EVALUATING GUIDE FOR
SELECTION & INSTALLATION OF ENERGY EFFICIENT,
RESULT ORIENTED MACHINERIES FOR EFFLUENT / SEWERAGE TREATMENT PLANTS

CONSERVE | RESTORE | RELIVE
A Greener Earth
Vision

To serve the Industries by Innovating New Concepts in the machineries offering the required Results in the field of ETP/STP [with minimum Energy Consumption], creating clean Environment & to be a part in DEVELOPMENT of the Nation by reducing Energy Consumption & preventing GLOBAL WARMING.

Mission

To solve the problems of the Industries by Designing & Manufacturing Machineries of High Quality, Long Lasting, Trouble Free, Result Oriented & Energy Efficient Equipments in the field of ETP/STP and to save the large amount of Energy & Monetary Saving in existing plants.

Environment is a gift of Nature .................................................. Let us preserve it
ENVIRON ENGINEERING COMPANY is a company with a Tradition of Innovation having the manufacturing facility of 40000 sq. ft. area at GIDC Makarpura & GIDC POR - Ramangamdi. At Environ, we manufacture the equipments which are used in Chemical & Biological Treatment in Effluent & Sewage Treatment Plant like : ENERGY EFFICIENT AERATORS, CLARIFIERS, HRSCC, CLARIFIOWTRACTORS, THICKNERS, FLASH MIXERS, STIRRERS, AGITATORS, FLOCCULATORS, API OIL SEPARATORS, etc.

First of all, we have got our own R&D facility wherein we have innovated Aerator which has got more Influence Zone & Oxygen Transfer Efficiency along with maximum Mixing Efficiency. As the Oxygen Transfer Efficiency & Influence Zone is more, the Energy required for Aeration System is less & so saving in Energy.

These Aerators are provided with Special Features like : Machined Base, Solid Shaft, Machining the Impeller at Centre, etc.

Apart from the special features, these Aerators are provided with Dual Impeller. The Top Impeller work for Oxygen Transfer & the Bottom Impeller work as Mixer. Due to which the mixing of the D.O. increases & hence more Oxygen along with mixing is achieved.

The Influence Zone is also more due to High Mixing, hence Energy Saving. Secondly these Aerator works upto 6Mtrs. SWD. We are the only manufacturer in India who are providing the Aerators with Dual Impeller.

These Aerators are practically working in many Industries & they are enjoying the experience of Energy Saving with Guaranteed Results.

---

**LIST OF EQUIPMENTS MANUFACTURED BY ENVIRON**

ENVIRON ENGINEERING COMPANY is the manufacturers of all the equipments which are required for Chemical & Biological Treatment of the effluent like :

<table>
<thead>
<tr>
<th>Name of Equipments</th>
<th>Range of Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Fixed &amp; Floating type Slow Speed Energy Efficient AERATORS</td>
<td>From 2HP to 150HP Rating</td>
</tr>
<tr>
<td>2 Centre, Clarifiers, Clarifiowtractors, Thickners, High Rated Solid Contact Clarifier (HRSCC) Mechanisms.</td>
<td>From 2 Mtr Dia to 25 Mtr Dia</td>
</tr>
<tr>
<td>3 Agitators, Stirrers, Floculators, Mixers, Mechanism in Rubber, Lead, Teflon, Glass, FRP Linings &amp; SS Construction.</td>
<td>From 1/2 HP to 40 HP Rating</td>
</tr>
<tr>
<td>4 API Oil Separator, Top Oil Skimmers (Fully Automatic)</td>
<td>Various for Tank widths upto 5M</td>
</tr>
</tbody>
</table>

---

Save Energy by installing Environ Energy Efficient Aerator
**WHY, NOT GETTING OUTLET RESULTS IN BIOLOGICAL AERATION SYSTEM IN EFFLUENT / SEWERAGE TREATMENT PLANTS?**

Aeration System is the HEART of any Biological ETP / STP & MAXIMUM ENERGY is consumed in Aeration System to reduce the BOD/COD & as this is a NON PRODUCTIVE PLANT the ENERGY used in such SYSTEMS is also a MONETARY WASTE for any INDUSTRY / CETP / STP. So to SAVE such Expenses the INDUSTRY - ETP / CETP / MUNICIPAL CORPORATIONS should enquire whether the invested Capital will work efficiently for a long period of time WITH LOW MAINTENANCE.

There are many Aeration Systems available in the market like Mechanical Aerator i.e. Slow Speed / High Speed / Aspirator / Aerator with Draft Tube Arrangements / Energy Efficient Aerators etc. Diffused Aeration System having many types of Diffusers etc. Jet Aerator, EL02 Aerators etc. & all the manufacturers claim their systems are very efficient. Then why the INDUSTRY - ETP / CETP / STP are facing problems in getting the required results as per the Norms of PCB in these Aeration Systems even after burning the large amount of ENERGY? The reasons are:

The subject is NEW to the end users so they are totally dependent on the Consultants / Experts. The Consultants / Experts design the plants perfectly & they recommend 2 - 3 manufacturers of such Systems. The INDUSTRY / CETP / STP never take the references from the manufacturers of the Systems working efficiently in other plants. They take the project very lightly, but they always forget that this is our MORAL RESPONSIBILITY FIRST & STATUTORY requirement & if the system fails then they will be facing lot of troubles / problems in future, so the INDUSTRIES - ETP / CETP / STP - MUNICIPAL CORPORATIONS / CONSULTANTS / EXPERTS should be very serious before taking any decisions of installing such systems. Generally, such projects are offered on TURNKEY BASIS, in such cases the TURNKEY EXECUTORS always try to purchase the equipments at a low cost to increase their profits, but they are not aware that after finishing Civil, Piping, Electrical work THE FINAL RESULTS IS TO BE ACHIEVED ONLY BY MECHANICAL SYSTEMS. They should Provide the characteristics of the Effluent, design details like dimension ns of Aeration tank etc. & should ask questions to the manufacturers of such systems like:

- Calculations of HP of Aeration System i.e. How the HP of the Aeration System arrived?
- How the manufacturer is giving Guarantee. Does the manufacturer gives the Guarantee of achieving the final out put results OR is he giving the Guarantee only of Oxygen Transfer efficiency at Standard Conditions?
- Had he considered the depth of the Aeration Tank? What steps he will be taking for Aeration tank having more depths than 2.5mtrs?
- Does the manufacturer had TESTED the manufactured Aeration System like OXYGEN TRANSFER & MIXING efficiency which is a MUST in any AERATION SYSTEM?
- If yes then WHERE? Is the manufacturer is capable to SHOW the OXYGEN TRANSFER TEST if required by the INDUSTRY / STP - MUNICIPAL CORPORATION / ETP / EXPERT / CONSULTANT? At the initial Commissioning stage the manufacturer of Aeration System / Turnkey Executors show the handsome results but, after they hand over the plant to the End User say after a period of time of 6 - 10 months the efficiency of the OUT LET Parameters of the effluent getting disturbed (THIS IS DUE TO IN EFFICIENT AERATION SYSTEM) & the End User starts facing the problems of not achieving the RESULTS, & mean time the Guarantee of the equipments is over. None of the END USER who is facing problems in achieving the results WILL DISAGREE with this.

What, if the results are not achieved after a period of time & investing a large amount of capital?

We are in this field since 1979 & we always try first to explain the facts (educate) to the clients & then ask them to take their own decision, in such cases after understanding the Technical Features & their requirement the end users are always in a position to take RIGHT DECISIONS.

In ANY MECHANICAL AERATION SYSTEM APART FROM OXYGEN TRANSFER, MIXING EFFICIENCY IS EQUALLY IMPORTANT the Oxygen Transfer / Mixing Efficiency depends on the Design of the Aerator Impeller. Each & every Aerator Impeller has its own INFLUENCE ZONE & limitations to cater particular depth of say 2.5mtrs. but as per our experience, if the tank depth is more than 2.5mtrs; then there will be settlement at the floor level, which will create septic conditions & the D.O. level reduces & sometimes goes down to ZERO, which all the Aerator Manufacturers, ETP / STP Designers, Consultants, Environmental Engineers, Experts, Turnkey Executors etc. will agree.

Now a days, as due to the space constraint, most of the Aeration Tanks are designed with higher depths. As the depths of the Aeration Tank is more than 2.5mtrs. Environ believes that it is the MORAL DUTY of the Aerator Manufacturer to design the Aerator Impeller accordingly considering the depth of the Aeration Tank, but it is not possible without doing the experiments OR R&D. NONE OF THE MANUFACTURER IN INDIA EXCEPT ENVIRON IS CONSIDERING THE AERATION TANK DEPTH BEFORE MANUFACTURING.)

As the INDUSTRIES - ETP / CETP / STP - MUNICIPAL CORPORATION might not be aware that mostly every manufacturer of the Mechanical Aerators have their standard Design of the Impellers for standard HP e.g. the design of 25 HP Impeller is standard i.e. The Aerator Impeller of 25 HP Installed in the Aeration tank depth of 2.5mtrs, the same Standard Design Impeller is Supplied & Installed in 3mtrs/3.5mtrs/4mtrs/4.5mtrs/5mtrs. It is very simple to understand that every Impeller has its own limitations to offer the results up to particular depth (SIMPLE THEORY OF PUMP SUCTION & DISCHARGE) How the same design of the impeller will be efficient in 2.5mtrs. - 5mtrs? The Impeller which works in 2.5mtrs. will never work in 3mtrs - 4.5mtrs. OR 5mtrs. Depth & due to which SLUDGE IS SETTLED at the FLOOR LEVEL of Aeration Tank. The INDUSTRY - ETP / MUNICIPAL CORPORATION - STP / CETP WHO ARE NOT ACHIEVING the RESULTS CAN CHECK IN THEIR AERATION TANK THERE WILL BE MINIMUM (GUARANTEE OF ENVIRON) 1mtr. / 1.5mtrs. SLUDGE IS SETTLED. If the SLUDGE is settled in Aeration Tank it creates the septic conditions due to which the OXYGEN TRANSFER EFFICIENCY REDUCES & THE D.O. LEVEL WILL BE NEAR TO ZERO, SO RUNNING THE AERATORS IN SUCH CASES IS A WASTE OF ENERGY & MONEY. So in particular cases NOBODY can blame to Consultants / Experts / Designers as the design is properly done. The failure is only due to the Performance / Design of the Aerator, as the MIXING EFFICIENCY of the Aerator Impeller is missing (DUE TO MORE THAN 2.5MTRs DEPTH). This is one of the main & basic reason for not achieving the results in AERATION SYSTEMS &. It also proves the efficiency of the Aerator.

---

**Mr. Jayraj - M.D.**
Environ Engineering Company
09825008442, 09879788102

---

*Environment is a gift of Nature ................................................. Let us preserve it*
WHY DIFFUSED AERATION FAILS IN AERATION SYSTEM?

When Evaluating Aeration System, a total performance & cost of operation analysis is critical. The components of this analysis should include an evaluation of the initial capital cost of system installation, all operating and energy costs, & projected maintenance costs. Also included should be an analysis of how well the systems perform the four basic functions required of all Aerators:

- Provide sufficient Oxygen Transfer to promote biological treatment.
- Provide sufficient mixing to ensure homogeneity of mixed liquor suspended solids & to prevent solids settling.
- Respond to varying process conditions to maximize energy efficiency.
- Provide reliable service, without costly maintenance & downtime, and without reduction in oxygen transfer capability.

