CromaFlow® Inc.

"Creative Treatment Technologies"

Wastewater Treatment

CromaFlow® Inc., is a United States of America based company that specializes in the fabricating/manufacturing state of the art wastewater treatment systems with proven technologies that meet the most stringent environmental regulations.

CromaFlow® systems have been successfully installed in a variety of applications around the world handling flows from 500 gallons per day (1.89 m3/day) up to 650,000 gallons per day (2460.6 m3/day), removing pollutants such as BOD, TSS, FOG, Nitrogen and Phosphorus.

Mission Statement

Our Mission Statement is to provide reliable, cost effective solutions for the treatment of wastewater in a professional and expeditious manner.

CromaFlow® Inc.

MODEL	CAPACITY (GPD)
CF5	500
CF12	1200
CF15	1500
CF25	2500
CF30	3000
CF50	5000
CF60	6000
CF100	10,000
CF120	12,000
CF150	15,000
CF200	20,000

At CromaFlow® Inc., we effectively use the sequential batch reactor technology with patented enhancements, to provide the high level of treatment demanded by today's regulatory community.

CromaFlow® Inc., utilizes industry leading fiberglass tanks to facilitate fast, simple installations. The flexibility of our designs allow for incremental installations to facilitate rapid, cost effective expansion of an existing system.

CromaFlow® Inc. can also provide maintenance of any installation and factory training of on-site operators. With a combined 80+ years of experience, the ownership and staff teams at CromaFlow® Inc. will continue to provide wastewater treatment with state-of-the-art equipment and continued research and development to meet the ever-changing regulatory demands.

We invite you to visit us on the web at www.CromaFlowinc.com or to contact us at info@CromaFlowinc.com and experience the most effective way to solve your wastewater treatment and reuse needs.

CromaFlow® Inc.

www.cromaflowinc.com

143 Lumber Lane

Montoursville, PA 17754

570-435-5550

CromaFlow® Inc.

PROCESS DESCRIPTION

- **Designed/Operated** as a continuously fed activated sludge process using the batch process with a clarifier.
- **CromaFlow®** treatment systems operate on principles of turbulent aeration of incoming wastes and batch treatment of biomass in separate aeration and quiescent settling chamber.
- **DISCHARGED** effluent is an odourless and almost clear liquid in colour, with reduction in BOD5 and Suspended Solids at over 90%. Even higher efficiencies can be achieved if required by permit.
- **Nutrient Removal** is now required in many jurisdictions and **CromaFlow®** systems are capable of meeting this requirement.
- **Batch/Pre-batch** treatment cycles are optimized for quality using PLC/HMI control system that is remote operation ready.
- **Effluent** quality meets and exceeds standards established by WHO and the federal US EPA.
- **RECYCLE/REUSE** is just one of the benefits of the high quality effluent produced by the **CromaFlow®** treatment process, and irrigation is the leading use of treated effluent from the systems worldwide.

FILL/ AERATION

Flow enters the Solids Retention Section (A) which is separated by a stainless steel trash screen. Inorganic solids are retained behind this screen. Organic solids are broken by turbulence created via mixed liquor being forced through the screen by submersible aeration/mixing pumps. This eliminates the need for mechanical comminution.

AERATION

Liquid and broken down organic solids pass through the screen into the continuous aeration/mixing section (B). Air and mixing are provided by submersible pumps with a venture system that receive air through intake pipes from the atmosphere.

