LifeClean Disinfectant

Firmaet LifeClean International AB har indsendt produktet LifeClean Disinfectant til vurdering i CEI.

LifeClean Disinfectant er til overfladedesinfektion af synligt rene og tørre overflader på gulve og vægge, ikke-kritisk udstyr, inventar og kontaktpunkter, hvor man ønsker desinfektion med maksimal antimikrobiel effekt (”high-level” desinfektion).

LifeClean Disinfectant er i færdigblandet (ready-to-use) flydende form. LifeClean Disinfectant indeholder aktivstoffet: klordioxid (ClO_2) i koncentration på 400-200 ppm (det forventede range i koncentration i løbet af produktets holdbarhed). Produktet indeholder detergenter (amphoteriske tensider).

Konklusion

Der er dokumentation for, at LifeClean Disinfectant har antimikrobiel effekt under rene forhold på:

- Vegetative bakterier ved en kontakttid på 1 minut.
- Gær og svampe ved en kontakttid på 3 minutter.
- Virus ved en kontakttid på 1 minut.
- Tuberkel- og mykobakterier ved en kontakttid på 1 minut.
- Sporer ved en kontakttid på 5 minutter.

CEI finder LifeClean Disinfectant egnet til overfladedesinfektion af synligt rene og tørre overflader på gulve og vægge, ikke-kritisk udstyr, inventar og kontaktpunkter i den danske sundhedssektor, hvor man ønsker desinfektion med maksimal antimikrobiel effekt (”high-level” disinfection).

CEI vurderer ikke produktets eventuelt rengørende effekt.

CEI anbefaler, at rengøring og desinfektion udføres som 2 separate procedurer, idet dette er mere effektivt til at fjerne mikroorganismerne end rengøring alene, desinfektion alene eller rengøring og desinfektion i en og samme procedure.

Da aktivstoffet klordioxid (ClO_2) er et nyt aktivstof til overfladedesinfektion i den danske sundhedssektor anbefaler CEI, at man følger lokale anbefalinger i forhold til arbejdsmiljø og patientsikkerhed ved anvendelse af LifeClean Disinfectant.
Dette gælder også andre klorbaserede desinfektionsprodukter til overfladedesinfektion.

Uddevalla, May 7, 2020

LifeClean - Coronavirus

LifeClean's recommendation is

As of today, EN 14476 is still the highest Viricidal standard.

"LifeClean is effective against the viruses listed in EN 14476 including ***Adenovirus, Poliovirus and Murine norovirus*** which are **non-enveloped viruses**, these are much more difficult to eliminate than **enveloped viruses**. Coronavirus falls in the virus family Coronaviridae, in the order of Nidovirales and is a **enveloped virus**. See excerpts in the virus list (which includes Coronavirus) according to EN 14476 below and appendix "Annex B in EN 14476…". "

Test result EN 14476:2013

The requirement to pass the test is at least 4 logs, we succeeded with 5-6 logs within 1 min.

Test norm	Test type	Organism	Log reduction required	Log reduction achieved	Laboratory	Clean or dirty	Contact time	LC Std
EN 14476:2013 (Phase 2, Step 1)	Quantitative suspension test	**Poliovirus** Type 1, LSc-2aba	4 log_{10}	>5 log_{10}	Dr. Brill + Partner GMBH Laboratory, Germany	Clean	1 min	200
		Adenovirus Type 5, strain Adenoid 75, ATCC VR-5		>6 log_{10}				200
		Murine Norovirus Strain S99		>5 log_{10}				200

We would like to share with you our latest **Coronavirus** test at DR. BRILL + PARTNER GMBH Laboratory in Germany. LifeCleans Disinfectant (50 PPM) was tested under clean condition with the test organism of *bovine coronavirus (BCoV)* based on EN 14476:2015. The test results showed that *bovine coronavirus (BCoV)* was sufficiently inactivated (≥ 5.5 log reduction) in **only 30 seconds**. According to this virucidal efficacy test, LifeClean Disinfectant is considered as a sufficient disinfectant for **Coronavirus** when used in accordance with the LifeClean instruction manual.

Excerpt from test report L20-0125BC-2 BCoV Screening EN 14476

DR. BRILL + DR. STEINMANN
INSTITUTE FOR HYGIENE AND MICROBIOLOGY

Test #6479 in 04/2020
Result no.: L20/0125BC.3, Version 01
Date: 09/04/2020
Client: Lifeclean International AB
Confirmation no.: 212786

Table 1: Screening of LifeClean Disinfectant against bovine coronavirus (BCoV) based on EN 14476

