

RapiSand™

Ballasted Flocculation System



WESTECH®

RapiSand™ Ballasted Flocculation

Why Choose RapiSand™?

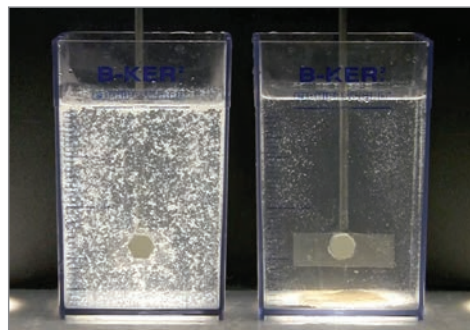
The WesTech RapiSand ballasted flocculation system is a high-rate clarification process combining rapid mixing and multi-stage flocculation, followed by sedimentation. RapiSand sedimentation is extremely fast, with rise rates exceeding 13 gpm/ft², and can be applied in a wide variety of suspended solids removal applications. Typical advantages of the RapiSand include expanding plant capacity, minimizing plant footprint, providing fast start-up capabilities, and providing great performance characteristics. RapiSand may be the answer to your suspended solids process needs.

Applications

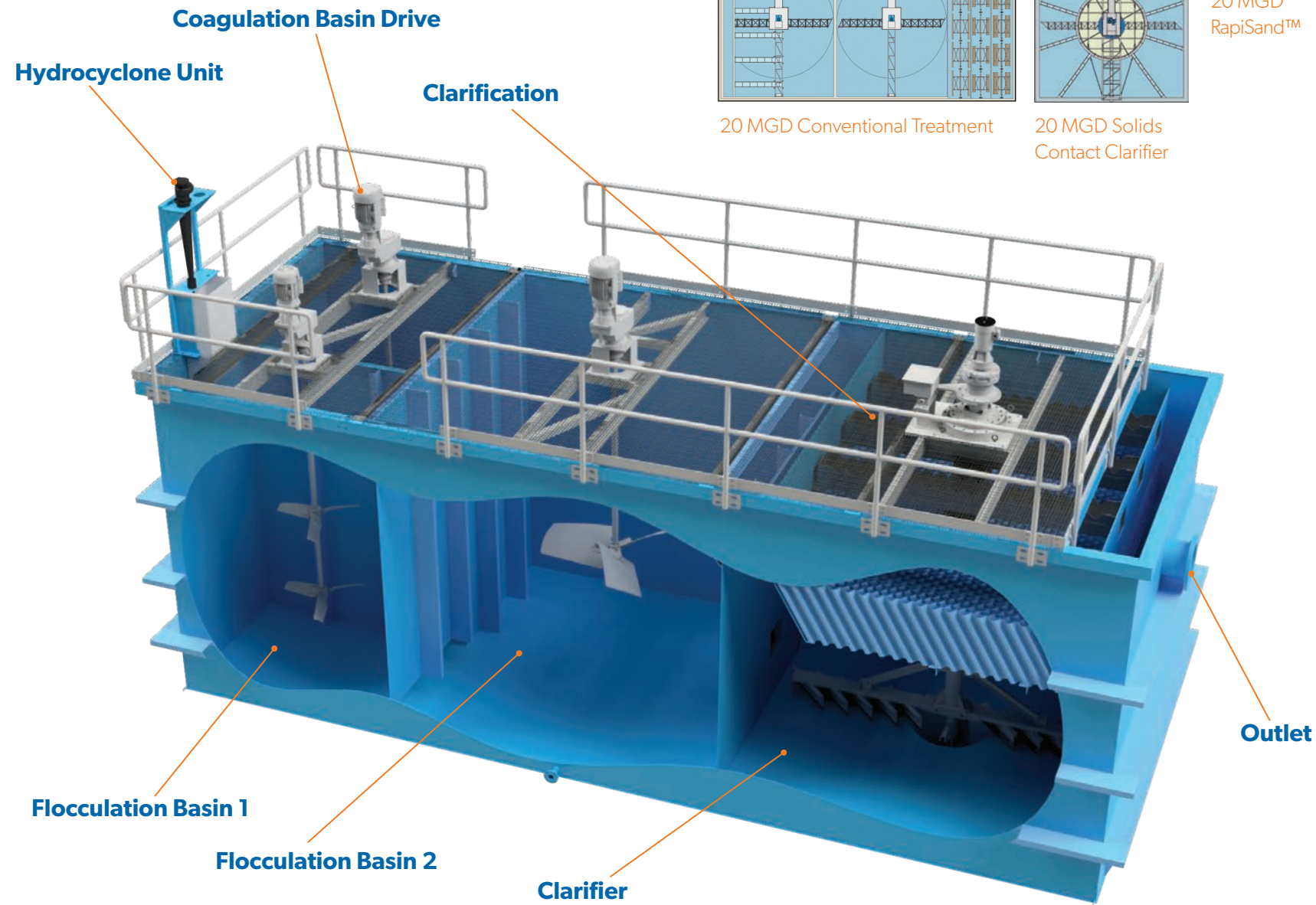
- NTU/TSS Removal
- TOC Removal
- Tertiary Phosphorus Removal
- RO Pretreatment
- Color Removal
- CSO Treatment
- Cooling Tower Makeup
- Algae Removal
- Boiler Feed Makeup
- Industrial Process Water
- Pump Seal Water
- Filter Backwash
- Surface Water Pretreatment

