



Colep Laupheim GmbH & Co. KG
Neue Welt 37
88471 Laupheim

Expert Report

Bactericidal efficacy of the Disinfectant

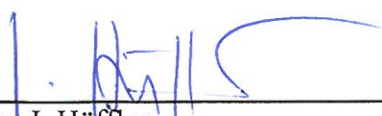
ECAS Anolyte

After examination of the bactericidal efficacy in the quantitative suspension test under clean conditions, test according to EN 1276 (status: January 2010) in the period from 2011-07-14 to 2011-07-18 (test product: ECAS Anolyte, sample number: A13/1; LT: 1948), the efficacy (reduction ≥ 5 lg) on the test organisms *Staphylococcus aureus* ATCC 6538, *Pseudomonas aeruginosa* ATCC 15442, *Escherichia coli* ATCC 10536, and *Enterococcus hirae* ATCC 10541 can be confirmed.

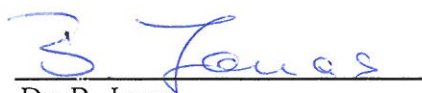
The effectiveness of the disinfectant
ECAS Anolyte
was proved to be sufficiently effective under clean conditions
at an application concentration of 40.0 %
at 20 °C within 5 minutes.

Technische Mikrobiologie
Dr. Jutta Höffler GmbH

Hamburg, 2011-07-25



Dr. J. Höffler
Head of laboratory



Dr. B. Jonas
Certified biologist

The test results correspond to the tested object only.





A473/11 ECAS Anolyte A13/1, LT: 1948
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Test report
EN 1276, bactericidal activity
(obligatory conditions)

Customer

Colep Laupheim GmbH & Co. KG
Neue Welt 37
88471 Laupheim

Test laboratory

Technische Mikrobiologie
Dr. Jutta Höffler GmbH
Ahrensburger Straße 162
22045 Hamburg

Disinfectant sample

Name of the product..... **ECAS Anolyte**
Sample number..... A13/1, LT: 1948
Manufacturer..... Colep Laupheim GmbH & Co. KG
Neue Welt 37
88471 Laupheim
Date of delivery..... 2011-07-13
Laboratory number..... 13.07.11-1858
Storage conditions..... cool
Appearance of the product..... colourless, clear
Active substance(s)..... 180 ppm hypochlorite
Recommended diluent..... water

Test method and its validation

Test period..... 2011-07-14 to 2011-07-18
Data..... see "test results" (enclosed)

The test results correspond to the tested object only.



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IBAN DE 12 2005 0550 1208 1153 19 · BIC: HASPDEHH XXX · Geschäftsführerin: Dr. rer. nat. Jutta Höffler
Amtsgericht Hamburg Handelsregister B Nr. 58 682 · St.Nr.: 08/850/00703 · UST.IdNr. DE 171622643

Experimental conditions

Diluent used for product test solutions.....	distilled water
Product test concentration.....	10.0, 40.0, 60.0, and 80.0 % (v/v)
Test organisms.....	<i>Staphylococcus aureus</i> ATCC 6538 <i>Pseudomonas aeruginosa</i> ATCC 15442 <i>Escherichia coli</i> ATCC 10536 <i>Enterococcus hirae</i> ATCC 10541
Temperature of incubation.....	37 °C ± 1 °C

Test conditions

Test temperature.....	20 °C ± 1 °C
Contact time(s).....	5 min
Interfering substances.....	0.3 g/l bovine albumin = clean conditions

Special remarks

All tests and validations were between the basic limits.

The product shows at least at one concentration a reduction of 5 lg.

The product shows at least at one concentration a reduction less than 5 lg.

there was no precipitation during the test (the test suspensions were homogeneous).

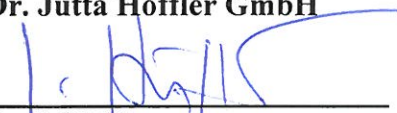
Test results

see enclosed sheets (pages 5 - 8)

Conclusion

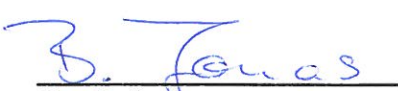
According to EN 1276 (status: January 2010) the product
ECAS Anolyte (Sample number: A13/1, LT: 1948)
possesses bactericidal efficacy (reduction ≥ 5 lg) at **40.0 %** (v/v)
at 20 °C under clean conditions within 5 minutes
for the above mentioned test organisms.

