

EXECUTIVE SUMMARY

M/s. Aarti Industries Limited (Apple Organics Division) first obtained CCA order 3431, issued on 16/08/2004. Further it was extended by CCA order no. AWH-73091 dated 14/09/2015 for manufacturing of Synthetic Organic products mentioned in below table no.1. Now the unit wants to go for proposed expansion in same plant at Plot No. 609/610, 100 shed area, GIDC Estate, Vapi, Valsad, Gujarat 396 195. The proposed products are mentioned in Table no. 2.

M/s. Aarti Industries Limited is a fast growing basic organic chemical manufacturing group. The group turnover is around Rs. 5000 crores. The group has several small, medium and large scale industries at various locations. The locations include Vapi, Sarigam, Jhagadia, Dahej, Kutch Etc. in Gujarat and Tarapur at Maharashtra. Aarti Industries Limited is having state of art R&D facilities centrally located at Vapi. One of the important task of R&D is finding green chemistry routes for existing as well as proposed products. After developing the products, the group requires pilot scale facilities at pilot scale scaling of operation is carried out, plant parameters are established and product approvals are undertaken. M/s. Aarti Industries Limited (Apple Organics Division) is a pilot scale facility of M/s. Aarti Industries Limited here various facilities are established to carryout following unit operations like:

- Chlorinated Process
- Hydrogenation/Reduction Process
- Nitration Process
- Nitro Anisole Process
- Fluorination Process
- De-Nitro Chlorination Process
- Ammoniation Process
- Bromination & Deamination Process
- Sulphanation Process
- Alkylation Process
- Dehalgenation Process
- Condensation Process
- Cyclization Process

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- Esterfication
- Diazotisation Process
- Acetylation & Hydrolysis Process

Once products are optimized for manufacturing process and market, the technical know how is passed on to sister concern group companies and at M/s. Aarti Industries Limited (Apple Organics Division) new products are started. Thus the project proponant has proposed to carry out various products based on above unit operations. The names of products may get change at several intervals.

(Based on effluent load production will be controlled)

List of proposed products is mentioned in table no.1 As per EIA notification 2006, the proposed expansion is falling under category 5(f).

TABLE NO 1:

LIST OF PRODUCTS AS PER CCA AWH-73091

Sr. No.	Name of Product	Quantity in MT per Month
1.	Para Chloro Aniline OR	20
2.	3,4 Di Chloro Aniline OR	18
3.	2,5 Di Chloro Aniline OR	18
4.	Mix of 3,4 DCA & 2,3 DCA OR	18
5.	Ortho Anisidine OR	20
6.	Para Toludene OR	20

TABLE NO 2:

LIST OF PROPOSED PRODUCTS

Sr. No.	List of Process	Quantity (MT/Month)
1.	CHLORINATED PROCESS AND/OR	100
1.1	Mono Chloro Benzene, Ortho Di Chloro Benzene, Para Di Chloro Benzene AND/OR	
1.2	123,124 Tri Chloro Benzene-(Benzene) AND/OR	
1.3	Para Nitro Toluene (2chloro 4 Nitro toluene) AND/OR	
1.4	Mono Dichloro Benzene AND/OR	
1.5	Ortho chloro toluene / Para chloro toluene AND/OR	
1.6	6-Chloro 2-Nitro Toluene 4-Chloro 2-Nitro Toluene AND/OR	

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1.7	Pivalyl Chloride AND/OR
1.8	2-Ethyl Hexanyl Chloride AND/OR
1.9	Iso Nonyl Chloride AND/OR
1.10	2,4,6 Trichloro Aniline (TCAN) AND/OR
1.11	2, 6 – Dichloro para nitro aniline (2,6 DCPNA) AND/OR
1.12	Any other similar products from process
2.	HYDROGENATION/REDUCTION PROCESS AND/OR
2.1	Ortho Toludene AND/OR
2.2	M- O & Para Chloro Aniline AND/OR
2.3	3,4-2,3-2,5 dichloro Aniline AND/OR
2.4	3,4 & 4,4Diamino Diphenyl Ether AND/OR
2.5	Di Floro Benzene (1-3) AND/OR
2.6	Mixing of 2, 4 / 2, 5 DCA AND/OR
2.7	Mixing of 2, 5 / 2, 6 DCA AND/OR
2.8	Mixing of 2, 4 / 2, 5 / 2, 6 DCA AND/OR
2.9	2,4 Dichloro Aniline / 2,6 DiChloro Aniline / 3,5 DiChloro Aniline AND/OR
2.10	2,4,5 Trichloro Aniline AND/OR
2.11	Meta / Ortho / Para Phenylene Di Amine AND/OR
2.12	3,4 Diamino Diphenyl Ether / 4,4 Diamino Diphenyl AND/OR
2.13	Ether AND/OR
2.14	Ortho / Para / Meta Anisidine AND/OR
2.15	Chloro Fluoro Aniline AND/OR
2.16	Ortho / Para /Meta Cumidine AND/OR
2.17	Para /Meta Amino Phenol AND/OR
2.18	Toludines AND/OR
2.19	Aniline AND/OR
2.20	Para / Meta / Ortho Floro Aniline AND/OR
2.21	Di Floro Aniline (1:3) AND/OR
2.22	4-Floro-N-Isopropyl Aniline AND/OR
2.23	4-Chloro-NIsopropyl Aniline AND/OR
2.24	2 Methoxy 4 Nitro Aniline (Scarlet R - from partial hydrogenation of 24 Dinitro Anisole) AND/OR
2.25	2,4 Di Amino Anisole AND/OR
2.26	N-N Disec Butyl PPDA AND/OR
2.27	Meta Xilidine AND/OR
2.28	4 Chloro 2,5 Dimethoxy Aniline AND/OR
2.29	N,N Di Sec terteary butyl para phenylene Diamine AND/OR
2.30	DCBH (Di Chloro Benzene Hydro chloride) AND/OR
2.31	3,5/2,6 DFA (Di Flouro Aniline) AND/OR

