



TAMIL NADU POLLUTION CONTROL BOARD

PUBLIC NOTICE

Whereas as per Ministry of Environment and Forests, Government of India, New Delhi, Environmental Impact Assessment Notification Number S.O.1533 dated 14.09.2006, Public Hearing at the site or in its close proximity-district wise, to be carried out in the manner prescribed in Appendix-IV for ascertaining concerns of local affected persons for the projects covered in Schedule of the said Notification.

Whereas the Public Hearing at or in close proximity to the site has to be conducted by the State Pollution Control Board concerned in the specified manner as per Paragraph 7(III) sub Para (iii) and Appendix-IV of the said Notification.

District Magistrate or his or her representative not below the rank of Additional District Magistrate assisted by a representative of State Pollution Control Board shall supervise and preside over the entire Public Hearing process as required under Para 7 of Appendix-IV of the said Notification.

Whereas as required Public Hearing is proposed to be conducted by Tamil Nadu Pollution Control Board for the following project on the date, time and venue as mentioned below for ascertaining concerns of local affected persons.

Name of the project	Location of the Project	Date	Time	Place
M/s. Kings India Chemicals Corporation Ltd., Distillery unit.	Vadaseri Village., Orathanadu Taluk, Thanjavur District.	09.04.2010	03.00 P.M.	Project site, Vadaseri, Orathanadu Taluk, Thanjavur District.

In this connection, it is informed that the draft Rapid Environmental Impact Assessment (REIA) report and Executive Summary in English and Tamil is made available for public reference at the following places till the Public Hearing date.

1. Ministry of Environment & Forests, Government of India, Paryavaran Bhavan, C.G.O.Complex, Lodhi Road, New Delhi-110003..
2. Office of the District Collector, Thanjavur District, Thanjavur.
3. Office of the District Panchayat, Thanjavur.
4. Office of the District Industries Centre, Thanjavur.
5. Ministry of Environment & Forests, Regional Office (Southern Zone), Kendriya Sadan, 4th Floor, E&F Wing, 17th Main Road, II Block, Koramangala, Bangalore-560 034.
6. Office of the Assistant Environmental Engineer, Tamil Nadu Pollution Control Board, No3., 4 th Cross Street, Sri Ram Nagar, Reddipalayam Road, Thanjavur-613 004.

7. Office of the Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
8. Office of the Secretary to Government, Environment & Forests Department, Fort St. George, Chennai-600 009.
9. Office of the Panchayat Union, Orathanadu , Thanjavur District.

A representative of the applicant will initiate the proceeding with a presentation on the project and the summary Rapid Environmental Impact Assessment (REIA) report.

Every person present at the venue will be granted the opportunity to seek information or clarification on the project from the applicant. The summary of the Public Hearing proceedings accurately reflecting all the views and concerns expressed will be recorded and read over to the audience at the end of the proceedings explaining the contents and agreed minutes will be forwarded.

The proceedings of the Public Hearing will be displayed at the following places.

1. Office of the District Collector, Thanjavur District, Thanjavur.
2. Office of the District Panchayat, Thanjavur.
3. Office of the Assistant Environmental Engineer, Tamil Nadu Pollution Control Board, No.3, 4th Cross Street, Sri Ram Nagar, Reddipalayam Road, Thanjavur-613 004.
4. Office of the Panchayat Union, Orathanadu , Thanjavur District.
5. Website of TNPCB. viz: www.tnpcb.gov.in.

Comments, if any on the proceedings may be sent directly to the Ministry of Environment & Forests, Government of India, Paryavaran Bhavan, C.G.O. Complex, Lodhi Road, New Delhi-110003 and to the Chairman, M/s. Kings India Chemicals Corporation Ltd., New No. 272, Avvai Shanmugam Salai, 2nd Floor, Gopalapuram, Chennai 600 086.

Other concerned persons having a plausible stake in the environmental aspects of project or activity can send their response/views in writing to the Tamil Nadu Pollution Control Board, Thanjavur (or) Ministry of Environment & Forests, Government of India, New Delhi

Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai.

Project Description

M/s. Kings India Chemicals Corporation Ltd. has proposed to manufacture Industrial Alcohol (Rectified spirit) and the plant is proposed to be located in Vadaseri Village, Orathanadu Taluk, Thanjavur District of TamilNadu State which is situated on Thanjavur- Tiruchy State Highway.

The industry proposes to manufacture 36 lakh litres of alcohol per month. The alcohol is planned to be synthesized by the Eco-Fine continuous fermentation process from Cane Molasses and Hi-Ferm fermentation process from Grain. The project proponent has acquired 20.8 Acres for establishing the unit.

