Form V - Environmental Statement

For the period of April'2023 – March'2024

for

the factory situated at

M/s Asian Paints Limited,

Plot No.: E6, E7, F11, F12, F13, F6 Pt and F7 Pt,

SIPCOT Industrial Park, Vil. Pondur, Taluk Sriperumbudur, Dist. Kanchipuram,

Tamil Nadu -602105

Asian Paints Limited
Plot E6 to F13
SIPCOT Industrial Park
Sriperumbudur - 602 105
Dist. Kancheepuram
tel : 91 44 6714 5000 / 5031
www.asianpaints.com

Ref no: SRI/EHS/23-24/09/07 **Date: 27.09.2024**

To,

The District Environmental Engineer,

Tamil Nadu Pollution Control Board,

Plot No.CP-5B, SIPCOT Industrial Growth Centre,

Oragadam, Kancheepuram (Dt) - 602105

Subject: Environmental Statement for the financial year ending – March 31st, 2024

Dear Sir,

With reference to The Environmental (Protection) rules 1986- Rule 14, please find attached Form V – Environmental Statement for the financial year ending – March 31st, 2024. We assure you that we are committed to continuous improvement in all our activities towards environmental protection and management.

Yours truly,

For Asian Paints Limited,

29/9/24

Sathish Kumar K M
Associate General Manager

Enclosure: Form V Report

Copy To,

Tamil Nadu Pollution Control Board

No: 6, Mount Salai,

Guindy, Chennai – 600032.

FORM V

(See rule 14)

Environmental Statement for the Financial Year Ending 31st March 2024

PART A

(i) Name and address of the owner / occupier of the industry operation or process	Shri. Amit Syngle Managing Director & CEO M/s Asian Paints Limited, Plot No.: E6, E7, F11, F12, F13, F6 Pt and F7 Pt, SIPCOT Industrial Park, Vil. Pondur, Taluk Sriperumbudur, Dist. Kanchipuram, Tamil Nadu – 602105.
(ii) Industry category	
Primary - (SIC Code)	2800
Secondary - (SIC Code)	2851
(iii) Production capacity – Units	Water Based Paint: 140000 KL per annum Water Based Polymer: 39000 KL per annum
(iv) Year of establishment	2005
(v) Date of last environmental statement submitted	29th September 2023

1. Water and Raw Material Consumption:

(i) Water Consumption m^3/day

Process	155 m^3/day
Cooling and Boiler	33 m^3/day
Domestic	41 m^3/day
Total	229 m^3/day

Name of the Product	**Process Water consumption per unit of Product**	
	During previous financial year	**During current financial year**
Water Based Paint	0.48 (process water/paint production)	0.51 (process water/paint production)

(ii) Raw Material Consumption

S. No	Name of the Raw Material	Name of the products	Consumption of raw material MT per unit of output KL	
			During the Previous FY (22-23)	During the Current FY (23-24)
1	Pigment	Water Based Paint	0.081	0.079
2	Extender	Water Based Paint	0.411	0.398
3	Additives	Water Based Paint	0.168	0.162
		Water Based Polymer	0.004	0.005
4	Water	Water Based Paint	0.361	0.359
5	Monomers	Water Based Polymer	0.116	0.127
6	Others	Water Based Paint	0.014	0.015
		Water Based Polymer	0.161	0.165

*Water consumption reported in previous form V was inclusive of demineralized water i.e. 0.482.

Part C

1. **Pollution discharged to environment/unit of output:**

   (a) Water Pollutants - Trade Effluent

S. No (1)	Parameter (2)	Quantity of pollutants discharged (Kg/day) (3)	Concentration of pollutants discharged (mass/volume) (mg/L) (4)	TNPCB Limits	Percentage of variation from prescribed standards with reasons (5)	Reason (6)
1	pH	NA	6.49	5.5 – 9	Within Specified limit	Negative Variance/Within Limit Indicates the Quality Parameter of Treated Effluent is Much better than Prescribed Standards
2	Total Dissolved Solids	0.297	196.99	2100 mg/l	-90.61944517	
3	Total Suspended Solids	0.004	2.81	100 mg/l	-97.1910031	
4	Particles size of total Suspended solids	NA	All Pass	Small Pass 850 Micron Sieve	Within Specified limit	
5	Temperature	NA	25.41	40 °C	-36.46717615	
6	Arsenic as (As)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	0.2 mg/l	Within Specified limit	
7	Total Chromium as (Cr)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	2 mg/l	Within Specified limit	
8	Chromium as (hexavalent Cr+6)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	0.1 mg/l	Within Specified limit	
9	Copper as (Cu)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	3 mg/l	Within Specified limit	
10	Lead as (Pb)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	0.1 mg/l	Within Specified limit	
11	Nickel as (Ni)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	3 mg/l	Within Specified limit	
12	Zinc as (Zn)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	1 mg/l	Within Specified limit	
13	Boron as (B)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	2 mg/l	Within Specified limit	
14	Cyanide as (CN)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	0.2 mg/l	Within Specified limit	
15	Total Residual Chlorine	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	1 mg/l	Within Specified limit	
16	Chloride as CL	0.089	58.90	1000 mg/l	-94.10994585	
17	Fluoride as F4	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	2 mg/l	Within Specified limit	
18	Ammonical Nitrogen as N	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	50 mg/l	Within Specified limit	
19	Total Kjeldahl Nitrogen as (N)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	100 mg/l	Within Specified limit	
20	Free Ammonia as (NH3)	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	5 mg/l	Within Specified limit	
21	Dissolved Phosphates as P	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	5 mg/l	Within Specified limit	

