
# Analytical Instruments for Environmental Protection

**HORIBA Advanced Techno, Co., Ltd**
**Evoxy Seah**

31 January 2024

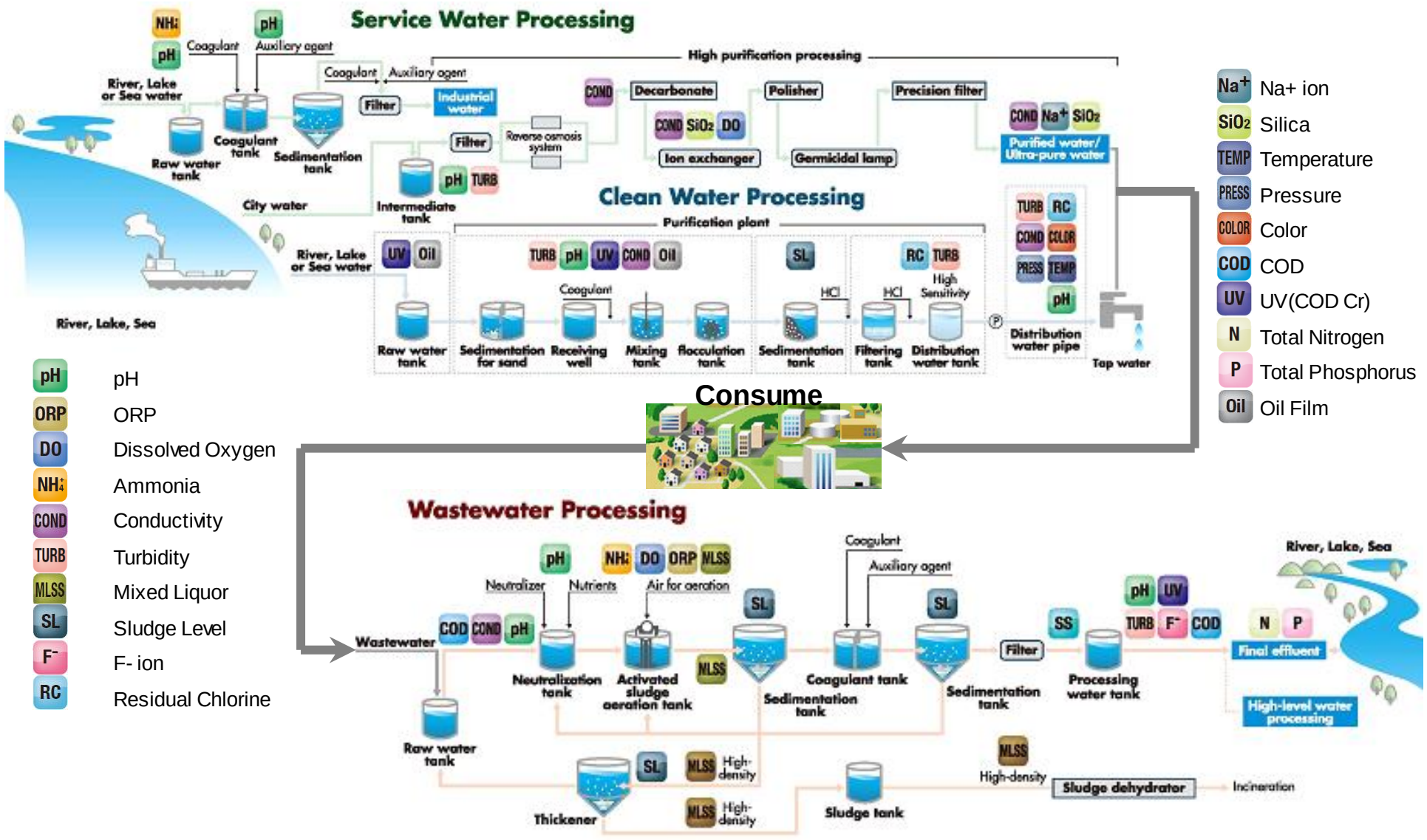
# Company Overview of HORIBA Advanced Techno