Technische Mikrobiologie
Dr. Jutta Höffler GmbH



Dr. J. Höffler
Head of laboratory

Hamburg, 2011-07-25



Dr. B. Jonas
Certified biologist

Test results (bactericidal suspension test)

EN 1276 Name of the product: **ECAS Analyte** Sample number: A13/1, LT: 1948
 (phase 2/step 1) Laboratory number: 13.07.11-1858

Remarks: none

Diluent for product test solutions: distilled water


Appearance of the product dilutions: colourless, clear

Dilution-neutralisation-method: Pour plate technique: Spread plate technique: Number of plates: 1/ml

Neutralizer: Polysorbate 80 (30.0 g/l) + saponin (30.0 g/l) + lecithin (3.0 g/l) + histidine (1.0 g/l) + sodiumthiosulphate (5.0 g/l) + ethersulphate (10.0 g/l) in diluent

Test temperature: **20 °C ± 1 °C** Interfering substance(s): **0.3 g/l bovine albumin**

Test organisms: **Staphylococcus aureus ATCC 6538** Temperature of incubation: **37 °C ± 1 °C**

Date of test: 2011-07-14 Responsible person: Dr. B. Jonas Signature: 

Validations and controls

Validation suspension (N _{v0})			Experimental conditions control (A)			Neutralizer toxicity control (B)			Dilution-neutralization control (C) Product conc.: 800 ml/l		
Vc1	56	$\bar{x} =$	Vc1	50	$\bar{x} =$	Vc1	50	$\bar{x} =$	Vc1	54	$\bar{x} =$
Vc2	60	58	Vc2	58	54	Vc2	60	55	Vc2	60	57
30 ≤ \bar{x} of N _{v0} ≤ 160 ? meets requirements: yes			\bar{x} of A is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes			\bar{x} of B is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes			\bar{x} of C is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes		

Test suspension and test

Test suspension (N and N ₀)	N	Vc1	Vc2	$\bar{x}_{wm} =$	$2,17E+08 = \lg N = 8,34$
	10 ⁻⁶	232	208	N ₀ = N/10	$\lg N_0 = 7,34$
	10 ⁻⁷	24	14	7.17 ≤ $\lg N_0$ ≤ 7.70	meets requirements: yes

product concentration (%)	Vc1	Vc2	Na = \bar{x} × 10	lgNa	lgR	Contact time (min)
10	>330	>330	>3300	>3.52	<3.82	5
40	0	0	<140	<2.15	>5.19	5
60	0	0	<140	<2.15	>5.19	5
80	0	0	<140	<2.15	>5.19	5

Explanations:

Vc = counting per ml (one plate or more)

\bar{x}_{wm} = weighted mean of Vc1 and Vc2

\bar{x} = mean of Vc1 and Vc2 (1st and 2nd double determination)

lgR = logarithmic reduction (lgR = lgN₀ - lgNa)

Test results (bactericidal suspension test)

EN 1276 Name of the product: **ECAS Analyte** Sample number: A13/1, LT: 1948
 (phase 2/step 1) Laboratory number: 13.07.11-1858

Remarks: none

Diluent for product test solutions: distilled water


Appearance of the product dilutions: colourless, clear

Dilution-neutralisation-method Pour plate technique: Spread plate technique: Number of plates: 1/ml

Neutralizer: Polysorbate 80 (30.0 g/l) + saponin (30.0 g/l) + lecithin (3.0 g/l) + histidine (1.0 g/l) + sodiumthiosulphate (5.0 g/l) + ethersulphate (10.0 g/l) in diluent

Test temperature: **20 °C ± 1 °C** Interfering substance(s): **0.3 g/l bovine albumin**

Test organisms: ***Pseudomonas aeruginosa* ATCC 15442** Temperature of incubation: **37 °C ± 1 °C**

Date of test: 2011-07-14 Responsible person: Dr. B. Jonas Signature: 

Validations and controls

Validation suspension (N _{v0})			Experimental conditions control (A)			Neutralizer toxicity control (B)			Dilution-neutralization control (C) Product conc.: 800 ml/l		
Vc1	91	$\bar{x} =$	Vc1	50	$\bar{x} =$	Vc1	40	$\bar{x} =$	Vc1	60	$\bar{x} =$
Vc2	76	83,5	Vc2	50	50	Vc2	58	49	Vc2	52	56
30 ≤ \bar{x} of N _{v0} ≤ 160 ? meets requirements: yes			\bar{x} of A is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes			\bar{x} of B is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes			\bar{x} of C is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes		

Test suspension and test

Test suspension (N and N ₀)	N	Vc1	Vc2	$\bar{x}_{wm} =$ 4,50E+08 = lg N = 8,65
	10 ⁻⁶	>330	>330	N ₀ = N/10 lg N ₀ = 7,65
	10 ⁻⁷	44	46	7.17 ≤ lg N ₀ ≤ 7.70 meets requirements: yes

product concentration (%)	Vc1	Vc2	Na = \bar{x} × 10	lgNa	lgR	Contact time (min)
10	>330	>330	>3300	>3.52	<4.13	5
40	0	0	<140	<2.15	>5.50	5
60	0	0	<140	<2.15	>5.50	5
80	0	0	<140	<2.15	>5.50	5

Explanations:

Vc = counting per ml (one plate or more)

\bar{x}_{wm} = weighted mean of Vc1 and Vc2

\bar{x} = mean of Vc1 and Vc2 (1st and 2nd double determination)

lgR = logarithmic reduction (lgR = lgN₀ - lgNa)

Test results (bactericidal suspension test)

EN 1276 Name of the product: **ECAS Analyte** Sample number: A13/1, LT: 1948
 (phase 2/step 1) Laboratory number: 13.07.11-1858