S. No (1)	Parameter (2)	Quantity of pollutants discharged (Kg/day) (3)	Concentration of pollutants discharged (mass/volume) (mg/L) (4)	TNPCB Limits mg/l	Percentage of variation from prescribed standards with reasons (5)	Reason (6)
22	Sulphide as S	BLQ(LOQ:0.1)	BLQ(LOQ:0.1)	2 mg/l	Within Specified limit	Negative Variance/With in Limit Indicates the Quality Parameter of Treated Effluent is Much better than Prescribed Standards
23	Sulphate as SO4	0.031	20.45	1000 mg/l	-97.95528202	
24	BOD 5 days @ 20c	BLQ(LOQ:2.0)	BLQ(LOQ:2.0)	30 mg/l	Within Specified limit	
25	COD	0.024	16.09	250 mg/l	-93.56420073	
26	Oil and grease	BLQ(LOQ:1.0)	BLQ(LOQ:1.0)	10 mg/l	Within Specified limit	
27	Phenolic Compounds as (C6 H5 OH)	BLQ(LOQ:0.001)	BLQ(LOQ:0.001)	1 mg/l	Within Specified limit	
28	Sodium	0.127	84.07	-	Within Specified limit	
29	Residual Sodium Carbonate	0.001	0.47	-	Within Specified limit	
30	Cadmium (Cd)	BLQ(LOQ:0.05)	BLQ(LOQ:0.05)	2 mg/l	Within Specified limit	
31	Mercury as (Hg)	BLQ(LOQ:0.01)	BLQ(LOQ:0.01)	0.01 mg/l	Within Specified limit	
32	Selenium as (Se)	BLQ(LOQ:0.01)	BLQ(LOQ:0.01)	0.05 mg/l	Within Specified limit	
33	Pesticides	Absent	Absent	Absent	Within Specified limit	
34	Alpha emitters	BLQ (LOQ 0.0054)	BLQ (LOQ 0.0054)	10^-7 micro-Curie/ml	Within Specified limit	
35	Beta emitters	BLQ (LOQ 0.0054)	BLQ (LOQ 0.0054)	10^-6 micro-Curie/ml	Within Specified limit	

BLQ - Below Limit of Quantification

NA – Not Applicable

Note: Treated effluent is used in cooling tower and hence zero discharge achieved.

(b) Water Pollutants - Sewage

S. No (1)	Parameter (2)	Quantity of pollutants discharged (Kg/day) (3)	Concentration of pollutants discharged (mass/volume) (mg/L) (4)	TNPCB Limits	Percentage of variation from prescribed standards with reasons (5)	Reason (6)
1	pH	NA	6.69	5.5 - 9	Within Specified limit	Negative Variance/Within Limit Indicates the Quality Parameter of Treated Effluent is Much better than Prescribed Standards
2	Total Suspended Solids	0.30	7.24	30 mg/l	-75.88	
3	BOD 5 days @ 20c	0.25	6.23	20 mg/l	-68.87	
4	COD	1.35	33.15	100 mg/l	-66.85	
5	Nitrogen, N	0.13	3.28	15 mg/l	-67.20	

(c) Air Pollutants

S. No	Stack	Parameter	Quantity of pollutants discharged (Kg/day)	Concentration of pollutants discharged (mass/Volume) (mg/Nm^3)	Percentage of variation from prescribed standards with reasons	Reason
1	Diesel Generator - 1 750 KVA	Particulate Matter	0.011	49.06	-34.58	Negative Variance/Within Limit Indicates the Quality Parameter of emission is Much better than Prescribed Standards
		SOx	0.006	25.15	Within Specified limit	
		NOx	0.032	136.28	Within Specified limit	
2	Diesel Generator – 2 750 KVA	Particulate Matter	0.010	35.42	-52.78	
		SOx	0.010	37.14	Within Specified limit	
		NOx	0.040	142.91	Within Specified limit	
3	Diesel Generator – 3 750 KVA	Particulate Matter	0.012	60.87	-18.84	
		SOx	0.007	32.77	Within Specified limit	
		NOx	0.033	163.23	Within Specified limit	
4	Diesel Generator – 4 100 KVA	Particulate Matter	0.003	16.14	-78.48	
		SOx	0.001	7.33	Within Specified limit	
		NOx	0.008	41.77	Within Specified limit	

S. No	Stack	Parameter	Quantity of pollutants discharged (Kg/day)	Concentration of pollutants discharged (mass/Volume) (mg/Nm³)	Percentage of variation from prescribed standards with reasons	Reason
5	Diesel Generator - 5 1010 KVA	Particulate Matter	0.002	32.75	-56.33	Negative Variance/Within Limit Indicates the Quality Parameter of emission is Much better than Prescribed Standards
		Sox	0.001	16.45	Within Specified limit	
		NOx	0.007	101.54	Within Specified limit	
6	Boiler	Particulate Matter	0.406	12.11	-83.85	
		Sox	0.183	12.11	Within Specified limit	
		NOx	0.466	30.85	Within Specified limit	

Part D

Hazardous Wastes:

(As specified under Hazardous and Other wastes (Management and Transboundary Movement) Rules, 2016)

	Hazardous Wastes	During previous financial year (22-23)	During current financial year (23-24)
(a)	From Process:		
	3.1 Oil containing cargo residue, wash water and sludge	1180	2150
	3.3 Sludge & Filters contaminated with oil	0	0
	5.1 Used / Spent Oil	2380	1220
	21.1 Wastes and Residues (Dried /Gelled water based paint, water based polymer & raw material - Non recyclable)	32380	22640
	21.1 Wastes and Residues (liquid water based paint, water based polymer & raw material - recyclable)	0	0
	34.1 Chemical containing residue arising from decontamination	0	0
	33.1 Disposal of barrels / containers / used for handling of hazardous wastes / chemicals a) Waste Pigment Containers	3260	1720
	33.1 Disposal of barrels / containers / used for handling of hazardous wastes / chemicals b) Waste Raw Material Containers and Liners (Recyclable)	249776	247234
	33.1 Disposal of barrels / containers / used for handling of hazardous wastes / chemicals c) Waste Raw Material Containers and Liners (Non Recyclable)	0	0
	35.2 Spent ion exchange resin containing toxic metals	0	0

Hazardous Wastes		During previous financial year (22-23)	During current financial year (23-24)
(b)	From pollution control facility:		
	35.1 Exhaust air or Gas cleaning residue	0	0
	35.3 Chemical Sludge from wastewater treatment (Dry sludge)	26158	19094
	35.4 Oil & grease skimming residues	260	340
	36.2 Spent Carbons	0	0

Part E

Solid Wastes:

