



# FloNox™ System

*FloNox™ combines our eFloc™ and eNox™ systems for purification of severely contaminated waters, removing both heavy metals and harmful organics.*

-  Highest quality at the lowest cost per gallon in the industry
-  Produces crystal clear drinking water in even the most remote locations and emergency conditions

eFloc™ + eNox™ = FloNox™

SYSTEM FUNCTION		
Purifies heavily contaminated water sources producing crystal clear water, and a harmless sludge-cake for disposal	Uses UV technology to remove harmful organic molecules from clear waters	First, eFloc™ purifies the water source of inorganic contaminants to produce crystal clear water, and then eNox™ treats for organic contaminants
CONTAMINANTS REMOVED		
Heavy metals, BTEX, PFOS, pollutants, & other inorganic contaminants	Harmful organics (such as. TCE, PCE, toluene & methylene chloride)	Both inorganic and organic contaminants
TARGETED USES & INDUSTRIES		
Ideal for most industrial, marine, storm-water run-off, landfill leachate, and other wastewaters. Capable of handling high volume flows of metal bearing wastewater and low to mid volume flows of wastewater with multiple contaminants	Suited for pharmaceutical manufacturing and others with only organic waste. Applications include drinking water, storm water, industrial wastewater, land-fill leachate, and remediation water	Most suitable for situations where heavily contaminated water is the only water available for drinking and/or manufacturing, laboratories and hospitals – such as very remote locations, or areas hit by natural disasters. Flood water, river water, etc. can be turned into clean drinking water



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## System highlights

- Essentially eliminates EPA priority heavy metals and organics from wastewater
- Applicable over a wide range of contaminants
- Greatly reduces oil, grease and suspended solids
- Leaves no hazardous waste stream – solids are eligible for sanitary landfill
- Ideal for up-stream protection of RO membranes & ion exchange resin beds
- Treated water can be recycled
- Self-contained in 40' intermodal shipping container
- Comprehensive remote digital management

## Markets

### Federal & Municipal

- Municipal wastewater
- Municipal drinking water
- Landfill leachate
- Superfund sites

### Commercial & Industrial

- Wood, pulp, and paper
- Semiconductor & electronics manufacturing
- Mining
- Laundries
- Oil refineries
- Power generation
- Chlor-alkali and other chemical plants
- Ships, shipyards and dry docks
- Agriculture
- Food processing
- Meat and poultry
- Textile and dye
- Metal finishing/plating
- Car, truck, and railroad wash facilities

## REMOVES OR REDUCES:

### Metals

- Aluminum
- Antimony
- Arsenic\*
- Beryllium
- Bismuth
- Boron
- Cadmium\*
- Chromium\*
- Cobalt\*
- Copper\*
- Gold (Auric)
- Iron
- Lead\*
- Manganese
- Mercury\*
- Nickel\*
- Silver\*
- Strontium
- Zinc\*

\* EPA Priority Heavy Metal

### Fluoride

### Humic Acid

### BTEX's

- Benzene
- Toluene
- Ethyl benzene
- Xylenes

### AFFF (PFOS)

### Pollutants

- TPH
- FOGs
- PAHs
- BODs
- CODs
- TSS
- VOCs

### Organic Molecules

- Aliphatics
- Aromatics
- Heterocyclics
- TCA and DCA
- TCE and PCE
- Toluene
- Methylene chloride



## How it works

FloNox™ involves combining an electroflocculation oxidative/precipitation system (eFloc™) for the reduction of metals, oils, greases and suspended solids, along with a photolytic oxidation process (eNox™) for the removal of dissolved organics. This system is capable of destroying and/or removing the EPA's "priority" heavy metals and dissolved organics over a wide range of species and concentrations.

The system also stabilizes and fixes the solids generated into material that may be disposed of in sanitary landfill. The FloNox™ system meets federal TCLP, WET, and Detox tests, minimizing the cost of operation and ensuring safe disposal of entrapped contaminants.

The strength of FloNox™ lies in its superior technology and its full service application to each deployment. Digital over-the-Internet control is coupled with expert management from the central laboratory, which monitors and makes adjustments to optimize the system's techno-economic performance in the field.

The FloNox™ system's integrated electroflocculation (eFloc™) and photolytic oxidation (eNox™) technologies have proven environmentally superior to any other available water purification technology because of their capacity to more effectively deal with a broader spectrum of wastewater contaminants and concentrations, with very low

labor and maintenance costs. FloNox™ can reduce heavy metals to very low levels (ppm and ppb), even in the presence of heavy fats, oils, and greases, and heavy suspended solids, while simultaneously reducing VOCs, BODs, CODs, etc.

