

The **FUTURE** of SEWAGE TREATMENT.

TEAM WATERHOUSE

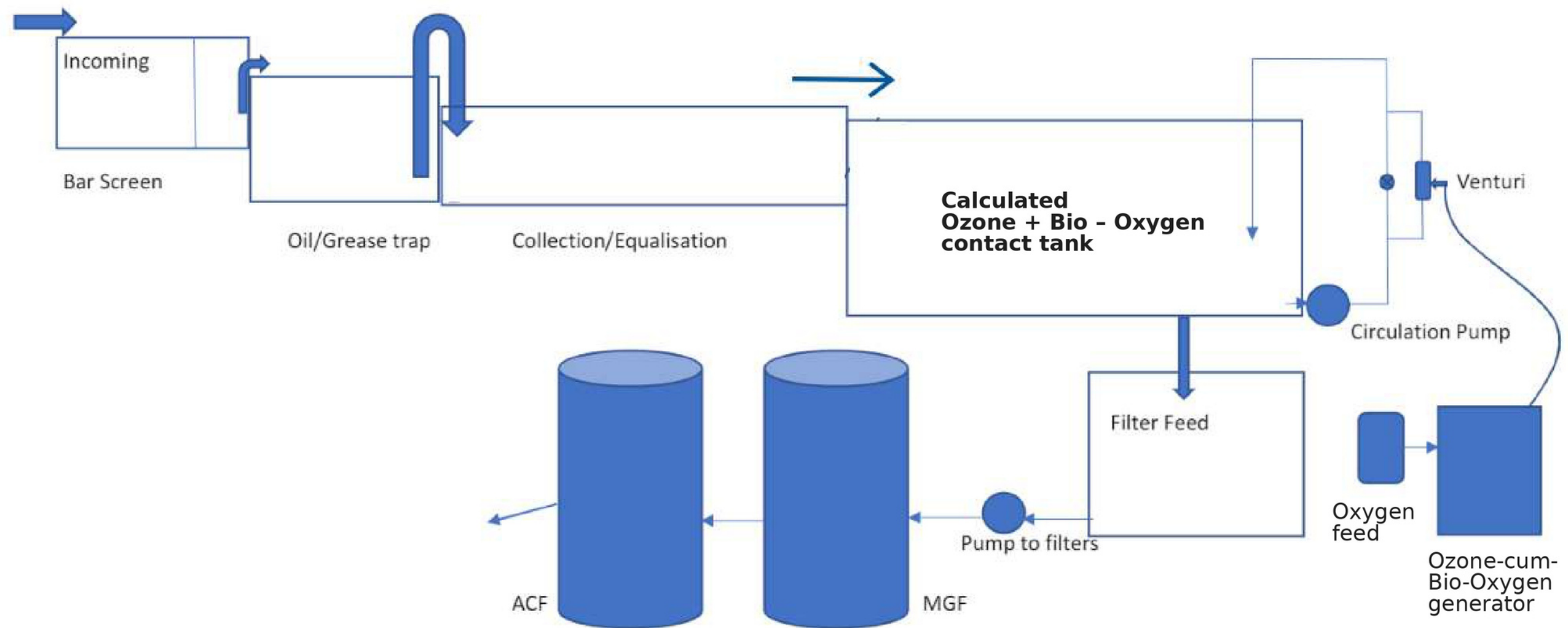
# FULLY OZONATED CUM BIO- OXYGENATED STP

NO AERATION.  
NO BIOLOGICAL TREATMENT.  
NO SLUDGE HANDLING COST/SPACE.

[OzonePedia.com](https://OzonePedia.com)

## FULLY OZONE CUM BIO-OXYGENATED SEWAGE TREATMENT PLANTS.

Process Diagram



**NO AERATION, NO BIOLOGICAL TREATMENT.**

## BRIEF TECHNICAL BACKGROUND :



The pillar of the treatment scheme is a combination of Ozone and another component called Bio-Oxygen plasma – at the right stoichiometric ratio.

This technology is Patented by Team Waterhouse.

Bio Oxygen is an intermediate stage before ozone, having different (lesser) inter-atomic angles as in an ozone molecule, making it more reactive than normal ozone.

This enhanced reactivity is the secret of breaking down high BOD, COD in raw sewage, along with making the entire biological mass / sludge fully soluble inside the wastewater during recirculation inside the ozone cum bio oxygen contact tank.

