ClearFox
be clever

Water and Wastewater Treatment Solutions for Camps

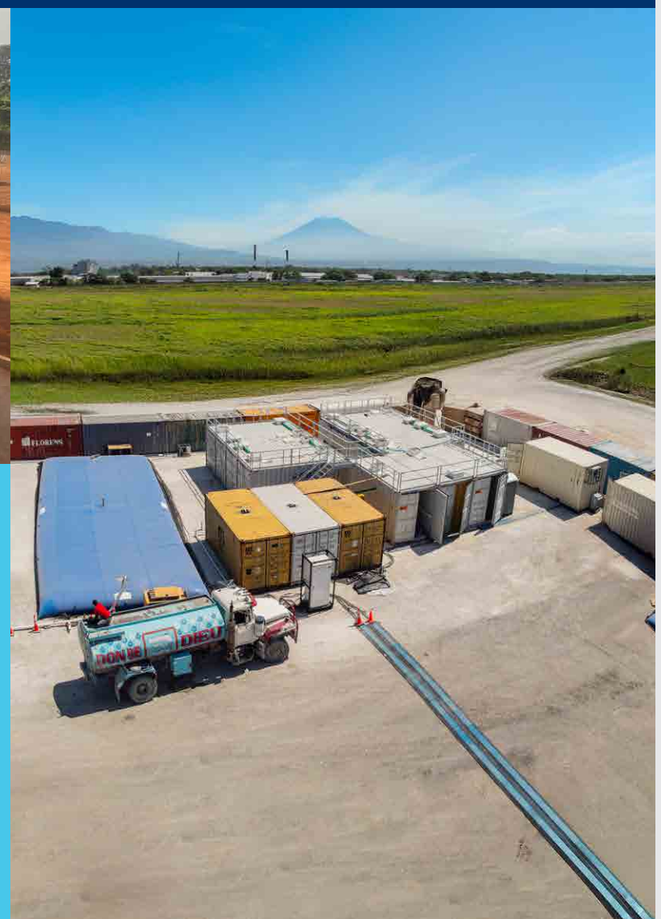
For mining camps, worker camps, military bases, refugee camps and construction sites

clearfox.com

PPU Umwelttechnik GmbH is a market leader in wastewater and water treatment solutions for camps and remote sites. With customised containerised and modular systems, we ensure safe, reliable and long-term operation even in locations without existing infrastructure.

Our systems are used worldwide in mining, military, construction and refugee camps and are designed to perform reliably under fluctuating loads and demanding operating conditions.

Reliable wastewater and water treatment solutions for camp locations worldwide.



Plug & Play

Immediate commissioning after installation, thanks to pre-installed container modules and plug-and-play technology.

ClearFox® containerized systems from 30 to >10,000 persons

Self-sufficient wastewater and water treatment solutions for temporary and permanent camp sites

Applications

Mining camps
- Reliable wastewater and water treatment for remote locations
- Designed for continuous, long-term operation
- Robust technology for harsh environmental conditions and limited maintenance access
- Option for reuse

Military bases
- Rapidly deployable treatment solution
- High operational reliability, even with changing usage patterns
- Compact design for sites with limited space
- Compliance with military and regulatory environmental and safety standards

Refugee camps
- Safe and reliable wastewater and water treatment to protect hygiene and public health
- Scalable systems for rapidly growing or shrinking camp populations
- Easy operation with minimal technical staffing requirements
- Reduced environmental impact in and around the camp area

Construction sites
- Temporary wastewater and water treatment solution for short- to medium-term deployments
- Fast relocation when sites change
- Flexible adaptation to varying occupancy levels and usage profiles
- A cost-efficient alternative to provisional or decentralised stand-alone systems

