



GPCB ID: 23225

ENV/05/18/2208

August 22, 2018

Member Secretary

Gujarat Pollution Control Board,
Paryavaran Bhavan
Sector-10 A
Gandhinagar

Sub: Environmental Statement for the Period of April-2017 to March-2018

Dear Sir,

We are enclosing Environmental Statement in Form-V duly filled for the year ending 31st March 2018.

We hope you will find the same in Order.

Thanking you,

Yours faithfully,

For Bayer Vapi Private Limited
(Formerly Bilag Industries Private Limited)

Bayer Vapi Private Limited
(Formerly Bilag Industries Pvt. Ltd)

Registered Office & Factory
Plot No. 306/3, II Phase,
GIDC, Vapi – 396 195,
Gujarat, India

Tel +91 260 2407123
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www.bayer.in

Narendra K Shah
Narendra K Shah

Narendra K Shah
Director and Site Manager

Encl: As stated



FORM-V

ENVIRONMENTAL STATEMENT

For

FY 2017-2018

Submitted to

Gujarat Pollution Control Board
Sector 10-A, Gandhinagar.

Submitted By:

Environment Department
Bayer Vapi Pvt. Ltd.
Date: 22nd August, 2018

FORM – V
(See Rule 14)

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH-2018

PART-A

- (I) Name and address of the owner/Occupier of the industry operation or process : **Mr Narendra K Shah,
Bayer Vapi Pvt Ltd.
(Formerly, Bilag Industries Pvt. Ltd.)
Plot No. 306/3, Phase II,
GIDC Estate, Vapi – 396195.**
- (II) Industry category - : **Red Category (Large Scale)**
Primary – (STC Code) : **2800**
Secondary- (SIC Code) : **2879**
(Manufacturing of Pesticides & Pesticides Intermediates)
- (III) Production capacity Units : **Details are attached as Annexure-A**
- (IV) Year of establishment : **1992**
- (V) Date of the last Environmental Statement submitted : **08/08/2017**

PART-B

Water and Raw Material Consumption

(I) Water Consumption (m3/d)

Sr. No.	Category	Water Consumption, m3/d	
		Apr 16 to Mar 17	Apr 17 to Mar 18
A	Process	495.55	516.13
B	Cooling	721.44	801.43
C	Domestic	85.06	91.48
Grand Total		1302.05	1409.04

Sr. No.	Name of Products	Process water consumption per MT of products	
		During the previous financial year (2016-17)	During the current financial year (2017-18)
PESTICIDES PRODUCTS & INTERMEDIATES			
1	Cypermethrin	23.06	19.81
2	Alphamethrin		
3	Deltamethrin		
4	Permethrin		
5	Transfluthrin		
6	Acrinathrin		
7	Imidacloprid		
8	Beta Cyfluthrin		
9	Cyfluthrin		
10	Ethofumesate		
11	NC 9770		
12	Aclonifen		
13	Triafamone		
14	Sulfonyl Indole		
15	Metaphenoxy Benzaldehyde		
16	NaCMTS		
17	Cypermethric Acid Chloride (CMAC)/ Cypermethric Acid (CMA)		
18	Cypermethric Acid Chloride from DV Ester		
19	Acid Chloride Preparation		
20	Metaphenoxy Benzyl Alcohol		
21	Becisthemic Acid		
22	Chrysanthemic Acid		
23	Allethrolones		
24	TCA		
25	RTCMA		
26	DM Base		
27	Fipronil		
28	Ethiprole		
29	Fluopyram		
30	PYACN		
31	Tembotrione		
32	Pyrasulfotle		
33	Amid Chloride		
34	Flumethrin		
35	R & D Products		

(II) Raw material consumption

* Industry may use codes if disclosing details of raw material would violate contractual obligations,

*Name of Raw materials	Name of Products	Consumption of raw material per unit of output	
		During the previous financial year	During the current financial year
Details are attached as Annexure-B			

otherwise all industries have to name the raw materials used.

PART – C

Pollution discharged to environment/unit of output (Parameter as specified in the consent issue)

Pollutants	Quantity of pollutants discharged (Mass/day)	Concentration of Pollutants in discharged (Mass/volume)	Percentage of variation from prescribed standards with reasons.
a) Water	<i>Details are attached as Annexure-C</i>		
b) Air			

PART-D

HAZARDOUS WASTES

(As specified under Hazardous Wastes (Management, Handling and transboundary movement) Rules, 2008)*1

Hazardous Waste	Total Quantity (Kg.)	
	During the previous financial year	During the current financial year
a) From Process	<i>Details are attached as Annexure-D</i>	
b) From Pollution Control Facilities		

*1: The Hazardous Wastes (Management, Handling and transboundary movement) Rules, 2008 notified vide S.O 2265(E) dated 24.09.2008.

