



State Level Environment Impact Assessment Authority-Karnataka

(Constituted by MoEF, Government of India, under section 3(3) of E(P) Act, 1986)

No. SEIAA 15 IND 2015

Date: 13-07-2015

To,

Shri. Ajay Bhardwaj
Chairman & Managing Director
M/s. Anthem Biosciences Private Limited
Plot No. 49, Bommasandra Industrial Area Phase-I
Bengaluru-560 099

Sir,

Sub: Establishment of unit for manufacture of Formulation based products, Drug & Drug based Intermediates, Fermentation based products & Custom Synthesis products at Plot Nos. 276 & 277 of KIADB Harohalli Industrial Area Phase-II, Kanakapura Taluk, Ramanagar District M/s. Anthem Biosciences Private Limited - Issue of Environmental Clearance - Reg.

This has reference to your application dated 10th June 2013 addressed to SEIAA, Karnataka and subsequent letters addressed to SEIAA/SEAC, Karnataka seeking prior environmental clearance for the above project under the EIA Notification, 2006. The proposal has been appraised as per prescribed procedure in the light of the provisions under the EIA Notification, 2006 on the basis of the mandatory documents enclosed with the application viz., the Application in Form 1, Risk Assessment Report, material balance of each proposed drug, project report for manufacture of proposed drugs and the additional clarifications furnished in response to the observations of the SEAC, Karnataka.

2. The proposal is for manufacturing of Formulation based products, Drug & Drug based Intermediates, Fermentation based products & Custom Synthesis products & their capacities listed in the annexure:

3. It is, inter-alia, noted that M/s. Anthem Biosciences Private Limited has proposed for manufacture of Formulation based products, Drug & Drug based Intermediates, Fermentation based products & Custom Synthesis products. The total plot area is 49,115 Sqm, out of which 7,527 Sqm area is for roads, 16,493 Sqm area is for green belt and 25,090 Sqm is ground coverage of building.



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other utilities. The built up area is 45,000 Sqm. Total water consumption is 360 KLD will be met from KIADB supply & Recycled water, out of which 60 KLD for domestic purpose, 200 KLD for process, Floor washings and R&D lab, 90 KLD for boiler feed & Cooling make up and 10 KLD for scrubber. Power requirement is 4800 KW sourced from BESCO. DG set of 3 Nos. X 2000 KVA capacity will be installed for emergency power back-up. It is proposed to install 2 Nos. X 4.5 TPH, 1 No X 2 TPH capacity of Furnace oil Fired Boiler and 12 TPH Stand by Boiler Biomass fired Boiler, Thermic fluid heaters of 4 Nos. X 2lakhs kilo cal/hr. The total cost of the project is Rs.97 Crores.

4. The wastewater generation will be 312KLD, out of which 178 KLD will be the Low TDS effluent such as floor, equipment, laboratory washings & reject from process, 80 KLD will be the High TDS effluent such as raw water treatment plant, scrubbers, reject from RO plant effluent and reject from process, 54 KLD will be the domestic sewage. The industrial effluent and domestic sewage shall be treated in the proposed ETP of capacity 200 KLD followed by Multiple Effect Evaporator (MEE) and STP of capacity 60 KLD respectively. The solid waste generated are paper, cardboard & wooden boxes of 1000 Kg/month will be disposal by sale, organic garbage of 47 Kg/day will be converted to soil conditioner and used as manure for green belt within the premises, garbage of 31 Kg/day will be disposed off to KIADB/BBMP, STP sludge of 2 Kg/day will be used as manure for green belt within in the premises and fermentation based process (from Insulin & Thiamine Pyrophosphate) of 1160 Kg/day will be sent for composting to Karnataka Compost Development Corporation. The hazardous waste generated will be sold to authorized re-processors/recyclers and the hazardous waste generated are HDPE bags of 4000 Kg/annum, Polythene bags of 400 kg/annum, PVC containers assorted sizes of 2000 Nos/annum, glass bottles of assorted sizes of 1000 Nos/annum, MS/Drums of raw materials of 1000 Nos/annum and used oil/lubricant from DG sets & machinery of 4 KL/annum shall be sent to KSPCB authorized recyclers/ re-processors/incinerators.

