



Thermo Scientific
Wastewater Analysis Products



Environmental safety

Begins with reliable measurements

Trusted Thermo Scientific products for effective wastewater treatment

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Wastewater Analysis

Municipal/Industrial

Wastewater commonly refers to the liquid wastes collected and transported to treatment facilities via a system of sewers. It is generally divided into two broad classifications: domestic and industrial. The chemical composition of the wastewater is carefully measured both as it enters treatment and before it is released into public rivers, lakes and the oceans. The accuracy of all measurements is critically important. Wastewater is regulated by the U.S. Environmental Protection Agency, as well as state and municipal authorities, with each providing varying standards that must be strictly followed. Companies that fail to comply may be fined thousands of dollars per day until they meet the regulations. **There are five basic processes in wastewater treatment:**

Pretreatment

The first step includes the physical separation of solids from the flow by screening, grinding debris and settling out heavy inert grit. Although this results in a very small percentage of solids that must be removed, it is an essential step to avoid problems downstream in the treatment process.

Primary Treatment

In this stage, gravity settling in primary clarifiers removes some of the total suspended solids.

Secondary Treatment

Secondary treatment comprises biological processes that use microorganisms to digest the organic material that remains after primary clarification. It stabilizes the raw organic material that could threaten the receiving water. Additional processes in this stage include trickling filters, lagoons and stabilizing ponds, rotating biological contactors (RBCs) and various kinds of activated sludge processes.

Tertiary Treatment

Tertiary treatment includes numerous options. For instance, polishing ponds for bacteria and BOD removal have been added to secondary trickling filter plants to improve overall removal efficiency plant-wide. If additional treatment is required for a system discharge permit, processes such as nitrification/de-nitrification, ammonia stripping and phosphorous precipitation may be implemented.

Disinfection

Disinfection is needed to destroy harmful organisms in the wastewater effluent. Disinfecting wastewater is commonly achieved through chlorination, polishing ponds, ozonation and UV radiation.

Featured Thermo Scientific Products



Orion Chlorine XP Online Water Quality Analyzer

Measures free, total & total combined chlorine with a colorimeter.

- Easy installation & operation
- Auto calibration & auto self-cleaning
- Longer maintenance intervals compared to other DPD analyzers
- Simple, quick reagent replacement



AquaSensors RDO Pro Optical Dissolved Oxygen Sensor

Rugged, versatile DO monitoring system with luminescent technology.

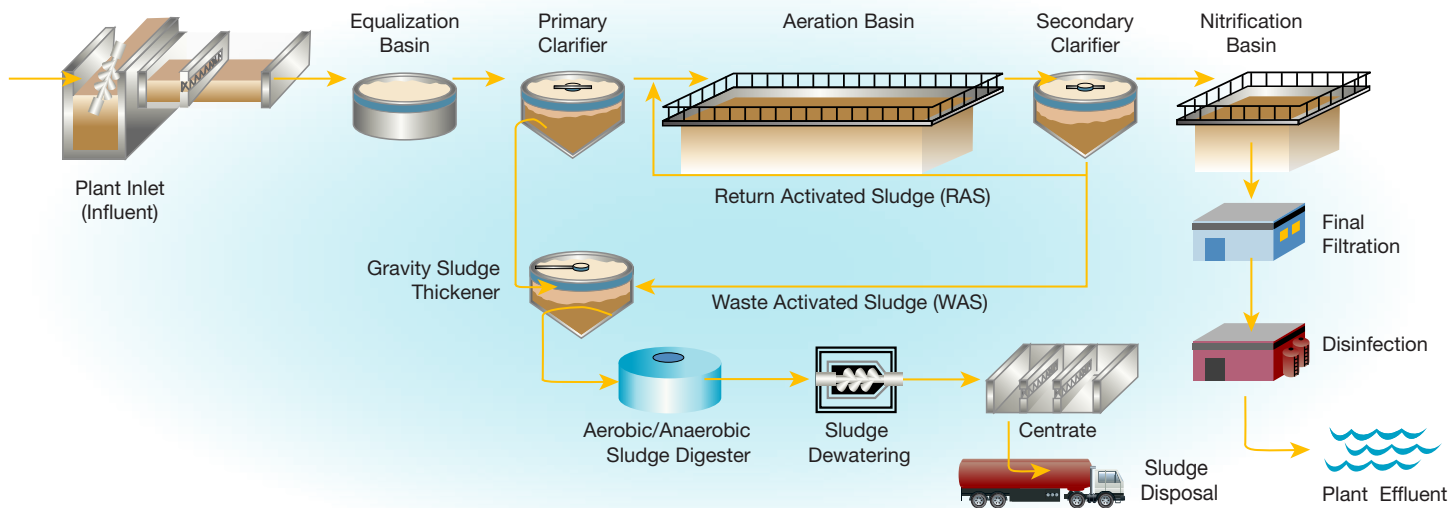
- No membranes
- High accuracy with fast & stable response
- Reduced maintenance
- Resists photo-bleaching & abrasive media
- Plug & play design with digital network interface



AquaSensors AnalogPlus Differential pH Sensors

Exceptional performance in continuous, demanding applications.

