

Antiseptica  
chem. pharm. Prod. GmbH  
Carl-Friedrich-Gauß-Str. 7

D- 50259 Pulheim-Brauweiler

Dear Sirs,

based on your order, we have investigated your product Manorapid Synergy, registered in the USA by the FDA under NDC-67723-1230-1, for its bactericidal activity.

The testing was carried out according to the test requirements Section 333.470, testing of health-care antiseptic drugs of the Tentative Final Monograph for Health-Care Antiseptic Drug Products, Food and Drug Administration 21 CFR part 333 (1994).

The product was tested using EN 12054-test procedure, called "In-vitro Quantitative Suspension test for the evaluation of bactericidal activity of products for hygienic and surgical hand disinfection in human medicine" (see test reports 2004-02-08 and 2004-02-12).

The product was tested at following concentrations: 90%, 75%, 50%, 10% and contact times were 15 sec., 30 sec. and 1 minute.

All in-vitro tests included the ATCC strains required by the FDA to establish the product's efficacy.

The ATCC strains tested included the following organisms:

<i>Staphylococcus aureus</i>	ATCC 6538
<i>Enterococcus hirae</i>	ATCC 10541
<i>Enterococcus faecium</i>	ATCC 6057
<i>Pseudomonas aeruginosa</i>	ATCC 15442
<i>Proteus mirabilis</i>	ATCC 14153
<i>Enterococcus hirae</i>	ATCC 8043
<i>Staphylococcus haemolyticus</i>	ATCC 29970
<i>Staphylococcus hominis</i> subsp. <i>novobiosepticus</i>	ATCC 700236
<i>Staphylococcus saprophyticus</i>	ATCC 15305
<i>Enterococcus faecalis</i>	ATCC 29212
<i>Pseudomonas aeruginosa</i>	ATCC 27853
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	ATCC 13883
<i>Micrococcus luteus</i>	ATCC 7468
<i>Serratia marcescens</i>	ATCC 14756
<i>Staphylococcus epidermidis</i>	ATCC 12228
<i>Candida albicans</i>	ATCC 10231
<i>Escherichia coli</i>	ATCC 25922
<i>Acinetobacter haemolyticus</i>	ATCC 17906
<i>Haemophilus influenzae</i>	ATCC 10211
<i>Staphylococcus aureus</i>	ATCC 29213
<i>Candida glabrata</i>	ATCC 90030
<i>Bacteroides fragilis</i>	ATCC 25285
<i>Streptococcus pneumoniae</i>	ATCC 33400
<i>Streptococcus pyogenes</i>	ATCC 12344
<i>Escherichia coli</i>	ATCC 11229

In all test results, Manorapid Synergy NDC-67723-1230-1 has surpassed the required criteria of efficacy for hand antiseptic drug product as per FDA Monograph requirements and additionally also according to criteria for European Norms by achieving greater than 5 log reduction (greater than 99.999%) in 30 seconds or less.

In my position as a Convener of the Committee for the Centre for European Normalization CEN/TC 216/WG 1 for testing of Disinfectants and Antiseptics in human medicine I certify, that the results of this scientific test report reflect the efficacy of Manorapid Synergy as hand antiseptic drug.

A handwritten signature in black ink, consisting of several fluid, overlapping strokes that form a stylized, somewhat abstract shape.

Professor Dr. med. H-P.Werner

Antiseptica

2004-02-.....  
Prof. We/ku

**Manorapid Synergy**  
**prEN 12054 (July 2001)**  
**Bactericidal activity – phase 2 /step 1**

**T E S T R E P O R T**

Identification of the test laboratory: SN 3635

Test product: Manorapid Synergy

Batch number: Ch.B.: 03003

Manufacturer: Antiseptica

Date of delivery: 05.01.2004

Storage conditions: those of the manufacturer

Product diluent recommended by the manufacturer for use: concentrated

Appearance:

Odour:

Active substances:

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**test method:** **EN 12054 (July 2001)**  
**Quantitative suspension test for the evaluation of bactericidal activity of products for hygienic and surgical handrub in human medicine (phase 2/step1)**

inactivation method: dilution-neutralization

period of analysis: 2004-01-22 to 2004-02-...

diluent used for product test solution: water of stand.....

test temperature: 20 °C ± 1 °C

Product test concentrations: 90%;75% ; 50% and 10% (endconcentrations v/v)

contact times: 15 sec., 30sec., 1min

stability and appearance of the mixture during the procedure: no precipitate or flocculant

neutralizer or rinsing liquid: 1.0 % polysorbate 80 + 3.0 % saponine + 0.1 % histidine + 0.1 % cysteine

test organisms:

<i>Staphylococcus aureus</i>	ATCC 6538
<i>Enterococcus hirae</i>	ATCC 10541
<i>Enterococcus faecium</i>	ATCT 6057
<i>Pseudomonas aeruginosa</i>	ATCC 15442
<i>Proteus mirabilis</i>	ATCC 14153
<i>Enterococcus hirae</i>	ATCC 8043
<i>Staphylococcus haemolyticus</i>	ATCC 15305
<i>Staphylococcus hominis</i>	ATCC 700236
<i>subsp. novobiosepticus</i>	
<i>Staphylococcus saprophyticus</i>	ATCC 15305
<i>Enterococcus faecalis</i>	ATCC 29212
<i>Pseudomonas aeruginosa</i>	ATCC 27853
<i>Klebsiella pneumoniae</i>	ATCC 13883
<i>Micrococcus luteus</i>	ATCC 7468
<i>Serratia marcescens</i>	ATCC 14756
<i>Staphylococcus epidermidis</i>	ATCC 12228
<i>Candida albicans</i>	ATCC 10231
<i>Escherichia coli</i>	ATCC 25922
<i>Acinetobacter haemolyticus</i>	ATCC 17906
<i>Haemophilus influenzae</i>	ATCC 10211

**Testresults with teststrain *Staphylococcus aureus* ATCC 6538**

Date of test: 2004-01-22  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

Validation

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 184/148 Nvo: 166 Nv: 1.66 x 10 <sup>3</sup>	Vc: 117/148 A: 132.5	Vc: 154/118 B: 136	Vc: 119/139 C: 129

Testresults for Manorapid Synergy, diluted to 90%, 75 and 50% in hard water

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ):278/288 Vc (10 <sup>-7</sup> ):59/61 N: 3.12 x 10 <sup>8</sup> No: 3.12 x 10 <sup>7</sup> lgNo: 7.49	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.31	0/0 0/0 <150 <2.18 >5.31	0/0 0/0 <150 <2.18 >5.31
	75%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.31	0/0 0/0 <150 <2.18 >5.31	0/0 0/0 <150 <2.18 >5.31
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.31	0/0 0/0 <150 <2.18 >5.31	0/0 0/0 <150 <2.18 >5.31

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Enterococcus hirae* ATCC 10541**

Date of test: 2004-01-22  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 186/163 Nvo: 174.5 Nv: 1.74 x 10 <sup>3</sup>	Vc: 122/141 A: 131.5	Vc: 137/132 B: 134.5	Vc: 164/166 C: 165

**Testresults for Manorapid Synergy, diluted to 90%, 75 and 50% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ):207/199 Vc (10 <sup>-7</sup> ):52/48 N: 2.30 x 10 <sup>8</sup> No: 2.30 x 10 <sup>7</sup> lgNo: 7.36	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.18	0/0 0/0 <150 <2.18 >5.18	0/0 0/0 <150 <2.18 >5.18
	75%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.18	0/0 0/0 <150 <2.18 >5.18	0/0 0/0 <150 <2.18 >5.18
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.18	0/0 0/0 <150 <2.18 >5.18	0/0 0/0 <150 <2.18 >5.08

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17≤lgN≤8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17≤lgN≤7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

