FarmKleen

Cleaner incorporating Lonza Biocide.

Contents

An Introduction to FarmKleen Disinfectant Cleaner

A - General Information

A1 FarmKleen Disinfectant Cleaner - A multipurpose cleaner and disinfectant incorporating a broad-spectrum sterilising solution active against both gram positive and gram negative bacteria, fungicide and mildewcide.

The active ingredient is manufactured by Lonza and is active against envelope viruses (e.g. hepatitis B, HIV) and has a tolerance for anionic contaminants and hard water. It maintains efficacy in presence of heavy organic soiling such as blood and protein with worldwide acceptance based on registrations approval and official lists.

The Lonza biocide will kill and continue to kill for up to 72 hours organisms such as Aspergillus Niger, Hepatitis B and Influenza virus, as well as more common organisms such as E. coli, Staphylococcus, Streptococcus and Salmonella. The most resistant strains of fungi such as Trycophyton interdigitalae are completely and rapidly destroyed. Even the spore covering of the most difficult spore formers such as Bacillus subtilis, is penetrated within 10 minutes of exposure to Lonza solutions.

A2 Active Agent

The active agent in the Lonza biocide is N, N-Didecyl Dimethyl Ammonium Chloride

R CA3

N +

R CA3

Cl-

R = C10 H21

A3 Areas of Use

Disinfectant and disinfectant cleaner for hospitals, food industry, industrial kitchen applications, animal husbandry including hatcheries, poultry and pig premises.

Laundry disinfectant, Fungicide, Wood treatment Water treatment, Slimicide, Hand Sanitiser

Algaecide e.g. shower areas, walls, swimming pools etc

CAS No.

7173-51-5

EINECS No.

230-525-2

UN No. 2920

FarmKleen Disinfectant Cleaner including Lonza biocide:

- Is a one-step disinfectant cleaner that is effective against a broad spectrum of bacteria, is virucidal (including HIV-1 and HBV), fungicidal, and inhibits the growth of mould and mildew and their odours when used as directed.

- Is an effective one-step sanitiser-cleaner for use on food contact surfaces.

- Will deodorise surfaces in restrooms and toilet areas, behind and under sinks and counters, rubbish bins and rubbish storage areas, and other places where bacterial growth and cause mal odours.

- Is an effective fungicide against Trichophyton mentagrophytes (the athlete's foot fungus) when used on surfaces in areas such as locker rooms, dressing rooms, shower and bath areas and exercise facilities.

- Contains no (phosphates or) phosphorous (compounds)

- Is a no-rinse neutral pH disinfectant cleaner that disinfects, cleans and deodorises in one labour saving step.

- Can be used with a mop and bucket, trigger sprayers, sponge or by soaking.

- Provides effective cleaning strength that will not dull most floor finishes and does not require a rinse prior to recoat.

- Improves labour results by effectively controlling odours.

- Cleans, shines, deodorises, and disinfects hard nonporous household surfaces. Inhibits the growth of mould and mildew, leaving bathrooms & kitchens clean and smelling fresh.

- Kills household germs; effective against Pseudomonas, Staphylococcus aureus and Streptococcus faecalis, Influenza and Trichophyton mentagrophytes.

- Is a neutral pH multi-surface cleaner, deodoriser, and disinfectant. Use on windows, mirrors and other glass surfaces.

A4 General Sanitisation

Used as a general sanitizer in kitchens, sick rooms and general traffic areas this product is particularly effective where longevity is required. Use as a spray between major clean-ups to reduce cross infection. Particularly useful in kitchens and restaurants where there is a high risk of cross-contamination Auriel Disinfectant Cleaner is also used in toilets, locker rooms, laundries and refuse disposal areas and for food preparation surfaces.

A5 Floor Cleaning

FarmKleenDisinfectant Cleaner is one of the first products of its type and gives outstanding protection and cleaning properties on the most difficult to clean slip resistant flooring. This product has residual active protection for up to 72 hours.

A6 Biodegradability

Disinfectant Cleaner formulations are totally biodegradable. The surfactants contained in the formulations comply with the biodegradability criteria as laid down in regulation (EC) No. 648/2004 on detergents. The active ingredient is biodegradable according to OECD confirmatory test.

A7 Shelf Life

FarmKleen Disinfectant Cleaner formulations can be stored in their sealed original packaging for a two-year period.

