

# The Highest Number of MBR Process References

Total Site **No. 2,000** / Total Flow Rate Volume Over **200 MGD**  
 Total KSMBR Site **No. 200** / Total KSMBR Flow Rate Volume Over **105 MGD**



Gongchon MBR / **17.2 MGD**

Parameter	Influent (mg/L)	Effluent (mg/L)	Efficiency (%)
BOD <sub>5</sub>	152 – 256	2.4	98.9
COD <sub>Mn</sub>	63 – 103	7.2	91.7
SS	125 – 268	N/D	100
T-N	36.0 – 49.0	8.48	79.1
T-P	3.0 – 10.8	0.16	96.3

- Outdoor Playground, Stage, Children's Playground
- Ecology Study Place / In-site Stream Reuse for Resident

Parameter	Influent (mg/L)	Effluent (mg/L)	
		Before	After
BOD <sub>5</sub>	107 – 161	4.8	0.8
COD <sub>Mn</sub>	80 – 122	15.0	7.2
SS	108 – 168	9.3	N/D
T-N	26.5 – 45.3	11.30	5.53
T-P	5.8 – 9.6	0.40	0.05

- 100% Reuse to neighboring Industrial Complex Zone
- 50% Water Saving
- ROI(Return of Investment) within 5 years



Dalseong MBR / **6.6 MGD**

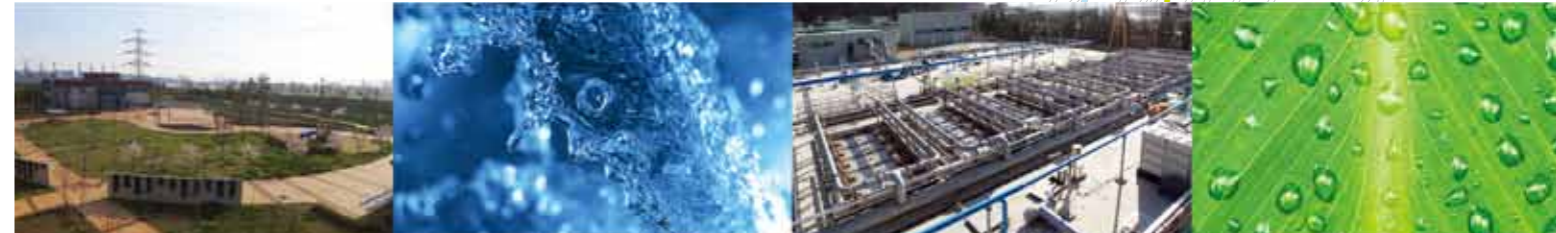
Parameter	Influent (mg/L)	Effluent (mg/L)	
		Before	After
BOD <sub>5</sub>	100 – 300	4.1	1.1
COD <sub>Mn</sub>	53 – 137	14.4	5.0
SS	85 – 420	3.1	0.2
T-N	26.0 – 46.8	11.50	7.34
T-P	2.7 – 5.2	0.80	0.08



Okcheon MBR / **4.8 MGD**

# ECONITY MBR Process

MBR (Membrane Bio Reactor)



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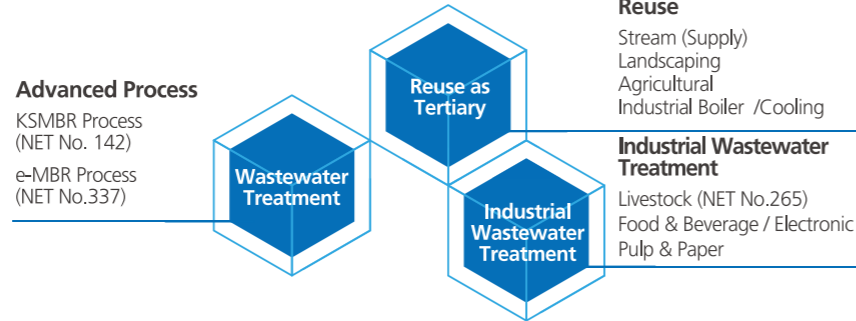




## 1. Stability / Effluent

- High Efficient Removal and Stable of Water Quality
- Flexible Solution for Highly Fluctuated Influent Water Conditions
- Meet the Needs of High Stringent Water Reuse Quality Regulation

### Application Field



# KSMBR®

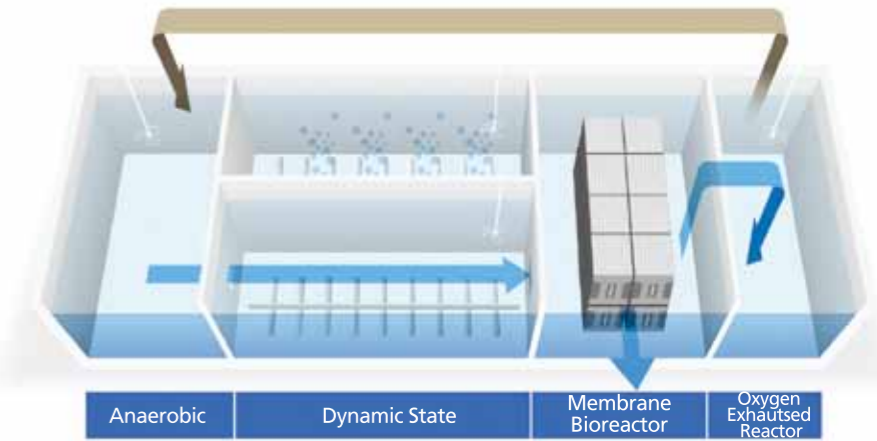
**KSMBR-Holds the record for the Highest number of MBR process in Korea**

- 2007 Year Best Environmental Technology (President Award)