| | |
|---|---|
| **Founded** | March 28, 1975 |
| **Capital** | 250 MJPY |
| **Fiscal Year End** | December 31 |
| **Number of Employees** | 397 (R&D 112) *As of Jan 2024 |
| **Executive** | Chairman : Atsushi Horiba<br>President and CEO : Kentaro Nishikata<br>Senior Corporate Officer : Koichiro Kanaya<br>Corporate Officer : Masashi Nishimura |
| **Line of Business** | Development, manufacture and sale of the analytical instruments for laboratories and processes critical to such areas as water treatment, semiconductor, environment, agriculture, aquaculture, foodstuffs and bio/life science. |

Head Office : Kyoto, Japan

# The Life Cycle of Water




- pH — pH
- ORP — ORP
- DO — Dissolved Oxygen
- $NH_4^+$ — Ammonia
- COND — Conductivity
- TURB — Turbidity
- MLSS — Mixed Liquor
- SL — Sludge Level
- $F^-$ — F- ion
- RC — Residual Chlorine

- $Na^+$ — Na+ ion
- $SiO_2$ — Silica
- TEMP — Temperature
- PRESS — Pressure
- COLOR — Color
- COD — COD
- UV — UV(COD Cr)
- N — Total Nitrogen
- P — Total Phosphorus
- Oil — Oil Film

# HORIBA's Core Technologies

## Infrared measurement

Technology to analyze components in gas in real time

Automotive Test Systems | Process & Environmental | Scientific

## Gas flow control

Technology to measure and instantly control the flow of gas

Automotive Test Systems | Process & Environmental | Semiconductor

## Particle analysis

Technology to measure particles (diameter, quantity, weight, and components)

Automotive Test Systems | Process & Environmental | Medical | Semiconductor | Scientific

## Spectroscopic analysis

Technology to analyze materials by using ultraviolet light, visible light, and near-infrared light

