

ClearFox CFC 500- 5.000 p.e Waste water treatment in seacontainer



PROJECTS + CASE-STUDIES + QUALITY
PICTURES + COSTING + REFERENCES

ClearFox CFC 500- 5.000 p.e

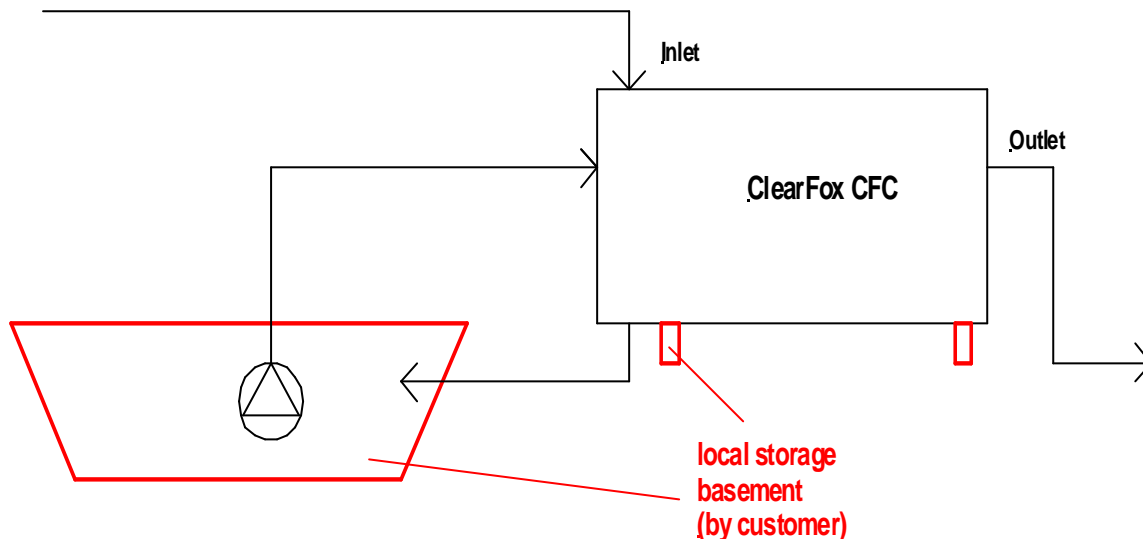
Waste water treatment in seacontainer



product application:

In these systems, the complete wastewater treatment is carried out in 20' or 40' containers. All the equipment from mechanical and sludge treatment, biological treatment or secondary clarification with possible dosage is pre-installed ready for plug and play. The customers work is limited to a minimum !

Priority objective at this system is that all components can be manufactured under quality assurance inside the factory. The system can be easily installed, everything is preinstalled. Thereby a high quality level by low building cost can be provided. **Only basement for containers and a reservoir for storage and buffering of the waste water must be provided by customer.**



CFC treatment systems come into operation at municipal applications and industrial applications. The water and sludge is treated in accordance to the clients specifications. The reservoir can be constructed as a simple folia basin, i.e. easiest way is consisting out of a folia and a groundhole.

The usage of high-quality components, a durable and easy operation is assured. Operation is fully automatic. With an integrated power circuit to adjust the treatment plant to the respective amounts of waste water and saves energy.

climate zone/temperature:

-25 °Celsius up to 55 °Celsius in application

sizes:

max. 5.000 people equivalent or 1.000 m³/day wastewater

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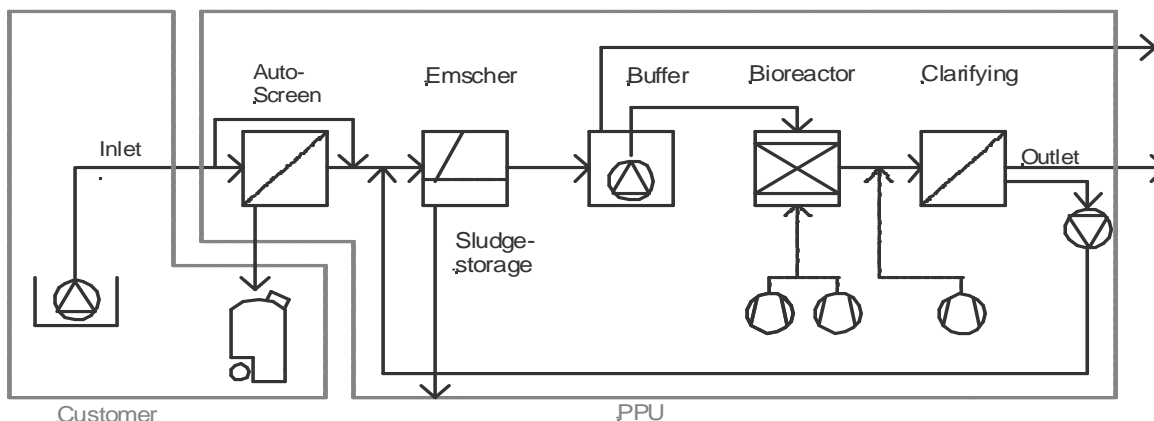