	Waste Source	Total Quantity (Kg)	
		During previous financial year (22-23)	During current financial year (23-24)
(a)	Paper waste	31690	32650
	Plastic waste (excluding the RM Containers)	182600	199810
	Metal waste (excluding the RM containers)	154350	106650
	Plastic RM containers	0	0
	Metal RM containers	0	0
	Wooden waste	221680	250360
	Garbage waste	30960	81770
	Miscellaneous	15500	38980
	Total	663390	710220
(b)	From Pollution Control Facility		
	Powder waste – Dust collectors	26610	69750
(C)	1. Quantity recycled or re-utilized within the unit		
		Nil	Nil

Part F

S. No	Waste	Concentration of Hazardous constituents in the final waste	Disposal Practice
Hazardous Waste			
1	3.1 Oil containing cargo residue, wash water and sludge	Organic /inorganic chemicals.	Collection, storage & disposal through authorized preprocessing agency as AFR to Green Gene Enviro protection and infrastructure private limited.
2	3.3 Sludge & Filters contaminated with oil	Organic /inorganic chemicals.	Collection, storage & disposal through authorized preprocessing agency as AFR to Green Gene Enviro protection and infrastructure private limited.
3	5.1 Used / Spent Oil	Organic /inorganic chemicals.	Collection, storage & disposal through authorized/registered recyclers.
4	21.1 Wastes and Residues (Dried /Gelled water-based paint, water-based polymer & raw material - Non recyclable)	Contains all paint ingredients and that of water-based polymer (Organic /inorganic chemicals.).	Collection, storage & disposal through authorized preprocessing agency as AFR to Green Gene Enviro protection and infrastructure private limited.
5	21.1 Wastes and Residues (liquid water-based paint, water-based polymer & raw material - recyclable)	Contains all paint ingredients and that of water-based polymer. (Organic /inorganic chemicals)	Recover and Reuse - CPCB authorized recyclers.
6	34.1 Chemical containing residue arising from decontamination	Organic /inorganic chemicals	Disposal through authorized preprocessing agencies as AFR/Green gene enviro protection and infrastructure private limited.
7	33.1 Disposal of barrels / containers / used for handling of hazardous wastes / chemicals a) Waste Pigment Containers	HDPE/Polyethylene and Organic /inorganic chemicals.	Collection, storage, transportation and disposal to the authorized recyclers.
8	33.1 Disposal of barrels / containers / used for handling of hazardous wastes / chemicals b) Waste Raw Material Containers and Liners (Recyclable)	Iron/mild steel/HDPE/Polyethylene and Organic /inorganic chemicals	Collection, storage, transportation and disposal to the authorized recyclers.
9	35.2 Spent ion exchange resin containing toxic metals	Organic /inorganic chemicals.	Collection, storage & disposal through authorized preprocessing agency as AFR to Green Gene Enviro protection and infrastructure private limited.
10	35.1 Exhaust air or Gas cleaning residue	Organic /inorganic chemicals	Common Landfill - TSDF, Gummidipoondi

S. No	Waste	Concentration of Hazardous constituents in the final waste	Disposal Practice
11	35.3 Chemical Sludge from wastewater treatment	Organic chemicals (Contains mixture of all paint ingredients and flocculants used in primary treatment.)	Collection, storage & disposal through authorized preprocessing agency as AFR to Green Gene Enviro protection and infrastructure private limited.
12	35.4 Oil & grease skimming residues	Organic /inorganic chemicals.	Collection, storage & disposal through authorized preprocessing agency as AFR to Green Gene Enviro protection and infrastructure private limited.
13	36.2 Spent Carbon	Activated carbon	Collection, storage & disposal through authorized preprocessing agency as AFR to Green Gene Enviro protection and infrastructure private limited.
Solid Waste			
1	Corrugated Waste	Not Applicable	Sale as Nonhazardous waste
2	HDPE Bags	Not Applicable	Sale as Nonhazardous waste
3	Wooden Waste	Not Applicable	Sale as Nonhazardous waste
4	Paper Bags	Not Applicable	Sale as Nonhazardous waste
5	Garbage	Not Applicable	Sale as Nonhazardous waste
6	Plastic waste	Not Applicable	Sale as Nonhazardous waste
7	Metal Containers	Not Applicable	Sale as Nonhazardous waste
8	Metal waste (other than metal containers)	Not Applicable	Sale as Nonhazardous waste

Part G

Impact of pollution abatement measures taken on conservation of natural resources and on cost of production:

As a part of natural resource conservation, the plant has taken following initiatives,

A) Water Conservation Measures

a) In Fresh Water Usage:

Fresh water from SIPCOT is taken and stored in raw water storage tank. Then the fresh water is taken for process with treatment from reverse osmosis (RO) plant. The reject water from RO plant is redirected into the raw water storage tank. This initiative has helped the plant in reducing the handling and treatment loss.

b) Optimizing water usage for cleaning purposes:

In a conventional system, for cleaning the interior of the processing equipments, post the batch process, water with the pressure of 4 – 5 bar was used. This requires higher quantity of water, which eventually becomes an effluent. In order to optimize the use of water and also to improve the efficiency of cleaning a high-pressure water jet is used. By adopting this process for cleaning the water quantity has been considerably reduced. Figure 1 shows picture of one of the Jet Pump used for cleaning process.

Fig. 1 - High Pressure Jet Pump.

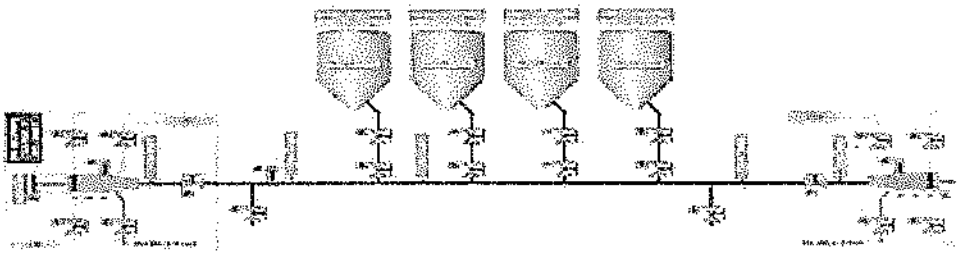

Fig. 2 - Pigging of Transfer lines.

