



CLAY-BASED FLOCCULANTS

Industrial Wastewater Applications Include but not Limited to:

- Adhesives
- Ceramic Slurry
- Circuit Board Manufacturing
- Coolants, synthetic and oil based
- Die-casting
- Dye Penetrants
- Floor scrubber/mop water
- Food Processing
- Heavy Metals Removal
- Landfill Leachate
- Metal Finishing
- Potable Water Treatment
- Paints, Inks and Dyes
- Parts Washers
- Printing
- Corrugated Wastewater
- Slaughterhouse Water
- Sludge Thickening and Conditioning
- Steam Cleaning
- Power Plant Wastewater
- Vibratory Deburring
- Pressure Washer Water
- All Washwaters

CLAY-BASED FLOCCULANTS



A comprehensive line of proprietary wastewater treatment flocculants that are capable of breaking oily emulsions, removing oils, metals, suspended solids, and other pollutants from contaminated waste streams. A single-step treatment process that entraps contaminants, generates clean water to meet POTW discharge criteria, and creates a non-leaching sludge that passes TCLP tests for landfill disposal.

Our one-step treatment products are adaptable to most manufacturer's equipment and are available in granular, semi-granular, and powdered varieties.



CLAY-BASED FLOCCULANTS



How they work

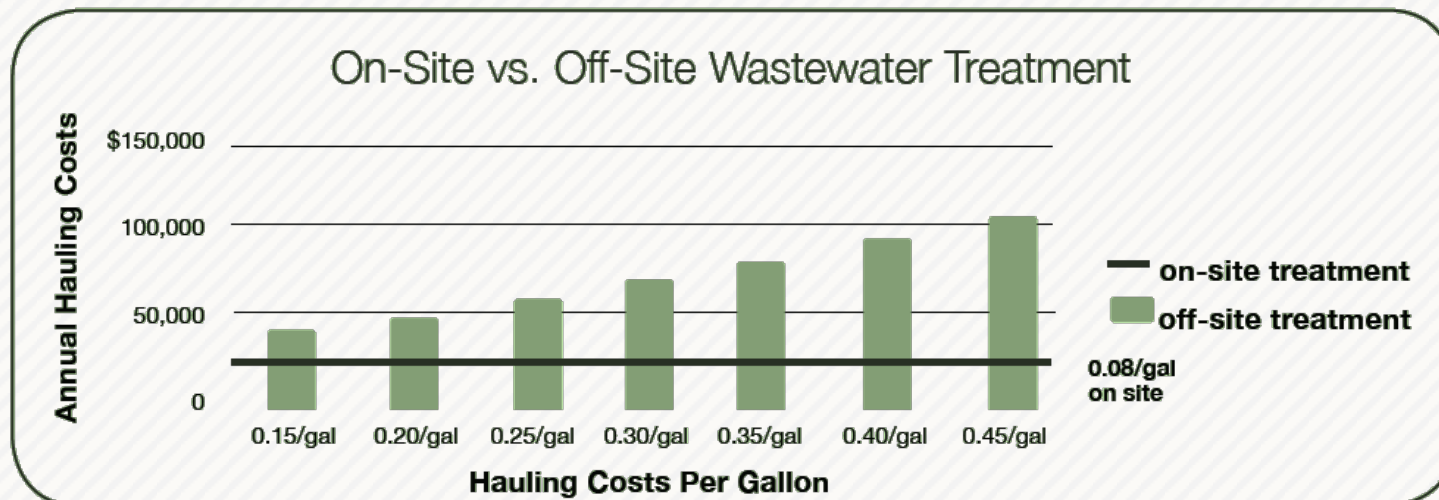
1. Chemical components adjust the pH of the water which enhances the precipitation of metals and breaks oil emulsions.
2. Bentonite clay particles attract and encapsulate precipitated metallic ions.
3. The polymeric portion of the formulation attracts remaining oils and suspended solids and forms a floc, which settles to the bottom of the treatment vessel.
4. The bentonite clay and polymer work together to create a strong filterable floc, which will encapsulate and contain heavy metals while allowing the floc to readily release water resulting in a drier sludge cake. The entire process is completed in just a few minutes, resulting in clear water that can be discharged directly to a POTW or recycled. The sludge and its encapsulated contaminants are highly resistant to leaching and can be generally disposed of as a non-hazardous waste.

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Lower Overall Disposal Costs...Treat On-Site

Hauling liquid waste can be an expensive disposal option and expose your organization to extended liabilities. As the original generator, you are responsible for ensuring all liquid waste hauled off-site is properly treated and that solids and effluent are being disposed of in accordance to local, state, and federal guidelines. By treating wastewaters on-site, the generator is assured that the solids and effluent are being disposed of properly while controlling disposal costs. The price per gallon for hauling waste for off-site disposal will vary. The following information details annual cost for 250,000 gallons hauled at cost of \$0.15-\$0.45 cents per gallon.



