WASTEWATER TREATMENT

Actiflo®
Ballasted Clarification Process

A major step towards highly efficient clarification process for: municipal and industrial wastewater, tertiary treatment, stormwater (CSO) and backwash water clarification.

JOHN MEUNIER INC.

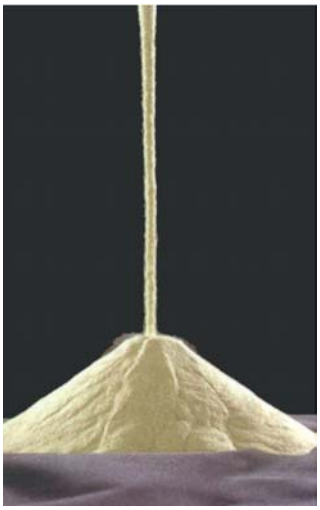
THE ACTIFLO® HIGH RATE SETTLING PROCESS

The product of many years of research and development, the Actiflo® rapid settling process developed by OTV, will solve the most severe treatment problems and meet stringent economical objectives, a growing preoccupation of municipal and industrial managers. The Actiflo® process represents the most advanced clarification process available on the market.

Having quickly achieved worldwide recognition, the Actiflo® process is the solution best suited for the treatment of a wide array of water qualities. Compact, flexible and easy to operate, the Actiflo® rapid clarification process is ideal for upgrading existing wastewater plants as well as for installation in new water facilities.

Depending on the applications, the upflow velocity can reach 200 m/h or 82 USGPM/sq. ft based on the water surface area on top of the lamellae.

FEATURES



The Actiflo® process represents a breakthrough in water treatment technologies. It combines two well-proven principles of rapid settling:

- Microsand serves as seed for floc formation and ballast to increase floc density and settling velocity.
- Inclined plate settling greatly reduces clarifier surface.

