

Copy No.: 1
Issue No.: 1

Test report No. D163/2015

DETERMINATION OF BACTERICIDAL AND YEASTICIDAL (EN 16615)
ACTIVITY OF THE PRODUCT **Chloramix DT**

Sample ID: D163/2015
Sample name: **Chloramix DT**
Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín
Producer: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín
Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Page: 1
From pages: 15

Incoming date:
17.9.2015

Delivery date:
14.12.2015

Hodonín, 14.12.2015



Ing. Jana Šlitrová, Head of Laboratory

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Description: *Testing the efficacy of chemical disinfectants and antiseptics*

Sample ID: D163/2015

Rep No: 167

Sample name: **Chloramix DT**

Sampled: by client

Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Sampling date: 16.9.2015

Sample delivered: 17.9.2015

Testing date: 26.10. – 12.11.2015

Delivered amount: 1 kg

Batch No: BN 563985

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Subject of testing:

Determination of bactericidal and yeasticidal activity of the product.

Identification of the sample:

Name of the product:

Chloramix DT

Batch number:

BN 563985

Date of manufacture:

08/2015

Expiry date:

08/2018

Manufacturer:

SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Incoming date:

17.9.2015

Storage conditions:

18 °C – 25 °C

Active compounds and concentrations:

Dichlorisokyanurát sodný, dihydrát (CAS 51580-86-0) 750 g/kg

Experimental conditions:

Testing of disinfecting efficiency of chemical disinfecting and antiseptic agents on carriers

SOP-M-22-12 (EN 16615)

Period of analysis:

26.10. – 12.11.2015

Lab temperature:

20 °C ± 2.5 °C

Temperature of media:

20 °C ± 1 °C

Test method:

dilution neutralization method

Neutralization medium:

Dey-Engley Neutralizing Broth M 1062

Appearance of the product:

white tablets

Product diluent:

hard water

Test liquid:

hard water + polysorbate 80

Test concentration:

2 tab/3 l (1 tab = 3.3873 g)

Contact time:

5 min

Interfering substances:

3 g/l BSA and 3 ml/l sheep erythrocytes (dirty conditions)

Test organisms:

Pseudomonas aeruginosa ATCC 15442

Staphylococcus aureus ATCC 6538

Enterococcus hirae ATCC 10541

Incubation conditions:

37 °C ± 1 °C, 24 hours

Test organisms:

Candida albicans ATCC 10231

Incubation conditions:

30 °C ± 1 °C, 48 hours and additional period of 24 or 48 hours

Test surface:

PVC with PUR coating, width 2.5 mm, 20 cm x 50 cm. The surface is cleaned by 70% n-propanol. After drying draw 4 squares 5 cm x 5 cm 5 cm apart, mark them as test fields 1 to 4. The drying controls D_{Co} and D_{Ct} are performed on smaller surface (7 cm x 13 cm, 2 squares 5 cm x 5 cm).

Wipe:

17.5 cm x 28 cm, 55% cellulose, 45% polyethylenterephthalate (PET), the wipe is used only once. 30 minutes before testing put the wipe in PD with 16 ml of the product solution. The wet wipe is weighed before and after testing.

Test weight:

granite, length 12.1 cm, width 8.6 cm, height 8.6 cm, weight 2.3 kg to 2.5 kg

Tampons:

sterile, disposable, tip should be made of pure cotton without compounds inhibiting or supporting the effect of product solution or growth of microorganisms

Paraffin:

disposable, protecting the horizontal surface and vertical surfaces before contamination during wiping

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Test procedure:

1. Preparation of the test suspension
2. Determination of CFU in the test suspension
3. Quantitative test on carriers according to EN 16615
4. Incubation and calculation
5. Expression and interpretation of results

Note:

Bactericidal activity – the capability of a product to produce a reduction in the number of viable bacterial cells of relevant organisms under defined conditions on nonporous surface in the field 1 by at least 5 orders (10^5).

Yeasticidal activity – the capability of a product to produce a reduction in the number of viable yeast cells of *Candida albicans* under defined conditions on nonporous surface in the field 1 by at least 4 orders (10^4).

$R = D_{Ct} / N_a$ or $\lg R = \lg D_{Ct} - \lg N_a$ the reduction in viability, the drying time: 40 – 45 min

The standard:

EN 16615 Chemical disinfectants and antiseptics – Quantitative test method for the evaluation of bactericidal and yeasticidal activity on non-porous surfaces with mechanical action employing wipes in the medical area – Test method and requirements (phase 2, step 2) April 2015

The Number of CFU in the tested product **Chloramix DT**: $<10^1/g$

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1. Testing the efficacy of chemical disinfectant **Chloramix DT** on *Pseudomonas aeruginosa* ATCC 15442 on non-porous surfaces

Tab No. 1.1 Verification of methodology, temperature 20°C, dirty conditions

Validation of suspension (N _{vo})			Neutralizer toxicity control (B)			Method validation (C), product conc. 2 tab/3 l		
V _{c1}	55	Φ _{N_{vo}} = 57.5	V _{c1}	55	Φ _B = 58	V _{c1}	60	Φ _C = 60
V _{c2}	60		V _{c2}	61		V _{c2}	60	
30 ≤ Φ _{N_{vo}} ≤ 160			Φ _B ≥ 0.5 Φ _{N_{vo}}			Φ _C ≥ 0.5 Φ _{N_{vo}}		
x	yes	no	x	yes	no	x	yes	no