Post the transfer of semi-finished paint or finished paint from the processing equipment, the transfer lines are to be cleaned for avoiding contamination and hence effluent generation.

To reduce the generation of effluent in cleaning, pigging system as shown in Figure 2 is being used. This has facilitated the collection of the water and reuse in the subsequent batches of the same product stream. This initiative has also helped the plant in reducing the generation of solid waste consistently.

c) Paint wash water reuse:

This is another scheme implemented for reuse of wash water generated from cleaning of paint equipment. The wash water thus generated is collected, reused in the subsequent batch of same product. This has minimized effluent generation substantially. The Quality Management System provides guideline for reuse of the wash water.

With the use of this reuse scheme in the plant, the effluent as well as solid waste arising out of the wash water as reduced substantially.

d) Reuse of Condensate:

Built in condensate recovery facility is available in MEE, boiler and production processes, operations wherein the steam condensate is recovered and reused.

e) Optimization in Process:

By the way of increased batch factor, no of batches that are to be taken, has reduced. This initiative has reduced the heat load from the process. The reduction in dispersion time has reduced the heat load on the cooling water to a considerable limit.

f) Optimization in Non-Process water:

To Optimize the consumption of domestic water, sensor based handwash taps has been installed in washroom and other areas with the flow rate of 0.5 GPM as shown in fig. 3.

To reduce the water usage in urinals, water less urinals (bio blocks) were installed (Fig 3).

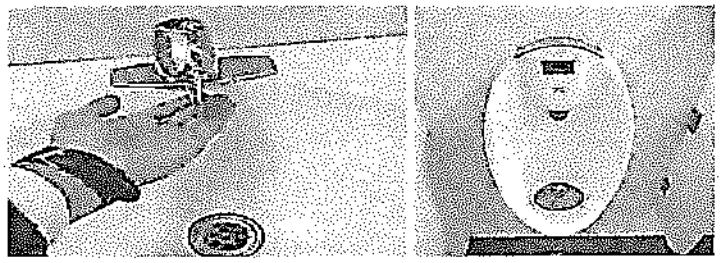

Fig. 3 - Sensor based hand wash taps and water less urinals.

g) Rainwater Harvesting Scheme:

The plant has implemented a very elaborate rainwater harvesting system to collect the rainwater (Fig.4). The system comprises of two separate networks of collection and transfer system for roof-top collection and surface run off. This water after filtration is used in the process also and in FY 2023-2024, we have used 22341 KL of harvested rainwater. Since FY23-24, outside the plant through Akash Ganga Trust and National Agro Foundation the factory has created a Rainwater Harvesting potential of 100110 KL per annum based on annual average rainfall.

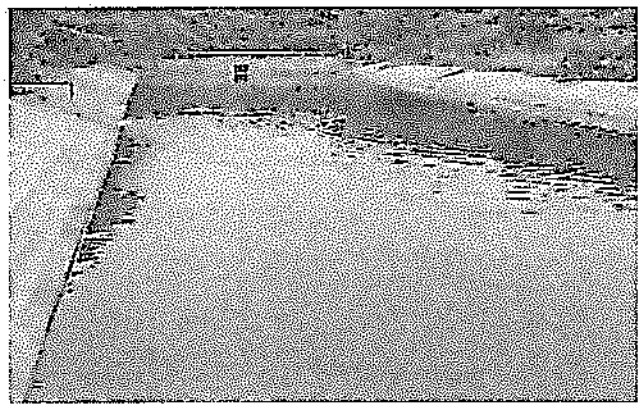

Fig. 4 – Rainwater harvesting system.

h) Occupational well-being

The plant has implemented a closed loop pipeline system for addition of TBHP material in polymer through automated decanting machine as shown in Fig 5. This initiative has eliminated ergonomical risk of manual handling the materials and short-term exposure to VOC.

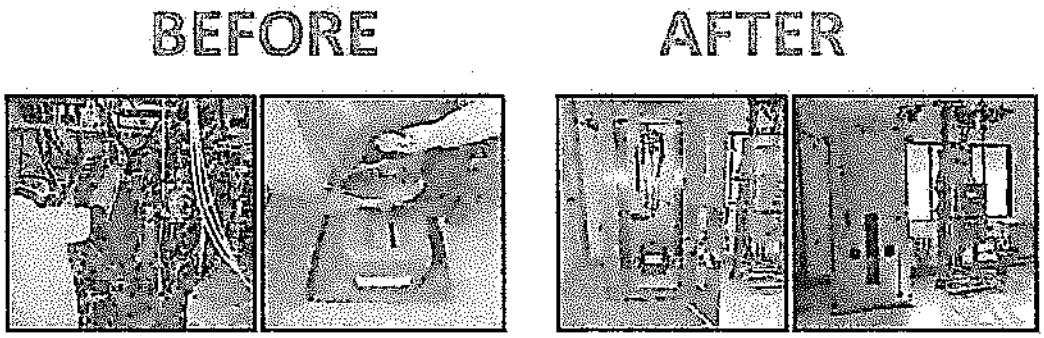

Fig.5 - Closed loop system for TBHP addition.

i) Energy Conservation:

The plant has taken few energy conservation improvements as listed below,

1. 100% LED lightings with timer based ON/OFF.
2. Programmable timers for HVAC's & street lightings.
3. E – Glass High grade energy efficient CT fans 35-40% KW savings and reduction in Vibration losses.
4. EC PMDC energy efficient technology in centrifuge blowers (30-35% KW reduction).
5. Sigma controller to optimize centralized compressed air consumption.
6. Air leakage drives to optimize compressed air consumption.
7. Pressure based pumping system in utilities.
8. Small dia cowl disc to reduce power consumption during Grinding phase of TSD's.

j) Renewable Energy:

The plant has installed roof top solar panels inside the plant(Fig.6) with the capacity of 950 KW. Unit also has wind mills outside the plant at Dharapuram and Kyatharu with the capacity of 3500 KW.

