



ACTIFLO®



The ultimate
clarifier

WATER TECHNOLOGIES

Coagulation / ballasted flocculation and settling for the production of drinking water, process water and the treatment and reuse of wastewater.

A universal process, always at the forefront of innovation

Actiflo is a compact process for high rate clarification, developed and patented by Veolia Water Technologies.

The specificity of Actiflo resides in the use of microsand, which acts as a ballast for flocculated matter and accelerates its settling.

Actiflo benefits from constant improvements and innovations in order to respond to new environmental requirements from public authorities and industry.

25 years of operational experience and more than 1,000 references around the world make Actiflo the most universal and the highest performing clarification process.

Major advantages

- Exceptional treatment performance, regardless of the field of application.
- Operational stability: no impact on treatment efficiency during sudden flow or raw water quality fluctuations.
- Quick response to treatment adjustments.
- Operational flexibility: possibility of frequent shutdowns and restarts without affecting treated water quality.
- Reduction in construction costs thanks to the compactness of the process.
- Process can be adapted and integrated into all treatment schemes that require a clarification step.
- Full automation and remote monitoring possible.



Compact and ultra-rapid

Actiflo is characterized by:

- Very high settling rates:
 - > Drinking water: 60-80 m/h (25-35 gpm/sf)
 - > Municipal wastewater and stormwater: 60-150 m/h (25-60 gpm/sf)
 - > Industrial process water and wastewater: 60-200 m/h (25-80 gpm/sf)
- Increased compactness: Actiflo is the ideal response where there are space restrictions for rehabilitating existing installations or building new ones. Its footprint is 4 to 8 times smaller than lamella or dissolved air flotation (DAF) clarifiers and up to 50 times smaller than conventional clarification systems.
- Very short residence times resulting in great reactivity and user-friendly operation.

Conventional clarifiers

0.5-1.5 m/h
(0.2-0.6 gpm/sf)

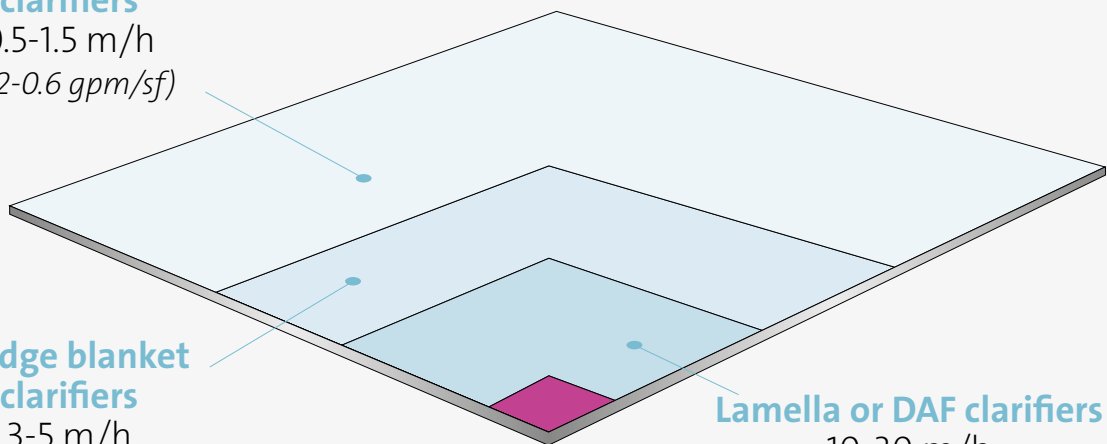
Sludge blanket clarifiers

3-5 m/h
(1-2 gpm/sf)

Lamella or DAF clarifiers

10-30 m/h
(4-12 gpm/sf)

Actiflo
60-200 m/h
(25-80 gpm/sf)





A very wide range of applications

Available in standardized modular solutions (100 to 60,000 m³/day) or custom designed, Actiflo covers all municipal and industrial treatment applications.

Drinking water and process water

For the production of drinking water and process water, Actiflo treats surface water, ground water, sea water and brackish water. It is particularly effective in eliminating turbidity, natural organic matter, color and algae.

For the specific needs of industry, Actiflo is also suitable for the treatment of cooling tower make-up water and boiler feed pre-treatment.

Municipal and industrial wastewater

Actiflo can be implemented at all stages of the treatment of municipal effluents: primary and secondary clarification, tertiary polishing, and reuse of wastewater.

Real-time treatment of stormwater flows.

Phosphorus removal: compliant with the strictest standards, with reductions exceeding 95%.