A detailed evaluation will quickly reveal that diffused aeration systems (IN INDIA) are able to perform only one basic function reasonably well. On the other hand, the NEW GENERATION of ENVIRON ENERGY EFFICIENT AERATORS accomplishes all four goals exceptionally well - Efficient Aeration.

Excellent Mixing, Operational Flexibility & a Life Expectancy of 12 - 15 years with Minimal Maintenance.

Point to be Consider: Diffused Aeration System have gained popularity based on only one aspect of their performance - they provide high oxygen transfer efficiencies in CLEAN WATER. But, the waste water is not clean. A fine bubble diffused system which performs efficiently in clean water instantly becomes less efficient in waste water. Secondly, Mixing Efficiency is missing in Diffused Aeration System. Over a few months or so, the degrading of Oxygen Transfer Efficiency becomes more pronounced until, eventually, the Diffusers Porous Membranes will need to be cleaned manually. This is an undesirable & time consuming maintenance operation (THE INDUSTRIES - ETP / MUNICIPAL CORPN. - STP / CETP / EXPERTS / PLANT OPERATORS / ENVIRONMENTAL ENGINEERS / TUNERKAY EXECUTORS WHO HAVE FACED SUCH PROBLEMS WILL AGREE WITH THIS).

Surface Aerators, unlike diffusers, never foul, & will provide the same High Oxygen Transfer Rate along with Efficient Mixing with minimum & economical running & also saving in Energy over the life of the equipment.

As the water preserve is more on the Diffusers the Energy consumed to blow air will increase. Hence more energy consumed compared to Mechanical Aeration System.

Secondly, in Diffused Aeration System, as the Blower blows hot air, the temperature of the effluent rises by 5°C to 8°C due to which the Oxygen Transfer Efficiency reduces. While in ENVIRON ENERGY EFFICIENT AERATORS, due to efficient mixing the temperature of the effluent reduces by 10°C to 20°C (DEPENDING ON AMBIENT TEMP.) & hence Oxygen Transfer Efficiency increases.

Secondly, stand by Blowers is required. Noise level is low in our Aerators.

In Foreign countries Aeration System having more depth of Aeration Tank, they use this system but they place the Diffusers at a very short distance (about 220mm, while in India the Diffusers are placed at about 1mtr - 1.5mtrs OR even more distance due to which sludge is settled between two diffusers & the results are not achieved), but if the Diffusers are placed at a short distance as placed in foreign countries, the POWER REQUIRED WILL BE MORE THAN 3-3.5 TIMES THAN THE POWER REQUIRED IN MECHANICAL AERATION SYSTEM. Secondly, if the system is installed as per the recommendation of the manufacturers of foreign countries then the Installation, Operational & Maintenance cost will also increase.

Secondly, the main reason of using Diffused Aeration System in foreign countries, the ambient temperature is TOO LOW due to which the Oxygen Transfer Efficiency increases, but the whole thing is reverse for INDIA.

Being Environmentalist and basically a Design & Development Oriented Organisation, ENVIRON has accepted the challenges of achieving optimal performances of Specially Designed Equipments such as 40HP AGITATOR MECHANISM with 5Mtr. Long unsupported length of Shaft for 18 Mtr. Dia 8 Mtr. high Neutralisation Tank for one GERMAN COMPANY & 4Mtr. Wide Mechanised Bar Screen at KRBHCO.
ENVIROM ACCEPT CHALLENGE TO REDUCE 20% to 70% ENERGY IN EXISTING AERATION SYSTEM

In our R&D, we have designed & developed an Aerator with Dual Impeller, which can offer the results up to 6mts. Aeration Tank Depth. In this Aerator Impeller, we have provided one Impeller at Top, which transfers the Oxygen & the second Impeller is provided at the bottom (Mixer), which works as a mixer, by providing the Impeller at the Bottom, there will be no settlement at the floor level of the Aeration Tank. Secondly, as the mixer is provided at the bottom, the mixing efficiency is increased due to which the Oxygen Transfer Rate increases & the required HP is reduced, hence Energy Saving. We first, in India to introduce ENERGY EFFICIENT AERATORS, which works up to 6Mtrs. SWD, it is purely an INDIAN TECHNOLOGY having very simple & low maintenance assembly. These Aerators offers an excellent opportunity to reduce the operating energy cost. This is possible in ENVIROM Aerators, as we are providing additional features in our Aerators:

**Special Features :**

1. Fabricated & machined Base Frame for 5HP to 15HP ratings & for 20HP & above Heavy ISMB Beam Base is provided. So, vibrations are diminished & again the Base is machined on the Top Surface on Heavy Duty Lathe, so the life of the Gearbox is increased. (we are the only mfg. in India to provide this feature).

2. Cantilevered load reaction is passed through additional bearings & housing to Bottom of the Beam Base & to RCC platform. So, gear is not at all affected by overhung load. So life of the gearbox is increased.

3. Additional Bearing Support is provided to the Aerator Shaft, so the unbalanced cantilevered loads are NOT passed to the output shaft of the Gearbox, but those loads are taken by TWO EXTRA bearings & housing. So, life of the Gearbox is increased. (no other mfg. in India are providing this feature).

4. Amly designed MS FULLY MACHINED Solid Shaft to take care of heavy cantilevered, unbalanced & torsional loads, supported on Two numbers heavy duty antifriction bearings housed in heavy duty cast iron bearing housing. Since, Shaft is fully machined, No possibility of VOULING of Shaft conentric running of Impeller is ensured. (no other mfg. in India are providing this feature) N.B.: Tubular Shaft in Aerators with Helical Gears are provided.

5. Impeller is designed as single shrouded pump Impeller to achieve maximum Oxygen Transfer & Mixing efficiency. Being a Semi open type Impeller, it has got a very valuable features of self cleaning. Hence practically zero maintenance is required for the Impeller. Secondly, the Impeller is machined at centre for its concentric running, (we are the only mfg. in India to offer this feature).

Due to conical Impeller & solid MS Shaft, CG lies nearer to centre, so less impact loading.

6. NEW GENERATION of EEEA having the special unique feature of Additional Impeller at the Bottom for better mixing at the floor level of Aeration Tank having total tank Water Depth up to 5.5m. Due to which the Oxygen Transfer Efficiency of the Impeller is increased & hence with lesser HP more Oxygen Transfer is achieved. Secondly, less area is required due to water depth of 5.5m. civil construction cost & the space required will be less hence economical.

7. (Premium) Greaves Worm reduction Gears (or helical gears only if asked for) having suitable service factor are offered. Secondly, maintenance of the gearbox is minimal & handling is easier, as the extra Bearings are provided to the Impeller Shaft. Spares of the worm gearbox are also easily available at comparatively lower cost.

8. Motors of Crompton / ABB / Siemens are offered.

9. Jaw type coupling of standard make are provided.

WHY ENVIROM DO NOT RECOMMEND HIGH SPEED AERATORS?

+ Their influence zone is less, compared to Slow Speed ones
+ They cost SHALLOW DEPTHS compared to Slow Speed ones
+ They need Rigorous preventive maintenance because of:
  a) Shaft and Bush pattern, remaining in effluent.
  b) Possibility of clogging, adhering of bunch of threads, bunch of hair, plastic bags, cotton rags etc. between the impeller blade tips and pipe housing. Also, Influence Zone is too less compared to that of Slow Speed Aerators.

High Speed Aerators are not suitable for the Aeration Tank above 1.5 Mtrs. Side Water Depth. There must be VERY HEAVY SETTLEMENT of Dead Bacterial Mass at floor level.

So process point of view and maintenance point of view, ENVIROM has an alternative of Slow Speed Floating Aerators. Photograph of High Speed Aerator is given.

SAVE ENVIRONMENT

Environment is a gift of Nature .......................................................... Let us preserve it
WHY THE AERATORS WITH DRAFT TUBE ARRANGEMENTS ARE NOT RECOMMENDED BY ENVIRON?

In the year 1982 ENVIRON had developed the Aerators with Draft Tube Arrangement to be installed in the Aeration Tank of more than 2.75 mtrs. Aeration Tank Depth. On testing in the Testing Facility, it was observed that the mixing efficiency is reduced & due to which the Oxygen Transfer Efficiency is also reduced. On studying the reason it was found that the Draft Tube is a static part i.e. it is installed below the Aerator Impeller and it has no functioning. The main functioning is only of the Aerator Impeller. In such Aerators the main principle is to form the vortex & to suck the settled sludge from the Bottom of the Aeration Tank, but on studying it was found that the Draft Tube itself is restricting the flow pattern of the Aerator Impeller, due to which mixing & Oxygen Transfer Efficiency reduces.

Secondly, due to pressure of effluent, the Draft Tube also collapses after some period of time. There are many more reasons of failure of the Aerators with Draft Tube Arrangement.

ENVIRON had stopped the manufacturing & recommending the Aerators with Draft Tube Arrangements in Aeration System & developed the DUAL IMPELLER DESIGN suitable for the Aeration Tank Depth of 5.5 Mtrs. to 6 Mtrs. The Aerators with Dual Impeller Design are ENERGY EFFICIENT AERATORS & by installing these Aerators 20% to 70% GUARANTEED Energy can be saved in existing Aeration Systems, achieving the Guaranteed required results as per the norms of P.C.B.

100 HP Aerator
2.98 kg of O₂/ kw/ hr

50 HP Aerator
2.50 kg of O₂/ kw/ hr

30 HP Aerator
2.14 kg of O₂/ kw/ hr

25 HP Aerator
2.07 kg of O₂/ kw/ hr

15 HP Aerator
2.53 kg of O₂/ kw/ hr

10 HP Aerator
2.25 kg of O₂/ kw/ hr

5 HP Aerator
2.45 kg of O₂/ kw/ hr

SPECIFICATIONS & FEATURES OF OTHER MAKE AERATORS

- Since there is NO BASE, heavy vibrations are expected, which will reduce the life of the Gearbox.
- Cantilevered load reaction is passed through gearbox Output shaft to bearing, to gears, to body, to studs support to platform. Hence more vibration and more Maintenance of the gearbox.
- Unknown heavy cantilevered, unbalanced loads are directly taken by the gearbox output shaft, bearings & gearbox itself. So life of the Gear box is reduced.
- Floor support area is too less so more possibility of vibrations.
- Center of Gravity (CG) of the system (cantilevered impeller) lies in the periphery, hence more impact loading.
- Only fabricated Impeller, so possibility of voilbing & acentic running.
- Since Tubular shaft is used, there is a possibility of VOULBLING of shart.
- Since the motor is Flange mounted, it becomes Special (non standard) & probability of another Motor in STOCK is very less. So in case of flange mounted if motor got burned, the Aerator remains STOPPED till the motor is re-winded.
- Spares of the helical gearbox are not easily available & their cost are comparatively higher.
- Wetted Parts are Epoxy Painted.
- Only one design without the consideration of higher water depths.
- No testing activity is carried out.
- For maintaining the gearbox Chain Pulley Block is required to lift the Gearbox so down time is more.