NUTRIENT REMOVAL CYCLE

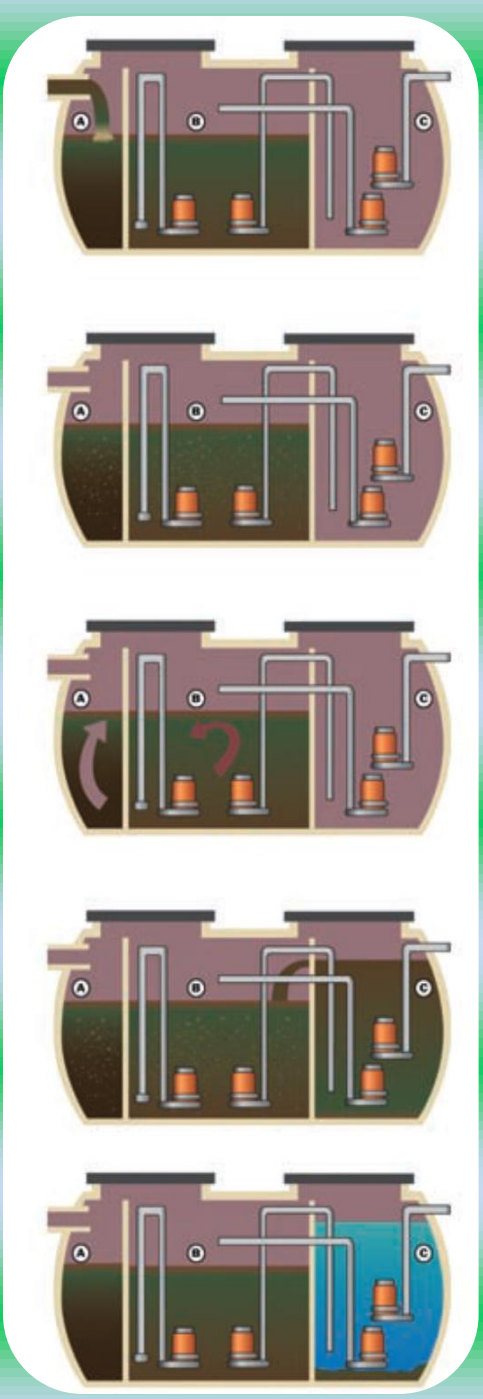
The PLC/HMI controls anoxic periods during the treatment cycle to enhance biological nutrient removal during a settlement period in compartments B and C. The system allows the operator the ease to make adjustments to fine tune this process.

TRANSFER/ SETTLEMENT

Mixed liquor is transferred by pumping to the clarifier section (C). The transfer cycle fills the clarifier with the excess liquid spilling back over the weirs into the main aeration/mixing compartment. Transfer ceases, the clarifier (C) is now isolated, and solids separation occurs under quiescent conditions in C.

DISCHARGE

After settlement (nutrient removal cycle), the R.A.S. pump returns sludge to the head of the system from the bottom of the clarifier or to a sludge processing unit.



CromaFlow® Benefits

Thoroughly Tested
Modular System
Easily Expanded
FRP Tanks
No Offensive Odors or Noise
Easy Installation
Positive Pump Discharge
"Flow Thru" Eliminated
Surge Rated
Automatic Control system
Monitoring 24 Hours
Noncorrosive parts

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"Creative Treatment Technologies"

CromaFlow® "Decentralized" Wastewater Treatment

The CromaFlow® system uses a Sequencing Batch Reactor mode of processing wastewater. This process has been deemed by the Federal EPA as an Innovative & Alternative (I&A) wastewater treatment system that qualified for additional federal funds as an I & A system.

CromaFlow® offers a "safe" reliable alternative to the anaerobic septic tank with its problems of high BOD, high nitrate/phosphate levels, and high amounts of suspended solids discharge into the drain-field. This results in drain-field failure and produces potential health hazards and possible ground water contamination. CromaFlow® **systems** also are a viable alternative to the typical high profile open top "package treatment plant" which is unsightly and can produce repugnant odors. The unique CromaFlow® "Batch Treat" process with its fail-safe design offers to regulatory agencies, public utilities, homeowners, builders, developers, and industrial users a system that is not only biologically efficient but also extremely reliable and maintainable.

