HLD4 FORMULA

BACTERICIDAL ACTIVITY

EN 13697 - Chemical disinfectants and antiseptics – Quantitative non-porous surface test for the evaluation of bactericidal and/or fungicidal activity of chemical disinfectants used in food, industrial, domestic and institutional areas – Test method and requirements without mechanical action (phase 2, step 2)

Standard test organisms

BACTERIA - Pseudomonas aeruginosa, Escherichia coli, Staphylococcus aureus, Enterococcus hirae

Test conditions

Clean conditions (0.3g/l bovine albumin)- Dirty conditions (3.0g/l bovine albumin)

Industry specific (must also pass under standard dirty conditions)

Obligatory

Bacteria - Log reduction ≥4 in 5 minutes at 20°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Enterococcus hirae	BLUTEST	1:100	EN13697:2001 Dirty	5 mins	> LOG 5
Escherichia coli	BLUTEST	1:100	EN13697:2001 Dirty	5 mins	> LOG 5
Pseudomonas aeruginosa	BLUTEST	1:100	EN13697:2001 Dirty	5 mins	> LOG 5
Staphylococcus aureus	BLUTEST	1:100	EN13697:2001 Dirty	5 mins	> LOG 5
Enterococcus hirae	CHEMILA	1:100	EN13697:2015	5 mins	> LOG 4
Escherichia coli	CHEMILA	1:100	EN13697:2015	5 mins	> LOG 4
Pseudomonas aeruginosa	CHEMILA	1:100	EN13697:2015	5 mins	> LOG 4
Staphylococcus aureus	CHEMILA	1:100	EN13697:2015	5 mins	> LOG 4

EN 13727:2012 - Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity in the medical area. Test method and requirements (phase 2, step 1)

Standard test organisms

Pseudomonas aeruginosa, Staphylococcus aureus, Enterococcus hirae

Test conditions

Clean conditions (0.3g/l bovine albumin)- Dirty conditions (3.0g/l bovine albumin)

Obligatory

Bacteria - Log reduction ≥4 in 5 minutes at 20°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Staphylococcus aureus MRSA	CHEMILA	1:100	EN13697:2015	5 mins	> LOG 5

EN 13623, Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of bactericidal activity against *Legionella pneumophila* of chemical disinfectants – Test method and requirements (phase 2, step 1)

Obligatory Log reduction ≥5 in 60 minutes at 30°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Legionella pneumophila	ABBOTT ANALYTICAL	1:100	EN13623	60 mins	> LOG 5

EN 1040 - Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of basic bactericidal activity of chemical disinfectants and antiseptics – Test method and requirements (phase 1)

Standard test organisms

Pseudomonas aeruginosa, Staphylococcus aureus

Obligatory Lg reduction ≥5 in 5 minutes at 20°C

Pseudomonas aeruginosa	ABBOTT ANALYTICAL	1:100	EN1040	5 mins	> LOG 5
Staphylococcus aureus	ABBOTT ANALYTICAL	1:100	EN1040	5 mins	> LOG 5

HLD4 FORMULA

BACTERICIDAL ACTIVITY (cont.)

EN 1276 - Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas – Test method and requirements (phase 2, step 1)

Standard test organisms

Pseudomonas aeruginosa, Escherichia coli, Staphylococcus aureus, Enterococcus hirae

Test conditions

Clean conditions (0.3g/l bovine albumin) - Dirty conditions (3.0g/l bovine albumin)

Industry specific (must also pass under standard dirty conditions)

Obligatory Log reduction ≥5 in 5 minutes at 20°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Enterococcus hirae	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5
Enterococcus hirae	BLUTEST	1:100	EN1276 Dirty	5 mins	> LOG 5
Escherichia coli	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5
Escherichia coli	BLUTEST	1:100	EN1276 Dirty	5 mins	> LOG 5
Listeria monocytogenes	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5
Methicillin -resistant *Staphylococcus aureus*	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5
Methicillin-resistant *Staphylococcus pseudintermedius*	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5
Pseudomonas aeruginosa	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5
Pseudomonas aeruginosa	BLUTEST	1:100	EN1276 Dirty	5 mins	> LOG 5
Salmonella tryphimurium	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5
Staphylococcus aureus	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5
Staphylococcus aureus	BLUTEST	1:100	EN1276 Dirty	5 mins	> LOG 5
Streptococcus equi	ABBOTT ANALYTICAL	1:100	EN1276 Dirty	5 mins	> LOG 5

EN 1656 - Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in the veterinary area – Test method and requirements (phase 2, step 1)

Standard test organisms

Pseudomonas aeruginosa, Proteus vulgaris, Staphylococcus aureus, Enterococcus hirae

Test conditions

Low-level soiling (3g/l bovine albumin) - High-level soiling (10g/l bovine albumin + 10g/l yeast extract)

Obligatory Log reduction ≥5 in 30 minutes at 10°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Bordetella bronchiseptica	ABBOTT ANALYTICAL	1:100	EN1656 Dirty	5 mins	> LOG 5
Campylobacter jejuni	ABBOTT ANALYTICAL	1:100	EN1656 Dirty	5 mins	> LOG 5
Methicillin-resistant *Staphylococcus pseudintermedius*	ABBOTT ANALYTICAL	1:100	EN1656 Dirty	5 mins	> LOG 5
Rhodococcus equi	ABBOTT ANALYTICAL	1:100	EN1656 Dirty	5 mins	> LOG 5
Streptococcus equi	ABBOTT ANALYTICAL	1:100	EN1656 Dirty	5 mins	> LOG 5

HLD4 FORMULA

YEASTICIDAL / FUNGICIDAL ACTIVITY

EN 13697 - Chemical disinfectants and antiseptics – Quantitative non-porous surface test for the evaluation of bactericidal and/or fungicidal activity of chemical disinfectants used in food, industrial, domestic and institutional areas – Test method and requirements without mechanical action (phase 2, step 2)

Standard test organisms

Aspergillus niger, Candida albicans

Test conditions

Clean conditions (0.3g/l bovine albumin) - Dirty conditions (3.0g/l bovine albumin)

Industry specific (must also pass under standard dirty conditions)

Fungicidal/Yeasticidal

Obligatory Lg reduction ≥3 in 15 minutes at 20°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Candida albicans	BLUTEST	1:50	EN13697:2001 DIRTY	5 mins	> LOG 4
Candida albicans	BLUTEST	1:100	EN13697:2001 DIRTY	15 mins	> LOG 4
Candida albicans	CHEMILA	1:50	EN13697:2013	5 mins	> LOG 4
Candida albicans	CHEMILA	1:100	EN13697:2013	15 mins	> LOG 4

EN 13624 - Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of fungicidal or yeasticidal activity in the medical area. Test method and requirements (phase 2, step 1)

Standard test organisms

Aspergillus Brasiliensis (niger), Candida albicans

Obligatory Lg reduction ≥4 in <60 minutes

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Candida albicans	CHEMILA	1:50	EN13624 Clean	5 mins	> LOG 4
Candida albicans	CHEMILA	1:100	EN13624 Clean	15 mins	> LOG 4

EN 1650 - Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of fungicidal or yeasticidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas – Test method and requirements (phase 2, step 1)

Standard test organisms

Aspergillus niger, Candida albicans

Test conditions

Clean conditions (0.3g/l bovine albumin)- Dirty conditions (3.0g/l bovine albumin)

Industry specific (must also pass under standard dirty conditions)

Obligatory Lg reduction ≥4 in 15 minutes at 20°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Candida albicans	ABBOTT ANALYTICAL	1:100 (10 deg C)	EN1650 DIRTY	5 mins	> LOG 4
Microsporum canis	ABBOTT ANALYTICAL	1:100	EN1650 DIRTY	15 mins	> LOG 4
Trichophyton rubrum	ABBOTT ANALYTICAL	1:100	EN1650 DIRTY	15 mins	> LOG 4

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VIRUCIDAL ACTIVITY

BS EN 14476:2005 - Chemical disinfectants and antiseptics. Virucidal quantitative suspension test for chemical disinfectants and antiseptics used in human medicine. Test method and requirements (phase 2, step 1)
BS EN 14675:2015 - Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of virucidal activity of chemical disinfectants and antiseptics used in the veterinary area. Test method and requirements (Phase 2, step 1)
Standard test organisms

EN14476 - Adenovirus, Murine Norovirus and Poliovirus, EN14675 – Bovine Enterovirus Type 1
Obligatory Lg reduction ≥4 (Requirements may vary by claim)