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2.32	Di Anisidine AND/OR
2.33	OT Base AND/OR
2.34	Any other similar products from process
3.	NITRATION PROCESS AND/OR
3.1	3-4,2-3,2-5,2,4 Dichloro N Benzene AND/OR
3.2	Di Chloro Di Fluoro Nitro Benzene AND/OR
3.3	Ortho Nitro Chloro Benzene/ Para Nitro Chloro Benzene/ Meta Nitro Chloro Benzene AND/OR
3.4	2,4 Di Nitro Chloro Benzene AND/OR
3.5	2,4,5 Tri Chloro Nitro Benzene/ 2,3,4 Tri Chloro Nitro Benzene AND/OR
3.6	4-Nitro N-methyl Phthalimide AND/OR
3.7	2 EHN (Ethyl Hexanol Nitration) AND/OR
3.8	Any other similar products from process
4.	NITRO ANISOLE PROCESS AND/OR
4.1	Ortho Nitro Anisole AND/OR
4.2	Para Nitro Anisole AND/OR
4.3	2,4-Di Nitro Anisole AND/OR
4.4	2 Methoxy 5 Chloro Nitro Benzene (from 25 DCNB) AND/OR
4.5	Any other similar products from process
5.	FLUORINATION PROCESS AND/OR
5.1	Para Fluoro Nitro Benzene AND/OR
5.2	Di Fluoro Nitro Benzene AND/OR
5.3	Any other similar products from process
6.	DE-NITRO CHLORINATION PROCESS AND/OR
6.1	2,6Di Chloro Fluoro Benzene AND/OR
6.2	2,6 Di Chloro-benzonitrile AND/OR
6.3	Di Chloro Di Fluoro Benzene AND/OR
6.4	Meta Dichloro Benzene AND/OR
6.5	2,4 Difluoro Chloro Benzene AND/OR
6.6	2,4 Dichloro Fluoro Benzene AND/OR
6.7	1,3 Dichloro 4,6 Difluoro Benzene AND/OR
6.8	Para Fluoro Chloro Benzene AND/OR
6.9	Ortho Fluoro Chloro Benzene AND/OR
6.10	Any other similar products from process
7.	AMMONIATION PROCESS AND/OR
7.1	Di Chloro Ortho Nitro Aniline AND/OR
7.2	Ortho Nitro Aniline-Para Nitro Aniline AND/OR
7.3	Any other similar products from process
8.	BROMINATION&DEAMINATION PROCESS AND/OR
8.1	345Tri Fluoro Bromine Benzene
8.2	2 Bromo 4 Fluoro Acetanilide AND/OR
8.3	Di Chloro Bromo Benzene AND/OR

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8.4	Any other similar products from process	
9.	SULPHANATION PROCESS AND/OR	
9.1	4B Acid AND/OR	
9.2	Any other similar products from process	
10.	ALKYLATION PROCESS AND/OR	
10.1	Methyl Ethyl Aniline AND/OR	
10.2	Any other similar products from process	
11.	DEHALGENATION PROCESS AND/OR	
11.1	1,3 Di Fluoro Benzene AND/OR	
11.2	Any other similar products from process	
12.	CONDENSATION PROCESS AND/OR	
12.1	Di Nitro Di Phenyl Ether AND/OR	
12.2	Any other similar products from process	
13.	CYCLIZATION PROCESS AND/OR	
13.1	Di Amino Phenyl Benzimidazole AND/OR	
13.2	Para flouro Anisol AND/OR	
13.3	Quinalphose (TECH) (Diethyl 2-Hydroxy Thiophosphoryl Chloride) AND/OR	
13.4	Any other similar products from process	
14.	ESTERFICATION AND/OR	
14.1	Ester AND/OR	
14.2	Any other similar products from process	
15.	DIAZOTISATION PROCESS AND/OR	75
15.1	25&23Di Chloro Phenol AND/OR	
15.2	-3,5 Di Chloro Nitro Benzene AND/OR	
15.3	Para Flouro Phenol (PFP) AND/OR	
15.4	Any other similar products from process	
16.	ACETYLATION & HYDROLYSIS PROCESS AND/OR	20
16.1	Meta Nitro Para Anisidine AND/OR	
16.2	Meta Nitro Para Toluidene AND/OR	
16.3	Any other similar products from process AND/OR	
	Total	100 MT/Month or 75 MT/Month or 20MT/Month
17.	BY PRODUCTS	
17.1	30% Hydrochloric Acid	202
17.2	Spent Acid	327
17.3	Aluminum Oxide (Al ₂ O ₃)	4
17.4	Sodium Chloride (NaCl)	44.5
17.5	Ortho Nitro Phenol (ONP)	3.5
17.6	Calcium Chloride (CaCl ₂) solution	149
17.7	Potassium Chloride (KCL)	187.5
17.8	Acetic Acid (CH ₃ COOH)	10
	Total	927.5