The infrastructural facilities will utilize about 4.8 acres of land, while the remaining area of about 16.0 acres will be utilised for Green Belt Development and for further expansion of project.

Description of the Environment

The Project site is located in Vadaseri Village, Orathanadu Taluk, Thanjavur District. The total geographical area of Thanjavur district is 3396.57 Sq. km. According to 2001 census, the population of the district is 22, 05,375 including 10, 91,557 men and 11, 13,818 women.

The main occupation of the people of Thanjavur district is agriculture. The chief crops are paddy, sugarcane, and coconut.

The objective of selecting the project site in Thanjavur district is due to the availability of raw material (Molasses/ Tapioca Flour) at a closer proximity. The other benefits include the following:

- The land is available at a stretch and is also fairly leveled.
- The site contains copious supply of underground water and also fairly leveled.
- The soil of the site is clayey.
- No habitation exists within the proposed site hence displacement and rehabilitation of people is not involved.
- The site is devoid of any forest land and ecologically sensitive areas like bird sanctuaries or monuments of historical importance.

Anticipated Environmental Impacts & Mitigation Measures

The major project activities can broadly be categorized under construction and operational phase of the project implementation. The anticipated environmental impacts related to this project and proposed Mitigation measures are summarised below:

Air

During construction phase, the major air pollutant of prime concern is SPM/ RPM and as impacts of other emissions such as SO₂, NO_x, and HC will not be significant because the nature of

sources is such that the emissions are distributed spatially and as well as temporarily. The prevailing SPM/ RPM concentrations are high; however the construction activity of the project is not a major contributor to it.

During operational period, as power availability will be for more than 95% of the time, DG sets shall be used very rarely for backup power.

Incinerator Boiler is the major source of air emission during the operation phase. The flue gas generated from the boiler will contain fine suspended particulates which are passed through bag filters and dispersed into the atmosphere through a stack of 64 m height. The characteristics of flue gas at the outlet of chimney will be well within the National Ambient Air Quality standards specified by Central Pollution Control Board.

Hence, the resultant impact on the air environment will be negligible.

Noise

The ambient noise levels in the neighbourhood of project site in general were found not exceeding the permissible day and night equivalents (Leq). Replacing electricity-operated machinery on the site mitigates the noise emitted from heavy-duty construction equipments.

During operational period the major noise pollution source will be DG sets- in case of power failure and traffic activity inside as well as on the approach roads. In order to prevent adverse noise exposure to the employees and surrounding public optimal mix of mitigation measures such as low noise generation units, acoustic enclosures, and proper maintenance of utilities and process machineries in the critical area will be adopted. The noise generated from the proposed distillery will have negligible impact on the environment.

Water environment

The project site currently has three bore wells. The demand of water will be met from the bore-wells located within the project premises.

Waste Management

Solid waste generation at project site will mainly be contributed by predominantly packing materials, plastic containers and sludge from effluent treatment plant, apart from ash residue from the incinerator boiler. The waste management would focus on segregation of waste at source. Packing materials and plastic materials will be segregated and sold to vendors. The dewatered sludge from the effluent treatment plant will be used as a cheap fertilizer in garden along with the ash residue generated from the incinerator boiler.

Environmental monitoring Programme

An environmental quality monitoring programme which will assess the quality of ambient air, water and noise level before the execution of the project, during the construction phase and during the operation phase will be implemented to quantitatively authenticate the environmental performance of the proposed project.

Project Benefits

The proposed project will create direct and indirect employment to the educated, skilled and unskilled community residing around the project zone. This will ultimately improve the amenities, infrastructure and develop the socio-economic status of the people residing in and around the project zone.

Environmental Management Plan

Air Pollution

The Major air pollutant emissions from the proposed plant will be from DG sets and Boiler containing SPM, SO_x, NO_x, etc.

Diesel Generator

The Industry has proposed to meet the entire power demand from its captive power plant. During power shut down from the captive power plant, the industry has proposed to utilise 3 Nos. of 550 KVA Diesel Generator sets for meeting the lighting and other essential power requirements of the Industry. Each Generator will be utilising about 112kg/hour of Diesel oil for generating power and about 8760 m³/h of flue gas will be discharged from each DG set.

In order to disperse the flue gas into the atmosphere without deteriorating the ambient air quality, it is proposed to provide 350 mm Dia x 10.0 m height M.S. stack for each DG set, as per the guidelines laid by TamilNadu Pollution Control Board. The characteristics of flue gas from the DG set are given in Table 6.1.