PLANTED & DISTRIBUTED 3250 PLANTS IN GIDC, MAKARPURA AREA

AGITATOR, STIRRER, MIXER, RUBBER LEAD, GLASSLINED & SS CONSTRUCTION. RANGING FROM 1/2 HP TO 40 HP RATINGS. INSTALLATIONS 2000+.

Save Energy by installing Environ Energy Efficient Aerator
CASE STUDY

COMPARISON BETWEEN DIFFUSED AERATION SYSTEM V/S ENVIRON ENERGY EFFICIENT AERATORS

At Onere Chemicals Ltd, S. No. 475/P, At & Post: Ekabara, Tal: Padra, Dist: Vadodara 391440, the flow is of 60KL / Day & COD : 8000ppm in their Effluent. In their Effluent Treatment Plant, they have two Aeration Tanks of size: 6M x 6M x 4.6M SWD + 0.6M FB. Previously in the Aeration Tanks, they were using Diffused Aeration System having the Blower capacity of 15HP in each Tank. They have lot of maintenance problems like - Choking of Diffusers, Uneven distribution of Air, Maintenance of Blowers, Bower making noise, etc. They have decided to replace this Diffusers with ENVIRON Energy Efficient Aerators.

On studying the characteristics of the Effluent & Tank size, ENVIRON recommended 7.5HP Aerator in each Tank. 

Onere decided to replace the Diffused Aeration System of Tank No. - 1 & replaced the same.

At present they are using one Diffused Aeration System of 15HP in Tank No. - 2 & 1 No. 7.5HP ENVIRON Energy Efficient Aerator in Tank No. - 1.

Now while comparing the results are:

- In Tank No. - 2 of 15HP Diffused Aeration System the current drawn is 22 Amps & the Outlet COD is 2500ppm having the maintenance problems.
- In Tank No. - 2 of 7.5HP Enviro Aerator, the current draw is 7.3 Amps & the Outlet COD is 2100ppm. Secondly, the Maintenance cost is also ZERO. By replacing M/s. Onere has saved Energy of 7.5 kW x 24 hrs x 365 days = 66,700 units per year x 7 Rs. / unit = Rs. 4,59,900/- Monetary Saving per year, getting the best result than Diffused Aeration System.

The Aerator is running since 06.06.2013 & now, Onere has installed another 1 No. 7.5HP ENVIRON Energy Efficient Aerator by replacing the 15HP Diffused Aeration System in Tank No. - 2 & saved Total Energy of 15 KW with Monetary Saving of Rs. 9,19,800/- per year.

For Details Contact :
- 09879788102
- Mr. Jayraj
- M/s. Environ Engineering Company
A CASE STUDY OF S. T. P.

COMPARISON BETWEEN ENVIRON ENERGY EFFICIENT AERATORS V/S. OTHER MAKE AERATORS

How to calculate HP of the Aerators required in the Aeration System?

In one of the Sewage Treatment Plant of 66MLD at Gajjarwadi - Vadodara Mahanagar Seva Sadan, having the characteristics as below:

1) Flow : 66 MLD = 66000 M³/day.
2) Inlet BOD : 240ppm.
3) Inlet COD : 525ppm.
4) TDS : 785
5) Aeration Tank Size : 36.4 M x 72.8 M x 3.92 M SWD.
6) 18 Nos. of 50HP Aerators installed (Total 800HP Aerators).

Now, here if we calculate the required HP of the Aerators. The required HP will be:

Flow 66000 M³/day x 240ppm BOD x 1000 = 15840kg. of BOD. Now, if we consider 1kg. of O₂ required to reduce 1kg. of BOD, then kg. of O₂ required will be 15840 / 24 hrs = 660kg. of O₂ is required per hour.

Now, considering the Oxygen Transfer Efficiency of the Aerator in field condition is 1.4k. of O₂/HP/HR, then the HP of the Aerator required will be 660kg. of O₂ required + 1.4kg. of O₂/HP/HR Transfer Rate of Aerator = 471HP of Aerators + 16 Nos. = 29.4HP i.e. 16 Nos. 30HP ENVIRON ENERGY EFFICIENT AERATORS.

In this case even though 15 Nos. of 50HP i.e. 800HP Aerators are installed, the Oxygen level is Nil in Aeration Tank & also settlement of sludge up to 2mtrs. was observed. It proves the efficiency of the Aerators.

So, here, we have recommended to install 16 Nos. of 30HP ENVIRON make Energy Efficient Aerators offering Guaranteed results & nearly ZERO settlement of the Sludge at the floor level of Aeration Tank.

By installing ENVIRON make Aerators, the VMC will be saving the power of 320HP i.e. 240KW & if we consider the Electrical charges of Rs. 7/- per unit, then the Monetary Saving will be 240KW x Rs. 7 electrical charges per unit = Rs. 1680/-

Saving per hour x 24hrs. = Rs. 40,320/-

Saving per Day x 365 days (per year) = Rs. 1,47,16,800/- Saving Per Year.

Now, the prevailing price of 30HP Fixed Type ENVIRON make Energy Efficient Aerator is Rs. 6,50,000/- x 16 Nos. = Rs. 1,04,00,000/-. So, the Payback period will be 8 months - 15 days. After that the VMC will start earning i.e. Saving in Electrical charges.

For Details Contact:

- 09879788102 - Mr. Jayraj
- M/s. Environ Engineering Company.

ACHIEVEMENTS OF ENVIRON IN ENERGY SAVING - CONTRIBUTING IN PREVENTING GLOBAL WARMING & DEVELOPMENT OF NATION

We have supplied our equipments to 13 CETPs of India, where the equipments are working satisfactorily.

ENVIRON specializes in the R&D of New Technology Aeration for Industrial and Municipal Waste Water Treatment. ENVIRON had developed an Aerator which saves the Energy from 20% to 70% in the existing Aeration Systems. This Energy Efficient Aerators works in the Aeration Tanks having 6Mtrs. Water Depth, having the unique features with minimal maintenance offering the Guaranteed Results as per the norms of P&CB & are continuously upgrading the Aerator Impellers for Higher Oxygen Transfer and Maximum Mixing Efficiency WITH MINIMUM ENERGY CONSUMPTION.

ENVIRON is the only manufacturer in India, who have got in house OXYGEN TRANSFER TESTING FACILITY for the Aerators up to 150HP Ratings. We had offered Oxygen Transfer Test to many Industries / Consultants / Experts / Turnkey Executors. Secondly, in our testing facility each & every Aerator and Agitator is run for TWO hours before dispatch as per our QUALITY ASSURANCE PLAN.

Due to continuous increase in Energy Cost, acceptance of Energy Efficient Technologies is becoming valuable and is adopted in almost all the industries.

As the Effluent & Sewage Treatment Plants are Non-productive Plants & also in which the maximum Energy i.e. 50% to 70% Energy is used in Aeration System. Such Plants should be studied to find out the scope of saving in Energy.

ENVIRON had saved Total about 1,150KW energy monetary saving of Rs. 6.5crer, in different industries / STP.

ENVIRON offers such services for finding out the scope of saving in energy, as Energy Saving is feasible option to save money & also to prevent Global warming. We invite to take the advantage of such services FREE OF COST.

We are also proud to save large amount of Energy in Existing Aeration Systems for many industries like:

- At M/s. Pattancheru Envirotech Ltd. - Patancheru, one of the BIGGEST CETP's of Andhra Pradesh, where previously the Liquid Oxygen was additionally injected in their AERATION SYSTEM already having the Surface Aerators, but after installing our 16 Nos. of 30HP ENERGY EFFICIENT AERATORS, their expenditures in Liquid Oxygen was stopped & also in POWER has been reduced drastically.
- At M/s. Hindustan Newsprint Ltd. - Kottayam Dist. (Kerala), replaced their existing 6nos. of 75HP by our 25HP Energy Efficient Aerators, SAVED 300HP.
- At M/s. Ballapur Industries Ltd. - Yemunanagaram (BILT), where Total ENERGY of 550HP was saved in their existing AERATION SYSTEM, by installing our 10Nos. of 20HP ENERGY EFFICIENT AERATORS in place of their existing 10Nos. of 75HP AERATORS, & achieving the required results also in their AERATION SYSTEM with Aeration Tank depth of 4.5mtr.
- At M/S DOMBIVILI BETTER ENVIRONMENT SYSTEM - Dombivli (one of the Biggest CETP’s of Maharashtra, having the Aeration Tank DEPTH of 4.5mtrs.) EO12 AERATORS were running & had zero D.O. level, these AERATORS were replaced by our 8Nos. of 40HP ENERGY EFFICIENT AERATORS. They got the results as per the MPCA Norms & now it is considered as the BEST CETP of Maharashtra.
- At VAPI CETP - Vapi, one of the Biggest CETP of Gujarat in 2 Sections of Aeration Tank of 4.5mtrs. SWD, they were using Diffused Aeration System. The same was replaced by our 20Nos. 40HP Energy Efficient Aerators offering the results in the Aeration Tank Depth of 4.5mtrs. This is one of the successful & satisfying installation of ENVIRON.
- At M/s. Gujarat Insecticides Ltd. - Ankleshwar, 1No. 20HP Aerator of other make + 10HP Diffused Aeration were running in their Aeration System without getting the D.O. Level. We have replaced
the Aerator & the Diffused Aeration by our 1No. 12.5HP ENERGY EFFICIENT AERATOR, the required D.O. Level & BOD reduction were achieved & saved ENERGY of 17.5HP.

At M/s. Tamil Nadu Newsprint & Papers Ltd. - Tamil Nadu, replaced 8Nos. of existing 75HP Aerator by our 8Nos. of 40HP Energy Efficient Aerators & saved energy of 280HP.

In Feb: 2011, ENVIRON had replaced the Diffused Aeration System at MMA CETP - Mahad, Maharashtra, wherein they have installed 9Nos. of 30HP Floating Type Slow Speed Energy Efficient Aerators in their Aeration System having 4.5Mtr. Side Water Depth.

At M/s. Aurbindo Pharma Ltd., are satisfied with the performance of our all ETP Equipments and hence they have given us the repeated orders 30 TIMES for ALL THEIR PLANTS throughout Andhra Pradesh.

Environ had replaced the existing Total 17 Nos. 40 HP Aerators of other make with "ENVIRON" make 17 Nos. 25HP Energy Efficient Aerators at M/s. Grasim (Aditya Birla Group) - Kumarapetnam, Harilher (Karnatak), Now Grasim is enjoying saving Total Energy of 255HP (190.23KW) in the Aeration System in their ETP.

At Shidimo Interaux Pvt. Ltd. - Lajpore, Dist: Surat, saved 2.5HP by installing 10HP Energy Efficient Fixed Type Aerator against 12.5HP Aerator.

ENVIRON has already supplied Specially Designed Energy efficient Aerators at M/s. Meghmani Organics - Ankleshwar, where they are having Aeration Tank Depth of 6Mtrs. Side Water Depth. (unique in India).

ENVIRON had designed an Impeller for Mixer for M/s. Cadilla Healthcare Ltd. - Ankleshwar, having the Tank Depth of Total 8.7Mtrs. (A Design challenge to ENVIRON).

