

Dear Water Warriors,

Technology, that's one thing each one of us respect and admire. It eases our day-to-day performance and also encourages designers to create something new for the benefit of our customers.

IFAT Mumbai was the right place to see what's new.



In 'Waughter', we cover a few technologies amongst several good things exhibited by many water and waste water management companies. It's just knowledge share and not recommendation !

Nidhi Jain
Civil Engineer

IFAT Mumbai – Stronger Together?

Team Aktion along with it's several well wishers were presented **"The Waughter Planet"** at the show during 17-19, Oct 2023 at Mumbai Exhibition Center.

The show was a success and well appreciated by our customers and well-wishers.

Over the years "Team Aktion" is playing it's role in Industry as an advisor and consultant, that with the presence of

- ChemDist Process Solutions Private Limited, Pune
- Inhibeo Water Solutions & Technologies Private Limited, Indore
- RevOs Aqua Systems Private Limited, Pune
- Technorbital Advanced Materials Private Limited, Kanpur

takes a new dimension where we are able to offer our customers equipment and services along with "Knowledge".



Alfa Laval MBR membranes

With Alfa Laval MBR membranes, you get trouble-free MBR wastewater treatment at a low operating cost. Based on Alfa Laval LowResist™ technology, they combine minimal cleaning and maintenance needs with low energy consumption and excellent effluent quality.

Applications

- Municipal
- Food & beverage including wineries, breweries, dairies, starch, snacks
- Pharmaceutical production
- Chemical production
- Petrochemical processing
- Slaughterhouses
- MBR package plants for municipal and industrial application

For several other Features & Benefits contact:

Sanam Monavari, Ph.D.

Sanam.monavari@alfalaval.com

Benefits

The updated version of MBR membrane modules features a number of improvements that increase efficiency, cut energy consumption and reduce maintenance costs even further. The one that attacks most is:

LowResist™ — minimizes fouling and energy consumption

Alfa Laval’s unique LowResist™ design ensures an ultra-low transmembrane pressure (TMP) under operation. Many of our references operate under pressure from gravity alone. The ultra-low TMP results in Alfa Laval MBR membranes requiring much less cleaning and maintenance than other MBRs on the market as the fouling is mainly surface fouling, which is easily removed, while pore fouling is minimized.

The key to the LowResist™ technology is a design that integrates a high permeability microfiltration membrane with a MBR module construction that limits pressure loss at all stages of permeate production.

Membrane module and operating data

Membrane type	MFP2
Membrane pore size	0.2 µm
Typical TMP during operation	0.01 – 0.04 bar / 0.15 – 0.58 psig
Typical net flux range	10 – 30 LMH / 6 – 18 GFD ¹
Maximum temperature	50°C / 122° F
pH range	1 – 11

¹ Depending on actual wastewater conditions and composition

Membrane module materials data

Module frame	AISI 316 stainless steel
Permeate and aerator piping	AISI 316 stainless steel
Membrane element and spacer	Polypropylene (PP)
Membrane	Polyvinylidene fluoride (PVDF)
Aerator type	Course bubble diffuser
Aerator material	AISI 316 stainless steel
Connection at air inlet and outlet	2" BSP
Connection at permeate outlet	Pipe with OD: 75 mm



MICRODYN iSepTM 500

These UF modules were designed for high fouling water and wastewater streams and provides a lower overall cost to plant owners. The unique low-fouling properties result in:

- Lower pretreatment requirements
- Higher flux rates
- Lower energy

Extensive pretreatment for UF systems, such as clarifiers, adds significant and unnecessary cost, footprint and complexity. With the ability to directly treat some of the most difficult water and wastewater streams, iSep is able to drastically reduce c: operational costs while simplifying the overall treatment process.

High Effluent Quality: The strong, durable design of the iSep element eliminates mechanical failures, ensuring high quality effluent throughout the life of the element.

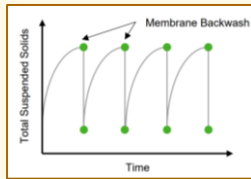
Membrane Backwash: Periodic backwash purges particulate matter from the membrane surface.

Skid-Mounted Design: Simplifies installation and maintenance while eliminating the need for a membrane tank.

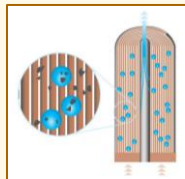
Low-Fouling Membrane Chemistry: Hydrophilic PVDF chemistry enhances membrane fouling and permeability characteristics



Skid Design



TSS Profile post Backwash



Air Scouring



Features & Benefits

iSepTM 500 UF modules are the first to incorporate the various design features and benefits of both pressurized and submerged UF and microfiltration (MF) systems:

Integrated Tank Design: Membrane element and tank have been integrated into a single, encapsulated module eliminating the need for a large process tank.

Frequent Draining: High tank intensity design allows for frequent draining, effectively purging solids from the membrane module resulting in lower fouling.

Membrane Aeration: The open flow channels enable aggressive air scouring where bubbles “scrub” the membrane surface clean.

Specifications & Use

What we were impressed were it’s ability to take higher TSS/ For several other Features & Benefits contact:

N P Singh

narendra.singh@mann-hummel.com

The following are specifications for MICRODYN iSepTM 500 UF modules.

TABLE 2. MEMBRANE SPECIFICATIONS iSep UF MODULES.

Parameter	iSep UF Module
Membrane Pore Size	0.03 µm
Configuration	Submerged
Transmembrane Pressure (TMP) Range	0.07 – 0.7 bar (1 – 10 psi)
Feed Channel Spacing	2.3 mm (0.090 inches)
Temperature Range	1 – 45°C (34 – 113°F)
pH (Continuous)	2 – 11
pH (Cleaning)	2 – 11
Maximum Chlorine Exposure	2,000 mg/L

4.2 MODULE CONNECTIONS & DIMENSIONS

TABLE 3. CONNECTIONS & DIMENSIONS FOR iSep UF MODULES.

