

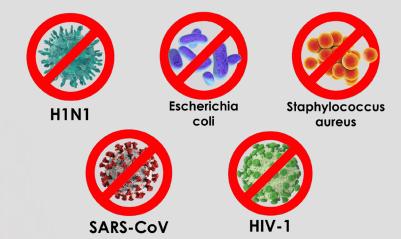
NANO4-HYGIENE LIFE® Important information

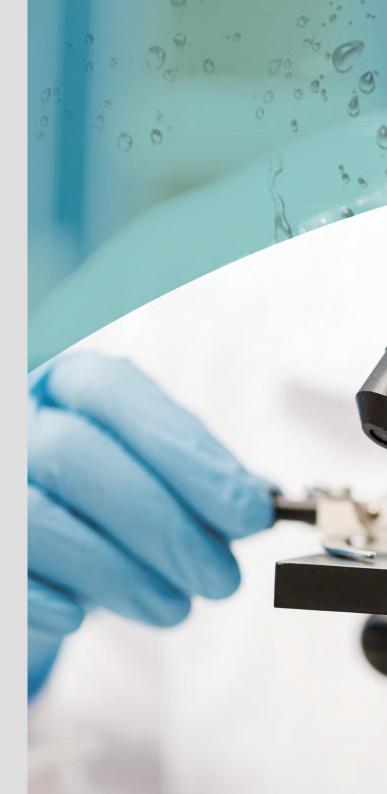
Does NANO4-HYGIENE LIFE kill Coronavirus COVID-19?

The product NANO4-HYGIENE LIFE® was designed and manufactured 2 years before COVID-19 was created. Before the product was released on the market we did a lot of tests on bacteria and viruses that existed at that time.

Tests have shown that NANO4-HYGIENE LIFE® kills 99.999% of known bacteria and viruses. Our scientific team believes that NANO4-HYGIENE LIFE® theoretically kills COVID-19 when it touches a protected surface. We are very happy to inform you that already we have received a certificate that our product is killing another type of coronavirus the TGEV-coronavirus (model virus for SARS-CoV) and Influenza A virus (H1N1)

click here to download our interactive Certification book with all of our test reports







All our tests were performed according to JIS Z 2801.

At the current stage, there is no possibility to find a laboratory that will perform testing against SARS-CoV-19. In general, it is very dangerous to work with SARS-CoV-19 and only a few laboratories are allowed to handle this virus. Furthermore, all institutes that are allowed to work with it are currently focussing on the characterisation of the virus as well as on the development of a vaccine.

Additionally, since our product is is a **3 years permanent** surface coating and not a "normal" sanitizer, working some minutes or hours most of the standardized test methods (based on suspension tests) cannot be applied to prove the effectiveness. Thus, you not only need to find a laboratory that is allowed to work with SARS-CoV-19, but only a laboratory that is specialized on testing this kind of antimicrobial product. However, in general, based on the fact that under normal circumstances, standard laboratories does not work with dangerous viruses, model organisms are used. This is why we performed

Testing the virucidal activity of NANO4-HYGIENE LIFE® against TGEV-coronavirus (model virus for SARS-CoV), as a model organism for SARS-CoV. Thus, we do hold results against TGEV-coronavirus, a virus which belongs to the same family as SARS-CoV-19 and shows high similarity. This is the only report we can provide you with – test results that are very promising.

We are in constant communication with laboratories around the world and when this test for **COVID-19** is available we will be the first company in the world to receive the certification.

NANO4 - HYGIENE LIFE® Protects what matters most

NANO4-HYGIENE LIFE® is a product that provides full anti-bacterial protection for hospitals, schools, public transport, homes and every place where bacterial deposit through human tactile contact is possible.

Studies on sanitisation show that bacteria can survive for more than 30 days on walls, surfaces and medical supplies. It has also been confirmed that all common commercial disinfectants fail to fully eliminate pathogens. Their short-term effect is followed by the reappearance of bacteria in just a few hours, and so the disinfected surfaces have to be resanitised. In contrast, NANO4-HYGIENE LIFE® provides lasting anti-bacterial protection for three years.

Hospital-acquired infections constitute a serious public health hazard, which derives from highly resistant bacteria.

Testing different sanitisation processes against a single germ has shown that some cells of the pathogen resist elimination.

For all the above reasons, the use of NANO4-HYGIENE LIFE® is imperative, as a guaranteed method of anti-bacterial protection for all sorts of surfaces.

To tackle this problem, NANO4-HYGIENE LIFE® has introduced NANO4-HYGIENE LIFE® since 2019, a product that instantly eliminates the 99,999% of viruses, bacteria, fungi, odour etc. Certified tests prove the truth of our words. Please, click here to check all certificates.

NANO4-HYGIENE LIFE® is the best non-toxic, eco-friendly alternative to all available commercial disinfectants with harmful effect.





Protection to common everyday issues

- Safe anti-bacterial functionality presence can be verified using our very easy to use

 BLUE TESTER click here
- Prevents Body odour: bacteria convert sweat into odour causing substances
- Permanent fungicidal function
- Deprives house dust mites of food
- Fungal Infection: athlete's foot
- Prevents mould growth on glossy and porous surfaces: Release toxins allergic reactions, respiratory or immune system responses
- Prevents micro-scratches & reduces damage by improving the friction coefficient
- Facilitates cleaning and removal of limescale, soot, grease, dust etc.
- Promotes comfort, well-being and safety
- Free from halogens (especially fluorine, PBT/vPvB- & SVHC-substances)

How it works

The technology behind NANO4-HYGIENE LIFE® provides an immediately microbial kill and in comparison to other conventional products,

NANO4-HYGIENE LIFE® is non-mutagenic and safe-to-use as no halogens or SVHC are present.

Please click here and read carefully all the test reports regarding the results which confirm that the NANO4-HYGIENE LIFE® kills the 99,99% of the bacteria and virus.

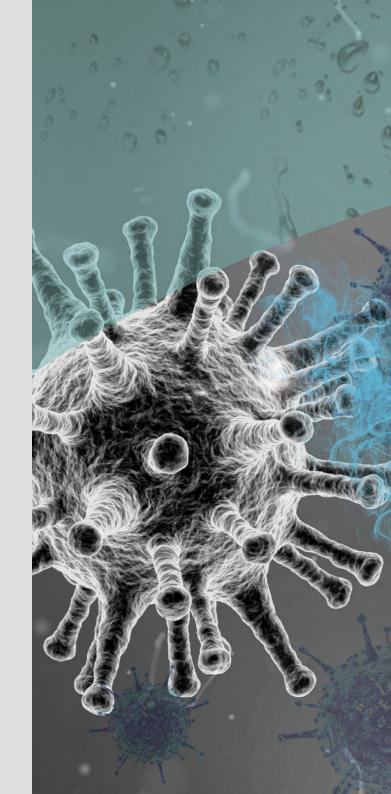
Once NANO4-HYGIENE LIFE® is applied on the surface, a layer of "swords" is present. Due to the positive charged of the "swords", the negatively charged membrane of the microorganisms is attracted and once it gets in contact with the "sword" the cells will be punctured what leads to cell death. Thus, NANO4-HYGIENE LIFE® does not kill the cells by interfering with the metabolism (the product is not absorbed by the cells and works from the inside), it is a physical effect by which the cells are immediately killed once they touched the surface.

Based on the conditions that were set (following the standard which was used to perform the testing) about 10^5 cells were used. After 24 h 99,999 % were killed. Since a high amount of cells was used, it takes some time until every cell reaches the surface (since they might be cells on top of other cells).

Looking at those results, we always get questions like:

"Why does it take 24h until all cells are killed?" or "Is there no option that the effect will be faster"?

The reason why it takes 24 h to kill all cells is based on the high amount of cells that are present. As already mentioned, if a high concentration of cells is present, it takes some time until very single cell touches the surface. This means, if less cells are present, the effect (kill rate of 99,999 %) will be faster. The reason why this high load of cells was used is based on the fact that we have to follow the conditions of the standard to gain standardized results. Nonetheless, to prove, that the theory of "the more cells are present, the slower the effect" is right, we performed testing with adjusted cell conditions – conditions that mirror real-life.





Application & Effect

- NANO4-HYGIENE LIFE® provides a residual self-sanitizing activity against athlete's foot fungus (Trichophyton mentagrophytes) on treated socks.
- NANO4-HYGIENE LIFE® prevents 99.9% of the growth of athlete's foot fungus on the sock.
- NANO4-HYGIENE LIFE® reduces surface energy. NANO4-HYGIENE LIFE® technology facilitates the removal of dirt and biological deposits as well as soap residues and inorganic dirt.
- By forming an ultra-thin layer of glass, NANO4-HYGIENE LIFE® protects, among
 other things, against micro-scratches 9H. Under mechanical abrasion, the protective
 layer is abraded before the substrate is damaged. A unique GLIDE function, ensures
 that any abrasive contact materials glide over the treated surface and leave fewer
 traces.
- Protected surfaces take on a measurably higher degree of hardness (3 levels of pencil hardness).
- The surface is first cleaned and polymerized (step 1).
- Subsequently, the modified silica delivers a safe and permanent antimicrobial function (Step 2).
- A non-migrating antimicrobial glass layer is created.
- NANO4-HYGIENE LIFE® is suitable for all glossy and porous surfaces*

To meet the highest demands of test standards in the supply chain, color coding confirms the antimicrobial agents level of performance. BLUE TESTER click here to read analytic Infos or click here to see a video

Overtreated Slightly overtreated Good treatment Slightly undertreated Undertreated

^{*}Do not use if safe application is in doubt.

Product Qualities

- Invisible hygiene- and abrasion protection against micro scratches on glass or plastic displays, LED, LCD or AMOLED. Zero limitation to touch functions or usability; as holds true for cases or covers of smartphones
- Easy-to-clean and hygiene-treatment for bathroom ceramics, toilet lids, sanitary surfaces and bathroom utensils (i.e. taps, shower heads and hoses)
- Protection against infections on plastics, stainless steel or varnished surfaces in public toilets, hotels, public transportation and food service industry.
- Permanent surface disinfection in hospitals, caring and nursing facilities, especially
 those within intensive and quarantine care, or surfaces with a high infection risk
 (e.g. door knobs) including shelf spaces, work-tops and floors (please check national
 regulations!)
- Permanent hygiene for phones, keyboards and other input devices which are regularly touched and used
- Stainless steel handrails and elevators (incl. operating devices)
- Wear and tear and hygiene treatment for automatic vending equipment, slotmachines, water dispensers, parking meters, and other publicly used machines.
- Easy-to-clean anti-limescale performance for glass, PMMA or textile shower screens.
- Odor free hygiene performance for waste bins
- Hygiene performance in ventilating systems
- Permanent hygiene protection for flooring and other suraces
- Mold reduction for agricultural covers





Compatible surfaces

NANO4-HYGIENE LIFE®(P) for porous surfaces can be used on porous materials and basic commodities such as:

- All kind of fabrics, clothes, carpets, curtains e.t.c.
- Shoes
- Leather
- Stone
- Wood
- Paper
- Face mask
- Car steering wheels e.t.c.Incompatible surfaces

*If you're unsure whether our products are suitable for any surface, please do not use it.

NANO4-HYGIENE LIFE®(G) for glossy surfaces can be used on glossy materials and basic commodities such as:

- Glass
- Ceramics
- Porcelain
- Noble metals (aluminum, stainless steel, brass, gold)
- Plastics, made from e.g. PMMA, ABS, ECTFE, HDPE,
- LDPE,PA, PC, PMP, PP, PS,PVC, SAN or SI
- Varnishes
- Printed cardboard and wrapping
- Phones, LCD, AMOLED
- Toilets
- Water dispensers
- Steering wheel
- Medicine tools
- Nursing facilities
- Door knobs
- Slot machines
- Handrails
- Elevators

Application method: NANO4-HYGIENE LIFE(G)® (for glossy surfaces)

- 1. Before using the product, clean the glossy surface thoroughly and rinse with water and dry.
- 2. Wear a pair of plastic gloves, by using a clean cloth, spray with the cleaning and polymerizing NANO4-CLEAN&PRIMER® on the surface and wipe it well to remove any chemical residue and polymerize the surface for the antibacterial coating.
- 3. After approx. 5 min, spray on the polymerized surface with the NANO4-HYGIENE LIFE(G)® and wipe it well activated and becomes antimicrobial, wipe until all visible streaks disappear. A thorough polishing will be necessary, especially on transparent or shiny surfaces. After 6 hours the coating is hardened and ready for use.

