



The 3rd Generation pH Sensor from the Same Mind that brought you the first 2.

BARBEN
Analyzer Technology, LLC

Application Review - Turbidity in Water / Wastewater

Background

Turbidity is a measure of the clarity of a liquid, which is impacted by microscopic particles suspended in the liquid. Turbidity is a primary measurement in wastewater treatment, and is used to control or ameliorate both organic and inorganic pollution elements discharged by municipal sewage and industrial waste streams.

Process

Turbidity is a control element in both municipal (water / wastewater) and industrial environments, with both water quality and regulatory demands. The process can require both chemical and biologic processes.

Industrial Applications

Oil Refineries and Petrochemical

- Sulfur compounds in scrubber discharge & solvents
- Particles in cooling towers
- Suspended inorganics in distillation units
- Suspended materials, including brine and lead compounds in oil

Pulp & Paper

- Particles in wash and process waters
- Grease, fiber, dye, or ink in bleaching, de-inking, and filtering processes.

Mining

- Tailing water

Chemical & Pharmaceutical

- Suspended solids in acid and caustic chemical production
- Suspended particles and bacteria in medical process liquid wastes

Textiles

- Wastewater

Food Processing

- Rinse and wash waters
- Organic wash from agricultural processes

Municipal Applications

Raw water is typically 0—200 NTU (Nephelometric Turbidity Units), and indicates the solids carried by the water requiring clarification. The water is typically pre-screened to remove large debris, and is often pretreated with chlorine or ozone to kill microbiological contaminants, and to oxidize elements that may create odor or taste problems.

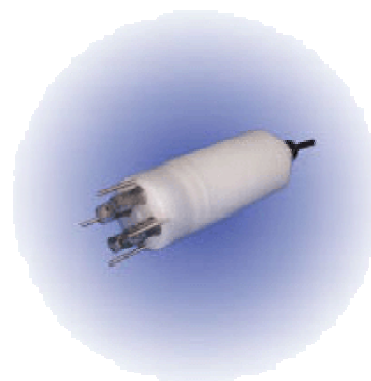
Coagulants such as ferric chloride or alum are added in the Flash Mixers to form a “floc” of suspended particles. Other chemicals may be added to improve taste and odor.

The treated water is mixed in the Flocculation Basin to aid in flocculation. pH may be adjusted to improve the flocculation.

The flocced water is introduced to a Settling Basin where most of the suspended particles captured in the floc settle. This is removed as biosolid sludge.

The water is then passed through Filtration Beds, which can be stone, sand, or activated charcoal. During this stage turbidity in the 0 - 1.0 NTU range is employed to ensure the effectiveness of each filtration bed. Beds are periodically back-washed to clear trapped particles, with the flush water being sent for re-treatment. The filtered water is treated with chlorine for disinfection.

The filtered water is stored in a clear well, where the disinfecting chemicals continue to ensure the removal of microbes. Additional turbidity monitoring provides regulatory compliance with the required 0 - 0.1 NTU turbidity



800.993.9309

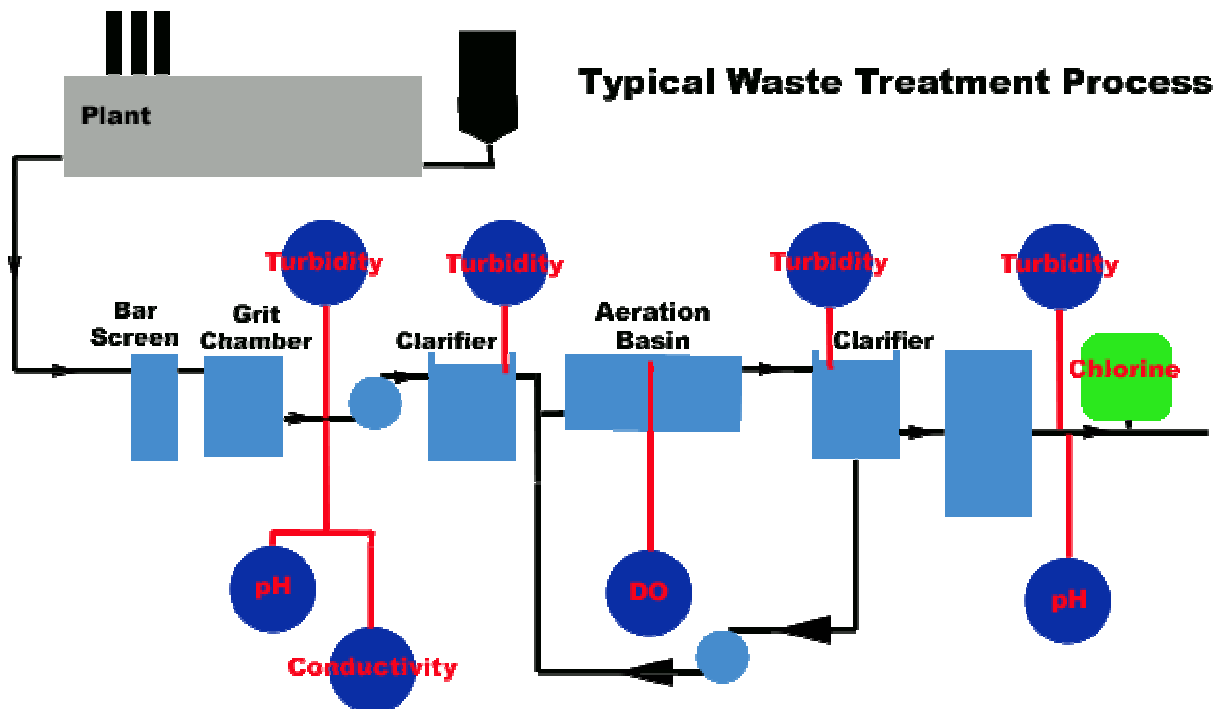
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T30
Turbidity Sensor



MSSD53
Transmitter

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