- 1 inch or 1.5 inch NPT mounting
- CPVC or PEEK body material
- Replaceable salt bridge extends sensor life
- NTC300 or PT1000 temperature elements
- Built-in electronics are completely protected from moisture and humidity



Thermo Scientific™ Products for Wastewater Treatment:

Plant Influent	Aeration Basin	Nitrification Basin	Plant Effluent	Aerobic/Anaerobic Sludge Digester
<ul style="list-style-type: none"> AquaSensors™ DataStick™ Suspended Solids Turbidity Measurement System AquaSensors DataStick pH Measurement System AquaSensors™ AnalogPlus™ pH Sensors Alpha™ pH Sensors Orion™ AquaMate™ Spectrophotometer AQUAfast™ colorimeters and turbidimeters Orion™ Star™ A portable meters 	<ul style="list-style-type: none"> AquaSensors DataStick pH Measurement System AquaSensors AnalogPlus pH Sensors Alpha pH Sensors AquaSensors DataStick Dissolved Oxygen Measurement System AquaSensors RDO Pro Optical Dissolved Oxygen Sensor AquaSensors AnalogPlus Dissolved Oxygen Sensor Alpha Dissolved Oxygen Sensors Orion Star A portable meters 	<ul style="list-style-type: none"> AquaSensors DataStick Dissolved Oxygen Measurement System AquaSensors RDO Pro Optical Dissolved Oxygen Sensor AquaSensors AnalogPlus Dissolved Oxygen Sensor Alpha Dissolved Oxygen Sensors Orion Star A portable meters Orion AquaMate Spectrophotometer AQUAfast colorimeters and turbidimeters Orion Star A benchtop meters 	<ul style="list-style-type: none"> AquaSensors DataStick Dissolved Oxygen Measurement System AquaSensors RDO Pro Optical Dissolved Oxygen Sensor AquaSensors AnalogPlus Dissolved Oxygen Sensor Alpha Dissolved Oxygen Sensors AquaSensors DataStick Suspended Solids Turbidity Measurement System Orion Star A portable meters Orion AquaMate Spectrophotometer AQUAfast colorimeters and turbidimeters Orion Star A benchtop meters 	<ul style="list-style-type: none"> AquaSensors DataStick Dissolved Oxygen Measurement System AquaSensors RDO Pro Optical Dissolved Oxygen Sensor AquaSensors AnalogPlus Dissolved Oxygen Sensor Alpha Dissolved Oxygen Sensors AquaSensors DataStick Suspended Solids Turbidity Measurement System Orion Star A portable meters
Equalization Basin <ul style="list-style-type: none"> AquaSensors™ RDO Pro™ Optical Dissolved Oxygen Sensor Orion Star A portable meters 	Secondary Clarifier <ul style="list-style-type: none"> AquaSensors DataStick Suspended Solids Turbidity Measurement System 	Disinfection <ul style="list-style-type: none"> AquaSensors DataStick Dissolved Ozone Measurement System AquaSensors AnalogPlus Dissolved Ozone Sensor Orion™ Chlorine XP™ Water Quality Analyzer 	Sludge Disposal <ul style="list-style-type: none"> AquaSensors DataStick pH Measurement System AquaSensors AnalogPlus pH Sensors Alpha pH Sensors 	Waste Activated Sludge <ul style="list-style-type: none"> AquaSensors DataStick Suspended Solids Turbidity Measurement System
Primary Clarifier <ul style="list-style-type: none"> AquaSensors DataStick Suspended Solids Turbidity Measurement System 				



AquaSensors DataStick Wide-Range Turbidity Measurement System

Seamless integration with industrial control systems; sensor head pre-calibrated for turbidity & temperature.

