

ANTIVIRAL & ANTIBACTERIAL DISINFECTION BY NEBULISATION

SURFACE DISINFECTION FROM BACOBAN™ TRANSPORT WITH ALSTOM WORK INSTRUCTION



Disinfection of interior surfaces within rolling stock, such as buttons and handrails, is crucial to ensuring the health and safety of passengers during the pandemic. This solution from Bacoban™ Transport actively disinfects surfaces for several days, using a manual spray, and nebulisers to diffuse disinfectant. When following Alstom's tested work instruction, this solution effectively and efficiently kills bacteria and viruses, including COVID-19.

KEY BENEFITS

- Active for up to 10 days (in laboratory)*
- Kills viruses and bacteria in only 5 minutes*
- Fast application and even distribution
- Alcohol free*
- Disinfection costs +5 to +25% compared to standard cleaning

CERTIFIED EFFICIENCY

- Efficiency verified by a third-party laboratory specialised in microbiological sampling
- 99.99% virus reduction (EN 14476)*
- 99.99% bacteria reduction (EN 13697)*
- Tested to International Standards : EN 14476, EN 13697 and others *

AVAILABLE ON STATIONONE

- Full package available on [StationOne](#) (nebuliser, solutions, work instruction)
- Preferred price available on [StationOne](#)

STATIONONE
The railway marketplace

* Data communicated by the supplier

ANTIVIRAL & ANTIBACTERIAL DISINFECTION BY nebulisation

The rail industry has taken a significant hit from the COVID-19 pandemic, with low ridership numbers seen around the world. Around 70% of commuters are less likely to use public transportation during the pandemic. This tested and verified solution for antiviral & antibacterial disinfection by nebulisation responds to our customers' challenges by quickly and effectively disinfecting rolling stock interiors. First the spray solution is used to disinfect high touch points, and then the disinfectant is diffused into the train interior through the nebulisers.

Kills viruses and bacteria in 5 minutes

The surface disinfection solution from Bacoban™ Transport kills 99.99% of both viruses and bacteria in only five minutes. In addition, the product was proven to be persistent in lab tests for up to 10 days.

Alstom's effective work instruction

The work instruction developed by Alstom aims at ensuring operators and users effectively disinfect rolling stock interiors, including bars, handrails, doors, buttons, seats and windows to ensure public transport is safe for passengers around the world.



Verified in field conditions

Alstom's cleaning and disinfection method is designed to achieve a high level of efficiency. Our work instruction was tested in various conditions to prove the effectiveness of the product and guarantee antiviral and antibacterial disinfection. The protocol is based on the following key factors:

- Experience testing the solution on trams in operation
- Contamination testing from a specialised laboratory
- Product knowledge and expertise from the supplier

ANTIVIRAL & ANTIBACTERIAL DISINFECTION BY NEBULISATION

KEY CHARACTERISTICS *

- Alcohol-free solution
- Antiviral, antibacterial and antifungal coating that can be applied to any surface
- Active for up to 10 days after application in laboratory environment
- Kills the most common germs and viruses including CORONAVIRUS (COVID-19), MRSA, HIV, Hepatitis B & C and Norovirus
- Nebulisers release disinfection solution in a dry form, thus there is no risk of damaging train components

EASY AND SAFE IMPLEMENTATION

Using the disinfection solution and nebulisers is simple, following our two-step process.

First, the cleaning and disinfecting solution is sprayed on a cloth and applied on high-touch surfaces of the rolling stock, including buttons and handrails (1).

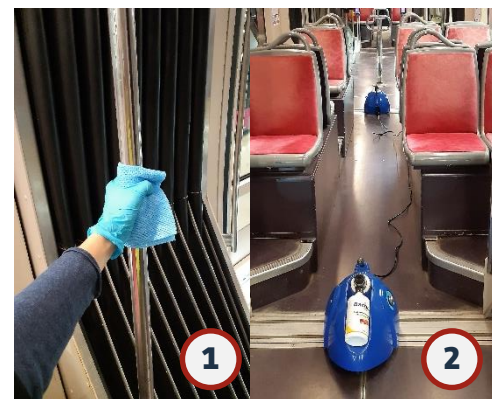
Next, the disinfectant bottles are inserted into the nebulisers, which are then placed in the rolling stock vehicles. Set the train interior size on the control dial and the nebulisers do the rest of the work, diffusing the disinfectant solution throughout the train interior (2). After five minutes, bacteria and viruses are destroyed, effectively and safely disinfecting surfaces. There is no exposure of the staff during the nebulisation.