## Testresults with teststrain *Enterococcus faecium* ATCC 6057

Date of test: 2004-01-22  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

### Validation

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 90/98 Nvo: 94 Nv: 9.4 x 10 <sup>2</sup>	Vc: 79/781 A: 78.5	Vc: 118/80 B: 99	Vc: 74/74 C: 74

### Testresults for Manorapid Synergy, diluted to 90%, 75 and 50% in hard water

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ):183/162 Vc (10 <sup>-7</sup> ):28/29 N: 1.83 x 10 <sup>8</sup> No: 1.83 x 10 <sup>7</sup> lgNo: 7.26	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.08	0/0 0/0 <150 <2.18 >5.08	0/0 0/0 <150 <2.18 >5.08
	75%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.08	0/0 0/0 <150 <2.18 >5.08	0/0 0/0 <150 <2.18 >5.08
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.08	0/0 0/0 <150 <2.18 >5.08	0/0 0/0 <150 <2.18 >5.08

#### Verification of the methodology

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

#### Legend

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Pseudomonas aeruginosa* ATCC 15442**

Date of test: 2004-01-22  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

Validation

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 180/177 Nvo: 178,5 Nv: 1.78 x 10 <sup>3</sup>	Vc: 111/113 A: 112	Vc: 133/126 B: 129.5	Vc: 121/140 C: 130.5

Testresults for Manorapid Synergy, diluted to 90%, 75 and 50% in hard water

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ):282/271 Vc (10 <sup>-7</sup> ):56/55 N: 3.02 x 10 <sup>8</sup> No: 3.02 x 10 <sup>7</sup> lgNo: 7.48	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.30	0/0 0/0 <150 <2.18 >5.30	0/0 0/0 <150 <2.18 >5.30
	75%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.30	0/0 0/0 <150 <2.18 >5.30	0/0 0/0 <150 <2.18 >5.30
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.30	0/0 0/0 <150 <2.18 >5.30	0/0 0/0 <150 <2.18 >5.30

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

## Testresults with teststrain *Proteus mirabilis* ATCC 14153

Date of test: 2004-01-23  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

### Validation

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 222/187 Nvo: 204,5 Nv: 2.04 x 10 <sup>3</sup>	Vc: 165/160 A: 162.5	Vc: 155/152 B: 153.5	Vc: 176/156 C: 166

### Testresults for Manorapid Synergy, diluted to 90%, 75 and 50% in hard water

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 256/277 Vc (10 <sup>-7</sup> ): 60/56 N: 2.95 x 10 <sup>8</sup> No: 2.95 x 10 <sup>7</sup> lgNo: 7.47	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29
	75%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29

#### Verification of the methodology

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

#### Legend

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Enterococcus hirae* ATCC 8043**

Date of test: 2004-01-23  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 132/172 Nvo: 152 Nv: 1.52 x 10 <sup>3</sup>	Vc: 78/74 A: 76	Vc: 74/64 B: 69	Vc: 102/122 C: 112

**Testresults for Manorapid Synergy, diluted to 90%, 75 and 50% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 278/264 Vc (10 <sup>-7</sup> ):78/31 N: 2.96 x 10 <sup>8</sup> No: 2.96 x 10 <sup>7</sup> lgNo: 7.47	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29
	75%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29	0/0 0/0 <150 <2.18 >5.29

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17≤lgN≤8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17≤lgN≤7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Staphylococcus haemolyticus* ATCC 29970**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 115/110 Nvo: 112.5 Nv: 1.13 x 10 <sup>3</sup>	Vc: 114/113 A: 113.5	Vc: 118/112 B: 115	Vc: 116/116 C: 116

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 139/139 Vc (10 <sup>-7</sup> ):24/33 N: 1.52 x 10 <sup>8</sup> No: 1.52 x 10 <sup>7</sup> lgNo: 7.18	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17≤lgN≤8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17≤lgN≤7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Staphylococcus hominis* subsp. novobiosepticus  
ATCC 700236**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Trypticase Soy Yeast Extract Medium