PART-E

SOLID WASTES

Solid Waste	Total Quantity (Kg.)	
	During the previous financial year	During the current financial year
a) From Process	<i>Details are attached as Annexure-E</i>	
b) From Pollution Control Facilities		
c) (1) Quantity recycled or re-utilized Within the unit (2) Sold (3) Disposed		

PART – F

Please specify the characterizations (in terms of composition and quantity) of hazardous as well as solid and indicate disposal practice adopted for both these categories of wastes.

Details are attached as Annexure-F

PART – G

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

Details are attached as Annexure-G

PART – H

Additional measure/investment proposal for environmental protection including abatement of pollution prevention of pollution.

Details are attached as Annexure-H

PART – I

Any other particulars for improving the quality of the environment.

Details are attached as Annexure-I



Date: 22/08/2018

(Signature of a person carrying out an
Industry, operation or process)

A handwritten signature in blue ink, appearing to read "Mr. Shah", written over a horizontal line.

Name : **Mr Narendra K Shah**

Designation : **Director & Site manager**

Address : **Bayer Vapi Private Limited
(Formerly Bilag Industries Pvt.Ltd)
Plot No.306/3, Phase-II
GIDC Estate, Vapi-396 195.**

Annexure-A
Production Capacity Unit

Sr. No.	Name of Products	Capacity	Production During (April 17 -March 18)
		MT/Annum	MT/Annum
PESTICIDES PRODUCTS & INTERMEDIATES			
1	Cypermethrin	2496	2488.950
2	Alphamethrin	480	321.400
3	Deltamethrin	504	465.525
4	Permethrin	1374	733.030
5	Transfluthrin		
6	Acrinathrin	45	0.000
7	Imidacloprid	720	0.000
8	Beta Cyfluthrin	982	479.780
9	Cyfluthrin		
10	Ethofumesate	3300	1393.013
11	NC 9770		
12	Aclonifen		
13	Triafamone	180	0.000
14	Sulfonyl Indol		
15	Metaphenoxy Benzaldehyde	3000	342.720
16	NaCMTS	1200	2.500
17	Cypermethric Acid Chloride (CMAC)/ Cypermethric Acid (CMA)	2400	2294.579
18	Cypermethric Acid Chloride from DV Ester	600	172.236
19	Acid Chloride Preparation		
20	Metaphenoxy Benzyl Alcohol	1200	451.878
21	Becisthemic Acid	180	8.725
22	Chrysanthemic Acid	180	0.000
23	Allethrolones		
24	TCA	540	351.415
25	RTCMA		
26	DM Base	50	0.000
27	Fipronil	540	0.000
28	Ethiprole	1020	0.000
29	Fluopyram	3000	0.000
30	PYACN		
31	Tembotrione	1020	0.000
32	Pyrasulfotle	300	0.000
33	Amid Chloride	1020	0.000
34	Flumethrin	60	1.608
35	R & D Products	180	0.000

Annexure-B
Raw material Consumption Details

Sr. No.	Name of Products	Name of Raw Materials	Raw Material consumption Ratio , Kg/Kg	
			For year 2016-2017	For year 2017-2018
1	Cypermethrin	Sodium Cyanide	0.128	0.122
		Sodium Hydroxide	0.005	0.004
		Metaphenoxy Benzaldehyde (MPBD)	0.476	0.467
		Try Ethyl Amine (TEA)	0.021	0.021
		Cypermethric acid chloride (CMAC)	0.561	0.540
		Hypochlorite	0.124	0.086
		Soda Ash	0.010	0.006
		Acetic acid	0.010	0.010
		Hexane	0.028	0.026
		Ferrous Sulphate	0.001	0.001
2	Alphamethrin	Cypermethrin	1.037	1.022
		Triethylamine/ DEA	0.05	0.048
		Hexane	0.266	0.211
		Acetic acid	0.03	0.038
		Sulphuric acid	0.118	0.043
		Sodium Hydroxide	0.06	0.024
		Sodium Hydroxide Flakes	0.02	0.008
3	Deltamethrin	Toluene	1.764	1.850
		Ferric Chloride (FeCl ₃)	0.019	0.019
		Ethylene Dichloride (EDC)	0.341	0.365
		Bromine	2.967	3.080
		Trichloro Acid (TCA)	0.599	0.602
		Aluminium Chloride (AlCl ₃)	0.536	0.528
		Sodium Hydroxide	2.800	2.770
		Sulphuric Acid (H ₂ SO ₄)	0.023	0.519
		Methanol	0.235	0.211
		Soda Ash	0.082	0.083
		Triethyl Benzyl Ammonium chloride	0.010	0.008
		Dimethylformamide (DMF)	0.001	0.000
		Thionyl Chloride (TC)	0.301	0.295
		Sodium Cyanide	0.114	0.114
		Triethyl Amine (TEA)	0.045	0.042

