

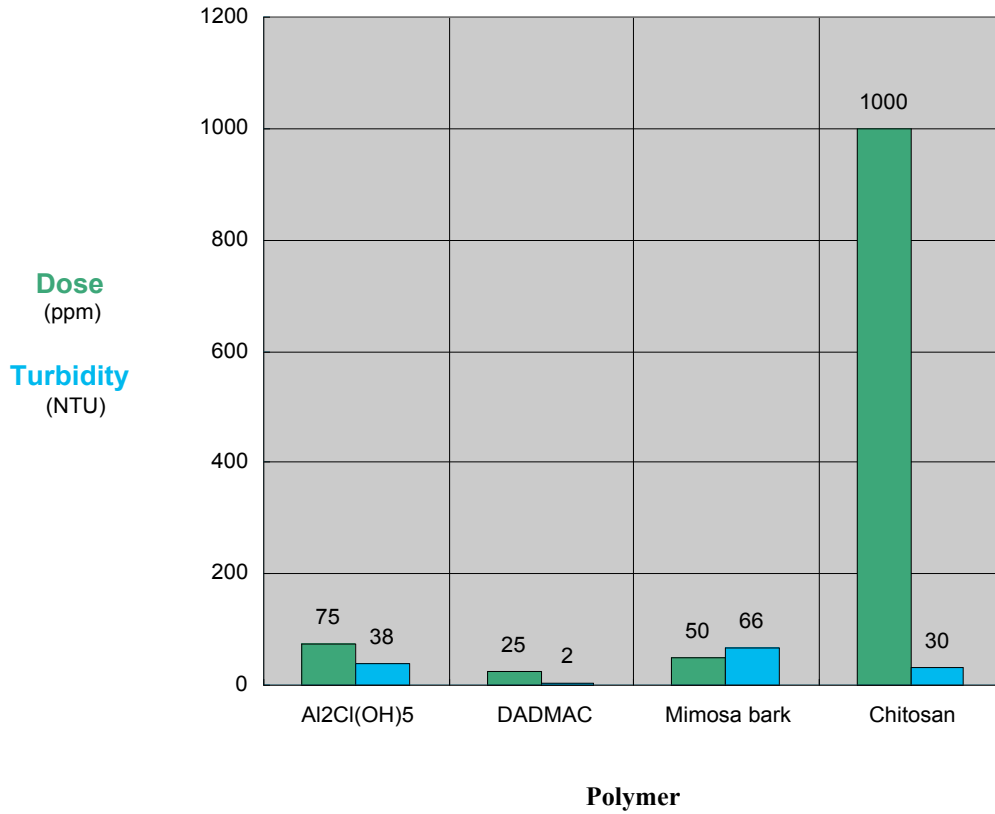


Specializing in
Coagulation/Flocculation Systems for
Difficult-to-Treat Stormwater

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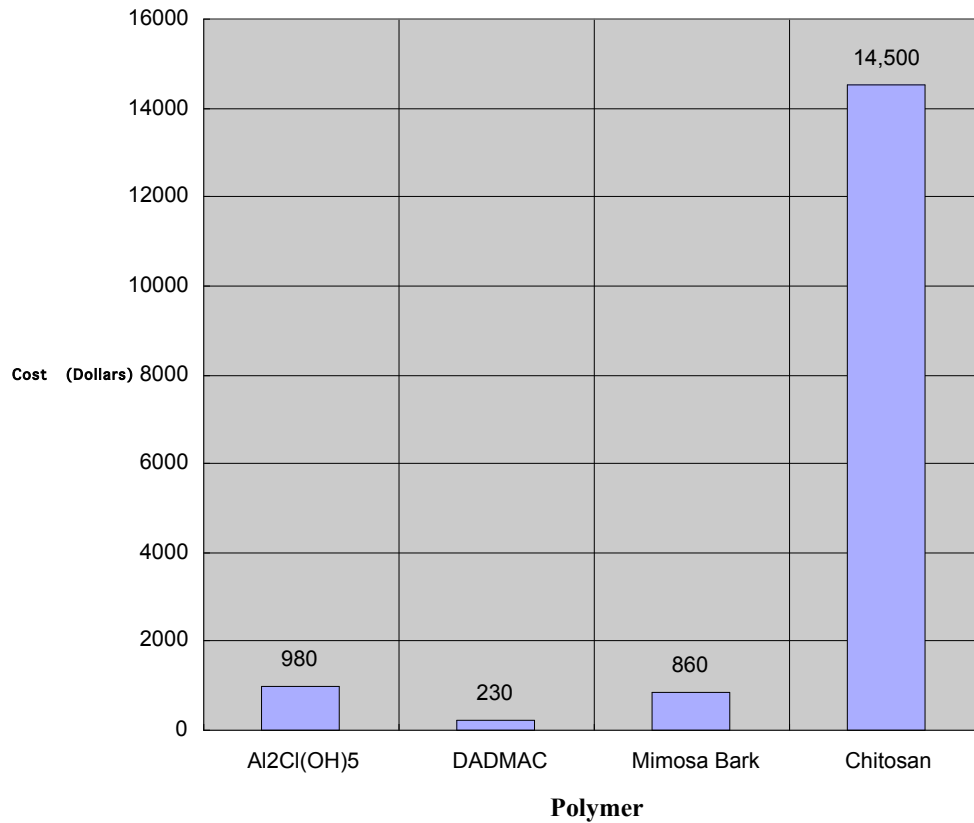
Polymer Coagulant Performance, Aquatic Safety, and Cost Comparison

Polymer Dose/Response



Polymer dose varies from 25 to 1000 ppm to reach acceptable turbidity levels (based on jar tests with 1000 NTU stormwater)

Polymer Cost (\$ per M gallons treated)



Direct polymer cost varies from \$230 to \$14,500 per million gallons

Stormwater Effluent Toxicity Test Summary

Toxicity of 1000 NTU stormwater treated with polymers
at optimum clarification dose and 2x overdose

Polymer	Dosage (ppm)	% survival		
		Daphnia Magna (48 hour)	Rainbow Trout (96 hour)	Fathead Minnow (96 hour)
Control	0	95	100	90
Al ₂ Cl(OH) ₅	75	95	100	95
	150	95	100	100
DADMAC	25	95	100	100
	50	95	100	100
Mimosa Bark	50	95	100	95
	100	100	100	100
Chitosan 1%	1100	100	100	100
	2200	100	100	100

Dissolved Polymer Toxicity

LC50 values for dissolved polymer concentrations in clean water
(free polymer, not bound to suspended sediment)
(mg/L)

Polymer	Daphnia Magna (48 hour)	Rainbow Trout (96 hour)	Fathead Minnow (96 hour)
Al ₂ Cl(OH) ₅	>5000	390	517
DADMAC	17.5	0.49	1.65
Mimosa Bark	258	NA	1.3
Chitosan (100%)	13.7	1.1	6.4

Toxicity testing indicates that all polymers tested are safe at up to 2x overdose;
however, LC50 values indicate that all polymers are potentially toxic
if not properly applied.