Pre Feasibility Report

of

URMIT CHEMICALS PVT.LTD.

Survey No. 1384,

Village:Rajpur, Tal: Kadi,

Dist: Mahesana, Gujarat

1. INTRODUCTION

M/s. Urmit Chemicals Pvt. Ltd. proposes to manufacture Dyes intermediates and various dyes at Survey No. 1384, Village: Rajpur, Tal: Kadi, Dist.: Mehsana-382705.

2. Cost of Project:

The estimated costof the project for the proposed new manufacturing project is estimated around Rs. 5.0Crore. Out of this around Rs. 1.5 crores will be invested for pollution control measures.

3. Production Capacity

Production capacity is prescribe below:

List of Products

Sr. No	Name of Products	Total MTPM
(A)	**Dyes Intermediates**	
1.	CHLORANIL	**150**
2.	OAP	
3.	PAP	
4.	MAP	
5.	OAPSA	
6.	Metanilic Acid	
7.	6 Chloro Metanilic Acid	
8.	4 CAP	
9.	4 CAPSA	
10.	4 NAP	
11.	5 NAP (5 NITRO 2 AMINO PHENOL)	
12.	6 NAPSA	
13.	4 NAPSA	
14.	6 CAPSA	
15.	2 PYRIDONE	
16.	1:3 PHENYL METHYL 5 PYRAZOLONE (PMP)	
17.	1 : 4 Sulpho Phenyl 3 Methyl 5 Pyrazolone (1:4 SPMP)	
18.	2:5 Dichloro 4 Sulpho Phenyl 3 Methyl 5 Pyrazolone (2:5 DCSPMP)	
19.	2 Chloro 5 Sulphophenyl 3 Methyl 5 Pyrazolone (2, 5 C	
20.	1,3 Sulpho Phenyl 3 Methyl 5 Pyrazolone (1:3 SPMP)	
21.	2 Chloro Phenyl Methyl 5 Pyrazolone	
22.	P.T. Phenyl Methyl 5 Pyrazolone	
(B)	**Dyes**	
❖	**Acid Dyes**	**100**
1.	Acid Yellow 79	

Sr. No	Name of Products	Total MTPM
2.	Acid Yellow 151	
3.	Acid Yellow 49	
4.	Acid Yellow 99	
5.	Acid Yellow 194	
6.	Acid Yellow 220	
7.	Acid Yellow 232	
8.	Acid Brown 75	
9.	Acid Brown 165	
10.	Acid Brown 161	
11.	Acid Brown 282	
12.	Acid Brown 432	
13.	Acid Brown 425	
14.	Acid Brown 432	
15.	Acid Green 16	
16.	Acid Blue 9	
17.	Acid Blue 15	
18.	Acid Blue 7	
19.	Acid Blue 113	
20.	Acid Blue 193	
21.	Acid Red 315	
22.	Acid Black 107	
❖	**Direct Dyes**	
23.	Direct Black 80	
24.	Direct Yellow 11	
25.	Direct Brown 44	
26.	Direct Blue 71	
27.	Direct Orange 118	
28.	Direct Red 239	
29.	Direct Red 254	
30.	Direct Violet 35	
31.	Direct Red 81	
32.	Direct Violet 9	
33.	Direct Yellow 99	
34.	Direct Black 19	
❖	**Reactive Dyes**	
35.	Reactive Blue 198	
36.	Reactive Blue 187	
37.	Reactive Blue 220	
38.	Reactive Blue 221	
❖	**Basic Dyes**	**50**
39.	Basic Brown 1	
40.	Basic Yellow 2	
41.	Basic Violet 1 Crystal	
42.	Basic Green 4 Crystal	
43.	Basic Green 1 Crystal	
44.	Basic Blue 26 Crystal	

Sr. No	Name of Products	Total MTPM
❖	**Basic Dyes Liquid**	**100**
45.	Basic Yellow 2	
46.	Basic Violet 1	
47.	Basic Green 4	
48.	Basic Green 1	
49.	Basic Blue 26	
	Total	**400**

