



WATER UASB

“Upflow Anaerobic Sludge Blanket (UASB) Technology for Municipal and Industrial Wastewater Treatment”



UASB Reactors of 40 MLD STP at RAK, UAE



UASB Reactors of 49 MLD STP at AJMAN, UAE

70% COD, 75% BOD and 80% TSS removal for Sewage, 90% COD removal for Industrial Effluent

1

Minimal use of Energy making it a very Green Technology

2

Methane Rich Biogas Production for Renewable Energy Production

3

Well digested Sludge with no Odor, Rich in NPK so can be used as Fertilizer

4

Save Water, Energy, Money and Conserve the Environment

5

'UASB Process' Clean Technology

Complete yet Affordable & Sustainable Technology for Wastewater Treatment

Applications:

- Municipal Sewage Treatment
- Industrial Wastewater Treatment
- Common Effluent Treatment

FOR COMPLETE INFORMATION CONTACT:

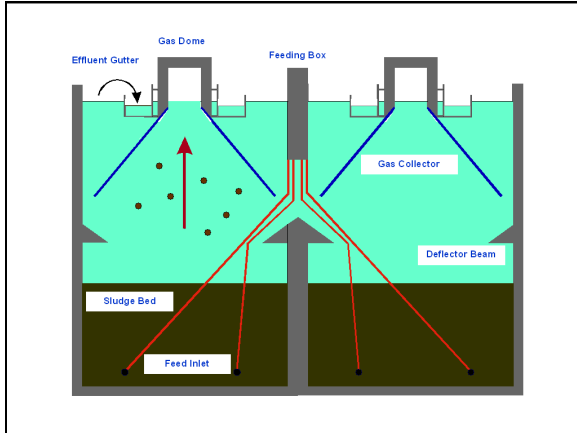
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ABOUT THE TECHNOLOGY

The Upflow Anaerobic Sludge Blanket (UASB) process was developed for the treatment of medium and high strength wastewaters. In the last fifteen years, the UASB process has gone beyond development phase and has been successfully applied worldwide in many full-scale plants.



Sectional View through UASB Reactor

UASB Concept

The UASB reactor has a feed inlet distribution system at the bottom and a three-phase (GLS) separator at the top. The raw influent is distributed over the bottom and mixed with the anaerobic sludge bed through the inlet system. The blanket of anaerobic sludge is maintained in the lower section of the reactor and the incoming wastewater is forced to percolate upwards through this blanket. Contact between sludge and feed is increased by the Biogas production.

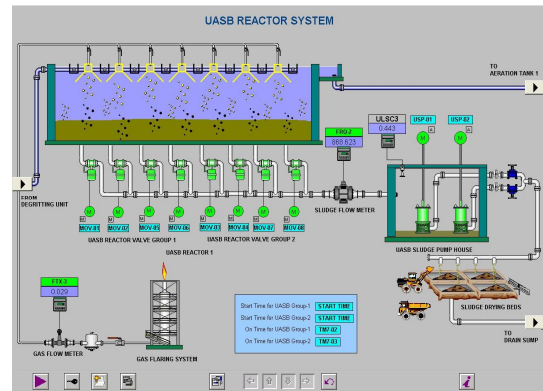
The sludge and the Biogas are separated from the effluent in the GLS separator. The absence of mechanical mixing and sludge recirculation improve the settleability of the sludge.



Gas Piping at Ajman STP UASB Reactor

Why should you select UASB Treatment?

As a result of the special construction of the reactor, and also due to the nature of the process, excellent sludge digesting properties are achieved. Each m³ of reactor volume contains a large amount of bacterial sludge and can therefore treat a greater volume of wastewater than any other system. Loadings up to 15 kg COD/m³ reactor volume per day can be applied for most types of Industrial wastewaters and 1-3 kg COD/M³.d for Domestic Sewage. As a result the treatment plant requires a relatively small area. The efficiency of the process varies between 70 and 90% depending upon the origin of wastewater. For each 3 kg of input COD approximately 1 m³ of Biogas is produced and only 5% of the COD load is converted into stabilized sludge. The sludge can be left in the reactor for upto a year without loss of activity, thus ensuring trouble free operation, during longer shut downs.



