood , any body fluids including cotton,dressing,soiled plaster casts, linen beddings, other beddings,other material contaminated with blood)	Incineration#,autoclaving/microwaving
Category No.7	Solid Waste (Waste generated from disposable items other than the waste (Sharps) such as tubing, intravenous sets etc.)	Disinfection by chemical treatment *, autoclaving/microwaving and mutilation/Shredding **
Category No.8	Liquid Waste (Waste generated from lab and washings,cleaing,house keeping and disinfecting activities)	Disinfection by chemical treatment* and discharge into drains
Category No.9	Incineration (Ash from incineration of any bio-medical waste)	Disposal in municipal landfill
Category No.10	Chemical Waste (Chemicals used in production of biological, chemicals used in biological, chemicals used in disinfection, as insecticides etc.)	Chemical treatment* and discharge into drains for liquids and secured landfill for solids

* Chemical treatment using at least 1% hypochlorite solution or any other equivalent chemical reagent. It must be ensured that chemical treatment ensures disinfection

** Mutilation/Shredding must be such so as to prevent unauthorized reuse.

There will be no chemical pretreatment before incineration. Chlorinated plastics shall not be incinerated.

Deep burial shall be an option available only in towns with less than five lakh populations and in rural areas.

@ Needle burner is must to ensure proper disposal.

Segregation of Bio-medical wastes:

Colour coding and type of container for disposal of Bio-Medical Waste (Schedule II) ⁵

Colour Coding	Type of container	Waste Category	Treatment options as per Schedule – I
Yellow	Plastic bag	Cat. 1, 2,3,6	Incineration/deep burial
Red	Disinfected container/Plastic	Cat.3,6	Autoclaving/Microvaving/ Chemical treatment
Blue/White	Plastic bag/Puncture proof container	Cat.4,7	Autoclaving/Microwaving/Chemical treatment and distruction/Shredding
Blue	Plastic bag	Cat.5,9,10 (Solid)	Disposal in secured landfill

Notes:

Colour coding of waste categories with multiple treatment options as defined in schedule -I, shall be selected depending on treatment options chosen, which shall be specified as per schedule-I
Waste collection bags for waste types needing incineration shall not be made of chlorinated plastics (Specific bags for the same are available locally).

Categories 8 and 10 (liquid) do not require containers/bags.

Category 4, if disinfected locally need not be put in containers bags.

How to obtain Authorization from the Board:

Every occupier is required to apply for authorization in the prescribed application form available from the respective Regional office of the Board along with proof of bed capacity and copy of agreement with the common facility if required etc.

Legal provisions for violations of the provisions of the rule:

Any contravention to the said rules is punishable u/s 15 to the Environment (Protection) Act-1986

which include imprisonment for a term which may extend to five years with fine which may extend to one lakh rupees, or with both ⁵.

For Dental Clinics:

Yellow & blue containers will suffice for all bio-medical waste management.

Reference:

Govt.of India , Ministry of Environment and Forests Gazette notification No.460 dated July, New Delhi:1998:10-20

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