List of Raw Material

Sr. no.	Product name	Raw Material Name	Quantity MT/MT
Dyes Intermediates			
1	Chloranil	HCl 30% (SPENT)	1.000
		Hydro quinone	0.450
		Chlorine Gas	1.136
2	OAP (Ortho Amino Phenol)	ONCB	1.480
		Caustic Lye	0.850
		H2 Gas	0.060
		Catalyst	0.004
		HCl	0.040
3	PAP (Para Amino Phenol)	PNCB	1.480
		Caustic Lye	0.850
		H2 Gas	0.060
		Catalyst	0.004
		HCl	0.040
4	MAP (Meta Amino Phenol)	Metanilic Acid	1.590
		NaOH	0.750
		Catalyst	0.004
5	Ortho Amino Phenol Sulphonic Acid (OAPSA)	OAP	0.580
		H2SO4	0.520
		Oleum 23%	0.425
6	Metanilic Acid	Nitro benzene	0.720
		Oleum (25%)	0.425
		H_2SO_4	0.520
		HCl (30%)	0.100
		Iron Powder	0.125
7	6 Chloro Metanilic Acid	ONCB	0.920
		H_2SO_4	0.520
		Oleum	0.425
		Iron Powder	0.125
		HCl	0.100
8	4-Chloro 2-Amino Phenol (4 CAP)	2:5 DCNB	1.350
		Caustic	0.300
		Iron powder	0.125

		HCl	0.100
9	4 Chloro-2-Amino Phenol 5-Sulphonic Acid (4 CAPSA)	4 CAP	0.650
		Sulphuric Acid	0.520
		Oleum	0.425
10	4 NAP	NaSH	0.515
		Lime	0.220
		2:4 DNCB	1.400
		NaOH	0.300
11	5 NAP	OAP	0.725
		Acetic Anhydride	0.675
		HNO_3	0.450
		H_2SO4	0.850
		H2 Gas	0.080
12	6 NAPSA	OAP	0.470
		Oleum (23%)	0.800
		HNO_3	0.270
		H_2SO4	0.550
13	4 NAPSA	Lime	0.220
		NaSH	0.515
		4 Nitro Chloro Benzene	0.700
		Oleum	0.800
		HNO3	0.270
		H2SO4	0.550
14	6 CAPSA	2 Chloro Phenol	0.580
		Oleum	0.800
		HNO_3	0.270
		H2SO4	0.550
		Iron Powder	0.125
		HCl	0.100
15	2 Pyridone	Mono Ethyl Amine	0.400
		Methyl Cyno Acetate	0.525
		Methyl Aceto Acetate Ester	0.660
		H_2SO_4	3.600
16	1:3 Phenyl Methyl 5 Pyrazolone (PMP)	Aniline	0.435
		HCl	4.700
		NaNO2	0.330
		Sodium Bi Sulphite	1.160
		Soda Ash	1.550
		Methyl Aceto acetate ester	0.525
17	1,4 Sulpho Phenyl-3-Methyl-5-Pyrazolone (1:4 SPMP)	Sulfanlic Acid	0.536
		HCl	3.142
		NaNO2	0.218
		SBS	0.804
		Soda Ash	1.035
		Methyl Aceto Acetate Ester	0.347
18	2,5 Dichloro 4 Sulfo	2,5 Dichlror Aniline	0.500