COST OF PROJECT

The expansion will be carried out at existing plot located in GIDC. The expected cost of proposed expansion is Rs. 500 Lacs. The total plot area of the unit is 1752 sq. m. The existing green belt area is approx. 183 sq. m. After expansion, the green belt area will be remaining same.

FUEL & ELECTRICITY CONSUMPTION

As per consent

As per consent, the unit is using 1MT/day of furnace oil as fuel for Boiler. The existing electricity load is 125 KVA from DGVCL.

Proposed scenario

Natural gas of 894 SCM/Hr. will be used in boiler instead of furnace oil. The unit is proposing 3 stacks from reactors out of which 2 stacks will be connected to water scrubber followed by alkali scrubber and the other one stack will be connected to water scrubber followed by acid scrubber.

The existing electricity consumption is 125 KVA and electricity consumption due to proposed expansion will be 125 KVA. Total electricity requirement after proposed expansion will be 250 KVA.

WATER CONSUMPTION

As per consent

The source of water is GIDC. In the existing scenario, the unit is using 18 KLD fresh water for industrial and domestic purpose.

Proposed scenario

For proposed expansion, the unit has proposed 32 KLD of water consumption. The total fresh water consumption after expansion will be 50 KLD.

WASTE WATER GENERATION, TREATMENT & DISPOSAL

As per consent

As per consent, the industrial effluent generation is 4.5 KLD and sewage generation is 2 KLD.

Existing effluent is treated in ETP having primary, secondary and tertiary treatment. Treated water is sent to CETP.

Proposed scenario

Due to proposed expansion, additional total industrial effluent generation will be 15.5KLD. Hence, after expansion total industrial effluent generation will be 20 KLD (4.5 KLD existing + 15.5 KLD

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proposed). Due to proposed expansion, additional sewage generation will be 2 KLD. Hence, after expansion sewage generation will be 4 KLD (2 KLD + 2 KLD).

Existing and proposed effluent will be treated in unit's own ETP. In which existing waste water is treated in Effluent treatment plant and after treatment, treated water is sent to CETP - Vapi Waste & Effluent Management Co. Limited. The Membership Letter is attached as Annexure- XI. We will discharge additional quantity of effluent in CETP .

GASEOUS EMISSION

As per consent:

FLUE GAS EMISSION

As per CCA order no. AWH- 73091, the unit has one stack of boiler having 11 m height.

Now, the unit has proposed one D.G set of 250 KVA. Thus there will be proposed one D.G set stack having height 11 m.

PROCESS EMISSION

There is no process gas emission stack in existing unit.

The unit is proposing 3 stacks from reactors out of which 2 stacks will be connected to water scrubber followed by alkali scrubber and the other one stack is connected to water scrubber followed by acid scrubber.

HAZARDOUS WASTE MANAGEMENT

As per consent

As per CCA order no. AWH-73091, the hazardous waste generation are ETP waste (1 MT/Year), Used oil (10 Lit/Year), Discarded containers/Bags (1000/Year), Process waste (2.4 MT/Year).

ETP waste, Process waste containing organics complex are disposed to TSDF/CHWIF. Used oil is reused in unit itself and Discarded Container/Bags are disposed by sold to authorize recyclers.

Proposed scenario

After proposed expansion, hazardous waste generation details will be ETP waste (300 MT/Year), Distillation Residue (240 MT/Year), Used oil (50 Lit/Year), Discarded containers/Bags (1000 Nos/Year), Spent Carbon (0.5 MT/Month). Spent Catalyst (5 MT/Year) and Insulation waste (what so ever generated).

ETP waste, Distillation Residue will be disposed to TSDF. Used oil will be sold to registered reprocessor and Discarded Container/Bags will be sold to authorize recyclers. Spent catalyst and spent carbon will be sent for co-processing.