

ClearFox®
L. in a cone

PPU®
Purification
Unit

person

Dipl.-Ing. Wolfgang U. Poehnl

CEO of PPU-Umwelttechnik GmbH
shareholder and owner of brands

ClearFox®
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PPU®
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company

PPU-Umwelttechnik GmbH:

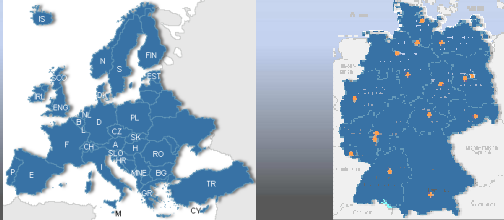
- manufacturing
- labeling **ClearFox®** brand
- head office and production in Bayreuth

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location

Europe **Germany**



Bayreuth

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facility

production office





facility

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water systems

facility

disposition of orders projecting of orders



office

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water systems

facility

storage laboraty



facilities

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water systems

skills & local fabrication

- TÜV-certified
- PE, PP- welding by extruders
- SS welding
- VDE conform elektromechanical installations
- PLC-programs , software development



facilities

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PRU
water systems

company-services

PRU
water systems

- waste water treatment
- industrial, municipal and domestic

ClearFox®
L. Heeser

PPU®
Water Systems

network

PPU water systems partner

ClearFox® solutions

aquaplast®

www.WATERPLAN.DE

ClearFox®
L. Heeser

PPU®
Water Systems

organisation

distribution of ClearFox® - products
in MENA region

by

ClearFox® - MENA FZC
Wastewater & Environmental Technologies
represented by eng. Raed Atari
[General Manager]

ClearFox®
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PPU®
Water Systems

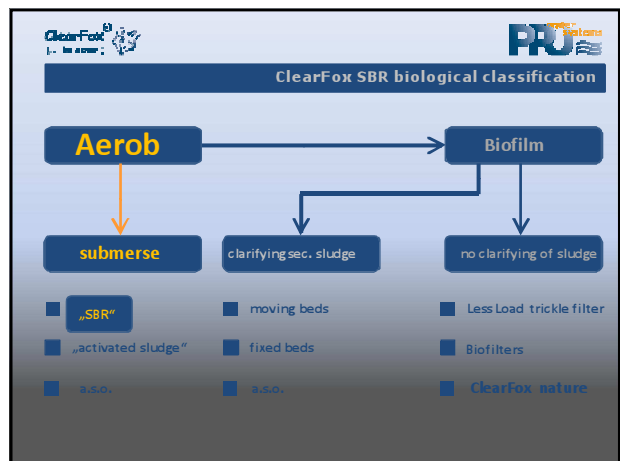
standardized products

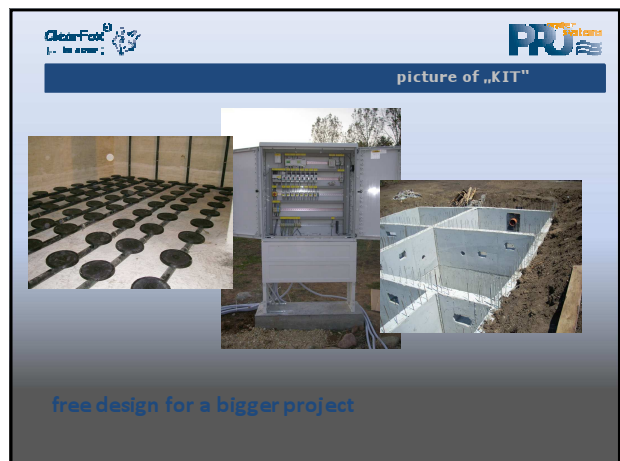
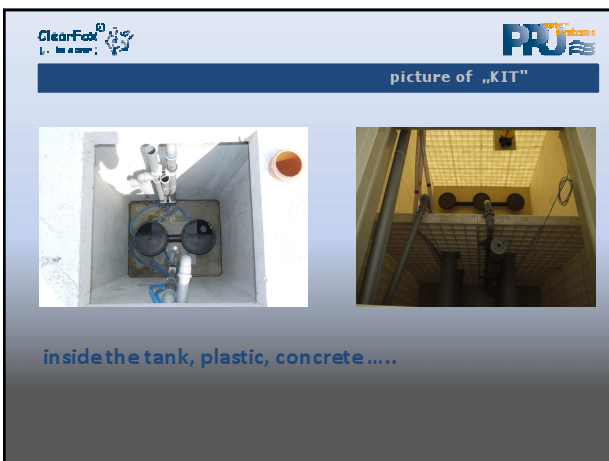
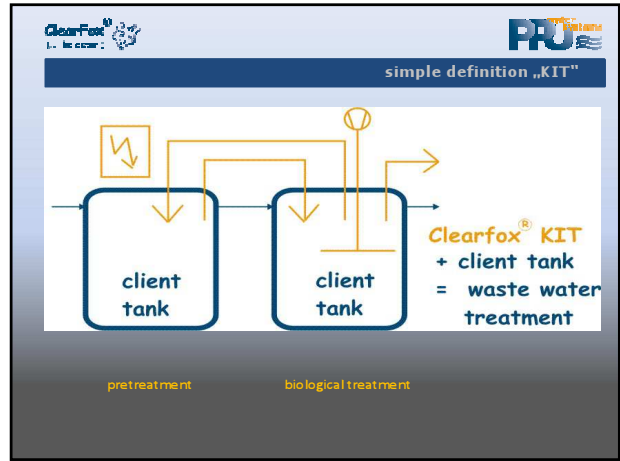
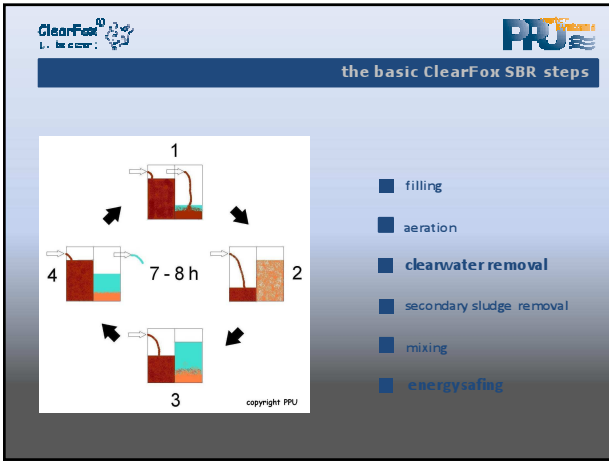
ClearFox® nature