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 180/102 Nvo: 141 Nv: 1.41 x 10 <sup>3</sup>	Vc: 118/116 A: 117	Vc: 123/120 B: 121.5	Vc: 125/119 C: 122

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 168/146 Vc (10 <sup>-7</sup> ):21/22 N: 1.62 x 10 <sup>8</sup> No: 1.62 x 10 <sup>7</sup> lgNo: 7.21	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.03	0/0 0/0 <150 <2.18 >5.03	0/0 0/0 <150 <2.18 >5.03
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.03	0/0 0/0 <150 <2.18 >5.03	0/0 0/0 <150 <2.18 >5.03
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.73	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.73	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.73

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17≤lgN≤8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17≤lgN≤7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Staphylococcus saprophyticus* ATCC 15305**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 202/168 Nvo: 185 Nv: 1.85 x 10 <sup>3</sup>	Vc: 160/158 A: 159	Vc: 156/150 B: 153	Vc: 200/168 C: 184

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 352/332 Vc (10 <sup>-7</sup> ):42/41 N: 4.15 x 10 <sup>8</sup> No: 4.15 x 10 <sup>7</sup> lgNo: 7.62	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.44	0/0 0/0 <150 <2.18 >5.44	0/0 0/0 <150 <2.18 >5.44
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.44	0/0 0/0 <150 <2.18 >5.44	0/0 0/0 <150 <2.18 >5.44
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.14	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.14	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.14

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Enterococcus faecalis* ATCC 29212**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 133/132 Nvo: 132.5 Nv: 1.33 x 10 <sup>3</sup>	Vc: 146/120 A: 133	Vc: 148/146 B: 147	Vc: 156/135 C: 145.5

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 305/278 Vc (10 <sup>-7</sup> ):41/23 N: 3.2 x 10 <sup>8</sup> No: 3.2 x 10 <sup>7</sup> lgNo: 7.51	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.33	0/0 0/0 <150 <2.18 >5.33	0/0 0/0 <150 <2.18 >5.33
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.33	0/0 0/0 <150 <2.18 >5.33	0/0 0/0 <150 <2.18 >5.33
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.03	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.03	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.03

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Pseudomonas aeruginosa* ATCC 27853**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 150/133 Nvo: 141.5 Nv: 1.42 x 10 <sup>3</sup>	Vc: 142/140 A: 141	Vc: 148/132 B: 140	Vc: 144/130 C: 137

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 276/268 Vc (10 <sup>-7</sup> ): 28/28 N: 2.73 x 10 <sup>8</sup> No: 2.73 x 10 <sup>7</sup> lgNo: 7.44	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.26	0/0 0/0 <150 <2.18 >5.26	0/0 0/0 <150 <2.18 >5.26
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.26	0/0 0/0 <150 <2.18 >5.26	0/0 0/0 <150 <2.18 >5.26
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.96	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.96	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.96

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Klebsiella pneumoniae* ATCC 13883**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Nutrient Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 212/204 Nvo: 208 Nv: 2.08 x 10 <sup>3</sup>	Vc: 192/212 A: 202	Vc: 140/164 B: 152	Vc: 108/92 C: 100

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 308/376 Vc (10 <sup>-7</sup> ):56/42 N: 4.9 x 10 <sup>8</sup> No: 4.9 x 10 <sup>7</sup> lgNo: 7.69	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.51	0/0 0/0 <150 <2.18 >5.51	0/0 0/0 <150 <2.18 >5.51
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.51	0/0 0/0 <150 <2.18 >5.51	0/0 0/0 <150 <2.18 >5.51
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.21	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.21	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.21

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Micrococcus luteus* ATCC 7468**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 30 °C ± 1 °C – 48 h  
 Medium: Nutrient Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 48/55 Nvo: 51.5 Nv: 5.15 x 10 <sup>2</sup>	Vc: 30/40 A: 35	Vc: 22/36 B: 29	Vc: 21/20 C: 20.5

