Water treatment

# SeDox Max

## For orthophosphate binding and nutrient balancing


### How it works

External nutrient inputs from agriculture, wastewater treatment plants and industry are the main sources of nutrient over-enrichment – particularly phosphorus (P) and nitrogen (N) – in aquatic ecosystems. This nutrient surplus disrupts the natural ecological balance and can promote excessive growth of unicellular algae (phytoplankton), especially cyanobacteria, which predominantly inhabit the photic zone of the water column. When phytoplankton die and sink to the bottom of a water body, the microbial decomposition of the organic material consumes oxygen (O2), which can potentially lead to hypoxic or anoxic conditions. This poses a threat to heterotrophic aquatic organisms such as fish and can ultimately result in a loss of biodiversity.

Maintaining a well-regulated nutrient balance is essential for sustaining biological diversity in aquatic ecosystems. When P, N, and carbon (C) are present in appropriate proportions – known as the Redfield ratio – the waterbody is in nutrient equilibrium, which supports a healthy aquatic community and prevents the excessive proliferation of specific organisms. However, when nutrient concentrations become unbalanced, this typically results in the rapid growth of specific, highly adapted algal species.

In productive waterbodies with medium to high hardness, P is often bound in biomass and sediments, but it can also be present in the water column in dissolved form as orthophosphate.

SeDox Max is a **patented* product formulation that uses multiple mechanisms** to effectively bind orthophosphate and simultaneously restore nutrient balance in the water column. Its mode of action combines orthophosphate fixation, O2 enrichment and the addition of inorganic carbon:

1. SeDox Max effectively **binds both dissolved orthophosphate in the water and orthophosphate released from sediments** using a purely mineral-based mechanism, thereby significantly reducing phosphate concentrations to below 0.035 mg/L. It features a high binding capacity (30 g P per kg of product), even at low phosphate loads. Thanks to its innovative multi-component binding mechanism, SeDox Max ensures both immediate (within hours) and long-term orthophosphate immobilization (lasting several months).

### Product details

| Item no. | Package size | Coverage |
|---|---|---|
| 98728 | 5 kg / 11 lbs | 150 g P |
| 98729 | 10 kg / 22 lbs | 300 g P |
| 98730 | 25 kg / 55 lbs | 750 g P |

- Orthophosphate from both the water column and released from the sediment reacts with the products formulation to form insoluble mineral compounds, thereby significantly reducing orthophosphate concentrations to below 0.035 mg/L
- Regulates the C: N: P ratio in the waterbody through the addition of inorganic carbon, promoting higher biodiversity and reducing the potential for excessive algal growth
- Enhances microbial activity, supports increased nitrogen and carbon degradation rates and facilitates the breakdown of organic sediment components
- Ensures both rapid, short-term and sustained long-term orthophosphate binding lasting several months
- Requires lower dosage than other commercially available P binders, thereby minimizing application effort

2. Additionally, SeDox Max **introduces biologically available inorganic carbon species into the water,** optimizing the nutrient ratio (C: N: P) and thus creating favourable conditions for **increased biodiversity.** This significantly reduces the potential for the disproportionate proliferation of undesirable phytoplankton biomass.

3. By supplying electron acceptors (e.g., calcium peroxide (CaO2), O2) and buffering sediment pH, SeDox Max further **enhances microbial activity,** allowing for higher degradation rates of N and C and promoting remineralization processes.

## Special properties

To counteract rapid phytoplankton blooms during summer months, timely treatment of the waterbody is critical – especially when ortho-phosphate concentrations are elevated. Thanks to its high binding capacity, innovative formulation, and effective synergistic mode of action, SeDox Max requires significantly lower dosages compared to alternative products and solutions, resulting in reduced application effort.

## Recommended dosage, application and usage

To stabilize the nutrient balance, SeDox Max is recommended for use in winter and spring, as well as following any algae control treatment. Application can be done manually by evenly spreading the product over the water surface or by applying it as a suspension (the product does not dissolve) across the entire surface area. When applied as a suspension, increased removal of orthophosphate is to be expected due to the longer contact time of SeDox Max with the orthophospha-te in the water column.

SeDox Max is suitable for lentic waterbodies (standing waters), closed water circulation systems, and internal restoration measures in lake management.

Dosage recommendations based on total phosphorus (TP) in the water column and loosely bound phosphorus in the sediment: 1 kg of product binds 30 g P. Based on TP in the water column: 2 kg of pro-duct binds 30 g P.

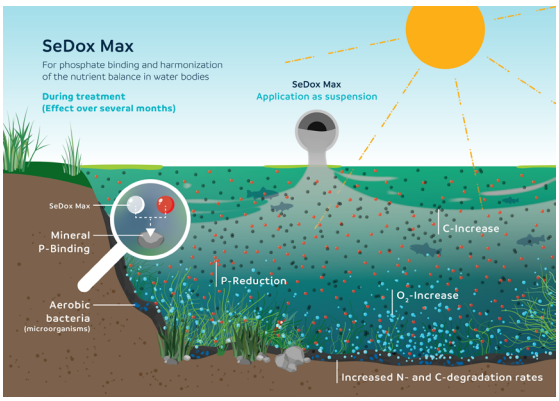
Standard dosage (when phosphate concentration is unknown): 50 g of product per $m^3$ for the first meter of the water column, and 15 g for each additional meter. The dosage should not fall below 10 g/$m^3$.

## Conclusion

Thanks to its patented* formulation, SeDox Max offers an effective combination of mechanisms for orthophosphate binding, nutrient regulation through the addition of inorganic carbon and oxygen enrichment. It is ideally suited to promote microbial activity and support biodiversity in aquatic ecosystems.
*patent pending

More about this product

To the mediaportal




**If you have questions or would like individual advice, please do not hesitate to contact us.**

**SeDox Max**
Water treatment
Bind nutrients

Binds orthophosphate in a purely mineral form with a high binding capacity whilst also regulating the nutrient balance through the addition of inorganic carbon and enhancing microbial activity.

**SeDox Speed**
Water treatment
Bind nutrients

SeDox Speed binds phosphate with immediate effect in practical, easy-to-remove bags.

**Algolon**
Water treatment
Combat algae

Through oxidation processes with active oxygen, Algolon decomposes thread algae and the symbiotic mucus fungus.

**CyanoClear**
Water treatment
Combat algae

CyanoClear releases hydrogen peroxide from sodium percarbonate. This destroys the cell structure of the blue-green algae by oxidation and neutralises the dangerous toxins.

**ClearLake**
Water treatment
Stabilise water

A special combination of microorganisms is used to stimulate microbiological degradation processes and decompose turbid particulates and pollutants.

**OptiLake**
Water treatment
Stabilise water

Using essential calcium and carbon dioxide OptiLake establishes a pH value between 7.5 and 8.5, which is then kept at a stable level using this buffer system.

**SchlixX**
Sediment treatment
Sediment treatment

SchlixX actively adds oxygen to the sediment layer, prevents putrefaction processes and thus neutralises bad smells. At the same time, heavy metals and released phosphate are bound.

**SchlixX Plus**
Sediment treatment
Sediment treatment

SchlixX Plus provides long-term oxygen release and contains aquatic microorganisms that decompose the organic sediment at the bottom of a body of water.

**SchlixX OxySpeed**
Sediment treatment
Sediment treatment

SchlixX OxySpeed helps acutely against fouling odours, oxygen deficiency and hydrogen sulphide, continues to release oxygen for over 2 months and prevents fish mortality.

**PeriDox**
Water treatment
Promote hygiene

Releases oxygen through a natural oxidation process and also prevents the proliferation and mass spread of parasites.