

SCHEDULE II

[see rule 16 (1), (b), (e), 16 (4)]

Standards of processing and treatment of solid waste

- A. **Standards for composting:-** The waste processing facilities shall include composting as one of the technologies for processing of bio degradable waste. In order to prevent pollution from compost plant, the following shall be complied with namely:-
- (a) The incoming organic waste at site shall be stored properly prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility;
 - (b) Necessary precaution shall be taken to minimize nuisance of odour, flies, rodents, bird menace and fire hazard;
 - (c) In case of breakdown or maintenance of plant, waste intake shall stopped and arrangements be worked out for diversion of waste to the temporary processing site or temporary landfill sites which will be again reprocessed when plant is in order;
 - (d) Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclable high colorific fractions to be segregated and sent to waste to energy or for RDF production, co-processing in cement plants or to thermal power plants. Only rejects from all processes shall be sent for sanitary landfill site(s).
 - (e) The window area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay of 50 cm thick having permeability coefficient less than 10^{-7} cm/sec. The base shall be provided with 1 to 2 percent slope and circled by lined drains for collection of leachate or surface run-off.
 - (f) Ambient air quality monitoring shall be regularly carried out. Odornuisance at down-wind direction on the boundary of processing plant shall also be checked regularly.
 - (g) Leachate shall be re-circulated in compost plant for moisture maintenance.
 - (h) The end product compost shall meet the standards prescribed under Fertilizer Control Order notified from time to time.

- (i) In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely:-

Parameters	Organic Compost (FCO 2009)	Phosphate Rich Organic Manure (FCO 2013)
(1)	(2)	(3)
Arsenic (mg/Kg)	10.00	10.00
Cadmium (mg/Kg)	5.00	5.00
Chromium (mg/Kg)	50.00	50.00
Copper (mg/Kg)	300.00	300.00
Lead (mg/Kg)	100.00	100.00
Mercury (mg/Kg)	0.15	0.15
Nickel (mg/Kg)	50.00	50.00
Zinc (mg/Kg)	1000.00	1000.00
C/N ratio	<20	Less than 20:1
pH	6.5-7.5	(1:5 solution) maximum 6.7
Moisture, percent by weight, maximum	15.0-25.0	25.0
Bulk density (g/cm ³)	<1.0	Less than 1.6
Total Organic Carbon, percent by weight, minimum	12.0	7.9
Total Nitrogen (as N), percent by weight, minimum	0.8	0.4
Total Phosphate (as P ₂ O ₅) percent by weight, minimum	0.4	10.4
Total Potassium (as K ₂ O), percent by weight, minimum	0.4	-
Colour	Dark brown to black	-
Odour	Absence of foul Odor	-
Particle size	Minimum 90% material should pass through 4.0 mm IS	Minimum 90% material should pass through 4.0 mm IS sieve

	sieve	
Conductivity (as dsm-1), not more than)	4.0	8.2

*Compost (final product) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

B. Standards for treated leachates:- The disposal of treated leachates shall meet the following standards, namely:-

Sl. No.	Parameter	Standards (Mode of Disposal)		
		Inland surface water	Pubic sewers	Land disposal
(1)	(2)	(3)	(4)	(5)
1.	Suspended solids, mg/l, max	100	600	200
2.	Dissolved solids (inorganic) mg/l, max	2100	2100	2100
3.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
4.	Ammonical nitrogen (as N), mg/l, max	50	50	-
5.	Total Kjeldahl nitrogen (as N), mg/l, max	100	-	-
6.	Biochemical oxygen demand (3 days at 27°C) max. (mg/l)	30	350	100
7.	Chemical oxygen demand, mg/l, max	250	-	-
8.	Arsenic (as As), mg/l, max	0.2	0.2	0.2
9.	Mercury (as Hg), mg/l, max	0.01	0.01	-
10.	Lead (as Pb), mg/l, max	0.1	1.0	-
11.	Cadmium (as Cd), mg/l, max	2.0	1.0	-
12.	Total Chromium (as Cr), mg/l, max	2.0	2.0	-
13.	Copper (as CU), mg/l, max	3.0	3.0	-
14.	Zinc (as Zn), mg/l, max	5.0	15	-
15.	Nickel (as Ni), mg/l, max	3.0	3.0	-
16.	Cyanide (as CN), mg/l, max	0.2	2.0	0.2
17.	Chloride (as Cl), mg/l, max	1000	1000	600
18.	Fluoride (as F), mg/l, max	2.0	1.5	-

19.	Phenolic compounds (as C ₆ H ₅ OH), mg/l, max	1.0	5.0	-
-----	--	-----	-----	---

Note: While discharging treated leachates into inland surface waters, quantity of leachates being discharged and the quantity of dilution water available in the receiving water body shall be given due consideration.

C. **Standards for incinerations:-** The Emission from incinerators/thermal technologies in Solid Waste treatment/disposal facility shall meet the following standards, namely:-

Parameter	Emission standard		
	(1)	(2)	(3)
Particulates	50 mg/Nm ³	Standards refers to half hourly average value	
HCl	50 mg/Nm ³	Standards refers to half hourly average value	
SO ₂	200 mg/Nm ³	Standards refers to half hourly average value	
CO	100 mg/Nm ³	Standards refers to half hourly average value	
	50 mg/Nm ³	Standards refers to half hourly average value	
Total Organic Carbon	20 mg/Nm ³	Standards refers to half hourly average value	
HF	4 mg/Nm ³	Standards refers to half hourly average value	
NO _x (NO and NO ₂ expressed as NO ₂)	400 mg/Nm ³	Standards refers to half hourly average value	
Total dioxins and furans	0.1 ng TEQ/Nm ³	Standard refers to 6-8 hours sampling. Please refer guidelines for 17 concerned congeners for toxic equivalence values to arrive at total toxic equivalence	
Cd + Th + their compounds	0.05 mg/Nm ³	Standard refers to sampling time anywhere between 30 minutes and 8 hours	
Hg and its compounds	0.05 mg/Nm ³	Standard refers to sampling time anywhere between 30 minutes and 8 hours	
Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds	0.5 mg/Nm ³	Standard refers to sampling time anywhere between 30 minutes and 8 hours	
Note: All values corrected to 11% oxygen on a dry basis.			

Note:

- (a) Suitably designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits.
- (b) Waste to be incinerated shall not be chemically treated with any chlorinated disinfectants.
- (c) Incineration of chlorinated plastics shall be phased out within two years.
- (d) If the concentration of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal facility.
- (e) Only low sulphur fuel like LDO, LSHS, Diesel, bio-mass, coal, LNG, CNG, RDF and bio-gas shall be used as fuel in the incinerator.
- (f) The CO₂ concentration in tail gas shall not be more than 7%.
- (g) All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950°C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2(two) seconds.
- (h) Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve total Organic Carbon (TOC) content in the slag and bottom as less than 3%, or the loss on ignition is less than 5% of the dry weight.
- (i) Odour from sites shall be managed as per guidelines of CPCB issued from time to time.