

# BV-Stop

surface protection

Nanotechnology evolution:  
Antibacterial surfaces



# Nanoprom Antibacterial coating

---



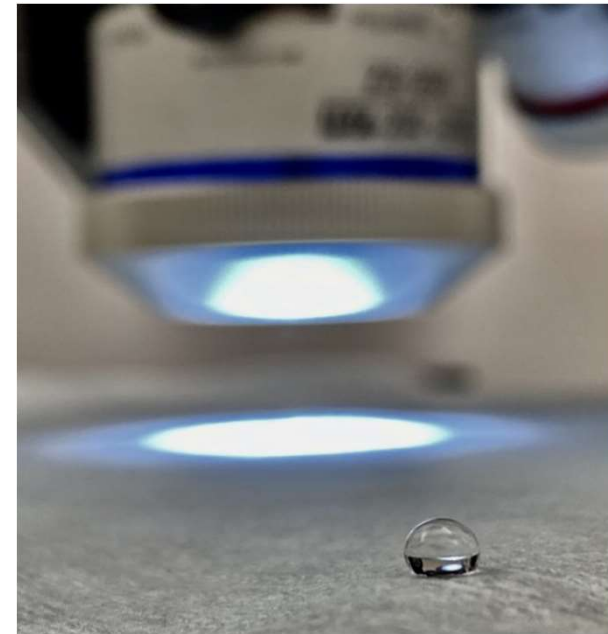
Nanoprom is an Italian company, pioneer in research and industrial application of nanomaterials.

Since the late '90s, the company is active in research of nanomaterials based on silica and develops Polysil®.

In this context, Nanoprom has developed a coating with high antibacterial and antiviral properties applicable on any surface.

The Stop-VB Nanoprom coating was created to protect surfaces from bacteria and germs. An adequate solution to present and future challenges, with guarantee of effectiveness attested by laboratory results and compliant with ISO 22196: 2011.

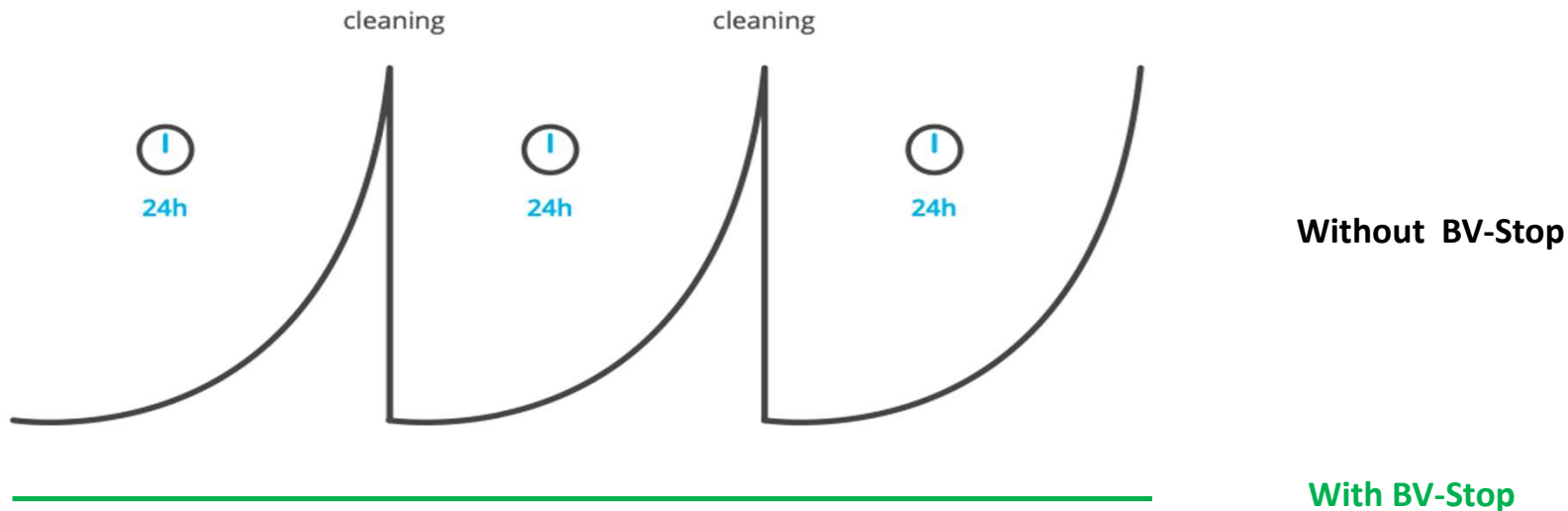
Stop-VB Nanoprom is a water-based product that can be easily applied to surfaces of all types and sizes.