Disinfection by nebulisation offers considerable time savings in comparison to pure manual disinfection.

CUSTOMER REFERENCES

Various industries around the world are seeing the benefits of this solution. Nebulisers have been used on several fleets of rolling stock due to their ability to quickly and effectively disinfect large areas and they are easily applicable across different vehicle types.

The applications started in early 2020 on fleets and depots of our customers in both France and Dubai. The solution performs well, without impact on operations or comfort.



FOR MORE INFORMATION:

Contact the Vendor on
Station One
www.station-one.com

Alstom
www.alstom.com

* Data communicated by the supplier

Disinfection by nebulisation / Healthier Mobility™ / EN / 05.2021 - Photo credits: ©ALSTOM 2021 – BACOBAN™ TRANSPORT

© ALSTOM SA 2020. All rights reserved. ALSTOM, the ALSTOM logo, all alternative versions and all mentioned trademarks are the trademarks of ALSTOM or ALSTOM Transport Technologies. Information contained in this document is indicative only. No representation or warranty is given or should be relied on that it is complete or correct or will apply to any particular project. This will depend on the technical and commercial circumstances. It is provided without liability and is subject to change without notice. Reproduction, use or disclosure to third parties, without express written authorisation, is strictly prohibited.

MATERIAL & OPERATIONAL DETAILS

NUMBER OF NEBULISERS



Note that for rolling stock composed of enclosed carriages, one or several devices shall be used per carriage. One option is use as many devices as the number of carriages. Another option is to use the same devices to treat different carriages. As an example, a rolling stock of 6 carriages can be treated with 3 devices by using twice the machines. Two sequences of disinfection are therefore needed.

Length to Treat	Number of Nebulisers
1m to 20m	1
21m to 40m	2
41m to 60m	3
61m to 80m	4

OPERATING TIME of a nebuliser

The table below provides the operating time for one device. Using more devices would divide the operating time by the number of devices.

Volume to Treat	30 m³	40 m³	50 m³	60 m³	70 m³	80 m³	90 m³	100 m³	110 m³	120 m³	130 m³
Operating Time of a nebuliser	4 min 24 sec	6 min 42 sec	9 min	10 min	11 min 43 sec	13 min 24 sec	15 min 42 sec	18 min	19 min 48 sec	21 min 36 sec	23 min 24 sec

PRODUCTS CONSUMPTION

The table below provides approximate values of product consumption that need **to be adjusted with empirical data** (each rolling stock design is slightly different therefore the numbers are not identical from one use case to another).

Length to Treat	Consumption 1 * bottle / nb of wipes (tram, metro, bus)	Consumption 1 * bottle / nb of wipes (trains)	Consumption 2 * (all Rolling Stocks)
10m	160 ml / 22 units	320 ml / 44 units	200 ml
20m	320 ml / 44 units	640 ml / 88 units	400 ml
30m	480 ml / 66 units	960 ml / 132 units	600 ml
40m	640 ml / 88 units	1280 ml / 176 units	800 ml
50m	800 ml / 110 units	1600 ml / 220 units	1000 ml
60m	960 ml / 132 units	1920 ml / 264 units	1200 ml
70m	1120 ml / 154 units	2240 ml / 308 units	1400 ml
80m	1280 ml / 176 units	2560 ml / 352 units	1600 ml

*Consumption 1 refers to the consumption during the step 1 of the method. The quantity in millimeter refers to the amount of liquid needed when using a sprayer (Bacoban® Transport DL 1% / Ready to Use Cloths). The quantity in units refers to the numbers of wipes needed when using ready to use wipes (Bacoban® Transport Ready to use Cloths). Consumption 2 refers to the consumption during the step 2 of the method (Bacoban® Transport DL 3%).

Refer to the Offerings available on StationOne for more details.

FOR MORE INFORMATION:

Contact the Vendor on
Station One
www.station-one.com

Alstom
www.alstom.com



OFFERINGS ON STATION-ONE – THE RAILWAY MARKET PLACE



Vaporiser / Nebuliser
X-VAPO

VAPORIZER

STATION ONE
The railway marketplace



DL3% 1L
X-A-DL3-6



DL3% 20L
X-A-DL3-20

DISINFECTION
(consumption 2)



Ready to Use Cloths
X-A-TUEK16



DL1% WB 5L
X-A-WB-5



DL1% WB 1L
X-A-WB-1



DL1% 20L
X-A-DL1-20



DL1% 5L
X-A-DL1-5



DL1% 500 mL
X-A-DL1K12

**CLEANING &
DISINFECTION**
(consumption 1)

Cleaning & Disinfection **Solution** – Manual & nebuliser

Starter Pack 1

WI



1 vaporiser
X-VAPO



24 x 1L
disinfectant
X-A-DL3-6



48 x 500 mL
cleaner disinfectant
X-A-DL1K12

Starter Pack 2

WI



1 vaporiser
X-VAPO



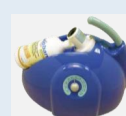
24 x 1L
disinfectant
X-A-DL3-6



4 x 5 L
cleaner disinfectant
X-A-DL1-5

Starter Pack 3

WI



1 vaporiser
X-VAPO



24 x 1L
disinfectant
X-A-DL3-6



96 x 50 cloths
cleaner disinfectant
X-A-TUEK16

Starter Pack 4

WI



1 vaporiser
X-VAPO



1 x 20 L
disinfectant
X-A-DL3-20



1 x 20 L
cleaner disinfectant
X-A-DL1-20

Starter Pack 5

WI



1 vaporiser
X-VAPO



2 x 20 L
disinfectant
X-A-DL3-20



1 x 5 L (dilute)
cleaner disinfectant
X-A-WB-5

**Work
Instruction
Provided**

Big Starter Pack A

WI



4 vaporiser
X-VAPO



4 x 20 L
disinfectant
X-A-DL3-20



2 x 5 L (dilute)
cleaner disinfectant
X-A-WB-5

Big Starter Pack B

WI



4 vaporiser
X-VAPO



60 x 1L
disinfectant
X-A-DL3-6

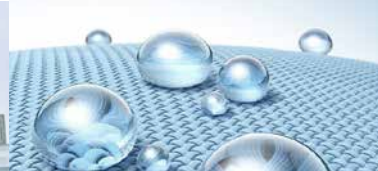


120 x 500 mL
cleaner disinfectant
X-A-DL1K12

FOR MORE INFORMATION:

Contact the Vendor on
Station One
www.station-one.com

Alstom
www.alstom.com



Surface disinfectant for use in vaporiser

- Residual antimicrobial effect for up to 5 days
- effective against Coronavirus
- pleasant odour

Intended use

Bacoban^{DL} 3% is an alcohol-free ready-to-use disinfecting solution with residual antimicrobial effect for use in our vaporiser.

Only for use in combination with our vaporiser.

Remove the bottle cap and screw the bottle on the inner thread of the vaporiser diffuser attachment carefully and tightly. For further information please follow the instructions in the manual.

Efficacy

Testing according to EN14476 (dirty conditions)	time of exposure
Virucidal activity against enveloped viruses (incl. Corona-virus , HIV, HBV, HCV, Influenza, Herpes, Ebolavirus....)	5 min
Rotavirus	5 min
Norovirus	30 min
Human papillomavirus (HPV)	60 min
Adenovirus	240 min
EN guidelines	
EN 1040 (bactericidal)	5 min
EN 1275 (yeasticidal)	5 min
EN 1276 (bactericidal)	5 min
EN 1650 (yeasticidal)	5 min
EN 13697 (bactericidal)	15 min
EN 13727 (bactericidal)	5 min
EN 13624 (yeasticidal, fungicidal)	15 min
EN 14561 (bactericidal)	5 min
EN 14562 (yeasticidal)	60 min
EN 16615 (bactericidal, yeasticidal) (4 field test)	5 min
VAH list (tested according to VAH-guidelines 2015)	
bactericidal and yeasticidal	5 min

Residual antimicrobial effect for up to 5 days (tested according to ASTM E 2180).