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Sample Analysis from General Industrial Application

Parameter (mg/l)	Untreated	After Treatment and Filtration
Appearance	Cloudy, gray	Clear, colorless
Suspended Solids	>3,840	<3
Oil & Grease	45	<3
Cadmium	0.02	<0.005
Chromium	22.6	<0.005
Copper	0.99	0.02
Lead	0.13	<0.02
Nickel	11.9	0.02
Zinc	1.23	0.01

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Features and Benefits

Dry Chemical	Decreased Process Time	Versatile Technology	Cost-Effective	Consistent Results
<ul style="list-style-type: none">• Packaged in 50# bags or bulk bags for easy storage and movement• Semi-granular and granular blends minimize dusting• Can be easily introduced to a waste stream with a dry feeder	<ul style="list-style-type: none">• RM-10 combines multiple functions of traditional treatment simultaneously into one simple step• Base clays used in RM-10 blends allow faster precipitation and setting of contaminants• Typical treatment time required for full reaction is less than two minutes	<ul style="list-style-type: none">• Effective treatment of waste streams with a pH from 2-12• Can be utilized in batch or continuous flow treatment schemes and in most cases with existing equipment• Removes heavy metals, Total Suspended Solids (TSS), oils, and other organic and inorganic matter	<ul style="list-style-type: none">• Requires very little operator input• Only one product to add and maintain• Generates a solid waste that is easily de-watered and is typically classified as non-hazardous	<ul style="list-style-type: none">• RM-10 products are more forgiving if overdosing occurs• High affinity for metals, organics, and other contaminants• Proven technology for over 30 years



ACCOFLOC® FLOCCULANT AID



ACCOFLOC is certified to NSF/ANSI Standard 60, Drinking Water Treatment Chemicals - Health Effects

Changes in discharge regulations have forced municipalities and industries to reassess wastewater treatment methods. Many systems currently in use are unable to meet the increasingly stringent water quality and discharge requirements. The addition of ACCOFLOC to current treatment chemistries may be the only adjustment necessary to meet the changing regulations.

ACCOFLOC products are high-swelling, pure sodium bentonite clays found only in the Black Hills region of western United States. ACCOFLOC clays are selected for their unique ion exchange capability which allows ACCOFLOC to increase clarity and remove trace metals from water or wastewater.



Certified to
NSF/ANSI 61

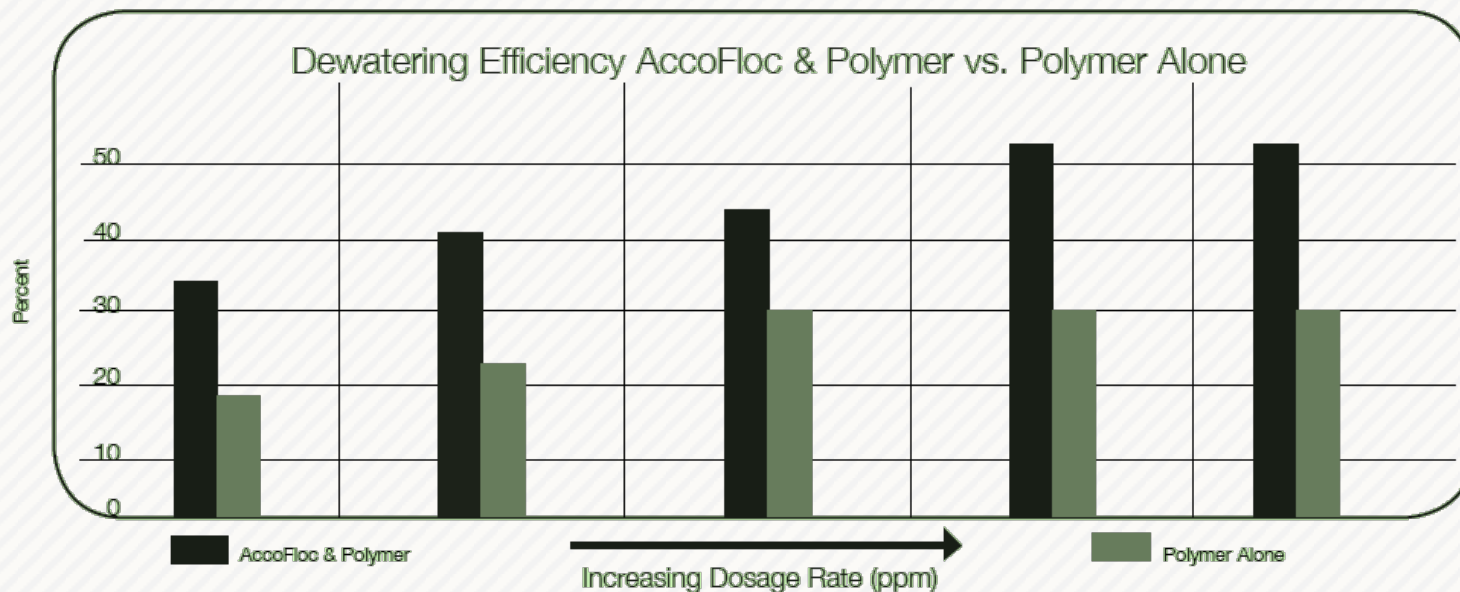
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Many wastewater treatment systems require the generation of large floc particles, which either float to be skimmed off the surface of the water or settle to concentrate in the bottom of the tank. The desired result is not always attained, and this can lead to major problems for the operator.