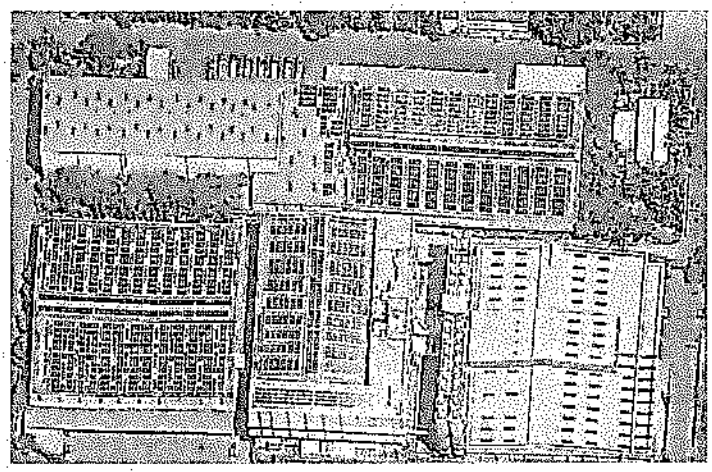

Fig.6 – Roof top solar inside the plant.

k) Guard pond facility:

The plant has a guard pond with 200 KL storage capacity. Which is a emergency storage pond for effluent treatment plant.(Fig.7)

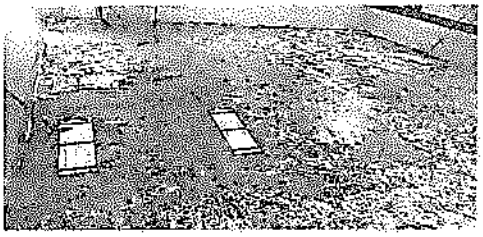

Fig.7 – Guard pond facility.

B) Industrial Effluent treatment for attaining Zero Discharge:

Following process is deployed for treatment of industrial effluent,

a) Oil and Grease Trap

Wastewater from various sections is pumped to equalization tank through oil and grease trap. The floating matter rises and remains on the surface of the wastewater. The same is removed by oil skimmer and collected in barrels.

b) Equalization Tanks

De-oiled wastewater is collected here. Air is continuously purged from the bottom of the tank, through air distribution lines, to facilitate the following,

i. proper mixing
ii. To increase the dissolved oxygen level in the wastewater.
iii. The pH of wastewater is maintained at 9.0. The water from the equalization tank is taken into the primary chamber for further treatment.

c) Primary Treatment Tank

The water is dosed with the necessary chemicals like Lime or caustic, Alum and polyelectrolyte, for coagulation and flocculation. Air is continuously purged from the Bottom of the tank, through air distribution lines, to facilitate proper mixing. The settled matter is transferred to centrifuge feed tank for further clarification. The supernatant from the pretreatment tank is pumped to the overhead tank for feeding into the bio reactor. The clarified water from centrifuge is transferred back into the equalization tank. The sludge from the centrifuge is transferred to the sludge drying bed through discharge chute.

d) Bio Reactor

The effluent is fed into the bio reactor from the overhead tank. The bio reactor has two sections namely bio wells and clarifier. The effluent travels in a circular way in the bio well and gets collected in the center section of the bio well. Enough air is supplied for increasing the dissolved oxygen and for maintaining the biological activity.

Effluent is conveyed from bio well to the bio clarifier. This effluent thus descends to the bottom of the tank and rising through the clarifying zone at a rate slow enough to allow maximum deposition of impurities before reaching the top. The clarified water from the top moves into launder and is collected in holding tank.

The effluent from the holding tank is transferred to the RO feed tank through gravity. The sludge settled in the clarifier is recirculated to the bio well or pumped to sludge drying bed.

e) HRSCC, PSF and Activated Carbon Filter

The effluent collected in the RO Feed tank is pumped in to the HRSCC and the flocculation, coagulation agents are added. The clarified effluent flows out of the HRSCC and is collected in the intermediate tank. The settled matter is transferred to the sludge drying bed. The effluent from the intermediate tank is pumped into the RO through the PSF and ACF.

f) Reverse Osmosis (RO) Plants:

RO Plant (5.0 m3/hr.)

The Effluent collected in the RO feed tank is pumped to the HRSCC and the flocculation, coagulation agents are added. The clarified effluent flows out of the HRSCC and is collected in the intermediate tank and the collected effluent pumped to 5.0 m3/hr. RO plant through PSF and ACF. High Pressure PT - RO for further purification. Permeate from PT RO flows to FRP Permeate Tank and Reject is stored in 30 KL Reject Tank. The settled matter is transferred to the sludge drying bed.

RO Plant (1.5 m3/hr.)

The reject effluent from the 5.0 m3/hr. RO plant, pumped to laminar flow clarifier and stored in intermediate tank and effluent pumped to1.5m3/hr. RO Plant passes through 5-micron cartridge filter. After cartridge filter the wastewater is pumped through high-pressure pump to reverse osmosis membrane unit. The anti-scalant and antioxidants are dosed to prevent scaling within the RO unit. The total dissolved solids, organic and microbial contaminants are removed by RO membrane filtration. The RO separates the feed into two streams, permeate which contains very low dissolved solids flows to the downstream FRP Permeate Tank. The reject is stored in 60 KL Reject Tank.

g) Multiple Effect Evaporators (1300 Kg/hr.)

Reject from RO reject tank is treated in the MEE. Distillate from MEE is collected in FRP Permeate Tank. The concentrate from MEE is treated in ATFD and the slurry dried and collected as salt.

The permeate water from RO plants and MEE is stored in FRP Permeate Tank and is reused in cooling tower. This process ensures zero discharge.

C) Impact of Pollution abatement and on *cost of production - Rs 171 per ton or KL of product.*

The detail of the expenditure on pollution abatement during the year 2023 - 24 is as given below,

Sr. No	Environmental Protection measures	Cost (Rs)
01	Operating cost of Effluent treatment plant	3443754
02	Expenditure for environmental monitoring parameters	1055839
03	Expenditure toward ETP improvement, environment related project and instruments/equipment's	1470000
	Total	**19199593**

Part – H

(Additional measures / investment proposal for environmental protection abatement of pollution, Prevention of pollution.)