At Sterling Biotech (Div. Sterling Gelatin) - Karakhadi, Baroda. We have installed 40HP - 3Nos; 15HP - 7Nos. & 10HP - 4Nos. Energy Efficient Aerators having the Aeration tank depth of 5.5Mtrs & also reduced the Ammonical Nitrogen in their effluent. (an achievement in ETP).

At M/s. Onerco Chemicals Ltd. - Ekaiba, Tal: Padra, Dist: Vadodara, they were using Diffused Aeration System using the blowers of 2 Nos. of 15HP & not getting results, having the tank depth of 4.5mtrs. They have replaced the Diffused Aeration System by our 2 Nos. 7.5HP Energy Efficient Aerator & saved 11KW Energy i.e. 50% saving. They are satisfied with the performance of the aerator offering the required results.

At GNFC - Bharuch, Installed 50HP Floating type Energy Efficient Aerator in their Guard Pond of size: 66mtr. X 134mtr. X 3.3mtr. Water depth & prevented the ALGAE formation in the pond. In 2012 they have placed additional orders for 3nos. 25HP Floating Type Energy Efficient Aerators (for Prevention of ALGAE formation).

At M/s. Arvind Ltd. (Div. Ankur Textiles) - Ahmedabad, we have replaced existing 2 Nos. 30HP Fixed Type Aerators by 2 Nos. 25HP ENVIRON make ENERGY EFFICIENT AERATORS & so, they saved Total Energy of 10HP in their Aeration System.

We have replaced existing Diffused Aeration System of 25HP & Mechanical Aerator of 25HP (as they were not giving results) by our 20HP Energy Efficient Aerators at M/s. Enviro Infrastructure Co. Ltd. - VII.: Umaraya, Tal: Padra, Dist: Vadodara (CETP). (Trials & results are under observation).

ENVIRON ENERGY EFFICIENT AERATORS, will SAVE ENERGY of 35 HP at M/s. Sirpur Paper Mills - Sirpur Kaghaznagar, A.P., replacing 1 No. 75HP Aerator by 40HP Energy Efficient Aerator. This Aerator will be offered on Trial Basis, after getting success they will be replacing 5 Nos. 75HP Aerators with 40HP Enviro Aerators & will be Saving Total 210HP.

In First Phase, M/s Arvind Mills Ltd. - Santal are also replacing their existing 4 Nos. 40HP Aerators with 4 Nos. 25HP Environ Energy Efficient Aerators & will be Saving Energy of 60HP. In second phase they will replace another 4 Nos. of Aerators, so they will be saving Total 120HP.

There are many more such cases of replacement of the existing AERATION SYSTEMS by our ENERGY EFFICIENT AERATORS for the Aeration Tanks with Higher Depths upto 6 Mtrs.

Replaced 2 Nos. of existing 60HP Aerators of other make by our 2 Nos. of 30HP ENERGY EFFICIENT AERATORS at STP at Vadodara Municipal Corporation (VMSS) - Tarsali, where 50% Energy is saved after installing our Aerators offering the Guaranteed Results.

ENVIRON also believes that, if proper attention is given on Aeration Systems in Sewage Treatment Plants also of Municipal Corporations a huge amount of Energy can be saved offering GUARANTEED RESULTS as per the norms of PCB.

Environment is a gift of Nature .................................. Let us preserve it
Various equipments used in water / sewage / effluent treatment plants are being offered by various suppliers are from local markets & OR standard equipment suppliers with international back up and are real designers associated with such experience.

But, with high local competition to be competitive for working some of the suppliers / or manufacturers of equipments are fabricating with lesser thickness plates either for the clarifier structural’s, less width of walkways, thickness of the FRP / MS weir plate (less than 6 mm) height of the weir plate of less than 250 mm or 300 mm.

1. SCREENS: There should be minimum TWO channels (1 Working +1 Standby) Both channels should be inclined to Horizontal & mechanically cleaned for sizes of 5 MLD & above with 70° to 75° to the horizontal.

2. FLOW MEASURING CHANNEL: (Preferably) a Parshall Flume with 15 times throat width on up-stream side & 10 times on down-stream side width for correct measurement.

4. PRIMARY AND SECONDARY CLARIFIER MECHANISMS & CLARIFLOCULATORT MECHANISMS

/ UNITS: The approach bridges for unit capacity above 5 MLD should be 1.2 wide covered with 6 mm thick checkered plate, toe guard of 250 mm height, both sides hand railing of 1.2 M height.

(i) The scrapper mechanism should be coated with a primer and a two coats of epoxy paint.

(ii) The torque rating of the mechanism should be minimum two times the actual requirement at peak load for continuous 24 hrs. period.

The service factor of the gear box should be two.

As the diameter increases the overflow weir should be FRP weir.

Weir plate should be preferably with 6 mm thick plate and of minimum 250 mm height of
with V-Notch weirs of 90°.

- There should be a baffle in primary clarifier before the overflow weir.

5. AERATION SYSTEMS: There are two types of Aerator + Fixed Type and + Floating Type.

The fixed type are preplanned where as the floating type are used where there is deficiency either in supply of oxygen OR mixing requirement is not sufficient & for ease of installation. Also, the location of the additional unit can be shifted as required very easily by pulling.

Also, this floating type aerators can be introduced in an existing Aeration Tank for increased supply of Oxygen. Further, by introducing this type of Floating type aerators for supply of Oxygen / for supplementing Oxygen will reduce use of Liquid Oxygen injection which requires capital cost, cost of Oxygen and power cost for the pumps etc. Where as for installing in an existing Aeration Tank time required is minimum. A CETP in the suburb of Hyderabad for a Pharmaceutical industries used this type of system and helped cost of operations.

M/s. Environ Engineering company, at Vadodara, supplied and reduced operating cost after recovering the capital expenditure. The installation of Floating aerators is very easy as well as maintenance.

5-a. SURFACE AERATORS:

- The service factor of the gear box should be minimum two.
- The gearbox should be preferably HELICAL and should be located on a stool for providing the connector above platform level for ease of erection and maintenance.
- For economy Worm reduction gear boxes can also be provided taking in to account first two points.
- The supplier should ensure / confirm the mixing depth as well as Zone of influence of the aerator. The designer should ensure while sizing of the aeration tank about these parameters (a) range of depth of mixing & zone of influence and
  - A Minimum of 22 Watts per Cubic Meter volume of the Aeration tank.
  - For 50HP Aerator Max. Liquid depth of 4.5 m. should be used.

5-b. DIFFUSED AERATION SYSTEM:

- The designer should be careful in selection of Blowers & / or Turbo Blowers with lesser power requirement though capital cost high but Running cost less as the power requirement is less.
- Designer is cautioned to check the discharge line size for velocity less than 15 to 16 m/sec, in the air lines with all including NRV, accessories and the header.
- The M.O.C of discharge pipe should be preferably in S.S.
- When the discharge pressure is more than 5.0 MWC, it is always advisable to provide for cooling of the temperature of discharged air to less than 20°C plus atmospheric so that there is no impact on Biological Treatment.

NOTE: The above four parameters besides Power consumption for Blowers have to be carefully designed against the depth of Aeration Tank where Environ uses Second impeller for liquid depths up to 6 m. Minimum maintenance requirements with Long life is the advantage with aerators.

6. SLUDGE THICKENER MECHANISM:

- The bottom Slope should be 1 in 8 and not 12.
- The sludge withdrawal pipe-line should be minimum 150 mm diameter.
- It is advisable to provide the sludge with draw line in an square type RCC trench & with sand filling with SS Nuts & bolts.
- The torque rating should be minimum 2.5 times the actual at max load & supplier should be asked to furnish the details including calculations.
- The supplier should be requested for inclusion of "LIFTING MECHANISM AFTER THE TORQUE RATING REACHES 75% OF MAX. RATING".

For safety of equipment as well as break down of the unit. Then, remove max sludge and then only start the mechanism.

"Environment is a gift of Nature ............................................. Let us preserve it"
First of all I am thankful to Environ for offering me an opportunity to share my personal experience after installing Environ Energy Efficient Aerators at M/s. Onerio Chemicals Ltd. This will be utilizing for the Noble cause of Environment & to reduce Energy Consumption, Preventing Global Warming.

We at M/s. Onerio Chemicals Ltd installed 2 Nos. of 7.5HP Environ make Energy Efficient Surface Aerator in our Aeration System of Our ETP in June 2013. Initially we had Diffused Aeration System with Two nos. of 15HP blowers. In spite of Enormous Energy Consumption of Total 30HP & also Maintenance Problems like removing & cleaning of Diffusers, replacement of Diffusers, Maintenance of blowers, Removal of Settled Sludge etc. & even after such exercise we were not achieving desired results and were forced to run plant below design capacity. It was hampering our production targets also. Then we opted for Surface Aerator with Dual Impeller Design supplied by M/s. Environ - Vadodara.

Our main concern was the depth of aeration tank which is 4.6mtrs. (As per my knowledge & experience the conventional Aerators are effective only up to 2.5mtrs. depth of Aeration Tank) which will Create Anaerobic Condition at the bottom floor level of Aeration Tank. Then we contacted Environ who recommend us to install Environ Energy Efficient Aerator with Dual Impeller Surface Aerator indigenously design & developed by Environ.

After studying our Aeration System Environ recommended to install two nos. Surface Aerators of 7.5HP capacity each against replacement of 2 nos. 15HP Diffused Aeration System, for which Environ had offered the Guarantee of the Results. After, installing 2 Nos. of 7.5HP Environ Energy Efficient Aerators 50% Energy was Saved & also monetary Saving of Rs. 40,000/- per month & are able to run our aeration system with 40% more load. We are also able to get more production with existing facility after installing surface aerators. Unlike diffused aeration system in this system we have no maintenance problem even after it is installed. Apart from performance of aerator After Sales Service is just fantastic. We regularly receive call from Environ to ensure about the performance of aerator. We are really thankful to M/s Environ Engineering Company for their support and appreciate the efforts made by them for the noble cause of energy consumption. We wish him all the best for all the innovations and future ventures.
Mr. Darshan Parekh - Proprietor
Akshar Consultants, Ahmedabad.

Environ Engineering Co., Vadodara is a leading & pioneering company in the field of effluent & S. T. P. equipment manufacturing. Its' product range includes practically all important equipments required for Effluent / Sewerage Treatment Plants.

Established by late Mr. C. B. Thakore & now run by his two highly experienced and knowledgeable sons - Mr. Jayraj & Mr. Kumar Thakore, "Environ" has created a niche for itself in the field of pollution control with an impressive list of clients many of whom have been with them now for years repeating jobs over and over again.

I was particularly impressed with the vision of late Mr. C. B. Thakore who was an excellent designer with a thrust for R&D in his field to make available Energy Efficient products to clients. Apart from this, educating clients about correct methods of Effluent Treatment and selection of right kind of equipments for Effluent / Sewerage Treatment was his passion & he relentlessly worked in this area till his passing away. Now his two able sons are carrying forward his legacy with equal zeal and enthusiasm.

