

## REQUIREMENTS FOR DISCHARGE OF TRADE EFFLUENT INTO THE PUBLIC SEWERAGE SYSTEM

### 1 Definition

"Trade effluent" means any liquid, including particles of matter and other substances in suspension in the liquid, which is the outflow from any trade, business or manufacture or of any works of engineering or building construction.

### 2 Regulations

All trade effluent to be discharged into the public sewerage system must be done so with the written consent of the Public Utilities Board. The requirements for trade effluent discharge are spelt out in the Sewerage and Drainage Act, Chapter 294 and the Sewerage and Drainage (Trade Effluent) Regulations.

### 3 Water Quality Standards for Trade Effluent Discharge into Public Sewerage System

The physical and chemical characteristics of the trade effluent to be discharged into the **public sewerage system** shall not exceed the following limits:

- a) The temperature of the trade effluent shall not exceed 45° Celsius at the point of its entry into any public sewerage system.
- b) The pH value of the trade effluent shall not be less than 6 nor more than 9 at the point of its entry into any public sewerage system.
- c) The caustic alkalinity of the trade effluent shall not be more than 2,000 milligrams of calcium carbonate per litre at the point of its entry into any public sewerage system.
- d) Maximum concentrations of certain substances in trade effluent:

S/No	List of Substances	Limit in milligrams per litre of trade effluent (or otherwise stated)
1	5 Day Biochemical Oxygen Demand (BOD) at 20°C	400
2	Chemical Oxygen Demand	600
3	Total Suspended Solids	400
4	Total Dissolved Solids	3,000
5	Chloride (as chloride ion)	1,000

<b>S/No</b>	<b>List of Substances</b>	<b>Limit in milligrams per litre of trade effluent (or otherwise stated)</b>
6	Sulphate (as SO <sub>4</sub> )	1,000
7	Sulphide (as sulphur)	1
8	Cyanide (as CN)	2
9	Detergents (linear alkylate sulphonate as methylene blue active substances)	30
10	Grease and Oil (Hydrocarbon)	60
11	Grease and Oil (Non-hydrocarbon)	300
12	Arsenic	5
13	Barium	10
14	Tin	10
15	Iron (as Fe)	50
16	Beryllium	5
17	Boron	5
18	Manganese	10
19	Phenolic Compounds (expressed as phenol)	0.5
20	Fluoride (expressed as fluoride ion)	15

e) Maximum concentrations of metals in trade effluent:

<b>S/No</b>	<b>List of Metals</b>	<b>Limit in milligrams per litre of trade effluent (or otherwise stated)</b>
1	Cadmium	1
2	Chromium (trivalent and hexavalent)	5

S/No	List of Metals	Limit in milligrams per litre of trade effluent (or otherwise stated)
3	Copper	5
4	Lead	5
5	Mercury	0.5
6	Nickel	10
7	Selenium	10
8	Silver	5
9	Zinc	10
<p>Note: Where 2 or more of the metals listed in the table are present in the trade effluent, the total concentration of the metals shall not exceed 10 milligrams per litre.</p>		

4 The trade effluent discharged into the public sewerage system shall not contain any of the following substances:

- a) any toxic industrial waste, unless the toxic industrial waste is treated and does not contain any substance listed in the Second or Third Schedule in a concentration greater than that specified in either Schedule for the substance;
- b) calcium carbide;
- c) petroleum spirit or other inflammable substance;
- d) any organic compound specified in First Schedule as follows:

<b>LIST OF PROHIBITED ORGANIC COMPOUNDS (VOCs / SVOCs)</b>			
1	Methylene Chloride	18	Furan
2	Trichloroethylene	19	THF (Tetrahydrofuran)
3	111-trichloroethane	20	DMF (N,N-Dimethylformamide)