Tab No. 1.2 Test suspension

Test suspension N	Dilution	V _{c1}	V _{c1}	Test suspension N ₀
Φ = 272 x 10 ⁷ = lg 9.43	10 ⁻⁷	260	292	N ₀ = N/20, lg N ₀ = 8.13
9.17 ≤ lg N ≤ 9.70	10 ⁻⁸	17	29	7.88 ≤ lg N ₀ ≤ 8.40
				x yes no

Tab No. 1.2.1 Drying in time 0

Drying control (D _{c0})	Dilution	V _{c1}	V _{c1}	Φ = 138 x 10 ⁶ = lg 8.14
	10 ⁻⁶	140	136	6.88 ≤ lg D _{c0} ≤ 8.40
	10 ⁻⁷	<14	<14	
				x yes no

Tab No. 1.2.2 Drying in time t

Drying control (D _c)	Dilution	V _{c1}	V _{c1}	Φ = 131.5 x 10 ⁶ = lg 8.12
	10 ⁻⁶	128	135	6.88 ≤ lg D _c ≤ 8.40
	10 ⁻⁷	<14	<14	
				x yes no

Tab No. 1.3.1 Test with water N_w – the effect of water on *Pseudomonas aeruginosa* ATCC 15442 on non-porous surfaces, dirty conditions

Field / contact time (min)	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement >10 cfu/25 cm ²
2 / 5	10 ⁰	11	55	yes
3 / 5	10 ⁰	8	40	yes
4 / 5	10 ⁰	3	15	yes

Tab No. 1.3.2 Test – the effect of **Chloramix DT on *Pseudomonas aeruginosa* ATCC 15442 on non-porous surfaces, dirty conditions, field 2-4**

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement <50 cfu/25 cm ²
2 tab/3 l/5/dirty/2	10 ⁰	0	<14	yes
2 tab/3 l/5/dirty/3	10 ⁰	0	<14	yes
2 tab/3 l/5/dirty/4	10 ⁰	0	<14	yes

Tab No. 1.3.3 Test – the effect of **Chloramix DT on *Pseudomonas aeruginosa* ATCC 15442 on non-porous surfaces, dirty conditions, field 1**

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _{c1}	V _{c2}	lg N _a	lg R (lg D _{c1} = lg 8.12)
2 tab/3 l/5/dirty/1	10 ⁰	<14	<14	< 1.15	≥ 6.97

Tab No. 1.4 Test – weight of wipes before and after testing

Weight of wipes	Weight before testing (g)	Weight after testing (g)	Difference (g)
Wipe with Chloramix DT	19.3	18.5	0.8
Wipe with hard water + polysorbate 80	19.1	17.9	1.2

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml in the bacterial test suspension, N_{vo} = the number of cfu/ml in the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation R = D_{c1}/ N_a or lg R = lg D_{c1} – lg N_a the reduction in viability

Description: Testing the efficacy of chemical disinfectants and antiseptics

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2. Testing the efficacy of chemical disinfectant **Chloramix DT** on *Staphylococcus aureus* ATCC 6538 on non-porous surfaces

Tab No. 2.1 Verification of methodology, temperature 20°C, dirty conditions

Validation of suspension (N _{v0})			Neutralizer toxicity control (B)			Method validation (C), product conc. 2 tab/3 l		
V _{c1}	152	Φ _{Nv0} = 134	V _{c1}	151	Φ _B = 135	V _{c1}	118	Φ _C = 131
V _{c2}	116		V _{c2}	119		V _{c2}	144	
30 ≤ Φ _{Nv0} ≤ 160			Φ _B ≥ 0.5 Φ _{Nv0}			Φ _C ≥ 0.5 Φ _{Nv0}		
x	yes	no	x	yes	no	x	yes	no

Tab No. 2.2 Test suspension

Test suspension N	Dilution	V _{c1}	V _{c1}	Test suspension N ₀
Φ = 160 x 10 ⁷ = lg 9.20	10 ⁻⁷	146	156	N ₀ = N/20, lg N ₀ = 7.90
9.17 ≤ lg N ≤ 9.70	10 ⁻⁸	24	25	7.88 ≤ lg N ₀ ≤ 8.40
				x yes no

Tab No. 2.2.1 Drying in time 0

Drying control (D _{c0})	Dilution	V _{c1}	V _{c1}	Φ = 129 x 10 ⁶ = lg 8.11
	10 ⁻⁶	125	133	6.88 ≤ lg D _{c0} ≤ 8.40
	10 ⁻⁷	<14	<14	
				x yes no

Tab No. 2.2.2 Drying in time t

Drying control (D _{Ct})	Dilution	V _{c1}	V _{c1}	Φ = 127.5 x 10 ⁶ = lg 8.11
	10 ⁻⁵	135	120	6.88 ≤ lg D _{Ct} ≤ 8.40
	10 ⁻⁶	<14	<14	
				x yes no

Tab No. 2.3.1 Test with water N_w – the effect of water on *Staphylococcus aureus* ATCC 6538 on non-porous surfaces, dirty conditions

Field / contact time (min)	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement >10 cfu/25 cm ²
2 / 5	10 ⁰	30	150	yes
3 / 5	10 ⁰	18	90	yes
4 / 5	10 ⁰	4	20	yes

Tab No. 2.3.2 Test – the effect of **Chloramix DT** on *Staphylococcus aureus* ATCC 6538 on non-porous surfaces, dirty conditions, field 2-4

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement <50 cfu/25 cm ²
2 tab/3 l/5/dirty/2	10 ⁰	0	<14	yes
2 tab/3 l/5/dirty/3	10 ⁰	0	<14	yes
2 tab/3 l/5/dirty/4	10 ⁰	0	<14	yes