5. The project proposal has been considered by SEAC on 28th & 29th June 2013 and ToRs were issued on vide letter dated 23rd July 2013 for conducting Environment Impact Assessment Study. The EIA has been conducted by M/s. Rightsource Industrial Solutions Pvt. Ltd., Plot No.203, H.No.5-36/203, Prashanthi Nagar, Kukatpally, Hyderabad- 500072 who are accredited from NABET vide Sl.No. 127 dated 12/05/2012.

6. Based on the information submitted by you and the presentation made by Environmental consultant M/s. Rightsource Industrial Solutions Pvt. Ltd., Plot No.203, H.No.5-36/203, Prashanthi Nagar, Kukatpally, Hyderabad- 500072. The State Level Expert Appraisal Committee (SEAC) examined the proposal during the meeting held on 23rd May 2015 and has recommended for issue of Environment Clearance.



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7. The SEIAA Karnataka has considered the project in its meeting held on 30th May 2015 and after due consideration of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations and the appraisal and recommendation of the SEAC, have accorded environmental clearance as per the provisions of Environmental Impact Assessment Notification-2006 and its subsequent amendments, subject to strict compliance of the terms and conditions as follows:-

Part A- SPECIFIC CONDITIONS

1. National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G.S.R. 608(E) dated 21st July, 2010 and amended time to time shall be followed by the unit.
2. The total effluent generation shall not exceed 360 KLD. The industrial effluent and domestic sewage shall be treated in the proposed ETP of capacity 200 KLD followed by Multiple Effect Evaporator (MEE) and STP of capacity 60 KLD respectively.
3. In proposed ETP, aeration lagoon to be replaced by a tank to prevent ground water contamination due to leakage from unlined lagoons. Also, stripper has to be introduced before aeration tank.
4. Total water requirement shall not exceed 360 KLD and shall be met from KIADB supply & Recycled water and prior permission shall be obtained from the concerned Authority. No ground water shall be used.
5. The process emissions from the boiler shall be dispersed through stack of adequate height as per CPCB/KSPCB standards. The gaseous emissions from the DG set shall be dispersed through stack height as per CPCB standards shall be provided. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.
6. Ambient air quality data shall be collected as per NAAQES standards notified by the Ministry vide G.S.R. No. 826(E) dated 16th September, 2009. The levels of PM₁₀, SO₂, NO_x, VOC and HCl shall be monitored in the ambient air and emissions from the stacks and displayed at a convenient location near the main gate of the company and at important public places. The company shall upload the results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MoEF - Bangalore, SEIAA - Karnataka, the respective zonal office of CPCB and the KSPCB.
7. The company shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MoEF - Bangalore, SEIAA - Karnataka, the respective zonal office of CPCB and the KSPCB. The levels of SPM, RSPM, SO₂, NO_x and VOC (ambient levels) and emissions from the stacks shall be monitored and displayed at a



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convenient location near the main gate of the company and at important public places.

8. The Company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 for management of hazardous wastes and prior permission from KSPCB shall be obtained for disposal of solid / hazardous waste to the TSDF. The concerned company shall undertake measures for firefighting facilities in case of emergency.
9. In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. The emissions shall conform to the limits stipulated by the KSPCB.
10. Hazardous chemicals shall be stored in tanks in tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm. Solvent transfer shall be by pumps.
11. The company shall undertake following Waste Minimization measures :-
 - a. Metering and control of quantities of active ingredients to minimize waste.
 - b. Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
 - c. Use of automated filling to minimize spillage.
 - d. Use of Close Feed system into batch reactors.
 - e. Venting equipment through vapour recovery system.
 - f. Use of high pressure hoses for equipment clearing to reduce wastewater generation.
12. For control of fugitive emission following steps shall be followed:
 - a. Closed handling system shall be provided for chemicals.
 - b. Reflux condenser shall provide over reactor.
 - c. System of leak detection and repair of pump/pipeline based on preventive maintenance.
 - d. The acids shall be taken from storage tanks to reactors through pump. The storage tanks shall be vented through trap receiver and condenser operated on chilled water.
Cathodic protection shall be provided to the underground solvent storage tanks.
13. Solvent management shall be as follows:
 - a. Solvent used in the process shall be completely recovered and reused.