	Phenyl 3 Methyl 5 Pyrazolone (DCSPMP)	HCl	1.607
		NaNO2	0.221
		SBS	0.696
		Soda Ash	0.500
		Caustic Soda Lye	0.714
		Methyl Aceto Acetate Ester	0.339
19	2 Chloro 5 Sulphophenyl 3 Methyl 5 Pyrazolone	6 Chloro Metanilic Acid	0.750
		HCl	2.400
		NaNO2	0.265
		SBS	1.150
		Soda Ash	0.850
		Caustic Soda Lye	0.450
		Methyl Aceto Acetate Ester	0.420
20	1, 3 Sulpho Phenyl 3 Methyl 5 Pyrazolone (1:3 SPMP)	Metanilic Acid	0.536
		HCl	2.140
		NaNO2	0.217
		SBS	0.800
		Soda Ash	1.035
		Methyl Aceto Acetate Ester	0.346
21	2 Chloro Phenyl 3 Methyl 5 Pyrazolone	Ortho Chloro Aniline	0.500
		HCl	2.980
		Sodium nitrite	0.275
		Sodium Bi Sulphite	0.972
		Soda Ash	1.311
		Methyl Acetoacetic Ester	0.410
22	Para Toluene Phenyl Methyl 5 Pyrazolone	Para Toludine	0.415
		HCl	2.950
		NaNO2	0.270
		Sodium Bi Sulphite	0.965
		Soda Ash	1.300
		Methyl Acetoacetic Ester	0.435
Acid Dyes			
1	Acid Yellow 79	DAP ESTER	0.400
		H_2SO4	0.540
		Soda ash	0.250
		5-Amino-3- methyl-1-(3-sulfophenyl) pyrazole	0.390
		Caustic flakes	0.060
		Common Salt	0.650
2	Acid Yellow 151	OPSAmide	0.500
		Hydrochloric Acid	0.112
		Sodium Nitrite	0.184
		Aceto Acetanilide	0.483
		Caustic Lye	0.210
		Soda Ash	0.250
		Cobalt Sulphate	0.415
		Common Salt	0.650

3	Acid Yellow 49	2, 5 Dichloro Sulfanilic Acid	0.500
		HCl	0.800
		Sodium Nitrite	0.155
		5-Amino PMP	0.400
		Common Salt	0.775
4	Acid Yellow 99	4 NAPSA	0.285
		HCl	0.110
		Nitrite	0.085
		Acetoacetinilide	0.222
		Caustic Flakes	0.052
		Soda Ash	0.135
		Salicylic Acid	0.185
		BCS	0.380
		Caustic Flakes	0.145
		Common Salt	0.550
5	Acid Yellow 194	4-NAPSA diazo	0.550
		HCl	0.430
		sodium nitrite	0.165
		Acetoacetanilide	0.435
		Caustic Lye	0.100
		Cobalt Sulphate, 20%	0.325
6	Acid Yellow 220	Anthranilic OAPSA	0.500
		HCl	0.087
		Nitrite	0.112
		O Cl Acetoacetinilide	0.350
		Caustic Flakes	0.070
		Soda Ash	0.240
		Cobalt Sulfate	0.230
		BCS	0.050
7	Acid Yellow 232	5 Sulfo Anthranilic Acid	0.233
		Hydrochloric Acid	0.125
		Sodium Nitrite	0.160
		1-Phenyl 3 Methyl 5 Pyrozolone	0.410
		Soda Ash	0.250
		Salicylic Acid	0.040
		Basic Chromium Sulfate	0.400
		Sulphuric Acid	0.136
8	Acid Brown 75	Picramic acid	0.192
		Hydrochloric acid	0.675
		Sodium Nitrite	0.095
		Caustic lye	0.090
		Resorcinol	0.096
		H-Acid	0.278
		Soda ash	0.346
		Sodium nitrite	0.170
		PNA	0.113

		Common Salt	0.550
9	Acid Brown 165	Picramic acid	0.192
		Hydrochloric acid	0.675
		Sodium Nitrite	0.265
		Caustic lye	0.090
		Resorcinol	0.096
		H-Acid	0.278
		Soda ash	0.346
		PNA	0.113
		Ferrous Sulphate	0.260
		Common Salt	0.550
10	Acid Brown 161	Anthranilic acid	0.190
		Sulphuric acid	0.190
		Formaldehyde	0.080
		Nitrite	0.100
		Resorcinol	0.170
		Caustic Flakes	0.200
		Aniline 2,4 SO3H	0.190
		HCl	0.180
		Sodium Nitrite	0.090
		Soda Ash	0.350
		Salicylic Acid	0.050
		B.C.S	0.200
11	Acid Brown 282	6-Nitro	0.200
		Beta Napthol	0.100
		Caustik Flakes	0.100
		Salicylic Acid	0.065
		B.C.S.	0.180
		4NAP	0.175
		HCl	0.033
		Nitrite	0.095
		PMP	0.200
12	Acid Brown - 432	Anthranilic Acid	0.180
		HCl	0.210
		Nitrite	0.180
		Resorcinol	0.150
		Soda Ash	0.330
		Laurent Acid	0.300
		Salicylic Acid	0.160
		Chromium Fluoride	0.160
		Liquid Ammonia	0.300
		Caustic Flakes	0.030
13	Acid Brown 425	Anthranilic acid	0.149
		HCl	0.115
		Nitrite	0.150
		Resorcinol	0.117
		Soda Ash	0.330