Sr. No.	Name of Products	Name of Raw Materials	Raw Material consumption Ratio , Kg/Kg	
			For year 2016-2017	For year 2017-2018
		Metaphenoxy Benzaldehyde	0.434	0.434
		Ferrous Sulphate	0.001	0.001
		Acetic Acid	0.011	0.009
		Isopropyl alcohol	0.097	0.099
		Hydrochloric Acid (30 %)	0.388	0.397
		Sodium Hypochlorite	0.393	0.363
4	Permethrin (Alternate to Transfluthrin)	Cypermethric Acid Chloride (CMAC)	0.591	0.591
		Soda Ash	0.010	0.010
		Hexane	0.016	0.015
		Metaphenoxy Benzaldehyde	0.521	0.541
		Raney Nickle	0.001	0.001
		Hydrogen	0.006	0.006
5	Transfluthrin (Alternate to Permethrin)	Toluene	0.091	0.083
		Tetrafluoro Benzyl alcohol (TFBA)	0.495	0.494
		R Trans Permethric Acid Chloride (RTPAC)	0.620	0.627
		Soda ash	0.027	0.041
		Sodium hydroxide	0.224	0.241
		Acetic acid	0.000	0.000
		Filter aid	0.005	0.004
		Carbon	0.007	0.005
6	Acrinathrin	Butanediol	0.622	0.000
		Phosphorous trichloride (PCl3)	0.996	0.000
		Sodium Hydroxide	3.821	0.000
		Hexane	0.409	0.000
		TEA	0.000	0.000
		Methanol	3.648	0.000
		TBBA (Tertiary Butyl bromoacetate)	1.177	0.000
		THF	0.352	0.000
		Lithium Bromide (LiBr)	1.147	0.000
		Hydrochloric Acid (HCl)	1.866	0.000
		Toluene	1.258	0.000
		MDC	1.977	0.000
		Thionyl chloride (SOCl2)	0.425	0.000
		Sodium Cyanide	0.280	0.000
		Metaphenoxy Benzaldehyde (MPBD)	0.470	0.000

Sr. No.	Name of Products	Name of Raw Materials	Raw Material consumption Ratio , Kg/Kg	
			For year 2016-2017	For year 2017-2018
		IPA	0.742	0.000
		HFIPA(Hexafluoroisopropylalcohol)	0.413	0.000
		DCC(Dicyclohexylcarbodiimide)	0.407	0.000
7	Beta Cyfluthrin (Alternate to Cyfluthrin)	Toluene	0.043	0.040
		Fluorinated metaphenoxy benzaldehyde (FMPB)	0.588	0.593
		Sodium bisulphite (NaHSO ₃)	0.294	0.297
		Tetrabutylammonium bromide (TBAB)	0.003	0.003
		Sodium Cyanide	0.193	0.190
		Cypermethric Acid chloride	0.000	0.638
		Sodium hydroxide	0.632	0.173
		Soda ash	0.017	0.016
		Sodium hypochlorite	0.245	0.233
		Acetic acid	0.001	0.004
		Isopropyl alcohol (IPA)	0.098	0.100
		Triethylamine (TEA)	0.057	0.045
		Sulphuric acid (H ₂ SO ₄)	0.599	0.052
8	Cyfluthrin (Alternate to Beta Cyfluthrin)	Toluene	0.037	0.032
		Fluorinated Metaphenoxy benzaldehyde(FMPB)	0.505	0.506
		Sodium bisulphite (NaHSO ₃)	0.252	0.297
		Tetrabutylammonium bromide (TBAB)	0.003	0.003
		Sodium Cyanide	0.166	0.190
		Cypermethric Acid chloride	0.543	0.543
		Sodium hydroxide	0.114	0.148
		Soda ash	0.014	0.014
		Sodium hypochlorite	0.210	0.199
		Acetic acid	0.001	0.001
9	Ethofumesate (Alternate to NC9770)/Aclonifen	Toluene	0.082	0.075
		Isobutyraldehyde	0.346	0.338
		Morpholine	0.078	0.077
		Benzoquinone	0.428	0.424
		Methanesulfonyl chloride	0.451	0.452
		Triethylamine(TEA)	0.018	0.014
		Sodium Hydroxide	0.855	0.841
		Hydrochloric acid (HCl)	1.036	1.046