process technology

CFC means modular system, according to clients requirement. The following steps are possible and can be - in combination- installed into seacontainer. Always provided is a central control-unit where all treatment steps are in combination cable- connected :

pretreatment	<ul style="list-style-type: none"> - sandtrap - degreasing unit - pre-aeration&mixing Kit of reservoir (C-Elimination) - selector zone & superposed denitrification (N-Elimination)
screen	<ul style="list-style-type: none"> - manual screen (police function) - drumsieve (on containertop outside installed) with tip chute for waste basket - screw screen and/without compacting zone, tip chute for waste basket
biological treatment	<ul style="list-style-type: none"> - carbon elimination: fxd bed cascade, aeration - nitrification : fixed bed cascade, aeration
sludge treatment	<ul style="list-style-type: none"> - anaerob stabalizing (Emschertank) : settling zone with underlying digestion zone - aerob stabilizing : areated sludge storage equipment - sludge dewatering: dewatering container - sludge dewatering: bandpass filter module
clarifying	<ul style="list-style-type: none"> - lamella clarifyer tank - sand -anthracit- filtration unit
hygienisation (cutting bacterial count)	<ul style="list-style-type: none"> - UV reactor (in combination with sand filter) - ozone reactor (in combination with sand filter)
disinfection (reuse of water)	<ul style="list-style-type: none"> - ROS module (in combination with sand filter)
Phosporus removal	<ul style="list-style-type: none"> -precipitation: PAC-dosing unit (when P < 2mg/l in combination with sand filter)
faecal sludge collecting	<ul style="list-style-type: none"> - compact module in open top container

process scheme (typical i.e. for nitrification and slude stabilizing)



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systems properties or customers requirements

The following requirements are typical for the offered system:

- the process technology for biological treatment is especially adequate for fluctuating loadings such as underload, overload, holiday modes, (fixed bed technology is recommended by leading German associations when robust technology is required)
- maintenance must be possible without special equipment
- system is capable of easily being extended (more streets parallel, sludge storage etc.)
- operation of the plant must be possible with untrained local staff
- the plants must be able to run on a limited acreage
- it must be possible to fit this plant in a very short time
- money saving in future - spare parts must be available in every country, all technical equipment is as good as possible consisting out of standard materials, suppliers
- optional all world conditions can be achieved (for example desert condition) by insulations outside
- big efficiency rate for every process for example special fine bubbling aeration,
- possibility to move this plant partially to another place
- no need to build additional buildings - everything in the plant is housed,
- every installation with contact to water is consistent to corrosion for long time usage
- less energy costs energy saving modes are standard,
- less noise cause everything is housed
- all services can be done out of one hand
- low costs for projecting and construction management, 50% pre-designed, low cost for design work and engineering

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impressions from quality production :



lamella clarifier top view inside container full insulation 20 ft



baffles and tubes inside the 20 ft inlet



screw screen with bypass



machine house: mechanical screen, blowers sludge splitter



1 cascade – aeration and mixing system in 1 .cascade



Fixed bed materials

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air splitter, 3-cascade fixed bed reactor



Control unit with modem for failure transfer to mobile phone (SMS per GSM), free programmable



Insulation in container 120 mm thickness, roof view



waterproof inlet in container made in PP



lifting a Container in High Cube 20 ft out of production hall inside a fixed bed cascade 850 person equivalent



Reinforcement inside fixed bed container with steel profiles according to a static approval of a german design specialist

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side insulation in fixed bed container with 120 mm glasswool between the reinforcement



Reinforcements & tie bars along side walls, fixed bed



secondary sludge pump (excentric pump), line from lamella clarifier to sludge storage



sludge hoppers in lamellar clarifieer (back)
small blowers for buffer preaeration & mixing (front)



top view into fixed bed reactor , risers in PP 600 mm, foam tube



sludge treatment, Emscher, secondary sludge removal installation, 450 p.e treatment system

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lamella module 8 m³/hour, 1.200 people equivalent , before installation into 20 feet container



precipitation and UV treatment, 2.500 people equivalent non insulated 20 feet container



seperate control unit w ith cooling unit, desert application



control unit 1000 people equivalent, 1200x800 mm,



sludge splitter into storage tanks, labeling in english language



blow er battery extended 500 m³/d mixed water

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view inside , machine house , frost protected container, 1000 p.e



view inside machine house, non frost protected container, 3.000 p.e



open top sludge container&aeration,stabalizing



view into settling zone (Emscher)