Apart from that, the percentage of ozone and bio oxygen in the outlet gas produced from our equipment ascertains the success of the decompositions.

Simple ozonation is only good for treated sewage of low toxicity and TSS, for polishing residual / small levels of COD, BOD.



# **TREATED** SEWAGE WATER PARAMETERS **AFTER** METHODOICAL OZONATION cum BIOXYGENATION - **FORMALLY GUARANTEED** BY US :

O&G – less than 10

BOD – less than 10

COD – less than 30

Ammoniacal Nitrogen – less than 25

Total Kjeldahl Nitrogen – less than 50

Total coliform – 10 to 50

Colour – Colourless, becomes completely transparent after filtration

Odour – Fully Odourless

and many more, including pH, NO<sub>x</sub>, total phosphorus, free ammonia, etc.





## BACKGROUND



Methodical OZONATION cum BIOXYGENATION of Raw Sewage is generally called Ozo-Bioxy Advanced Oxidation, or Ozo-Bioxy AOP.

Team Waterhouse has developed and brought the treatment design to reality.

The process is being implemented ultra-successfully since quite a few years now, in multiple parts of the world.

The treated sewage parameters drastically over-qualify pollution board norms.

# **SPECIAL BENEFITS** of **FULLY METHODOICAL** **OZONATED cum BIOXYGENATED STP**

- ☞ Highest-possible Treatment Efficacy – Complete Re-Usability of treated water GUARANTEED.
- ☞ Outlet water parameters are FORMALLY GUARANTEED, as per local Government norms!
  - ☞ Treated water can be re-used at NO extra cost
  - ☞ ZERO Problems, costs & space required for Sludge-Handling
  - ☞ HUGE Savings in civil construction, due to several tanks not needed
  - ☞ The overall recurring costs of treatment are grossly reduced,
    - ☞ NO chemicals used
    - ☞ NO Aeration required
    - ☞ NO Biological Treatment required
    - ☞ Power consumption is grossly lower
  - ☞ The space required are drastically lesser,
  - ☞ The maintenance hassles are nullified
  - ☞ Easy to Operate.





# SPECIALLY CALIBRATED OZONATION CUM BIOXYGENATION SYSTEMS FOR RAW SEWAGE:







# TREATMENT DESCRIPTION

Ozo-Bioxy AOP is  $6 \times 5.5 = 33$  times effective than aerial oxygen.  
Not only that, Ozo-bioxy is 3,453 times stronger as an Oxidising agent & Disinfectant than Chlorine.

Among all kinds of wastewater, the main advantage of raw sewage that when it comes to the collection tank, its already heavily diluted due to flushing from the toilets.

Hence the TSS of the wastewater is already under control, for Ozonation cum Bioxygenation.

Methodical Ozonation cum Bioxygenation has a fantastic property of completely making the sludge soluble in the sewage water, while re-circulating it inside the ozone-mixing tank.

Hence, apart from the BOD, COD, E-Coli, Nitrogen, Color, Odour, etc being totally removed as per CPCB norms, the sludge is also fully De-Toxified together - with NO extra Sludge-Handling costs!