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- b. Efforts are to be made to recover inorganic salts.
 - c. Reactor shall be connected to chilled brine condenser system.
 - d. Reactor and solvent handling pump shall have mechanical seals to prevent leakages.
 - e. The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% recovery.
 - f. Solvents shall be stored in a separate space specified with all safety measures.
 - g. Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.
 - h. Entire plant shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.
 - i. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. The emissions shall conform to the limits imposed by KSPCB.
14. No effluent shall be discharged outside the factory premises and "Zero" discharge concept shall be adopted.
15. Multi-cyclone followed by bag filter shall be provided to the boilers to control particulate emissions within 100 mg/Nm³. The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/ APPCB guidelines.
16. Two stage chilled water/caustic scrubber shall be provided to process vents to control HCL. Two stage scrubbers with caustic lye media solution shall be provided to process vents to control SO₂. The scrubbing media shall be sent to effluent treatment plant (ETP) for treatment. Efficiency of scrubber shall be monitored regularly and maintained properly. At no time, the emission levels shall go beyond the prescribed standards.
17. As proposed spent carbon shall be sent to cement industries. ETP sludge, process (inorganic & organic) & evaporation salt shall be disposed off to the TSDF for land filling / incineration. The ash from boiler shall be sold to brick manufacturers.
18. Boiler ash shall be stored separately as per CPCB guidelines so that it shall not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with the storm water. Direct exposure of workers to fly ash & dust shall be avoided.
19. During transfer of materials, spillages shall be avoided and gulland drains be covered to avoid mixing of accidental spillages with domestic water and storm water.
20. The Company shall harvest surface as well as rainwater from the rooftops of the buildings and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.



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21. The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting systems shall be as per the OISD 117 norms.
22. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
23. Usage of PPEs by all employees/ workers shall be ensured.
24. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
25. Green belt shall be developed in at least 33% of area with suitable species of the plants as per the CPCB guidelines to mitigate the effects of fugitive emissions. Selection of plant species shall be as per the CPCB guidelines.
26. The adequate financial provisions shall be made in the budget of the project for implementation of the above suggested environmental safeguards. Fund so earmarked shall not be diverted for any other purposes.
27. The company shall comply with the recommendations made in the EIA/EMP/Risk assessment report. Risk assessment shall be included in the safety Manual.
28. Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile sewage treatment plant, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project. All the construction wastes shall be managed so that there is no impact on the surrounding environment.
29. Avoids bromination processes (wherever followed)
30. Recovers Lithium salts from the effluents wherever Lithium compounds are used in the reactions.
31. Treatment of recalcitrant's to be documented and kept at all times.
32. Adopts Good Management Practices (GMP) & Green Chemistry.
33. The proponent shall spend Rs-100 Lakhs over a period of 10 years towards healthcare, providing drinking water facilities & sanitation, promotion of education etc., to nearby villagers the Corporate Social Commitment made vide letter dated 24th June 2015 and report be submitted to the Authority.
34. The Project authorities also shall earmark at least 5% total cost of the project towards the corporate social responsibility and item-wise details along with time bound action plan shall be prepared and submitted to the Authority.

B. GENERAL CONDITIONS:

1. The project authorities shall strictly adhere to the stipulations made by the Karnataka State Pollution Control Board (KSPCB).



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2. At no time, the emissions shall exceed the prescribed limits. In the event of failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.
3. No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA/Ministry of Environment and Forests as the case may be. In case of deviations or alterations in the project proposal from those submitted to this Authority for clearance, a fresh reference shall be made to the Authority to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
4. The gaseous emissions (NO_x , SO_2 and SPM) and Particulate Matter along with RSPM levels from various process units shall conform to the standards prescribed by the concerned authorities from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. Stack monitoring for SO_2 , NO_x and SPM shall be carried.
5. The project authorities shall strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October 1994 and January 2000. All transportation of Hazardous Chemicals shall be as per the MVA, 1989. Authorization from the KSPCB shall be obtained for collection, treatment, storage, and disposal of hazardous wastes.
6. The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization from the KSPCB must be obtained for collection/treatment/ storage/disposal of hazardous wastes.
7. Application of solar energy should be incorporated for illumination of common areas, lighting for gardens and street lighting in addition to provision for solar water heating. A hybrid system or fully solar system for lighting and heating should be provided. Details in this regard should be submitted to the SEIAA.
8. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, Rules, 1986 i.e. 85 dBA (day time) and 70 dBA (night time).
9. The project proponent shall also comply with all the environmental protection measures and safeguards as per the information provided.
10. The implementation of the project vis-a-vis environmental protection shall be monitored by MoEF, Regional Office at Bangalore & KSPCB.