PPU storage: Ready for deliver, system February 2012
Germany, Eastern Europe client



small dew atering (screen)-container

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systems in europe and asia, middle east in the years 2010 & 2011

	<p>ASERBEIDSCHAN</p> <p>50 m3/d ammonification and precipitation</p>
	<p>ABU DHABI</p> <p>40 m3/d desert conditions, worker camp</p>
	<p>GERMANY</p> <p>1.000 people equivalent, mixed sewage</p>
	<p>BULGARIA</p> <p>container for groundinstallation stealcontainer for machine house 45 m3, BOD 70 kg/day</p>

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 A blue seacontainer with PRU equipment installed inside, including a large cylindrical tank and various pipes and valves. The container is situated outdoors in a desert-like environment.	<p>EGYPT</p> <p>holiday club, 3.000 p.e concrete buffering</p>
 A blue seacontainer with PRU equipment installed inside, including a large cylindrical tank and various pipes and valves. The container is situated outdoors in a desert-like environment.	<p>SERBIA</p> <p>850 p.e municipal concrete buffering</p>
 A grey seacontainer with PRU equipment installed inside, including a large cylindrical tank and various pipes and valves. The container is situated outdoors in a desert-like environment.	<p>DUBAI</p> <p>div. clients orders</p>
 A green seacontainer with PRU equipment installed inside, including a large cylindrical tank and various pipes and valves. The container is situated outdoors in a desert-like environment.	<p>BOSNIA</p> <p>250 m3/d,</p>

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experience&know how

In the last 15 years members of PPU built more than 12.000 treatment systems all over europe. Especially the fixed bed technology is a wellknown technology for our engineers. A cost safing in long term view is the strategy from our systems. We guarantee for that. As a member in the important German associations for WWT we take part on all new developments. We are big enough to manage middle size projects but also we are small enough to offer a good price/quality relation to the client.

Attached you find some clients letters of recommendation.

details and technical specification

a detail information can be given after clarifying the scope of delivery.
The treatment modules are combined according to the customers requirement.

A **standard system** consisting out of :

- screen 1-2 mm
- sludge dewatering /opt. stabilizing
- Fixed Bed reactor , nitrification
- clarifying

will have i.e. the following sizes:

p.e.	Q(m ³ /d) maximal	BOD (kg/d)	nr. of container
400	80	24	1 x 20 ft
800	160	48	2-3 x20 ft
2000	400	120	4-5
3000	600	180	7-8 x 20 ft
5000	1000	300	10 x 20 ft

the buffering is in this case by the client.

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investment and operation cost

project example:

250 m³/wastewater per day,

country: Romania-Black Sea Region, southeasteurope, municipal waste water, industry part

90.000 m³ wastewater /a

investment	180-220.000 €
depriciation	10 a
interest rate	6%
Energy (0.12 €/kWh)	8.500 €
personal cost (15€ /hour service staff)	7.500 €
spare,ware parts , operation cost , sludge	5.000 €
yearly cost per m ³	0.50 - 0.60 €/ m ³

plus customers services (small concrete work, site management, acquisition)

the totally costs will be reduced when - by using of a hygienic module for reuse of water- an additional cost safing for the fresh water can be calculated.

This depends on the climatic and regional conditions and fresh water prices.

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recommendation letters for projects

Markt Zell im Fichtelgebirge
Staatlich anerkannter Erholungsort
im Naturpark Fichtelgebirge



Markt Zell im Fichtelgebirge, 95448 Markt Zell im Fichtelgebirge

Herrn Ing. Wolfgang Pöhl
PPU-Umweltechnik GmbH
Bernecker Straße 73
95448 Bayreuth

Dienstleistungsstelle:
Hörsingstr. 13, 95448 Markt Zell im Fichtelgebirge
Telefon: 09257 942-0
Telefax: 09257 942-92

Internet:
<http://www.markt-zell.de>
e-mail:
info@markt-zell.de

Bitte bei Antwort immer ansetzen:

Die Zähler, Ihre Nachbarn vom	Uetzers Zeichen NR 51	Kilometer-Nr. 07	Nachbarnbesitzer: Herr Krell e-mail: werner.krell@markt-zell.de	Ortsbezahl. 09257-942-20	Zell im Fichtelgebirge 95448
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Projektierung Kläranlage Tannenreuth/Walpenreuth