Product	Conc. (ClO_2)	Soil load	Cytotoxicity log_{10} CD_{50}/ml	Titre virus control (log_{10} $TCID_{50}$/ml)	Virus titre (log_{10} $TCID_{50}$/ml) after				Reduction factor after			
					0,5 min	1 min	2 min	5 min	0,5 min	1 min	2 min	5 min
LifeClean Disinfectant	200 ppm	clean	1,50	7,00	≤ 1,50	n.d.	n.d.	n.d.	≥ 5,50	n.d.	n.d.	n.d.
LifeClean Disinfectant	50 ppm	clean	1,50	7,00	≤ 1,50	n.d.	n.d.	n.d.	≥ 5,50	n.d.	n.d.	n.d.

n.d = not done n.a. = not applicable

Comment: A disinfectant is having virus-inactivating efficacy if a reduction factor of at least ≥ 4 log_{10} (inactivation of ≥ 99.99 %) can be demonstrated.

clean: 0.3 g/l BSA; dirty: 3.0 g/l BSA + 3.0 ml/l erythrocytes

LifeClean is a research-based company where evidence and reliable reports are of paramount importance to us. We have therefore done a screening test at an independent laboratory; MSL Microbiological Solutions Ltd.

<u>Below screening test makes us convinced that we have full effect against Coronavirus.</u>
MSL's test on "Feline coronavirus" is closely related as Corona COVID -19. LifeClean passed the test within 1 minute with:>4.25 log_{10}.

Test result EN 14476:2013+A2:2019

Test norm	Test type	Organism	Log reduction required	Log reduction achieved	Laboratory	Clean or dirty	Contact time	LC Std
EN 14476:2013+ A2:2019 (Phase 2 Step1)	Quantitative suspension test, Screening	Feline coronavirus, Strain Munich	4 log_{10}	>4.25 log_{10}	MSL, Microbiological Solutions Ltd, United Kingdom	Clean	1 min	200

LIFE CLEAN

Excerpt from test report EN 14476:2013+A2:2019

MSL SOLUTION PROVIDERS

Test identification Reference: J001375 **Reduced Screening test based on -** BS EN 14476:2013+A2:2019

Test Result Summary

The test product shown a log reduction of 4.25 when tested under the conditions stipulated in this report with a contact time of 1 minute.

The test product shown a log reduction of 4.33 when tested under the conditions stipulated in this report with a contact time of 2 minutes.

The members of the family Coronaviridae are enveloped and have a positive sense RNA genome. Coronaviruses have a distinct morphology with an outer 'corona' of embedded envelope spikes. These viruses cause a broad spectrum of animal and human disease.

Important notice

Contact time is the time required for a disinfectant to disinfect and **drying time** is the time within a wetted surface dries. A disinfectant is absolutely useless if the contact time is longer than the drying time. Lifeclean requiring only a 1 minute contact time to kill viruses including corona will be effective without the need to rewet the surface.

We recommend that you follow proper cleaning and disinfection procedures with LifeClean (see user instructions) and WHO guidelines for Corona outbreaks. For user instructions and safety data sheet see www.lifeclean.se

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From Annex B in EN 14476:
Examples of viruses which may contaminate human medical instruments, hands, surfaces (*Enveloped viruses are in bold*)

NOTE This list is not exhaustive.

Blood

Enterovirus
Filoviridae
Flavivirus
Herpesviridae
Hepatitis A Virus (HAV)
Hepatitis B virus (HBV)
Hepatitis C virus (HCV)
Hepatitis Delta virus (HDV)
Human Immunodeficiency Virus (HIV)
Human T Cell Leukemia Virus (HTLV)
Parvovirus B 19

Respiratory tract

Adenovirus (Mast-)
Coronavirus
Enterovirus
Herpesviridae
Influenza Virus
Paramyxoviridae
Rhinovirus
Rubella Virus

Neural tissue, ear & nose, eye

Adenovirus (Mast-)
Enterovirus
Herpesviridae
Measles Virus
Human Immunodeficiency Virus (HIV)
Polyomavirus
Rabies Virus
Rubella Virus

Gastro-intestinal

Adenovirus(Mast-)
Caliciviridae
Coronavirus
Astrovirus
Enterovirus
Hepatitis A Virus (HAV)
Hepatitis E Virus (HEV)
Rotavirus

Skin, breast and/or milk

Enterovirus
Herpesviridae
Human Immunodeficiency Virus (HIV)
Human T Cell Leukemia Virus (HTLV)
Papillomavirus
Poxviridae

Spleen and lymph nodes (see also „Blood“)

Human T Cell Leukemia Virus (HTLV)
Human Immunodeficiency Virus (HIV)

Dental procedure

Adenovirus(Mast-)
Enterovirus
Herpesviridae
Hepatitis C Virus (HCV)
Hepatitis Delta Virus (HDV)
Human Immunodeficiency Virus (HIV)

Hepatitis B virus (HBV)

Urogenital tract

Hepatitis B Virus (HBV)
Herpesviridae
Human Immunodeficiency Virus (HIV)
Human T Cell Leukemia Virus (HTLV)
Papillomavirus
Polyomavirus