



## TECHNICAL SHEET

### FN NANO® Aqua

- ⇒ Pool water additive to reduce chemical consumption during pool maintenance. Gentle to human skin, suitable for allergy sufferers.
- ⇒ Specially formulated to prevent the growth of green algae, bacteria, and fungi.
- ⇒ Actively eliminates toxins, grease, and dirt.
- ⇒ Works at any pH even in saltwater.
- ⇒ Also suitable for garden ponds with fish
- ⇒ An ecological solution without chemistry – a purely physical effect.



**PRODUCT DESCRIPTION:** It is a special aqueous suspension of inert minerals to **reduce the consumption** of chemical products in pool and pond water maintenance. The substances contained in the suspension, through the physical phenomenon of photocatalysis, effectively prevent the overgrowth of undesirable microorganisms in the water. It is a patent-protected formulation with mineral binders and a high content of photoactive titanium dioxide (TiO<sub>2</sub>). **In terms of current legislation, it cannot be used for public swimming pools and pools without perfect and regular maintenance.**

#### PHOTOCATALYSIS PROVIDES:

- Minimizes the use of pool chemicals
- Non-chemical care of swimming pools and garden fish ponds
- Prevention of the growth of green algae, cyanobacteria, and fungi
- Active elimination of toxins, grease, and organic dirt from water
- An ecological solution, with purely physical effect – gentle to skin, suitable for allergy sufferers
- Functionality at any pH, even in salty water

#### APPEARANCE:

FNA is a white aqueous suspension containing mineral components with a tendency to sediment. This sedimentation is not detrimental to the functionality of the product.

#### COMPOSITION:

Aqueous suspension of untreated titanium dioxide and patented inorganic binders. It contains high concentrations of 80-100 g/l of the photocatalyst TiO<sub>2</sub> (chemically identical to the food coloring agent titanium white, a substance that is massively used in the food industry and cosmetics).

**In accordance with European and world trends, the suspension does not contain any organic compounds. The suspension is completely safe, on a purely inorganic basis.**

#### RECOMMENDATIONS FOR USE:

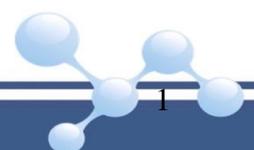
FNA is suitable for home swimming pools with fine **sand or zeolite filtration** systems or natural ponds. It can be used for outdoor pools, as well as for covered pools with the possibility of direct **access to daylight**. FNA can be used in parallel with chemical agents or active oxygen (ozone) and their dosage can be gradually reduced. With appropriate pool water composition, less frequency, and intensity of pool use, and following the recommended pool water maintenance procedure, the pool can be operated with a minimum of chemical agents.

**OUTDOOR POOLS:** FNA is suitable for outdoor pools with fine sand or a zeolite filtration system. In the case of covered outdoor pools, it is important that the cover can be opened or removed to allow sunlight to penetrate. If doses of pool chemistry are reduced, and even with the use of FNA, a regular overgrowth of micro-organisms (clouding of the water) starts to occur, the doses of pool chemistry must be increased. For each pool, the optimum ratio between chemistry and FNA must be found based on experience.

**OUTDOOR ROOFED POOLS:** FNA is suitable for roofed pools with fine sand or zeolite filtration. When used in roofed pools, it is essential to open the roof during application to provide daylight, ideally in sunny weather for at least 2-4 hours. If pool chemical doses are reduced, and even with FNA, a regular overgrowth of micro-organisms (clouding of the water) starts to occur, the pool chemistry must be increased. For each pool, the optimum ratio between chemistry and FNA must be found based on experience.

**GARDEN PONDS:** FNA can be used in natural and swimming ponds.

**WARNING:** Never cover the pool with a tarp - this will prevent access to the ultraviolet component contained in daylight and thus limit the ability of FNA to photocatalytically clean the pool of microorganisms!



#### APPLICATION PROCEDURE:

**Always apply in daylight!** In the morning or before noon so that the FNA suspension can act immediately and for a long enough time. **Before each application, the suspension must be shaken very thoroughly in the container (min. 30 –40 sec) in which it is delivered!** Perfect shaking is necessary to achieve even mixing of the insoluble TiO<sub>2</sub> nanoparticles in the suspension. This is essential to ensure the proper functioning of the FNA.

**FNA is applied to the pool diluted and freshly mixed! Apply to the water following the application instructions!**

#### 1. PREPARATION

Shake FNA thoroughly in the original container – pour the required amount (see Consumption and Dosage below) to dilute into a larger sealable container (canister, volume 2-5 litres) half filled with water. Here we mix it perfectly in the bottom of the container with a stick blender. Shake thoroughly again for 30-40 s. Then pour the diluted product into, for example, a watering can with approx. 8 litres of water.

For pools larger than 40 m<sup>3</sup> we can pour the mixed product into two watering cans to achieve a better distribution of the FNA throughout the pool.