The Plant has implemented following measures to minimize waste generation at source as well as to recycle / reuse waste.

A) Bulk storage facilities:

Facilities are provided for bulk storage as shown in Fig 8 of various raw materials and are directly transferred to process equipment's through a closed loop system. Usually in a conventional process these raw materials are procured & stored in barrels. Handling these material barrels leads to material loss. It has also reduced waste barrel generation.

Fig 8 - Bulk Storage

B) Use of Intermediate Batching Container:

Certain additives which were handled through barrels are converted to an Intermediate batching container (IBC) of 1000 kg size as shown in the figure 9 below. This is four times that of the material stored in a barrel.

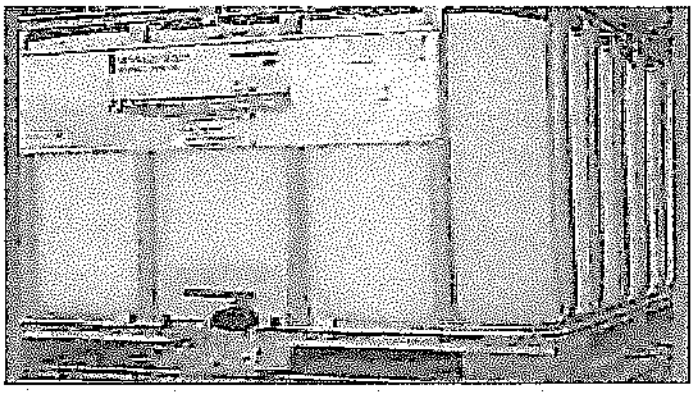

Fig 9 - Intermediate Bulk Container.

C) Use of Tankers for transport of Raw materials:

Certain raw materials which where earlier transported via barrels and IBCs were migrated to tankers. Handling these material barrels/IBCs leads to material loss. It has also reduced waste barrel/IBC generation.

D) Recycling the Jumbo Bags:

For charging of powder into the silos, the powder raw materials are brought in the form of Jumbo Bags as shown in Figure 10. Post charging of powder in Silo's, the empty Jumbo bags are packed and sent back to vendor for refill. This initiative has reduced the generation of solid waste.

Fig 10 - Jumbo Bags

E) Other Control Measures taken for pollution Prevention:

a) Environment Management system

Sustainability of Environmental Management Systems (ISO 14001) has been ensured through periodic Management reviews and external audits.

b) Effective Dust and VOC Control

1. The entire powder handling i.e., from storage to charging into the batches has been controlled through Distributed Control System (DCS) in a closed loop operation(Fig 11). The emission during powder transfer is contained through inbuilt bag filters (Fig 12) that are available in the machine. The differential pressure across the filter is measured and the transfer of the powder is controlled through DCS, thus avoiding fugitive emission.

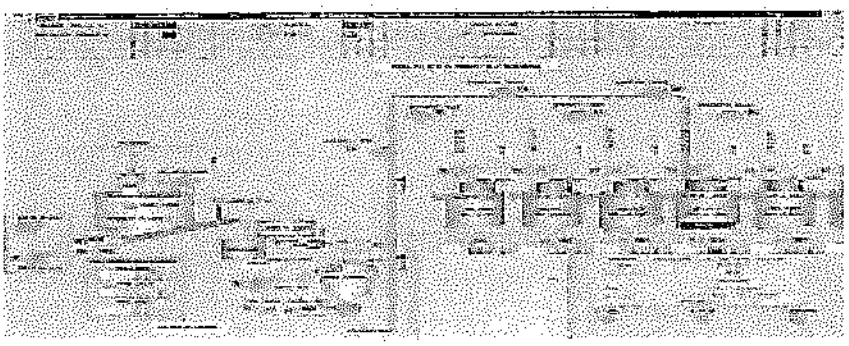

Fig 11 - Closed Loop powder handling system

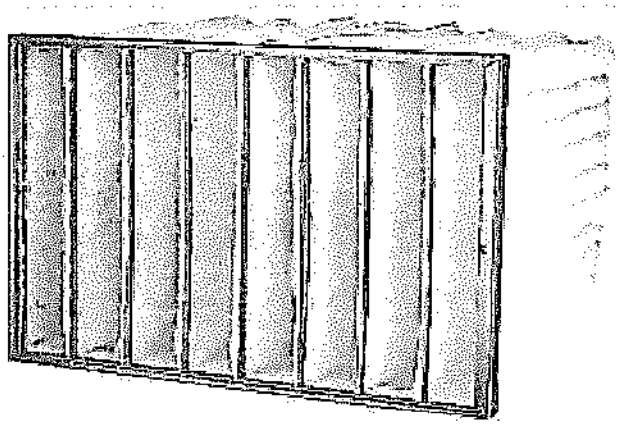

Fig 12 - Filter Bags used for filtration.

2. The scrubbers are attached to process vents available in Water based paint section and that in water-based polymer section.
3. Online VOC meters are available in the Water based paint block & Water based polymer block and are connected to the CARE AIR CENTRE.
4. Stack monitoring of all the boiler, DG and Scrubber stacks are being done monthly and reports of the same are being submitted to TNPCB on respective months.
5. Ambient air monitoring is regularly done by MoEF & CC approved laboratory and reports are being submitted to TNPCB every month.

c) Retrofitting of Emission control devices In DG sets:

We had installed and commissioned emission control device for DG sets. These devices are tested over ISO-8178 5 mode D2 cycle from International Centre for Automotive Technology (ICAT), Manesar which is one of the CPCB recognized labs in India.

S.NO	DG Capacity	Retrofit Device Serial Number
1	750 KV	52(1)/CKR/CKR/102/103/CKR/U01-105/N/U01/CKR
2	750 KV	52(2)/CKR/CKR/I02/I03/CKR/U01-I05/N/U01/CKR
3	750 KV	52(3)/CKR/CKR/I02/I03/CKR/U01-I05/N/U01/CKR
4	1010 KV	52(4)/CKR/CKR/102/103/CKR/U01/N/U01/CKR

Part I

(Any other particulars for improving the quality of the environment)

a) Green belt development:

As part of Green Belt development, plantation of trees was carried out throughout the year including during World Environment Day celebration and "Srivanam" (Dense Forest made with native species) was created based on Miyawaki method. Total of 2750Nos of trees planted behind the admin block area (Fig 13).