		O.T. 5 SA.	0.220
		Salicylic Acid	0.105
		B.C.S.	0.320
		Caustic Flakes	0.035
14	Acid Brown - 434	Sodium Picramate	0.267
		HCl	0.645
		Nitrite	0.070
		Resorcinol	0.096
		1,6 cleave acid	0.205
		Sodium Nitrite	0.060
		Caustic Lye	0.135
		Ferrous Sulphate	0.260
		Common Salt	0.550
15	Acid Green 16	Di Methyl Aniline	0.600
		Formaldehyde	0.220
		Sulphanilic Acid	0.010
		Soda Ash	1.030
		MnO2	0.400
		Napthaline	0.400
		Sulphuric Acid	1.050
		Oleum	0.450
		NapthaleneDisulphonic Acid	0.750
		Sodium dichromate	0.110
		Oxalic Acid	0.160
		Common Salt	0.650
16	Acid Blue 9	Ethyl Benzyl Aniline Sulphonic Acid	0.750
		Ortho Benzaldehyde sulphonic Acid	0.275
		H2SO4	0.600
		Soda Ash	0.400
		HCl	0.750
		MNO2	0.150
		Acetic Acid	0.300
		Common Salt	0.800
17	Acid Blue 15	Ethyl Benzyl Aniline Sulphonic Acid	1.090
		Di Ethyl meta Toludine	0.210
		H2SO4	0.600
		SODA ASH	0.400
		HCl	0.750
		MNO2	0.150
		Acetic Acid	0.300
		Common Salt	0.800
18	Acid Blue 7	Benzaldehyde Disulfonic Acid	0.330
		Ethyl benzyl aniline	0.380
		H_2SO_4	0.600

		Soda Ash	0.150
		HCl	0.350
		MNO_2	0.150
		Soda Ash	0.250
		HCl	0.400
		Acetic Acid	0.300
		Common Salt	0.800
19	Acid Blue 113	Metanillic Acid	0.300
		HCl	0.120
		Sodium Nitrite	0.070
		Alpha Napthyl Amine	0.240
		Nitrite	0.050
		H2SO4	0.250
		Caustic Flakes	0.200
		Phenyl peri Acid	0.490
		Soda Ash	0.200
		Sodium Acetate	0.300
		Common Salt	0.800
20	Acid Blue 193	B Napthol	0.350
		Caustic Lye	0.245
		1,2,4 Diazo	0.690
		Salicylic Acid	0.050
		BCS	0.240
21	Acid Red 315	4 NAPSA	0.225
		HCl	0.250
		Nitrite	0.136
		PMP	0.320
		Caustic Flakes	0.200
		Salacylic Acid	0.040
		BCS	0.350
		5 NAP	0.138
22	Acid Black 107	6 Nitro	0.480
		Beta Napthol	0.120
		Caustic Flakes	0.300
		Salacylic Acid	0.045
		ChromuimFormate	0.400
		Sodium Picramate	0.200
		HCl	0.250
		Nitrite	0.080
		Beta Napthol	0.245
Direct Dyes			
23	Direct Black 80	P- amino acetanilide	0.145
		Sodium Nitrite	0.315
		HCl	0.750
		Gamma Acid	0.430
		Soda Ash	0.790
		Caustic soda	0.215