In my association of last almost two decades with "Environ", I have observed that their products like Aerators, Clarifioculators, Clarifiers, HRSCC, Stirrers, Flocculators, API Oil Separators, Thickeners etc. are not only sturdy but very user friendly also being almost maintenance free. This is a very important aspect as most of the ETPs / STPs run 24 X 7 leaving little room for maintenance work. And whenever some After Sales Services are required, they are just a phone call away. They also maintain a well-trained team of mechanics who attend maintenance job quickly anywhere in India. This takes a lot of burden off the clients' head.

Over the years, they have introduced no. of innovative features to their products through intensive R & D like Energy Efficient Dual Impeller Aerators, Sludge Arm Lifting Device in Clarifiers, Clarifioculators etc. However, according to me, what differentiates them from other manufacturers is their manufacturing facility at GIDC, Makarpura, Vadodara which houses testing facility for Aerators up to 100 HP which perhaps is not available anywhere else. They can, and actually have on many occasions, given live tests to their clients about Oxygen Transfer Efficiency of their Aerators before dispatch. For a client, nothing is more satisfactory then a live test of their equipments performing in front of them before installation.

I am sure, with their strong R&D back-up, state-of-the-art manufacturing facility, a long list of satisfied clients & a solid knowledge base, Environ Engineering Company will scale greater heights in its' field in future and I wish them all the good luck.
Mr. A. V. Contractor
Manager (ETP Mechanical)
G. N. F. C.

You have supplied the above slow speed energy efficient surface aerator for our effluent guard pond of central ETP. The pond size of 66 mtr. X 134 mtr. X 3.3 mtr. Liquid depth, in 2010. We are totally satisfied with the workmanship, Design & results of the Aerator. We are also satisfied with your Excellent After Sales Service.

Secondly, the FORMATION OF THE ALGAE is completely reduced, after installation of the Aerator. Moreover Gujarat Pollution Control Board (GPCB), Outsiders visitors / Third party Agencies visited quarterly, ISO Audit team, Process Deptt. Persons & Top Management is totally satisfied.

We have already placed the order for another 03 nos., of 25HP Slow Speed Floating type energy efficient surface aerator to ENVIRON and will be installing more Aerators in future for preventing ALGAE & maintaining the Chemical Oxygen Demand (COD) result which comes less than 100 PPM in our Guard Pond. We fully appreciate and congratulate the party to convince & suggest the same for use.

We are confident that in future party will provide after sales services carry out annual rate contract for maintenance jobs with the same spirit.

Mr. I. Bhattacharyya
Director
Unitech Water Technologies Pvt. Ltd., Kolkata.

We hereby confirm that M/s. Environ Engineering Company, Vadodara, is associated with our company since last 7 years. We have been procuring Surface Aerators, Clarifiers, Clarifloculators from them for our different projects and the performance of each equipment is very satisfactory to us as well as to the end customers.

We wish them all success in their future business.
EQUIPMENTS PERFORMANCE REPORT FROM CLIENTS

M/s. Environ Engineering Company Vadodara, have supplied, erected and commissioned 60 Nos. 30HP Floating Surface Aerator.

The power drawn is about 35amps each. The workmanship & design of the aerators are found satisfactory & each Floating Aerator generates about 1.5kg of oxygen per HP. After sales service of the company is excellent. After using the Floating Aerator our liquid oxygen bill has come down considerably. Even, we are planning to buy 06 more floating Aerators to reduce the liquid oxygen bill further. I strongly recommend to use Floating Aerator in effluent treatment plant.

PATTANCHERU ENVIRO-TECH. LIMITED
Col. T. M. Paul - Plant Manager
17.11.2006

We had ITALIAN MAKE ELC2 Aerators in 4 Nos. of Aeration tanks in our Effluent Treatment Plant. We had MLSS Settlement and D.O. problems. Hence B.O.D reduction of effluent was our serious problem.

Afterwards we had replace the existing unsatisfactory working Aerators by ENVIRON Baroda make 8Nos. 40HP Aerators with Special DUAL Impeller, specially designed for higher depth in our all the four Aeration Tanks.

Now our Aeration System is running satisfactory. We are getting good B.O.D reduction in effluent. We are satisfied with performance of 40HP ENVIRON make Aerator with specially designed dual Impeller and are satisfied with their AFTER SALES SERVICES also.

DOMBIVLI BETTER ENVIRONMENT SYSTEM ASSO.
Mr. S. A. Kulkarni - Secretary
21.08.2006

M/s. ENVIRON ENGG. CO. Baroda has been approved with us likely supply for ETP machinery like Aerator, Clarifiers, Mixers, Flocculators, Screens, Filters etc. We have already used these items in Badli and Wazirpur Project and performance wise finding their equipments quite satisfactory.

DELHI STATE IND. DEVELOPMENT CORP. LTD.
Mr. Sharat Kumar - Executive Engr. (e&m)
16.01.2013

20HP Voltaas make aeroator was installed in Aeration tank for biological treatment of effluent. As there was D.O. & MLSS settlement problem, diffused aeration system was added in aeration tank. We were running both the system but problem was not solved.

Afterwards, we had replaced 20HP Voltaas aeroator & diffused aeration system by installing 12.5HP ENVIRON make aeroator with special dual impeller design. The system is running satisfactorily. We are getting good BOD reduction in effluent with saving in electrical energy. We are satisfied with the performance of 12.5HP ENVIRON make aeroator specially designed dual impeller.

GUJARAT INSECTICIDES LIMITED
Mr. A. R. Joshi - S. M. (ENV)
17.08.2005

We have purchased the following effluent treatment plant (ETP) equipments from m/s. Environ Engineering - Vadodara, Gujarat, India.

1) 10HP floating type slow speed surface aerators 2 Nos. 2) 12 mtr. diameter clarifloculator mechanism 1 No. 3) Flash mixing tank stirrer 1 No. 4) Chemical preparation tanks stirrers 4 No. 5) 2.5 mtr dia. x 2 mtr, height pressure sand filter 1 No. 6) 2.5 mtr dia. x 2 mtr, height activated carbon filter 1 No.

We are satisfied with the design and workmanship of the above-mentioned equipments. The equipments have been installed in ETP and are working satisfactorily.

SUNFLAG (TANZANIA) LTD.
Mr. N. R. RAGHAVAN - SITE MANAGER
15.04.2004

With reference to the above, we have received 20 no. Surface aerators at our site and erected. They are running well without any problem. The performance of the aerators shall be studied and intimated to you in due course. We shall contact you for assistance in case of any problem.

TAMILNADU PETROPRODUCTS LIMITED
Mr. J. Surressh Prabhu - Hod (Prod.-ECH Plant)
26.03.1998

This is to certify that M/s. Environ Engineers, Baroda have supplied, erected & commissioned ten numbers of floating surface aerators of 20HP each. Their workmanship and design of the aerators are found to be sound and these aerators are functioning satisfactorily as per specifications in our Effluent Treatment Plant. Their delivery was on schedule and cost competitive.

SIV INDUSTRIES LIMITED
Dr. V. Prabhakar - Manager (Environment Control)
03.02.1995

We hereby confirm Aerator 10HP (2 Nos.) has been received at our end. It has been installed and tested. The test results are OK on testing basis.

INNOTECH PHARMA LTD.
Mr. N. R. Gaikwad
28.11.2003

Your supplied for 15HP Floating Aerator’s Erection completed as your erection Supervisor Mr. Abraham John, He visited in our plant on 17.07.2003 to 21.07.2003. Aerator’s on load trial taken and running
condition successfully.

AUROBINDO PHARMA LTD., UNIT II
Mr. I. V. Krishna Reddy
21.07.2003

Nadiad underground Drainage Project which is assisted by World Bank is undertaken by Public Health World Bank Division Nadiad. Aerators manufactured by Environ Engineering Company Bareoda are installed at Sewage Treatment Plant. The details are:

- 20 HP - 12 nos., 7.5 HP 12 nos.

P.H.W.B. Div. (GWSSB) - NADIAD
Executive Engineer
27.04.1994

M/s. Environ Engineering Company - Vadodara have supplied, erected and commissioned 4 nos. 30HP fixed type slow surface aerators with draft tube arrangement for 4.5m. depth, 2nos., 10m. dia. thickener mechanisms and 1no. 10m dia. centre drive clarifier mechanism.

Their workmanship and design of the Aerators, Thickners and Clarifier are found to be sound and these equipments are functioning satisfactory and excellent as per specifications in our effluent treatment plant at MDC - Patalganga. Their delivery was on schedule and cost competitive. We satisfied with their AFTER SALES SERVICE.

JAYSYNTH DYECHM LIMITED - UNIT II
Mr. R. P. Deshmukh - Chief Manager Engg.
23.01.1998

The "CLARIFLOCULATOR" system supplied in 1993 by M/s Environ Engineering, Baroda is working continuously without stoppage and without any major problem. The service provided by them is highly appreciated.

PRESTOLITE TECHNOLOGIES
Mr. E. A. V. Rathnam Setty - Sr. Mgr. Maint.
10.10.2006

M/s. Environ Engineering Company - Vadodara have supplied, erected and commissioned 3nos. 25HP slow speed floating aerators, 3nos. 15HP slow speed floating aerators, 1no. 12M. Dia. centre drive clarifier mechanism.

Their workmanship and design of the Aerators, Clarificoculator and Clarifier are found to be sound and these equipments are functioning satisfactory and excellent as per specifications in our effluent treatment plant at Kathwada, Ahmedabad. Their delivery was on schedule and cost competitive. We satisfied with their AFTER SALES SERVICES.

MAIZE PRODUCTS
Mr. B. M. Thakkar - Adm. Manager
16.01.1998

The aerator what you have supplied vide your quotation. Ref. E.E.C./0702/2000/02 dt. 07.02.2000 7.5HP slow speed aerator is of good oxygen transfer capability and is of as per design.

BLACK DIAMOND BEVERAGES LTD. - DANKUNI
Mr. S. K. Jana - Q. A. Manager
21.03.2000

Your make 2 nos. Aerator of above capacity is running at our Asansol, west Bengal factory since 1992. We are now looking for replacement of the Aeration. These Aeration are directly Motor mounted with Lovejoy coupling. Motor is of Crompton make, 5HP, 1430 RPM, 3PH.

We would request you to send your offer for the same excluding Motor. The base of the Aerator should exactly be the same as the existing Aerators running at this plant.

Rokriti Beneciser (I) Ltd.
Mr. Pabitra Kamal Roy - Factory Manager
24.05.2006

You are requested to send us all corrected and latest drawings dedicated to our Plant commissioned at Perfetti India Ltd., Manesar in quadruplicate in A3, A4 & if possible in floppy too, so as to incorporate the same in the Detailed Users Manual by return courier.

The drawings should be pertaining to all Agitators, Flash Mixers, Clarificoculators and Aerators supplied and commissioned by you. Plant is running fine and so are the equipments. An early action at your end shall be highly appreciated.

SIMA LABS PVT. LTD.
Mr. Sandeep Gupta - Managing Director
22.05.1999

M/s. Environ Engineering Company has supplied us on turkkey base varies equipment in February, 1986 as follows : 1) 1No. 5HP AERATOR, 2) 1No. End Drive Clarifier - Primary, 3) 1No. End Drive Clarifier - Secondary, 4) 1No. Flocculator.

These equipment have been working satisfactorily since the time of commissoning without any problems.