The treatment of the targeted surface should be carried out under ambient conditions. Use only on room tempered surfaces (between 10° C and 40° C).

Industrial application:

For optimal and economical application, you can use an HVLP spray gun. For more info please click here.





*Duration of Protection: NANO4-HYGIENE LIFE(G)® (for glossy surfaces)

Protection products reaches up to 3 years, provided that the placement of NANO4-HYGIENE LIFE(G)® made in accordance with the instructions.

Onset of effect: Antimicrobial effect becomes active one hour after application.

Drying time/curing: The advised drying time from application to when contact is recommended for humans or animals to the treated surface: 6 hours

Recommended date for further treatments: As soon as the blue colour marking tester no longer sticks to the coated surface please click here BLUE TESTER to read analytic Infos or click here to see a video

Consumption:

By using a: 10ml kit you can coat approx. 3m2, 100ml you can coat 30m2, 1000ml you can coat 300m2.

Dosage rate per sprayer 10,20,30,50,100,200ml is approximately 0.11ml/time

Application method: NANO4-HYGIENE LIFE(P)® (for porous surfaces)

- 1. Clean the surface thoroughly and dry before applying the product.
- 2. Spray the surface with NANO4-HYGIENE LIFE(P)® 15cm away from the surface and ensure even distribution over the surface. After applying NANO4-HYGIENE LIFE(P)® it takes 24 hours (at 20° c) to be fully cured.
- 3. Another way to protect the fabric is by dipping or submerging fabric into NANO4-HY-GIENE LIFE(P) $^{\tiny{(8)}}$ solution.
- 4. The time required for curing may vary depending on ambient temperatures. You can accelerate this process by curing heat at: 170°C 1-2min, 100°C 4 min, 60°C 10 min as this is the time the nano-materials bond or cure to the surface giving you ultra repellency.
- 5. The treatment of the targeted surface should be carried out under ambient conditions. Use only on room tempered surfaces (between 10° C and 40° C)

Industrial application:

For optimal and economical application, you can use an HVLP spray gun. For more info please click here.





Duration of Protection: NANO4-HYGIENE LIFE(P)® (for porous surfaces)

Durable for up to 10 repeated washings for fabric surfaces, for other porous surfaces 3500 hours artificial weathering according to 11507 A (approx. 3 years in open space under European weather conditions), provided that the application of NANO4-HYGIENE LIFE(G)®is done as per instructions.

Consumption:

The amount of product needed each time depends on the method of application and the absorbency of the surface. In any case, the consumption will be between 30ml/m2 and 200ml/m2. This means that 1 litre can cover the surface of 5m2 to 33m2.

We recommend to test each type of the porous surface first to determine the absorbency of the surface. An easy test to calculate the consumption do you need for any type of porous surface is to spray and wet 1m2 of the surface you want to coat by using normal water. After finishing measure how much water you consume and so you can calculate how much of the material you will need to coat the specific surface.

CERTIFIEDMicrobiological Efficiency

So far accredited laboratories certified or the following:



Staphylococcus aureus (MRSA = methicillin-resilient Staphylococcus aureus)



Klebsiella pneumoniae (odor-creating bacteria)



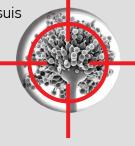
Listeria monocytogenes (food-stuff)



Escherichia coli (intestinal bacteria)



Salmonella choleraesuis (food-stuff)



Aspergillus niger (slightly sporicidal)





Certifications

Microbiological Efficient: So far accredited laboratories certified or the following *click* here to download our interactive Certification book with all of our test reports

Click on each line in order to see the Test Report., or download our interactive Certification

Testing the virucidal activity of NANO4-HY-GIENE LIFE against TGEV-coronavirus (model virus for SARS-CoV)

Testing the virucidal activity of NANO4-HY-GIENE LIFE against Influenza A virus (H1N1)

NAN04-HYGIENE LIFE versus Staphylococcus aureus DSM21979 EDCC 5247 after 225 days of artificial ageing

Coated Leneta Foil vs. Listeria monocytogenes DSM 15675

Coated Leneta- foil vs. Salmonella choleraesuis DSM11320 Coated Leneta-Foil vs. Aspergillus niger DSM 1988

Coated Leneta-Foil vs. E. coli DSM 1576

Coated Leneta-Foil vs. Klebsiella pneumoniae DSM 6135

Coated Leneta-Foil vs. Staph. aureus DSM 21979

Coated Leneta Foil vs. Pseudomonas aeruginosa EDCC 5272

Coated Leneta-Foil vs. Enterococcus hirae DSM3320 ATCC10541

PROVEN Efficiency of the agents

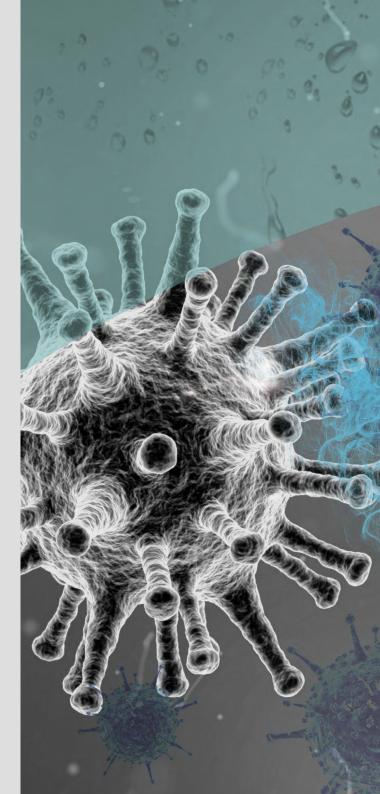
Scientific tudies and publications proved the efficiency of the silion-functionalized ammonium compounds for the following microorganisms:

Viruses

- Adenovirus Type II & IV
- Bovine Adenovirus Type I & IV
- Feline pneumonitis
- Herpes Simplex Type I
- Herpes Simplex Type II
- HIV-1 (AIDS)
- Influenza A2 (Aichi)
- Influenza A2(Asian)
- Influenza
- Mumps
- Parinfluenza (Sendai)
- Rous Sarcoma
- Reovirus Type I
- Simian Virus
- Vaccinia
- MS2 9
- PRD1

Gram-positive microorganisms

- Bacillus sp. (vegetative cell)
- Corynebacterium diptheriae
- Micrococcus lutea
- Micrococcus sp.
- Mycobacterium tuberculosis
- Mycobacterium smegmatis
- Propionibacterium acnes
- Staphylococcus aureus
- Staphylococcus epidermidis
- Streptococcus faecalis
- Streptococcus mutans
- Streptococcus pneumonia
- Streptococcus pyogenes





Gram-negative microorganisms

- Acinetobacter calcoaceticus
- · Aeromonas hydrophilia
- Citrobacter deversus
- Citrobacter freundi
- Enterobacter aerogenes
- Enterobacter aglomerans
- Enterobacter cloacae
- Enterococcus
- Escherichia coli
- Klebsiella oxytoca
- Klebsiella pneumoniae
- Klebsiella terriena
- Legionella pneumophila
- Morganella morganii
- Proteus mirabilis
- Proteus vulgaris
- Pseudomonas aeruginosa
- Pseudomonas fluoscens
- Salmonella cholera suis
- Salmonella typhi
- Salmonella typhimurium
- Serratia liquifaciens