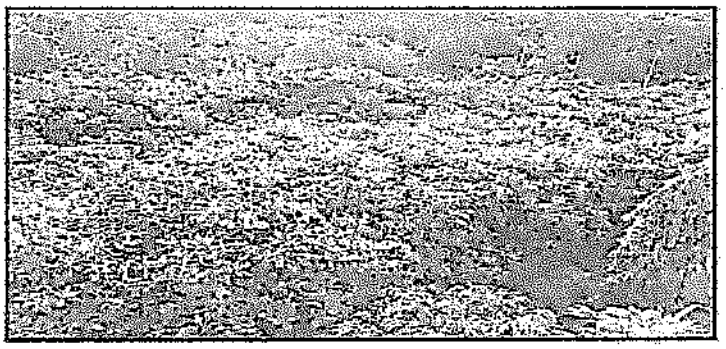

Fig 13 - Srivanam 1

Srivanam phase – II was created near the barrel godown area on June 5th World Environment Day based on Miyawaki method. Total of 3500 Nos of trees were planted (Fig.14).

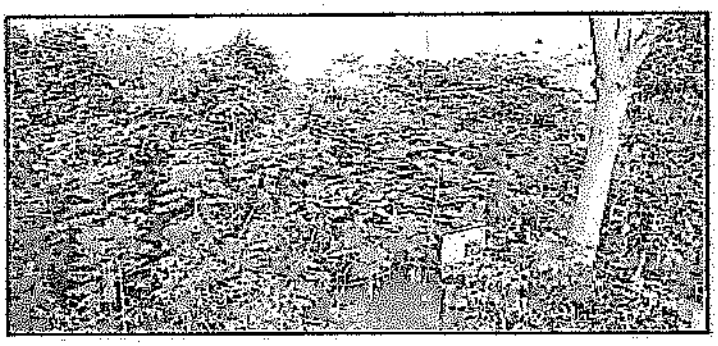

Fig 14 - Srivanam 2

Additionally, after obtaining approval from SIPCOT, the outside area – median (Fig 15) of SIPCOT road is developed and maintained by our factory.

Fig 15 - Outside factory garden

b) Wastewater management:

Chemical dosing system for the cooling tower was replaced with electrolysis process (Fig.16). Resulted in reduction in cooling blow down effluent by 7 to 10KL/ month and cooling tower fresh water top up reduction by 30KL/month.

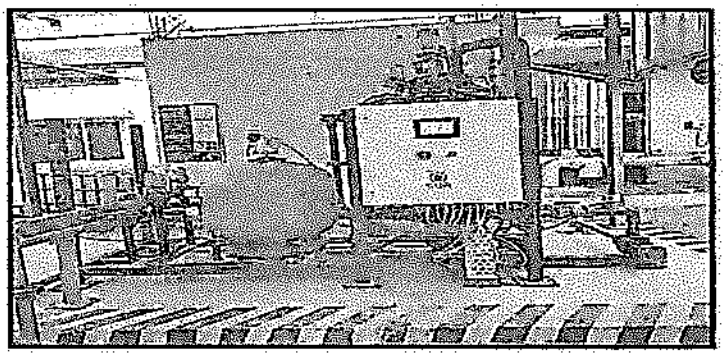

Fig 16 - Electrolysis process

c) Fuel Conservation & Emission reduction:

Introduction of a Heat pump & Heat recovery unit for heating water for process requirement leading to

1. Fuel reduction an average of 38 Tonnes per year
2. Reduction in usage of boiler.
3. Carbon footprint – scope 1 emission reduction of 30%
4. 2400 KL DM water reduction per year.

d) Biodiversity development inside the plant:

To improve biodiversity inside the plant, dense forest, pond and butterfly garden, herbal garden was created. Our effort in improving and preserving biodiversity was recognized through "CII-ITC Sustainability awards 2018 – in Biodiversity."

e) Mud puddling in butterfly garden:

Mud puddling (Fig.17) improves pollination of butterflies. This methodology ensured native way of approach. The count of butterfly species increased 12%.

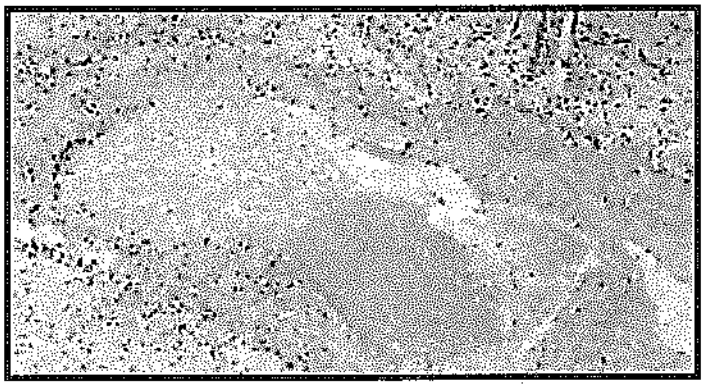

Fig 17 - Butterfly Mud puddling.

f) Bamboo Garden - Green Meeting Area:

Increased oxygen zone area by creating space for meeting through Bamboo Garden (Fig.18) & improving health of employees through ecosystem services.