Tab No. 2.3.3 Test – the effect of **Chloramix DT** on *Staphylococcus aureus* ATCC 6538 on non-porous surfaces, dirty conditions, field 1

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _{c1}	V _{c2}	lg N _a	lg R (lg D _{Ct} = lg 8.11)
2 tab/3 l/5/dirty/1	10 ⁰	<14	<14	< 1.15	≥ 6.96

Tab No. 2.4 Test – weight of wipes before and after testing

Weight of wipes	Weight before testing (g)	Weight after testing (g)	Difference (g)
Wipe with Chloramix DT	19.4	18.1	1.3
Wipe with hard water + polysorbate 80	19.6	18.6	1.0

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml in the bacterial test suspension, N_{v0} = the number of cfu/ml in the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation R = D_{Ct} / N_a or lg R = lg D_{Ct} – lg N_a the reduction in viability

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D163/2015

Rep No: 167

Sample name: **Chloramix DT**

Sampled: by client

Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Sampling date: 16.9.2015

Sample delivered: 17.9.2015

Testing date: 26.10. – 12.11.2015

Delivered amount: 1 kg

Batch No: BN 563985

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3. Testing the efficacy of chemical disinfectant **Chloramix DT** on *Enterococcus hirae* ATCC 10541 on non-porous surfaces

Tab No. 3.1 Verification of methodology, temperature 20°C, dirty conditions

Validation of suspension (N _{vo})			Neutralizer toxicity control (B)			Method validation (C), product conc. 2 tab/3 l		
V _{e1}	160	Φ _{N_{vo}} = 157.5	V _{e1}	164	Φ _B = 145.5	V _{e1}	150	Φ _C = 154
V _{e2}	155		V _{e2}	127		V _{e2}	158	
30 ≤ Φ _{N_{vo}} ≤ 160			Φ _B ≥ 0.5 Φ _{N_{vo}}			Φ _C ≥ 0.5 Φ _{N_{vo}}		
x	yes	no	x	yes	no	x	yes	no

Tab No. 3.2 Test suspension

Test suspension N	Dilution	V _{e1}	V _{e1}	Test suspension N ₀ N ₀ = N/20, lg N ₀ = 7.90 7.88 ≤ lg N ₀ ≤ 8.40
Φ = 160 x 10 ⁷ = lg 9.20 9.17 ≤ lg N ≤ 9.70	10 ⁻⁷	165	157	
	10 ⁻⁸	16	14	
	x yes no			

Tab No. 3.2.1 Drying in time 0

Drying control (D _{co})	Dilution	V _{e1}	V _{e1}	Φ = 187 x 10 ⁶ = lg 8.27 6.88 ≤ lg D _{co} ≤ 8.40
	10 ⁻⁶	190	182	
	10 ⁻⁷	21	18	
	x yes no			

Tab No. 3.2.2 Drying in time t

Drying control (D _{ct})	Dilution	V _{e1}	V _{e1}	Φ = 150 x 10 ⁶ = lg 8.18 6.88 ≤ lg D _{ct} ≤ 8.40
	10 ⁻⁶	148	152	
	10 ⁻⁷	14	16	
	x yes no			

Tab No. 3.3.1 Test with water N_w – the effect of water on *Enterococcus hirae* ATCC 10541 on non-porous surfaces, dirty conditions

Field / contact time (min)	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement >10 cfu/25 cm ²
2 / 5	10 ⁰	44	220	yes
3 / 5	10 ⁰	21	105	yes
4 / 5	10 ⁰	7	35	yes

Tab No. 3.3.2 Test – the effect of **Chloramix DT** on *Enterococcus hirae* ATCC 10541 on non-porous surfaces, dirty conditions, field 2-4

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement <50 cfu/25 cm ²
2 tab/3 l/5/dirty/2	10 ⁰	0	<14	yes
2 tab/3 l/5/dirty/3	10 ⁰	0	<14	yes
2 tab/3 l/5/dirty/4	10 ⁰	0	<14	yes

Tab No. 3.3.3 Test – the effect of **Chloramix DT** on *Enterococcus hirae* ATCC 10541 on non-porous surfaces, dirty conditions, field 1

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _{e1}	V _{e2}	lg N _a	lg R (lg D _{ct} = lg 8.18)
2 tab/3 l/5/dirty/1	10 ⁰	<14	<14	<1.15	≥ 7.03

Tab No. 3.4 Test – weight of wipes before and after testing

Weight of wipes	Weight before testing (g)	Weight after testing (g)	Difference (g)
Wipe with Chloramix DT	19.1	18.2	0.9
Wipe with hard water + polysorbate 80	19.1	18.2	0.9

Note: V_c = value is the number of cfu per ml, Φ = average V_{e1} a V_{e2} (1. + 2. duplicate V_c values), N = the number of cfu/ml in the bacterial test suspension, N_{vo} = the number of cfu/ml in the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation R = D_{ct}/ N_a or lg R = lg D_{ct} – lg N_a the reduction in viability

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D163/2015

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Sample name: **Chloramix DT**

Sampled: by client

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Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Sampling date: 16.9.2015

Sample delivered: 17.9.2015

Testing date: 26.10. – 12.11.2015

Delivered amount: 1 kg

Batch No: BN 563985

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4. Testing the efficacy of chemical disinfectant **Chloramix DT** on *Candida albicans* ATCC 10231 on non-porous surfaces