ClearFox® Fixed Bed Reactor

ClearFox® Container treatment systems

ClearFox® Sequencing Batch Reactor KIT






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Water Systems

picture of „KIT“



pre-engineered
mass production of small KIT's

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Water Systems

definition of „KIT“

- equipment for an SBR-treatment system
- any tank material, any capacity
- customized operation strategies
- pre-engineered or in free design

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Water Systems

different ClearFox SBR strategies for operation



- filling out of a buffer
- filling continously
- splitting into more reactor streets
- filling and mixing phases (DENI)
- clearwater into tertiary treatment or just removal
- flocculation, settling time

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Water Systems



designing aspects for the reactor volume

- daily load in regard to BOD or p.e. and hydraulics
 - specific water consumption: 250 l/p.e. ?
 - specific BOD load : 60 gramm/p.e. ?
- pretreatment of the water
 - screen ?
 - settling ?



designing aspects for the reactor volume

- pretreatment of the water
 - screen ?
 - settling ?



designing aspects for the reactor volume

- nitrogen load, N:BOD:P ratio
COD:BOD ratio in general
 - any tankers or just sewer ?
 - any industrial part ?
 - biological part in load (Inert-COD)

designing aspects for the reactor volume

- totally sewage effluent requirement
 - COD, BOD – carbon elimination % ?
 - nitri/denitrification – N- totally?
 - other nutrients

designing aspects for reactor volume

- difference between
 - biological volume
 - hydraulic volume

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volume demand

www.clearfox.de

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settling buffer
sludge storage

screen buffer

buffervolume before

sludge storage external

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price, size and classification depends on:

- daily quantity
- preengineered-mass production
- effluent requirements
- sludge treatment

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example sludge amount, drain water volume

3.000 p.e = 180 kg BOD per day

Waste Sludge	
real total surplus sludge production:	1,10 kgTS/kg/BSB5 (...0.95 - 1.15...)
BOD5-Load after the primary settling:	180,00 kg/d
Waste Sludge:	210, kg/d
Dry substance-concentration in waste sludge:	10,00 kg/m3
waste sludge volume:	21,00 m3/d
mixed sludge	
SS0-load:	210,68 kg/d
sludge volume:	21,07 m3/d
MLSS concentration:	10,00 kg/m3
gravity thickening	
dry substance-concentration after thickening:	50,00 kg/m3 = 5% DS
sludge volume after thickening:	4,20 m3/d
supernatant out of thickening:	17,00 m3/d
sludge volume after dewatering:	2,10 m3/d = 10% DS
sludge volume after high pressure	1,10 m3/d = 20%DS

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classification :

- settling tank, integrated sludge storage : < 200 p.e / 50 m3/day
- screening, extended sludge storage : >200 p.e / 50 m3/day
- effluent requirements