UASB Sludge Wasting Through SCADA



Feed Inlet Box of UASB Reactor at RAK STP

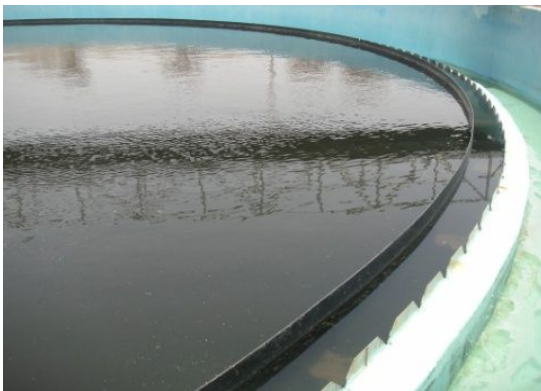
Post Treatment after UASB

- The balance BOD, COD and TSS which is not reduced in UASB Reactor can be treated in a Activated Sludge Process namely Conventional ASD, SBR, MBR etc.

- After the Secondary Biological System, Secondary Treatment could be followed by Tertiary Treatment in Multi Media Filters to meet more stringent Discharge Standards.



Aeration Tank with Fine Bubble Diffusers



Settling Tank for Secondary Treatment

Advantages of UASB Technology

- Low energy consumption
- Generation of biogas
- 70% COD, 75% BOD and 80% TSS removal for Sewage
- More than 90% COD for Industrial Effluent
- Limited production of stabilized, easily dewaterable excess sludge
- Absence of noise
- Low initial investment and operation/ maintenance costs
- Stable process control
- Low nutrients requirement
- Loading upto 15 kg. COD/m³ reactor Volume per day for industrial wastewater
- Methane rich Biogas production which can be utilized to run Mechanical Equipment on site

Project References of Full Scale UASB Wastewater Treatment Plants (WWTP)

- 200 MLD UASB STP at Kanpur, Uttar Pradesh (India)
- 152 MLD UASB STP at Ludhiana, Punjab (India)
- 111 MLD UASB STP at Ludhiana, Punjab (India)
- **60 MLD UASB STP in Ras Al Khaimah, UAE**
- **76 MLD UASB STP in Ajman, UAE**
- 60 MLD UASB STP at Ujjain, Madhya Pradesh (India)
- 50 MLD UASB STP at Faridabad, Haryana (India)
- 45 MLD UASB STP at Faridabad, Haryana (India)
- 40 MLD UASB STP at Karnal, Haryana (India)
- 36 MLD UASB Tannery WWTP, Kanpur, UP (India)
- 36 MLD UASB STP at Ludhiana, Punjab (India)
- 35 MLD UASB STP at Panipat, Haryana (India)
- 30 MLD UASB STP at Gurgaon, Haryana (India)
- 30 MLD UASB STP at Sonapat, Haryana (India)
- 30 MLD UASB STP at Rajahmundry, AP (India)
- 25 MLD UASB STP at Yamunanagar, Haryana (India)
- 22 MLD UASB STP at Nashik, Maharashtra (India)
- 20 MLD UASB STP at Faridabad, Haryana (India)
- 14 MLD UASB STP at Mirzapur, Uttar Pradesh (India)
- 14 MLD UASB STP at Ramagundam, AP (India)
- 10 MLD UASB STP at Panipat, Haryana (India)
- 10 MLD UASB STP at Yamunanagar, Haryana (India)
- 8 MLD UASB STP at Chapra, Bihar (India)
- 5 MLD UASB STP at Kanpur, Uttar Pradesh (India)



**INFLUENT
OF STP**

**UASB
EFFLUENT**

**FINAL
EFFLUENT**