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 210/230 Vc (10 <sup>-7</sup> ): 26/23 N: 2.22 x 10 <sup>8</sup> No: 2.22 x 10 <sup>7</sup> lgNo: 7.35	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.17	0/0 0/0 <150 <2.18 >5.17	0/0 0/0 <150 <2.18 >5.17
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.17	0/0 0/0 <150 <2.18 >5.17	0/0 0/0 <150 <2.18 >5.17
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	10/10 0/0 <150 <2.18 >5.17	6/8 0/0 <150 <2.18 >5.17	0/0 0/0 <150 <2.18 >5.17

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Serratia marcescens* ATCC 14756**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 26 °C ± 1 °C – 48 h  
 Medium: Nutrient Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 284/228 Nvo: 265 Nv: 2.56 x 10 <sup>3</sup>	Vc: 188/172 A: 180	Vc: 120/124 B: 122	Vc: 196/192 C: 194

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 376/388 Vc (10 <sup>-7</sup> ):54/34 N: 4.4 x 10 <sup>8</sup> No: 4.4 x 10 <sup>7</sup> lgNo: 7.64	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.46	0/0 0/0 <150 <2.18 >5.46	0/0 0/0 <150 <2.18 >5.46
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.46	0/0 0/0 <150 <2.18 >5.46	0/0 0/0 <150 <2.18 >5.46
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.16	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.16	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.16

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Staphylococcus epidermidis* ATCC 12228**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 80/62 Nvo: 71 Nv: 7.1 x 10 <sup>2</sup>	Vc: 76/68 A: 72	Vc: 64/60 B: 62	Vc: 64/60 C: 62

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 168/164 Vc (10 <sup>-7</sup> ): 21/13 N: 1.66 x 10 <sup>8</sup> No: 1.66 x 10 <sup>7</sup> lgNo: 7.22	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.04	0/0 0/0 <150 <2.18 >5.04	0/0 0/0 <150 <2.18 >5.04
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.04	0/0 0/0 <150 <2.18 >5.04	0/0 0/0 <150 <2.18 >5.04
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.74	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.74	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.74

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Candida albicans* ATCC 10231**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 30 °C ± 1 °C – 48 h  
 Medium: Malt Extract Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 108/80 Nvo: 94 Nv: 9.4 x 10 <sup>2</sup>	Vc: 88/68 A: 78	Vc: 108/100 B: 104	Vc: 96/84 C: 90

**Testresults for Manorapid Synergy, diluted to 90%, 75 and 50% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 140/136 Vc (10 <sup>-7</sup> ): 32/28 N: 1.53 x 10 <sup>8</sup> No: 1.53 x 10 <sup>7</sup> lgNo: 7.18	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00
	75%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Escherichia coli* ATCC 25922**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 124/116 Nvo: 120 Nv: 1.20 x 10 <sup>3</sup>	Vc: 112/104 A: 108	Vc: 176/136 B: 156	Vc: 116/84 C: 100

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 240/224 Vc (10 <sup>-7</sup> ): 28/22 N: 2.34 x 10 <sup>8</sup> No: 2.34 x 10 <sup>7</sup> lgNo: 7.37	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.19	0/0 0/0 <150 <2.18 >5.19	0/0 0/0 <150 <2.18 >5.19
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.19	0/0 0/0 <150 <2.18 >5.19	0/0 0/0 <150 <2.18 >5.19
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.89	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.89	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.89

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Acinetobacter haemolyticus* ATCC 17906**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 28 °C ± 1 °C – 48 h  
 Medium: Tryptone Soya Agar

**Validation**

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 66/54 Nvo: 60 Nv: 6.0 x 10 <sup>2</sup>	Vc: 58/46 A: 52	Vc: 60/40 B: 50	Vc: 60/56 C: 58

**Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water**

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 140/120 Vc (10 <sup>-7</sup> ): 36/40 N: 1.53 x 10 <sup>8</sup> No: 1.53 x 10 <sup>7</sup> lgNo: 7.18	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00	0/0 0/0 <150 <2.18 >5.00
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : N <sub>a</sub> : lgN <sub>a</sub> : lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <3.70

**Verification of the methodology**

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17 ≤ lgN ≤ 8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17 ≤ lgN ≤ 7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

**Legend**

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 N<sub>a</sub> is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Testresults with teststrain *Haemophilus influenzae* ATCC 17906**

Date of test: 2004-01-28  
 counting procedure: pour plate method  
 Incubation: 36 °C ± 1 °C – 48 h, microaerobic  
 Medium: Mueller Hinton Agar with Haemophilus-Supplement

Validation

Bacterial suspension for validation (Nv and Nvo)	Validation of neutralization and experimental conditions		
	Experimental test with hard water (A)	Control (B)	Test (C)
Vc(10 <sup>-1</sup> ): 172/108 Nvo: 140 Nv: 1.40 x 10 <sup>3</sup>	Vc: 168/135 A: 151.5	Vc: 136/176 B: 156	Vc: 172/132 C: 152

Testresults for Manorapid Synergy, diluted to 90%, 50 and 10% in hard water

Bacterial test suspension (N and No)	Concentration of test product (v/v)	After contact time			
			15 sec.	30 sec.	1 min.
Vc (10 <sup>-6</sup> ): 304/332 Vc (10 <sup>-7</sup> ):52/39 N: 4.55 x 10 <sup>8</sup> No: 4.55 x 10 <sup>7</sup> lgNo: 7.66	90%	10 <sup>0</sup> : 10 <sup>-1</sup> : Na: lgNa: lgR:	0/0 0/0 <150 <2.18 >5.48	0/0 0/0 <150 <2.18 >5.48	0/0 0/0 <150 <2.18 >5.48
	50%	10 <sup>0</sup> : 10 <sup>-1</sup> : Na: lgNa: lgR:	0/0 0/0 <150 <2.18 >5.48	0/0 0/0 <150 <2.18 >5.48	0/0 0/0 <150 <2.18 >5.48
	10%	10 <sup>0</sup> : 10 <sup>-1</sup> : Na: lgNa: lgR:	>300/>300 >300/>300 >3.0 x 10 <sup>3</sup> >3.48 <4.18	272/184 28/21 2.30 x 10 <sup>3</sup> 3.36 4.30	0/0 0/0 <150 <2.18 >5.48

Verification of the methodology

N is between 1.5 and 5.0 x 10<sup>8</sup> cfu/ml (8.17≤lgN≤8.70)  
 No is between 1.5 and 5.0 x 10<sup>7</sup> cfu/ml (7.17≤lgN≤7.70)  
 Nvo is between 45 and 300 cfu/ml (4.5 x 10<sup>1</sup> and 3.0 x 10<sup>2</sup>)  
 Nv is between 4.5 x 10<sup>2</sup> and 3.0 x 10<sup>3</sup>  
 A, B are equal to or greater than 0.5 x Nvo  
 C is greater than 0.5 x B

Legend

N is number of cfu/ml of the bacterial test suspension  
 Nv is number of cfu/ml of the bacterial suspension  
 R is reduction of viability  
 Na is number of cfu/ml in the test mixture  
 A is number of cfu/ml of the experimental condition control  
 B is number of cfu/ml of the neutralizer toxicity control or the filtration control  
 C is number of cfu/ml of the dilution neutralisation test control or the membrane filtration test control

**Conclusion:** According to prEN 12054 (July 2001), the batch of product possesses a

**Archive:** The raw with respect to this test and a copy of the report will be maintained by HygCen in the archive.

HygCen  
Centrum für Hygiene und  
med. Produktsicherheit GmbH

Prof. Dr. med. H.-P. Werner  
Manager of technical affairs

Kathrin Naujox  
Department manager