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Bad Bocklet, 23 September 2015

Technical Report (Version 01)

Sample: Grizzly® Desinfektion

L+S-No.: 11910550

Order: Quantitative surface test for the evaluation of bactericidal efficacy according to EN 13697

(Order from 25.11.2010)

The test results apply solely to the designated sample.
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- Test report (Version 01) on Grizzly® Desinfektion (Quantitative surface test according to EN 13697 - bactericidal efficacy) -
- L+S-No.: 11910550 - Page 1 of 5 -

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BIC: HYVEDEMM451

Material and Method

Quantitative surface test for the evaluation of bactericidal efficacy according to EN 13697

1. Identification of the testing laboratory

Labor L+S AG
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2. Identification of the sample

Name of the product: Grizzly® Desinfektion, Lot: 949920
Date of delivery: 29.11.2010
Storage conditions: room temperature
Appearance of the product: slightly yellow, clear, liquid
pH-value (100%): 9.61

3. Experimental conditions

Period of analysis: 06.12.2010 - 13.12.2010

Test strains:

<i>Staphylococcus (S.) aureus</i>	ATCC 6538
<i>Escherichia (E.) coli</i>	ATCC 10536
<i>Enterococcus (Ec.) hirae</i>	ATCC 10541
<i>Pseudomonas (P.) aeruginosa</i>	ATCC 15442

Test concentrations: 2.0%, 1.5% and 1.0%

Contact time: 5 min

Interfering substance: 0.3% albumine

Test surface: stainless steel

Test temperature: 18°C - 25°C

Conditions of incubation: 48 h; 37°C ± 1°C

4. Test method an its validation

Test method: dilution-neutralisation

Inactivation combination: 3.0% Tween 80, 3.0% saponin, 0.1% histidine, 0.1% cysteine in casein-soybean-broth

The results of all control tests confirmed the validity of the test procedure as did the test suspensions.

5. Requirements

According to EN 13697 a log-reduction of > 4.00 log levels against bacteria is required.

6. Results

The results are stated in tables A (overview) and 1.

At dirty conditions the product **Grizzly® Desinfektion** showed at concentrations of 2.0% and 1.5% after a contact time of 5 minutes the required log-reduction of > 4.00 log against the test strains *S. aureus*, *E. coli*, *Ec. hirae* and *P. aeruginosa* (for detailed results see table 1).

23. SEP. 2015


Dipl-Biol Anastasija Schlicht
- Manager Business Unit Services -

23. SEP. 2015


Corinna Blum
- Laboratory Assistant -

Table 1:

Product: Grizzly® Desinfektion

Contact time: 5 min

Loading: 0.3% albumine

Test surface: stainless steel

Test strain	Test suspension	Watercontrol N _c	Test concentration: 2.0%	Test concentration: 1.5%	Test concentration: 1.0%
S. aureus ATCC 6538	10 ⁻⁵ : >300 / >300 10 ⁻⁶ : 380 / 450 N: 7.32 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 140 / 210 10 ⁻⁵ : 14 / 22 N_c: 7.24 log N _{ts} : >300	10 ⁰ : 0 / 0 10 ⁻¹ : 0 / 0 10 ⁻² : 0 / 0 N _d : < 0.70 log N _s : 0 ME > 6.54 log	10 ⁰ : 0 / 0 10 ⁻¹ : 0 / 0 10 ⁻² : 0 / 0 N _d : < 0.70 log N _s : 0 ME > 6.54 log	10 ⁰ : > 300 / > 300 10 ⁻¹ : 44 / 68 10 ⁻² : 4 / 12 N _d : 3.75 log N _{ts} : 0 ME 3.49 log
E. coli ATCC 10536	10 ⁻⁵ : >300 / >300 10 ⁻⁶ : 280 / 210 N: 7.09 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 120 / 132 10 ⁻⁵ : 10 / 6 N_c: 7.10 log N _{ts} : >300	10 ⁰ : 0 / 0 10 ⁻¹ : 0 / 0 10 ⁻² : 0 / 0 N _d : < 0.70 log N _s : 0 ME > 6.40 log	10 ⁰ : 0 / 0 10 ⁻¹ : 0 / 0 10 ⁻² : 0 / 0 N _d : < 0.70 log N _s : 0 ME > 6.40 log	10 ⁰ : > 300 / > 300 10 ⁻¹ : 42 / 36 10 ⁻² : 8 / 6 N _d : 3.59 log N _{ts} : 0 ME 3.51 log
Ec. hirae ATCC 10541	10 ⁻⁵ : >300 / >300 10 ⁻⁶ : 200 / 160 N: 6.95 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 120 / 100 10 ⁻⁵ : 8 / 10 N_c: 7.04 log N _{ts} : > 300	10 ⁰ : 0 / 0 10 ⁻¹ : 0 / 0 10 ⁻² : 0 / 0 N _d : < 0.70 log N _s : 0 ME > 6.34 log	10 ⁰ : 0 / 0 10 ⁻¹ : 0 / 0 10 ⁻² : 0 / 0 N _d : < 0.70 log N _s : 0 ME > 6.34 log	10 ⁰ : 80 / 70 10 ⁻¹ : 12 / 8 10 ⁻² : 1 / 0 N _d : 2.88 log N _{ts} : 0 ME 4.16 log
P. aeruginosa ATCC 15442	10 ⁻⁵ : >300 / >300 10 ⁻⁶ : 320 / 216 N: 7.13 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 240 / 248 10 ⁻⁵ : 26 / 24 N_c: 7.39 log N _{ts} : > 300	10 ⁰ : 0 / 0 10 ⁻¹ : 0 / 0 10 ⁻² : 0 / 0 N _d : < 0.70 log N _s : 0 ME > 6.69 log	10 ⁰ : 0 / 0 10 ⁻¹ : 0 / 0 10 ⁻² : 0 / 0 N _d : < 0.70 log N _s : 0 ME > 6.69 log	10 ⁰ : > 300 / > 300 10 ⁻¹ : 46 / 56 10 ⁻² : 7 / 3 N _d : 3.71 log N _{ts} : 10 ME 3.68 log

Test strain	Test suspension	Validation N _c	Validation N _t
S. aureus ATCC 6538	10 ⁻⁵ : >300 / >300 10 ⁻⁶ : 380 / 450 N: 7.32 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 216 / 180 10 ⁻⁵ : 28 / 30 N_c: 7.30 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 260 / 320 10 ⁻⁵ : 24 / 22 N_t: 7.46 log
E. coli ATCC 10536	10 ⁻⁵ : >300 / >300 10 ⁻⁶ : 280 / 210 N: 7.09 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 200 / 178 10 ⁻⁵ : 16 / 14 N_c: 7.28 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 160 / 128 10 ⁻⁵ : 20 / 14 N_t: 7.16 log
Ec. hirae ATCC 10541	10 ⁻⁵ : >300 / >300 10 ⁻⁶ : 200 / 160 N: 6.95 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 88 / 80 10 ⁻⁵ : 10 / 12 N_c: 6.92 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 100 / 140 10 ⁻⁵ : 14 / 12 N_t: 7.08 log
P. aeruginosa ATCC 15442	10 ⁻⁵ : >300 / >300 10 ⁻⁶ : 320 / 216 N: 7.13 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 100 / 210 10 ⁻⁵ : 20 / 18 N_c: 7.19 log	10 ⁻³ : >300 / >300 10 ⁻⁴ : 120 / 200 10 ⁻⁵ : 28 / 20 N_t: 7.20 log

Notes to the table:

N	log number of cfu of 0.05 ml test suspension
N_{ts}	number of cfu that remained on the test surface
N_c	log number of cfu per surface of water control
N_d	log number of cfu per surface of product test
N_C	log number of cfu per surface of neutralisation control
N_T	log number of cfu per surface of neutralisation test

ME Reduction factor: $ME = N_c - N_d$

Calculation of N-Values: $N = \log \frac{x + x'}{2} \times \frac{0.05}{d}$

Calculation of N_c , N_d , N_C , N_T -Values: $N = \log \frac{a + a'}{2} \times \frac{10}{d}$

with: a, a', x, x' cfu of duplicates
d dilution factor

The results of which the mean of a and a' is in a range between 30 and 300 cfu are chosen for calculation.

If a and a' are zero, it is believed that the numeration in the medium for neutralisation is below 5 N_d -value of < 0.7 should be used.

Verification of the procedure:

It was to be shown that

$N - N_c$ is not more than 2 log

$N - N_C$ is not more than 2 log

$N_c - N_T$ is not more than +/- 0.3

N_{ts} less than 100 cfu/ml for effective concentrations