# TREATMENT DESCRIPTION

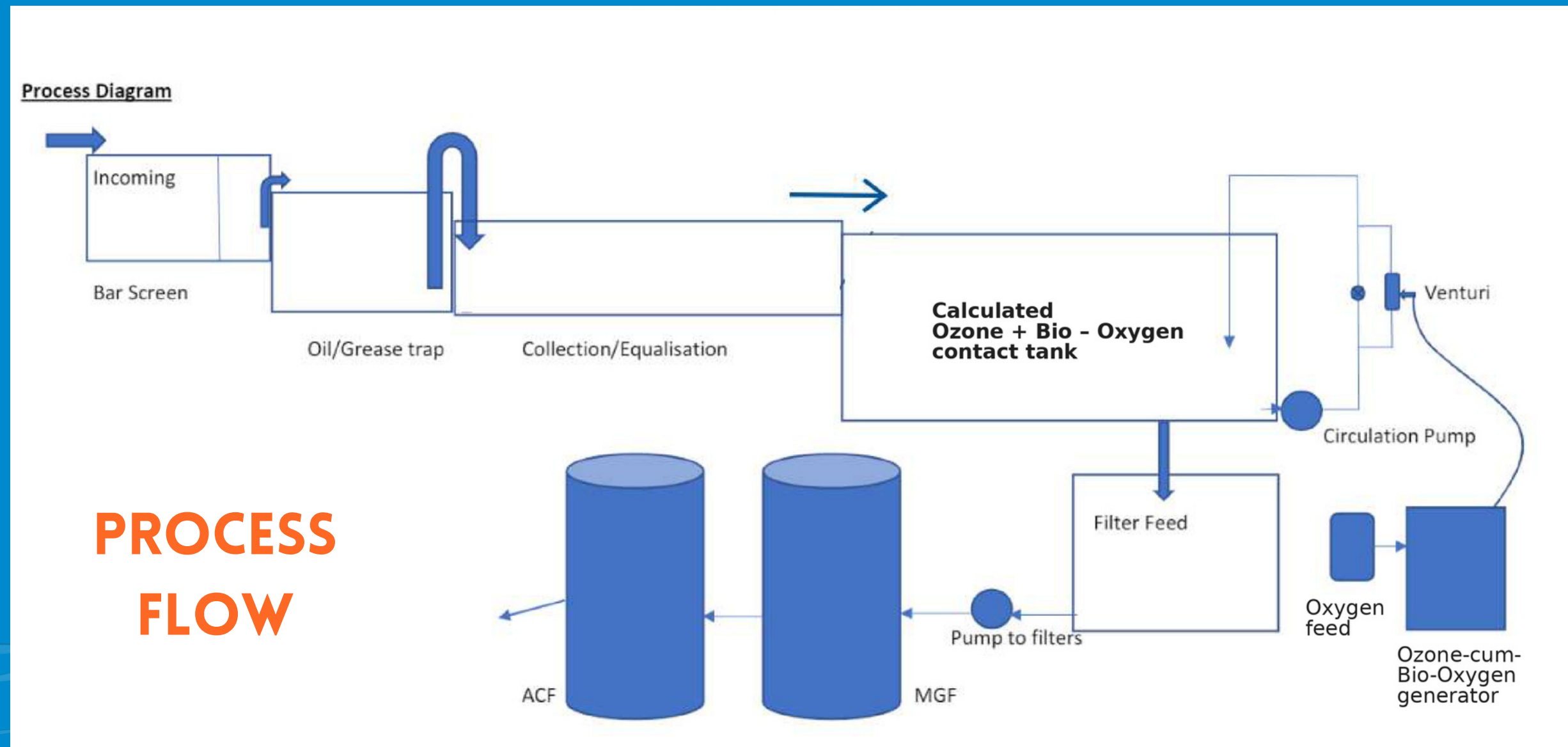
Ozonation cum Bioxygenation is basically Super-Oxidation. Hence, when its done in a methodical way, at the right concentration and dosage, the BOD, COD and all other parameters are dropped down and nullified due to decomposition of the molecular structure of these hydrocarbons.

All these hydrocarbons are decomposed into forming non-toxic elementary compounds. Hence, ZERO TOXIC RESIDUE is formed, and all parameters fall under CPCB norms.

The treated water contains higher Dissolved Oxygen as well.







1. As per our flow-diagram, the raw sewage is passed through the Bar Screen / O&G Chamber.
2. Then it flows into the Collection tank.
3. A sewage transfer pump then transfers this raw sewage into the ozone cum bio-oxygen (OZ-BIO) mixing tank.
4. The OZ-BIO mixing tank is having a recirculation pump, drawing sewage from the bottom of the tank. This sewage is getting ozonated online, via venturi injection method, and the ozonated cum Bioxygenated sewage is thrown into the same tank from the top.
5. This re-circulation process continues for the required retention time, and the overflow of this tank goes into the filter feed tank.
6. The filter feed tank has a filter-feed pump attached to it, which transfers the Ozonated cum Bioxygenated sewage from the filter feed tank to the filtration systems.
7. The outlet water from the filtration systems can be used for all kinds of applications.