Cidal effectiveness of FarmKleen formulations based on LB2270/80 biocide

Please note that this list is not exhaustive

B1 BACTERIA

Bacillus cereus
Bacillus stearothermophilus
Bacillus subtilis
Brevibacterium animonagenes
Brucella abortus
Chlamydia psittaci
Corynebacterium diptheriae Desulfovibrio desulfuricans Enterobacter aerogenes Enterobacter clocae Enterococcus faecium Escherichia coli
Escherichia coli (EHEC) Escherichia hirae Klebsiella pneumoniae
Klebsiella pneumoniae (MRKP) Lactobacillus casei
Legionella pneumophilia
Leuconostoc mesenteroides Listeria monocytogenes Micrococcus lysodeiticus Mycobacterium smegmatis Mycobacterium terrae Mycobacterium tuberculosis Nocardia asteroids Penicillium sp Proteus mirabilis Proteus vulgaris Pseudomonas aeruginosa Pseudomonas fluorescens Salmonella abortus equi Salmonella choleraesuis Salmonella dublin Salmonella enteritidis Salmonella infantis Salmonella manhatten Salmonella newport Salmonella panama Salmonella paratyphi Salmonella schottmuelleri Salmonella typhi Salmonella thyphimurium Sarcina lutea
Serratia marcescens Shigella dysenteriae Shigella flexneri Shigella sonnei Staphylococcus aureus Staphylococcus aureus (MRSA) Staphylococcus epidermidis Streptococcus agalactiae Streptococcus faecalis (MRSF) Streptococcus pneumoniae Streptococcus pyogenes Vibrio cholerae
Yersinia enterocolitica

B2 FUNGI/YEASTS

Absidia corymbifera Aspergillus niger Aspergillus versicolor Candida albicans
Cladosporium cladosporiodes Microsporum gypseum Penicillium glaucum Penicillium verucosum Saccharomyces cerevisiae Trichophyton mentagrophytes

B3 ALGAE

Chlorella pyrenoidosa Chlorella vulgaris Phormidium faveolarum
Phormidium inundatum (black
mould) Phormidium uncinatum
Scenedesmus obliquus

B4 VIRUSES

Adenovirus
Canine parvovirus
ECBO virus
Feline calicivirus (Norwalk virus surrogate) Grippal virus
Hepatitis B Herpes simplex HIV-1 (AIDS) Influenza Newcastle disease Orthomyxovirus Poliovirus
Rhabdovirus Rotavirus
Rubella Tuberculosis Vaccinia

A selection of microbiological test results for LB2270/2280

C. 1 . Ba c t e r i a

C.1.1. USA C.1.1.1.
Biotech Control Laboratories Inc. Waterford, N.Y. Report 2670
August 25, 1970
Test Method: API-38 test Test organisms Pseudomonas fluorescens Bacillus cereus Desulfovibrio desulfuricans
C.1.1.2.
Biotech Control Laboratories Inc. Waterford, N.Y. Report L-2872
May 4, 1972
Test method: Germicidal and Detergent Sanitizers Method (in presence of hard water) Test organisms
Staphylococcus aureus ATCC 6538
Escherichia coli ATCC 11229
C.1.1.3.
Biotech Control Laboratories Inc. Waterford, N.Y. Report BCI-0670 (1970)
Test method: Use dilution test
Test organisms
Staphylococcus aureus ATCC 6538
Salmonella cholerasuis ATCC 10708
Pseudomonas aeruginosa ATCC 15442
Effective concentration
2.0 ppm
2.0 ppm
7.5 ppm
Germ reduction
99.9999%
99.9992%
Effective concentration
300 ppm
300 ppm
500 ppm

C.1.1.4.
Biotech Control Laboratories Inc. Waterford, N.Y. Report BCI-0670 (1970)
Test method: Use dilution test
Test organisms
Staphylococcus aureus ATCC 6538
Salmonella cholerasuis ATCC 10708
Phenol Coefficient
1000
1000
C.1.1.5.
Biotech Control Laboratories Inc. Waterford, N.Y.
Report: l-6172
September 13, 1972
Test method: Agar plate AATCC 90-1965T
Results: LONZA BARDAC 22-70 at 200 ppm OWF at a dilution 1:5 of cloth to water demonstrates residual bacteriostatic activity versus: Test organisms
Staphylococcus aureus ATCC 6538
Klebsiella pneumoniae ATCC 4532
C.1.1.6.
Biotech Control Laboratories Inc. Waterford, N.Y.
Report L-6172a
September 6, 1972
Test method: Agar plate AATCC 90-1965T (Overlay technique)
LONZA BARDAC 22-70 at 200 ppm OWF at a dilution
1:5 of cloth to water demonstrates residual bacteriostatic activity versus:
Test organisms
Staphylococcus aureus ATCC 6538
Klebsiella pneumoniae ATCC 4532
C.1.1.7.
Biotech Control Laboratories Inc. Waterford, N.Y. Report L-9672
November 27, 1972
Test method: AATCC 100-1965T
Efficacy at 300 ppm OWF (= on weight of dry fabric) Test organisms
Staphylococcus aureus ATCC 6538
Klebsiella pneumoniae ATCC 4532 Killing rate
99.9%
99.9%
C.1.1.8.
Biotech Control Laboratories Inc. Waterford, N.Y. Report L-9772
December 6, 1972
Test method: Modified Petrocci & Clarke method for laundry activities, J.A.O.A.C.
Efficacy at 660 ppm OWF (= on weight of dry fabric) Test organisms
Staphylococcus aureus ATCC 6538
Klebsiella pneumoniae ATCC 4532
Killing rate
99,98%
99,92%
C.1.1.9.
Biotech Control Laboratories Inc. Waterford, N.Y. Report L-16074
December 3, 1974
Product: LONZA BARDAC 22-70

