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Chemical and Microbiological Laboratory, Testing Laboratory No. 1273 certified by Czech Accreditation Institute according to ČSN EN ISO/IEC 17025.

Copy No.: 1  
Issue No.: 2

## Test report No. D79/2016

### DETERMINATION OF YEASTICIDAL (ČSN EN 13697) ACTIVITY OF THE PRODUCT **DESAM® EFFEKT +**

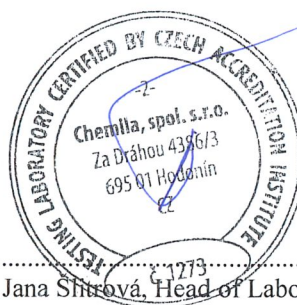
Sample ID: D79/2016  
Sample name: **DESAM® EFFEKT +**  
Client: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín  
Producer: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín  
Sampling point: SCHULKE CZ s.r.o., Lidická 326, 735 81 Bohumín

Page: 1  
From pages: 6

Incoming date:  
5.4.2016

Delivery date:  
30.10.2017

Hodonín, 30.10.2017



Ing. Jana Štírová, Head of Laboratory

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Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D79/2016

Rep No: 74

Sample name: **DESAM® EFFEKT +**

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: 23.3.2016

Sample delivered: 5.4.2016

Testing date: 3.5. – 6.5.2016

Delivered amount: 90 ml

Batch No: not available

Page: 2

Subject of testing:

Determination of yeasticidal activity of the product.

Identification of the sample:

Name of the product:

**DESAM® EFFEKT +**

Batch number:

not available

Date of manufacture:

20.1.2016

Expiry date:

20.1.2018

Manufacturer:

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

Incoming date:

5.4.2016

Storage conditions:

room temperature

Active compounds and concentrations:

- N-(3-aminopropyl)-N-dodecylpropan-1,3-diamine: 7,2 % (CAS: 2372-82-9)
- Didecyltrimethylammonium-chloride: 3% (CAS: 7173-51-5)
- Benzyl-C12-16-alkyldimethyl, chlorides: 19% (CAS: 68424-85-1)
- 2-fenoxyethanol: 10% (CAS: 122-99-6)

Experimental conditions:

**Testing of disinfecting efficiency of chemical disinfecting and antiseptic agents on carriers SOP-M-22-12 (ČSN EN 13697)**

Period of analysis:

3.5. – 6.5.2016

Test temperature:

18 °C ± 1 °C to 25 °C ± 1 °C

Test method:

dilution neutralization method

Neutralization medium:

Dey-Engley Neutralizing Broth M 1062

Appearance of the product:

colourless liquid

Product diluent:

hard water

Test concentration:

0.25%

Contact time:

5 min and 15 min

Interfering substances:

0.3 g/l BSA (clean conditions)

3 g/l BSA (dirty conditions)

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. Preparation of product test solutions
3. Quantitative carrier test
4. Incubation and calculation
5. Expression and interpretation of results

Note:

Fungicidal activity – the capability of a product to produce a reduction in the number of viable fungi of relevant organisms on carriers under defined conditions by at least 3 orders ( $10^3$ ). The drying time: 30-35 min.

The standard:

ČSN EN 13697 Chemical disinfectants and antiseptics – Quantitative non-porous surface test for the evaluation of bactericidal and/or fungicidal activity of chemical disinfectants used in food, industrial, domestic and institutional areas - Test method and requirements without mechanical action (phase 2, step 2) November 2015

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The Number of CFU in the tested product **DESAM® EFFEKT +**: 0 CFU/ml

1. Testing the efficacy of chemical disinfectant **DESAM® EFFEKT +** on carriers – yeasticidal activity

Tab No. 1.1 Verification of methodology, clean conditions

Test organisms	Test suspension N	Validation test	
		NT (Product conc.: 0.25%) Neutralization test	NC Neutralization control
<i>Candida albicans</i> ATCC 10231	$10^{-5}$ : >330, >330 $10^{-6}$ : 42, 49 N : 6.06	$10^{-2}$ : >330, >330 $10^{-3}$ : >330, >330 $10^{-4}$ : 33, 36 NT : 6.54	$10^{-2}$ : >330, >330 $10^{-3}$ : >330, >330 $10^{-4}$ : 36, 32 NC : 6.53
Limit	$5.57 \leq \lg N \leq 6.10$	$NT \geq 0.5 \times Nc$	$NC \geq 0.5 \times Nc$

$$N = \log_{10} [\{0.025 \cdot (x + x')\} / 2 \cdot d]$$

where x and x' are paired values for which the mean of the value falls between 14 and 330 colonies for yeast and 14 and 165 colonies for mould, d is the dilution factor for the dilution taken into account

$$NC \text{ or } NT = \log_{10} [\{10 \cdot (y + y')\} / 2 \cdot d]$$

where y and y' are paired values for which the mean of the value falls between 14 and 330 colonies for yeast and 14 and 165 colonies for mould, d is the dilution factor for the dilution taken into account

Tab No. 1.2 Testing the efficacy of chemical disinfectant **DESAM® EFFEKT +** on test strain, clean conditions