- New Environmental Technology Certification (No.142) / Verification(No.84)  
- Green Technology Certification (GT-11-00065)

- Maximize using the influent carbon source through shifting inflow and tri-sectional aeration in the parallel reactor
- Improvement of inhibition factor for denitrification by residual DO from the existing intermittent aera
- Stable nutrients removal by maximum use of organic matter despite of the low C/N ratio condition
- Low sludge recirculation rate (1Q~2Q)



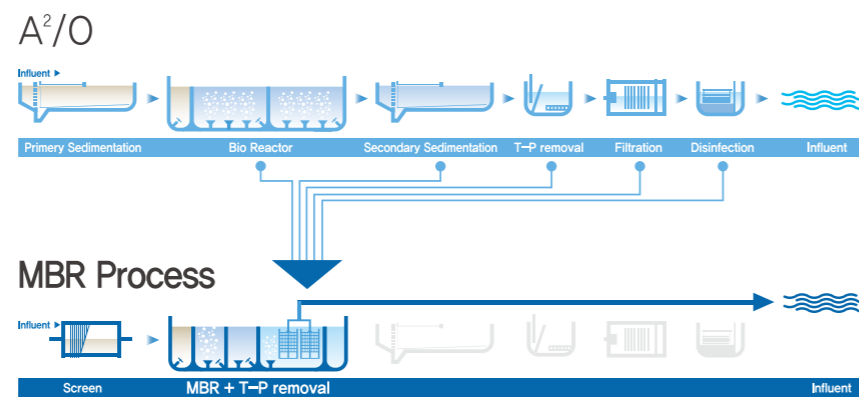
Parameter	Influent		Effluent		Efficiency(%)	Effluent Standard
	Range	Average	Range	Average		
BOD <sub>5</sub>	31.6 - 331.0	90.6	0.4 - 2.3	1.3	98.3	5
COD <sub>Mn</sub>	17.2 - 154.0	42.3	3.1 - 8.5	5.4	85.8	20
SS	7.0 - 1,244.0	97.0	0.0 - 2.0	0.7	97.9	10
T-N	17.4 - 62.9	25.2	2.6 - 14.1	8.3	66.1	20
T-P	1.4 - 10.6	3.1	0.1 - 1.2	0.6 (without Coagulant)	79.8	0.2
E-coli.	1,200 - 59,000	22,000	0 - 0	0	100.0	1,000

Reference : New Excellent Technology Verification Report



## 2. Small Footprint Replaces Settlement, Filtration, and Disinfection

- Replacement of Existing Systems
- Easiness for Future Expansion



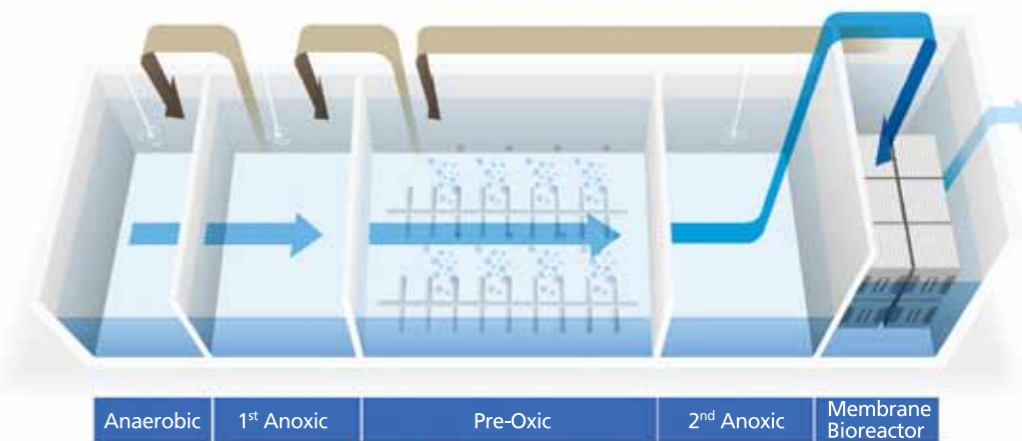
# eMBR

**Advanced wastewater treatment process which can economically meet T-N<5mg/L and T-P<0.2mg/L without additional system**



- New Environmental Technology Certification (No.337)

- Advanced wastewater treatment process which can steadily remove nutrients below T-N 5mg/L and
- Maximize nitrogen removal by the arrangement of 1st and 2nd anoxic reactor (<5ppm)
- Maximize T-P removal by Enhance Biological Phosphorus Removal(EBPR) with direct injection of coagulant(Fe) into biological reactor
- Energy saving by using DO remained in sludge air from membrane bioreactor to pre-oxic



Parameter	Influent		Effluent		Efficiency(%)	Effluent Standard
	Range	Average	Range	Average		
BOD <sub>5</sub>	89.5 - 155.3	112.6	1.2 - 2.4	1.8	98.3	5
COD <sub>Mn</sub>	33.9 - 52.4	42.4	4.2 - 8.7	7.0	82.9	20
SS	53.1 - 119.1	82.4	0 - 0.8	0.3	99.6	10
T-N	24.8 - 32.0	29.1	3.3 - 4.6	4.1	85.9	20
T-P	3.0 - 4.04	3.54	0.06 - 0.18	0.4 (without Coagulant) 0.13 (with Coagulant)	96.2	0.2
E-coli.	70,000 - 142,000	112,000	0 - 12.0	0	99.99	1,000

FeCl<sub>3</sub> (33% soln.), 34mL/m<sup>3</sup>, Winter



## 3. Reuse Field

- Primary Filtered Water : Landcaping, Stream Reuse
- Secondary Filtered Water : Agricultural, Industrial Reuse, Resort

### Reuse Process