Advantages

Low investment costs

Plug & Play-solutions

In operation **worldwide**

Suitable for **fluctuating wastewater and water flows**

Lower operating costs than with other process technologies

Available for **purchase** or **rental**

Easily expandable

Simple operation

Compact design

Fast installation and commissioning

24/7 **monitoring** and **remote access** available

High efficiency in pollutant removal

Mobile and easy to move

All modules are **corrosion-resistant**

No odour development

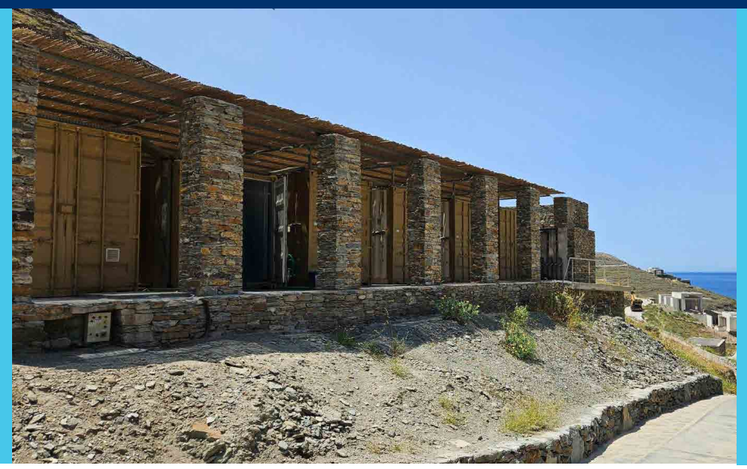
Independently tested by **PIA GmbH**

Wastewater

Containerised, modular and flexible solutions for camp wastewater treatment

30 persons up to

>10,000 persons



We offer modular solutions for complete turnkey systems and for upgrading existing camp wastewater treatment facilities.

Mechanical pretreatment
Screening to remove fat, oil, grease, plastics and other inorganics from the wastewater

Primary clarifiers
Containerised settlement tanks and primary clarifiers for settlement of solids in raw wastewater

Flow equalisation
Containerised flow equalisation tanks for control and management of hydraulic and pollutant peak loadings

Biological treatment
Containerized FBBR modules for biological treatment of wastewater

Secondary clarifiers
Containerised lamella clarifiers for final clarification of biologically treated effluent

Tertiary treatment
Containerised control rooms with optional sand filtration, disinfection and nutrient reduction

Sludge management
A range of containerised sludge management solutions including storage tanks, big bag dewatering units and screw presses

Water

Containerised, modular and flexible solutions for camp water treatment

30 persons up to

>10,000 persons

We offer a complete range of modules for full turnkey solutions as well as for upgrading and expanding existing camp water treatment facilities.

Clarifiers
Containerised settlement tanks and primary clarifiers for pretreatment of water prior to downstream filtration step

Sand filtration
Containerised modular sand filtration for removal of TSS and turbidity from water from any source

Ultrafiltration
Containerized ultrafiltration for the ultra fine filtration of water to remove very fine particles, 99.99% of viruses and bacteria. Ideal for pretreatment ahead of reverse osmosis

Reverse osmosis
Containerised RO units for the removal of salts, minerals, heavy metals, bacteria viruses and other pollutants. Ideal for the production of high quality, safe drinking water.

Disinfection
Containerised disinfection modules with chlorine, ultraviolet and ozone options for guaranteed safety of stored water.

ISO 9001:2015 ISO 14001:2015

PIA

CE

Member of German Water Partnership

Wastewater treatment for a copper mine in the Ivory Coast

Overview of the project

At a copper mining site in the Ivory Coast, around 250 m³ of wastewater per day from a large mining camp had to be treated safely and in line with WHO and EU standards. The wastewater from showers, catering, toilets and laundry contained high organic loads and required a reliable solution that would allow both safe discharge and reuse for irrigation and dust suppression.

The challenge was to combine high treatment performance with a compact design suitable for demanding site conditions. Limited space and fluctuating loads called for a robust, low-maintenance system that could be seamlessly integrated into daily operations.