FloNox™ has been installed in multiple commercial applications as diverse as industrial laundry effluents (heavily contaminated with heavy metals, FOGs to 10,000 ppm, TSS, BODs, CODs, and VOCs), dyehouse waters, stormwater run-off, stone-washing fabric processing plant wastewaters, landfill leachates, ship bilge and ballast waters, and nuclear power plant wastewater streams (ethylene glycol to 10,000 ppm). Bench-scale testing also indicates its ability, with minor modifications, to remove radionuclides from radioactive wastewaters and PFOS from waters contaminated with AFFF (Aqueous Fire Fighting Foam).

Design studies have been completed for a mobile FloNox™ system aboard a 40' shipping container, capable of processing up to 50 gpm of contaminated waters. FloNox™ technology can also be retrofitted to existing wastewater treatment plants and municipal drinking water facilities. The FloNox™ system is modular in design and can treat volumes of water up to millions of gallons per day by simply adding modules. This will further reduce the cost per gallon of treated water.

# FloNox™ typical results

## eFloc™ RESULTS

INDUSTRIAL LAUNDRY		
Contaminant	Untreated	Treated
TSS	3,500	22
Total Oil & Grease	5,500	<40
Oil & Grease (TPH)	4,000	<10
Cadmium	25.6	<0.001
Lead	400	<0.03
Napthalene	3.4	0.079
2-bis ethylhexyl phthalate	5.7	0.240
Pyrene	3.4	0.330
Ethylbenzene	21	<0.007
Toluene	23	0.014
Xylenes	168	0.051
Phenol	3.4	0.052

DYEHOUSE		
Contaminant	Untreated	Treated
COD	1,896	37
TSS	356	ND*

SHIP BILGEWATER		
Contaminant	Untreated	Treated
Oil & Grease	490	ND*
Cadmium	0.015	ND*
Chromium	0.15	ND*
Copper	2.5	0.008
Lead	0.06	ND*
Mercury	0.0031	ND*
Nickel	2	ND*
Zinc	6.2	0.055

STORMWATER RUN-OFF		
Contaminant	Untreated	Treated
TSS	1,032	3.3
FOG	7.6	<0.25
TPH	4.2	<0.25
Barium	0.228	0.008
Lead	0.0825	<0.0010

NUCLEAR POWER PLANT		
Contaminant	Untreated	Treated
Ethylene glycol	10,000	ND*

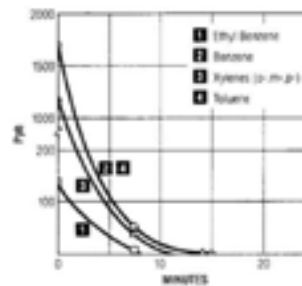
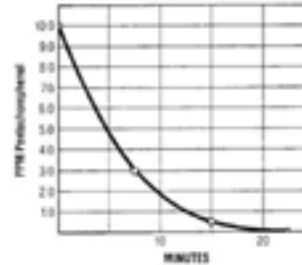
INDUSTRIAL PLANT		
Contaminant	Untreated	Treated
TSS	2,500	<100
Oil & Grease	2,000	<100
Lead	10	0.2
Cadmium	1	0.05

SLUDGE ANALYSIS			
Characteristic waste performance test on solids going to county landfill			
Ignitability	Pass		
Corrosivity	Pass		
Reactivity	Pass		
Toxicity	EP Tox	TCLP	Limits
Lead	<0.5	<0.1	5.0
Cadmium	<0.1	<0.01	1.0

## eNox™ RESULTS

CONTINUOUS REACTOR BTEX TEST (PPB)				
<b>Basis</b>				
30 minutes reside				
4 lamps/stage				
4 stages				
120% of stoic (H <sub>2</sub> O <sub>2</sub> )				
<b>Results</b>				
	BZ	TOL	EB	Xyl
Feed	1,700	1,700	240	1,200
Stage 1	85	61	9	48
Stage 2	3	1	ND*	1
Stage 3	ND*	ND*	ND*	ND*
Stage 4	ND*	ND*	ND*	ND*

CONTINUOUS REACTOR PENTACHLOROPHENOL TEST	
<b>Basis</b>	
24 minutes reside	
4 lamps/stage	
4 stages	
185% of stoic (H <sub>2</sub> O <sub>2</sub> )	
<b>Results (mg/L)*</b>	
Feed	10 ppm
Stage 1	3 ppm
Stage 2	0.5 ppm
Stage 3	0.005 ppm
Stage 4	ND*



All units in mg/L \*ND: non-detectable levels

## About Save the Water™

**Vision** | Achieve contamination-free, healthy water for all. We want to ensure all communities have access to clean, healthy water and to protect the supply so it stays clean for generations to come.

**Mission** | Conduct research to identify and remove harmful contaminants, improve the quality of drinking water, and raise public awareness about water contamination and its health impact.

**Work** | Our research team will work on ensuring each chemical present in North American waters is identified and its effects documented. Then we will translate this information into simple terms and share our knowledge so that every family in the United States and Canada is aware of water pollution's health impacts. Our scientists and engineers have designed water treatment technologies to make water cleaner for our families.