Tab No. 4.1 Verification of methodology, temperature 20°C, dirty conditions

Validation of suspension (N _{v0})			Neutralizer toxicity control (B)			Method validation (C), product conc. 2 tab/3 l		
V _{c1}	45	Φ _{Nv0} = 45.5	V _{c1}	44	Φ _B = 42.5	V _{c1}	35	Φ _C = 36.5
V _{c2}	46		V _{c2}	41		V _{c2}	38	
30 ≤ Φ _{Nv0} ≤ 160			Φ _B ≥ 0.5 Φ _{Nv0}			Φ _C ≥ 0.5 Φ _{Nv0}		
x	yes	no	x	yes	no	x	yes	no

Tab No. 4.2 Test suspension

Test suspension N	Dilution	V _{c1}	V _{c1}	Test suspension N ₀
Φ = 204 x 10 ⁶ = lg 8.31	10 ⁻⁷	196	211	N ₀ = N/20, lg N ₀ = 7.01
8.17 ≤ lg N ≤ 8.70	10 ⁻⁸	18	23	6.88 ≤ lg N ₀ ≤ 7.40
				x yes no

Tab No. 4.2.1 Drying in time 0

Drying control (D _{c0})	Dilution	V _{c1}	V _{c1}	Φ = 179 x 10 ⁵ = lg 7.25
	10 ⁻⁵	170	182	5.88 ≤ lg D _{c0} ≤ 7.40
	10 ⁻⁶	19	22	
				x yes no

Tab No. 4.2.2 Drying in time t

Drying control (D _c)	Dilution	V _{c1}	V _{c1}	Φ = 174 x 10 ⁵ = lg 7.24
	10 ⁻⁵	189	153	5.88 ≤ lg D _c ≤ 7.40
	10 ⁻⁶	24	17	
				x yes no

Tab No. 4.3.1 Test with water N_w – the effect of water on *Candida albicans* ATCC 10231 on non-porous surfaces, dirty conditions

Field / contact time (min)	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement >10 cfu/25 cm ²
2 / 5	10 ⁰	285	1425	yes
3 / 5	10 ⁰	68	340	yes
4 / 5	10 ⁰	18	90	yes

Tab No. 4.3.2 Test – the effect of **Chloramix DT** on *Candida albicans* ATCC 10231 on non-porous surfaces, dirty conditions, field 2-4

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement <50 cfu/25 cm ²
2 tab/3 l/5/dirty/2	10 ⁰	0	<14	yes
2 tab/3 l/5/dirty/3	10 ⁰	0	<14	yes
2 tab/3 l/5/dirty/4	10 ⁰	0	<14	yes

Tab No. 4.3.3 Test – the effect of **Chloramix DT** on *Candida albicans* ATCC 10231 on non-porous surfaces, dirty conditions, field 1

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _{c1}	V _{c2}	lg N _a	lg R (lg D _{c1} = lg 7.24)
2 tab/3 l/5/dirty/1	10 ⁰	<14	<14	< 1.15	≥ 6.09

Tab No. 4.4 Test – weight of wipes before and after testing

Weight of wipes	Weight before testing (g)	Weight after testing (g)	Difference (g)
Wipe with Chloramix DT	19.0	17.9	1.1
Wipe with hard water + polysorbate 80	19.0	18.1	0.9

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml in the bacterial test suspension, N_{v0} = the number of cfu/ml in the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation R = D_{c1}/ N_a or lg R = lg D_{c1} – lg N_a the reduction in viability

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5. Evaluation of bactericidal and yeasticidal activity of the product **Chloramix DT**

Tab No. 5.1 The efficacy of chemical disinfectant **Chloramix DT** on test strains – bactericidal and yeasticidal activity on non-porous surfaces, dirty conditions, field 1

Bactericidal and yeasticidal activity of the product (EN 16615)						
Strain	Test temperature [°C]	Contact time [min]	Product test concentrations	Interfering substances - conditions	lg R EN 16615	lg R
<i>Pseudomonas aeruginosa</i> ATCC 15442	20	5	2 tab/3 l	dirty	≥ 5	> 5
<i>Staphylococcus aureus</i> ATCC 6538	20	5	2 tab/3 l	dirty	≥ 5	> 5
<i>Enterococcus hirae</i> ATCC 10541	20	5	2 tab/3 l	dirty	≥ 5	> 5
<i>Candida albicans</i> ATCC 10231	20	5	2 tab/3 l	dirty	≥ 4	> 4

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml of the bacterial test suspension, N_{v0} = the number of cfu/ml of the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation) $R = N_0 / N_a$ = the reduction in viability, or $lg R = lg N_0 - lg N_a$

Prepared by: Hana Konevalíková, Lab Technician

Description: *Testing the efficacy of chemical disinfectants and antiseptics*

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Experimental conditions:

Testing of disinfecting efficiency of chemical disinfecting and antiseptic agents on carriers

SOP-M-22-12 (EN 16615)

Period of analysis:

27.10. – 12.11.2015

Lab temperature:

20 °C ± 2.5 °C

Temperature of media:

20 °C ± 1 °C

Test method:

dilution neutralization method

Neutralization medium:

Dey-Engley Neutralizing Broth M 1062

Appearance of the product:

white tablets

Product diluent:

hard water

Test liquid:

hard water + polysorbate 80

Test concentration:

1 tab/3 l (1 tab = 3.3873 g)

Contact time:

15 min

Interfering substances:

0.3 g/l BSA (clean conditions)

Test organisms:

Pseudomonas aeruginosa

ATCC 15442

Staphylococcus aureus

ATCC 6538

Enterococcus hirae

ATCC 10541

Incubation conditions:

37 °C ± 1 °C, 24 hours

Test organisms:

Candida albicans

ATCC 10231

Incubation conditions:

30 °C ± 1 °C, 48 hours and additional period of 24 or 48 hours

Test procedure:

1. Preparation of the test suspension
2. Determination of CFU in the test suspension
3. Quantitative test on carriers according to EN 16615
4. Incubation and calculation
5. Expression and interpretation of results

Note:

Bactericidal activity – the capability of a product to produce a reduction in the number of viable bacterial cells of relevant organisms under defined conditions on nonporous surface in the field 1 by at least 5 orders (10^5).