Following are some of the features and benefits of the CromaFlow® system:

- **Batch Treat Process** - handles wide flow ranges and differing types of wastes best.
- **Aerobic Process** - highly efficient venturi aeration and mixing with minimal sludge production and NO ODOR.
- **10-20 mg/l BOD & TSS** - effluent quality exceeds NSF Class 1 30/30 requirements and FDEP requirements of 20/20.
- **Denitrification & Nutrient Removal** - provides advanced treatment for the added protection of the receiving bodies of water.
- **Surge Capacity Built In** - Handles high peak loading without "flushing" out suspended solids into the drain-field.
- **Fail-safe Design** - comminution, aeration, and clarifier sections with pumped discharge and transfer prevents "short circuiting" of "flow through" type systems (all other Class 1 systems are "flow through" type).
- **Dosed Drain field** - Intermittent dosing with 2 - 5 PPM DO in effluent allows for best aerobic drain-field conditions.
- **Remote Monitoring & Operation** - 24 hour monitoring system assures long term reliable and efficient operation (not available with "flow through" systems).
- **3/4" SS Heavy Gauge Screen** - smallest opening in the system; does not require sand filters as do many NSF Class 1 systems.
- **Low Profile** - buried, odorless, and noiseless - aesthetically pleasing.

The low profile CromaFlow® treatment system is comprised of an inert fiberglass tank that is typically buried; it has lockable access hatches and quiet running submersible pumps. These pumps provide efficient injection of oxygen into the sewage through venturi orifices. Noisy blowers are eliminated. The highly treated effluent is safely discharged on an intermittent basis into an underground aerobic drain-field. The high dissolved oxygen (D.O.) content of the effluent keeps the drain-field in a healthy aerobic porous condition.

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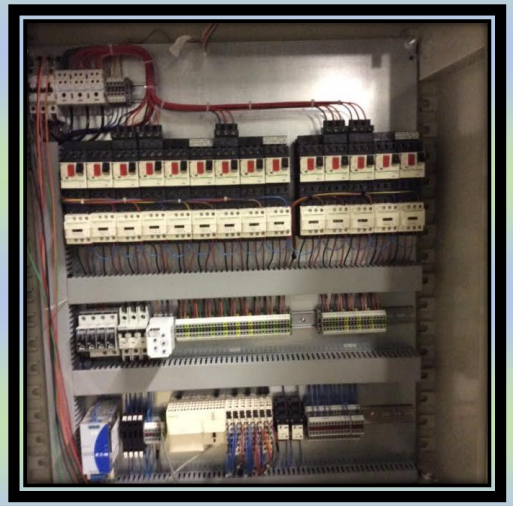
Treatment System Specifications