Test organisms	Water control Nc	Test procedure Nd at concentrations (%) / contact time (min)	
		0.25/5	0.25/15
<i>Candida albicans</i> ATCC 10231	$10^{-3}$ : >330, >330 $10^{-4}$ : 31, 44 Nc : 6.57 Nts: >100	$10^0$ : <14, <14 Nd : < 2.15 Nts: 0 <b>R: ≥ 4.42</b>	$10^0$ : <14, <14 Nd : < 2.15 Nts: 0 <b>R: ≥ 4.42</b>
Limit	$\lg Nc \geq \lg 5.27$	Nts: <100 CFU/ml for active concentration	

$$Nc \text{ or } Nd = \log_{10} [\{10 \cdot (a + a')\} / 2 \cdot d]$$

where a and a' are paired values for which the mean of the value falls between 14 and 330 colonies for yeast and 14 and 165 colonies for mould, d is the dilution factor for the dilution taken into account

Reduction R= Nc – Nd

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D79/2016

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Page: 4

2. Testing the efficacy of chemical disinfectant **DESAM® EFFEKT +** on carriers – yeasticidal activity

Tab No. 2.1 Verification of methodology, dirty conditions

Test organisms	Test suspension N	Validation test	
		NT (Product conc.: 0.25%) Neutralization test	NC Neutralization control
<i>Candida albicans</i> ATCC 10231	$10^{-5}$ : >330, >330 $10^{-6}$ : 42, 49 N: 6.06	$10^{-2}$ : >330, >330 $10^{-3}$ : >330, >330 $10^{-4}$ : 30, 35 NT: 6.51	$10^{-2}$ : >330, >330 $10^{-3}$ : >330, >330 $10^{-4}$ : 36, 32 NC: 6.53
Limit	$5.57 \leq \lg N \leq 6.10$	$NT \geq 0.5 \times Nc$	$NC \geq 0.5 \times Nc$

$$N = \log_{10} [\{0.025 \cdot (x + x')\} / 2 \cdot d]$$

where x and x' are paired values for which the mean of the value falls between 14 and 330 colonies for yeast and 14 and 165 colonies for mould, d is the dilution factor for the dilution taken into account

$$NC \text{ or } NT = \log_{10} [\{10 \cdot (y + y')\} / 2 \cdot d]$$

where y and y' are paired values for which the mean of the value falls between 14 and 330 colonies for yeast and 14 and 165 colonies for mould, d is the dilution factor for the dilution taken into account

Tab No. 2.2 Testing the efficacy of chemical disinfectant **DESAM® EFFEKT +** on test strain, dirty conditions

Test organisms	Water control Nc	Test procedure Nd at concentrations (%) / contact time (min)	
		0.25/5	0.25/15
<i>Candida albicans</i> ATCC 10231	$10^{-3}$ : >330, >330 $10^{-4}$ : 34, 39 Nc: 6.56 Nts: >100	$10^0$ : 95, 109 Nd: 3.01 Nts: 88 <b>R: 3.55</b>	$10^0$ : <14, <14 Nd: <2.15 Nts: 0 <b>R: ≥ 4.41</b>
Limit	$\lg Nc \geq 5.27$	Nts: <100 CFU/ml for active concentration	

$$Nc \text{ or } Nd = \log_{10} [\{10 \cdot (a + a')\} / 2 \cdot d]$$

where a and a' are paired values for which the mean of the value falls between 14 and 330 colonies for yeast and 14 and 165 colonies for mould, d is the dilution factor for the dilution taken into account

$$\text{Reduction } R = Nc - Nd$$

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

Sample ID: D79/2016

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Page: 5

3. Evaluation of yeasticidal activity of the product **DESAM® EFFEKT +** on carriers

Tab No. 3.1 The efficacy of chemical disinfectant **DESAM® EFFEKT +** on test strains – yeasticidal activity on carriers

Yeastocidal activity of the product on carriers (ČSN EN 13697)						
Strain	Test temperature [°C]	Contact time [min]	Product test concentrations [%]	Interfering substances - conditions	Requirement according to ČSN EN 13697	log R
<i>Candida albicans</i> ATCC 10231	18-25	5	0.25	clean	$\geq 3$	<b>&gt; 3</b>
<i>Candida albicans</i> ATCC 10231	18-25	5	0.25	dirty	$\geq 3$	<b>&gt; 3</b>
<i>Candida albicans</i> ATCC 10231	18-25	15	0.25	clean	$\geq 3$	<b>&gt; 3</b>
<i>Candida albicans</i> ATCC 10231	18-25	15	0.25	dirty	$\geq 3$	<b>&gt; 3</b>

Reduction R= Nc – Nd

Prepared by: Hana Konevalíková, Lab Technician

Description: Testing the efficacy of chemical disinfectants and antiseptics

Sample ID: D79/2016

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Page: 6



Interpretation:

Results of the tests are in Tabs.

According to ČSN EN 13697 the tested product **DESAM® EFFEKT +**, batch No. not available, in the concentration 0.25%, diluted in hard water, in the contact times 5 and 15 min under clean and dirty conditions at temperature  $18\text{ °C} \pm 1\text{ °C}$  to  $25\text{ °C} \pm 1\text{ °C}$  by the dilution neutralization method **decreased** on carriers the number of alive microbes *Candida albicans* ATCC 10231 by at least 3 (lg) orders.

Conclusion:

The product **DESAM® EFFEKT +** is capable of reducing the number of viable vegetative yeast cells of the relevant organisms in the suspension under defined conditions to the declared values, and consequently, may be called yeasticidal.

The test report D79/2016 was issued on 30.10.2017 again upon client's request for correction.

30.10.2016, Hodonín

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Ing. Eva Kremlová  
Lead on Study