Remarks: none

Diluent for product test solutions: distilled water

Appearance of the product dilutions: colourless, clear

Dilution-neutralisation-method: Pour plate technique: Spread plate technique: Number of plates: 1/ml


Neutralizer: Polysorbate 80 (30.0 g/l) + saponin (30.0 g/l) + lecithin (3.0 g/l) + histidine (1.0 g/l) + sodiumthiosulphate (5.0 g/l) + ethersulphate (10.0 g/l) in diluent

Test temperature: **20 °C ± 1 °C** Interfering substance(s): **0.3 g/l bovine albumin**

Test organisms: **Escherichia coli ATCC 10536** Temperature of incubation: **37 °C ± 1 °C**

Date of test: 2011-07-14

Responsible person: Dr. B. Jonas

Signature: 

Validations and controls

Validation suspension (N _{v0})			Experimental conditions control (A)			Neutralizer toxicity control (B)			Dilution-neutralization control (C) Product conc.: 800 ml/l		
Vc1	64	$\bar{x} =$	Vc1	56	$\bar{x} =$	Vc1	44	$\bar{x} =$	Vc1	62	$\bar{x} =$
Vc2	68	66	Vc2	60	58	Vc2	52	48	Vc2	56	59
30 ≤ \bar{x} of N _{v0} ≤ 160 ? meets requirements: yes			\bar{x} of A is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes			\bar{x} of B is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes			\bar{x} of C is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes		

Test suspension and test

Test suspension (N and N ₀)	N	Vc1	Vc2	$\bar{x}_{wm} = 1,55E+08 = \lg N = 8,19$
	10 ⁻⁶	149	158	N ₀ = N/10 $\lg N_0 = 7,19$
	10 ⁻⁷	17	16	7.17 ≤ $\lg N_0$ ≤ 7.70 meets requirements: yes

product concentration (%)	Vc1	Vc2	Na = \bar{x} × 10	lgNa	lgR	Contact time (min)
10	>330	>330	>3300	>3.52	<3.67	5
40	0	0	<140	<2.15	>5.04	5
60	0	0	<140	<2.15	>5.04	5
80	0	0	<140	<2.15	>5.04	5

Explanations:

Vc = counting per ml (one plate or more)

\bar{x}_{wm} = weighted mean of Vc1 and Vc2

\bar{x} = mean of Vc1 and Vc2 (1st and 2nd double determination)

lgR = logarithmic reduction (lgR = lgN₀ - lgNa)

Test results (bactericidal suspension test)

EN 1276 Name of the product: **ECAS Analyte** Sample number: A13/1, LT: 1948

(phase 2/step 1) Laboratory number: 13.07.11-1858

Remarks: none

Diluent for product test solutions: distilled water

Appearance of the product dilutions: colourless, clear

Dilution-neutralisation-method: Pour plate technique: Spread plate technique: Number of plates: 1/ml

Neutralizer: Polysorbate 80 (30.0 g/l) + saponin (30.0 g/l) + lecithin (3.0 g/l) + histidine (1.0 g/l) + sodiumthiosulphate (5.0 g/l) + ethersulphate (10.0 g/l) in diluent

Test temperature: **20 °C ± 1 °C** Interfering substance(s): **0.3 g/l bovine albumin**Test organisms: **Enterococcus hirae ATCC 10541** Temperature of incubation: **37 °C ± 1 °C**

Date of test: 2011-07-14

Responsible person: Dr. B. Jonas

Signature: 

Validations and controls

Validation suspension (N _{v0})			Experimental conditions control (A)			Neutralizer toxicity control (B)			Dilution-neutralization control (C) Product conc.: 800 ml/l		
Vc1	52	$\bar{x} =$	Vc1	56	$\bar{x} =$	Vc1	66	$\bar{x} =$	Vc1	68	$\bar{x} =$
Vc2	54	53	Vc2	60	58	Vc2	60	63	Vc2	64	66
30 ≤ \bar{x} of N _{v0} ≤ 160 ? meets requirements: yes			\bar{x} of A is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes			\bar{x} of B is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes			\bar{x} of C is ≥ 0.5 × \bar{x} N _{v0} ? meets requirements: yes		

Test suspension and test

Test suspension (N and N ₀)	N	Vc1	Vc2	$\bar{x}_{wm} =$ 4,10E+08 = lg N = 8,61
	10 ⁻⁶	>330	>330	N ₀ = N/10 lg N ₀ = 7,61
	10 ⁻⁷	39	43	7.17 ≤ lg N ₀ ≤ 7.70 meets requirements: yes

product concentration (%)	Vc1	Vc2	Na = \bar{x} × 10	lgNa	lgR	Contact time (min)
10	>330	>330	>3300	>3.52	<4.09	5
40	0	0	<140	<2.15	>5.46	5
60	0	0	<140	<2.15	>5.46	5
80	0	0	<140	<2.15	>5.46	5

Explanations:

Vc = counting per ml (one plate or more)

 \bar{x}_{wm} = weighted mean of Vc1 and Vc2 \bar{x} = mean of Vc1 and Vc2 (1st and 2nd double determination)lgR = logarithmic reduction (lgR = lgN₀ - lgNa)