Yeasticidal activity – the capability of a product to produce a reduction in the number of viable yeast cells of *Candida albicans* under defined conditions on nonporous surface in the field 1 by at least 4 orders (10^4).

$R = D_{Ct} / N_a$ or $\lg R = \lg D_{Ct} - \lg N_a$ the reduction in viability, the drying time: 40 – 45 min

The standard:

EN 16615 Chemical disinfectants and antiseptics – Quantitative test method for the evaluation of bactericidal and yeasticidal activity on non-porous surfaces with mechanical action employing wipes in the medical area – Test method and requirements (phase 2, step 2) April 2015

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D163/2015

Sampling date: 16.9.2015

Rep No: 167

Sample delivered: 17.9.2015

Sample name: **Chloramix DT**

Testing date: 26.10. – 12.11.2015

Sampled: by client

Delivered amount: 1 kg

Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Batch No: BN 563985

Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

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6. Testing the efficacy of chemical disinfectant **Chloramix DT** on *Pseudomonas aeruginosa* ATCC 15442 on non-porous surfaces

Tab No. 6.1 Verification of methodology, temperature 20°C, clean conditions

Validation of suspension (N_{v0})			Neutralizer toxicity control (B)			Method validation (C), product conc. 1 tab/3 l		
V_{c1}	164	$\Phi_{N_{v0}} = 152$	V_{c1}	164	$\Phi_B = 148.5$	V_{c1}	121	$\Phi_C = 149.5$
V_{c2}	140		V_{c2}	133		V_{c2}	178	
$30 \leq \Phi_{N_{v0}} \leq 160$			$\Phi_B \geq 0.5 \Phi_{N_{v0}}$			$\Phi_C \geq 0.5 \Phi_{N_{v0}}$		
x	yes	no	x	yes	no	x	yes	no

Tab No. 6.2 Test suspension

Test suspension N	Dilution	V_{c1}	V_{c1}	Test suspension N_0 $N_0 = N/20$, $\lg N_0 = 7.93$ $7.88 \leq \lg N_0 \leq 8.40$		
$\Phi = 171 \times 10^7 = \lg 9.23$	10^{-7}	180	160			
$9.17 \leq \lg N \leq 9.70$	10^{-8}	18	18			
				x	yes	no

Tab No. 6.2.1 Drying in time 0

Drying control (D_{c0})	Dilution	V_{c1}	V_{c1}	$\Phi = 42.5 \times 10^6 = \lg 7.63$ $6.88 \leq \lg D_{c0} \leq 8.40$		
	10^{-6}	43	42			
	10^{-7}	<14	<14			
				x	yes	no

Tab No. 6.2.2 Drying in time t

Drying control (D_{ct})	Dilution	V_{c1}	V_{c1}	$\Phi = 38 \times 10^6 = \lg 7.58$ $6.88 \leq \lg D_{ct} \leq 8.40$		
	10^{-6}	36	40			
	10^{-7}	<14	<14			
				x	yes	no

Tab No. 6.3.1 Test with water N_w – the effect of water on *Pseudomonas aeruginosa* ATCC 15442 on non-porous surfaces, clean conditions

Field / contact time (min)	Dilution after test procedure	V_c	$N_w = (\Phi_a \times 5)$	N_w requirement >10 cfu/25 cm ²
2 / 15	10^0	35	175	yes
3 / 15	10^0	14	70	yes
4 / 15	10^0	4	20	yes

Tab No. 6.3.2 Test – the effect of **Chloramix DT** on *Pseudomonas aeruginosa* ATCC 15442 on non-porous surfaces, clean conditions, field 2-4

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V_c	$N_w = (\Phi_a \times 5)$	N_w requirement <50 cfu/25 cm ²
1 tab/3 l/15/clean/2	10^0	0	<14	yes
1 tab/3 l/15/clean/3	10^0	0	<14	yes
1 tab/3 l/15/clean/4	10^0	0	<14	yes

Tab No. 6.3.3 Test – the effect of **Chloramix DT** on *Pseudomonas aeruginosa* ATCC 15442 on non-porous surfaces, clean conditions, field 1

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V_{c1}	V_{c2}	$\lg N_a$	$\lg R$ ($\lg D_{ct} = \lg 7.58$)
1 tab/3 l/15/dirty/1	10^0	<14	<14	< 1.15	≥ 6.43

Tab No. 6.4 Test – weight of wipes before and after testing

Weight of wipes	Weight before testing (g)	Weight after testing (g)	Difference (g)
Wipe with Chloramix DT	19.2	18.0	1.2
Wipe with hard water + polysorbate 80	18.9	17.9	1.0

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml in the bacterial test suspension, N_{v0} = the number of cfu/ml in the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation $R = D_{ct} / N_a$ or $\lg R = \lg D_{ct} - \lg N_a$ the reduction in viability