Semiconductor | Scientific

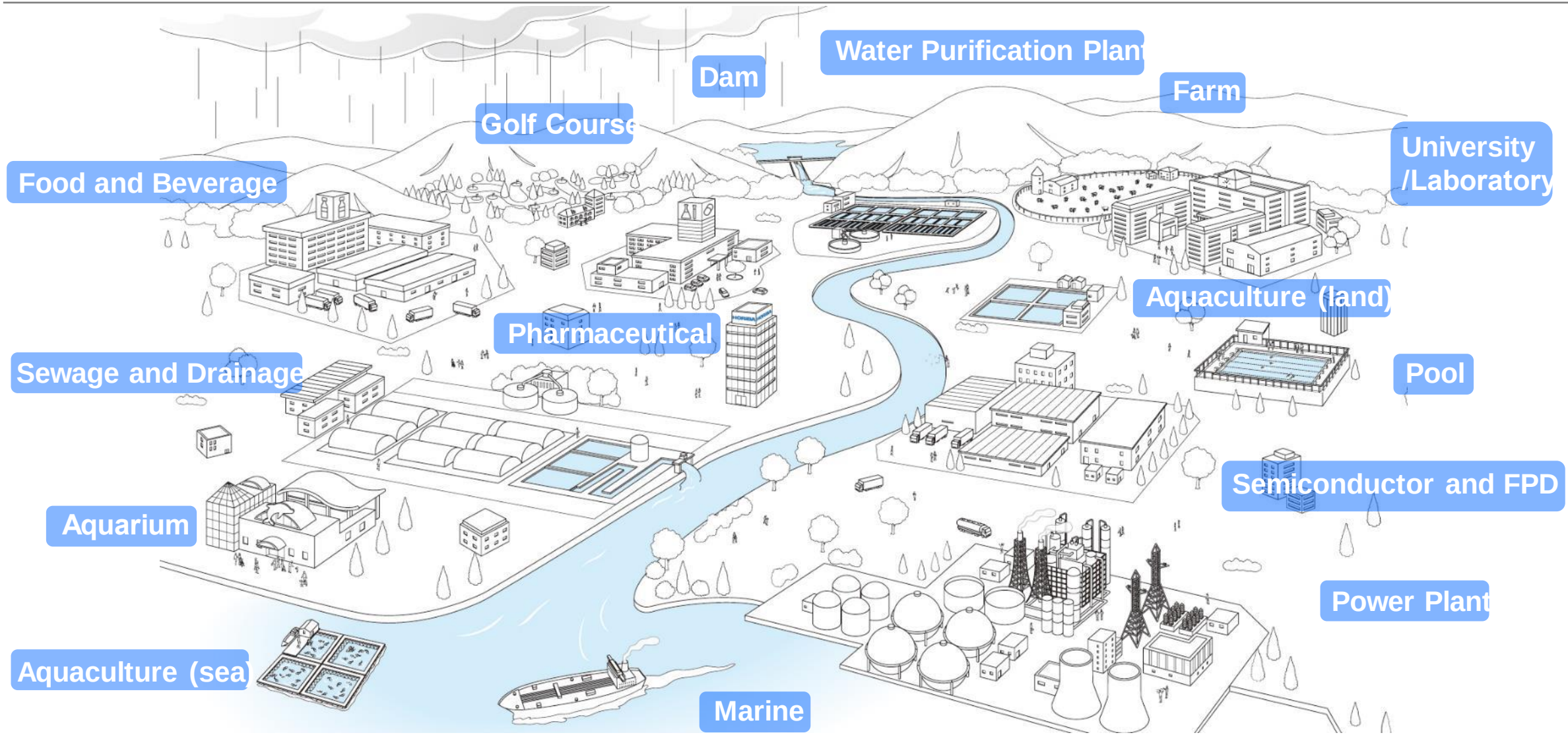
## Liquid analysis

Technology to measure components in, or characteristics of, liquids, such as pH, sodium, acids, alkalis, and glucose

Process & Environmental | Medical | Semiconductor | Scientific

HORIBA allocates its development resources by focusing on specific analytical and measurement technologies, by leveraging our expertise, we are able to efficiently develop products addressing 5 different segments.

# Business Fields



# Water Quality Analyzers

## Online

pH ORP COND DO TURB COLOR RC TEMP $NH_4^+$ MLSS Resist $F^-$

pH/ORP electrode

Ammonia nitrogen sensor

DO sensor

UV sensor (TSS/COD/BOD conversion)

## Offline (Portable)

pH ORP COND SALT TDS DO TURB DEP TEMP GPS

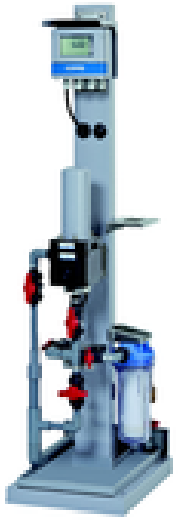

# General product lineup

## Drinking Water Application

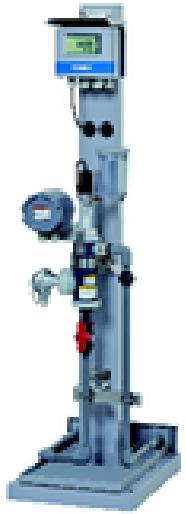
pH ORP COND DO TURB COLOR RC TEMP

TW-150

Turbidity meter



pH meter



Residual chlorine meter

## Wastewater Application

pH ORP COND DO TURB RC TEMP $NH_4^+$ MLSS Resist $F^-$ COD

TPTN meter

COD meter

UV meter (COD)

pH sensor (New)