Test method: Minimum inhibitory concentration test (static)
Test organisms
Leuconostoc mesenteroides ATCC 10830a: Test method: Killing dilution test (cidal)
Test organisms
Leuconostoc mesenteroides ATCC 10830a:
C.1.1.10.
Biotech Control Laboratories Inc. Waterford, N.Y. Report L-2773
April 10, 1973
Test method: Agar plate AATCC 90-1965 T Product: LONZA BARDAC 22-70
Test organisms
Klebsiella pneumoniae ATCC 4352
Effective concentration Moderate activity Complete inhibition
C.1.1.11.
LONZA Inc. Fair Lawn/Report Technical Services
Laboratories
February 9, 1979
Test method: As described in the report
Product: LONZA BARDAC 22-70
Test organisms Legionella pneumophilia Effective concentration
32 ppm
16 ppm
Effective concentration
0.75 ppm
Effective concentration
1-2 ppm
100 ppm
175 ppm
Contact time
15 min
2 hrs
C.1.1.12.
Southern Research institute, Birmingham AL, USA Report 7898-4-93-1
July 8, 1993
Test method: AOAC Use-Dilution Test Efficacy of quaternaries in presence of Vibrio cholerae
Effective concentration
420 ppm Contact time
10 min
7
C.1.2. Germany
C.1.2.1.
Institute of Hygiene, Mainz
Prof. Dr. J. Borneff
January 12, 1977
Report and investigation to assess the influence of standardised hard water
Test method: DGHM
Product: LONZA BARDAC 22-70
Hard water has no influence on the microbiological efficacy.
C.1.2.2.
Technical University, Munich, Prof. Mändl
December 8, 1977
Report and certificate on the suitability for use in breweries.

Product: LONZA BARDAC 22-70
Effective concentration
0.05 – 0.1%
0.1%
Application area Normal disinfection with short contact time
C.1.2.3.
Prof. Dr. med R. Schubert, Frankfurt/M May 20, 1988
Report and certificate on biocidal activity.
Test method: DGHM, qualitative suspension test
Product: LONZA BARDAC 22-70
Test organisms
Listeria monocytogenes Typ 4
Listeria monocytogenes Typ 4
C.1.2.4.
Prof. Dr. med. J. Borneff, Mainz
June 21, 1980
Report and certificate on comparative activity of
LONZA BARDAC 22-70 and other
Dialkyl-Quats and Benzalkonium compounds: Test method: DGHM quantitative suspension and surface test
Test organisms: Staphylococcus aureus Pseudomonas aeruginosa Candida albicans
Result: In both tests Dialkyl-Quats and in
particular LONZA BARDAC 22-70 achieved the best results.
Effective concentration/ contact time 0.05% / 5 min
0.01% / 1 hr
8
C.1.2.5.
Prof. Dr. med. R. Schubert, Frankfurt/M
October 7,1985
Report and certificate on fungicidal activity (to
prevent athlete's foot).
Test method: DGHM surface test (ceramic tiles) Product: LONZA BARDAC 22-70
Test organisms
Microsporon gypseum
Trichopyton mentagrophtes ATCC 9533
C.1.2.6.
Prof. Dr. med. R. Schubert, Frankfurt/M
December 1, 1989
Report and certificate on fungicidal activity on untreated wood.
Test method: DGHM surface test. Product: LONZA BARDAC 22-70
Test organisms:
Candida albicans ATCC 10231
Trichophyton mentagrophytes ATCC 9533
C.1.2.7.
Prof. Dr. med. R. Schubert, Frankfurt/M January 28, 1989
Report and certificate on biocidal activity.
th
Effective concentration
0.25% / 1hr
0.25% / 1hr
Effective concentration

/contact time
0.5% / 1hr
0.25% / 4hrs
0.5% / 1hr
0.25% / 4hrs
Effective concentration
/contact time 0.25% /
4hrs 0.5% / 1hr 0.25% /
4hrs 0.5% / 1hr 0.25% /
4hrs 0.5% / 1hr 0.25% /
4hrs 0.5% / 1hr 0.25% /
Test method: Standard DGHM VII
Test organisms
Staphylococcus aureus ATCC 6538
Escherichia coli ATCC 11229
list.
4hrs 0.5% / 1hr
Pseudomonas aeruginosa ATCC 15442
Proteus mirabilis ATCC 14153
Candida albicans ATCC 10231
C.1.2.8.
Prof. Dr. med. R. Schubert, Frankfurt/M November 3, 1997
Report and certificate on biocidal activity in presence of multiresistant germs Test method: DGHM quantitative suspension test Test organisms
Staphylococcus aureus MR 1159 et.al.
Effective concentration
/contact time
0.005% / 5min
9
C.1.3. Switzerland
C.1.3.1.
Eidgenössische Forschungsanstalt für Milchwirtschaft (Federal Research Institute for the Milk Industry, Liebefeld, Bern. April 27,
1977
Disinfection of cleaned equipment, vessels and bottles in milk processing plants. Product: LONZA BARDAC 22-70
Effective concentration 0.1%
C.1.4. France
C.1.4.1.
Laboratoire National de la Santé, Montpellier
(National Laboratory of Health) October 24, 1977
Bactericidal activity
Test method: AFNOR NF T 72-151
Product: LONZA BARDAC 22-70
Test organisms
Pseudomonas aeruginosa IPP A 22
Escherichia coli ATCC 10536
Staphylococcus aureus ATCC 9144
Streptococcus faecalis ATCC 10541
Mycobacterium smegmatis IPP 7326
C.1.4.2.