4	Tetra-chloromethane	21	Benzene
5	112-Trichloroethane	22	Turpentine
6	Toluene	23	Polybrominated Diphenyl Ether
7	Styrene	24	Isobutanol
8	Methyl tert-butyl-ether	25	Methyl Ethyl Ketone
9	Nonane	26	Methyl Isobutyl Ketone
10	Decane	27	Isopropyl ether
11	Tetrachloroethylene	28	Diethyl ether
12	Ethylbenzene	29	Dimethyl Sulphide
13	Xylene (o,m,p)	30	Dimethyl Sulphoxide
14	Hexane	31	Cresol (o, m, p)
15	Heptane	32	Cyclopentanone
16	Octane	33	DMAc (N, N-Dimethylacetamide)
17	1,2,4 – Trimethylbenzene		

- e) any substance that either by itself or in combination or by reaction with other waste or refuse may give rise to any gas, fume, odour or substance which is or is likely to be a hazard to human life, a public nuisance, injurious or otherwise objectionable, or which prevents or is likely to prevent entry by workmen maintaining or repairing the public sewerage system, into the public sewerage system;
- f) yeast, spent or unspent molasses, crude tar, tar oil, crude oil, carbon disulphide, hydro-sulphide and poly-sulphide;
- g) any radioactive material;
- h) any waste or refuse liable to form a viscous or solid coating or deposit on any part of the public sewer or sewerage system;
- i) any excessively discolouring substance;
- j) any pesticide, fungicide, herbicide, insecticide, rodenticide or fumigant;
- k) blood waste;

- l) infectious waste;
- m) any biological agent within the meaning given by section 2 of the Biological Agents and Toxins Act 2005;
- n) any toxin within the meaning given by section 2 of the Biological Agents and Toxins Act 2005;
- o) any animal waste, except in accordance with Paragraph (2);
- p) any chemical that is classified with hazard statement code H340, H350 or H360 under the ninth revised edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) published by the United Nations in 2021;
- q) any waste generated from a process that involves tissue digestion or tissue hydrolysis.

5. Permission required to discharge trade effluent containing trace amounts of certain substances

(I) Applicant may, with the prior permission of PUB, discharge into the public sewerage system trade effluent containing trace amounts of any substance specified in item 4, or substance in a concentration greater than specified in item 3.

(II) PUB may refuse or revoke any permission under Item 5(I) if PUB considers that the discharge is likely to be a hazard to the safety or health of any person at work in the public sewerage system, or any drain-line or sewer connected to a public sewerage system, in the vicinity of the point of entry of the trade effluent, or interfere with –

- (a) the proper working of the part of the public sewerage system at which the trade effluent is discharged, or any facility, machinery or equipment related or connected to that part of the public sewerage system;
- (b) the proper working of any facility, machinery or equipment which treats sewage from the public sewerage system for reuse;
- (c) any process of treating trade effluent or other waste or refuse from the public sewerage system; or
- (d) any process of treating sewage from the public sewerage system for reuse.

6. Trade Effluent Fee Scheme

Applicant may with the prior permission of the Board discharge into the public sewerage system trade effluent containing BOD or TSS greater than 400 milligrams per litre but not exceeding 6000 milligrams per litre of the trade effluent with payment of Trade

Effluent Fee. However, the corresponding COD shall not be greater than 10,000 milligrams per litre of the trade effluent or 3 times the concentration of BOD in the trade effluent, whichever is the lower. The fees to be levied are computed in accordance with the scale below:

<b>Concentration of BOD<sub>5</sub> or TSS in milligrams per litre of trade effluent</b>	<b>Fee For Biochemical Oxygen Demand (BOD<sub>5</sub>) (cents per cubic metre)</b>	<b>Fee For Total Suspended Solids (TSS) (cents per cubic metre)</b>
<b>Exceeding <u>400</u> but not exceeding <u>600</u></b>	52.32	52.32
<b>Exceeding <u>600</u> but not exceeding <u>800</u></b>	104.64	104.64
<b>Exceeding <u>800</u> but not exceeding <u>1,000</u></b>	156.96	156.96
<b>Exceeding <u>1,000</u> but not exceeding <u>1,200</u></b>	209.28	209.28
<b>Exceeding <u>1,200</u> but not exceeding <u>1,400</u></b>	261.60	261.60
<b>Exceeding <u>1,400</u> but not exceeding <u>1,600</u></b>	313.92	313.92
<b>Exceeding <u>1,600</u> but not exceeding <u>1,800</u></b>	366.24	366.24
<b>Exceeding <u>1,800</u> but not exceeding <u>2,000</u></b>	418.56	418.56
<b>Exceeding <u>2,000</u> but not exceeding <u>2,200</u></b>	470.88	470.88
<b>Exceeding <u>2,200</u> but not exceeding <u>2,400</u></b>	523.20	523.20
<b>Exceeding <u>2,400</u> but not exceeding <u>2,600</u></b>	575.52	575.52
<b>Exceeding <u>2,600</u> but not exceeding <u>2,800</u></b>	627.84	627.84