Ammonia meter

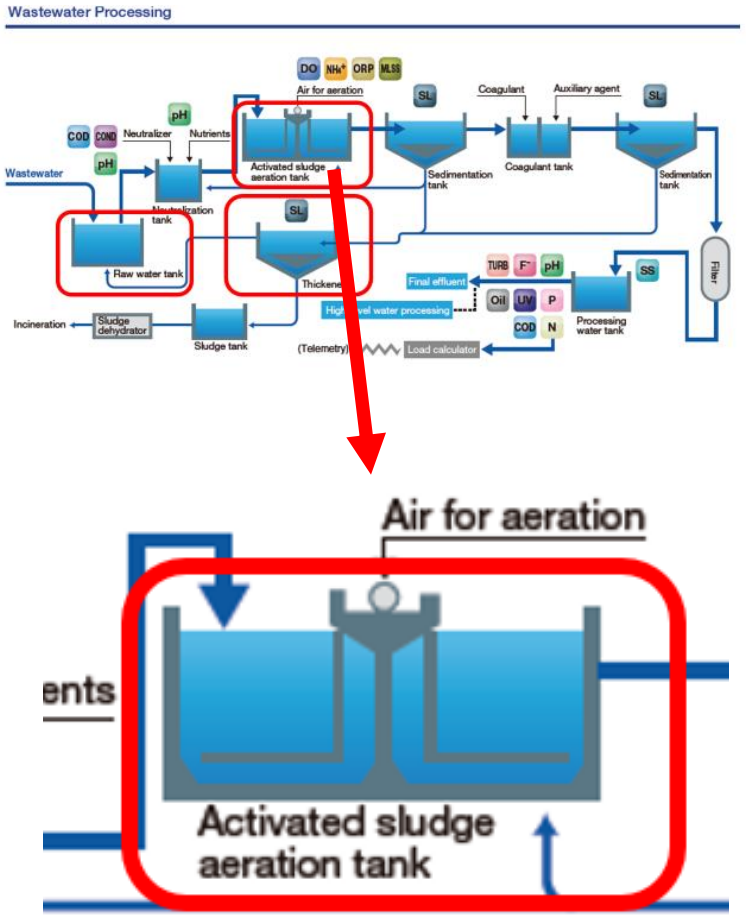
# Installation Examples

## Water Quality Monitoring System (WQMS)

# Self-cleaning pH electrode

## General Wastewater




No maintenance required 3 months after installation achieved!

| Regular pH Electrode | Self-cleaning pH Electrode #1 | Self-cleaning pH Electrode #2 |
|---|---|---|