		Mixed cleves acid	0.195
		Common Salt	0.550
24	Direct Yellow 11	PNTOSA	0.600
		Caustic lye	0.215
		Spent H2SO4 (70%)	0.500
		Common Salt	0.650
25	Direct Brown 44	MPD	0.405
		Sodium Nitrite	0.258
		HCl	0.400
		Sulphanilic Acid	0.300
		CS Lye	0.220
26	Direct Blue 71	C-Acid	0.165
		HCl	0.700
		Sodium Nitrite	0.445
		Alpha Napthyl Amine	0.170
		Caustic Flake	0.080
		Mix Cleave Acid	0.330
		J acid	0.250
		Caustic Lye	0.060
27	Direct Orange 118	O - Toludine 5 Sulphonic Acid	0.250
		HCl	0.375
		Sodium Nitrite	0.095
		Sodium bi-carbonate	0.050
		J-Acid Urea	0.350
		Common Salt	0.650
28	Direct Red 239	Browner's acid	0.250
		caustic lye	0.100
		Sodium Nitrite	0.095
		HCl	0.550
		J-Acid Urea	0.292
		Sodium Bi Carbonate	0.250
29	Direct Red 254	PAABSA	0.400
		Sodium Nitrite	0.100
		Soda ash	0.300
		HCl	0.550
		J-Acid	0.350
		caustic soda lye	0.150
30	Direct Violet 35	C-Acid	0.330
		HCl	0.700
		Sodium Nitrite	0.294
		p-Cresidine	0.150
		Soda Ash	0.100
		n-Phenyl J-Acid	0.327
		Caustic lye, 48%	0.300
31	Direct Red 81	PAABSA	0.350
		HCl	0.300
		Caustic lye 48%	0.260

		Na2CO3	0.100
		Benzyl Chloride	0.150
		Sodium Acetate	0.160
		J acid	0.280
		Common Salt	0.650
32	Direct Violet 9	Sulphanilic acid	0.180
		HCl	1.000
		Sodium Nitrite	0.294
		p-Cresidine	0.150
		SodaAsh	0.075
		n-Phenyl J-Acid	0.327
		Caustic lye, 48%	0.148
33	Direct Yellow 99	DNSDA	0.550
		Para anisidine	0.245
		Caustic lye	0.157
		HCl	0.260
		Salt	0.500
34	Direct Black 19	PNA	0.210
		HCl	1.080
		Sodium Nitrite	0.180
		H acid	0.245
		Soda Ash	0.185
		Sodium Nitrite	0.180
		MPD	0.155
		SD-40	0.020
Reactive Dyes			
35	Reactive Blue 198	Cyanuric Chloride	0.220
		Soda ash	0.150
		Tamol	0.010
		Aniline 2:4 DSA	0.320
		Soda Bi Carb	0.120
		Blue HEGN-Base	0.400
		HCl	0.120
		Dicamol	0.045
36	REACTIVE BLUE 187	EtheyleneDiamine	0.250
		PNCBOSA	0.230
		HCl	0.800
		HCl	0.315
		Sodium sulphite	0.085
		Chloronail	0.175
		Sodium bicarbonate	0.160
		Sulphuric Acid	0.650
		Oleum	0.300
		Ammonium persulphate	0.150
		Cyanuric Chloride	0.200
		Aniline 2,5 disulphuric acid	0.260
		Nicotinic acid	0.250

		Dicamol	0.055
		Dedusting Oil	0.025
37	Reactive blue 220	Sulpho OAVS	0.650
		HCl	0.325
		Sodium Nitrite	0.130
		CS Lye	0.125
		Sulphamic acid	0.004
		Soda Ash	0.275
		4-Sulpho Hydrazone	0.450
		Copper sulphate	0.350
		Soda Bi Carbonate	0.195
		Dicamol	0.070
		SD-40	0.030
38	REACTIVE BLUE 221	6-Acetyl OAPSA	0.250
		CS Lye	0.055
		HCl	0.800
		Sodium nitrite	0.070
		Sulphamic acid	0.002
		Sodium acetate	0.120
		soda ash	0.335
		4-Sulpho Hydrazone	0.350
		Copper sulphate	0.250
		CS Flakes	0.350
		Salt	0.120
		Cyanuric Chloride	0.150
		Tamol	0.020
		N-Ethyl MBE	0.220
		Soda Bi Carb	0.130
		Dicamol	0.055
Basic Dyes			
39	Basic Brown 1	MPD	0.215
		HCl	0.750
		Nitrite	0.300
		MPD	0.430
		Caustic Flakes	0.050
		Common Salt	0.450
40	Basic Yellow 2	Di Methyl Aniline	0.833
		Formaline	0.313
		H_2SO_4	0.100
		T G UREA	1.030
		SULPHUR	0.110
		Common Salt	0.450
41	Basic Violet 1 Crystal	Di Methyl Aniline	0.670
		Para Formaldehyde	0.110
		Mono Ethyl Aniline	0.330
		Catalyst	0.050
		Acetic Acid	0.800