The chosen solution was a containerised wastewater treatment plant with multiple process cleaning steps. It combines screening, flow equalisation and a compact separation unit for fat, oil and grease removal with an efficient fixed-bed biofilm reactor (FBBR) for biological treatment. A downstream lamella clarifier ensures reliable solids separation, followed by chlorination and UV.

Today, the system provides stable, high-quality effluent and supports sustainable water management at the mining camp. It delivers a compact, efficient and future-proof solution for safe wastewater treatment under challenging operating conditions. PPU provides 24/7 remote monitoring and support for the client.

Influent
COD 800 mg/l
BOD_5 400 mg/l
TSS 400 mg/l

Effluent
COD 90 mg/l
BOD_5 20 mg/l
TSS 15 mg/l

Project
ClearFox® FBBR for mining camp wastewater treatment in the Ivory Coast

Sector
Mining camp wastewater treatment

Size
250 m³/day

Applications
ClearFox® containerized wastewater treatment plant

Module
ClearFox® Screen
ClearFox® Buffer
ClearFox® FBBR
ClearFox® Lamella Clarifier
ClearFox® Disinfection

Completed
2025

Water treatment for a gold mine in Sierra Leone

Overview of the project

At a remote gold mining camp in Mali, the availability of safe and reliable water was a key requirement for daily operations and employee welfare. The site needed a flexible treatment solution capable of supplying high-quality water for both drinking purposes and all other camp applications, despite challenging logistical conditions and the absence of permanent infrastructure.

A modular and containerised water treatment system with a capacity of 10 m³ per hour was implemented. The system combines ultrafiltration for the production of clean process and utility water with a downstream reverse osmosis stage that ensures potable water quality for drinking and food preparation.

Designed for rapid deployment, the unit was delivered as a fully preassembled, plug-and-play solution that required no civil works on site. Its compact, mobile design allows easy relocation, future expansion and seamless integration into changing camp layouts and operational needs.

Today, the system provides the gold mining camp with a reliable and sustainable water supply, ensuring safe drinking water while supporting all other water demands. The result is a future-proof solution that combines high treatment performance with maximum flexibility for remote and temporary locations.

Influent
Turbidity 5 NTU
TDS 400 mg/L
Iron 1.5 mg/L

Effluent
Turbidity 0.2 NTU
TDS 30 mg/L
Iron <0.01 mg/L

Project
ClearFox® water purification for a gold mining camp in Sierra Leone

Sector
Mining camp Water treatment

Size
10 m³/hr

Applications
ClearFox® containerized wastewater treatment plant

Module
ClearFox® Ultrafiltration
ClearFox® Reverse Osmosis

Completed
2025

ClearFox®
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Comprehensive wastewater and water analyses

If needed, we analyze your wastewater and water to offer the best solution. We can also help with analyses after the project to document the achieved effluent values.

Custom Engineering

The design of your system will be tailored to the size and complexity of your project. We provide in-house sizing and will keep you updated regularly.

Maintenance and monitoring

Even after project completion, we remain at your side as a reliable partner for maintenance, monitoring and technical support. This ensures that your solution stays stable, safe and future-ready over the long term.

Flexible financing options

You can either purchase or lease our systems. The lease period is individually tailored to your needs. After the lease, a purchase option is available, allowing you to test the system before buying.

Innovation made in Germany

PPU Umwelttechnik GmbH focuses on wastewater treatment in the residential, municipal, industrial and decentralized sectors. Under the brand name ClearFox®, the company sells wastewater treatment plants produced in Bayreuth all over the world. The focus is on biological and chemical-physical processes for wastewater treatment. PPU Umwelttechnik GmbH offers selected processes in ISO sea containers. This makes them compact, mobile, modular and ready for use anywhere in the world within a very short time. Each containerized wastewater treatment plant is tailored to individual requirements, making each project unique.

PPU Umwelttechnik GmbH manages the entire project planning – from wastewater analysis to approval. As the general contractor, PPU handles the planning, production, and commissioning of each treatment plant. Customers can count on reliable collaboration with PPU Umwelttechnik GmbH.

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PPU®
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