

The domestic treatment plant with the high-tech of a creek.

discovered by
OURWATER

Water is our most important resource – without it life is not possible. Everyday we use water to bathe and shower, to wash and rinse, to cook or drink. As easily as it comes out of the tap it disappears again down the drain. This “wastewater” however does not simply disappear. Wastewater requires treatment to protect public health and the environment.

How is our wastewater treated?

In areas outside of urban centres conventional septic systems have been used as means of treatment for over a hundred years. A conventional septic system consists of a pipe carrying wastewater from toilets, showers and sinks into a tank where non-soluble materials settle to the bottom. Liquid flows out into a disposal area where containments filter through sand, gravel and surrounding soil. In the proper conditions a septic tank and soil absorption system is a very efficient and reliable option. However, if the system is not working properly the containments can seep into our groundwater.

Through the contamination of groundwater, lakes, rivers and oceans the communities in North America and regulatory bodies have approved alternative systems. These systems take the treatment component out of the soil and

utilize some form of storage device. The systems then treat the wastewater and release it into a small disposal area once adequate treatment occurs. However, these systems are highly sensitive to loading conditions and strength of incoming wastewater. With new chemicals being introduced into our waste stream everyday from household cleaning products to pharmaceuticals – our water has never been at such a risk for contamination.

The solution is a biofilm process.

As a reaction to the problems mentioned above, the worldwide unique “fluidized floating bed biofilm process” was developed. Since 1999 this patented technology has proven itself ten thousands of times across Europe. The simple functionality and compact design result in a cost efficient reliable system. This wastewater treatment plant provides you with a secure investment and sustainable future.

Now in
North
America!



exceeds all standards



simple, reliable technology



protects our environment



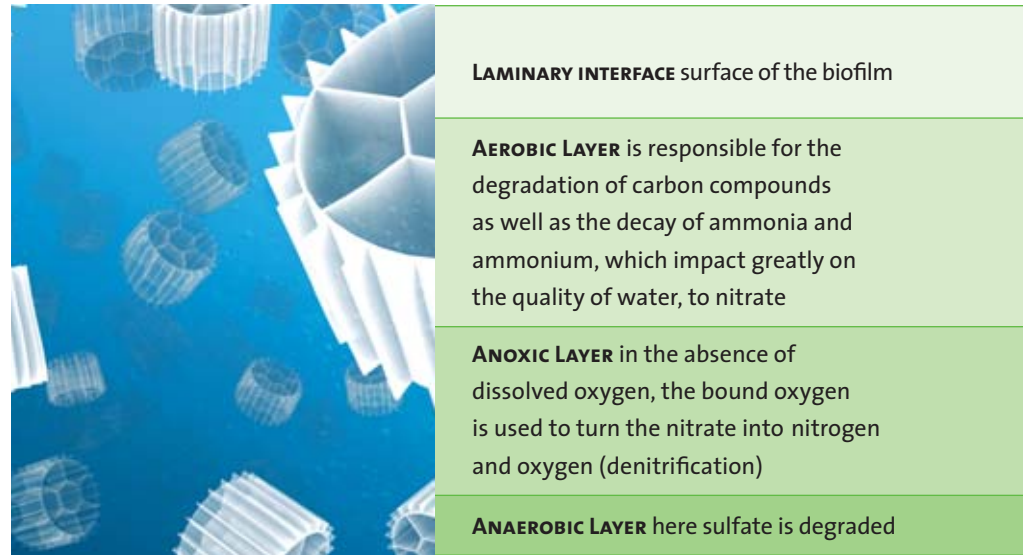
minimum operating costs



low building costs

The model for WSB® clean: nature.

WSB® clean is modelled on the natural purification mechanism of a creek or stream. In nature, the stones and rocks in the water are support for a clarifying biofilm consisting of microorganisms that eat away the waste. This film is visible on the slippery surface of the stones and rocks. The slope or incline of the creek also ensures the operational reliability of the system. The researchers of the German “Bergmann Group” in cooperation with three technical universities have succeeded in identifying the effective mechanisms of this system and transferred these to a wastewater treatment technology. This new process is known as the “Wirbel-Schwebbett-Biofilmverfahren” (WSB®) or “fluidized floating bed biofilm process” as translated into English.



Biomedia replaces stones.

Instead of the stone or rock in the creek, the WSB® clean system uses patented plastic carrier material called “Kaldnes” to provide housing for the microorganisms as a thin biofilm. The Kaldnes carrier material provides the ideal living condition for a very efficient biofilm. Just like the fast moving water in a creek, the carrier material has a self-cleaning effect – this ensures the media never has to be changed or cleaned in any way.