Fungi, Algae, Mold

- Alterania alternate
- Aphanizomenon sp.
- Aspergillus flavu
- Aspergillus niger
- Aspergillus sydowi
- Aspergillus terreus
- Aspergillus versicolor
- Aspergillus verrucaria
- Aureobasidium pullans
- Candida albicans
- Candida pseudotropocalis
- Chaetomium globsum
- Cladosporium cladosporioides
- Chlorella vulgaris
- Dreschslera australiensis
- Epidermophyton sp.
- Gliomastix cerealis
- Gloeophyllum trabeum
- Microsporum sp.
- Microsporum audouinii
- Monilia grisea

- Oscillatoria
- Penicillium chrysogenum
- Pencillium commune
- Penicillium funiculosum
- Penicillium pinophilium
- Penicillium variable
- Phoma fimet
- Pithomyces chartarum
- Poria placenta
- Scenedesmus
- Saccharonyces cerevisiae
- Scolecobasidium humicola
- Selenastrum sp.
- Trichoderma viride
- Trichophyton interdigitale
- Trichophyton maidson
- Trichophyton mentogrophytes
- Trichophyton sp.

Specifications

NANO4-HYGIENE LIFE(G)®, for consumers offering a 3 years permanent, antibacterial treatment of all non-porous surfaces coming in a blistering kit consisting of 2 bottles, 10ml,20ml,30ml,50ml, and a pair of spray bottles 100ml,200ml, and a pair of 1000ml,4Ltr.

- **1.1** bottle for cleaning and polymerizing the coated surface named NANO4-CLEAN&PRIMER
- **2.1** bottle activating named NANO4-HYGIENE LIFE(G)®

NANO4-HYGIENE LIFE(P)®, for consumers offering permanent, antibacterial treatment of all porous surfaces coming in a spray bottle 50ml,100ml,200ml,500ml, and in canisters 1 Ltr. 4 Ltr. 20 Ltr.

1. 1 bottle activating named NANO4-HYGIENE LIFE(P)®

Chemical basis:	Modified silion dioxide SiO2
Layer thickness:	Approximately. 300 nm
Water-repellent:	slightly hydrophobic
Temperature stability:	150 degree Celsius
Chemical stability:	solvent-resistant
Weather proof:	2000 h according to ISO 11507 A
	(corresponds to ca. 3-4 years)
Resilience (mechanical):	• Glass. ceramic > 40.000 cycles according to ISO 11998 (cleaning with water)
	 Noble metals > 20.000 cycles according to ISO 11998 (cleaning with water)
	 Plastics > 5.000 cyces according to ISO 11998 (cleaning with water)





Salt water resistant: yes

Transparency: 100%

Storable: 2 years

Temperature sensitivity: 3 to 40°C

REGULATORY COMPLIANCE:

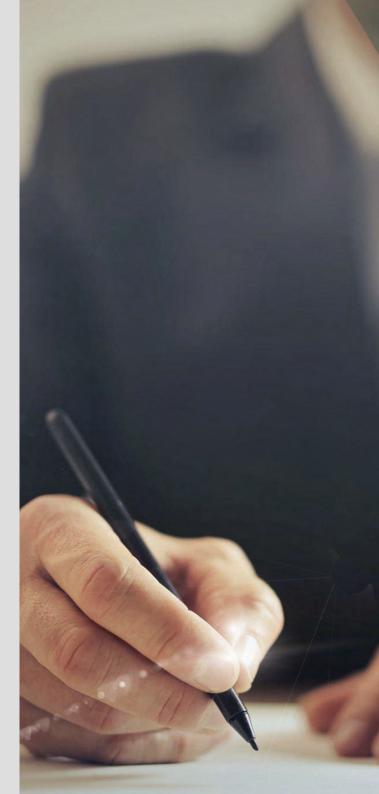
Trafficable according to the Biocides Directive (BPR); (EU) Nr.528/2012 Registration (Germany) N-91647 PT 2 and PT 9

Active substance dossier submitted in time. Assessment to be expected: 2022.

