



TRIALOMETHANES (THM) & CHLORAMINES

Recommendations for the removal of trihalomethanes (THM) and chloramines produced during chlorine bathing water disinfection

WHAT ARE TRIHALOMETHANES?

Harmful by-products arising from the organic matter content of raw water when chlorine-based disinfectants are used. In short: THM

- Specified compounds: chloroform, bromoform, dibromochloromethane, bromodichloromethane.
- Chloroform and bromodichloromethane are possible carcinogenic compounds, associated with liver and kidney damage.
- The proportion of THM forms produced depends on the humic acid, folic acid and bromide content of the raw water, the temperature and the pH.

WHAT ARE CHLORAMINES?

Also by-products of the use of chlorine-based disinfectants, which are formed during the reaction of active chlorine and ammonium.

- Specified compounds: monochloro-amine, dichloro-amine, trichloro-amine
- Even in small concentrations, they have an unpleasant smell, can be allergenic if inhaled, and have been linked to the development of asthma.
- There are many uncertainties in the results on the health effects of chloramines, in particular monochloroamine, but their carcinogenic and mutagenic effects are likely.

WHAT SOLUTIONS CAN BE ACHIEVED TO REDUCE THE THM AND THE AMOUNT OF CHLORAMINES ?

We can recommend four ways to remove these pollutants, reduce their concentration and prevent their generation:

1. Use of breakpoint chlorination equipment

(directly installed on the well water)

Breakpoint chlorination equipment is used to remove the high ammonium content present in raw water. With this technology, ammonium is oxidized with active chlorine added to the raw water, and then filtered through a column filled with filter media.

2. Use AQUASORB CS activated carbon

The top 20-25 cm of the sand filter filling layer is replaced by activated carbon.

The activated carbon is able to bind the following substances from the circulating water:

Trihalomethanes (THM) and chloramines from chlorination

Taste and odor spoiling substances

Other low molecular weight organic substances from the oxidation process

Any excess oxidising agents such as ozone or chlorine

Suspended solids by mechanical filtration

When using the activated carbon solution, follow the instructions for use in the Aquasorb CS product brochure.



3. Use of DINADOX® A+B and DINAX® CARBON FLOCK

By using DINADOX® A+B, the amount of added chlorine is reduced, so less chlorine reacts with ammonia and organic substances, so THM and chloramine are produced to a lesser extent. These compounds can be filtered out using the DINAX® CARBON FLOCK F product.

The product DINADOX® A+B is a solution containing 3g/l chlorine dioxide, which is recommended for the continuous disinfection of swimming pool water, swimming pool pressure filters and pipelines. It is recommended to supplement the chlorine dosage - with reduced chlorine consumption.

In addition to DINADOX® A+B, it is advisable to replace the previously used flocculant with DINAX® CARBON FLOCK. When added to the pipe system, the agent binds dissolved organic impurities and bound chlorine in the bath water thanks to its active carbon content.

4. Switching to chlorine-free disinfection

Since THMs and chloramine compounds are formed when chlorine disinfectants are used, it is clear that the formation of harmful by-products can be avoided by avoiding chlorinated disinfectants.

The types of Dewan product family recommended for the continuous treatment of bath water are chlorine-free, stabilized hydrogen peroxide-based products in different concentrations (50, 35, 18 and 7%).

Their use has many advantages:

- the pool water does not irritate the eyes and skin
- odourless
- no harmful by-products are generated
- kills chlorine-resistant micro-organisms (Legionella, Pseudomonas, Staphylococcus)
- the efficacy of the product is independent of pH

The DEWAN®-50 AND -35 should be dosed with an automatic metering regulator or a peristaltic pump (STENNER) controlled by a time switch.

In cases where the organic matter and/or ammonium content of the pool fill water is inherently high, this solution is recommended.



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