Variable conditions showcase the exceptional treatment technology.

The two most common situations that cause failure in other plants are overload and under load conditions. Overloading occurs during concentrated periods of water usage in a short time while under loading occurs during periods of inactiveness. These conditions in other biological processes cause the cleaning performance to stop functioning. The WSB® clean system has been designed and tested to handle all situations, whether it is a big party with an increased usage over a short period of time or a vacation period or seasonal cottage where there is no wastewater flow for some time.

The effectiveness of the system is based on the special properties of the biofilm.

In WSB® clean the biofilm retains its cleaning power even in wastewater temperatures of 4° C. The specialized carrier material allows the growth of a protective outer shell and avoids the loss of purifying microorganisms to shock chemical loading from pharmaceuticals and household cleaners.

A simple solution to an environmental problem demands a reasonable price.

WSB® clean is astonishingly simple: The plant does not have any internal components that ever need to be replaced and is able to reduce the generation of sludge by 55 % over the competition. The biofilm requires little air to maintain its performance requiring only a fraction of runtime compared to most biological systems. This transfers into low maintenance and low operating costs throughout the entire life cycle.

Since 1999, more than 10,000 plants have been successfully installed world-wide. The secret is the high-tech of a creek.



- ① **Concrete or plastic tank:** Our tank requires very little space and a small installation depth. Concrete is highly stable, completely water-tight, and well suited for regions with a high ground water level. Alternatively, the WSB® clean system is available in a plastic tank that is suited for difficult to reach areas.
- ② **Primary clarification:** The wastewater from the house enters the first step of the treatment plant in the preliminary clarification. This pre-treatment chamber preconditions the wastewater replacing the need for an additional septic or holding chamber.
- ③ **Biofilm reactor:** Microorganisms form the clarifying biofilm on the carrier material “Kaldnes”. These biomedia give the microorganisms optimal living conditions in order to form the biofilm required for the removal of pollutants. In our smallest size there are about 30,000 carrier particles working to ensure the cleaning performance.
- ④ **Aeration:** A fine bubble diffuser supplies atmospheric oxygen into the reactor, which the microorganisms need for the efficient dismantling of the pollutants. Through the aid of current and contact, the carrier material self-cleans. Therefore it does not clog up and never has to be changed.
- ⑤ **Final clarification:** Any fine particles coming out of the biological cleaning stage settle to the bottom in this chamber.
- ⑥ **Air jet lift:** Settled solids are siphoned out of the bottom of the final clarification and sent into the primary clarification chamber to be reintroduced to the purification process. Therefore residues are continuously reintroduced into the cleaning cycle until they are completely degraded.
- ⑦ **Outlet:** The clarified water now is free to be safely returned to the environment.

The WSB® clean purification performance.

Pollutant	% Removal
BOD	90 - 99
CBOD	90 - 99
TSS	90 - 99
Fecal Coliform	99



WSB® clean is a carefree, around-the-clock package, available through one source in North America – RH₂O. Our fully trained and licensed partners are eager to provide you with the advice you need to select the right wastewater treatment solution. We ensure through our partners and service programs that we are keeping our promise to produce a cleaner tomorrow by protecting today's water resources.

ADVANTAGES OF WSB® CLEAN:

- + Protects environment
- + Reliable process
- + Small footprint and simple to install
- + Concise, simple to operate technology
- + Designed to handle shock loads and long periods of low load conditions
- + Performs even at low temperatures
- + Low consumption of electricity resulting in low operating costs
- + Media is self cleaning and never has to be replaced
- + Reduces the amount of pump outs and only one compartment to pump
- + Available in plastic or concrete
- + Trouble-Free and requires minimal maintenance
- + No noise and no smell
- + Installs to grade and blends into property requiring no additional landscaping
- + Constantly reliable purification performance year-round

In order for reliable long-term performance all systems must be serviced.

Fully biological wastewater treatment plants have to be regularly checked and maintained – similar to your heating system. This ensures their functionality and thus contributes to the sustained protection of surface waters and with it our drinking water. According to regulations a preventative maintenance contract with a qualified technician has to be signed to ensure that the working order and the functionality of all individual parts are checked periodically. The functionality is tested by way of analysis of different samples of wastewater. The maintenance contract with RH₂O contains precisely those services specified for your wastewater treatment plant. The required amount of maintenance visits is determined by provincial and state regulations.

→ Inform yourself about wastewater treatment plants with the high-tech of a creek!



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