Sr. No.	Name of Products	Name of Raw Materials	Raw Material consumption Ratio , Kg/Kg	
			For year 2016-2017	For year 2017-2018
10	NC9770 (on 100% basis)*alternate to Ethofumesate.	Ethanol	0.332	0.327
		Soda Ash	0.020	0.019
		Toluene	0.000	0.328
		Isobutyraldehyde	0.000	0.315
		Morpholine	0.000	0.074
		Benzoquinone	0.000	0.369
		Ethanesulfonyl Chloride	0.000	0.390
		Triethylamine(TEA)	0.000	0.014
		Sodium hydroxide	0.000	0.706
		Hydrochloric acid (HCl)	0.000	0.678
		Soda Ash	0.000	0.002
11	Metaphenoxy Benzaldehyde	EDC	0.040	0.000
		Aluminium Chloride (AlCl3)	1.056	0.000
		Benzaldehyde	0.629	0.000
		Bromine	0.560	0.000
		Hydrochloric acid	0.158	0.000
		Sodium hydroxide	0.203	0.000
		Chlorine	0.220	0.000
		Soda ash	0.015	0.005
		Sodium thiosulphate	0.035	0.000
		Monoethylene glycol (MEG)	0.049	0.000
		Toluene	0.023	0.020
		Phenol	0.560	0.000
		Sulphuric acid	0.031	0.000
		Methanol	0.000	0.000
		Potassium Hydroxide (KOH))	0.406	0.000
12	NaCMTS	Di methyl malonate (DMM))	0.810	0.000
		Xylene	0.097	0.000
		TBAB	0.045	0.000
		Chloro methyl acetate (MCA)	0.701	0.000
		Sodium Methoxide	1.119	0.000
		Hydrochloric acid (HCl)	0.011	0.011
		Diethylamine	0.007	0.007
13	Cypermethric Acid Chloride (CMAC)/ Cypermethric Acid (CMA)	Acetonitrile	0.014	0.009
		Cupric Chloride	0.007	0.007

Sr. No.	Name of Products	Name of Raw Materials	Raw Material consumption Ratio , Kg/Kg	
			For year 2016-2017	For year 2017-2018
		Acrylonitrile	0.404	0.405
		Carbon TetraChloride (CTC)	1.146	1.149
		Liquid ammonia	0.187	0.161
		Dimethylformamide (DMF)	0.014	0.015
		Thionyl Chloride (TC)	1.023	0.973
		Sodium Hydroxide Solution	2.116	2.185
		Ethylene Dichloride (EDC)	0.019	0.003
		Hexane	0.142	0.108
		Isobutylene	0.395	0.412
		Triethylamine (TEA)	0.040	0.035
		Caustic Soda flake	0.138	0.106
		Sulphuric acid	0.279	0.277
		Boron F3 Etherate	0.009	0.010
		Filter aid	0.007	0.008
14	Cypermethric Acid Chloride from DV Ester	DV Ester	0.000	1.048
		Sodium hydroxide	0.000	0.973
		Toluene/Hexane	0.000	0.065
		Sulphuric acid (H2So4)	0.000	0.272
		Thionyl chloride (TC)	0.000	0.557
		N-Methyl-2-pyrrolidinone (NMP)/ DMF	0.000	0.000
15	Acid Chloride Prep (Alternate to CMAC from DVE)	Toluene	0.045	0.044
		RTPA	0.944	0.945
		Thionyl Chloride (TC)	0.557	0.558
		Dimethylformamide (DMF)	0.000	0.001
		Sodium Hydroxide	0.825	0.925
16	Metaphenoxy Benzyl Alcohol	Metaphenoxy Benzaldehyde	1.037	1.038
		Raney Nickle	0.012	0.012
		Hydrogen	0.002	0.002
17	Becisthemic Acid	Toluene	2.728	2.854
		Ferric Chloride (FeCl3)	0.030	0.030
		Ethylene dichloride (EDC)	0.286	0.280
		Bromine	4.589	4.747
		Trichloro acid (TCA)	0.926	0.926
		Aluminium Chloride (AlCl3)	0.829	0.812
		Sodium hydroxide	3.505	3.516

Sr. No.	Name of Products	Name of Raw Materials	Raw Material consumption Ratio , Kg/Kg	
			For year 2016-2017	For year 2017-2018
		Sulphuric acid (H2So4)	0.926	0.624
		Methanol	0.303	0.284
		Soda Ash	0.101	0.101
		Benzyltriethylammonium chloride	0.012	0.013
		Hydrochloric acid (30 %)	0.602	0.610
18	TCA	Ethylene dichloride (EDC)	0.527	0.487
		High Cis CMA	2.432	2.414
		30% HCl	2.186	2.133
		Soda Ash	0.078	0.078
		Sodium hydroxide	2.961	2.853
		Ephedrine hydrochloride	0.125	0.149
		Hexane	0.187	0.168
19	RTCMA(Alternate TCA)	TCMAC	1.350	1.368
		TEBA	0.014	0.014
		Ethylene dichloride (EDC)	0.535	0.504
		Sodium hydroxide	2.374	2.366
		Hydrochloric acid (30%)	1.164	1.080
		Ephedrine HCl	0.131	0.133
		Soda ash	0.077	0.076
20	Flumethrin	Bayticol Acid	0.000	0.642
		Thionyl Chloride	0.000	0.320
		Diethyl toluamide	0.000	0.001
		Sodium Cyanide	0.000	0.233
		4-FPBA	0.000	0.448
		SBS	0.000	0.118
		TBAB	0.000	0.002
		Toluene	0.000	0.855
		C.S.lye (47%)	0.000	2.055
		FeSO4	0.000	0.017