<b>Concentration of BOD<sub>5</sub> or TSS in milligrams per litre of trade effluent</b>	<b>Fee For Biochemical Oxygen Demand (BOD<sub>5</sub>) (cents per cubic metre)</b>	<b>Fee For Total Suspended Solids (TSS) (cents per cubic metre)</b>
<b>Exceeding <u>2,800</u> but not exceeding <u>3,000</u></b>	680.16	680.16
<b>Exceeding <u>3,000</u> but not exceeding <u>3,200</u></b>	732.48	732.48
<b>Exceeding <u>3,200</u> but not exceeding <u>3,400</u></b>	784.80	784.80
<b>Exceeding <u>3,400</u> but not exceeding <u>3,600</u></b>	837.12	837.12
<b>Exceeding <u>3,600</u> but not exceeding <u>3,800</u></b>	889.44	889.44
<b>Exceeding <u>3,800</u> but not exceeding <u>4,000</u></b>	941.76	941.76
<b>Exceeding <u>4,000</u> but not exceeding <u>4,200</u></b>	994.08	994.08
<b>Exceeding <u>4,200</u> but not exceeding <u>4,400</u></b>	1046.40	1046.40
<b>Exceeding <u>4,400</u> but not exceeding <u>4,600</u></b>	1098.72	1098.72
<b>Exceeding <u>4,600</u> but not exceeding <u>4,800</u></b>	1151.04	1151.04
<b>Exceeding <u>4,800</u> but not exceeding <u>5,000</u></b>	1203.36	1203.36
<b>Exceeding <u>5,000</u> but not exceeding <u>5,200</u></b>	1255.68	1255.68
<b>Exceeding <u>5,200</u> but not exceeding <u>5,400</u></b>	1308	1308
<b>Exceeding <u>5,400</u> but not exceeding <u>5,600</u></b>	1360.32	1360.32

<b>Concentration of BOD<sub>5</sub> or TSS in milligrams per litre of trade effluent</b>	<b>Fee For Biochemical Oxygen Demand (BOD<sub>5</sub>) (cents per cubic metre)</b>	<b>Fee For Total Suspended Solids (TSS) (cents per cubic metre)</b>
<b>Exceeding <u>5,600</u> but not exceeding <u>5,800</u></b>	1412.64	1412.64
<b>Exceeding <u>5,800</u> but not exceeding <u>6,000</u></b>	1464.96	1464.96

*Note : BOD = Biochemical Oxygen Demand (5 day at 20°C)  
TSS = Total Suspended Solids*

## 7 Other Requirements

- (a) The discharger shall maintain any trade effluent treatment facilities in good order to ensure that the trade effluent complies with the Regulations.
- (b) The discharger shall notify and submit in writing to the Water Reclamation (Network) Department, PUB within 14 days after any change in any of the following if the change affects the amount or the physical, organic or chemical nature of the trade effluent discharged or addition to the following:
  - Name of company and address;
  - Process, operation, raw materials and/or chemicals used; and
  - Layout of the machinery, plant and equipment used in the premises for the trade activity.
- (c) The discharger must not tamper with –
  - any sampling test point, inspection chamber, measuring device, or recording and other apparatus installed for the purpose of sampling, inspecting, measuring or recording any trade effluent discharged into any sewerage system; or
  - any pre-treatment plant installed for the purpose of treating any trade effluent discharged into any sewerage system.