Université de Paris-Sud, Châtenay-Malabry
(University of Paris-South) Prof. German
December 1, 1977
Bactericidal, fungicidal and virucidal activity
Test method: AFNOR NF-T 72-150
Product: LONZA BARDAC 22-70
Test organisms (Bateria) Pseudomonas aeruginosa IPP 22
Escherichia coli IPP 54.127
Staphylococcus aureus ATCC 9144
Streptococcus faecalis ATCC 10541
Mycobacterium smegmatis IPP 7326
C.1.4.3.
Laboratoire Central de l'alimentation F-Charenton
(Central Food Lab)
b.de Nazella, Report 60125 on bactericidal activity
June 7, 1977
Test method: AFNOR N FT 72-150
Product: LONZA BARDAC 22-70
Test organisms Pseudomonas fluorescens Escherichia coli IPP 54.127
Staphylococcus aureus IPP 53154
Streptococcus faecalis IPP 5855
Mycobacterium smegmatis IPP 7326
Ef f e c t iv e c o n c e n t r a t io n
0. 025%
0. 006%
0. 025%
0. 0125%
0.025%
Effective concentration
0.01%
0.01%
0.01%
0.01%
0.01%
Effective concentration
0.05%
0.05%
0.05%
0.05%
0.05%
10
11
C.1.4.4.
LABOREC, F-Levallois-Perret
June 18, 1982
Report on bactericidal activity
Product: LONZA BARDAC 22-70
Test organisms
Pseudomonas aeruginosa CNCM A 22
Escherichia coli CNCM 54127
Staphylococcus aureus CNCM 53154

Streptococcus faecalis CNCM 5855
Mycobacterium smegmatis CNCM 7326
Test method
AFNOR FT 72-150
AFNOR FT 72-151
AFNOR FT 72-171
C.1.4.5.
Université de Nancy F-Nancy
Hubert Vannesson, Thesis in odontological sciences, 1984
Tolerance of LONZA BARDAC 22-70 in presence of anionics, hard waterand organic matter. Result:
In presence of 300 ppm Na-Laurylsulfate, Staphyloccoccus aureus killed by 400 ppm LONZA BARDAC 22-70 (conventional quaternaries do not pass this test).
In presence of 1500 ppm $CaCO_3$ Escherchia
coli is reduced within 30 seconds from
106 to 101 by 200 ppm LONZA BARDAC 22-
70. In contact with organic matter LONZA BARDAC 22-70 shows three times higher activity than conventional quaternaries.
The bactericidal efficacy is maintained even in
presence of 5-10% of proteins (blood serum).
C.1.4.6.
Institut de Recherche Microbiologique, F-Mitry-Mory
Dr. A. Chantefort, February 6, 1990
Report on bactericidal activity
Product: LONZA BARDAC 22-70
Test method AFNOR N FT 72-190 (spectre 5) Test organisms
Pseudomonas aeruginosa CIP A 22
Escherichia coli CIP 54127
Staphylococcus aureus CIP 53154
Enterococcus faecium CIP 5855
Mycobacterium smegmatis CIP 7326
Effective concentration
0.025%
0.0125%
1.2%
Effective concentration
/contact time 1.0%
60min
1.0% 60min
1.0% 15min
1.0% 15min
1.0% 60min
12
C.1.4.7.
Laboratoire d'Hygiène de la Ville de Paris F-75013 Paris
September 27, 1991
Report on bactericidal activity
Test method AFNOR N FT 72-171 (hard water
30° French hardness)
Product: LONZA BARDAC 22-70
Test organisms
Pseudomonas aeruginosa CIP A 22

Effective concentration
0.05%
C.1.5. Italy
C.1.5.1.
Università di Milano, Prof. Antonio Fesce
January 20, 1978
Bacteriostatic activity
Test method: Suspension test
Product: LONZA BARDAC 22-70
Test organisms
Escherichia coli ATCC 10536
Salmonella parathyphi A Proteus vulgaris ATCC 881
Shigella somnei ATCC 9290
Klebsiella pneumoniae ATCC 10031
Streptococcus faecalis ATCC 10541
Streptococcus pneumoniae Sclavo III Streptococcus pyogenes A Staphylococcus aureus I.S.M
Sarcina lutea ATCC 9341
Corynebacterium diphtheriae ATCC 8032
Brucella abortus ATCC 9153
Lactobacillus casei ATCC 7469
Bacillus subtilis ATCC 6633
Pseudomonas aeruginosa ATCC 10145
Candida albicans ATCC 10231
Nocardia asteroides CBS Aspergillus niger ISM Penicillium sp.
Trichophyton mentragrophytes ATCC 8757
Bactericidal activity: Test method G.E Davis
Product: LONZA BARDAC 22-70
Test organisms Staphylococcus aureus I.S.M Escherichia coli ATCC 10536
Streptococcus faecalis
Corynebacterium diphteriae ATCC 8032
Pseudomonas aeruginosa ATCC 10145
Effective concentration
25 ppm
50 ppm
20 ppm
10 ppm
20 ppm
2.5 ppm
2.5 ppm
2.5 ppm
2.5 ppm
0.625 ppm
2.5 ppm
0.625 ppm
0.625 ppm
0.03125 ppm
20 ppm
12.5 ppm
3.125 ppm
1000 ppm
12.5 ppm