**<u>Maintenance Frequency</u>**

Before: Monthly cleaning and calibration

After: No maintenance even after more than 3 months

## ① Discharge tank (inorganic)

**Biofilm Build up**

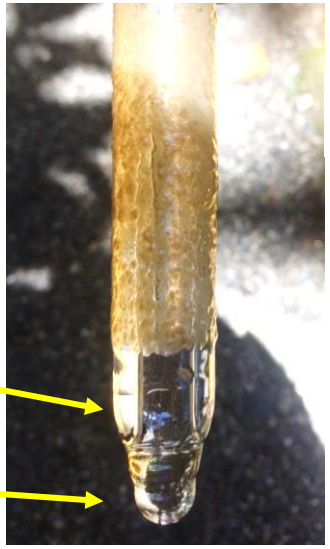
**After 3 Months**

**Conventional (6101)**

Liquid junction

Glass membrane

**Self-Cleaning electrode**



**No Biofilm**

## ② Food wastewater tank (Soybean extract)

**Unusable**

Maintenance Period

**One day → 7 days**

**After One Day**

**Without UV irradiation**

Liquid junction

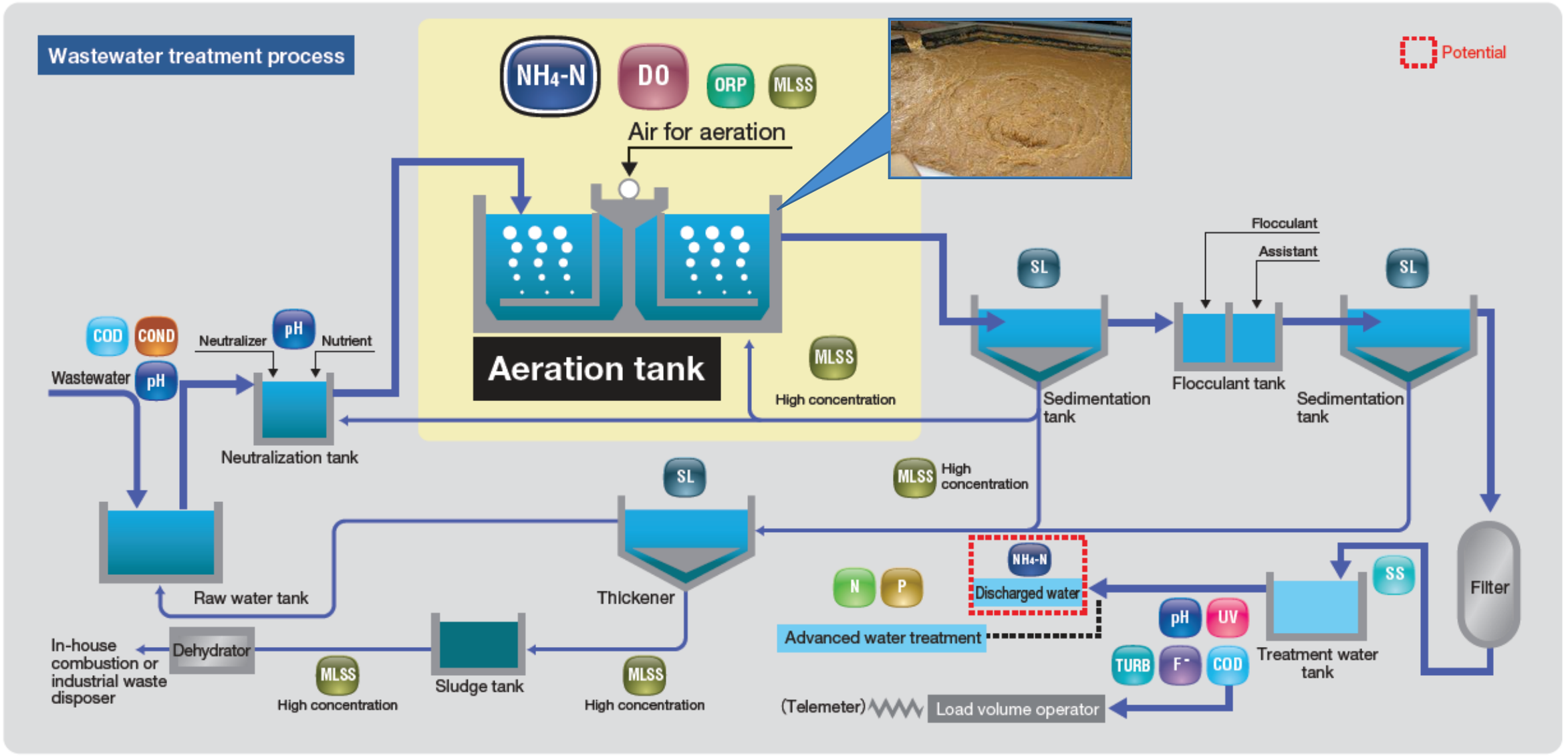
Glass membrane

**After 7 Days**

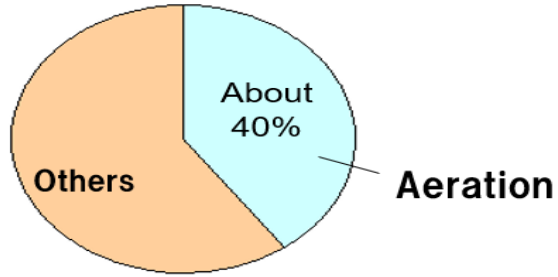
**With UV irradiation**

**Still usable**

# Ammonia Nitrogen Analyzer

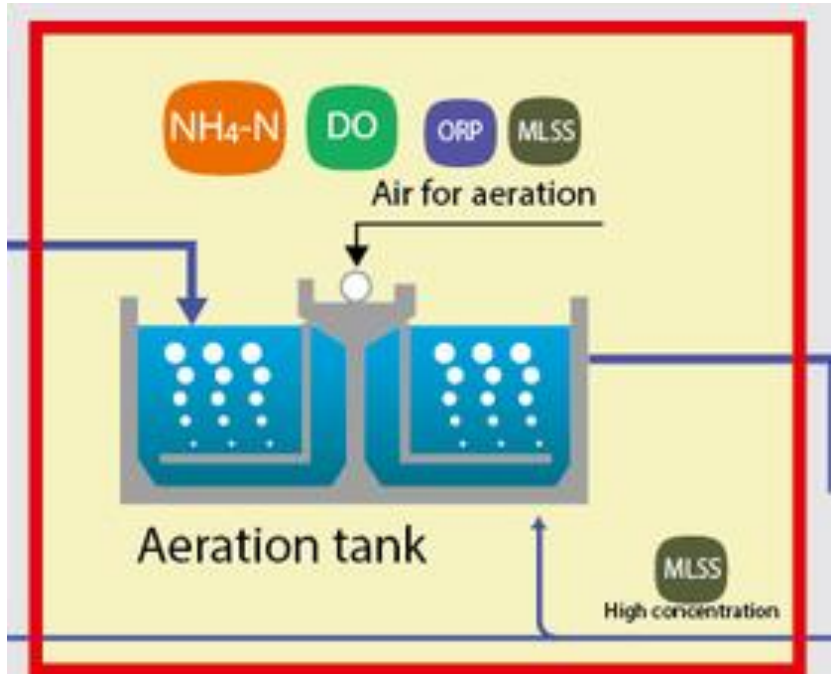


# Ammonia Nitrogen Analyzer

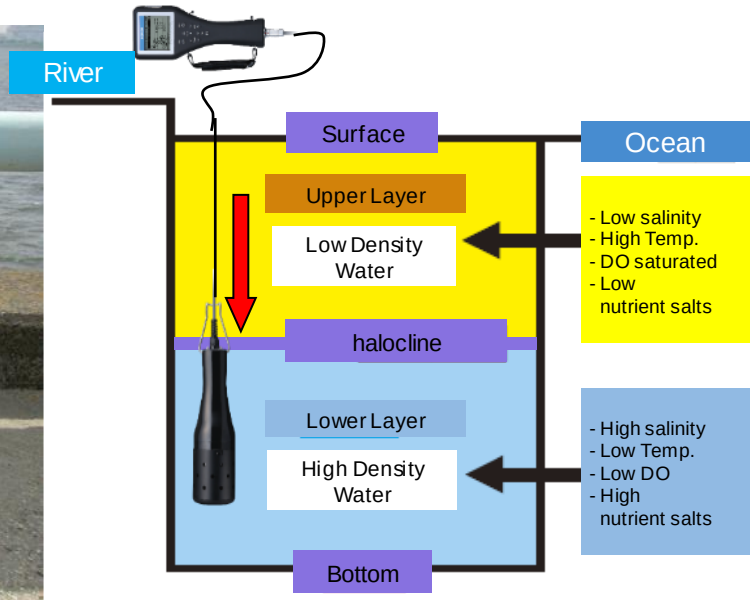

Rate of energy consumption in wastewater treatment plant (Rough estimate based on customer inquiry survey)

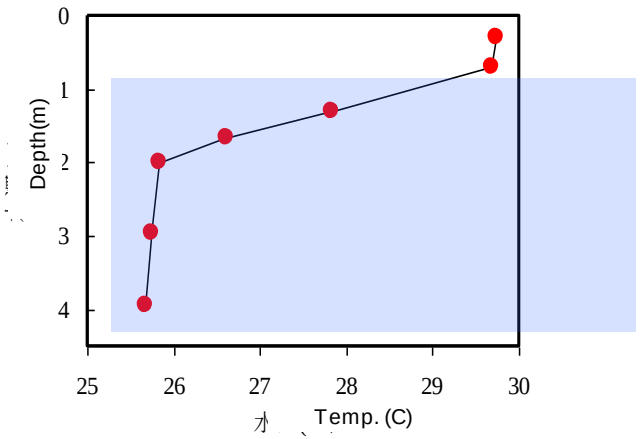
**Saves electricity in aeration process due to optimization of blower control.**