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D163/2015

Rep No: 167

Sample name: **Chloramix DT**

Sampled: by client

Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Sampling date: 16.9.2015

Sample delivered: 17.9.2015

Testing date: 26.10. – 12.11.2015

Delivered amount: 1 kg

Batch No: BN 563985

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7. Testing the efficacy of chemical disinfectant **Chloramix DT** on *Staphylococcus aureus* ATCC 6538 on non-porous surfaces

Tab No. 7.1 Verification of methodology, temperature 20°C, clean conditions

Validation of suspension (N _{vo})			Neutralizer toxicity control (B)			Method validation (C), product conc. 1 tab/3 l		
V _{c1}	61	Φ _{N_{vo}} = 65.5	V _{c1}	60	Φ _B = 56	V _{c1}	63	Φ _C = 55.5
V _{c2}	70		V _{c2}	52		V _{c2}	48	
30 ≤ Φ _{N_{vo}} ≤ 160			Φ _B ≥ 0.5 Φ _{N_{vo}}			Φ _C ≥ 0.5 Φ _{N_{vo}}		
x	yes	no	x	yes	no	x	yes	no

Tab No. 7.2 Test suspension

Test suspension N	Dilution	V _{c1}	V _{c1}	Test suspension N ₀
Φ = 259 x 10 ⁷ = lg 9.41	10 ⁻⁷	216	286	N ₀ = N/20, lg N ₀ = 8.11
9.17 ≤ lg N ≤ 9.70	10 ⁻⁸	33	34	7.88 ≤ lg N ₀ ≤ 8.40
				x yes no

Tab No. 7.2.1 Drying in time 0

Drying control (D _{c0})	Dilution	V _{c1}	V _{c1}	Φ = 245 x 10 ⁶ = lg 8.39
	10 ⁻⁶	255	236	6.88 ≤ lg D _{c0} ≤ 8.40
	10 ⁻⁷	25	24	
				x yes no

Tab No. 7.2.2 Drying in time t

Drying control (D _{ct})	Dilution	V _{c1}	V _{c1}	Φ = 216 x 10 ⁶ = lg 8.33
	10 ⁻⁵	188	238	6.88 ≤ lg D _{ct} ≤ 8.40
	10 ⁻⁶	24	25	
				x yes no

Tab No. 7.3.1 Test with water N_w – the effect of water on *Staphylococcus aureus* ATCC 6538 on non-porous surfaces, clean conditions

Field / contact time (min)	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement >10 cfu/25 cm ²
2 / 15	10 ⁰	188	940	yes
3 / 15	10 ⁰	74	370	yes
4 / 15	10 ⁰	16	80	yes

Tab No. 7.3.2 Test – the effect of **Chloramix DT** on *Staphylococcus aureus* ATCC 6538 on non-porous surfaces, clean conditions, field 2-4

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement <50 cfu/25 cm ²
1 tab/3 l/15/clean/2	10 ⁰	0	<14	yes
1 tab/3 l/15/clean/3	10 ⁰	0	<14	yes
1 tab/3 l/15/clean/4	10 ⁰	0	<14	yes

Tab No. 7.3.3 Test – the effect of **Chloramix DT** on *Staphylococcus aureus* ATCC 6538 on non-porous surfaces, clean conditions, field 1

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _{c1}	V _{c2}	lg N _a	lg R (lg D _{ct} = lg 8.33)
1 tab/3 l/15/clean/1	10 ⁰	<14	<14	< 1.15	≥ 7.18

Tab No. 7.4 Test – weight of wipes before and after testing

Weight of wipes	Weight before testing (g)	Weight after testing (g)	Difference (g)
Wipe with Desam Ox	19.4	18.4	1.0
Wipe with hard water + polysorbate 80	19.0	18.0	1.0

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml in the bacterial test suspension, N_{vo} = the number of cfu/ml in the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation R = D_{ct}/ N_a or lg R = lg D_{ct} – lg N_a the reduction in viability

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D163/2015

Sampling date: 16.9.2015

Rep No: 167

Sample delivered: 17.9.2015

Sample name: **Chloramix DT**

Testing date: 26.10. – 12.11.2015

Sampled: by client

Delivered amount: 1 kg

Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Batch No: BN 563985

Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

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8. Testing the efficacy of chemical disinfectant **Chloramix DT** on *Enterococcus hirae* ATCC 10541 on non-porous surfaces

Tab No. 8.1 Verification of methodology, temperature 20°C, clean conditions

Validation of suspension (N _{vo})			Neutralizer toxicity control (B)			Method validation (C), product conc. 1 tab/3 l		
V _{c1}	46	Φ _{N_{vo}} = 43	V _{c1}	43	Φ _B = 45	V _{c1}	49	Φ _C = 39.5
V _{c2}	40		V _{c2}	47		V _{c2}	30	
30 ≤ Φ _{N_{vo}} ≤ 160			Φ _B ≥ 0.5 Φ _{N_{vo}}			Φ _C ≥ 0.5 Φ _{N_{vo}}		
x	yes	no	x	yes	no	x	yes	no

Tab No. 8.2 Test suspension

Test suspension N	Dilution	V _{c1}	V _{c1}	Test suspension N ₀ N ₀ = N/20, lg N ₀ = 7.91 7.88 ≤ lg N ₀ ≤ 8.40		
Φ = 164 x 10 ⁷ = lg 9.21	10 ⁻⁷	170	156			
9.17 ≤ lg N ≤ 9.70	10 ⁻⁸	14	21			
				x	yes	no

Tab No. 8.2.1 Drying in time 0

Drying control (D _{co})	Dilution	V _{c1}	V _{c1}	Φ = 190 x 10 ⁵ = lg 7.28 6.88 ≤ lg D _{co} ≤ 8.40		
	10 ⁻⁵	172	204			
	10 ⁻⁶	20	22			
				x	yes	no