3.125 ppm
effective concentration
/contact times
5 ppm 1 min
25 ppm 1 min
10 ppm 1 min
5 ppm 1 min
100 ppm 1 min
13
C.1.5.2.
Università Cattolica del Sacro Cuore, 1-29100
Piacenza
Prof. Vittorio Bottazzi
October 25, 1978
Report on bactericidal activity
Product: LONZA BARDAC 22-70
Test conditions:
Temperature 45°C and 20°C
pH 6.5 and 5.0
Organic matter 0, 0.5 and 2.0% Test organisms
Escherichia coli ATCC 9637
Bacillus strearothermophilus NIDR C 953
Micrococcus lysodeiticus IMPC Streptococcus faecium Pseudomonas fluorescens IMPC
C.1.5.3.
Bio Lab, Centro di analisi e ricerche biologiche, I-Milano
Dr. A. Salvi, Dr. L. Magi
September 24, 1986
Report on bactericidal activity
Test method AFNOR N FT 72-151
Product: LONZA BARDAC 22-70
Test organisms
Pseudomonas aeruginosa CNCM A 22
Escherichia coli ATCC 10536
Staphylococcus aureus ATCC 9 144
Streptococcus faecalis ATCC 10 541
Mycobacterium smegmatis CNCM 7 326
C.1.6. Belgium
C.1.6.1.
Laboratorium Voor Hygiene, Katholieke Universiteit, (Laboratory for Hygiene, Catholic University) B-Leuven
Prof. Dr. H. van de Voorde and Dr. G. Reybrouck, Report on microbicidal activity
November 28, 1975
Method: Kelsey-Sykes Test
Product: LONZA BARDAC 22-70
Test organisms
Staphylococcus aureus NCTC 4163
Pseudomonas aeruginosa NCTC 6749
Escherichia coli NCTC 8196
Effective concentration
/contact time
0.05% / 1 min

0.05% / 1 min
0.05% / 1 min
0.05% / 1 min
0.05% / 1 min
Effective concentration
750 ppm
750 ppm
750 ppm
750 ppm
750 ppm
Effect concentration
0.05%
0.05%
0.05%
14
C.1.7. Netherlands
C.1.7.1.
Laboratorium Voor Hygiene, Katholieke Universiteit, (Laboratory for Hygiene, Catholic University) B-Leuven
Prof. Dr. H. van de Voorde and Dr. G. Reybrouck
December 10, 1975
Report on microbiocidal activity according to the standard required by the Dutch commision for Phytopharmacy
Product: LONZA BARDAC 22-70
Test method: 5-5-5
Test organisms
Staphylococcus aureus ATCC 6538
Pseudomonas aeruginosa ATCC 15442
Effective concentration
0.05%
0.05%
C.1.8. United Kingdom
C.1.8.1.
Disinfection Reference Laboratory
November 28, 1977
Microbiocidal activity under clean and dirty test conditions.
Test method: Kelsey-Sykes Capacity Test
Product: LONZA BARDAC 22-70
Test conditions: CLEAN Test organisms
Pseudomonas aeruginosa NCTC 6749
Test conditions: DIRTY Test organisms
Pseudomonas aeruginosa NCTC 6749
Effective concentration
0.05%
Effective concentration
0.07%
C.1.8.2.
Laboratory of the Government Chemist, GB- London
January 31, 1979
Microbiocidal activity of different quarternaries under clean and dirty test conditions.
Test method: Kelsey-Sykes Capacity Test

Results expressed on LONZA BARDAC 22-70
Test conditions: CLEAN Test organisms
Pseudomonas aeruginosa NCTC 6749
Test conditions: DIRTY Test organisms
Pseudomonas aeruginosa NCTC 6749
C.1.8.3.
Analytical Consulting and Research Chemists, Microbiologists.
May 30, 1987
Dilution Test
Test method: BS 6471
LONZA BARDAC 22-70
Effective concentration
0.075%
Effective concentration
0.07%
Effective concentration
96 ppm
17
C.1.8.4.
Healthcare Science Ltd., Hitchin, Herts. February 24, 1997
Efficacy test against E.coli 0157
Test method: BS 6471:1984 in presence of 5%
horse serum
Product: LONZA BARDAC 22-70
Result
Log 4 reduction after 10 min.
Effective concentration
175 ppm
C.1.9. Austria
C.1.9.1.
Prof. Dr. med. J. R. Möse, Graz
March 17, 1986
Report and certificate on biocidal activity Method: Standard DGHM VIIth list. Product: LONZA BARDAC 22-70
Test organisms
Staphylococcus aureus ATCC 6538
Escherichia coli ATCC 11229
Pseudomonas aeruginosa ATCC 15442
Proteus mirabilis ATCC 14153
Candida albicans ATCC 10231
Effective concentration
/contact time
0.25% / 4hrs 0.5% / 1hr
0.25% / 4hrs 0.5% / 1hr
0.25% / 4hrs 0.5% / 1hr
0.25% / 4hrs 0.5% / 1hr
0.25% / 4hrs 0.5% / 1hr
C.2. Fungi
C.2.1.
Biotech Control Laboratories Inc. USA-Waterford
N.Y.

Report BCI-0771
April 27, 1971
Test method: Fabric Mildew Fungistatic Test
Method
Test organisms:
Aspergillis niger ATCC 6275
Penicillium glaucum (USDA) Results:
No growth after 4 weeks on fabric test pieces treated with 660 ppm LONZA BARDAC 22-70
C.2.2.
Biotech Control Laboratories Inc. USA-Waterford N.Y. Report: L-5572
December 15, 1972
Test method: USDA Hard Surface Mildew Fungistatic Test Method (Ceramic Tiles) Test organisms:
Aspergillus niger ATCC 6275
Effective concentration
LONZA BARDAC 22-70
1000 ppm
16
C.2.3.
Biotech Control Laboratories Inc. USA-Waterford N.Y. Report: L-5872
October 2, 1972
Test method: A.O.A.C. Fungicidal Method
Test organisms:
Trychophyton mentagrophytes (T.interdigitale) NTH 640, ATCC 9533
Product: LONZA BARDAC 22-70
Contact time
5 min
10 min
15 min
Effective concentration
182 ppm
166 ppm
143 ppm
C.2.4.
Université de Paris-Sud, Châtenay-Malabry
(University of Paris-South) Prof. German
December 1, 1977
Report on bactericidal, fungicidal and virucidal activity
Test method: AFNOR NF-T 72-150
Product: LONZA BARDAC 22-70
Test organisms (Fungi) Mycobacterium smegmatis IPP 7326
Candida albicans
Effective concentration
0.01%
0.005%
C.2.5.
Hygiene Institut der Johannes Gutenberg
Universität, D 6500 Mainz
Prof. Dr. med. J. Borneff, Mainz
August 15, 1979
Report and certificate on the activity on untreated wood contaminated with fungi Method: DGHM
Product: LONZA BARDAC 22-70

Test organisms
Candida albicans ATCC 10231
Trichophytom mentagrophytes
Microsporum gypseum
Effective
concentration /contact time 1.0% 1 hr
0.5% 2 hrs
17
C.2.6
Hygiene Institut der Stadt Dortmund, D-4600 Dortmund
Prof. Dr. med. T. Lammers
January 22, 1980
Report and certificate of activity on untreated wood contaminated with fungi. Method: DGHM
Product: LONZA BARDAC 22-70
Test organisms:
Candida albicans ATCC 10231
Trichophytom mentagrophytes
Microsporum gypseum
Effective concentration /contact time 1.0% 1 hr
0.5% 4 hrs
C.2.7.
Université de Montpellier, Thesis François Canal
June 5, 1985
Report on Fungicidal activity
Test method: AFNOR N FT 72-200
Product: LONZA BARDAC 22-70
Test organisms
Aspergillus versicolor CNCM 1187-79
Cladosporium cladosporiodes CNCM 1185-79
Penicillium verrucosum CNCM 1186-79
Candida albicans CNCM 1180-79 (ATCC 2091)
Effective concentration
187.5 ppm
375.0 ppm
375.0 ppm
187.5 ppm
C.2.8.
IRM Institut de Recherche Mircobiologique, F-77290 Mitry-Mory
Dr. A. Chantefort
January 23, 1990
Report on fungicidal activity
Test method: AFNOR N FT 72-200 (Carrier glass) Test organisms
Cladosporium cladosporiodes IP 1232 80
Penicillium verrucosum var. cyclopium IP 1231 80
Candida albicans IP 1180 79
Effective concentration
/contact time
1% 15 m in
1% 15 m in
1% 60 m in
C.3. Algae

C.3.1.
Biotech Control Laboratories Inc USA-Waterford N.Y. Report BCI-0870
April 20, 1970
Report for algaecidal and algaestatic activities
Test method: Fitzgerald Method
Product: LONZA BARDAC 22-70
Test organisms
Chlorella pyrenoidosa No. 2005
Phormidium inundatum No. 1093 (Black Algae)
Chlorella pyrenoidosa No. 2005
Phormidium inundatum No. 1093 (Black Algae)
Algaestatic concentration
1.0 ppm
1.0 ppm
Algaecidal concentration
2.0 ppm
2.0 ppm
18
C.3.2.
ETH Swiss Federal Institute of Technology (ETH), Institut for Special Botony)
C. Gessler, G. Defago, H. Kern Publication 1976 Special Edition Nr. 741 from Gas-Wasser-Abwasser
Report for algaestatic activity of Quaternaries Test method: In vitro – as described in the report
Product: LONZA BARDAC 22-70
Test organisms
Chloella vulgaris Beyerinck Scenedesmus obliquus Kützing Phormidium faveolarum Phormidium uncimatum
C. 4 . V i r u s e s
C.4.1.
Université de Paris-Sud, Châtenay-Malabry
(University of Paris-South) Prof. German
December 1, 1977
Report on bactericidal, fungicidal and virucidal activity
Test method: AFNOR NF-T 72-150
Product: LONZA BARDAC 22-70
Test organisms (Virus)
Virus maladie de Newcastle
Virus vaccinal
Virus grippal PR8
C.4.2.
Tierärzliche Hochschule Hannover, Institut für Virologie (Veterinary University) D-3000 Hannover
Prof. Dr. B. Liess
November 18, 1977
Report on virucidal activity
Test method: as described in the report
Product: LONZA BARDAC 22-70
Test organisms
Virus IBR/JPV Colorado
Concentration
Algaecidal Algaestatic
1.0 ppm 0.5 ppm
1.0 ppm 0.5 ppm

1.0 ppm 0.5 ppm
1.0 ppm 0.5 ppm
Effective concentration
0.05%
0.05%
0.05%
Effective concentration
/contact time
1.0% 15 min
19
C.4.3.
Università di Milano Instituto di Microbiologia e Immunologia (University of Milan, Institute of Microbiology and Immunology) 1-21000 Milano G. Poli, W. Ponti, R. Micheletti, C. Cantoni January 30, 1978
Report on virucidal activity of Quaternary
Amonium Compounds
Test method: as described in report
(Titer reduction)
Results of LONZA BARDAC 22-70
Test organisms
Vaccinia virus (Poxvirus) Influenza virus (orthomyxovirus) Adenovirus
Rhabdovirus
Herpesvirus
Effective concentration
/contact time
0.07% / 1 min
0.07% / 1 min
0.07% / 1 min
0.07% / 5 min
0.07% / 5 min
C.4.4.
Università di Milano Instituto di Microbiologia e Immunologia (University of Milan, Institute of Microbiology and Immunology) 1-21000 Milano Prof. A. Fesce
January 20, 1978
Report on virucidal activity
Test method: as described in the report
Product: LONZA BARDAC 22-70
Test organisms
Poxvirus WR119-ATCC
Herpes virus 1-HF-VR260 ATCC Orthomyxovirus AWSN Adenovirus Type 2
Rhabdovirus VSV-1145/67
C.4.5.
Ludwig Maximilian Universität München, Max von Pettenkofer Institut für Hygiene und Medizinische Mikrobiologie D-8000 Munich
Prof. Dr. med. G. Frösner
July 12, 1986
Report on virucidal activity
Test method: as described in the report
Product: LONZA BARDAC 22-70
Test organisms
Hepatite-B-virus

Effective concentration /contact time
5 min
5 min
5 min
5 min
5 min
Effective concentration /contact time 0.5% / 30 min
0.25% / 2 hrs
20
D Tests according to European norms and other
Antimicrobial efficacy
D.1 Bactericidal/Fungicidal performance
D.1.1 Tested according to DGHM
Surface disinfection
Mechanical disinfection of non porous hard surfaces in hospital and general practice: Test strains; P. aeruginosa, S. aureus, E. hirae end C. albicans
Results:
low organic load
increased organic load
2.0% 15 and 30 minutes
2.0% 15, 30 and 60 minutes
1.0% 60 minutes
0.5% 240 minutes
1.0% 240 minutes
Certificates: Prof. Dr R Schubert, Frankfurt (M), 29 Dec 2002
Prof. Dr H-P. Werner, Schwerin, 04 Oct 2002
Salmonellacidal efficacy
Test method: DGHM qualitative suspension test (without organic load) Test organism: Salmonella typhimunium
Results: 0.25%/5 minutes
0.05%/15, 30 60 minutes
Certificate: Prof. Dr H-P. Werner. Schwerin, 31 Jan 2003
Tuberculocidal efficacy
Test method: DGHM, surface disinfection (low organic load) Test organism: Mycobacterium terrae
Results: 5.0% 30 minutes
3.0% 60 minutes
2.0% 240 minutes
Certificate: Prof. Dr R. Schubert. Frankfurt (M), 8 April 2005
D.1.2 Tested according to DVG
Food sector
Disinfectants For handling / processing area regarding animal based food.
Test strains' P. aeruginosa, S. aureus, E faecium P. mirabilis and C. albicans Sector A: 10% Bovine serum as protein load
Secto
r A / B
°C
Use Concentration in volume percent (V-%) for 30 and 60 minutes (')
Low organic load
Increased organic load
Bacteria
Fungi

Bacteria
Fungi
30'
60'
30'
60'
30'
60'
30'
60'
A
5
6a'
6b'
7a'
7b'
8a'
8b'
9a'
9b'
A
20°C
0.2%
0.2%
0.1%
0.1%
1.5%
1.5%
1.0%
0.2%
Certificate: Prof. Dr. R. Bohm, Stuttgart, 8 August 2005
D.1.3 Tested according to European Norms
EN 1040
Bactericidal result. Test strains P. aeruginosa and S. aureus
Result: 0.1 % 5 min.
Certificate: Lonza Basel, Laboratory OPC-E, 19 February 2004
EN 1276
Bactericidal results in presence of organic load (Albumin) Test strains: P. aeruginosa, S. aureus, E. coli and E. hirae Results: 0.5% 0.3 g/lAlbumin 5 min.
1.5% 3.0 g/I Albumin 5 min. Certificate: Dr R Brill, Hamburg, 12 Nov 2001
21
EN 13697 [Surface test)
Bactericidal result in presence of organic load (Albumin) Test strains: P. aeruginosa, S aureus, E coli and E. hirae Result 2.0% 3.0 g/I Albumin 5 min
Fungicidal result in presence of organic load (Albumin) Test strains: A. niger and C albicans
Result 4.0% 3.0 g/l Albumin 15 min
Certificates: Lonza Basel, Laboratory OPC-E, 19 October 2004
EN 1650
Fungicidal results in presence of organic load (Albumin) Test strains: A. niger and C. Albicans
Results:
0.5%

0.3 g/l Albumin 15 min.
1.0%
3.0 g/l Albumin 15 min.
Certificate: Dr. H. Brill, Hamburg, 14 Nov 2001
EN 1275
Fungicidal result, Test strains: A. niger and C. albicans
Result: 2.0% 15 min.
Certificate: Lonza Basel, Laboratory OPC-E, 22 July 2005
D.1.4 Tested according other procedures
Tuberculocidal test
Test method: Qualitative suspension test
Test organism: Mycobacterium terrae ATCC 15755
Result 1:27 diluted in deionized water 5 min.
Certificate. MICROBIOTEST Inc., Sterling. Virginia, USA, Study 163-230, 11 April 2002
D.2 Virucidal performance
D.2.1 Tested according to BGA (now RKI) and DVV Polio virus
Results according BGA (now RKI) and DVV
With soil load 5.0% 15 min.
4.0% 60min
Certificate: Dr. J. Steinmann, Bremen. 15 Feb 2002
ECB0 virus
Results according BGA (now RKI) and DVV
With soil load 5.0% 30 min.
3.0% 60 min.
Certificate Dr J Steinmann. Bremen. 21 Aug 2002
Adeno virus
Result according BGA (now RK1) and DVV
With soil load 4.0% 30 min.
Certificate Dr J. Steinmann, Bremen, 24 May 2005
Noro (Norwalk) virus
Feline calici virus (FCV) was used as surrogate Result according BGA (now RK1) and DVV
With soil load 4.0% 30 min.
Certificate: Dr. J. Steinmann. Bremen, 25 May 2005
Rota virus
Result according BGA (now RK1) and DVV Without soil load 3.0% 15 min. Certificate: Dr. J. Steinmann, Bremen, 8 June 2005
Vaccinia virus
Result according BGA (now RK1) and DVV With soil load 2.0% 5 min. Certificate: Dr. J, Steinmann, Bremen, 30 July 2005
D.2.2 Tested according to DVG Animal husbandry
Enveloped viruses (column 7b, 20°C, limited virucidal performance) Test virus: Newcastle disease. Vaccinia virus
Result: 3% 120 minutes
Certificate: Prof Dr. E. F. Kaleta. Frankfurt (M), 30 October 2003
D.2.3 Tested according to EN 14476
Polio virus
Results according EN 14476:2005
Clean conditions 4.0% 30 min. Dirty conditions 6.0% 120 min.
Certificate, Dr. J Steinmann, MikroLab Bremen, 24 December 2005

Adeno virus
Result according EN 14476:2005
Clean conditions 2.0% 60 min.
4.0 % 30 min.
Dirty condition 2.0% 60 min.
4.0% 30 min.
Certificate: Dr. J. Steinmann, MikroLab Bremen, 20 December 2005
Summary (Polio- and Adeno virus) of Dr. J. Steinmann, MikroLab Bremen
The following concentrations and exposure times are necessary for inactivation of the two test viruses
(Polio- and Adeno virus):
4.0% 30 minutes (clean)
6.0% 120 minutes (dirty)
In order to achieve a four log10 reduction (inactivation >99.99%) in a quantitative suspension test according to the EN 14476 under clean and dirty conditions.
After evaluation with Polio virus and Adeno virus the surface disinfectant Lonza can be declared as having "virucidal" properties according to EN 14476:2005.
Therefore, after successful experiments with the above mentioned non-enveloped viruses the surface disinfectant Lonza is also effective against enveloped Viruses including HBC, HCV and HIV.
Avian influenza virus (H3N8/H5N1) Result according EN 14476:2005 Influenza virus A/duck/Ukraine/1/63 (H3N8) was incorporated as surrogate of Avian influenza virus (H5N1) due to bio safety reasons.
Clean conditions 0.5% 10 min
1.0% 5 min
Dirty conditions 0.5% 30 min
1.0% 10 min
Certificate: Dr. J. Steinmann. MikroLab Bremen, 13 February 2006
5.2.4 Tested according other procedures
Canine parvovirus (type-2)
With soil load
1:35 diluted in deionized water
10 min.
1:35 diluted in 400 ppm AOAC hard water
10 min.
Certificate: MICROBIOTEST Inc., Sterling, Virginia, USA, Study 163-238, 03. Jan 2003

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