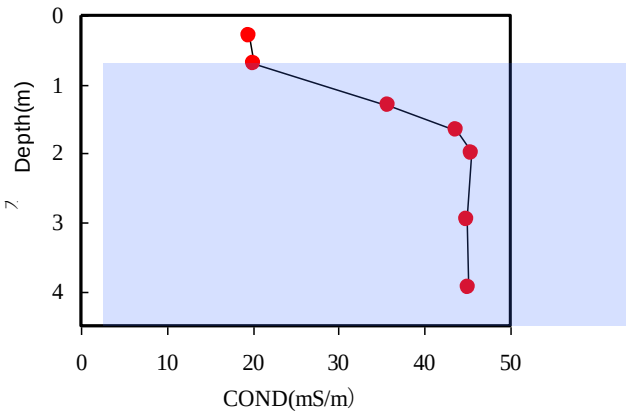



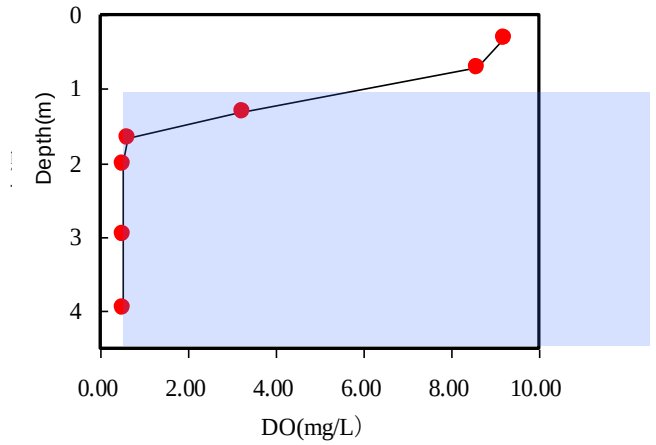

 

# U-50 Series: Brackish Water Measurement

# 20 Configurations

Equipped with **Turbidity sensor**, one U-50 meter can satisfy the requirements for Environment /Ground water monitoring.

**Each model has choices of cable length: 2m, 10m or 30m (Note: U-51 doesn't have 30m)**

| | U-51 | U-52 | U-52G | U-53 | U-53G | U-54 | U-54G |
|---|---|---|---|---|---|---|---|
| pH | ● | ● | ● | ● | ● | ● | ● |
| ORP (Oxidation Reduction Potential) | ● | ● | ● | ● | ● | ● | ● |
| Dissolved Oxygen | ● | ● | ● | ● | ● | ● | ● |
| Conductivity | ● | ● | ● | ● | ● | ● | ● |
| Salinity | ● | ● | ● | ● | ● | ● | ● |
| TDS (Total Dissolved Solids) | ● | ● | ● | ● | ● | ● | ● |
| Seawater Specific Gravity | ● | ● | ● | ● | ● | ● | ● |
| Temperature | ● | ● | ● | ● | ● | ● | ● |
| Turbidity (LED) | — | ● | ● | — | — | ● | ● |
| Turbidity (Tungsten lamp) | — | — | — | ● | ● | — | — |
| Water depth | — | — | ● | ● | ● | ●* | ●* |
| GPS | — | — | ● | — | ● | — | ● |

Note: *U-54/G(2m) don't have the feature of water depth.

US EPA method 180.1

EN ISO 7027

Omoshiro-okashiku

Joy and Fun


Terima kasih

நன்றி

Gracias

谢谢

Danke

Σας ευχαριστώ πάρα πολύ

Tack ska du ha

धन्यवाद

THANK YOU

شُكْرًا

Grazie

ขอบคุณครับ

Obrigado

Большое спасибо

ありがとうございました

Cảm ơn

Merci

감사합니다

Dziękuję