		Caustic Soda	1.000
		HCl	0.330
42	Basic Green 4 Crystal	Di Methyl Aniline	0.800
		Benzaldehyde	0.360
		HCl	0.360
		Acetic Acid	0.600
		Catalyst	0.040
		Ethyl Cellulose	0.080
		Caustic Soda	0.750
		Oxalic Acid	0.600
43	Basic Green 1 Crystal	Di Ethylaniline	1.000
		Benzaldehyde	0.330
		Acetic Acid	1.460
		Catalyst	0.050
		Caustic Soda	0.800
		H2SO4	0.600
44	Basic Blue 26 Crystal	Di Methyl Aniline	0.450
		Para Formaldehyde	0.075
		Phenyl Alpha naphthalamine	0.415
		Acetic Acid	0.750
		Catalyst	0.020
		Caustic Soda	1.000
		H2SO4	0.600
45	Basic Yellow 2 Liquid	Di Methyl Aniline	0.270
		Formaline	0.100
		H_2SO_4	0.050
		Acetic Acid	0.225
		Glycerine	0.033
		T G Urea	0.335
		Sulphur	0.035
46	Basic Violet 1 Liquid	Di Methyl Aniline	0.330
		Para Formaldehyde	0.050
		Mono Ethyl Aniline	0.170
		Catalyst	0.020
		Acetic Acid	0.450
47	Basic Green 4 Liquid	Di Methyl Aniline	0.330
		Benzaldehyde	0.150
		HCl	0.150
		Acetic Acid	0.300
		Catalyst	0.020
		Ethyl Cellulose	0.030
48	Basic Green 1 Liquid	Di Ethylaniline	0.330
		Benzaldehyde	0.110
		Urea	0.040
		Acetic Acid	0.500
		Catalyst	0.020
49	Basic Blue 26 Liquid	Di Methyl Aniline	0.240

		Para Formaldehyde	0.040
		Phenyl Alpha naphthalamine	0.220
		Acetic Acid	0.500
		Catalyst	0.020

4. ManufacturingProcess

Manufacturing process is given as **Annexure – II** in form-1.

5. Details of manpower

Total manpower requirement at all level of plant will be 100.

6. Water Consumption & Waste Water Generation

Sr. No.	Source	Water Consumption Existing (KL/day)	Waste Water generation (KL/day)
1.	**Domestic**	9.0	7.5
2.	**Green Belt**	10.0	--
3.	**Industrial**		
A	Process	45	80
B	Scrubber	14	2.0
C	Washing	25	25
D	Boiler	30	3.0
E	Cooling	45	15
	Total Industrial	**159**	**125**
	Total (1 +2 + 3)	**178**	**132.5**
	Less recycle	**75**	**--**
	Actual fresh water consumption	**103**	**--**

7. Source of Pollution

Details of Air Pollution

There will be 7flue gas stacks,which will the main emission source from the plant under the Air Pollution Control Act, 1981. Cyclone followed by bag filter will be provided on flue gas stack as APCM. Process emission will be from spray dryers, process vent attach to reaction vessel of multipurpose plant (2 Sets) and reaction vessel of Chloranil. Proper Stack height & APCM will be provided in order to achieve norms prescribed by statutory authority.The details of stacks are given below:

Source of Air Emissions

Flue Gas Stack						
Sr. No.	**Stack attached to**	**Stack Height in m**	**Fuel Used**	**Fuel consumption rate**	**APC measure**	**Pollutant**
1	Steam Boiler (1 TPH)	21	Coal	4 TPD	Cyclone followed by bag filter	PM<150 mg/NM^3 SO_2<100 ppm NO_x<50 ppm
2	Steam Boiler (2 TPH)	21	Coal	8 TPD	Cyclone followed by bag filter	
3	Hot air generator (5.0 lac Kcal/hr)	21	Coal	3 TPD	Cyclone followed by bag filter	
4	Hot air generator (10.0 lac Kcal/hr)	30	Coal	6 TPD	Cyclone followed by bag filter	
5	Hot air generator (25.0 lac Kcal/hr)	30	Coal	15 TPD	Cyclone followed by bag filter	
6	Thermic fluid heater (25 lac Kcal/hr.)	30	Coal	15 TPD	Cyclone followed by bag filter	
7	DG Set (Stand By) (500 kVA)	11	HSD	100 Liter/Hr	--	
Process gas Stack						
8	spray dryer-1 (For Product Recovery) 20 KL/Day	15	--	--	Cyclone + Scrubber + Sub merged type gas bubbling tank	PM<150 mg/NM^3
9	Spray Dryer-2 (For Effluent) (40 KL/Day)	21	--	--		PM<150 mg/NM^3
10	Spray Dryer-3 (For Effluent) (40 KL/Day)	21	--	--		PM<150 mg/NM^3
11	Reaction Vessels of Multipurpose Plant – 2 sets	21	--	--	Alkaline Scubber	SO_2<40 mg/NM^3
12	Reaction Vessel of Chloranil	11	--	--	Water Scubber	HCl<20 mg/NM^3

Source and disposal of waste water

Effluent from Dyes plant will be treated in ETP-1 followed by RO, RO permeate will be reused again. Effluent from dye intermediate will be treated in ETP -2 along with RO reject and after that the entire effluent will be spray dried in spray dryer. Domestic sewage will be disposed of through a septic tank and soak pit system. Hence, Unit will maintain **"Zero Liquid Discharge"**

Source and disposal of Hazardous wastes

There will be Ten sources of Solid/hazardous waste generation. ETP Sludge & salt from Spray Dryer will be disposed off to approve TSDF site. Iron sludge will be sold to the cement plant or disposed off to approve TSDF site. HCl will be reused within premises. Spent sulfuric Acid will be reused within process and partly sold to actual users. Calcium Thio Sulphite, Acetic Acid, Sodium Bisulphite will be sold to actual user. Used/ Spent oil will be sold to actual users and Containers/Barrels&liners will be sold to registered recyclers. The details of Solid/hazardous waste are given below:

Sr. No.	Type of Solid Waste	Schedule	Quantity	Disposal method
1	ETP Waste Salt from Spray Dryer	35.3	150.0 65.0 **215.0**	Collection, storage & disposal at TSDF site approved by GPCB.
2	HCl (20-22%)	26.3	52 MT/month	Collection, Storage and captive use in the plant premises.
3	Spent Sulphuric acid (H_2SO_4)	26.3	780 MT/month	Collection, Storage, Reuse with in the process or sold to actual users.
4	Iron sludge	26.1	52 MT/month	Collection, Storage, Transportation, sell to cement manufacturer or disposed at TSDF site.
5	Calcium Thio Sulphite	--	78 MT/month	Collection, Storage, Transportation, sell to actual users under Haz. Waste rule.
6	Acetic Acid	26.3	104 MT/month	Collection, Storage, Reuse with in the process or sold to actual users under Haz. Waste rule.
7	Sodium Bisulphite	26.3	260 MT/month	Collection, Storage, Reuse with in the process or sold to actual users under Haz. Waste rule.

8	Used Lubricating Oil	5.1	0.5 Kl/year	Collection, storage & use within premises as lubricant/sell to registered recycler.
9	Discarded containers/ barrels/ liners	33.1	Barrels-10000 nos./month Liner-1.0 Mt/month	Collection, storage and reuse for packing of products or disposal by selling to approved recycler.
10	Spent catalyst	28.2	0.5 MT/month	Collection, storage &return back to supplier for regeneration.

8. FUNDS FOR POLLUTION CONTROL MEASURES

The management is quite conscious of its responsibility for maintaining clear environment adequate funds can be provided for the pollution control measures as financing part of overall project.Necessary provision for Environmental management system is in practice.

9. MONITORING FACILITIES

Air sampling will be done by outside agency and will be part of practice in future projects.

10. CONCLUSION

On the basis of information presented in the pre-feasibility report on pollution control measures and after its implementation, there will be no discharge of effluent and air emission from the plant beyond the norms specified by the Board as per the provisions of Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution).