



TECHNICAL SHEET

FN NANO® BioMax functional coating

- ⇒ **Biocidal photocatalytic coating**
- ⇒ **with antimicrobial function for effective air purification with long-lasting effect.**
- ⇒ **Preventing the spread of diseases – a healthier and safer indoor environment in healthcare facilities.**
- ⇒ **For the removal of viruses, bacteria, spores, mold, allergens, organic vapors and odors.**
- ⇒ **Guarantee of functionality up to 7 years^[1]**

PRODUCT DESCRIPTION: The multifunctional biocidal coating FN NANO® BioMax for indoor wall surface protection has been developed to **maximize its antimicrobial function** and enable its use as an **effective biocidal agent with a long-lasting effect**^{24,77} in healthcare facilities, chronic disease hospitals, nursing homes and households and other places to improve protection against the spread of infections. FN NANO® BioMax is a titanium dioxide-based composite antibacterial protective coating with an effective biocidal agent and a very strong photocatalytic effect. It is designed for professional use. The **antibacterial effect of the active biocidal agent is enhanced by the photocatalytic effect, which is activated with light with a UVA spectrum**. It is supplied in the basic "hospital shade" - with a slight tint of yellow.

FEATURES:

- **Effectively kills viruses, bacteria, fungi and spores including MRSA (Methicillin-resistant Staphylococcus aureus)**
- **Significantly reduces the risk of transmission of airborne infectious diseases and infections, including nosocomial infections**
- **Prevents the build-up of viruses and bacteria on the walls**
- **Effective prevention of mustiness, odors and mold**
- **Removes molecules of allergens and toxic substances. Works^{24,77} using photocatalytic and biocidal effect – cleans the air from microorganisms and organic pollutants**
- **Works as a noiseless, maintenance-free, trouble-free, economical and highly efficient air purifier**
- **Very suitable for allergy and asthma sufferers**
- **High breathability and vapor permeability**

**THE PHOTOCATALYTIC EFFECT IS PERMANENT, INEXHAUSTIBLE AND DOES NOT DIMINISH OVER TIME
ALL PROTECTIVE FUNCTIONS ARE MAINTAINED THROUGHOUT THE LIFE OF THE COATING.**

APPEARANCE OF THE COATING: FN NANO® BioMax is semi-transparent with a slight yellow tint and is suitable for all common types of masonry, plasterboards and plaster substrates. The coating thickness is optimally 5-20 microns. It is certified as concrete protection. **Do not use on clay glued substrate!**

The layer is active immediately after the impact of the ultraviolet component contained in daylight or artificial light with a proportion of the UVA spectrum. The maximum efficiency of the coating is achieved at a light wavelength of 365 nm. The coating is mature after 24 hours.

COMPOSITION: Purely water-based composite coating. Contains an untreated photocatalyst (50-70 g/l), inorganic binders and an effective registered biocidal agent, thus ensuring its long-term, flawless protective function as well as a particularly high self-cleaning efficiency.

The coating does not contain any organic compounds in accordance with European and world trends in environmental and health protection. The applied layer of FN NANO® BioMax is inert and completely safe. It **does not release any substances into the environment**. Unlike **chemical products**, its protective and self-cleaning properties are **inexhaustible**.

RECOMMENDATIONS FOR USE: **For professional use only. For interior masonry and plasterboard substrates.** It has been developed especially for the needs of healthcare facilities where it helps achieve higher hygiene standards in preventing the spread of viral and bacterial infections, including resistant strains of bacteria. The coating allows to extend the painting cycle in healthcare facilities in accordance with the current legislation. It maintains **its high efficiency in the long term with a guarantee of 5 or 7 years - according to Czech Law – Decree No. 306/2012 Coll.** **Manufacturer's recommendations for the use of FN NANO® BioMax antibacterial functional coating in healthcare facilities according to Decree No. 306/2012 Coll.:** Renewal of FN NANO® BioMax once every five years – intervention and operating theatres, intensive care units, sampling rooms, laboratories, infectious diseases wards, pediatric and neonatal units. Renewal of FN NANO® BioMax once every seven years - other than in non-health care facilities.

The FN NANO® BioMax coating is **very effective in preventing viruses, bacteria and other microorganisms from settling, growing and multiplying on the coating**, and is also able to **reduce the concentration of organic and inorganic impurities in the air**. Indoors, FN NANO® BioMax functional coatings are typically applied to the ceilings. For greater effectiveness it can also be applied to the walls of a room. We recommend using a system solution^[1] (FN® Primer, FN® Sensitive Silicate Paint and FN NANO® BioMax Functional Coating).



It sets a higher standard of protection for healthcare staff and patients. Suitable for hospitals, chronic disease hospitals, nursing homes and other healthcare facilities to create a healthier environment, reduce the risk of epidemics, eliminate odors and allergens.

To ensure full functionality in interiors, it is necessary to ensure access of ultraviolet radiation with a minimum intensity of 0.2W/m² to the FN NANO® surface.

