

ZEOFILT

filtration material for swimming-pools

FIELDS OF APPLICATION

- in swimming-pool water-treatment

Zeolites are silicate minerals that occur naturally.

The group includes approx. 40 minerals.

Zeolites have microporous structure.

These pores may vary in size:

- there are channels with 10–50 micron size as well as
- 3–5 micron sized

Due to these pores and channels empty space in zeolites can range up to 35%.

This is the reason why the density of zeolites is significantly smaller than that of sand (which has similar chemical composition).

The porous structure also results in large inner surface.

The inner surface of one gram of zeolite can be as large as 40–50 m².

This structure makes zeolites be capable of retaining pollutants.

CHARACTERISTICS OF APPLICATION

- Due to the pores, they have more significant filtration capacity than sand. This means that less backwash is needed, resulting in a reduction of costs as well as reduced chemical consumption.
- With half the density of sand, zeolites can be floated more easily, so less water is needed during the backwash cycle
- Fine pores can retain algae and spores too.
- The water quality is significantly improved.
- Good cation-exchanger: it binds ammonia and reduces the production of chlorine-amines in water. 40 liters of zeolite is capable of binding 1 kilogram of ammonia. Ammonia gets into the water by the bathers and chlorine-amines create due to its reaction with chlorine (hypochlorite or chlorine gas). Chlorine-amines are carcinogen and they are responsible for the bad smell of swimming-pool water and they cause the redness of eyes.
- Its solidity is similar to that of sand, so the replacement frequency is also similar
- Environmentally-friendly: after their removal from the filter, zeolites can be reused as additives to improve soil quality.
- Zeolites are compatible with most of the water-treatment chemicals: chlorine and chlorine derivatives, hydroned-peroxide, biguanide (PHMB), algacides (poliquat, quaternary ammonium compounds), enzymes etc.

THE USE OF ZEOFILT IN PRACTICE:

INSTALLATION:

ZeoFilt can be placed directly into traditional sandfilters, no alteration is needed. Although, you will only need half the weight of sand. **ZeoFilt** is not cleaned, so you have to backwash it at first.

MAINTENANCE:

(purification and regeneration)

Maintenance is dedicated to remove the precipitates, oil, organic substances and bound ammonia from the surface of the **ZeoFilt** filter.

This assures the appropriate operation of the filter.

PURIFICATION:

The aim of the process is to remove the organic pollutants with the help of chemicals, as a supplementary treatment besides rinsing with water.

Any filter cleaner product that is suitable for the cleaning of sandfilters may be used for cleaning **ZeoFilt** as its resistance to chemicals is also similar to that of sand.

Use a filter cleaner e.g. **Dinax Filter Cleaner**.

REGENERATION:

The aim of the process is to remove ammonia from **ZeoFilt**.

This process is longer: you must soak **ZeoFilt** in sodium-hypochlorite solution (for 6-8 hours).

To prepare the saline solution add 1 kilo of salt and 2.5 dl of hydrochloric acid to 20 liters of water.

As a result of soaking, the bound ammonium ions are exchanged to sodium ions and the filter can be used again.

The frequency of regeneration depends on bather load.

Generally, a regeneration in every 6-12 weeks (public swimming-pools) or more rarely (private pools) is needed.

An indicator of the need for regeneration is the increased level of chlorine-amine concentration (above 0.5 ppm) in water.

Before regeneration, drain off the filter and fill it up with the saline solution.

After regeneration, drain off the saline solution and initiate a backwash cycle.