Tab No. 8.2.2 Drying in time t

Drying control (D _{ct})	Dilution	V _{c1}	V _{c1}	Φ = 182 x 10 ⁵ = lg 7.26 6.88 ≤ lg D _{ct} ≤ 8.40		
	10 ⁻⁵	200	164			
	10 ⁻⁶	15	21			
				x	yes	no

Tab No. 8.3.1 Test with water N_w – the effect of water on *Enterococcus hirae* ATCC 10541 on non-porous surfaces, clean conditions

Field / contact time (min)	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement >10 cfu/25 cm ²
2 / 15	10 ⁰	490	2450	yes
3 / 15	10 ⁰	311	1555	yes
4 / 15	10 ⁰	340	1700	yes

Tab No. 8.3.2 Test – the effect of **Chloramix DT** on *Enterococcus hirae* ATCC 10541 on non-porous surfaces, clean conditions, field 2-4

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement <50 cfu/25 cm ²
1 tab/3 l/15/clean/2	10 ⁰	0	<14	yes
1 tab/3 l/15/clean/3	10 ⁰	0	<14	yes
1 tab/3 l/15/clean/4	10 ⁰	0	<14	yes

Tab No. 8.3.3 Test – the effect of **Chloramix DT** on *Enterococcus hirae* ATCC 10541 on non-porous surfaces, clean conditions, field 1

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _{c1}	V _{c2}	lg N _a	lg R (lg D _{ct} = lg 7.26)
1 tab/3 l/15/clean/1	10 ⁰	<14	<14	< 1.15	≥ 6.11

Tab No. 8.4 Test – weight of wipes before and after testing

Weight of wipes	Weight before testing (g)	Weight after testing (g)	Difference (g)
Wipe with Chloramix DT	19.4	18.4	1.0
Wipe with hard water + polysorbate 80	19.3	18.3	1.0

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml in the bacterial test suspension, N_{vo} = the number of cfu/ml in the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation R = D_{ct} / N_a or lg R = lg D_{ct} – lg N_a the reduction in viability

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D163/2015

Rep No: 167

Sample name: Chloramix DT

Sampled: by client

Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Sampling date: 16.9.2015

Sample delivered: 17.9.2015

Testing date: 26.10. – 12.11.2015

Delivered amount: 1 kg

Batch No: BN 563985

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9. Testing the efficacy of chemical disinfectant **Chloramix DT** on *Candida albicans* ATCC 10231 on non-porous surfaces

Tab No. 9.1 Verification of methodology, temperature 20°C, clean conditions

Validation of suspension (N _{vo})			Neutralizer toxicity control (B)			Method validation (C), product conc. 1 tab/3 l		
V _{c1}	95	Φ _{N_{vo}} = 98	V _{c1}	91	Φ _B = 90	V _{c1}	80	Φ _C = 92
V _{c2}	101		V _{c2}	89		V _{c2}	104	
30 ≤ Φ _{N_{vo}} ≤ 160			Φ _B ≥ 0.5 Φ _{N_{vo}}			Φ _C ≥ 0.5 Φ _{N_{vo}}		
x	yes	no	x	yes	no	x	yes	no

Tab No. 9.2 Test suspension

Test suspension N	Dilution	V _{c1}	V _{c1}	Test suspension N ₀ N ₀ = N/20, lg N ₀ = 6.98 6.88 ≤ lg N ₀ ≤ 7.40		
Φ = 190 x 10 ⁶ = lg 8.28	10 ⁻⁷	188	194			
8.17 ≤ lg N ≤ 8.70	10 ⁻⁸	16	19			
				x	yes	no

Tab No. 9.2.1 Drying in time 0

Drying control (D _{c0})	Dilution	V _{c1}	V _{c1}	Φ = 82 x 10 ⁵ = lg 6.91 5.88 ≤ lg D _{c0} ≤ 7.40		
	10 ⁻⁵	79	85			
	10 ⁻⁶	<14	<14			
				x	yes	no

Tab No. 9.2.2 Drying in time t

Drying control (D _{ct})	Dilution	V _{c1}	V _{c1}	Φ = 76.5 x 10 ⁵ = lg 6.88 5.88 ≤ lg D _{ct} ≤ 7.40		
	10 ⁻⁵	82	71			
	10 ⁻⁶	<14	<14			
				x	yes	no

Tab No. 9.3.1 Test with water N_w – the effect of water on *Candida albicans* ATCC 10231 on non-porous surfaces, clean conditions

Field / contact time (min)	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement >10 cfu/25 cm ²
2 / 15	10 ⁰	21	105	yes
3 / 15	10 ⁰	14	70	yes
4 / 15	10 ⁰	6	30	yes

Tab No. 9.3.2 Test – the effect of **Chloramix DT** on *Candida albicans* ATCC 10231 on non-porous surfaces, clean conditions, field 2-4

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _c	N _w = (Φ _a x 5)	N _w requirement <50 cfu/25 cm ²
1 tab/3 l/15/clean/2	10 ⁰	0	<14	yes
1 tab/3 l/15/clean/3	10 ⁰	0	<14	yes
1 tab/3 l/15/clean/4	10 ⁰	0	<14	yes

Tab No. 9.3.3 Test – the effect of **Chloramix DT** on *Candida albicans* ATCC 10231 on non-porous surfaces, clean conditions, field 1

