# Crystalusion®
## Active Bacteria Protection

## TACKLING THE PANDEMIC WITH AWARD WINNING NANOTECHNOLOGY



**RESIDUAL EFFECT**

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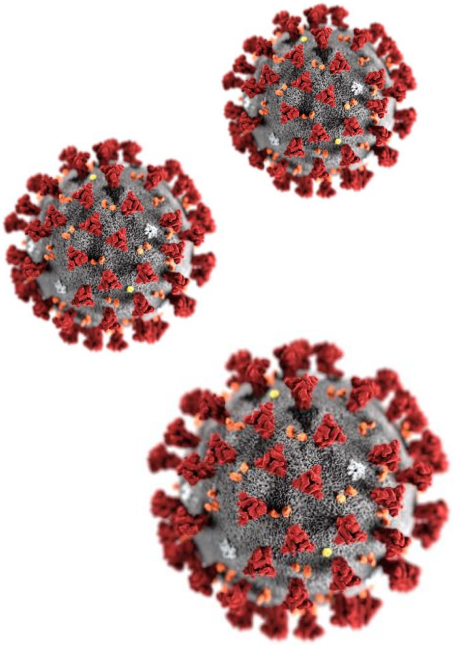
# Introduction



The current **coronavirus pandemic** has resulted in a huge focus being placed on the cleaning and disinfecting routines adopted in the healthcare arena, particularly due to the risk of fomite transmission of the virus in these environments. Conventional disinfectants commonly used in the healthcare sector whilst effective immediately require repeated and frequent application. When the disinfectant has evaporated, the treated area is again subjected to microbial strain and until the next disinfection, a hygiene gap results. During this gap there can be a repeated settlement by micro-organisms and a re-infection of the surface. Crystalusion®+ is a critical component in closing this gap and helping solve the current crisis faced by the healthcare industry in terms of infection and contamination control.

# What is Crystalusion®+ ?

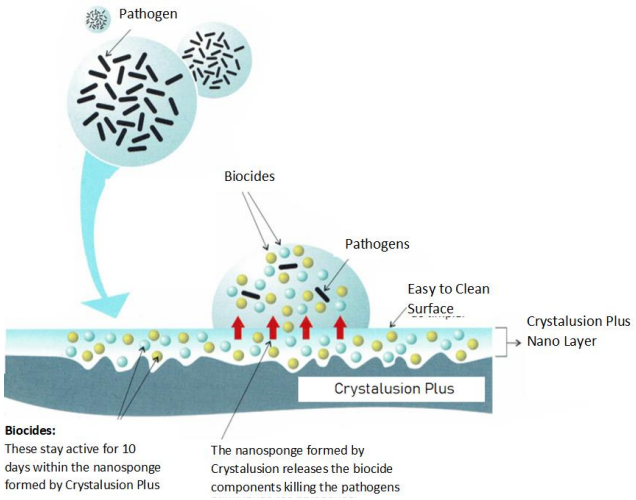
Crystalusion®+ is a product of Crystalusion Limited a global provider of cutting-edge nano-layered coatings with both protective and disinfecting properties. With our award-winning technology, virtually any surface in almost all environment can be coated and protected for up to 10 days (without the need for reapplication during this period). Crystalusion®+ is a surface disinfectant consisting of a semi-permanent layer of nano liquid glass. This layer creates an invisible, anti-microbial protective coating over a surface and holds within it, anti-pathogen agents, which are slowly released whilst the surface is in place. The product is medical laboratory tested and is proven to kill bacteria, fungi and viruses on contact, including **coronavirus** with a 99.9% efficacy and is also effective against a wide range of pathogens (including hepatitis, influenza and HIV).


Whilst being tested by renowned institutions (following the ASTM E2180 Protocol used to establish long term efficacy) not only was the long term antibacterial effect confirmed but additional testing indicated that the liquid glass protection characteristics of Crystalusion®+ created “easy-to-clean” surfaces, reducing the cleaning time of the protected surfaces by approximately 50%. Crystalusion®+is biocompatible (tested under the GLP conditions according to the DIN EN ISO10993-1) and manufactured to medically approved standards.

# Uses for Crystalusion®+ in Healthcare

Crystalusion®+ can be applied on almost any substrate including metals, ceramics, plastics and textiles and is therefore suitable for disinfection of all surfaces in the healthcare environment (from those in operating theatres, wards, ambulances and toilets right down to door knobs, lift buttons and hand railings in communal areas).


Crystalusion®+ is also supplied as a "device protection pack" specifically designed to protect screens and hand-held devices which are known to harbour and facilitate the transmission of bacteria, viruses and pathogens. This version of the product is ideal for use on shared mobile/smart devices and touch screens on medical equipment that are frequently shared by multiple users. The product can be layered and overtime, frequent usage increases its anti-microbial hydrophobic and oleophobic properties providing additional protection to the surface it is applied to.




**Biocide Registration Number: N-90456**

# Crystalusion®+ General Description

| | |
|---|---|
| **KEY FEATURES** | • 10 day continuous protection with every application<br>• Active antibacterial and antiviral protective layer<br>• Can be applied on all surfaces. |
| **SAFETY** | • Water-based product<br>• Safe for end user during application.<br>• Environmentally friendly<br>• Dermatologically tested (epicutaneous test) revealing good skin tolerance. |
| **CHEMISTRY** | Crystalusion®+ contains:<br>• Benzalkonium chloride<br>• Sodium pyrithione<br>• Polycondensates,<br>• Perfume substances<br>• Purified water.<br>In accordance with regulation (EC) No 648/2004, Crystalusion®+ contains less than 5 % cationic surfactants, disinfectants, perfumes making it safer to apply than other disinfectants. |

# Crystalusion®+ Application Instructions

Simple 3 Step Application Procedure


1. Clean the surface eliminating any dirt, grease or grime.
2. For hard surfaces spray Crystalusion®+ on a microfibre cloth and wipe the surface. For soft surfaces spray directly on the substrate.
3. Allow the surface to dry enabling the coating to adhere to the surface.

# Virus Efficacy

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- Adenovirus (WB 2,0 %)
- Andes virus
- Arbovirus
- Batai virus
- Bunyamwera virus
- California encephalitis virus
- Central European encephalitis (CEE) virus
- Chapare virus
- Chikungunya virus
- Coronavirus (incl. SARS- and MERS-CoV)
- Crimean-Congo haemorrhagic fever virus (CCHVF)
- Cytomegalo virus (CMV)
- Dengue virus
- Dobrava-Belgrade virus
- Duvenhage virus
- Eastern equine encephalitis virus
- Ebola virus
- Epstein-Barr virus (EBV)
- Everglades virus
- Guanarito virus
- Hantavirus
- Hantaan virus
- Hendra virus
- Hepatitis B virus (HBV)
- Hepatitis C virus (HCV)
- Hepatitis D virus
- Herpes simplex virus (HSV)
- Human coronavirus 229E
- Human coronavirus OC43
- Human immunodeciency virus (HIV)
- Human herpesvirus 6 (HHV-6)
- Human herpesvirus 7 (HHV-7)
- Human herpesvirus 8 (HHV-8)
- Human Metapneumovirus
- Human Papillomaviruses (HPV)
- Human T-lymphotropic virus
- Infuenza virus A (e.g. H1N1, H3N2, H5N1) and B
- Japanese encephalitis virus
- Junin virus
- Kyasanur Forest disease virus
- Louping ill virus
- Lassa virus
- Lujo virus
- Lymphocytic choriomeningitis virus (LCMV)
- Machupo virus
- Marburg virus
- Mayaro virus
- Measles virus
- MERS Coronavirus
- Molluscipoxvirus / Molluscum contagiosum virus
- Mokola virus
- Mumps virus
- Nipah virus
- Norovirus
- O´nyong-nyong virus
- Oropouche virus
- Parainfluenza virus
- Powassan virus
- Puumala virus
- Rabies virus
- Rift Valley fever virus
- Respiratory syncytial virus
- Ross River virus
- Rotavirus
- Rubella virus
- Russian spring-summer encephalitis (RSSE) virus
- Sabia virus
- Sandfly fever virus (e.g. Toskana virus)
- SARS coronavirus
- Semliki Forest virus
- Seoul virus
- Sindbis virus
- Sin Nombre virus
- St. Louis encephalitis virus
- Tacaribe virus
- Tick-borne encephalitis virus (TBEV)
- Torovirus
- Usutu virus
- Vaccinia virus
- Variola virus
- Varicella-zoster virus
- Vesicular stomatitis virus
- West Nile virus
- Yellow fever virus
- Zika virus

# Antibacterial Efficacy

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- Actinomyces israelii
- Actinomyces spp.
- Acinetobacter baumannii
- Acinetobacter lwoffi
- Acinetobacter spp.
- Aeromonas spp.
- Alcaligenes faecalis
- Alcaligenes spp. / Achromobacter spp.
- Alcaligenes xylosoxidans (inkl. ESBL/MRGN)
- Bacteroides fragilis
- Bartonella quintana
- Bordetella pertussis
- Borrelia burgdorferi
- Borrelia duttoni
- Borrelia recurrentis
- Brevundimonas diminuta
- Brevundimonas vesicularis
- Brucella spp.
- Burkholderia cepacia (inkl. MDR)
- Burkholderia mallei
- Burkholderia pseudomallei
- Campylobacter jejuni / coli
- Chlamydia pneumoniae
- Chlamydia psittaci
- Chlamydia trachomatis
- Citrobacter spp.
- Corynebacterium diphteriae
- Corynebacterium pseudotuberculosis
- Corynebacterium spp.
- Corynebacterium ulcerans
- Coxiella burnetii
- Enterobacter aerogenes
- Enterobacter cloacae(inkl. ESBL/MRGN)
- Enterococcus faecalis (inkl. VRE)
- Enterococcus faecium (inkl. VRE)
- Enterococcus hirae
- Escherichia coli (inkl. EHEC, EPEC, ETEC, EIEC, EAEC, ESBL/MRGN, DAEC)
- Francisella tularensis
- Haemophilus inuenzae
- Helicobacter pylori
- Klebsiella granulomatis
- Klebsiella oxytoca (inkl. ESBL/MRGN)
- Klebsiella pneumoniae (inkl. MDR, ESBL/MRGN)
- Leclercia adecarboxylata
- Legionella pneumophila
- Leptospira interrogans
- Leuconostoc pseudomesenteroides
- Listeria monocytogenes
- Micrococcus luteus
- Morganella spp.
- Mycoplasma genitalium
- Mycoplasma pneumoniae
- Neisseria meningitidis
- Neisseria gonorrhoeae
- Nocardia asteroides
- Orientia tsutsugamushi
- Pantoea agglomerans
- Paracoccus yeei
- Prevotella spp.
- Propionibacterium spp.
- Proteus mirabilis (incl. ESBL/MRGN)
- Proteus vulgaris
- Providencia rettgeri
- Providencia stuartii
- Pseudomonas aeruginosa
- Pseudomonas spp.
- Ralstonia spp.
- Rickettsia prowazekii
- Rickettsia typhi
- Roseomonas gilardii
- Salmonella enteritidis
- Salmonella paratyphi
- Salmonella spp.
- Salmonella typhi
- Salmonella typhimurium
- Serratia marcescens (incl. ESBL/MRGN)
- Shigella sonnei
- Sphingomonas spp.
- Staphylococcus aureus (incl. MRSA, VRSA)
- Staphylococcus capitis
- Staphylococcus epidermidis (incl. MRSE)
- Staphylococcus haemolyticus
- Staphylococcus hominis
- Staphylococcus lugdunensis
- Staphylococcus pasteuri (incl. MRSA, VRSA)
- Staphylococcus saprophyticus
- Stenotrophomonas maltophilia
- Streptococcus pneumoniae (incl. PRSP)
- Streptococcus pyogenes
- Streptococcus spp.
- Treponema pallidum
- Vibrio cholerae
- Yersinia enterocolitica
- Yersinia pestis
- Yersinia pseudotuberculosis

# Antifungal Efficacy

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- Candida albicans
- Candida auris
- Candida famata
- Candida glabrata
- Candida guilliermondii
- Candida krusei
- Candida parapsilosis
- Candida stellatoidea
- Candida tropicalis
- Cryptococcus albidus
- Cryptococcus gattii
- Cryptococcus laurentii
- Cryptococcus neoformans
- Epidermophyton floccosum
- Microsporum audouinii
- Microsporum canis
- Microsporum cookei
- Microsporum distortum
- Microsporum ferrugineum
- Microsporum fulvum
- Microsporum gypseum
- Microsporum langeronii
- Microsporum nanum
- Microsporum persicolor
- Microsporum racemosum
- Microsporum rivalieri
- Microsporum vanbreuseghemii
- Trichophyton concentricum
- Trichophyton equinum
- Trichophyton erinacei
- Trichophyton gourvilii
- Trichophyton interdigitale (formerly Trichophyton mentagrophytes)
- Trichophyton megninii
- Trichophyton quinckeanum
- Trichophyton rubrum
- Trichophyton schoenleinii
- Trichophyton simii
- Trichophyton soudanese
- Trichophyton tonsurans
- Trichophyton verrucosum
- Trichophyton violaceum
- Trichophyton vanbreuseghemii
- Trichophyton yaoundei

# Crystalusion®

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