ASIAN PAINTS (INDIA) LIMITED
Mr. M. N. Patil - Manager Plant Engineering
15.12.1988

As you are aware, we have completed the work of modifications to Effluent Treatment Plant at M/s. Tata Engineering & Locomotive Co. Ltd., Pimpri, Pune 18.

As one of our valuable associates, without whose help we could not have completed this unique project, we invite you for inauguration of the same on Wednesday, 13th April, 1994, at 10:30 a.m.

We also request you to join us for Dinner on this occasion at 7:30 P.M. at Hotel Surya on Apte Road, Pune.

KLEAN ENVIRONMENTAL CONSULTANTS PVT. LTD.
Mr. V. V. Kale
08.04.1994

Representative of EFFORTS ENGINEERING CORPORATION, BARODA has visited our Distillery and supervised the Installation of Fixed Type Slow Speed Surface Aerators and Clarifiers on relevant Tanks. The Installation was completed at our Effluent Treatment Plant in accordance with an Agreement dt. 28.01.1992 executed between us and EFFORTS ENGINEERING CORPORATION.

The Commencement of Functioning is not yet started.

SRI INDIRA DISTILLERY PRIVATE LIMITED
Mr. K. Nageshwar Rao - Chief Executive
01.01.1993

M/s. Environ Engineering Co. of Baroda have supplied clarificoculator equipment and neutralisation stirres to M/s. Chokshi Tube Ltd; Rajpur, Dist : Mehsana for their effluent treatment plant which was constructed under our guidance & consultation. We have found the equipment supplied by them to be as per our requirements. The said equipment has been working satisfactorily.

ANAND CONSULTANTS
15.06.1991

M/s. ENVIRON ENGINEERING COMPANY, VADODARA have supplied erected & commissioned 1no. of EHP fixed type slow speed surface aerator & 1no. of 3mtr. dia. 1.5m. depth central drive clarifier mechanism & 1no. of 3mtr. dia; 1.8m. depth central drive clarifier mechanism at our unit.

Their workmanship and design of the aerator and clarifier are found to be sound and these equipments are functioning satisfactory in our effluent treatment plant. Their delivery was on schedule and equipments were cost competitive. We are satisfied with their AFTER SALES SERVICES.

GUJARAT FLOTEX PVT. LTD.
Mr. J. P. Tosniwal - Director
15.10.2003

This has reference to your visit to our plant in connection with above. The said mechanism (clarificoculator) supplied by you in August ’92 for our ETP is functioning satisfactorily since then.

STOVEL INDUSTRIES LIMITED
Mr. Tarak Parikh - Environmental Engineer
08.04.1994
M/s. Environ Engineering company has designed, manufactured, supplied and erected two nos. 25HP fixed type surface rotors for our Aerator No. 1 of effluent treatment plant against our order No: CS/00:099-89 dttd. 20.4.89.

These are running since last two months without any problem giving satisfactory results.

SARABHAI COMMON SERVICES
Mr. N. R. Diwanji - Manager (engg. Services)
08.10.1989

M/s. Environ Engineering Co., Vadodara, supplied 3Nos. of surface aerators (10HP capacity) and 3Nos. of clarifier scrapes mechanisms (7mt). These equipments were commissioned on 16.11.1994 and working satisfactorily till date.

We are also satisfied with after sales service of M/s. Environ Company.

Gujarat Insecticides Limited
Mr. R. P. Desei - Dgm (technical)
02.05.1996

M/s. Sterling Biotech Limited (Division: Sterling Gelatin) had produced the several Surface Aerators from M/s. Environ Engineers for the Effluent Treatment Process Application.

We have replaces the our old Diffuser System with new Surface Aerators for Aeration Application. It has helped us to solve the Ammonical Nitrogen Problem in our Treated Effluent Water. Performance of the Surface Aerators are found satisfactorily, at 5.5Mtr. SWD of aeration tank.

Sterling Biotech Limited
09.05.2012

This is to inform that the hydraulic testing in the presence of our representative is hereby waived. You are requested to arrange earliest despatch of the Aerator through Kerala Transport Co. to Thalataparambu under intimation to us.

We have decided to waive Hydraulic Testing, since the same type of Aerators pre-tested in the presence of our representative & supplied accordingly are working well.

Please ensure that all quality and technical parameters are strictly adhered to.

HINDUSTAN NEWSPRINT LIMITED
Sr. Manager
27.05.2008

We at M/s. Oneiro Chemicals Ltd. have replaced diffused aeration system of 15HP with Fixed Type Slow Speed Energy Efficient Aerators of 7.5HP supplied by M/s. Environ Engineering Company. We are highly satisfied with the performance of equipment as well as service provided by party. After installation of surface aerator energy consumption of effluent plant have reduced significantly. Aerators provides very effective mixing up to 4.6 mts. depth and minimizes settings of biomass at the bottom of the tank. We are thankful to M/s. Environ Engineering Company for their support in the good cause of environment and energy consumption and wish them good luck for feature endeavors.

M/s. Oneiro Chemicals Limited
Mr. Dushyant Patel - Chairman
22.08.2013

You have supplied the above slow speed energy efficient surface aerator for our effluent guard pond of central ETP. The pond size of 66mtr. X 134mtr. X 3.3mtr. Liquid depth, in 2010. We have totally satisfied with the workmanship, Design and results of the Aerator. We are also satisfied with your excellent after sales service.

The performances of the slow speed surface aerator are very good & fulfill the purpose which it was installed.

G. N. F. C.
Mr. A. V. Contractor - Manager (ETP Mech.)
Mr. S. R. Desai - Manager (ETP)
15.11.2013

TREATED ALL TYPES OF EFFLUENT
EXPORTED at: Metachem Exports P. Ltd. - Nigeria + Puritas Ltd. - Colombo (Sri Lanka) + Elite Garments Ind. Ltd. - Bangladesh + Knit Asia Ltd. - Bangladesh + Abdul Khair Steel Ind. Ltd. - Bangladesh + German Knitwear - Bangladesh (2 Times) + Sun Flag (Tanzania) Ltd. - Tanzania + Alexandria Fibre Co. - SAE - Alexandria (Egypt) + Amion Water Systems - Nani Daman (Nigeria) + Ramky Enviro Engineers Ltd. - Hyderabad (Kenya) + Jatson International (P)Ltd. - Kaubhula + Sri Lanka (For National Water Supply & Drainage Board, Galle Road, Ratmalana & United Nations Office for Project Services (UNOPS))

COMMON EFFLUENT TREATMENT PLANT:
So far as, CETPs are concerned we have manufactured, supplied, erected and successful commissioned our ETP Equipments at the following CETP: WAZIRPUR CETP: NEW DELHI through M/s. L&T (ECC) DIV. - CHENNAI + BADLI CETP: NEW DELHI through M/s. UEM INDIA LTD. + NEW DELHI + M/s. DOMBIKVIL BETTER ENVIRONMENT SYSTEM ASSO. (CETP) - DOMBIKVIL. The first successful CETP with required results by MCPB of Maharashtra, having the Aeration depth of 4.5M. One of the successful achievement of ENVIRON. In CETP at Dombivli, EI02 DOMBIKVIL was running & had ZERO D.O. Level & MCPB had issued legal notice. These AERATORS were replaced by our 8Nos. of 40HP ENERGY EFFICIENT AERATORS. They got the results as per the MCPB Norms. + (supplied 1No. 20HP Floating Type Aerator with Draft Tube Arrangement, 1ST TIME IN INDIA for Higher Depth of 4.8M). + M/s. PATANCHERU ENVIRONMENTAL TECH. LTD. - PANCHERU, one of the Biggest & successful CETP of India (One of the Biggest achievement of ENVIRON). + M/s. BHARUCH ECOAQUA INFRASTRUCTURES LTD. - BHARUCH supplied 1No. 50HP Floating Aerator (the only equipment working trouble free at CETP) through M/s. L&T - A’bad. + NANDESARI CETP - NANDESARI. + GLOBAL

ENERGY SAVING REPORT HIGHLIGHTED ON WEBSITE OF BILT

Project 2: Installation of 4 Nos. Improved Design Energy Efficient Surface Aerators in ETP

The Effluent treatment plant was having conventional design surface aerator. It was proposed to install new aerator with improved design along with to reduce power consumption. A study was carried out for the same & 4 Nos. Aerators were replaced. Power consumption for those aerators reduced from 24 kW to 15 kW per aerator.

Annual energy saving: 2.69 Lakhs kWh
Annual monetary saving: 6.13 Rs. Lakhs
Investment made: 8.0 Rs. Lakhs

REPORT OF ENVIRON ENERGY EFFICIENT AERATOR PRINTED IN ENVIRON ENERGY EFFICIENT AERATOR - 2012

Environment is a gift of Nature .................................................. Let us preserve it
162+ VALUABLE CLIENTS WHO HAVE OFFERED REPEATED ORDERS

162 Valued Clients who have offered Repeated Orders in each & every expansions. It prooves the performance of the Equipments with Reasonable Price, Quality, Timely Delivery, Excellent After Sales Service & Friendly Approach with Clients.

30 TIMES
△ AUROBINDO PHARMA LIMITED
HYDERABAD, BACHUPALLY, PASHAMLARAM, CUDAPOTHARAM, PYDIBHIMAVARAM, BORRIPALLI, CUDDLADORE, (all the plants throughout AP)

16 TIMES
△ PRECITECH LABORATORIES LTD. - VAPI

13 TIMES
△ REVA ENVIRO SYSTEM (P) LTD. - NAGPUR
△ FRIGORIFICO ALLANA LTD. (ALLANA GROUP) ZHEEREREABAD (AP) / ALIGARH (UP) / VERAWAL, UNNAO

11 TIMES
△ SAI ENVIRO ENGINEERS PVT LTD. HYDERABAD (AP)

10 TIMES
△ WASTE ENCORE (INDIA) P. LTD. - THANE
△ UNITECH WATER TECHNOLOGIES PVT. LTD. - KOLKATA (W.B.)

9 TIMES
△ GUJARAT REFINERY - VADODARA

8 TIMES
△ SIMA LABS - DELHI
△ LUPIN LIMITED -ANKleshwar / PUNE / MANDIDEEP / TAPIPUR / DABHASA (BARODA)
△ DETOX CORPORATION PVT LTD. - SURAT

7 TIMES
△ GUJARAT INSECTICIDES LTD. (ISO 14001, COMPANY) - ANKleshwar
△ DOSHION LTD. - AHMEDABAD
△ NITREX CHEMICALS - ABRAMA (VAISALD)
△ RELIANCE IND. LTD. - HAZIRA / JAMNAGAR

6 TIMES
△ K. PATEL CHEMOPHARMA PVT. LTD. ANKleshwar
△ TORRENT PHARMACEUTICALS AHMEDABAD, VATVA, BHT, INRAD
△ GETP SYSTEMS PVT. LTD. - AUNDH (PUNE)
△ CADILA - ANKleshwar

5 TIMES
△ HERO HONDA MOTORS GURGAON, DHARUERA
△ ATUL PRODUCTS - VAISALD, ANKleshwar
△ MAIZE PRODUCTS - KATHWADA, A'BAD
△ GAYATRISHAKTI PAPER & BOARDS LTD. - VAPI (GUJARAT)
△ JAPRO ENGINEERING PVT LTD. - THANE