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Adenovirus	BLUTEST	1:100	EN14476 DIRTY	60 mins	LOG 3.67
Adenovirus	BLUTEST	1:10	EN14476 CLEAN	5 mins	> LOG 4
Bovine Enterovirus (ECBO)	CHEMILA	1:10	EN14675:2015	30 mins	> LOG 4
Canine Parvovirus (CPV2)	BLUTEST	1:100	EN14476 CLEAN	30 mins	> LOG 4
Canine Parvovirus	BLUTEST	1:50	EN14476 DIRTY	5 mins	> LOG 4
Feline Calicivirus	BLUTEST	1:50	EN14476 DIRTY	60 mins	LOG 4.00
Feline Infectious Peritonitis	ATS	1:50	EPA DIRTY	10 mins	> LOG 4
Hepatitis B	ATS LABS	1:50	EN14476 CLEAN	5 mins	LOG 4.67
Herpes Simplex	BLUTEST	1:50	EN14476 DIRTY	5 mins	LOG 4.16
Human Immunodeficiency Virus	BLUTEST	1:50	EN14476 DIRTY	60 mins	LOG 4.50
Murine Norovirus	BLUTEST	1:100	EN14476 CLEAN	20 mins	> LOG 4
Murine Norovirus	CHEMILA	1:10	EN14476 CLEAN	5 mins	> LOG 4
Vaccinia Virus*	MSL	1:50	EN14476 CLEAN	5 mins	> LOG 4

** includes all coronaviruses and SARS-CoV-2.*

MYCOBACTERICIDAL ACTIVITY

EN 14348 - Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of mycobactericidal activity of chemical disinfectants in the medical area including instrument disinfectants – Test method and requirements (phase 2, step 1)
Standard test organisms
Mycobacterium avium, Mycobacterium terrae
Test conditions
Clean conditions (0.3g/l bovine albumin)- Dirty conditions (3.0g/l bovine albumin + 3.0ml/l sheep erythrocytes)
Obligatory Lg reduction ≥4 in 60 minutes at 20°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Mycobacterium avium	CHEMILA	1:20	EN14348 CLEAN	30 mins	> LOG 4
Mycobacterium avium	CHEMILA	1:20	EN14348 DIRTY	60 mins	> LOG 4
Mycobacterium terrae	CHEMILA	1:20	EN14348 CLEAN	30 mins	> LOG 4
Mycobacterium terrae	CHEMILA	1:20	EN14348 DIRTY	60 mins	> LOG 4

HLD4 FORMULA

MYCOBACTERICIDAL (cont.)

EN 14204 - Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of mycobactericidal activity of chemical disinfectants and antiseptics used in the veterinary area – Test method and requirements (phase 2, step 1)
Standard test organisms
Mycobacterium avium
Test conditions
Low-level soiling (3g/l bovine albumin)- High-level soiling (10g/l bovine albumin + 10g/l yeast extract)
Obligatory Lg reduction ≥4 in 60 minutes at 10°C

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Mycobacterium avium	ABBOTT ANALYTICAL	1:50	EN14204 DIRTY	5 mins	> LOG 4
Mycobacterium bovis	ABBOTT ANALYTICAL	1:50	EN14204 DIRTY	30 mins	> LOG 4
Mycobacterium terrae	ABBOTT ANALYTICAL	1:50	EN14204 DIRTY	60 mins	> LOG 4

BACTERIOPHAGE

EN 13610:2002 - Chemical disinfectants. Quantitative suspension test for the evaluation of virucidal activity against bacteriophages of chemical disinfectants used in food and industrial areas. Test method and requirements (phase 2, step 1)

ORGANISM	LABORATORY	DILUTION	METHOD	CONTACT	RESULTS
Lactococcus lactis subsp. *lactis* bacteriophage P001	CHEMILA	1:10	EN113610	5 mins	> LOG 4
Lactococcus lactis subsp. *lactis* bacteriophage P008	CHEMILA	1:10	EN113610	5 mins	> LOG 4

DNA / RNA

HLD4 formulation is proven to denature / precipitate DNA / RNA immediately at dilutions of 1:10 or 1:50 according to Cambridge University Technical Services

"Further to your query regarding the efficacy of Medimark Scientific Limited's product HLD4, CUTS can report that at dilutions of HLD4 less than 1:100 (v/v)—1:20 or 1:50 for example—nucleic acids are precipitated immediately. For such dilutions (less than or equal to 1:100), the contact time for immersed solutions should be a few minutes at maximum. The product was ***not*** *tested in aerosol form. However, it is likely that if the concentrations of HLD4 in an aerosol formulation is similar and the active ingredients are stable that it would behave similarly."*