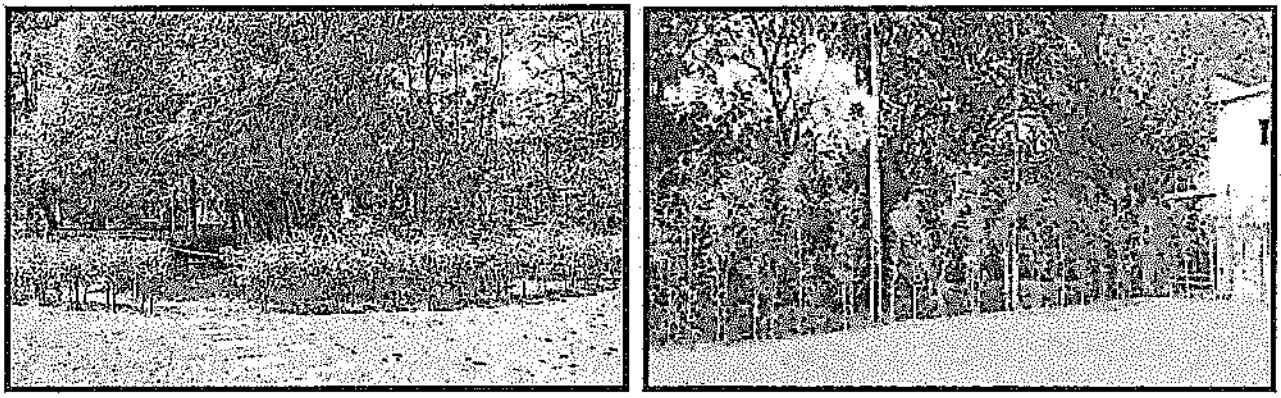

Fig 18 - Bamboo Garden

g) Vertical Garden in EHS & Admin:

Initiatives like vertical gardening (Fig.19) and placing indoor plants were done inside plant which will impact in reducing ambient temperature, refreshment & reduce stress of employees.

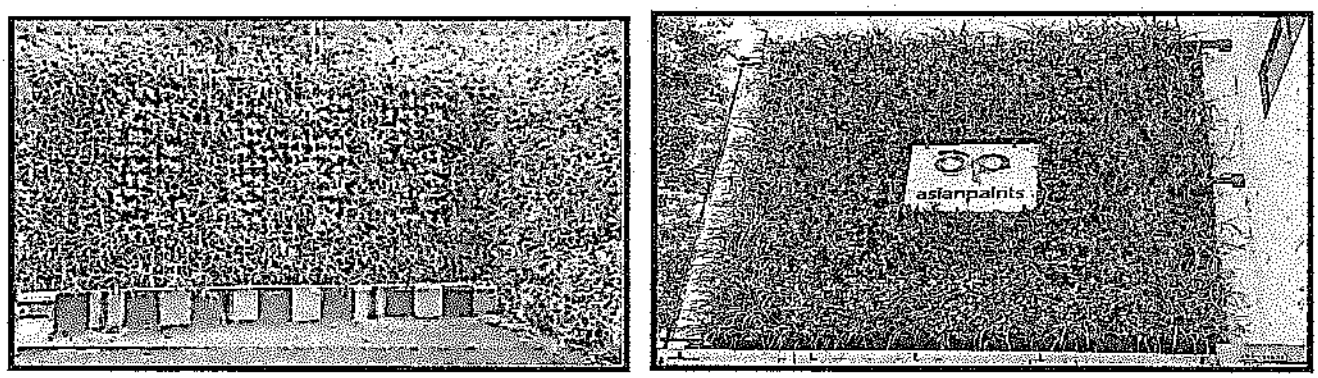

Fig 19 - Vertical Garden

h) Eco Park:

Eco Park inside plant with an aquarium and pollination booth to improve health and recreation services to employees. The park ensures walkway and a zone for refreshment to employees. Shown in Fig 20.

Fig 20 - Eco Park

i) Urban Forest:

Plantation of trees were carried out for around 2300 Sq. mt and named as Urban Forest (Fig. 21) (Dense Forest made with native species). Totally 1500 nos of trees planted behind tank farm area.

Fig 21 - Urban Forest

j) Kurungadu:

Plantation of trees were carried out for around 1600 Sq.mt and named as Kurungadu (Fig. 22) (Dense Forest made with native species). Totally 1300 nos of trees and 1200 nos of shrubs planted beside barrel godown area.

Fig 22 - Kurungadu

k) Herbal garden:

Plantation of herbal plants includes 17 species were carried out for around 2500sq and named as Mooligai Thottam (Fig 23).

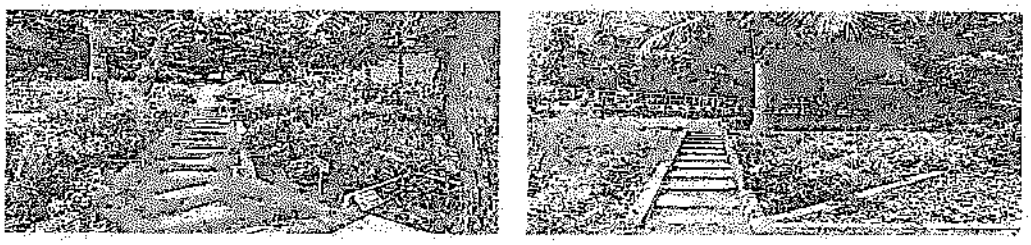

Fig 23 - Mooligai Thottam

I) Oxygen park:

Plantation of bamboo trees were carried out for around 8700 Sq.mt and named as Oxygen Park (Fig. 24) (Garden with bamboos and native species). Totally 600 nos of bamboo trees, 400 nos of shrubs planted and 60 nos of native trees planted near gate 2.

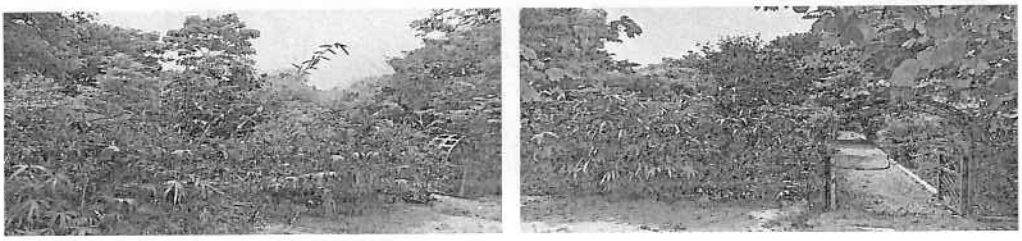

Fig 24 - Oxygen Park

29/9/24.

(Signature of the person carrying out the industry)

Name: Sathish Kumar K M

Designation: Associate General Manager

Address:

Asian Paints Limited

Plot No E6-F13,

SIPCOT Industrial Park,

Sriperumbudur,

Dist. Kanchipuram – 602105

Tamilnadu

Date: 27.09.2024