Settling with Sand

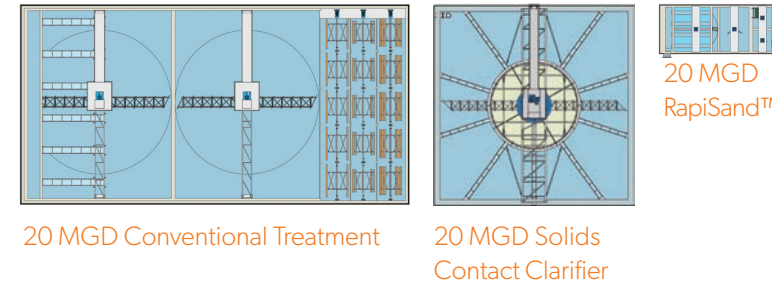
The picture below shows two identical jar test samples containing raw water of 150 NTU turbidity. Both samples were treated with the same dose of chemical coagulant and polymer, then a dose of fine silica sand was added to the jar on the right. After mixing, the RapiSand floc settled much faster. This is the essence of the RapiSand ballasted flocculation system.



Conventional Floc vs. RapiSand Floc
After 10 sec. of settling time on bench-scale test.



RapiSand offers the benefits of conventional treatment, at 1/20 the size.



Process Description

RapiSand™ Ballasted Flocculation is a Four-Step Process:

- 1. Coagulation:** Raw water is mixed with coagulant in the coagulation basin.
- 2. Flocculation:** Coagulated water is mixed with polymer and recycled microsand in each of two flocculation basins.
- 3. Clarification:** The flocculated water flows into the clarification basin where the floc settles and the clarified water passes up through tube settlers. Clarified water exits the system by way of an outlet launder.
- 4. Separation:** Settled floc and sand are collected and pumped to the hydrocyclone where the sand is separated from the solids. The solids are sent to waste and the recovered sand is returned to the first flocculation basin.

The microsand has a specific gravity of 2.6 and is mixed with the polymer and coagulated solids to form a dense ballasted floc. Total flocculation time is typically eight minutes, which is a fraction of the time required in a conventional flocculation system. In the clarification step, ballasted floc settles at rates that are up to 35 times faster than conventional sedimentation. Total detention time in the RapiSand system is typically 15 minutes from start to finish.

RapiSand can decrease the footprint of a traditional flocculation and sedimentation system by more than 95%, depending on the application.

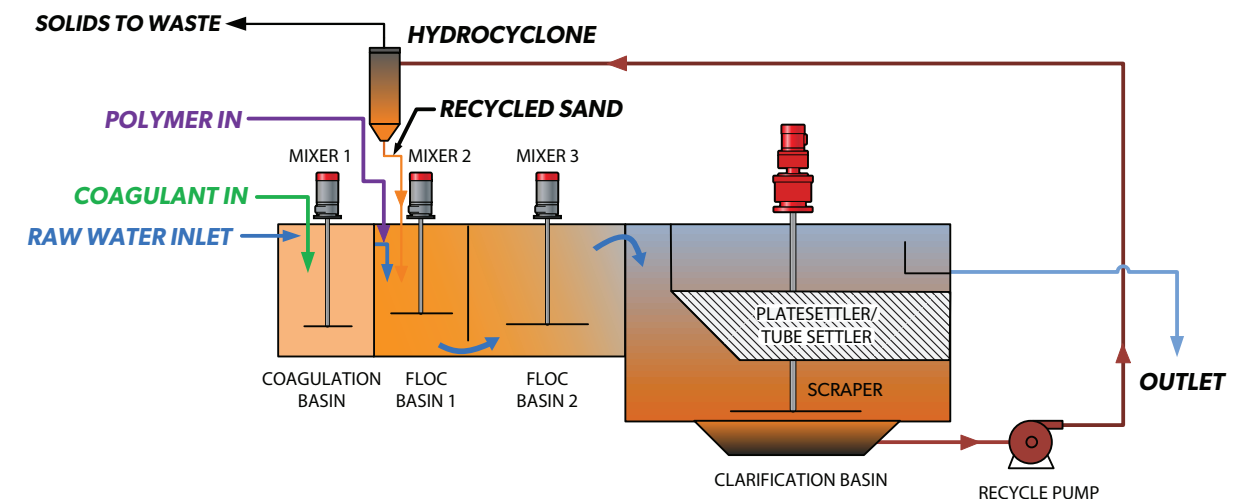
Process Benefits

Small Footprint: RapiSand can decrease the footprint of the sedimentation system by as much as 95%.

Quick Start-up: Plants can be operational in as little as 15 minutes from start-up.

Stable Process: Will handle large spikes in raw water turbidity.

Performance: Typical outlet turbidity is <2 NTU.





Trailer-mounted pilot unit available for lease.

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