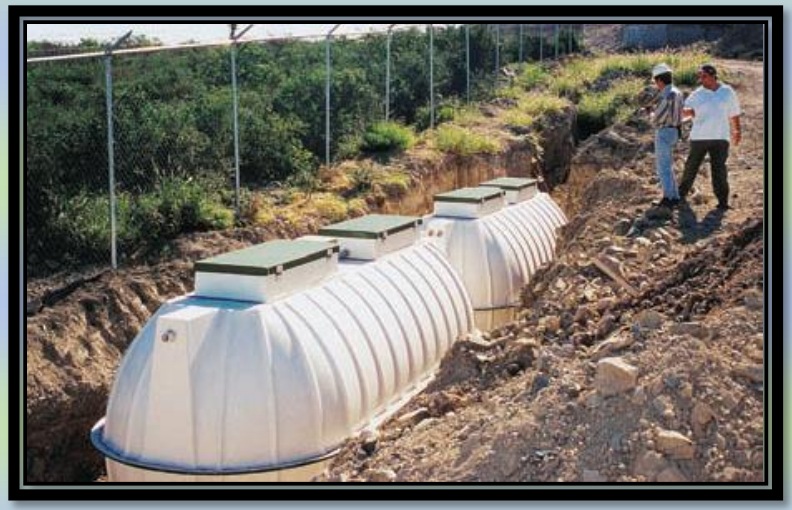
Model	Length		Height		Width		Shipping Weight		Treatment Capacity		Discharge Volume		Discharge Per Day Standard	Tank Volume		Electrical Usage KWH/24 HRS*
CF 5	7'11"	2.4 m	5'7"	1.7 m	5'7"	1.7 m	584 lbs	264.9 Kg	500 gal	1.9 m3	85 gal	321.76 L	6	950 gal	3.6 m3	7
CF 12	11'3"	3.43 m	5'7"	1.7 m	5'7"	1.7 m	998 lbs	452.7 Kg	1,200 gal	4.5 m3	200 gal	757.1 L	6	1,360 gal	5.15 m3	7
CF 15	11'3"	3.43 m	5'7"	1.7 m	5'7"	1.7 m	1,008 lbs	457.2 Kg	1,500 gal	5.7 m3	250 gal	946.4 L	6	1,360 gal	5.15 m3	9
CF 25	14'10"	4.5 m	6'10"	2.1 m	6'10"	2.1 m	1,523 lbs	690.8 Kg	2,500 gal	9.5 m3	420 gal	1.6 m3	6	2,915 gal	11.03 m3	18
CF 30	14'10"	4.5 m	6'10"	2.1 m	6'10"	2.1 m	1,721 lbs	780.6 Kg	3,000 gal	11.4 m3	375 gal	1.42 m3	8	2,915 gal	11.03 m3	55
CF 50	19'5"	5.9 m	8'3"	2.5 m	7'4"	2.2 m	2,004 lbs	909 Kg	5,000 gal	18.9 m3	625 gal	2.37 m3	8	4,600 gal	17.4 m3	55
CF 60	19'5"	5.9 m	8'3"	2.5	7'4"	2.2 m	2,020 lbs	916.3 Kg	6,000 gal	22.7 m3	600 gal	2.27 m3	10	4,600 gal	17.4 m3	55
CF 80	29'8"	9.02 m	6'10"	2.1 m	6'10"	2.1 m	2,684 lbs	1,217.4 Kg	8,000 gal	30.9 m3	800 gal	3.03 m3	10	5,830 gal	22.07 m3	58
CF 100	42'10"	13.1 m	8'3"	2.5 m	7'4"	2.2 m	4,845 lbs	2,197.6 Kg	10,000 gal	37.9 m3	1,000 gal	3.79 m3	10	9,200 gal	34.8 m3	60
CF 120	42'10"	13.1 m	8'3"	2.5 m	7'4"	2.2 m	4,845 lbs	2,197.6 Kg	12,000 gal	45.4 m3	1,000 gal	3.79 m3	12	9,200 gal	34.8 m3	60
CF 150	42'10"	13.1 m	8'3"	2.5 m	7'4"	2.2 m	4,895 lbs	2,197.6 Kg	15,000 gal	56.8 m3	1,250 gal	4.73 m3	12	9,200 gal	34.8 m3	80
CF 200	35'11"	10.94 m	8"	2.44 m	8"	2.43 m	3,350 lbs	1,519.53 Kg	20,000 gal	75.7 m3	2,000 gal	7.57 m3	10	11,595 gal	43.9 m3	88

* Electrical usage will vary depending on hydraulic and biological loading

Custom Tank Manufacturing



CromaFlow® Control Panel



Plant Installation

CromaFlow® Inc.

GLOBAL APPLICATIONS & SOLUTIONS

CromaFlow Inc. Delivers All-In-One Treatment System

Boarded Hall Green Development in Barbados.