Safety

Additional legal obligations and safety instructions concerning the antimicrobial efficient components of NANO4-HYGIENE LIFE® wipe:

Kind of formulation:	Ready to use sealed in sprayed bottles or canisters
Usage:	Refer to "application"
Recommended date for further treatments:	As soon as the color marking no longer sticks to the coated surface
Possible side effects and instructions for fist aid:	According to the regulations this formulation is not considered as dangerous hazardous. There are no known side effects.
Extensive usage:	Consider limitation and monitoring of exposure in the workplace (safety regulations).
Personal safety equipment:	Not necessary for normal usage. For extensive usage refer to Section 8.2.2. of the safety instructions.
Disposal instructions:	P501: Content and wrapping need to be disposed in accordance with the local regulations (refer to safety instructions)
Storability:	24 months
Onset of effect:	Antimicrobial effect becomes active one hour after application.
Drying time / curing:	The advised drying time from application to when contact is recommended for humans or animals to the treated surface: 6 hours





Detailed fist aid measures:

General information:	In case of doubt or if symptoms don't improve, seek medical attention. Present safety information or label to the doctor. Never administer substances orally to people in an unconscious state.
After inhalation:	Take patient outside – leave contaminated area. Seek medical attention, if symptoms continue.
After skin contact:	Immediately wash affected skin with lots of soap and water! Remove contaminated clothes and shoes. Seek medical attention if symptoms continue.
After eye contact:	Remove contact lenses, Rinse open eyes and under the eye lids immediately with plenty of water (for several minutes). Seek medical attention if irritation continues.
After Ingestion:	Do not take vomit inducing measures. In case of doubt seek medical attention, or if symptoms worsen present safety information or seal to a doctor. Never administer substances orally to people in an unconscious state.

Quality ISO 9001:2008

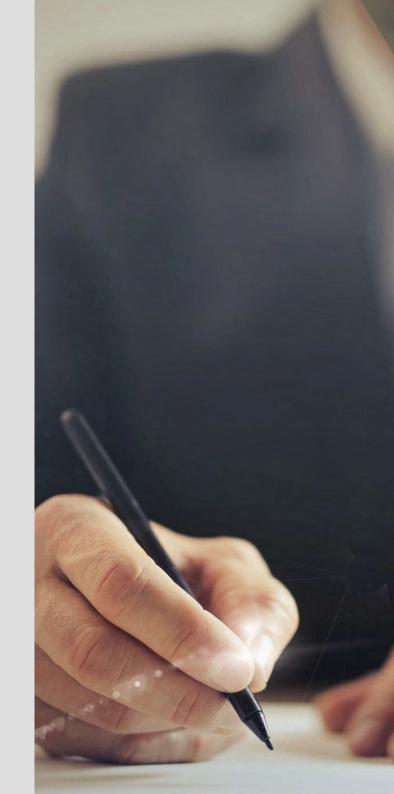
ISO9001:2015 REGISTERED

NANO4LIFE EUROPE L.P.® is an ISO9001:2015 certified company in the production of nanotechnology products.

During the development and production process, we invest a great deal of time and effort in determining the Life Cycle Assessment (LCA) of selected products. LCA is the global standard for assessing the total environmental impact of a product, considering all environmental aspects, including resource and energy consumption, emissions to air, water and soil, as well as the impact on health and ecosystems. LCA is widely used by industry, governments and non-governmental organisations. We make these studies available to our customers upon completion in the belief that transparency creates sustainability and trust.

Product safety is considered paramount in our company. Diverse internal measures and company standards, which regularly go beyond the legal and customer requirements, ensure the quality and safety of our products. We also work closely with renowned independent inspection authorities, institutes and laboratories to ensure maximum product safety.







How to order products

All NANO4LIFE® products are in stock and can be delivered within 24 hours to any destination in the world. Delivery in European Countries can be provided within 1 day. In the rest of the world delivery takes approximately 3 days with very low transportation costs. Available packs are: 10ml, 20ml, 30ml,50ml,100ml,200ml,500ml, 1Liter, 4Liters, 20Liters.

WARNING!

We want to be sure that the customer will buy a genuine and functional product.

Do not buy a product if you find that the expiry date of the product is earlier than the purchase date.











NANO4LIFE EUROPE L.P.

VOULIAGMENIS 318, 173 43, AG. DIMITRIOS, ATHENS, GREECE 0030-213 0272732 internationalsales@nano4life.co