

TECHNICAL INFORMATION

FACTS

- 1 kg of Filtralite® Nature P filter media can accumulate up to 7 g of phosphorus.*
- Phosphorus removal capacity lasts for 15-20 years.**

*Results from saturation tests at MTT Agrifood Research Finland.

**Operational lifetime is affected by the total load phosphorous exposure.

Onsite wastewater treatment – Designing

POPULATION EQUIVALENT	AMOUNT OF FILTRALITE® NATURE P
4	40 m³
20	135 m³
40	210 m³
80	360 m³
200	800 m³



Storm water retention and treatment – Designing

A filter should be designed to meet municipal regulations towards the removal of phosphorus and heavy metals. The Filtralite Nature P installation should have a water detention capacity equal to 60 % of a 10-minute rain duration for a 6-month return period. Alternatively, 40-50 % of the water from a one-year return period with the same duration. The volume will then provide storage and detention capacity that reduces high intensity discharges of water. This will significantly contribute to a clean and even runoff to recipients downstream. By increasing the size of the installation, it can be dimensioned for full water storage for a 10-minute rain duration between one and two-year return period.

IMPERVIOUS SURFACE TO BE MANAGED	AMOUNT OF FILTRALITE NATURE® P
0,5-1,5 ha	50 m³
1-3 ha	100 m³
7-13 ha	500 m³
20 ha	360 m³
50 ha	800 m³

*These values are based on project references, available on request.

Reuse of phosphorus from saturated Filtralite® Nature P material

The Filtralite® Nature P material in the filter beds will need to be replaced when it is saturated with phosphorus.

Phosphorus from saturated Filtralite® Nature P provides the same benefits to plant growth as artificial fertilizer. This was confirmed by trials carried out in 2005 by MTT Agrifood Research Finland. In order to reuse saturated filter material on agricultural land, the heavy metal and bacteria content need to be lower than the current regulatory limits.



More about Filtralite®...

Filtralite® filter media is made by heating clay to around 1200° C, followed by crushing and sieving. Dry particle densities in the range from 500 to 1.800 kg/m³ and aggregate size from 0 to 20 mm can be "tailor-made" for specific applications. In addition to its low density and high porosity, Filtralite® offers high abrasion and impact resistance.

Filtralite® is the brand for quality filter media for all water and air treatment applications:

- **Filtralite® Pure** for drinking water solutions, both for physical filtration and biological treatment.
- **Filtralite® Clean** for wastewater treatment, both for biological process and tertiary filtration.
- **Filtralite® Nature** for onsite water remediation.
- **Filtralite® Air** is a premium filtering product that removes odour and results in clean air.

FILTRALITE®

Contact information

www.filtralite.com

Filtralite is a Leca® International brand

FILTRALITE®

Filtralite®
Nature P



ONSITE WATER REMEDIATION

Efficiently removing phosphorus

Our purpose

Focus on the environment has increased the need for decentralized wastewater treatment for rural housings and storm water management.

With its unique porosity and phosphorus binding ability, Filtralite® Nature P, manufactured from expanded clay material, retains suspended solids, phosphorus and heavy metals, the high porosity of the material providing a significant storage capacity.

Filtralite® Nature P filter media, with its high content of limestone, is an innovative and premium filtering product tailored to meet tomorrow's needs.

What is Filtralite® Nature P?

Filtralite® Nature P is a fine grained filter material, made of expanded clay, with large surface area and a high capacity for phosphorus removal in water

Phosphorus is removed through precipitation at elevated pH and chemical binding, followed by physical filtration.



CASE STUDY

On site wastewater treatment

Haugslia – protecting the environment by removing phosphorus with wastewater filter beds.

In the Nordic countries, houses are sometimes scattered throughout the countryside. It is often very expensive to construct sewers running to central treatment plants due to the long distances involved. Good onsite treatment solutions for scattered sewage systems are needed to protect the surrounding environment.

In 2004, at Haugslia, in Voss municipality (Norway), HACO Hydrogeologi og avløpskompetanse has designed and built, for a cluster of 50 holiday homes, a small onsite treatment plant. The solution, which includes an aerobic pre-filter and a filter bed with Filtralite® Nature P, provides a robust treatment system. It requires little maintenance and no added chemicals. The main purpose of the filter bed is to remove phosphorus which combines with the Filtralite® Nature P material.

This type of small onsite treatment plant, including as a last step a filter bed with Filtralite® Nature P, achieves treatment efficiency as follows:

TYPICAL TREATMENT EFFICIENCY	
Total phosphorus	>90%
Organic matter (BOD5)	70-90%
Total nitrogen	40-60%
Thermotolerant bacteria	95-100%

Filtralite® facts

Construction: HACO Hydrogeologi og avløpskompetanse
 Client: Voss municipality

Product: Filtralite® Nature P 0,5-4

CASE STUDY

WEREC

A combined solution for managing storm water quality and volume

In collaboration with WEREC Water Ecosystem Recovery, we have developed a solution to manage storm water with effective removal of contaminants while providing storage capacity.

Filtralite® Nature P media is implemented into filter beds or cassettes, conditional to available space, and results in high degree of water treatment. After this period the filter material is simply replaced. The system can be designed to contribute to retention capacity, for example, with volumes of 1-2 year flows or even more.



Filtralite® facts

Construction: WEREC
 Client: Örebro municipality
 Product: Filtralite® Nature P 0,5-4

Bitumen, oil and rubber residues are separated in a pre-filter, consisting of an organic filter media. The pre-filter also contributes to metallic separation.

In Örebro municipality (Sweden), a storm water filter according to the cassette principle was installed in 2017. The primary purpose of the installation was to separate oil pollution and phosphorus. Dimensioned flow rate is 10 l/s and the estimated life of filter material is 10 years.

The following table shows examples of various pollutants removal, measured on actual storm water over a period of 6 months:

SUBSTANCE	PHOSPHORUS	PHOSPHATE	CHROMIUM	COPPER	NICKEL	LEAD	ZINC
Reduction	60-65%	55-65%	60-70%	60-70%	60-70%	75-85%	90-95%