USE OF FN NANO® BioMax RADICALLY LIMITS THE PRESENCE OF VIRUSES, BACTERIA, MOLDS AND OTHER MICROORGANISMS.

REVIEW of the National Institute of Public Health of the Czech Republic (SZÚ) - Antimicrobial activity of FN NANO® BioMax

National Institute of Public Health, Center for Epidemiology, National Reference Laboratory for Disinfection and Sterilization performed testing of antibacterial efficiency of FN NANO® BioMax sample by a test method modified according to ISO 22196.

(K = control in log - reference glass, P = test sample, K - P = drop)

Staphylococcus aureus	K 6,86	P -	> 6,86	For all these microbes, there was a 5 log order reduction in the number of microorganisms, which provides a bactericidal effect. The biocidal function of the product is enhanced by the strong self-cleaning effect and air purification based on the photocatalytic effect of titanium dioxide.
Pseudomonas aeruginosa	K 6,5	P 1	5,50	
Escherichia coli	K 6,89	P -	> 6,89	

METHOD OF APPLICATION:

Before each application, the coating must be shaken very thoroughly (30 - 40 seconds) in the original container. Perfect shaking is necessary to achieve even mixing of the insoluble particles in the coating. This is crucial to ensure the proper function of the protective coating. Before applying the FN NANO® technology, the primer must be perfectly cured. On fresh painting, apply at the earliest after 24 hours, but better after 48 hours. It is not suitable for application on a base of clay glued paints!

It is important that the coating is always in motion and does not sediment. In practice, this means pouring off only a small amount of already thoroughly mixed coating before applying. Shake again before pouring. To achieve a nice appearance, always apply as **thin but continuous and even a coat** as possible, allowing it to dry completely before the next layer.

COMMON APPLICATION PROCEDURE:

INTERIOR: For masonry and plasterboard substrates – We recommend first removing the biological contamination and allowing it to dry thoroughly. Then we use the system solution ^[1,2] (penetration FN® Primer, silicate paint FN® Sensitive and functional coating FN NANO® BioMax in three layers.) *The coating must be activated with a fine spray of water after the application has been completed, but no sooner than 24 hours after application. Spraying can be done e.g., with a hand sprayer and is done with clean plain or distilled water. This will significantly increase its effectiveness.*

To ensure full functionality in interiors, it is necessary to ensure access of ultraviolet radiation with a minimum intensity of 0.2W/m² to the created FN NANO® surface. A detailed procedure for the application of FN NANO® functional coatings is published on the website in the section FN NANO® Technology/Hints and Tutorials. (www.fn-nano.com)



Spraying – in three layers to form a thin uniform layer. Pneumatic spraying or high-pressure airless spraying can be used.



Roller application – in three coats is suitable for virtually all surfaces. Requires some skills to make a homogenous layer.



Brush application – in three coats, it is suitable for hard-to-reach areas, deeper diffusion of the active substance and for treating areas that may be affected by mold, for example.

- Cover all surfaces that will not be treated with FN NANO® layer
- The layer must be allowed to dry between coats
- Do not apply in adverse weather conditions.
- Air and substrate temperature between + 10 °C and + 25 °C and relative air humidity maximum 75%.
- **Do not apply on a water-repellent (hydrophobic) surface.**

PRODUCT FEATURES:

Low viscosity liquid, product density: 1.075 g/cm³, without volatile organic compounds (VOC).

High vapor permeability of the coating (class V1- High).

The thickness of the film is optimally 5-20 micrometers.

The coating is frost-resistant after maturing, it is not washable.

Adhesion to concrete 5 MPa (ČSN EN 1542: 2000)

Non-flammable liquid in the sense of ČSN 65 0201

Dilution: Don't dilute!

Consumption: Typically, 1 liter per 7-10m² of the final coating (3 layers). Consumption may vary depending on the absorbency of the substrate.

Cleaning tool: With water – as soon as possible after use.

Packaging: Plastic containers 1 and 5 liters

STORAGE:

Maximum 3 years 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. **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. Depending on the homogeneity and contamination of the substrate, optical defects may occur in the final coating. 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: September 2021.

THE OWNER OF THE PATENT AND THE MANUFACTURER:

Advanced Materials-JTJ, s.r.o., Kamenné Žehrovice č.p. 23, 273 01, Czech Republic, www.amjtj.com

DISTRIBUTOR:

FN-NANO s.r.o., Kamenné Žehrovice č.p. 23, 273 01, Czech Republic, www.fn-nano.com

CZECH INVENTION - PROTECTED BY PATENT AND TRADEMARK FN NANO® – VERIFIED BY MORE THAN TEN YEARS OF EXPERIENCE

[1] The guarantee is valid only if the specified application procedure is followed by a professional certified company

[2] Technical data sheet can be downloaded in the section FN NANO® Technology / Documents – technical data sheets , www.fn-nano.com