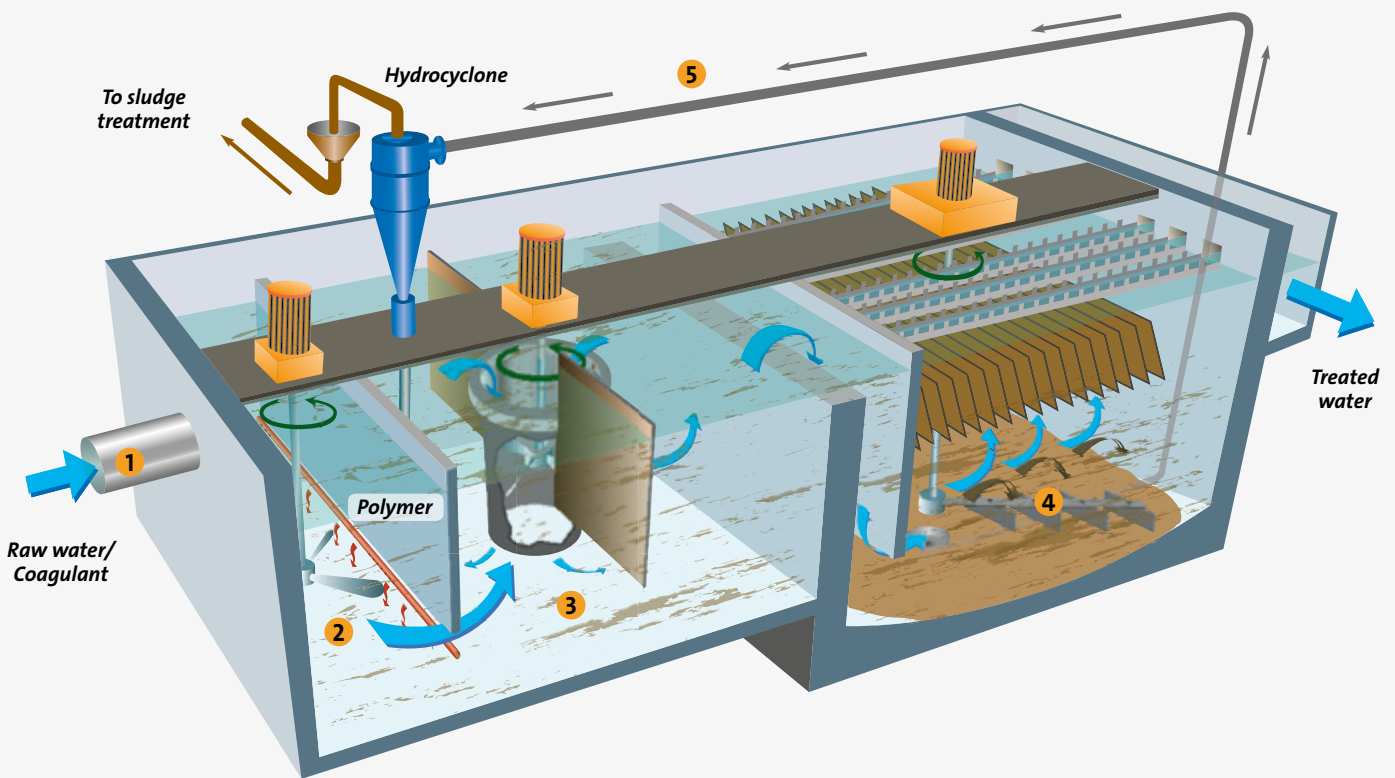
Actiflo can be used for the treatment of most industrial effluents. It is suitable, for example, for the treatment and recycling of cooling towers blowdowns.

It is also particularly suited for eliminating heavy metals, ash and coal fines in power plants or steel mills effluents.

“Actiflo covers all municipal and industrial treatment applications”



State-of-the-art equipment



1 Chemicals: a coagulant, such as an iron or aluminium salt, is added to the raw water.

2 Coagulation: hydroxide flocs are formed during the coagulation phase.

3 Turbomix™ flocculation: the flocs formed during the coagulation phase are ballasted with microsand with the help of polymer.

4 Clarification: the ballasted flocs settle quickly thanks to the specific weight of the microsand.

5 Recirculation: the sludge and microsand slurry is pumped to a hydrocyclone where the sludge is separated from the microsand via centrifugal force. The clean microsand is recycled back to the flocculation tank while the sludge is continuously discharged.

Configurations

The basic design of Actiflo allows for many configurations that meet the diversity of treatment contexts and needs:

CONFIGURATIONS	MAIN CHARACTERISTICS
ACTIFLO® Duo	Operational flexibility with or without microsand depending on the flow rate.
ACTIFLO® Carb	With Powered Activated Carbon (PAC) addition in order to eliminate non-flocculable organic matter, pesticides and emerging micropollutants.
ACTIFLO® Softening	With lime and/or soda addition for decarbonation and water softening.
ACTIFLO® HCS	For the reduction of the sludge volume and the associated water losses.
BioACTIFLO®	For the online stormwater treatment and the reduction of the soluble BOD.
ACTIFLO® Rad	For the removal of radioactive elements from contaminated water at nuclear sites.
ACTIFLO® Disc	Actiflo followed by Hydrotech discfilters for treated water polishing.
ACTIFLO® Pack	Standardized units for the treatment of any flow rate up to 2,500 m ³ /h (11,000 gpm).