4 TIMES
△ IPCL - VADODARA
△ THE JETPORE SUGAR CO. LTD. CHAGALLI
△ SUN PHARMACEUTICALS PANOLI / AHMEDNAGAR / ANKleshwar
△ INDIA GELATINE & CHEMICALS LTD. VAPI
△ SUN PAPER MILL - TIRUNELVELI
△ DEVANSHI DYESTUFF - ANKleshwar
△ HEUBACH COLOURS LIMITED ANKleshwar
△ ALEMBIC LIMITED VADODARA / BADDI / MALOL
△ N. R. AGARWAL INDUSTRIES LTD. VAPI (GUJARAT)
△ WELSPUN TERRY TOWELS (100% EOU) MORAI VAPIL, PILGAUR
△ APAR INDUSTRIES LTD, (ISO 9002 CO.) VALYA, DIST : BHURCH
△ STERLING BIOTECH LTD. (DIV. STERLING - GELATIN) KARAKHADI (VADODARA), HAPUR
△ VAISHALI PATILPURA DUDHGI UTPADAK SAH, SANGH LTD. (PATNA DAIRY PROJ.) EAURIN/PUHARVARSHIF (BIHAR)
△ VAMSHI CHEMICALS LTD. (NIXIL PHARMA, SPECIALITIES LTD.) ASANSOL, BARBANKI, TAPIPUR (AGSAM), JAGDISHPUR (UP)
△ UNIQUE CHEMICALS (A DIV. OF J. B. CHEM & PHARMA, LTD.) PANOLI (BHURCH) / DUMAN
△ HETERO DRUGS LTD. - RAJAyAPET, VIZIG
△ RAMKY ENVIRO ENGINEERS LTD. HYDERABAD
△ GARDEN SILK MILLS LTD. - JOLWA
△ GRASIM INDUSTRIES LTD. (HARHAR POLYFIBRES) - KUMARAPATTAM, HARHAR
△ SHUBHAM INC. - AHMEDABAD
△ RECKET & COLMAN - ASANSOL, DHAKDA
△ S.S.M. SHANKARRAO MOHITE PATIL SSK - AKLU
△ GUJARAT FLOTEX PVT LTD. - GHATRAL
△ G.N.F.C. - NARMADANAGAR, BHURCH

GLOBAL WARMING & THE ENVIRONMENT HAVE BECOME THE CAUSE OF GREAT CONCERN & THE REAL LIVE ISSUE OF THE WORLD

Today, due to rapid industrialization, Global Warming & the Environment have become the cause of great concern and the real live issue of the world. Industries are being pursued rigorously to ensure that the Pollution Control & Energy Conservation systems adopted are continuously under operation. Hence adoption of suitable economically cost effective, energy conserving and very efficient methods of Pollution Control is the TOP PRIORITY of any industry.

We, at Environ Engineering Company are a technology driven company where innovation is the key to New Product Development. We strongly believe that, the environment is a valuable gift of nature & it is our responsibility to protect it.

Save Energy by installing Environ Energy Efficient Aerator
3 TIMES

DOMBIVLI BETTER ENVIRONMENT SYSTEM ASSOCIATION - DOMBIVLI (E)

TAMILNADU PETROPRODUCTS LTD. - CHENNAI

NIRMA LIMITED - AHMEDABAD, MANDALI

JAYANT PAPER MILLS LIMITED - UTRAN

AVON ORGANICS LIMITED - MEADAK

GAVATI DAIRY PRODUCTS PVT. LTD. - AHMEDABAD

BLACK DIAMOND BEVERAGES (COCA COLA) - DANKUNI, TARANTALA

ION EXCHANGE (INDIA) LIMITED - RUBLE, NEW MUMBAI

HARI MACHINES LTD. - KOLKATA

UNIVERSAL STARCH-CHEM ALLIED LTD. - DONDAICHA

HINDUSTAN NEWSPRINT LTD. - KOTTAYAM DIST.

ALCHEM INTERNATIONAL LTD. - NEW DELHI / NEEMRANA (ALWAR)

DEESAN AGRO-TECH LTD. - DHULIA

DR. REDDY'S LABORATORIES LTD. - PYDHIMAVARAM (HYDERABAD)

TECHNO AQUA TECH - VISAKHAPATNAM (AP)

MAC OIL PALM LTD. - AMPURAPURAM, KRISHNA DIST. (AP)

LEPRO HERBAL PVT. LTD. - PANIPAT

S. D. FINE-CHEM LTD. - BOISAR (DI: THANE) / POICHA (BARODA)

TECHNO CRAFT IND. (I) LTD. - (NUKULGA SADIGI) - MURBAD, DIST: THANE

MADHAV AGRO FOODS PVT. LTD. - DABHASA, DIST: BARODA

MCCAIN FOODS (I) PVT. LTD. - BALISAN, DIST: NEHSANA

METRO DYECHEM LTD. - A/BAD, MANDALI

ASIAPN INTL LTD - NAMI DAMAN

PEACOCK AQUA ENGINEERS - HYDERABAD

FRESNIUS KABI ONCOLOGY LTD. - (FORMERLY DARBUR PHARMA) - KALYANI, (WR)

MAHI MILK PRODUCER CO. LTD. - CHOTILA, WADHAVAN, PATADI

SRF LTD. - DAHEGI - I, II, DIST: BHARUCH

UNITED PHOSPHOROUS LTD. - ISO 14001, VAPI, ANKleshwar

DEHLI STATE INDL DEV. CORPN. - WAZIPUR, BADLI - CETP

IFFCO LABORATORIES LTD. - (INNOTECH PHARMA LTD.) - WALLU, AUROGBAGBAD

2 TIMES

L & T LTD. - ECC DIVISION AHMEDABAD / CHENNAI

JAYANT SILK MILLS - SURAT

SRI SARVARYA SUGARS LIMITED - CHELLURU

PIGEON TEXTILE LTD. - SURAT

JAYANT OIL MILL LTD. - VADODARA / MEHSANA

SURYA ROUSHNI LIMITED - MALAPUR, BAHADURGADH (HARAYANA)

JAYANT VITAMINS LIMITED - RATLAM

STERLING AGRO INDUSTRIES LTD. - MALAPUR (N.P.)

STOVEC INDUSTRIES LTD. - AHMEDABAD

LYKA LABS LTD. - ANKLESHWAR

ANIL STEEL - JAIPUR

SEARLE INDIA - ANKLESHWAR

CHEMIQUIP LTD. - AMBERNATH, AHMEDABAD

CHALITHAN SUGARS - CHALITHAN

CLARIS ORGANICS - VADODARA

ASHOK ORGANICS - ANKLESHWAR- NANDNAGAR

JAYSYNTH DYECHEM LIMITED - VAPI, PALANGADA

HINDUSTAN LEVER LIMITED - ORAI, CHHINDWARI

GLAXO LIMITED - NASHIK / ANKLESHWAR

VATAN DYECHEM LIMITED - DADH / ANKLESHWAR

K. N. PROTEINS LTD. - KADI / NANI KADI

LLPIN CHEMICALS - JUJA

BICHAR STATE CO-OP. MILK PRODUCERS LTD. - RANCHI DARY, PATNA, BICHAR

VEERJEE INDUSTRIES LTD. - BIDAR

AUDICHEM (INDIA) PVT LTD. - A/BAD

ADARSH CHEMICALS & FERTILIZERS LTD. - UDHAAN

SAHYADRI STARCH & INDUSTRIES LTD. - MIRA

GULSHAN POLYOLS LTD. - JHAGA / DHUMLA KHAN

CLARIS LIFESCIENCES LTD. - VASNA (AHMEDABAD)

MANALI PETROCHEMICAL LTD. - CHENNAI

ORCHID CHEMICALS & PHARMACEUTICALS LTD. - WULIJ (AUROGBAGBAD)

BALLARPUR IND. LTD. - (PULP & PAPER UNIT) YMUNNAGHAR (HR)

ABDUL KAHR STEEL IND. LTD. - (THROUGH WBTREAT ENGINEERS) BANGALORE (EXPORT)

FAMY CARE LTD. - SARKHEJ (AHMEDABAD)

PAREL BISCUITS PVT. LTD. - SANKHOL (HR) / GONDE DUMALE (DIST: NASHIK)

INDUSTRIAL SOLVENTS & CHEMICALS LTD. - ANKLESHWAR

SHIDIMO INTERAUX PVT LTD. - LAFORE (DIST: SURAT)

STOWNWOOD CEM-FAB (I) PVT. LTD. - (SHARON BIO-MEDICINES LTD) TALOJA, DI: RAIGAD

SOHAM ENTERPRISE - BHARUCH

J. K. CEMENT (JECEM LTD.) - NIMBAHERA (RJ) / BAGALKOT (KARNATAKA)

RALLIS INDIA LTD. - ANKLESHWAR / LOTE PARSHURAM

GUJARAT THERMIS BIOSYN LTD. - VAPI

ANDHRA ORGANICS LTD. - PYDHBHIMVARAM (AP)

INDOFIL CHEMICAL COMPANY - NEZI DAHEGI, DIST: BHARUCH

SHRI DAMODAR YARN MFG. PVT. LTD. - SARGAM (GUJ)

MEGAMANI ORGANICS LTD. - ANKLESHWAR (GUJ)

PBM POLYTEX LTD. - PETLAD, (GUJARAT)

VISHUDHDA ENVITECH MAHIM, MUMBAI

TAMILNADU NEWSPRINT & PAPER LTD. - RAGITAPURAM, KARUK (TN)

REVOLVE ENGINEERS PVT. LTD. - HYDERABAD

HINDUSTAN COCA COLA BEVERAGES P. LTD. - RAGAL / GOBLEJ (GUJ)

A. P. CO-OP. OILSEEDS GROWERS FED. LTD. - ASHWARAPET, KHAMAN (AP)

VISHAL FABRICS PVT LTD. - AHMEDABAD

NAMED MUNICIPAL CORPORATION (SIT) (SHARDA CONST.) NORTH NAMED (MS)

BAJAJ HEALTHCARE LTD. - MANUSAR (BARODA)

VISVAS PAPER PAPERS PVT. LTD. - MADURAI (TN)

SOLARIS CHEMTECH IND. PVT. LTD. - KHAVDA - (BHUJ) / VAODARA

MODERN PETROFILES - KARAN, DIST: BARODA

NITTA GELATI INDIA LTD. - COCHIN (KERALA)

UNITED ENVITECH PVT. LTD. - PUNE

KWALITY MILK FOODS LTD. - KANCHIPURAM (TN)

PAUSHAK LTD. - PANELAV, HALOL (GUJ).

