

# BIO-DIGESTOR

An Effective Effluent Treatment Plant Especially Designed For Rice Mills

Introducing  
**INSDAG**  
Designed-Prefabricated  
-MSFRP-Rice-ETP



## CRITICAL DESIGN PARAMETERS

The UASBR technology followed by MBBR, used in the BIO DIGESTOR has evolved after extensive research, laboratory and field trials on the following critical parameters.

- A** Organic Loading Rate (OLR): OLR determines the biological rate of digestion inside the reactors. For rice mill effluents the OLR should be between 3 to 5 kg of COD/ m<sup>3</sup> for UASBR and less than 2.5 for MBBR.
- B** Hydraulic Retention Time (HRT): HRT for UASBR should be around 8-10 hrs and 2-3 hrs for MBBR.
- C** Sludge Retention Time (SRT): More the SRT better is the efficiency and lesser is the sludge generated. In BIO DIGESTOR the SRT is kept around 40 days for anaerobic treatment.
- D** Upflow Velocity: Lesser the Velocity of water inside the reactor better the reactor efficiency. Upflow velocity is kept below 0.7 m/hr.
- E** Specific Surface Area of the Media: More the area, more is the capacity of the media to hold the bio film and have better BOD removal efficiency.

400 m<sup>3</sup>/m<sup>3</sup> of media is maintained in MBBR reactors & rise rate clarifier



## QUALICOM The Quality Experience

Qualicom specializes in Environment Engineering and Water Resource Management.

For last more than 15 years, Qualicom has been innovating highly optimized solutions in Raw Water Treatment, Effluent Treatment and Recycle and Zero Liquid Discharge to Industrial and Commercial Institutions, Defence Establishments, Municipalities and Urban communities.

Qualicom integrates extensive range of technologies with design, engineering and project management capabilities to offer end to end solutions to the industry.

The essence of research and development in Qualicom is to make the resource recyclable and to make the entire waste management scheme energy positive while optimizing both the capital and life cycle cost of the treatment schemes. In Qualicom, we believe in building an environment of Sustainable and Inclusive growth.

**BIO DIGESTOR** is specially designed for treating the waste water from the parboiled rice mills and other process sector industries where the organic load is high.

- Neutralization
- Anaerobic Digestion
- Aerobic Digestion
- Settling
- Filtration/Membrane Process for recycle

## UNIQUE CONSTRUCTION FEATURES

- Extended Life and Maximum Reliability was kept in mind while designing the BIO DIGESTOR.
- The GSL device is made entirely of Stainless Steel / MS FRP to avoid metal thinning by corrosion.
- Media or Carrier elements with very high specific area and more than 90% PSA/TSA ratio is used.
- All under water piping is done by CPVC. Compared to general PVC, these pipes have much more mechanical strength.
- Specially designed tube settler media for most effective settling.
- The Control Panel is Fuse Free

avoiding frequent fuse replacements because of voltage fluctuations.

- All critical components like blowers and pumps are provided with 100% standby.

## WASTE RECYCLING

Water treated in BIO DIGESTOR can be recycled back into the process after suitable Tertiary Treatment.

## WASTE TO ENERGY

Bio Gas generated in the UASB reactor may be used as a source of energy.

## ZERO LIQUID DISCHARGE

The treated water after filtration shall be passed thru UF/ RO system for 100% recycle. The RO reject shall be evaporated to active zero liquid discharge.