Annexure-C
Pollutant Discharge to Environment

Sr.No.	Pollutants	Quantity of Pollutants (Kgs/Day)	Conc. Of Discharged (mg/L)	% Variation from prescribed standards
A) Water :				
1	pH	-	7.10	The all parameters are below the prescribed norms. The treated effluent is discharged to CETP of Vapi Green Enviro limited for further treatment.
2	Colour	-	35.00	
3	Total Suspended Solids	17.98	27.83	
4	Total Dissolved Solids	867.35	1342.42	
5	Chlorides as Cl	278.66	431.28	
6	Oil & Grease	1.61	2.49	
7	Phenolic Compounds as C6H5OH	0.02	0.03	
8	Hexavalent Chromium as Cr+6	BDL*	BDL*	
9	Total Chromium as Cr	0.01	0.02	
10	Cadmium as Cd	BDL*	BDL*	
11	Copper as Cu	0.03	0.04	
12	Zinc as Zn	0.07	0.10	
13	Iron as Fe	0.19	0.29	
14	Nickel as Ni	0.03	0.05	
15	Lead as Pb	0.02	0.02	
16	Mercury as Hg	BDL*	BDL*	
17	Arsenic as As	BDL*	BDL*	
18	Sulphates as SO4	95.10	147.18	
19	Cyanides as CN	BDL*	BDL*	
20	Fluorides as F	0.11	0.17	
21	COD	72.20	111.75	
22	Sulphides as S	0.52	0.80	
23	Ammonical Nitrogen as NH3	8.53	13.20	
24	Temperature	-	29.50	
25	BOD(5 Days @ 20 °C)	16.96	26.25	
*BDL: Below Detection Limit				

Note :

- 1) Values are calculated on the basis of 646 m³/day effluent discharged.
- 2) Calculation has been done on the annual average concentration.

Sr.No.	Pollutants	Quantity of Pollutants (Kgs/Day)	Conc. Of Discharged (mg/Nm3)	% Variation from prescribed standards
B) Air :	From Incinerator Stack			
1	Particulate matter	8.07	23.50	The limits of various pollutants are below the prescribed limit
2	SO2	4.75	14.27	
3	NOx	12.87	37.49	
4	HCl	1.38	3.96	
5	CO	4.46	13.12	
6	TOC	BDL*	BDL*	
7	Total Dioxins & furans	0.005	0.015	
8	Cd+Th+ their compounds	BDL*	BDL*	
9	Hg+their compounds	BDL*	BDL*	
10	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+ their compounds	0.09	0.26	
*BDL: Below detection limit				
Air	From Utility Stack *			
	Particulate matter	0.59	0.90	The limits of various pollutants are below the prescribed limit
	SO2	1.75	2.69	
	NOx	17.90	27.46	
Note:* It's includes Boilers stack and Thermic fluid heater stack				

Sr.No.	Pollutants	Quantity of Pollutants (Kgs/Day)	Conc. Of Discharged (mg/Nm3)	% Variation from prescribed standards
Air	From Process vent			
1)	Vent attached to MPB reactor drowning vessels & ventilation system			
	HCl	0.008	4.28	The limits of various pollutants are below the prescribed limit
	Cl ₂	0.008	4.16	
	HBr	0.003	1.38	
2)	Vent attached to CMAC Reactors			
	HCl	0.013	9.20	The limits of various pollutants are below the prescribed limit
	SO ₂	0.032	24.47	
3)	Vent attached to TBAC Reactors			
	HCl	0.013	9.62	The limits of various pollutants are below the prescribed limit
	SO ₂	0.028	20.89	
4)	Vent attached to Bromination reaction reactor in Deltamethrin			
	HBr	0.008	3.58	The limits of various pollutants are below the prescribed limit
	HCl	0.016	7.37	
5)	Vent attached to Acylation reaction reactor in Deltamethrin			
	HCl	0.006	7.83	The limits of various pollutants are below the prescribed limit
	SO ₂	0.017	23.67	

Sr.No.	Pollutants	Quantity of Pollutants (Kgs/Day)	Conc. Of Discharged (mg/Nm3)	% Variation from prescribed standards
6)	Vent attached to Acylation reactor of Transfluthrin			
	HCl	0.022	11.84	The limits of various pollutants are below the prescribed limit
7)	Vent attached to condensation reactor of Permethrin			
	HCl	0.002	7.48	The limits of various pollutants are below the prescribed limit

Note :

1) Calculation has been done on the annual average concentration.