Incinerator Boiler

The incinerator boiler utilises 100.0 Tons/day of Coal and 354 Tons/day of concentrated Spent wash from evaporator, as fuel for generating 47 Tons/hour of steam to meet various process requirements.

About 84,350 m³/hr of flue gas at 165 deg. C will be generated from the incinerator boiler. The flue gas will be passed through a bag filter to remove the fly ash present in the flue gas and let out through an RCC stack of 1500 mm Dia M.S. stack of 80 m height from ground level. The pollutant level from the top of the stack will be within the Ambient Air Quality standards

specified by the TamilNadu Pollution Control Boards. The characteristic of flue gas from the DG set is given below:

Sources of Air Pollutants, Emission quantities, Characteristics and Control Measures

Sl. No.	Source of Air Pollution	Emission Quantity	Appx. Characteristics		Air Pollution Control Measures
1.	Incinerator Boiler	84,350 m ³ /hr	SO ₂	400 mg/Nm ³	RCC stack of 1500 mm Dia x 80 m height
			NO _x	117 mg/Nm ³	
			SPM	120 mg/Nm ³	
2.	550 KVA D.G sets (2 Nos.)	8760 m ³ /h (each DG set)	SO ₂	797 mg/Nm ³	350 mm Dia x 10.0 m height M.S. stack for each DG set
			NO _x	177 mg/Nm ³	
			SPM	Nil	

Water Pollution & Control Measures

Water Consumption

Water is utilized in the proposed unit for following uses:

- for Process operation
- make-up water for Boiler
- make-up water for Cooling tower
- water for vacuum pump/Decanter
- water for Domestic requirements

The total daily water requirement for the molasses based alcohol production and grain based alcohol production is estimated as 1708 m³/d and 1813 m³/d, respectively.

Wastewater Generation

Wastewater from alcohol production process will be generated from the following sources

- Process wastewater (spent wash)
- Process wastewater (spent lees)
- Blow down from Boiler
- Blow down from Cooling tower
- Regeneration effluent from Softener/DM plant
- Vacuum pump seal water/Decanter washings

- Domestic wastewater from Toilets and canteen facility

In total, about 2088m³/day of wastewater is anticipated to be generated from the molasses based alcohol production and about 1257m³/day of wastewater is anticipated to be generated from the Grains based alcohol production.

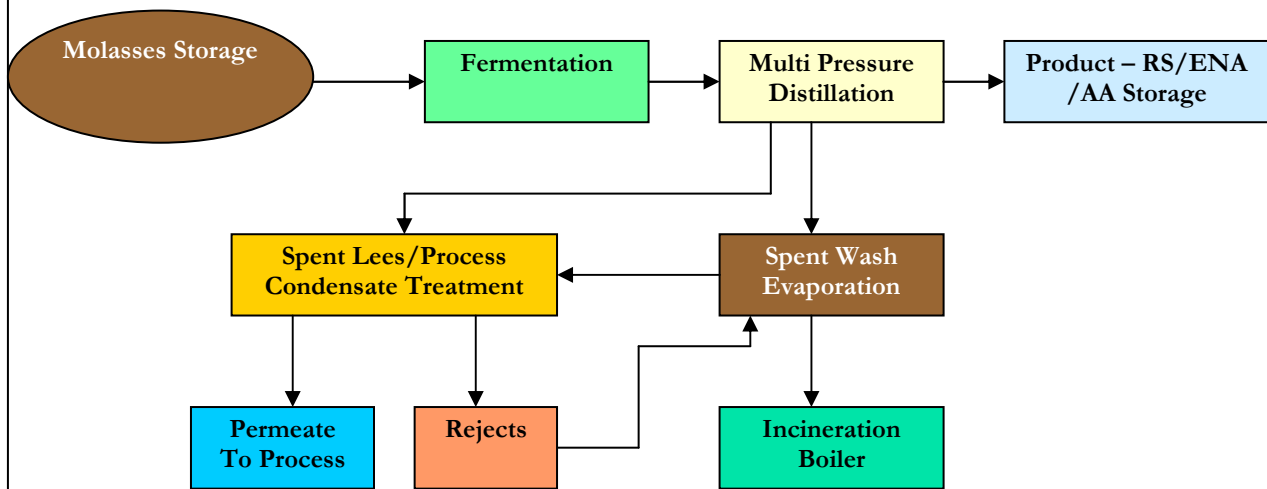
Characteristics of Trade Effluent from Grain based Alcohol Production