# List of ElectroMechanical Equipment needed for FULLY METHODOICAL OZONATED cum BIO OXYGENATED STP

Bar Screen / O&G Trap

TWH-make, Patented, Ozonation cum Bioxygenation system for Raw Sewage treatment

Optional Water Chiller for cooling of Ozo-Bioxy equipment

Transfer pump from Collection to contact tank – 1W &1S

Re-Circulation pump – 1W &1S

Filter-Feed Pump – 1W &1S

Filtration systems

CPVC Pipelines & Fittings

Electrical control Panel



# **List of Civil works** needed for **FULLY METHODOICAL OZONATED cum BIO OXYGENATED STP**

Bar screen chamber

Raw sewage collection tank

Ozone cum Bio Oxygen Plasma Contact Tank

Filter-Feed tank (can also be in PP or PE)

Treated water tank : as per client requirements, if water is to be pumped  
up to overhead tank(s)





# THE FUTURE OF SEWAGE TREATMENT. FULLY OZONATED CUM BIOXYGENATED STP.



WATCH  
VIDEOS  
(links given  
after next page)



WATCH VIDEOS  
(links given after next  
page)

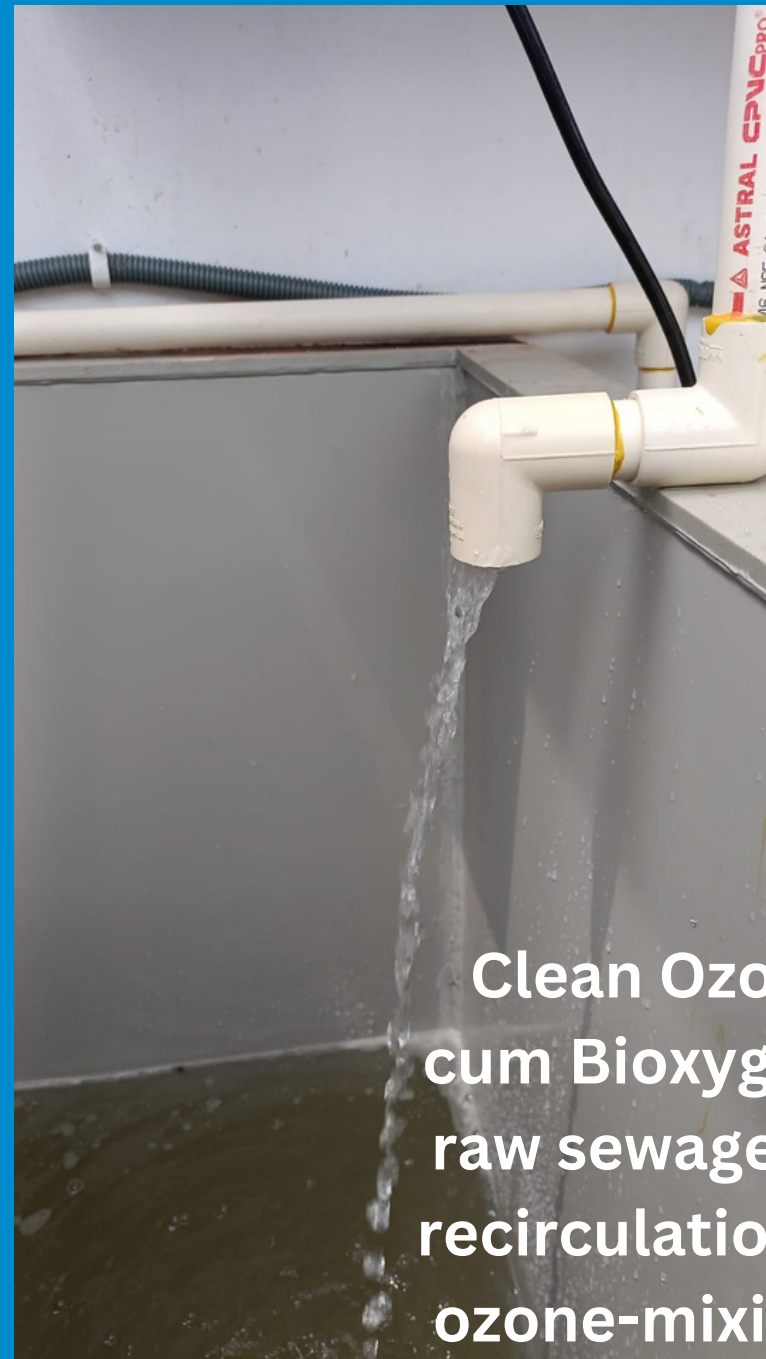




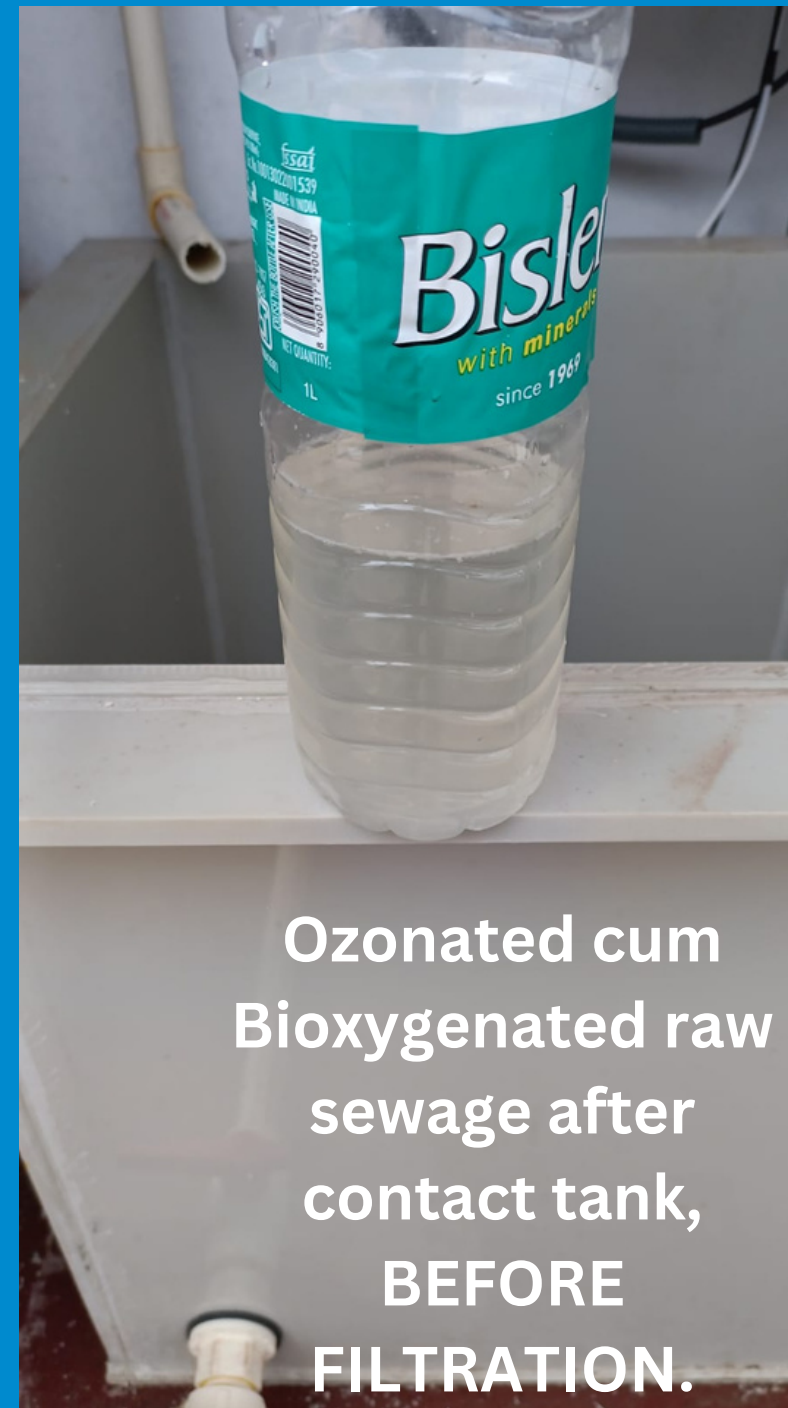


# THE **FUTURE** OF SEWAGE TREATMENT.

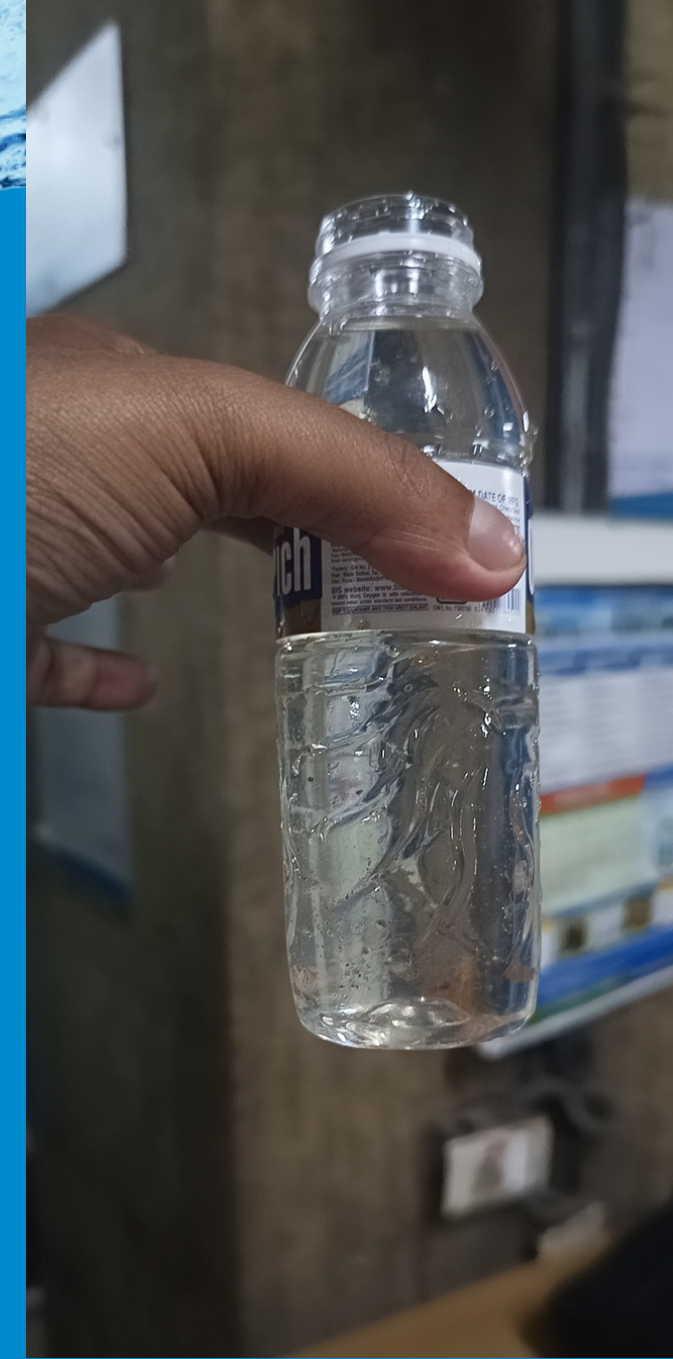
## **FULLY OZONATED** STP.



Clean Ozonated  
cum Bioxygenated  
raw sewage during  
recirculation inside  
ozone-mixing tank



Ozonated cum  
Bioxygenated raw  
sewage after  
contact tank,  
BEFORE  
FILTRATION.



**AFTER FILTRATION (Final Treated  
Water : Fully Re-Usable)**



# Watch Actual Site Videos & Images of FULLY **METHODICAL** OZONATED cum BIOXYGENATED STP

☞ Methodical Ozonation cum Bio-Oxygenation of Raw Sewage : <https://tinyurl.com/3fhfcvj5>

☞ Recirculation of Raw Sewage : <https://tinyurl.com/mr29d7fk>

☞ Full treatment plant with tanks : <https://tinyurl.com/2bdffb9r>

☞ Full treatment plant with tanks : <https://tinyurl.com/2ew2wtly6>

☞ Clean Raw Sewage AFTER OZONATION : <https://tinyurl.com/2v5t4ncj>

☞ Clean, Final Treated sewage water : <https://tinyurl.com/3fkbwdu9>





# R. V. BRIGGS & CO. PRIVATE LTD.

**ANALYTICAL CONSULTING & TECHNICAL CHEMISTS**

**(AN ISO 9001:2015 & ISO 45001: 2018 CERTIFIED COMPANY)**

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E-mail : rvbriggs.kolkata@gmail.com, Website : www.rvbriggs.com

CIN : U51109WB1931PTC007007



TC-7815

## TEST REPORT

**No. E(S)/22-23/817**

**Date: 20 March, 2023**

**Page 1 of 3**

Issued to : **PRIMARC GANGETICA**  
**Hatkola, Mankundu, Chandannagar, West Bengal 712136**

Your Ref. No. : **Letter dated 16/03/2023**

Description of Sample : **Raw Sewage**

Mark on Sample : **Raw Sewage**

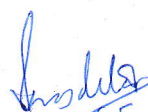
Sample Submitted by the Party on : **16/03/2023**