Please note:

Do not stay in the same room whilst disinfection is being carried out with the vaporiser. Keep windows and doors closed.

Ingredients

100 g of solution containing: Benzalkonium chloride 0,78 g, sodium pyrithione 0,075 g, polycondensates, perfume substances, purified water.

Does not contain formaldehyde. Does not contain phenols.

Storage

Store **Bacoban^{DL} 3%** at +5 to +25°C. Protect from frost and direct sunlight.

Type of delivery

Product	Packaging unit	Item number
Bacoban^{DL} 3% Bottle	6 x 1000 ml	BAC1DL3
Bacoban^{DL} 3% Canister	1 x 20 l	BAC20DL3

Test reports

Our products are tested extensively. We are pleased to provide you with our microbiological reports on request.

Safety notice

Safety data sheet available on request.

Important! The residual antimicrobial effect of **Bacoban^{DL} 3%** is no excuse for not carrying out necessary disinfection measures in cases of visible and/or questionable contamination!

Use disinfectants safely. Always read label and product information before use.

Biocide Reg. No: N-37828 (D)



Ready-to-use solution for alcohol-free surface disinfection and cleaning

- Residual antimicrobial effect for up to 10 days
- effective against Coronavirus
- excellent skin tolerance
- high cleaning effect
- practical applicability tested in the 4-field-test



dermatest-guarantee.de



Intended use

Bacoban®DL is a ready-to-use, waterbased solution for surface disinfection and cleaning with residual, antimicrobial effect.

Directions for use

Apply **Bacoban®DL** onto the surface and spread evenly with a cloth respectively take a ready-to-use wipe from the package and spread the liquid evenly on the surface. Then let dry. Don't rinse or rub dry.

Efficacy

Testing according to EN14476 and guideline DVV / RKI	time of exposure
Virucidal activity against enveloped viruses (incl. Coronavirus , HIV, HBV, HCV, Influenza, Herpes, Ebolavirus....)	5 min
Rotavirus	5 min
Norovirus	30 min
Human papillomavirus (HPV)	60 min
VAH list (tested according to VAH-guidelines 2015)	
bactericidal and yeasticidal	5 min
EN guidelines	
EN 1040 (bactericidal)	5 min
EN 1275 (yeasticidal)	5 min
EN 1276 (bactericidal)	5 min
EN 13727 (bactericidal)	5 min
EN 13624 (yeasticidal, fungicidal)	5 min
EN 1650 (yeasticidal)	5 min
EN 13697 (bactericidal)	15 min
EN 14561 (bactericidal)	60 min
EN 14562 (yeasticidal)	60 min
EN 16615 (bactericidal, yeasticidal) (4 field test)	5 min

Residual antimicrobial effect for up to 10 days (tested according to ASTM E 2180).

Dermatologically tested (epicutaneous test with 30 test persons): excellent skin tolerance.

Ingredients

100 g of solution containing: Benzalkonium chloride 0,26 g, sodium pyrithione 0,025 g, polycondensates, perfume substances, purified water.

Ingredients according to regulation (EC) No 648/2004: less than 5 % cationic surfactants, disinfectants, perfumes.

Does not contain formaldehyde. Does not contain phenols.

Storage

Store **Bacoban®DL** at +5 to +25°C. Protect from frost and direct sunlight.

Type of delivery

Product	Packaging unit	Item number
Bacoban®DL Bottle	12 x 500 ml	BAC500DL
Bacoban®DL Wipes	16 x 50 pcs	BACDLTUE
Bacoban®DL Canister	1 x 5 l	BAC5000DL1

Test reports

Our products are tested extensively. We are pleased to provide you with our microbiological and dermatological reports on request.

Safety notice

Safety data sheet available on request.

Important! The residual antimicrobial effect of **Bacoban®DL** is no excuse for not carrying out necessary disinfection measures in cases of visible and/or questionable contamination!

Use disinfectants safely. Always read label and product information before use.

Biocide Reg. No: N-34071 (D), 262/17/L (Lu)