S.No.	Parameters	Concentration		
		Process Effluent (Thin Slops)	Combined Effluent from DM/Softener Regeneration/ Boiler blow down/ Boiler Condensate	Combined Effluent from Cooling Tower Boiler blow down/ Vacuum Pump Seal water
1.	Temperature	Ambient	Ambient	Ambient
2.	pH	4.15	5.0 to 8.0	5.0 to 8.0
3.	Colour	Light Milky	Light grey	Light grey
4.	Total Dissolved Solids	6,000 mg/l	< 1500 mg/l	< 1000 mg/l
5.	Total Suspended Solids	800 mg/l	< 100 mg/l	< 100 mg/l
6.	Chloride (as Cl)	N.A.	450 mg/l	200 mg/l
7.	Sulphate (as SO ₄)	N.A.	50 mg/l	20 mg/l
8.	Phosphates (as P)	N.A.	2 mg/l	2 mg/l
9.	COD	65,000 mg/l	< 100 mg/l	< 100 mg/l
10.	BOD at 20°C	40,000 mg/l	< 10 mg/l	< 10 mg/l

Waste Water Treatment

The trade effluent generated from the alcohol production process is segregated as process effluent (spent wash and spent lees) and effluent from utilities like Boiler, Vacuum pump, Decanter washings, DM/Softener plants. It is proposed to implement a Zero Liquid Discharge system for managing the liquid waste from the distillery.

FLOW SHEET OF MOLASSES BASED DISTILLATION PROCESS FOR 120 KLPD TOTAL SPIRIT



Concept of Treatment

The low strength inorganic wastewater generated from the utility plants like Boiler, Vacuum pump, DM/Softener plants will be low in COD, BOD and TDS content. This waste water will be collected separately, filtered and taken for green belt development in an area of 16.22 acres located within the premises. Since the quality of filtered water will be well within the Inland Surface Water disposal standards, it can be safely utilised for green belt development activities.

The high strength wastewater (spent wash) from process plant will be collected, neutralized and taken to multiple effect evaporator for concentrating the spent wash stream. The condensate from the evaporator will be mixed with the spent lees stream and given desalination treatment in a Reverse Osmosis plant. The product water with TDS content less than 100 mg/l will be recycled in cooling tower, resulting in a saving of about 92% of soft water. The reject water from the RO plant will be taken back to the evaporator for concentration, along with spent wash stream.

The concentrate/ syrup from the evaporator will be taken to an Incinerator boiler where the concentrate is mixed with coal and used as fuel.

In the proposed treatment system about 56 % of effluent will be recovered as product water with TDS content less than 100 mg/l, which will be utilised as make-up water in cooling tower. The blow down water from various utilities will be utilised directly for developing green belt within the

industrial premises. Thus, the overall water consumption has been reduced by 40% and there will be no liquid discharge from the distillery plant.

Treatment of High Strength Process Effluent

The high strength wastewater (spent wash) from process plant amounting to 1155 m³/d will be collected, in a two collection ponds each of size 25mx 10mx 3.0m L.D, where it is mixed with the reject water from the RO plant and neutralized with an on-line alkali dosing system before it is taken to multiple effect evaporator for concentration.

Multiple Effect Evaporation - Falling Film and Flubex- Evaporation System

Evaporator Plant for concentration of spent wash is a combination type Falling Film Evaporator system with special spray nozzles and Fluidized beds self cleaning heat exchanger (FLUBEX) developed by PRAJ for scaling liquids. FLUBEX is a shell and tube type heat exchanger with solid wire bits, which get fluidized during liquid re-circulation and remove and scales formed by gentle scouring action.

Process Condensate

The process condensate from the spent wash evaporator amounting to 957m³/d with TDS as low as 20 mg/l, may contain traces of organic contaminants. This water will be mixed with 338m³/d of spent lees stream and taken for two stage Reverse Osmosis plant for water recovery.

Concentrate from Evaporator

The concentrate/ syrup from the spent wash evaporator amounting to 328 TPD containing 55% W/W solids will be used as boiler fuel along with coal in the Incinerator type Boiler, where the organic fraction of the solids in the concentrated spent wash will be completely oxidized leaving behind the inert ash to the tune of 100 TPD.

Recovery of Product Water

The condensate water to the tune of 957m³/d will be mixed with 338 m³/d of spent lees water and taken to two stage R.O plant, for water recovery.