Annexure-D
Details of Hazardous wastes

Sr. No	Hazardous Wastes	Category	Total Quantity (Kg)	
			During the Previous Financial Year (2016-17)	During the Current Financial Year (2017-18)
a. From Process				
1	Distillation Residues	20.3	1817268	1498114
2	Oil and grease skimming residue	35.4	14680	25700
3	Used or Spent Oil	5.1	5763	18177
4	Spent Solvents	29.4	162424	0
5	Empty barrels/Containers/liners contaminated with hazardous chemicals/waste	33.1	141400	88066
6	Spent Catalyst	29.5	850	950
7	Date Expired and off-Specification Pesticides	29.3	0	0
8	Spent Resin	35.2	0	7114
9	Waste or residue containing oil*	5.2	-	0
10	Spent Carbon and filter medium	36.2	2288	5837
11	Process waste (Aq.Waste)*	29.1	-	706310
12	Contaminated cotton rag or other cleaning materials*	33.2	-	245
13	Process waste (Waste Insulation material brick/Refractory)	29.1	-	155430
14	Spent Acid (HCl)	29.6	-	0

Sr. No	Hazardous Wastes	Category	Total Quantity (Kg)	
			During the Previous Financial Year (2016-17)	During the Current Financial Year (2017-18)
15	Contaminated Soil/debris*	35.3	-	582770
16	Aluminium Chloride Solution (28 %)*	Sch.II B7	-	625200
17	Potassium bromide (30%) / sodium bromide (8%)*	Sch.II B6	-	1150450
18	Potassium chloride Solution (20%)*	Sch.II B7	-	0
b. From Pollution Control Facility				
1	Chemical Sludge from wastewater Treatment	35.3	8211239	974665
2	Evaporation Residue	37.3		9622065
3	Ash from Incinerator and flue gas cleaning residue	37.2	78787	72775

Note : * Additional category added as per HWOW (M &TM) Rules, 2016.

Annexure-E
Details of Solid wastes

<i>Solid Waste</i>	<i>Total Quantity (Kg.)</i>	
	<i>During the previous financial year (2016-17)</i>	<i>During the current financial year (2017-18)</i>
a) From Process - Generated		
Wooden Scrap	-	126060
MS Scrap	-	1511990
Paper	-	15460
Electrical scrap	-	92840
Aluminium Scrap	-	18730
SS scrap	-	62783
b) From Pollution Control Facilities		
c) Sold- to recycler		
Wooden Scrap	-	126060
MS Scrap	-	1511990
Paper	-	15460
Electrical scrap	-	92840
Aluminium Scrap	-	18730
SS scrap	-	62783

Annexure-F
Characteristics and Composition of Hazardous wastes

Sr. No	Hazardous Wastes	Category	Physical Form	Chemical Form	Quantity of waste disposed in MT during April 17 - March 18	Disposal Practice adopted
a. From Process						
1	Distillation Residues	20.3	Semi-Solid	Organic Compound	1528.521	Disposal by Co-processing at recycling solution private limited (RSPL), Panoli/ Cement industries or incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL) Palsana.
2	Oil and grease skimming residue	35.4	Liquid	Organic material Consist of Oil & grease	25.7	Disposal by incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL) Palsana.
3	Used or Spent Oil	5.1	Liquid	Organic material Consist of Oil	12.959	disposal by selling registered Re-Refiners/ Recyclers or Incineration at captive incineration/ CHWIF of SEPPL, Kutchh

Sr. No	Hazardous Wastes	Category	Physical Form	Chemical Form	Quantity of waste disposed in MT during April 17 - March 18	Disposal Practice adopted
4	Spent Solvents	29.4	Liquid	Organic Solvents	8.1	Disposal by Co-processing at recycling solution private limited (RSPL), Panoli/ Cement industries or incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL) Palsana.
5	Empty barrels/Containers/liners contaminated with hazardous chemicals/waste	33.1	Solid	-	88.066	Sale to authorised vendors/send to authorized decontamination facility
6	Spent Catalyst	29.5	Solid	-	0	Disposal by Selling registered recycler/ offsite recovery at units from where catalyst is procured/other units doing recovery
7	Date Expired and off-Specification Pesticides	29.3	Solid	Organic	0	Disposal by Co-processing at recycling solution private limited (RSPL), Panoli/ Cement industries or incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL),Palsana

Sr. No	Hazardous Wastes	Category	Physical Form	Chemical Form	Quantity of waste disposed in MT during April 17 - March 18	Disposal Practice adopted
8	Spent Resin	35.2	Solid	-	7.114	Disposal by incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL) Palsana
9	Waste or residue containing oil*	5.2	Liquid	Organic material Consist of Oil	0	Disposal by incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL) Palsana
10	Spent Carbon and filter medium	36.2	Solid	-	2.775	Disposal by incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL) Palsana
11	Process waste (Aq.Waste)*	29.1	Liquid	Organic	697.031	Disposal by Co-processing at recycling solution private limited (RSPL), Panoli/ Cement industries or incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL) Palsana.