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MoEF, Bangalore/ Department of Ecology and Environment, Bangalore/
Regional Officer, KSPCB Bangalore.

20. In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Authority.
21. The Authority reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environment (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
22. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the competent authorities.
23. These stipulations would be enforced among others under the provisions of water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.
24. Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the project proponent if it is found that construction of the project has been started without obtaining environmental clearance.



Yours faithfully,


(RAMACHANDRA)
Member Secretary,
SEIAA - Karnataka.

Copy to:

- 1) The Secretary, Ministry of Environment & Forests, Government of India, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi-110003.
- 2) The Member Secretary, Karnataka State Pollution Control Board, Bangalore.
- 3) The APCCF, Regional Office, Ministry of Environment & Forests (SZ), Kendriya Sadak, IV Floor, E & F wings, 17th Main Road, Koramangala II Block, Bangalore - 560 034.
- 4) Guard File.

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CPCB and the Department of Environment & Ecology, Bangalore. A six monthly compliance status report shall be submitted to monitoring agencies.

11. The project proponent shall inform the public that the project has been accorded environmental clearance by the SEIAA and copies of the clearance letter are available with the KSPCB and may also be seen at Website of the Authority at <http://www.seiaa.kar.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the MoEF Regional Office at Bangalore / KSPCB/ CPCB and the Department of Environment & Ecology, Bangalore.
12. The project authorities shall inform the MoEF Regional Office at Bangalore / KSPCB/ CPCB and the Department of Ecology and Environment, Bangalore, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
13. The SEIAA, Karnataka may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
14. The SEIAA, Karnataka reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.
15. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 Hazardous Wastes (Management and Handling) Rules, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.
16. The issue of Environment Clearance doesn't confer any right to the project proponent to operate / run the project without obtaining statutory clearances / sanctions from all other concerned Authorities.
17. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environmental (Protection) Act, 1986.
18. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
19. Officials from the Department of Environment and Ecology, Bangalore/ Regional Office of MoEF, Bangalore who would be monitoring the implementation of Environmental safeguards should be given full cooperation, facilities and documents/ data by the project proponents during their inspection. A complete set of all the documents submitted to MoEF / SEIAA should be forwarded to the APCCF, Regional Office at



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Annexure to Environment Clearance letter No. SEIAA 15 IND 2013 dated 13-07-2015

List of Proposed Products & Their Capacities are as follows:-

Sl. No	Drug Name	Quantity in TPA *	Sl. No	Drug Name	Quantity in TPA
ENZYMES (Formulation Based Products)					
1	Alpha Amylase	1	16	Alpha Galactosidase	16
2	Alpha Amylase I.P	1	17	Lactase	16
3	Bacterial Alpha Amylase (1:10000 to 13000)	3	18	Beta glucanase	16
4	Papain	15	19	Cellulase	16
5	Papain I.P	15	20	Lipase	16
6	Pepsin (1:3000 to 10,000)	25	21	Bromelain	16
7	Pancreatin	50	22	Xylanase	16
8	Pancreatin I.P	50	23	Hemicellulase	16
9	Fungal Diastase(1:800 to 5500)	100	24	Malt diastase	16
10	Serratiopeptidase	20	25	Invertase	21
11	Serratiopeptidase I.P	20	26	Phytase	21
12	Amylase	16	27	Blend of Amylase, Protease,	1450
13	Protease	16	28	Glucoamylase, Pectinase,	
14	Glucoamylase	16	29	Alpha Galactosidase, Lactase,	
15	Pectinase	16	30	Beta glucanase, Cellulase, Lipase, Bromelain, Xylanase, Hemicellulase, Malt diastase, Invertase, Papain, Phytase.	
TOTAL QUANTITY OF ENZYMES = 2000 TPA					
PROBIOTICS (Formulation Based Products)					
Sl. No.	Drug Name	Quantity in TPA	Sl. No.	Drug Name	Quantity in TPA
1	Lactic Acid Bacillus (2B to 10B)	33	16	Bacillus licheniformis	9
2	Lactobacillus acidophilus	1	17	Bacillus mesentericus	0.25
3	Lactobacillus rhamnosus	1	18	Bacillus subtilis	
4	Lactobacillus plantarum	1	19	Bifidobacterium bifidum	1.2
5	Lactobacillus casei	1	20	Bifidobacterium breve	
6	Lactobacillus reuteri	1	21	Bifidobacterium infantis	
7	Lactobacillus bulgaricus	1	22	Bifidobacterium lactis	
8	Lactobacillus paracasei	1	23	Bifidobacterium longum	
9	Lactobacillus helveticus	1	24	Clostridium butyricum	
10	Lactobacillus fermentum	1	25	Enterococcus faecium	