Test concentration /contact time (min) /conditions / field	Dilution after test procedure	V _{c1}	V _{c2}	lg N _a	lg R (lg D _{ct} = lg 6.88)
1 tab/3 l/15/clean/1	10 ⁰	<14	<14	< 1.15	≥ 5.73

Tab No. 9.4 Test – weight of wipes before and after testing

Weight of wipes	Weight before testing (g)	Weight after testing (g)	Difference (g)
Wipe with Chloramix DT	19.3	18.5	0.8
Wipe with hard water + polysorbate 80	19.0	17.9	1.1

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml in the bacterial test suspension, N_{vo} = the number of cfu/ml in the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation R = D_c/ N_a or lg R = lg D_{ct} – lg N_a the reduction in viability

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D163/2015

Rep No: 167

Sample name: **Chloramix DT**

Sampled: by client

Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Sampling date: 16.9.2015

Sample delivered: 17.9.2015

Testing date: 26.10. – 12.11.2015

Delivered amount: 1 kg

Batch No: BN 563985

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10. Evaluation of bactericidal and yeasticidal activity of the product **Chloramix DT**

Tab No. 10.1 The efficacy of chemical disinfectant **Chloramix DT** on test strains – bactericidal and yeasticidal activity on non-porous surfaces, dirty conditions, field 1

Bactericidal and yeasticidal activity of the product (EN 16615)						
Strain	Test temperature [°C]	Contact time [min]	Product test concentrations	Interfering substances - conditions	lg R EN 16615	lg R
<i>Pseudomonas aeruginosa</i> ATCC 15442	20	15	1 tab/3 l	clean	≥ 5	> 5
<i>Staphylococcus aureus</i> ATCC 6538	20	15	1 tab/3 l	clean	≥ 5	> 5
<i>Enterococcus hirae</i> ATCC 10541	20	15	1 tab/3 l	clean	≥ 5	> 5
<i>Candida albicans</i> ATCC 10231	20	15	1 tab/3 l	clean	≥ 4	> 4

Note: V_c = value is the number of cfu per ml, Φ = average V_{c1} a V_{c2} (1. + 2. duplicate V_c values), N = the number of cfu/ml of the bacterial test suspension, N_{v0} = the number of cfu/ml of the bacterial test suspension for validation, N_a = the number of survivors per ml in the test mixture, A, B, C = the number of survivors per ml in control tests (A – experimental conditions validation, B – neutralizer toxicity validation, C – method validation) $R = N_0 / N_a$ = the reduction in viability, or $lg R = lg N_0 - lg N_a$

Prepared by: Hana Konevalíková, Lab Technician

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D163/2015

Rep No: 167

Sample name: **Chloramix DT**

Sampled: by client

Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Sampling date: 16.9.2015

Sample delivered: 17.9.2015

Testing date: 26.10. – 12.11.2015

Delivered amount: 1 kg

Batch No: BN 563985

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Interpretation:

Results of tests are in Tabs.

According to EN 16615 the tested product **Chloramix DT**, batch No. BN 563985, in the concentration 2 tab/3 l, diluted in hard water, in the contact time 5 min under dirty conditions at temperature $20\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ by the dilution neutralization method **decreased** on non-porous surfaces on field 1 the number of alive microbes *Pseudomonas aeruginosa* ATCC 15442, *Staphylococcus aureus* ATCC 6538, *Enterococcus hirae* ATCC 10541 by at least 5 (lg) orders.

According to EN 16615 tested product **Chloramix DT**, batch No. BN 563985, in the concentration 2 tab/3 l, diluted in hard water, in the contact time 5 min under dirty conditions at temperature $20\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ by the dilution neutralization method **decreased** on non-porous surfaces on field 1 the number of alive microbes *Candida albicans* ATCC 10231 by at least 4 (lg) orders.

According to EN 16615 the tested product **Chloramix DT**, batch No. BN 563985, in the concentration 1 tab/3 l, diluted in hard water, in the contact time 15 min under clean conditions at temperature $20\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ by the dilution neutralization method **decreased** on non-porous surfaces on field 1 the number of alive microbes *Pseudomonas aeruginosa* ATCC 15442, *Staphylococcus aureus* ATCC 6538, *Enterococcus hirae* ATCC 10541 by at least 5 (lg) orders.

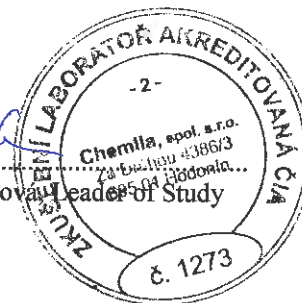
According to EN 16615 tested product **Chloramix DT**, batch No. BN 563985, in the concentration 1 tab/3 l, diluted in hard water, in the contact time 15 min under clean conditions at temperature $20\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ by the dilution neutralization method **decreased** on non-porous surfaces on field 1 the number of alive microbes *Candida albicans* ATCC 10231 by at least 4 (lg) orders.

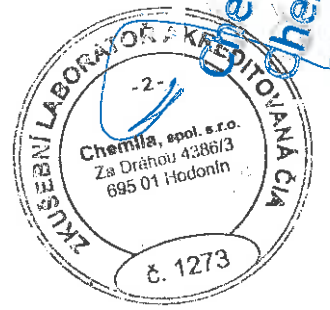
Conclusion:

The product **Chloramix DT** is capable of reducing the number of viable bacterial and vegetative yeast cells of the relevant organisms on non-porous surfaces under defined conditions to the declared values, and consequently, may be called bactericidal and yeasticidal.

14.12.2015, Hodonín

Ing. Eva Kremlová





Chemila
Chemila
Chemila