These problems may include:

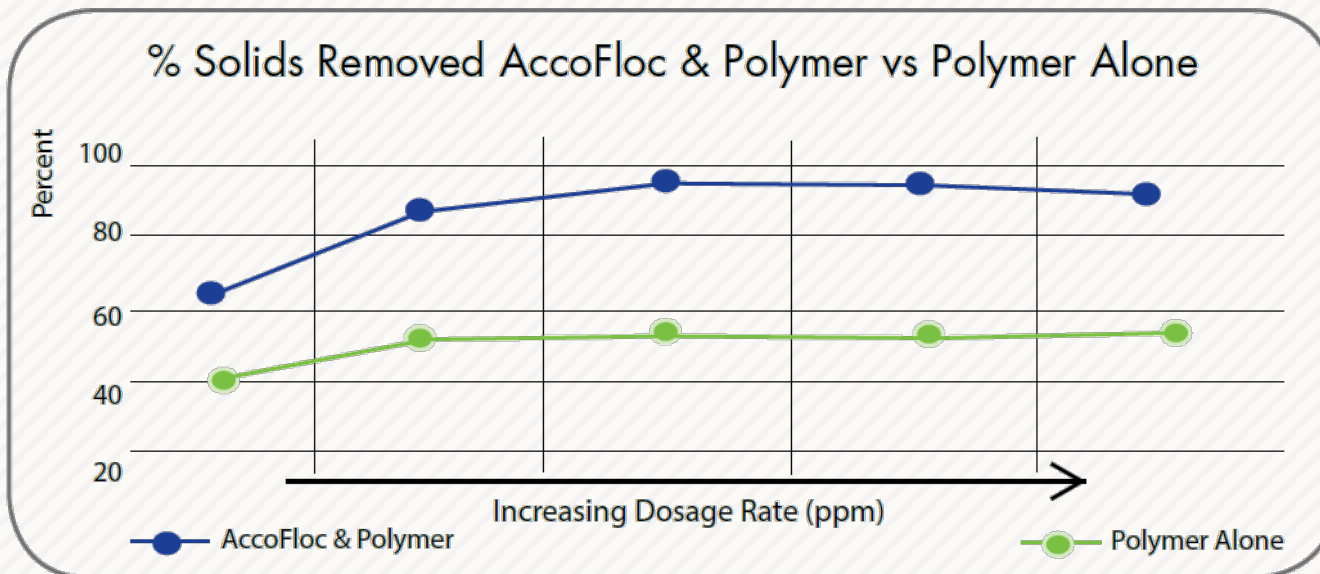
- Small colloidal floc that will not float or sink
- High turbidity in the water
- Slow dewatering
- Wet sludge
- Trace metals





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These problems can normally be corrected by adding ACCOFLOC to the water or wastewater along with the polymer currently being used. ACCOFLOC will achieve the following results:

- Increased floc size
- Increased floc weight
- Reduced settling time
- Increased clarity
- Removal of trace metals from water
- Faster dewatering
- Drier sludge cake



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Easy to Use

ACCOFLOC is normally pre-mixed with tap water to a 5 percent by weight slurry. ACCOFLOC is never added directly to a wastewater stream in the dry form. After approximately two hours of hydration time, the resulting slurry can be metered into the water or wastewater treatment mix tank at a rate of 200 ppm to 500 ppm.

It is important to note that ACCOFLOC will normally not floc on its own. In order to create a floc, ACCOFLOC must be used in conjunction with polyelectrolytes or inorganic coagulants.

ORGANOPHILIC CLAY MEDIAS



With an extremely high surface area, our organophilic clays, PM-100™ and PM-199™, have the ability to adsorb up to 50% of their weight in oil and grease, making them extremely cost-effective medias as opposed to activated carbon. These organically modified clays have a great affinity for oil and grease and other low-solubility and high-molecular weight organics.

Granular Product	Features	Benefits
<ul style="list-style-type: none">• PM-100 is a modified clay/anthracite media• PM-199 is 100% modified clay• Non-reactive, non-hazardous• Packaged in 50# boxes, bags, or bulk	<ul style="list-style-type: none">• High affinity for low-soluble organic molecules• Can adsorb up to 50% of its weight in oil and other high-molecular weight organics• Unique sorption mechanism eliminates blinding and maintains flow rates• Can accommodate surges in organic concentration levels caused by plant upsets	<ul style="list-style-type: none">• Extends the life and adsorbency of activated carbon by removal of larger molecular organics which tend to blind the pore structure of activated carbon• Allows water to pass and will not be depleted if organic material is not present• Removes dissolved, mechanically emulsified, and free oil from wastewater• Can be easily adapted in general filtration systems• Can be applied as a fixed-bed media or in removable cartridge filters