**COMPLIANCE WITH THE SUSPENSION PREPARATION PROCEDURE IS IMPORTANT TO ACHIEVE PERFECT DISTRIBUTION OF MINERAL COMPONENTS IN THE POOL WATER AND THUS TO ENSURE GOOD FUNCTIONALITY OF THE PRODUCT! THE BETTER THE MIXING IS, THE HIGHER THE EFFICIENCY WILL BE.**

#### 2. APPLICATION OF DILUTED FNA TO WATER

**Turn off the filtration.** Using a watering attachment, spread the perfectly mixed and diluted FNA suspension evenly over the pool surface and allow it to disperse for approximately **4 hours** so that the microorganisms are perfectly enveloped in the entire volume of the pool. **Then turn on the filtration** and let it run until the total volume of the pool water has been triple filtered. It depends on the performance of the filtration and the volume of water.

**Note:** The minerals contained in the FNA suspension are gradually captured in the sand filtration and their concentration in the pool water gradually decreases until they are completely captured in the filtration. Long-term use of FNA may result in a whitening of the pool walls that only appears after the pool has been drained. Fouling is not detrimental. On the contrary, it forms a layer on the surface of the pool wall that increases the effectiveness of the protection against the overgrowth of microorganisms. After application, there is always a slight whitening of the water, which is gradually removed by the sand filtration and the water turns crystal clear.

**After the FNA treatment, the water remains “alive” as it does not contain toxic chemicals (chlorine). FNA suspension has a physical effect (without chemistry) only on microorganisms, so even a Dytiscus (“little diver”) can appear in the pool. It is friendly to animals and plants – it is also used in the aquarium industry.**

#### 3. PROVISION OF LIGHT ENERGY

FNA purifies the water and regulates the growth of microorganisms on a physical basis (without the use of toxic chemicals). To ensure this function, it is essential that as much of the ultraviolet component of daylight as possible enters the pool water.

#### Warning:

*The glass and plastic used for transparent pool roofs do not transmit sufficient ultraviolet radiation. To ensure the cleaning function of the FNA, it is, therefore, necessary to move the roofing away or open it to allow daylight to pass freely to the water surface. In case of high nitrate content in the water, the FNA suspension may not function properly. In a pool with extremely overgrown microorganisms (green water), the application of FNA would be quite costly from an economic point of view.*

#### **Consumption and dosage (dilution):**

FNA is supplied as a concentrated suspension. For ongoing maintenance to reduce the amount of pool water chemicals, **0.1 l of FNA concentrate per 20 m<sup>3</sup>** of pool water is used, i.e. 5 ml of FNA concentrate per 1 m<sup>3</sup> of pool water. The application of FNA is usually carried out at intervals of 7–14 days, depending on the condition of the pool water. In case of more activity in the pool or cloudy pool water, it is better to apply immediately.



**HOW IT WORKS:**

FNA reduces the overgrowth of microorganisms using the following mechanisms:

- Coating microorganisms with an inorganic film prevents access to ultraviolet radiation and thus stops their physiological processes based on photosynthesis (cyanobacteria and algae).
- Activated by daylight or artificial ultraviolet light, microscopic crystals of photoactive titanium dioxide (TiO<sub>2</sub>) physically remove molecules and microscopic particles of organic impurities from water, which serve as a source of nutrients for microorganisms.
- When a light-activated photoactive titanium dioxide particle comes into direct contact with the surface of a bacterium or spore, the electrons and electron holes on the surface of the particle exert a direct energetic effect on the organic molecules that make up the cell wall. The energetic action catalyzes the breakdown of these molecules. Prolonged exposure then results in the rupture of the cell wall of the microorganism or spore.

As a result of the processes described above, not only is the overgrowth of microorganisms prevented but also the amount of organic matter that would otherwise accumulate in the pool is reduced.

**Cleaning of equipment:** With water – as soon as possible after use.

**PRODUCT FEATURES:**

Low-viscosity liquid (product density: 1.1 g/cm<sup>3</sup>) without any volatile organic compounds (VOC)

It does not contain any organic compounds

Non-flammable liquid in the sense of ČSN 65 0201.

**PACKAGING:** Plastic containers 1 and 5 liters.

**STORAGE:** 1 year from date of manufacture at 10–25 °C, in unopened original packaging. Before use, the mixture must be mixed very thoroughly by shaking in the original packaging. After thorough mixing in the bottle (canister), mix the suspension with a stick mixer.

**Must not freeze!**

**SECURITY MEASURES AND ECOLOGY:** More detailed information can be found on the packaging and in the Safety Data Sheet of the product – available on request.

**More information:**

*The information provided in this technical sheet is compiled on the basis of laboratory knowledge and our professional experience in order to achieve the best possible results at a professional level when using the product. We do not accept any liability for damage caused by incorrect use of the product or its improper selection. Therefore, we recommend professionally and correctly testing our materials to see if they are suitable for the intended purpose of use under the given conditions.*

*This data sheet expires when an update is issued. The manufacturer reserves the right to make subsequent changes and additions.  
Last updated: March 2024.*

**THE OWNER OF THE PATENT AND THE MANUFACTURER:**

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**DISTRIBUTOR:**

FN-NANO s.r.o., Kamenne Zehrovice č.p. 23, 273 01, Czech Republic, [www.fn-nano.com](http://www.fn-nano.com)

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