Sr. No	Hazardous Wastes	Category	Physical Form	Chemical Form	Quantity of waste disposed in MT during April 17 - March 18	Disposal Practice adopted
12	Contaminated cotton rag or other cleaning materials*	33.2	Solid	-	0.245	Disposal by incineration at captive incineration/ CHWIF of SEPPL, Kutchh/ Geohybrid industrial Solution Private limited (GSPL) Palsana
13	Process waste (Waste Insulation material brick/Refractory)	29.1	Solid	-	163.16	Disposed to authorised TSDF – Vapi / TSDF- SEPPL
14	Spent Acid (HCl)	29.6	Liquid	HCl	0	Sale to authorised industry having permission under rule-9 of Hazardous and other Wastes(Management and Transboundary Movement) Rule-2016
15	Contaminated Soil/debris*	35.3	Solid	Traces of organic & inorganic	569.64	Disposed to authorised TSDF – Vapi / TSDF- SEPPL
16	Aluminium Chloride Solution (28 %)*	Sch.II B7	Liquid	Solution contain 28% aluminium Chloride & Water	634.5	sale to authorised industry having permission under rule-9 of Hazardous and other Wastes(Management and Transboundary Movement) Rule-2016

Sr. No	Hazardous Wastes	Category	Physical Form	Chemical Form	Quantity of waste disposed in MT during April 17 - March 18	Disposal Practice adopted
17	Potassium bromide (30%) / sodium bromide (8%)*	Sch.II B6	Liquid	Solution contain 30% Potassium bromide / 8% sodium bromide & Water	1164.36	sale to authorised industry having permission under rule-9 of Hazardous and other Wastes(Management and Transboundary Movement) Rule-2016
18	Potassium chloride Solution (20%)*	Sch.II B7	Liquid	Solution contain 20% Potassium chloride Solution & Water	0	sale to authorised industry having permission under rule-9 of Hazardous and other Wastes(Management and Transboundary Movement) Rule-2016
b. From Pollution Control Facility						
1	Chemical Sludge from wastewater Treatment	35.3	Solid	Lime and inorganic salt	1211.81	Disposed to authorised TSDF – Vapi / TSDF- SEPPL
2	Evaporation Residue	37.3	Solid	Inorganic salt	9662.77	Disposed to authorised TSDF – Vapi / TSDF- SEPPL
3	Ash from Incinerator and flue gas cleaning residue	37.2	Solid	Inorganic salt	81.54	Disposed to authorised TSDF – Vapi / TSDF- SEPPL

Note

: * Additional category added as per The HWOW (M &TM) Rules,2016

Annexure-G

Pollution abatement measures for conservation of Natural Resources

<i>Sr.No.</i>	<i>Pollution abatement measures</i>	<i>Impact on Conservation of resources</i>
1	Conversion of single stage calandria into double effect evaporator.	Reduction in steam consumption
2	Cleaning of ATFD with process condensate instead of Raw water	Reduction in fresh raw water consumption
3	Reuse of DM regenerated wastewater in Incinerator scrubbers.	Reduction in fresh raw water consumption
4	Generation of steam from waste heat recovery boiler of incinerator	Reduction in Natural gas consumption
5	Incineration of high calorific value residue in burner instead of natural gas	Reduction in Natural gas consumption
6	Recycling of generated HCl	Reduction in consumption of fresh HCl
7	Process change in Alphamethrin product	Reduction in generation of waste stream
8	Optimization of molar ratio of acid and alkalies.	Reduction in consumption of acid and alkalies
9	Street light (Mercury Lamp) replaced with LED light	Reduction in consumption of Electricity
10	Vent gas transportation system	Reduction of VOC emission

Annexure-H
Additional measure/investment proposal for environmental protection including abatement
of pollution prevention of pollution

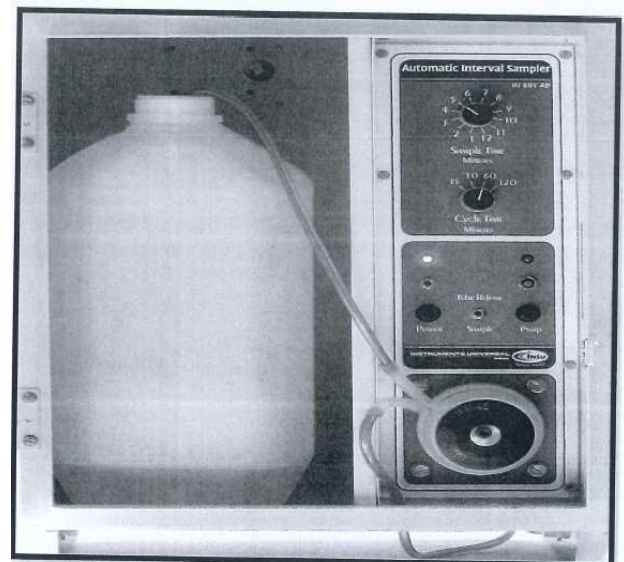
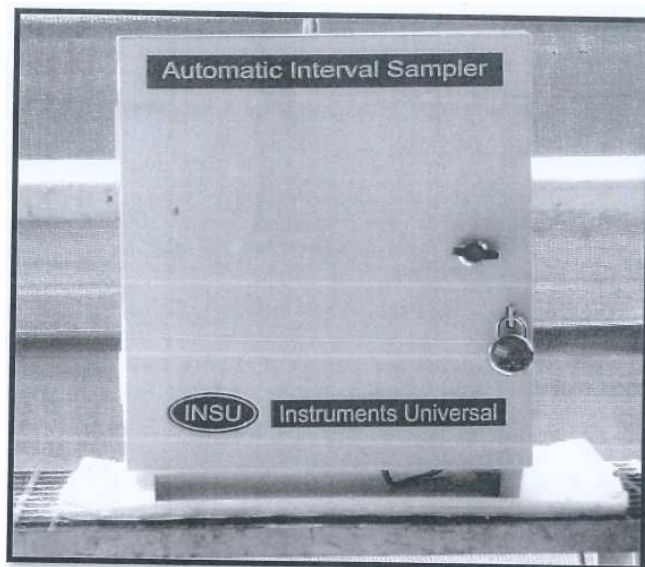
<i>Sr.No.</i>	<i>Items</i>	<i>Cost (INR)</i>
1	Total Cost of installation of various water and Air Pollution Control Equipment	52,784,606
2	Interest on Investment (8.5 % per year)	4,486,692
3	Depreciation per year	90,972,412
4	Total Operational cost of various Pollution Control Equipment/year	508,845,821
5	Total expenses /year (Operating cost + Interest +Depreciation)	657,089,531
6	Total Production (In MT)	9507.359
7	Total expenses per Ton of Production	69114