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11	Lactobacillus lactis	0.5	26	Pediococcus acidolactici	0.5
12	Lactobacillus gasseri	0.5	27	Saccharomyces Boulardii	0.5
13	Bacillus Clausii (2B)	0.25	28	Saccharomyces Boulardii 20B	2
14	Bacillus Clausii	0.25	29	Saccharomyces cerevesiae	24
15	Bacillus cereus	0.25	30	Streptococcus faecalis	0.5
				Streptococcus thermophiles	0.5

TOTAL QUANTITY OF PROBIOTICS = 100 TPA

PREBIOTICS (Formulation Based Products)

Sl. No	Drug Name	Quantity in TPA	Sl. No	Drug Name	Quantity in TPA
1	Insulin	2	2	Fructooligosaccharides (FOS)	8

TOTAL QUANTITY OF PREBIOTICS = 10 TPA

EXTRACTS (Formulation Based Products)

Sl. No.	Drug Name	Quantity in TPA	Sl. No	Drug Name	Quantity in TPA
1	Grape seed extract	60	6	Resveratrol	2
2	Green tea extract	40	7	Ginseng extract	20
3	Grape skin extract	6	8	Cranberry extract	1
4	Bilberry extract	1	9	Baicalin	30
5	Catechins	40			

TOTAL QUANTITY OF EXTRACTS IN TPA = 200 TPA

NUTRITIONAL SUPPLEMENTS (Formulation Based Products)

Sl. No	Drug Name	Quantity in TPA	Sl. No	Drug Name	Quantity in TPA
1	Omega 3 fatty acid (DHA 12 to 40: EPA 10 to 33)	95	3	EnQ-10	1
2	CoQ-10	4			

TOTAL QUANTITY OF NUTRITIONAL SUPPLEMENTS IN TPA = 100 TPA

VITAMINS (Formulation Based Products)

TOTAL QUANTITY OF VITAMINS IN TPA = 5 TPA

CHEMICAL SYNTHESIS BASED PRODUCTS

Sl. No.	Products	Total Quantity
01	Pimozide	
02	Phenoxy Benzylamine	100 kg
03	Tolcopone	180 kg



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04	Resargin	5 TPA*
05	Anatabine	240 KPA
06	L- Methyl Folate	1 TPA
07	Orlistat	15 TPA
08	MK7 (Vitamin)	600 KPA
09	MK4 (Vitamin)	30 TPA
10	Ibuprofen Piconol	5 TPA
11	Levopiperastine Fendizoate	10 TPA
12	PRO Q - 10	10 TPA
13	Valganciclovir Hydrochloride	5 TPA
14	Pyridoxal - 5 - Phosphate (P5P)	10 TPA
15	Custom Synthesis of Organic products from R & D & Pilot plants	15 TPA
16	Gamma-Glutamyl-Cysteine (GGC)	10 TPA
17	Pyrolo Quinolene Quinone (PQQ)	60 TPA

FERMENTATION BASED PRODUCTS

Sl. No.	Products	Total quantity
01	Tacrolimus	24 KPA**
02	Sitrolimus	12 KPA
03	Human Insulin	600 KPA
04	Caspofungine	10 KPA
05	Serra Peptidase	6 TPA*
06	Thiamine Pyro Phosphate / Diphosphate (Dietary Supplement)	2 TPA

Note: *TPA is Tons per annum. Note: **KPA is Kilograms per annum




 (RAMACHANDRA) 23/7/15
 Member Secretary,
 SEIAA - Karnataka.