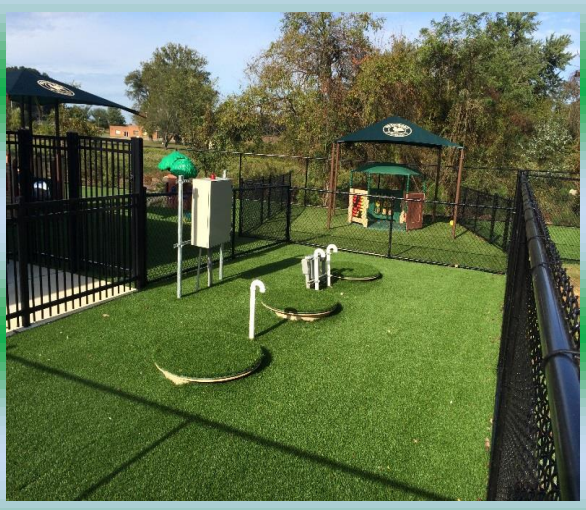
Problem: The Boarded Hall Green condominiums required an onsite wastewater treatment system with a small footprint, low maintenance, and one that will meet the local Environmental Protection Department's effluent requirements with a construction deadline that will correspond with the start of the tourism season in December 2014.

Solution: S.I.R. Water Management Ltd, licensed distributor of CromaFlow® Inc's wastewater treatment systems utilized the CromaFlow® Inc SBR technology with its advancements and patents to provide superior quality effluent for the Boarded Hall Green condominiums. The CromaFlow® Inc. CF-120 wastewater treatment system was selected to treat approximately 12,000-gpd of sewage. The advance treatment system involves an automated process with the pumps being controlled by float switches, a dissolved oxygen meter and the CromaFlow® Inc. designed and manufactured PLC control panel. As a consequence the system requires little maintenance. This highly efficient and economical unit fits into limited spaces while producing virtually no offensive odors and little noise. The Boarded Hall Green project meets the extremely stringent effluent parameters set by the Barbados Environmental Protection Department. The easy underground installation of the CF-120 unit seamlessly blends with the landscaping at the Boarded Hall Green development.

Result: The entire wastewater treatment system was successfully up and running before the end of December 2014.

Primrose School in Maryland, USA.

Problem: The Primrose School of Maryland required an onsite wastewater treatment system that would meet the site constraints and the State of Maryland's effluent requirements as well as a construction deadline that would correspond with the opening of the school.



Solution: Carroll Holmes of STH, Inc. turned to CromaFlow Inc. to design, manufacture and install the wastewater treatment plant for the high-quality educational preschool facility. The 5,000-gpd-advance treatment system consists of one all-in-one treatment unit, with the treatment process being controlled by a CromaFlow® Inc. designed and manufactured control panel. This high efficient, economical unit made from corrosion free materials fits into the limited space while producing no noise and no offensive odors. The CF50 unit uses no chemicals or enzymes for the treatment process and requires minimal supervision and maintenance. The easy underground installation and modular construction provides for an ease of expansion as future needs arise. CromaFlow® Inc. and Statewide Septic Tank Service of Maryland's joint efforts successfully handled the on-site installation duties. The system began operation in July of 2014. McCrone, Inc. is the engineer of record.

Result: The entire wastewater treatment system was successfully up and running before the start of school in August of 2014. The control panel provides a more simplistic operation of this single unit treatment system. The all-in-one treatment unit successfully met the limited space while at the same time producing no offensive odors. The system is maintained and operated by Singh Operational Services out of Willow Street, PA.

CromaFlow® Inc.570-435-5550; www.cromaflowinc.com

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EXCEEDS UNITED STATES AND INTERNATIONAL REGULATORY STANDARDS

Final Effluent After
FILTRATION & DISINFECTION

BODs	2.84 mg/L	97.87% reduction
TSS	2.48 mg/L	98.65% reduction
TN	90% reduction	

With total nutrient removal rates at 90%, the CromaFlow® treatment process is meeting the world need for a cleaner environment.

Our environmentally friendly approach and our superior on and off site support capabilities make CromaFlow® the obvious solution for your next project.
Call us today.

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