# Bacterial surfaces proliferation

---

- The appearance and proliferation of bacterial communities occurs on all types of surfaces and humid environments, creating microbial biofilms.
- **Regular cleaning does not prevent the multiplication of microorganisms harmful to health, which continue between cleanings and increases the risk of cross contamination.**



# Nanoprom BV-Stop antibacterial activity



Antibacterial activity on escherichia coli and staphylococcus aureus at **2h**, even after only 2 hours the antibacterial activity shows an important reduction of the bacterial load of about 93%

## Risultati 2h con Escherichia coli

Conta iniziale (ufc/cm <sup>2</sup> ) <b>U<sub>0</sub></b>	Conta 2 h su provini non trattati (ufc/cm <sup>2</sup> ) <b>U<sub>t</sub></b>	Conta 2 h su provini trattati (ufc/cm <sup>2</sup> ) <b>A<sub>t</sub></b>	<b>Attività antibatterica</b> <b>R= U<sub>t</sub> – A<sub>t</sub></b>	<b>Abbattimento</b> <b>(%)</b>
7.7 x 10 <sup>3</sup> Log = 3.88	1.7 x 10 <sup>2</sup> Log = 2.23	1.1 x 10 <sup>1</sup> Log = 0.98	<b>1.25</b>	<b>93.98</b>

## Risultati 2h con Staphylococcus aureus

Conta iniziale (ufc/cm <sup>2</sup> ) <b>U<sub>0</sub></b>	Conta 2 h su provini non trattati (ufc/cm <sup>2</sup> ) <b>U<sub>t</sub></b>	Conta 2 h su provini trattati (ufc/cm <sup>2</sup> ) <b>A<sub>t</sub></b>	<b>Attività antibatterica</b> <b>R= U<sub>t</sub> – A<sub>t</sub></b>	<b>Abbattimento</b> <b>(%)</b>
8.0 x 10 <sup>3</sup> Log = 3.90	1.8 x 10 <sup>2</sup> Log = 2.25	1.3 x 10 <sup>1</sup> Log = 1.11	<b>1.14</b>	<b>92.67</b>

Tests performed in compliance with ISO 22196:2011

# Nanoprom BV-Stop antibacterial activity



Antibacterial activity on escherichia coli and staphylococcus aureus at **24h**, after 24 hours the antibacterial activity shows an excellent reduction of the bacterial load of 99,99%

## Risultati 24h con Staphylococcus aureus

Conta iniziale (ufc/cm <sup>2</sup> ) <b>U<sub>o</sub></b>	Conta 24 h su provini non trattati (ufc/cm <sup>2</sup> ) <b>U<sub>t</sub></b>	Conta 24 h su provini trattati (ufc/cm <sup>2</sup> ) <b>A<sub>t</sub></b>	<b>Attività antibatterica</b> <b>R= U<sub>t</sub> – A<sub>t</sub></b>	<b>Abbattimento</b> <b>(%)</b>
8.0 x 10 <sup>3</sup> Log = 3.90	6.5 x 10 <sup>4</sup> Log = 4.78	7.3 x 10 <sup>0</sup> Log = 0.85	<b>3.93</b>	<b>99.99</b>

## Risultati 24h con Escherichia coli

Conta iniziale (ufc/cm <sup>2</sup> ) <b>U<sub>o</sub></b>	Conta 24 h su provini non trattati (ufc/cm <sup>2</sup> ) <b>U<sub>t</sub></b>	Conta 24 h su provini trattati (ufc/cm <sup>2</sup> ) <b>A<sub>t</sub></b>	<b>Attività antibatterica</b> <b>R= U<sub>t</sub> – A<sub>t</sub></b>	<b>Abbattimento</b> <b>(%)</b>
7.7 x 10 <sup>3</sup> Log = 3.88	5.5 x 10 <sup>4</sup> Log = 4.15	5.3 x 10 <sup>0</sup> Log = 0.46	<b>3.68</b>	<b>99.99</b>

Tests performed in compliance with ISO 22196:2011

# Nanoprom BV-Stop durability



- The BV-Stop coating is cleaning compatible, washable and withstands regular contact with aggressive cleaning products.
- The test was carried out by simulating aging with 300 weekly cleaning cycles with a alkaline detergent (Ph 9.5), specific for removing organic dirt and stains from kitchen tops.
- After aging cycle the BV-Stop coating still guarantees high efficacy with a 99.8% reduction of bacteria at 24h.
- **The product maintains its effectiveness even after 5 years of application.**

Tab.1: Risultati ottenuti con Escherichia coli

Conta iniziale (ufc/ml) <b>Uo</b>	Conta 24 h su provini non trattati (ufc/ml) <b>Ut</b>	Conta 24 h su provini trattati (ufc/ml) <b>At</b>	Attività antibatterica <b>R= Ut – At</b>	Abbattimento (%)
$4.2 \times 10^5$ Log = 5.62	$9.9 \times 10^5$ Log = 6.00	$1.2 \times 10^3$ Log = 3.08	<b>2.92</b>	<b>99.88</b>

Tab.2: Risultati ottenuti con Staphylococcus aureus

Conta iniziale (ufc/ml) <b>Uo</b>	Conta 24 h su provini non trattati (ufc/ml) <b>Ut</b>	Conta 24 h su provini trattati (ufc/ml) <b>At</b>	Attività antibatterica <b>R= Ut – At</b>	Abbattimento (%)
$3.6 \times 10^5$ Log = 5.56	$8.6 \times 10^5$ Log = 5.93	$1.6 \times 10^3$ Log = 3.20	<b>2.73</b>	<b>99.81</b>

Tests performed in compliance with ISO 22196:2011



# Nanoprom BV-Stop antiviral activity

---



- Laboratory results have proven the effectiveness of the antiviral activity of BV-Stop coating. After a 2-hour contact period, there was a 98,12% reduction on HCoV-OC43 (**Human Coronavirus**) when compared to unprotected surfaces.
- The results are under investigation and further laboratory tests are underway to validate the efficacy of the BV-Stop coating also against viral agents such as Adenovirus and human coronavirus at 2h and 24h, according tests performed in compliance with ISO 21702:2019

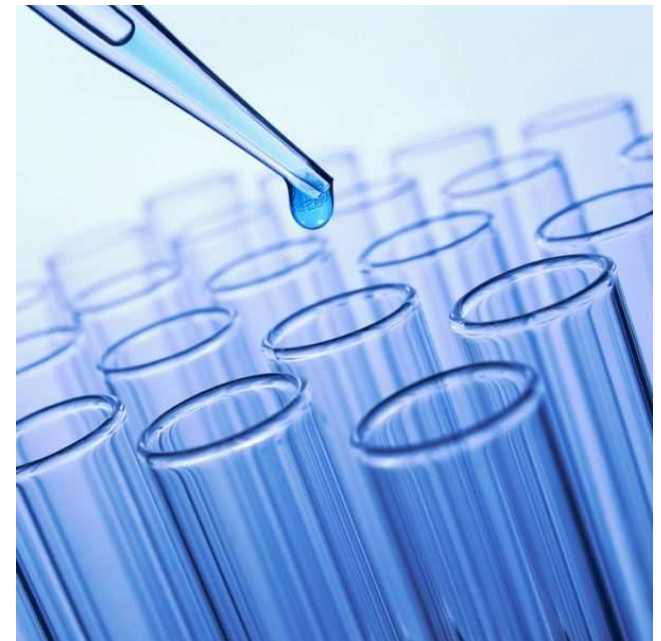
Report n°:	MAB_2020_535	
Data:	02/10/20	
HCoV-OC43 (Coronavirus) - 2h		
<b>Titolo iniziale</b>	<b>CTRL</b>	<b>Trattato</b>
10 <sup>4</sup>	10 <sup>2,5</sup>	10 <sup>0,775</sup>
Riduzione logaritmica		1,725
Riduzione percentuale		98,12%

# Nanoprom BV-Stop safety

---



- In addition to being effective, the Nanoprom BV-Stop product is also safe: the biocompatibility test performed according to ISO 10993: 2018 (standard used in the field of Medical Devices) has allowed us to confirm that the product is biocompatible and, therefore, also safe. to be used on surfaces in contact with people.
- Furthermore, the weighted dimensions of the polymers and particles involved in the coating are not such as to make the product fall within the scope of nanomaterials.







ITALIAN QUALITY

NANOPROM CHEMICALS S.r.l. - Via canale, 300 - 42013 Sant'Antonino di Casalgrande (RE) Italy

Tel. +39 0536 871 677 - +39 0563 824 208 - Fax +39 0536 194 04 24

[www.nanopromsrl.com](http://www.nanopromsrl.com)