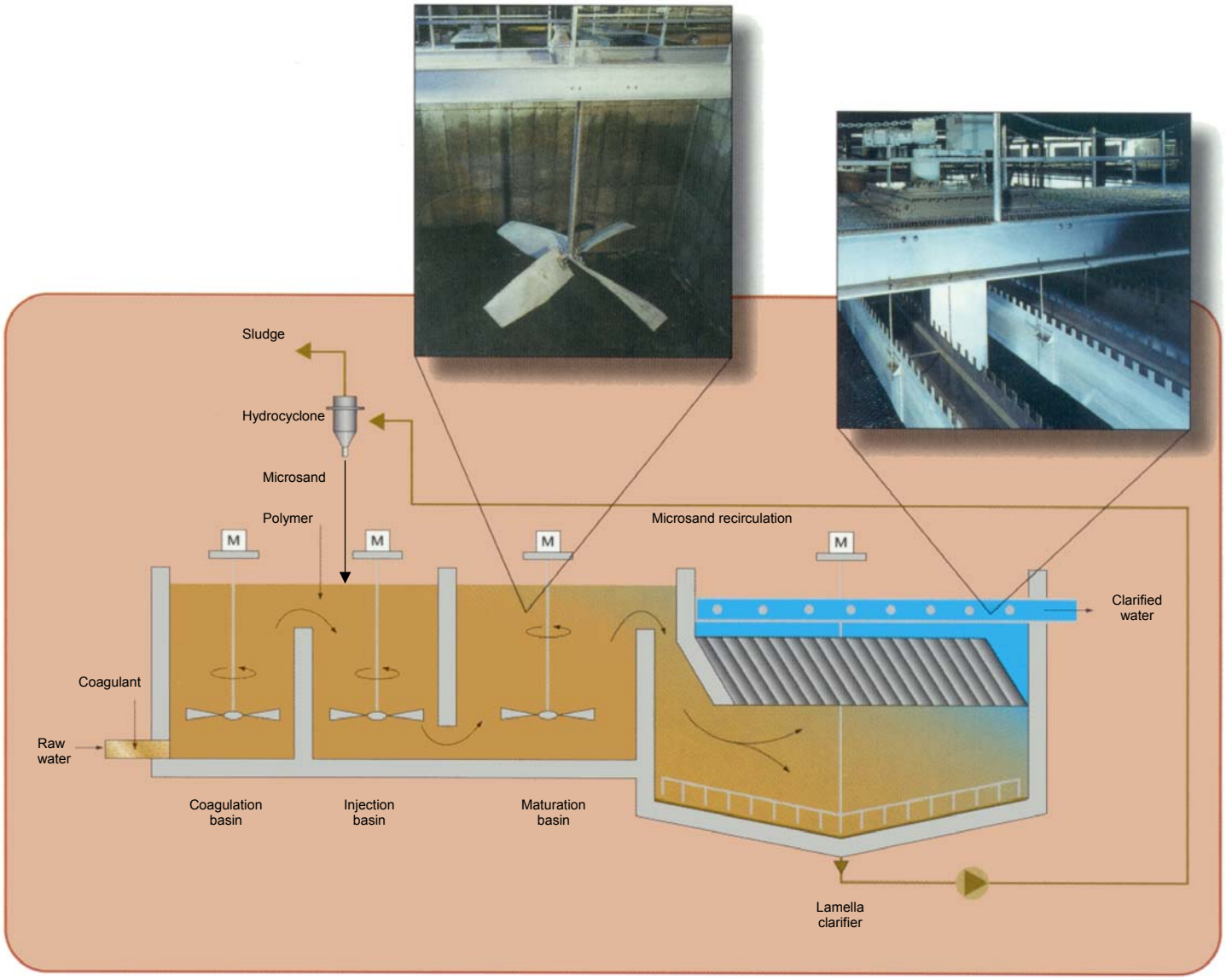
CHARACTERISTICS

The Actiflo® system provides numerous advantages over all known settling processes presently in use.

- ***Response time***
  Inert microsand is always present in the injection and maturation basins and is available to respond immediately once the reactants are added. It is therefore the ideal system for dealing with storm flows, which by their nature occur very suddenly.
- ***Effluent consistency***
  Independent of suspended solids loading, the treated effluent characteristics remain almost constant.
- ***Sludge treatability***
  The good settleability of the sludge allows it to be thickened and dewatered easily.
- ***Savings***
  Microsand and vigorous mixing considerably reduce flocculation time and consequently the overall footprint of the mixing and flocculation chambers. High up flow velocities produce compact installations and low civil costs, ideal for upgrading existing plants. Efficient use of chemical dosages produces an important reduction in operation costs.
- ***Stability and flexibility***
  Changes in raw water characteristics (turbidity, color, temperature and total suspended solids (TSS)) do not significantly affect the clarified effluent quality. The process will accept wide spreads in suspended solids and flow rate (from 0% to 100% in a few minutes) with no effect on effluent quality. The stability of the process simplifies its operation.
- ***Water of superior quality***
  The coagulation / flocculation phase produces a clarified water of superior quality under all raw water conditions.

HOW DOES IT WORK?

The effluent is admitted into a flash mix chamber, where coagulant is introduced to destabilize the suspended solids (coagulation). The coagulated water then transits through an injection chamber, where polymer and microsand are added. The floc is fixed to the microsand with the polymer in the maturation chamber, where it acquires weight and volume. Finally, the flocculated water passes through the lamellar clarifier, where the ballasted floc settles and clarified water overflows.



Settled sludge, loaded with microsand, is continuously pumped from the bottom of the clarifier and recycled through hydrocyclone concentrators, where the microsand is separated from the sludge. The separated sludge is sent to waste and the microsand is recycled back to the process.

APPLICATIONS

Wastewater:

The Actiflo® process can be used as a primary clarifier for wastewater treatment in most municipal and industrial applications. Downstream from the Actiflo®, the treated water can be discharged to the river or sent for additional biological treatment.

Filter backwash water:

Because of its capacity to start and stop very quickly without disturbing the treated water quality, Actiflo® has proven to be very efficient for backwash water clarification.

Combined sewer overflow (CSO):

Stormwater often upsets wastewater treatment plants (WWTP) as it creates peak flows, causing plants to bypass most of the incoming hydraulic surge. With Actiflo®, WWTP's can now treat storm flows as they occur. Its compactness and quick start-up make Actiflo® particularly well suited for this application. In dry weather, Actiflo® reverts to tertiary treatment for the polishing of secondary effluent.

Tertiary treatment:

Whether it is used for suspended solids, color or phosphorus abatement, Actiflo® can meet or exceed very high water quality standards with removal rates usually in excess of 90%. Its overall efficiency and compactness will lead to Actiflo® replacing tertiary filters.

The Actiflo® technology can easily be applied for a wide range of capacities. A modular package plant or permanent full-scale plant can be provided.

MOBILE PILOT PLANT

A pilot plant to demonstrate effectiveness

The Actiflo®advantages are easily demonstrated with the mobile pilot plant. For a given effluent, it is a simple matter of determining the degree of efficiency in removing color, suspended solids, phosphorus or other parameters and evaluating the process responsiveness.

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Revised : 2003-11-04