A153+154/09 TEGO 2000 engl.
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Test Report

Bactericidal activity of the disinfectant

"TEGO 2000"

According to BS EN 1276 (1997) "TEGO 2000" possesses bactericidal activity at a concentration of 0.125 % or 0.5 % for **obligatory** purposes at 20°C with a contact time of 5 min and under low or high level soiling (0.3 g/l or 3.0 g/l bovine albumin) conditions for the referenced strains of Staphylococcus aureus ATCC 6538, Enterococcus hirae ATCC 10541, Pseudomonas aeruginosa ATCC 15442 and Escherichia coli ATCC 10536.

According to BS EN 1276 (1997) "TEGO 2000" possesses bactericidal activity at a concentration of 0.5 % or 1.0 % for specific purposes at 10°C with a contact time of 5 min and under low or high level soiling (0.3 g/l or 3.0 g/l bovine albumin) conditions for the referenced strains of Staphylococcus aureus ATCC 6538, Enterococcus hirae ATCC 10541, Pseudomonas aeruginosa ATCC 15442 and Escherichia coli ATCC 10536.

Customer
Evonik Goldschmidt GmbH
Goldschmidtstr. 100
45127 Essen

Test laboratory
Technische Mikrobiologie
Dr. Jutta Höffler GmbH
Ahrensburger Str. 162
22045 Hamburg

Hamburg, 2009-05-20

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Test report
BS EN 1276, bactericidal activity

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Disinfectant sample

Name of the product ..... **TEGO 2000**

ID.No ..... ES 68757650

Manufacturer ..... Evonik Goldschmidt GmbH,
Goldschmidtstr. 100
45127 Essen

Date of delivery 2009-04-30

Storage conditiones ..... room temperature

Active substance(s) ..... amphoteric surfactants

Test method and its validation

Method ..... quantitative suspension test,
dilution-neutralization method

Neutralizer ..... polysorbate 80 (30 g/l),
saponin (30 g/l), histidine (1 g/l),
lecithin (3 g/l)

Experimental conditions

Period of analysis	2009-05-06 bis 2009-05-20
Diluent used for product test solutions	sterile hard water (300 mg/kg $CaCO_3$)
Product test concentrations	0.01; 0.125; 0.25; 0.5; 1.0 % (V/V)
Appearance of the product and its dilutions	yellowish to colourless clear solutions
Stability of the mixture	no precipitation during the test
Temperature of incubation	37°C ± 1°C
test organisms	Staphylococcus aureus ATCC 6538 Pseudomonas aeruginosa ATCC 15442 Escherichia coli ATCC 10536 Enterococcus hirae ATCC 10541

Obligatory test conditions

Contact time	5 min ± 10 sec
Test temperature	20°C ± 1°C
Interfering substance(s)	0.3 g/ l bovine albumin 3.0 g/ l bovine albumin

Specific test conditions

Contact time	5 min ± 10 sec
Test temperature	10°C ± 1°C
Interfering substance(s)	0.3 g/ l bovine albumin 3.0 g/ l bovine albumin

Test results

s. tables D.1.1; D.1.2; D.2.1; D.2.2

Conclusion

According to BS EN 1276 (1997) the batch ES 68757650 of the product **TEGO 2000**

possesses bactericidal activity
at a concentration of **0.125** % in hard water

for the referenced strains of Staphylococcus aureus ATCC 6538, Pseudomonas aeruginosa ATCC 15442, Escherichia coli ATCC 10536 and Enterococcus hirae ATCC 10541 for **obligatory** purposes at **20**°C with a **5** min contact time and under low level soiling (0.3 g/l bovine albumin) conditions.

According to BS EN 1276 (1997) the batch ES 68757650 of the product **TEGO 2000**

possesses bactericidal activity
at a concentration of **0.5** % in hard water

for the referenced strains of Staphylococcus aureus ATCC 6538, Pseudomonas aeruginosa ATCC 15442, Escherichia coli ATCC 10536 and Enterococcus hirae ATCC 10541 for **obligatory** purposes at **20**°C with a **5** min contact time and under high level soiling (3.0 g/l bovine albumin) conditions.

According to BS EN 1276 (1997) the batch ES 68757650 of the product **TEGO 2000**

possesses bactericidal activity
at a concentration of **0.5** % in hard water

for the referenced strains of Staphylococcus aureus ATCC 6538, Pseudomonas aeruginosa ATCC 15442, Escherichia coli ATCC 10536 and Enterococcus hirae ATCC 10541 for specific purposes at **10**°C with a **5** min contact time and under low level soiling (0.3 g/l bovine albumin) conditions.

According to BS EN 1276 (1997) the batch ES 68757650 of the product **TEGO 2000**

possesses bactericidal activity
at a concentration of **1.0** % in hard water

for the referenced strains of Staphylococcus aureus ATCC 6538, Pseudomonas aeruginosa ATCC 15442, Escherichia coli ATCC 10536 and Enterococcus hirae ATCC 10541 for specific purposes at **10**°C with a **5** min contact time and under high level soiling (3.0 g/l bovine albumin) conditions.

Technische Mikrobiologie
Dr. Jutta Höffler GmbH

Hamburg, 2009-05-20

Dr. Jutta Höffler

Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas/ BS EN 1276

product: TEGO 2000, Lot ES 68757650 **test conditions: 5 min, 20°C, bovine albumin 0.3 g/l**

Table D.1.1 Test results

Test organisms	Validation test: Bacterial suspension (see A.2)	Validation test: Experimental conditions (see A.4.1.a)	Validation test: Neutralizer toxicity control (see A.4.1.b)	Validation test: Dilution-neutralization control (see A.4.1.c)	Bacterial test suspension (5.4.1.4)		Test procedure at concentration (V/V) (see 5.5.2): 0.01 %	0.125 %	0.25 %	0.5 %
Staphylococcus aureus ATCC 6538	V_c : 113/105 N_v: 1.1×10^3	V_c : 108/148 A: 1.3×10^2	V_c : 176/156 B: 1.7×10^2	V_c : 122/144 C: 1.3×10^2	10^{-6}: 222/230 10^{-7}: 26/23 N: 2.3×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<7.7 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$
Pseudomonas aeruginosa ATCC 15442	V_c : 288/262 N_v: 2.8×10^3	V_c : 154/144 A: 1.5×10^2	V_c : 186/146 B: 1.7×10^2	V_c : 200/128 C: 1.6×10^2	10^{-6}: >300/>300 10^{-7}: 50/50 N: 5.0×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<1.7 \times 10^4$	0/0 $<1.5 \times 10^2$ $>3.3 \times 10^5$	0/0 $<1.5 \times 10^2$ $>3.3 \times 10^5$	0/0 $<1.5 \times 10^2$ $>3.3 \times 10^5$
Escherichia coli ATCC 10536	V_c : 88/112 N_v: 1.0×10^3	V_c : 70/100 A: 8.5×10^1	V_c : 120/128 B: 1.2×10^2	V_c : 58/52 C: 5.5×10^1	10^{-6}: 152/160 10^{-7}: 16/19 N: 1.6×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<5.3 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$
Enterococcus hirae ATCC 10541	V_c : 111/155 N_v: 1.3×10^3	V_c : 160/166 B: 1.6×10^2	V_c : 120/184 B: 1.5×10^2	V_c : 192/148 C: 1.7×10^2	10^{-6}: 240/220 10^{-7}: 37/27 N: 2.4×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<8.0 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$

V_c	viable count
N	Number of cfu/ml of the bacterial test suspension (see 5.4.1.4)
Nv	Number of cfu/ml of the bacterial suspension (see A.2)
R	reduction in viability (see 5.6.3)
N_a	number of cfu/ml in the test mixture (see 5.5.2.2.3)
A	number of cfu/ml of the experimental conditions validation (see A.4.1a)
B	number of cfu/ml of the neutralizer toxicity validation (see A.4.1b)
C	the number of cfu/ml of the dilution-neutralization validation (see A.4.1.c)

Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas/ BS EN 1276

product: TEGO 2000, Lot ES 68757650 **test conditions: 5 min, 20°C, bovine albumin 3.0 g/l**

Table D.1.2 Test results

Test organisms	Validation test: Bacterial suspension (see A.2)	Validation test: Experimental conditions (see A.4.1.a)	Validation test: Neutralizer toxicity control (see A.4.1.b)	Validation test: Dilution-neutralization control (see A.4.1.c)	Bacterial test suspension (5.4.1.4)		Test procedure at concentration (V/V) (see 5.5.2): 0.125 %	0.25 %	0.5 %	1.0%
Staphylococcus aureus ATCC 6538	V_c : 113/105 N_v: 1.1×10^3	V_c : 156/112 A: 1.3×10^2	V_c : 176/156 B: 1.7×10^2	V_c : 128/128 C: 1.3×10^2	10^{-6}: 222/230 10^{-7}: 26/23 N: 2.3×10^8	V_c N_a R	48/70 5.9×10^2 3.9×10^4	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$
Pseudomonas aeruginosa ATCC 15442	V_c : 288/262 N_v: 2.8×10^3	V_c : 160/128 A: 1.4×10^2	V_c : 186/146 B: 1.7×10^2	V_c : 178/172 C: 1.8×10^2	10^{-6}: >300/>300 10^{-7}: 50/50 N: 5.0×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<1.7 \times 10^4$	12/8 $<1.5 \times 10^2$ $>3.3 \times 10^5$	0/0 $<1.5 \times 10^2$ $>3.3 \times 10^5$	0/0 $<1.5 \times 10^2$ $>3.3 \times 10^5$
Escherichia coli ATCC 10536	V_c : 88/112 N_v: 1.0×10^3	V_c : 104/74 A: 8.9×10^1	V_c : 120/128 B: 1.2×10^2	V_c : 60/62 C: 6.1×10^1	10^{-6}: 152/160 10^{-7}: 16/19 N: 1.6×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<5.3 \times 10^3$	>300/>300 $>3.0 \times 10^3$ $<5.3 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$
Enterococcus hirae ATCC 10541	V_c : 111/155 N_v: 1.3×10^3	V_c : 188/212 B: 2.0×10^2	V_c : 120/184 B: 1.5×10^2	V_c : 112/190 C: 1.5×10^2	10^{-6}: 240/220 10^{-7}: 37/27 N: 2.4×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<8.0 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$

V_c	viable count
N	Number of cfu/ml of the bacterial test suspension (see 5.4.1.4)
Nv	Number of cfu/ml of the bacterial suspension (see A.2)
R	reduction in viability (see 5.6.3)
N_a	number of cfu/ml in the test mixture (see 5.5.2.2.3)
A	number of cfu/ml of the experimental conditions validation (see A.4.1a)
B	number of cfu/ml of the neutralizer toxicity validation (see A.4.1b)
C	the number of cfu/ml of the dilution-neutralization validation (see A.4.1.c)

Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas/ BS EN 1276

product: TEGO 2000, Lot ES 68757650 **test conditions: 5 min, 10°C, bovine albumin 0.3 g/l**

Table D.2.1 Test results

Test organisms	Validation test: Bacterial suspension (see **A.2**)	Validation test: Experimental conditions (see **A.4.1.**a)	Validation test: Neutralizer toxicity control (see **A.4.1.**b)	Validation test: Dilution-neutralization control (see **A.4.1.**c)	Bacterial test suspension (5.4.1.4)		Test procedure at concentration (V/V) (see **5.5.2**) 0.01 %	0.125 %	0.25 %	0.5 %
Staphylococcus aureus ATCC 6538	V_c : 113/105 N_v: 1.1×10^3	V_c : 138/118 A: 1.3×10^2	V_c : 98/96 B: 9.7×10^1	V_c : 116/104 C: 1.1×10^2	10^{-6}: 222/230 10^{-7}: 26/23 N: 2.3×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<7.7 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$
Pseudomonas aeruginosa ATCC 15442	V_c : 288/262 N_v: 2.8×10^3	V_c : 214/198 A: 2.1×10^2	V_c : 200/220 B: 2.1×10^2	V_c : 168/192 C: 1.8×10^2	10^{-6}: >300/>300 10^{-7}: 50/50 N: 5.0×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<1.7 \times 10^4$	>300/>300 $>3.0 \times 10^3$ $<1.7 \times 10^4$	>300/>300 $>3.0 \times 10^3$ $<1.7 \times 10^4$	2/0 $<1.5 \times 10^2$ $>3.3 \times 10^5$
Escherichia coli ATCC 10536	V_c : 88/112 N_v: 1.0×10^3	V_c : 68/70 A: 6.9×10^1	V_c : 68/92 B: 8.0×10^1	V_c : 60/66 C: 6.3×10^1	10^{-6}: 152/160 10^{-7}: 16/19 N: 1.6×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $>5.3 \times 10^3$	>300/>300 $>3.0 \times 10^3$ $>5.3 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$
Enterococcus hirae ATCC 10541	V_c : 111/155 N_v: 1.3×10^3	V_c : 106/100 B: 1.0×10^2	V_c : 112/80 B: 9.6×10^1	V_c : 100/106 C: 1.0×10^2	10^{-6}: 240/220 10^{-7}: 37/27 N: 2.4×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<8.0 \times 10^3$	>300/>300 $>3.0 \times 10^3$ $<8.0 \times 10^3$	10/18 $<1.5 \times 10^2$ $>1.6 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$