ONEIRO CHEMICALS LTD. - EKALBARA

MERCURY LABORATORIES LTD. - JAROD, DIST: VAODARA

AIA ENGINEERING LTD. - MORAIPA

PURITAS LIMITED - COLOMBO (SRI LANKA) (EXPORT)

ZARTECH LTD. - NIGERIA (EXPORT)

WESTERN FLOC - CHATTRAL

ECHJAY INDUSTRIES PVT LTD. - RAJKOT (GUJARAT)

TEJASW ENVIRONMENT TEACH - HYDERABAD

VISHAWAJI SUGAR IND. LTD. - BELLAD - BAGEWADI, DIST: BELGAIM

SHREE PANDURANG SSK LTD. - SHREEPUR, DIST: SOLAPUR

Environment is a gift of Nature ................................ Let us preserve it
ENVIRO HIGH TORQUE CENTRAL DRIVE CLARIFIERS, CLARIFLOCULATORS, HIGH RATED SOLID CONTACT CLARIFIERS (HRSCC) & THICKNERS

CLARIFIER: Environ Clarifiers, described herein, are for chemical effluents, various types of industrial processing & even metallurgical processing, where the efficient separation of solids from liquids is the 'NEED'. Efficient separation of suspended solids or sedimentation is an important and essential aspect in effluent treatment, since it not only reduces considerably suspended solids loading, but also helps in reducing the COD / BOD loading, thereby contributing in reducing the sizing of subsequent process viz. that of Biological treatment etc.

Thus, Clarification / Sedimentation, the process to remove suspended solids, is economical & has become an essential part of ETPs & raw water treatment plants. Suspended solids removal up to 70% & settle able solids removal up to 90% & 98% & COD removal as high as up to 40% are achievable with proper design of the clarifier unit.

The process is purely of gravity separation. This is achieved by the reduction in velocity of the fluid & nearly 180° change in the direction of the flow. The separate solids would flow downward & settle on tapered floor.

The slow moving scraper mechanism having scraper arms with Neoprene Rubber / PP / HDPE / Brass Squeegees, scraps the floor and brings the settled sludge (suspended solids) to the central sludge well. The velocity or the movement of scraper arms, squeegees is designed in such a way that the sedimentation process is not distributed at all.

Having more than 30 Yrs. of manufacturing experience in effluent treatment plant machineries & having full fledged R&D Department attached with hydraulic testing facilities up to 150HP Aerators & having manufacturing facilities of total 40,000 sq.ft. area, we have developed & incorporated following essential cum efficient features in ENVIRON Clarifiers.

Special Features:

+ High Torque "ENVIRON" Centre Drive with gears is designed for achieving high scraping efficiency with additional Groves gears to achieve High reduction ratio.

+ SCRAPER ARMS LIFTING DEVICES in two varieties:
  a) HAND OPERATED SCRAPER ARMS LIFTING DEVICES: This is our standard inbuilt feature in clarifier. This is provided at NO EXTRA COST. When the scraper arms are embedded in sludge, due to prolonged stopping of the clarifier, the clarifier mechanism cannot be restarted. The motor will trip, the scraper mechanism gets twisted up & drive gets overloaded and damaged. In such cases the effluent has to be pumped out & settled sludge has to be removed to restart the mechanism. While in our Clarifier there is NO PANIC. Operator has to come on the platform & has to operate the hand wheel. Both the scraper arms are lifted to a maximum height of 200mm. Then the mechanism can be switched on the scraper arms can be lowered down slowly by operating handle in reverse direction.
  b) MOTORIZED SCRAPER ARMS LIFTING DEVICE: Only 0.5HP extra electric motor & gearing operate the lifting of the scraper. This feature is provided by us at an EXTRA COST, if asked for.

+ Fixed type full span bridge of Lattice structure suitably designed to take required torque, and having least linear deflection. One meter high double row hard rails is provided.

+ Suitsly designed centre drive rotates the heavy mild steel tubular central pipe, having two scraper arms with neoprene rubber / HDPE / PP / BRASS squeegees.

+ Central sludge well scraper.

+ Overload protection & lifting devices: Electro-mechanical overload protection device has load indicator, Hooter alarm and drive motor cutout switches. In addition to this unique feature particularly for Thickners, Motorized semi automatic or automatic scraper arms lifting devices are also incorporated by us on clients demand. Hand operated scraper arms lifting device are provided with all ENVIRON CLARIFIERS & THICKNERS as a standard feature.

+ Offering Polypropylene (P.P.) Intake Well as standard feature.

ENVIRON CLARIFIERS WITHOUT BOTTOM SLUDGE WITHDRAWAL PIPE: For the first time in India, we have Developed & Introduce for minimal maintenance, the ENVIRON Clarifiers without bottom sludge withdrawal pipe. The sludge at 5 to 10m. total head (pressure) can be obtained at the end of the platform simply by pipe flange connection, this can be taken either to sludge drying beds &/or to aeration tanks for activated sludge plants.

Save Energy by installing Environ Energy Efficient Aerator
**ADVANTAGES:**
- Relief from the frequent maintenance of choking bottom sludge pipe.
- No separate buying & installing of sludge recirculation pumps.
- No special construction E.C.C. dry sump for pump.

This feature adds economy to clarifier installation & operation.

**CLARIFLOCCULATOR:** Clarifloculators are generally used for chemical primary treatment for effluent. Instead of separate flocculation & clarification, clarifloculators are generally used. This results into economical & faster installation of primary treatment. Our Clarifloculators are having high torque centre drive with sludge arm lifting device. We are the only manufacturers to provide this feature as standard. Main feature of Clarifloculator, unlike others, is, concentric paddle type flocculator mechanism which creates the flocs throughout the flocculation zone.

**SKIMMING DEVICE:** The skimming mechanism, if required by the client or required for particular applications, can be provided by us. Generally, this mechanism is required to remove floating debris, solids, which floats or effluent surface. It comprises of a Rotating Skimmer + Scum Scraper + Scum Box. Neoprene Rubber wipers are generally provided. The scum scraper collects the scum & drops it in scum box, which is connected to withdrawal piping. A scum skimming arm, supported on one of the scraper arm, is provided for removal of floating debris, solids. The collected scum is pushed by a level loaded or spring loaded scraper into a scum box. Through this scum box the scum drains off the padde and pipe. Thus floating scum is taken out from the clarifier.

**COMPARISON OF CLARIFIER MECHANISM**

**OTHER MAKES**

- No such device is provided. So incase of overloading due to sustained stoppage if arms get enwrapped in sludge one has to pump out the effluent and normally sludge is to be removed. This results in DOWN TIME of several days.
- To reduce the load on the drive, half nos. of scuegues are provided on each arm. So effective scraper arm is ONE only and NOT TWO. There is a gap between two successive scraper scuegues. Hence scraping efficiency is reduced drastically.
- There is no central sludge scraper. Since scraper is not there compacting of sludge occurs, which will result in choking of sludge in sludge lines, hence more load on sludge pump.

**‘ENVIRON’ MAKE**

- Hand operated sludge arm lifting device is offered as standard, incase of overloading occurs due to sustained stoppage Clarifier can be restarted within a matter of 15 minutes.
- Sufficient numbers of scraper scuegues are provided on each arm, so that there is an overlapping of the scraper blades. There is no radial gap between successive scuegues.
- Bottom Central Sludge well scraper, we provide this scraper. So that there is no compacting of the sludge in central well. So the load on sludge pump will decrease and NO CHOCK will occur.
- We provide, as provided in all foreign design, the HIGH TORQUE central drive with Girth gear and big bearing, since this final gear has high input speed of 7 RPM to 5 RPM and output speed is 0.1/0.08 RPM and has 2 HP rating. Therefore 2 HP rating of our HIGH TORQUE final center drive having 2 service factor is O.K., since 1 HP motor is used. This fulfills the technical requirement.
- Poly Proplene (PP) intake well is provided. (Light in weight & no corrosion).
- Clarifier without Bottom Sludge Pipe, to avoid the choking problem of the sludge pipe, can be offered without extra cost, if asked for.
ENVIRON API TYPE OIL SEPARATORS TOP OIL SKIMMERS, DEOILER PIPES

MINIMAL MAINTENANCE & MINIMAL DOWN TIME

Apart from process consciousness, ENVIRON seriously believes that the design of the equipments should be such that there should be minimal maintenance & minimal down time, since the equipments have to perform continuously round the clock & prove their performance.

Under our QUALITY ASSURANCE PLAN, each & every Aerator & Agitator is manufactured, shop assembled, tested by us in our Testing Facility for 2 hours prior to dispatch & checked for vibrations of the equipment, oil leakage in the Gearbox, Motor Noise, Current Drawn, Freeness of the assembly, concentric running of the Impeller & Shaft, due to which the Aerator can be installed & commissioned within Minimal period, without facing any problem at site, since the problems are rectified during the Hydraulic Testing Facility before despatch.

Almost 150 Nos. of Reputed valuable clients to whom ENVIRON had an opportunity to serve repeatedly for their each & every expansion. The Number of clients, who are placing repeated orders is continuously increasing every year.

Also, since in any ETP / CETP / STP the highest energy is consumed in Biological System, so by upgrading the AERATOR Performance having more & more OXYGEN TRANSFER per HP per Hour (hence increasing the efficiency of the AERATORS), we can reduce the Energy Consumption in the existing Aeration System. If more attention is given for reduction of energy in Aeration Tanks, it would result in HEAVY ENERGY SAVING. So, carrying out ENERGY AUDITING of Aeration System in existing ETP's & STP's would not only result in ECONOMICAL running of Industries, but also the Electrical Energy saving would help in satisfying the future need of Electrical Energy required for new coming up Industries & can also help in reducing GLOBAL WARMING.

Removal of floating oil from the effluent is very necessary. Traces of Slicks of oil escaping to the bioreactor plays major role with BOD or COD reduction. The desired BOD or COD level may not be achieved if the oil traces are in the effluent.

"ENVIRON" make Top Oil Skimmers are specially designed to remove the separable oil viz. waste oils, vegetable oils, animal fats, froths, dairies waste scum fats etc. from the effluent. Thus the recovered oil can be used as raw material for other products to achieve savings. The Oil Skimmer tank is designed as per American Petroleum Institute Standard (API). The oil is collected through the DE-OILER pipe mechanism.

Motorised trolley with four wheels with antifriction bearings travels on & fro on MS rails having electrical limit switches on either side. PP / HDPE / Neoprene rubber skimmer pace. Control panel consists of air break reversing contactors, timer etc. Push button station, flexible cable, drive consists of 0.5HP / 1HP electric motor, 415 V, 50 C/s, 3 phase, AC, Radicon worn reduction gearbox, chain etc. Hand operated slotted pipe mechanism would be there to collect the oil.

Uptill now we have installed more than 50 nos. of such top Oil Skimmers in various industries like Sugar, Oils, Dyes, Chemicals, Automobiles, Pharmaceuticals, Dairies, Distilleries etc.
INHOUSE OXYGEN TRANSFER TESTING & HYDRAULIC TESTING FACILITY

SAVE ENVIRONMENT

INHOUSE OXYGEN TRANSFER TESTING & HYDRAULIC TESTING FACILITY

SAVE ENERGY

ENVIRON ENGINEERING COMPANY
A Company with a Tradition of Innovation (since 1979)

Environmental Engineers, Manufacturers

864/B/3, G.I.D.C. Industrial Estate, Near G.C.E.I., Makarpura, Vadodara 390010, Gujarat, INDIA.
Phone : +91 265 2643870 | +91 265 6536670 | Fax : +91 265 2653458
Mobile : +91 98250 08442 | +91 98797 88102 | +91 98985 48201
www.environengg.com | environ@.environengg.com

Environment is a gift of Nature ........................................... Let us preserve it