Sehr geehrter Herr Pöhl,

hiermit bestätigen wir Ihnen eine besondere Funktion im Bereich Anlagenbau, Projektplanung, Bauleitung Projektierung bei der nachfolgend beschriebenen Kläranlage welche in unserer Gemeinde realisiert wurde:

Bauvorhaben: Kläranlage für die Ortsteile Tannenreuth und Walpenreuth

Ausstattung: Vorklärung (Emscher), zwölfstufige Festbettbiologische Nitrifikation, Dornrindbrunnen, Schönungsteich, Siebschnecke, Laborausüstung, Technikraum, Sanitärbereich

Projektsomme: Kanalbaumaßnahme ca. 400.000 Euro
Kläranlage ca. 250.000 Euro

Zeitraum: 2004 bis 2006

Die Kläranlage läuft zu unserer Zufriedenheit. Wir wünschen Ihnen für ähnliche Projekte gutes Gelingen.

Mit freundlichen Grüßen



Krell

Bankverbindungen:
Raiffeisenbank Sperrschloß-Sachsenbach-Zell e.G. BIC: 27126933 Kto-Nr. 510 687
Sparkasse Hochfranken BLZ 950 900 00 Kto-Nr. 199 700 378

Publikumsverkehr:
Montag - Freitag 08.00 Uhr - 12.30 Uhr
Donnerstag 14.00 Uhr - 18.00 Uhr

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Black Forest Pure Water OOD



PPU Umwelttechnik GmbH
Bemecker Str. 73
95448 Bayreuth

To whom it may concern

Sofia, 02.03.2011

Herewith we confirm that PPU has successfully completed projects with Black Forest Pure Water OOD in Bulgaria. One of the most visible projects is the water treatment station for Black Sea Gold AD near Burgas on the Black Sea coast.

PPU has designed, produced, installed and successfully started the water treatment station. The overall budget of the project exceeded 200.000€. The station meets all regulatory environmental and technical requirements and has been officially approved by the local water authorities begin 2009.

Project name:	Black Sea Gold in Pomorie - BG
Assignment:	Plant engineering, design, construction, installation, start-up
Description:	Municipal waste water and sewage water of the winery
Total value:	210.000 €
Load:	Up to 3500 People Equivalent during the campaign
Technology:	Mechanical, biological and chemical treatment
Building period:	February till November 2008

We are pleased working with PPU since more than 3 years and we are very satisfied with the company's responsiveness, project handling and of course, with the quality of work.

Currently, several signed large projects with PPU are awaiting financing through EU programs (delayed due to public administrative delays).

Black Forest Pure Water OOD

A handwritten signature in black ink, appearing to read 'W. Kasel'.

Werner Kasel, Director

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Dipl.- Ing Wolfgang U. Pöhl
c/o PPU-Umwelttechnik GmbH
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95448 Bayreuth

Seybothenreuth, 01.03.2011

Die Kläranlage der Gemeinde Seybothenreuth reinigt das Abwasser der ansässigen Bevölkerung sowie aus einigen Gewerbebetrieben. Die technischen Daten sind wie folgt:

Größe nach Schmutzwasserzufluß:	2300 E(G)W
Technologie:	Mechanische Reinigung, Schlammbeete Belebungsbecken aerob/anoxiert.
Reinigungsziel:	Nitrifikation, Denitrifikation

Wir bestätigen Herrn Dipl.- Ing Wolfgang U. Pöhl, dass er bei Bau- und Umbaumaßnahmen an der obigen Kläranlage in seinem früheren Wirkungskreis für die Bereiche:

- Dimensionierung
- Planung für Genehmigung
- Lieferung, Bau und Installation
- Inbetriebnahme und Optimierung

als leitender Ingenieur tätig und verantwortlich gewesen ist. Die Baumaßnahmen bezogen sich auf die maschinentechnische Ausrüstung wie:

- Belüftungssystem (Verdichter, Membranen, Rohrleitungen, Armaturen)
- Sauerstoffregelung (Nitrifikation, Denitrifikation)
- Speicherprogrammierbare Steuerung (SPS)
- Mechanische Reinigung (Siebschnecke)
- Schlammumpen

Die betroffene Baumaßnahme und Investition fand im wesentlichen 2005 statt und wurde 2006 nach einem Optimierungsbetrieb abgeschlossen. Die Baumaßnahme ist zur Zufriedenheit der Gemeinde abgeschlossen worden.

Wir hoffen Herrn Dipl.-Ing Wolfgang Pöhl mit dieser Bestätigung geholfen zu haben.

Seybothenreuth, 01.03.2011

Gemeinde
Seybothenreuth

Gemeinde Seybothenreuth
1. Bürgermeister
Hans Unterburg