V_c	viable count
N	Number of cfu/ml of the bacterial test suspension (see 5.4.1.4)
Nv	Number of cfu/ml of the bacterial suspension (see A.2)
R	reduction in viability (see 5.6.3)
N_a	number of cfu/ml in the test mixture (see 5.5.2.2.3)
A	number of cfu/ml of the experimental conditions validation (see A.4.1a)
B	number of cfu/ml of the neutralizer toxicity validation (see A.4.1b)
C	the number of cfu/ml of the dilution-neutralization validation (see A.4.1.c)

Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas/ BS EN 1276

product: TEGO 2000, Lot ES 68757650 **test conditions: 5 min, 10°C, bovine albumin 3.0 g/l**

Table D.2.2 Test results

Test organisms	Validation test: Bacterial suspension (see A.2)	Validation test: Experimental conditions (see A.4.1.a)	Validation test: Neutralizer toxicity control (see A.4.1.b)	Validation test: Dilution-neutralization control (see A.4.1.c)	Bacterial test suspension (5.4.1.4)		Test procedure at concentration (V/V) (see 5.5.2): 0.125 %	0.25 %	0.5 %	1.0%
Staphylococcus aureus ATCC 6538	V_c : 113/105 N_v: 1.1×10^3	V_c : 106/76 A: 9.1×10^1	V_c : 98/96 B: 9.7×10^1	V_c : 144/108 C: 1.3×10^2	10^{-6}: 222/230 10^{-7}: 26/23 N: 2.3×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<7.6 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.5 \times 10^5$
Pseudomonas aeruginosa ATCC 15442	V_c : 288/262 N_v: 2.8×10^3	V_c : 188/168 A: 1.8×10^2	V_c : 200/220 B: 2.1×10^2	V_c : 176/208 C: 1.9×10^2	10^{-6}: >300/>300 10^{-7}: 50/50 N: 5.0×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<1.7 \times 10^4$	>300/>300 $>3.0 \times 10^3$ $<1.7 \times 10^4$	96/90 9.3×10^2 5.4×10^4	0/0 $<1.5 \times 10^2$ $>3.3 \times 10^5$
Escherichia coli ATCC 10536	V_c : 88/112 N_v: 1.0×10^3	V_c : 104/122 A: 1.1×10^2	V_c : 68/92 B: 8.0×10^1	V_c : 60/50 C: 5.5×10^1	10^{-6}: 152/160 10^{-7}: 16/19 N: 1.6×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<5.3 \times 10^3$	>300/>300 $>3.0 \times 10^3$ $<5.3 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.1 \times 10^5$
Enterococcus hirae ATCC 10541	V_c : 111/155 N_v: 1.3×10^3	V_c : 112/66 B: 8.9×10^1	V_c : 112/80 B: 9.6×10^1	V_c : 102/110 C: 1.1×10^2	10^{-6}: 240/220 10^{-7}: 37/27 N: 2.4×10^8	V_c N_a R	>300/>300 $>3.0 \times 10^3$ $<8.0 \times 10^3$	>300/>300 $>3.0 \times 10^3$ $<8.0 \times 10^3$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$	0/0 $<1.5 \times 10^2$ $>1.6 \times 10^5$

V_c	viable count
N	Number of cfu/ml of the bacterial test suspension (see 5.4.1.4)
Nv	Number of cfu/ml of the bacterial suspension (see A.2)
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N_a	number of cfu/ml in the test mixture (see 5.5.2.2.3)
A	number of cfu/ml of the experimental conditions validation (see A.4.1a)
B	number of cfu/ml of the neutralizer toxicity validation (see A.4.1b)
C	the number of cfu/ml of the dilution-neutralization validation (see A.4.1.c)