Item No.	Description	Specification
1	Overflow	50.8 mm (2.0 inch) grooved end
2	Feed/Drain	50.8 mm (2.0 inch) grooved end
3	Permeate	38.1 mm (1.5 inch) cam and groove
4	Air	19.1 mm (3/4 inch) MNPT

Nature Works® - Glass Filter Media



Our Glass Media

Pure Water Enterprises is excited to have partnered up with Nature Works for their glass Filter media product offerings. Nature Works® Glass Filter Media is a filter media made from virgin granulated glass, **designed to replace the silica sand in any standard filter available on the market.** It is the only water treatment filter media that provides maximum performance; reusability; energy, water and chemical savings; certified purity and total safety during installation.

Advantages - Glass Media



WATER
SAVINGS



ENERGY
SAVINGS



PERFORMANCE
IMPROVEMENT



HIGH MEDIA
DURABILITY



COMPLETELY
SAFE

Certifications - Glass Media



BUREAU VERITAS -
Fresh Water Treatment &
Silica absence Certification



ABSENCE OF BIOFILM -
Certified to not form
Biofilms



IFTS -
Lab Testing Certified



NSF Certified -
For Drinking Water
Applications



PURE WATER ENTERPRISES PVT. LTD.

308, Matharu Arcade, Subhash Road, Vile Parle East, Mumbai - 400056.

www.purewaterent.net

+91 9820173817

info@purewaterent.net

Bio Tricking Filter – Odor Control

IPEC has developed a biotrickling filter (BTF) to remove odorous smell without the use of chemicals. In the BTF, the required conditions (moisture, nutrients, ...) are created to allow bacteria to grow on the media inside the vessel.



For several other Features & Benefits contact:

Eng. Jeroen Debruyne
 Technical Director
jdebruyne@trevi-env.com

Benefits

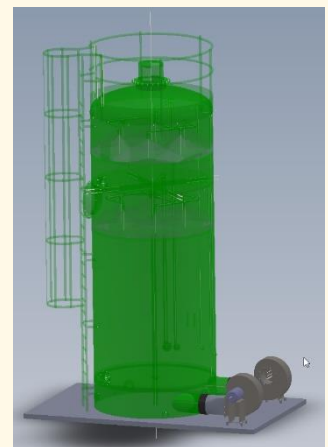
The biotrickling technique is mainly developed to remove H₂S and VOC from sewage applications. In case of hydrogen sulphide which is the major component to be removed from foul air from a sewage network, the autotrophic bacteria will oxidize H₂S into sulphuric acid which is drained to the network. The VOC components will be oxidized by heterotrophic bacteria (upstream in the BTF), present at a higher pH.

The proper design and selection of the correct media will result in a low pressure drop and less energy consumption. To moisten the bacteria and to drain the sulphuric acid, TSE (treated secondary effluent) can be used. This water may still contain some nutrients (NPK) which is beneficial for the bacteria culture in the biotrickling filter. If potable water is supplied, additional nutrients can be dosed through a dosing system.

The odour control unit has a flow of about 1000 m³/hour which is created by a direct driven, stainless-steel fan. The fan blows the extracted air in the biotrickling filter (BTF) in which water is sprayed over packing material. The packing material functions as a carrier with a high specific surface on which the micro-organisms that remove the odour can grow. These organisms, mainly bacteria, degrade the odorous components while the foul air is flowing through the packing material.

The Acidithiobacillus-bacteria are the main group of bacteria used to degrade H₂S by converting it into sulfuric acid. Because of the high inlet H₂S concentrations, the applied water is not recirculated over the packing but only a single pass is applied. Already after one passage of the water, the conversion of the high amounts of H₂S to H₂SO₄ results in low pH of the water. The bacteria have their optimum pH-working point around 2-3.5, so the removal of H₂S will take place in the lower part of the bed.

In the upper part of the packed bed, the pH will be neutral or slightly decreased which is the ideal conditions for heterotrophic bacteria to grow and to remove VOC from the foul air. In addition, ammonia and amines are removed in the acidic water by formation of a divalent sulfate salt. To overcome the fluctuating quality of the supplied water which is mainly TSE water (treated secondary effluent), a nutrient dosing system is installed to . By PLC-control, the moistening of the biotrickling filter and the dosing of the nutrients is monitored.



जल जीवन जननी !!

IFAT 2023, Mumbai. The leading exhibition and event for Environment with specific focus on Water & Waste water was an opportunity to know the latest in the world of water.



Waughter, was appreciated and loved by all.

Highlight of the Month

In this section, we shall highlight the new achievements of our team. In case you wish to have more details on the same, please let us know:

- External MBR design where side-stream closed loop MBRs are used.
- Design of special membrane based plant for emulsified Oil removal.
- Participation in IFAT Mumbai.
- Launch of our Brochure “Stronger Together”
-

Our World is Waughter

The technical knowledge share attempt of Aktion Consultancy and the contents in the magazine shall be qualified by Sanjeev Srivastava our Technology Lead. The purpose is purely education and empowerment of engineers.

Our next edition focuses on: “Role of Microbiology in Waste Water Management”

Please feel free to contact Ms Nidhi Jain 95128 55227 or write to us at nidhi.jain@aktionindiaa.com

Aktion Consultancy
C 1305, Rajyash Rise
New Vasana,
Nr Vishala Circle,
NH-08,
Ahmedabad - 380 051
Bharat (India)



Alka Srivastava – Founder