- 0 to 4000 NTU measurement range
- Temperature measurement included
- Rugged, foul-resistant construction
- Local & remote configuration & diagnostics



AquaSensors DataStick Suspended Solids Turbidity System

Versatile system to monitor all solids concentrations; seamless integration with control systems.

- Fouling correction optics
- Rugged construction
- Local & remote configuration & diagnostics
- Temperature measurement included

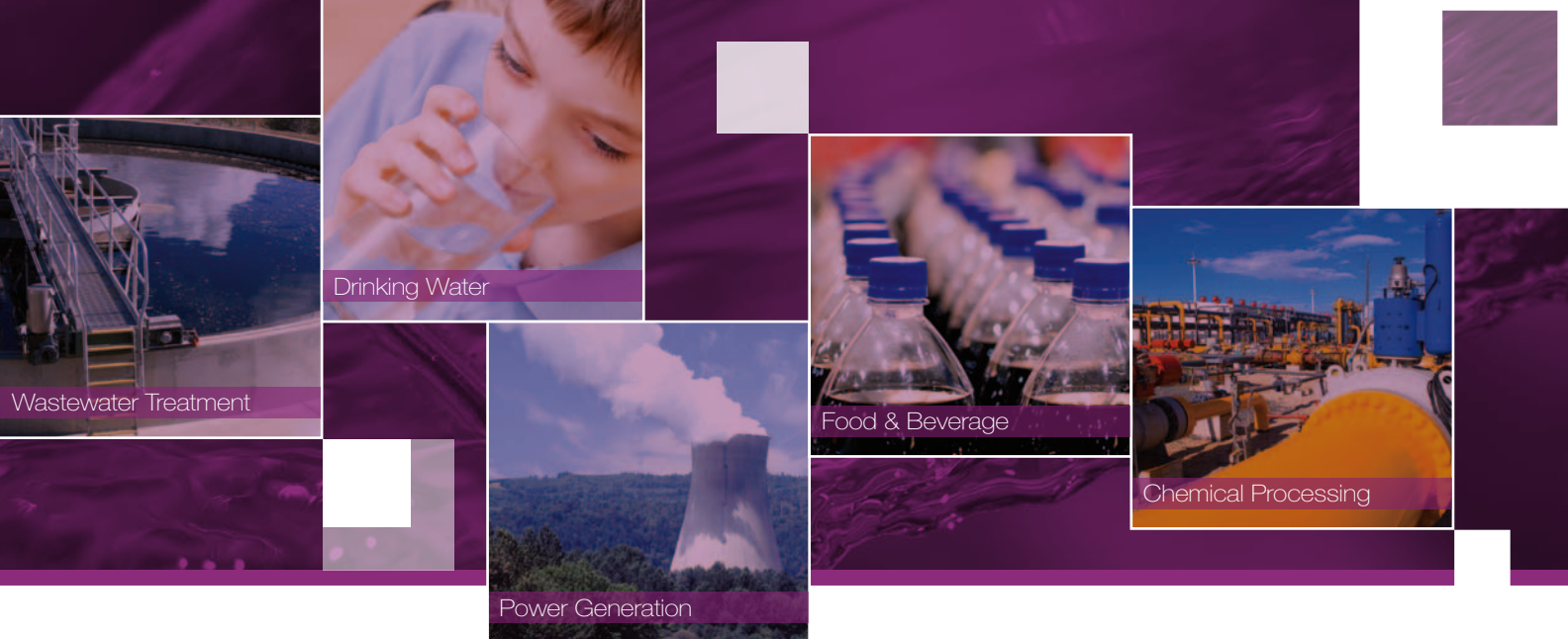


Orion AquaMate Spectrophotometer

Ideal laboratory instrument for extensive, full wavelength measurement of wastewater.

- High resolution, 1.8 nm spectral bandwidth
- Advanced optics for 5 years maintenance-free performance
- High speed wavelength scanning

For complete product details visit our online interactive catalog at thermoscientific.com/watercatalog



Leaders in Sensing Technology

From supplying safe drinking water or reliably controlling wastewater treatment processing to delivering significant value to industrial water treatment providers – our water experts can help you meet your application challenges. Thermo Scientific™ process water analysis measurement products are designed for flexibility, ease of use, and low cost of operation in water treatment, delivering accuracy you can trust with confidence year after year. Select from our digital plug-and-play systems, advanced optical DO sensors, and a broad portfolio of differential and analog measurement capabilities to build virtually any water quality solution.



Thermo Scientific Process Water Products Catalog

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To find out more about the products in this brochure and other Thermo Scientific products, please visit thermoscientific.com/processwater

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