ACTIFLO® Green: Actiflo configurations with use of biosourced products

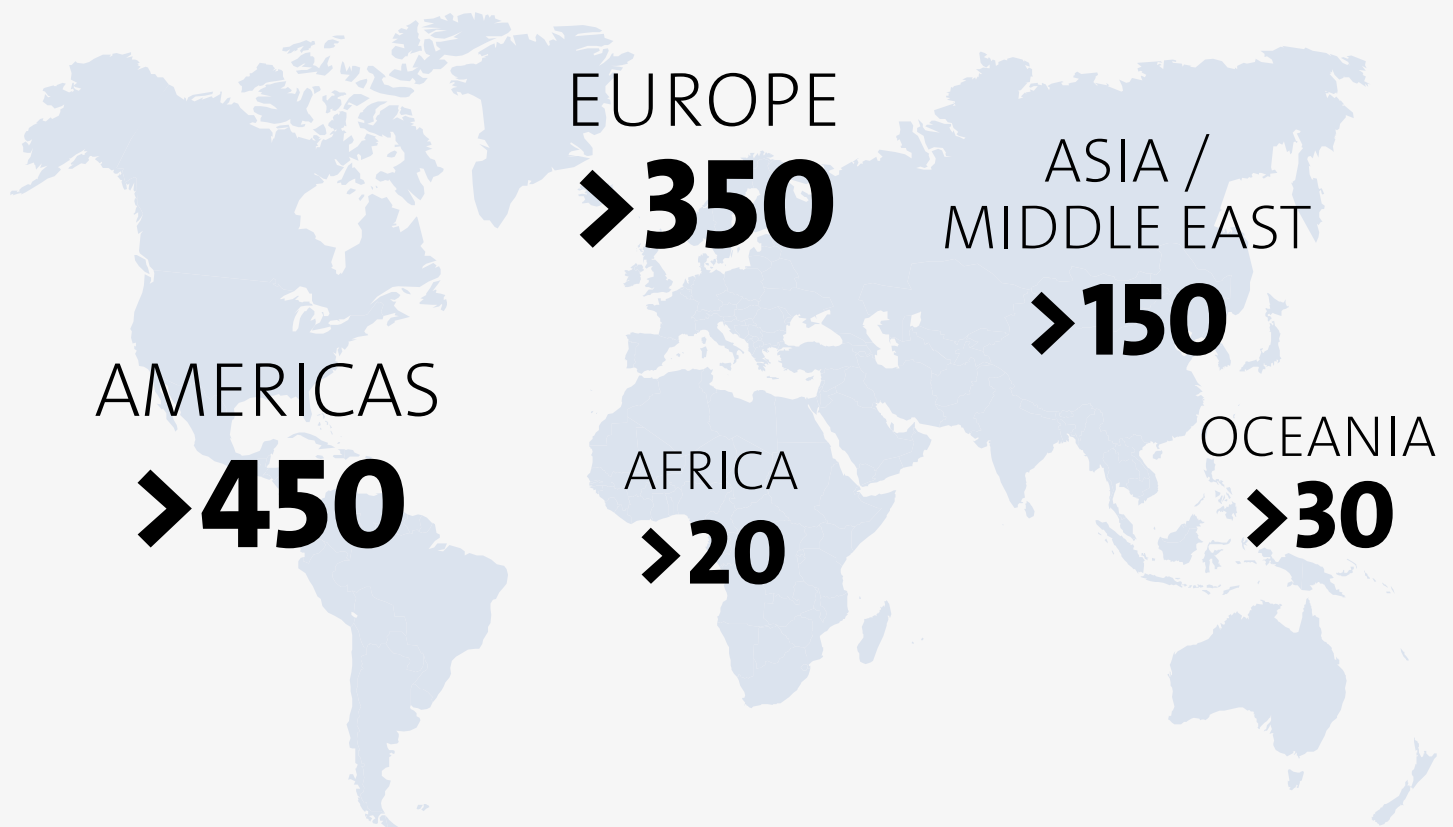
Veolia has developed, through its Hydrex™ water treatment additives brand, a product line based on renewable resources, such as activated starch, to replace traditional polyacrylamide flocculants, as a response to increasing demand from local authorities and industry in this area.

This range of biosourced products is perfectly suited for optimal Actiflo operation and its various configurations.

Actiflo, the ultimate clarifier

References

25 years of operational experience and more than 1,000 references around the world. Actiflo treats more than 50 million m³ (13 billion gallons) of water every day.



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