Analysis completed on : **20/03/2023**

**Parameter Tested:**  
NH<sub>3</sub>-N, TSS, TKN, BOD, COD

### TEST FINDINGS:

Sl. No.	Test Parameters	Test Method	Unit	Results	Limit as per Environmental Protection Act, MOE & F for Sewage discharged into Inland surface water
1	Ammoniacal Nitrogen	APHA 23rd edition 350.1	mg/l	32	50 (Max)
2	Total Suspended Solids (TSS)	APHA 23rd edition 2540D	mg/l	297	100 (Max)
3	Kjeldahl Nitrogen	APHA 23rd edition 1687	mg/l	89	100 (Max)
4	Biochemical Oxygen Demand for 3 days at 27°C (BOD)	I.S. 3025 (Part – 44) – 1993	mg/l	236	30 (Max)
5	Chemical Oxygen Demand (COD)	APHA 23rd edition 5220B	mg/l	487	250 (Max)

  
Report Verified by  
( J. Das )

  
( Dr. R. KARIM )  
Technical Manager  
Authorised Signatory

- ★ The test report shall not be reproduced, except in full, without written approval of the Company.
- ★ Results relate only to the parameters tested.





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## TEST REPORT

No. E(S)/22-23/817

Date: 20 March, 2023

Page 2 of 3

Issued to : PRIMARC GANGETICA  
Hatkola, Mankundu, Chandannagar, West Bengal 712136

Your Ref. No. : Letter dated 16/03/2023

Description of Sample : Raw Sewage after OZONE  
cum BIO OXYGEN PLASMA

Mark on Sample : OZ-BIOXY Treated Raw Sewage

Sample Submitted by the Party on : 16/03/2023

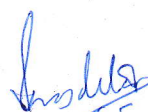
Analysis completed on : 20/03/2023


Parameter Tested:  
NH3-N, TSS, TKN, BOD, COD

### TEST FINDINGS:

Sl. No.	Test Parameters	Test Method	Unit	Results	Limit as per Environmental Protection Act, MOE & F for Sewage discharged into Inland surface water
1	Ammoniacal Nitrogen	APHA 23rd edition 350.1	mg/l	04	50 (Max)
2	Total Suspended Solids (TSS)	APHA 23rd edition 2540D	mg/l	39	100 (Max)
3	Kjeldahl Nitrogen	APHA 23rd edition 1687	mg/l	07	100 (Max)
4	Biochemical Oxygen Demand for 3 days at 27°C (BOD)	I.S. 3025 (Part - 44) - 1993	mg/l	08	30 (Max)
5	Chemical Oxygen Demand (COD)	APHA 23rd edition 5220B	mg/l	33	250 (Max)

**Remarks :** The above results reported in this page has been obtained from the Raw Sewage sample which was treated by "Witherpro7 OZ-BIOXY" Ozone-cum-Bio Oxygen Generator manufactured by Team Waterhouse.

  
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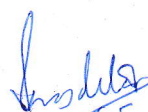
Description of Sample : Sewage after OZ-BIOXY & FILTER  
Mark on Sample : FINAL TREATED Sewage after  
Sample Submitted by the Party on : FILTRATION  
Analysis completed on : 16/03/2023  
20/03/2023


Parameter Tested:  
NH3-N, TSS, TKN, BOD, COD

### TEST FINDINGS:

Sl. No.	Test Parameters	Test Method	Unit	Results	Limit as per Environmental Protection Act, MOE & F for Sewage discharged into Inland surface water
1	Ammoniacal Nitrogen	APHA 23rd edition 350.1	mg/l	04	50 (Max)
2	Total Suspended Solids (TSS)	APHA 23rd edition 2540D	mg/l	14	100 (Max)
3	Kjeldahl Nitrogen	APHA 23rd edition 1687	mg/l	07	100 (Max)
4	Biochemical Oxygen Demand for 3 days at 27°C (BOD)	I.S. 3025 (Part - 44) - 1993	mg/l	05	30 (Max)
5	Chemical Oxygen Demand (COD)	APHA 23rd edition 5220B	mg/l	29	250 (Max)

-:END OF TEST REPORT:-

  
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# Lets Talk!

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A large, dynamic splash of water in shades of blue and white, rising from the bottom right and spreading across the middle of the frame. The water droplets are frozen in time, creating a sense of movement and freshness.

**Treat Sewage like its 2024 AD.  
Not like 1924 AD.**

**OzonePedia.com**

 **+91 974 888 345 9**