## Design Basis

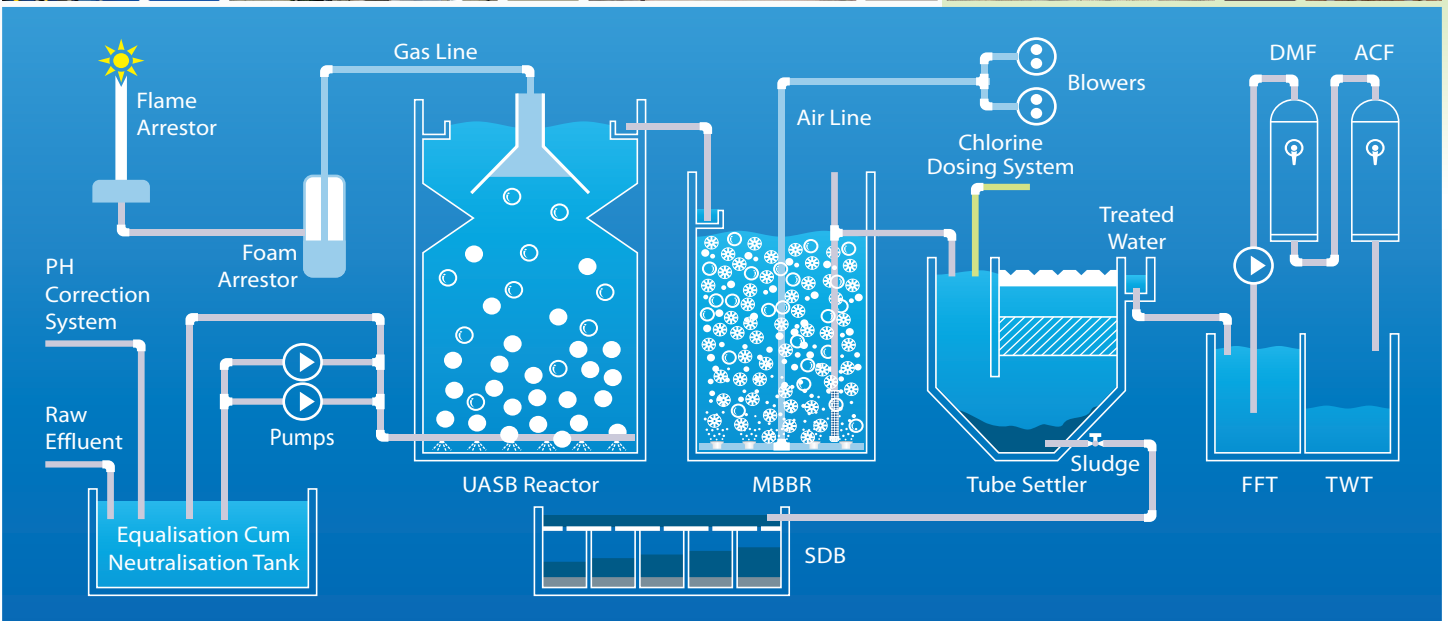
Effluent having 2500-3500 ppm COD & 1500 ppm BOD is treated to a quality suitable for discharge as per local PCB norms and partially recycled back to parboiling.

### Standard Solution

Rice Mill Capacity	Bio-Digester Capacity	Bio-Digester Model
3-4 TON/HR	60 KLD	BD-06
5-6 TON/HR	100 KLD	BD-10
8 TON/HR	150 KLD	BD-15
10 TON/HR	200 KLD	BD-20

And additional sizes as per Mill & Dryer Configuration

- UF & RO for Zero Liquid discharge.
- MOC of Tanks CIVIL/MSFRP/MSEP.



## QUALICOM SOLUTIONS (P) LTD

### Regd. Office :

C-68 Palaspalli, Bhubaneswar 751 020, Odisha, INDIA.  
Phone : 0674 259 4474 / 75, Fax : 0674 259 4476

### Head Office :

31 C R Avenue, 2nd Floor, New Asiatic Building, Kolkata 700 012,  
West Bengal, INDIA. Phone : 033 2211 0031

• Bhubaneswar & Raipur : 09438200491 • Guwahati & North East : 08336913428 • Kolkata : 07044078069 • Hyderabad & VIZAG : 07604034371  
• Ranchi & Patna : 09438200494 • Burdwan & Siliguri : 07044701913

Website : [www.qualicomindia.com](http://www.qualicomindia.com)

