

# Small scale filter applications

*Ditch or drainage water is led through adhesive material (e.g. calcium hydroxide) to reduce the amount of phosphorus in the waterbody. Nutrients are retained in the filter due to chemical reactions and filtration of solid compounds.*

Similar terms: phosphorus filter, box filter, ditch bottom filter

Nutrient rich water is led to filter unit filtration and chemical sorption. There are several filtration structures available. A box filter can be attached directly to subsurface drainage pipe as a ditch bottom filter is constructed in an open ditch. Water flow through the retention media may occur from top to bottom or can be directed upwards by the filter structure.

## Application

Phosphorus filter is suitable for places where phosphorus concentration is high and discharge low. Some filter media (such as calcium hydroxide) may cause changes in water pH.

Capacity of filter is often limited and may not be sufficient during the high flow.

## Maintenance

- Changing the filter material when the retention capacity is reached or filter is clogged
- Plant residue and other material plugging the water entering the filter must be removed

## Economics

- Building costs for a box filter are estimatedly 800-1500 € and for a ditch bottom filter apr. 1000-2500 € (depending on the filter size)<sup>1)</sup>



Photo: Pyhäjärvi Institute

## Further information:

[WaterChain project](#)

Sources: 1) Pyhäjärvi-instituutti, Waterchain project. ([Link](#))