Annexure-I
Miscellaneous particulars for improving the quality of the environment

It is ensured that waste water pretreatment plant, Effluent treatment plant and other pollution control facilities are effectively operated round the clock. Further we have taken following measures to improve quality of environment.

1. We have obtained ISO-14001:2015 (EMS) for Better Environment Management System and Control.
2. Full-fledged Environment laboratory installed at site for monitoring Environment Parameters.
3. Additional evaporation residue storage facility provided to Store salt generated from WWPT Plant during the monsoon season.
4. Regular monitoring of all process vents, incinerator stack, boiler stack, ambient air quality monitoring and noise monitoring carried out by NABL and MoEF &CC approved Laboratory to ensure emission standards.
5. We have implemented 5 S concepts in all departments of factory which is useful in minimizing waste and helpful in maintaining better housekeeping.
6. Third party Environment audit was carried out by M/s. Jyoti Om Chemical Research Pvt. Ltd. Ankleshwar and all recommendation is being implemented at site.
7. Tree plantation was carried out as a part of celebration world environment day on 5th June.
8. Additional 5.4 ha land purchased for developing green belt area. Green belt development work is in under process.
9. Partial Automation done through PLC in ETP for Continuous monitoring of flow and pH.
10. Storm water collection pond is constructed and critical parameters verified before discharge in creek.
11. Industry has taken membership of M/s. ECO Green Recycling for environment friendly disposal of E-waste.
12. Ejectors are replaced by vacuum pump to reduction VOC emission.

13. Continuous Online TOC, TSS and Flow monitoring device installed at the discharge point of site for continuous monitoring and online data is being transferred to CPCB/GPCB server.
14. We have valid membership of TSDF Vapi and TSDF SEPPL for better and effective handling of hazardous waste.
15. A leak detection and repair (LDAR) Studies have been carried out in two plants through NABL and MOEF &CC accredited Laboratory for the prevention of fugitive emission from pumps, valve and flange joints.
16. Two stage scrubbers provided to control process emissions from process vents. Further online pH meter provided for continuous monitoring scrubber solutions pH.
17. We have installed Auto sampler at the final discharge of premises to collect composite sample of treated effluent.



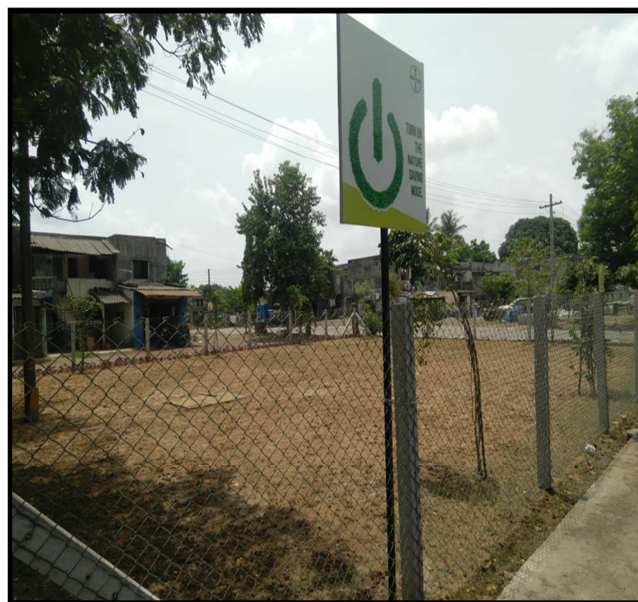
Auto Sampler



Leak Detection and Repair (LDAR) Study



Tree Plantation by Employees on World Environment Day



Cleaning Outside of company premises on World Environment Day