The RO system has been designed for a product water recovery of 90%, which is the highest achievable recovery rate for the given feed conditions. The combined permeate water recovered from the two stage RO plant will be 1165 m³/d, with a TDS content less than 150mg/l and can be directly taken for recycle as cooling tower make-up water.

Treated water Characteristics

Sl. No	Parameter	Concentration			
		Condensate water from Spent wash Evaporator	Spent Water from Process	Lees from	Combined Water for R.O treatment
1.	pH	7.0 – 7.2	7.0 – 7.5	7.0 – 7.5	7.0 – 7.2
2.	Colour	Colourless	Colourless	Colourless	Colourless
3.	TDS	< 20 mg/l	< 1500 mg/l	< 1000 mg/l	< 150 mg/l
4.	TSS	< 10 mg/l	< 10 mg/l	< 10 mg/l	Nil
5.	COD	< 150 mg/l	< 150 mg/l	< 150 mg/l	< 150 mg/l
6.	BOD3 27°C	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 10 mg/l
7.	Oil & Grease	Nil	Nil	Nil	Nil
8.	Flow rate	957m ³ /d	338 m ³ /d	1295m ³ /d	1165m ³ /d

Sewage Treatment

The domestic wastewater to the tune of 9000 Litres /day, generated from the industry will be low strength organic waste water predominantly containing the organic matters in the colloidal form with pathogens and bad odour. This water will be treated by Electro Coagulation method and will be taken to a plate separator to remove the flocculated solids present in the waste water. The clarified waste water will be taken to a degasser tower to strip-off the odour present in the treated water.

The treated water after odour removal from the degasser unit will then be passed through Pressure sand filter, collected and then taken to activated carbon filter for further treatment.

The treated water from sand filter can be collected/stored and used for cooling Tower /toilet flushing/ gardening.

Sl.No	Parameters	Concentration	
		Treated Water	TNPCB Standards
1.	pH	7.0 to 7.5	5.5 to 9.0
2.	Suspended Solids	< 10 mg/l	< 100 mg/l
3.	Total Dissolved Solids	400 to 600 mg/l	< 2100 mg/l
4.	Chemical Oxygen Demand	150 mg/l	< 250 mg/l
5.	Biochemical Oxygen Demand	15 mg/l	< 20 mg/l
6.	Oil& Grease	Nil	< 10 mg/l
7.	Colour	Colourless	Colourless
8.	Odour	Odourless	Odourless

The above water quality is well with in the standards specified by State Pollution Control Board for disposal of treated water into any Inland water body and can be safely utilized for green belt development within the industrial premises.

Solid Waste Management

The solid waste generation from the industry will be from the Incinerator Boiler and effluent treatment plant. The typical waste generation quantities and approximate characteristics are given below:

Quantity of Solid waste, characteristics, handling/storage & disposal method

Sl. No.	Source of solid waste generation	Quantity	Characteristics	Method of Handling Storage	Treatment/ Disposal Method
1.	Incinerator Boiler Residue	5TPD to 100 TPD	Calcium – 15.83% (as CaO) Phosphorus – 39.54% (as P ₂ O ₅) Potassium – 28.47% (as K ₂ O) Chlorides – 16.15%	Mechanised conveyor/ stored in open yard	Sold to vendors as cheap fertilizer
2.	Sewage Treatment Plant	6 kg/d	Aluminium (As hydroxide) - <6% Organics – 74% Moisture – 20%	Mixed with Incinerator Boiler ash	

Noise Environment

Noise Pollution is one of the most pervasive types of pollution and at the same time one of the most easily managed.

The noise from these sources can be eliminated by adopting the following measures.

- Acoustical material suitable for sound absorption, sound attenuation and for vibration damping would be used in combination to reduce noise at source.
- Enclosures should be used to reduce or eliminate noise. The choice of enclosure depends on the amount of noise reduction desired and the acoustical environment in which the source is located.
- Ear muffs and plugs would be provided to workers likely to be exposed to excessive noise.

- Plantation of small and tall trees should be done around the plant area to protect the outside environment from any noise.
- Exposure of workers to high noise levels can also be minimized by job rotations.

Green Belt Development

About 16 acres of land is allocated for development of green belt within the project premises. Treated water from the utilities plant will be utilised for irrigating the plantation.

The plantation shall be as following:

Tall trees and shrubs shall be developed on land adjoining different units within the project premises.

The following are the plant species recommended for the road side plantation.

- (i) Pongamia pinnata
- (ii) Delonix regia
- (iii) Cassia fistula
- (iv) Baunia purpurea

The project authorities are planning to develop Green belt within their factory premises at a width of 5 mtr, all around the boundary.

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