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Chemical and Microbiological Laboratory, Testing Laboratory No. 1273 certified by Czech Accreditation Institute according to ČSN EN ISO/IEC 17025:2018.

Copy No.: 1
Issue No.: 1

Test report No.: S215/2023 - 2

DETERMINATION OF FUNGICIDAL (EN 13697:2015+A1:2019) ACTIVITY OF THE PRODUCT

Calcium hypochlorite

Sample ID:	S215/2023	Page.: 1
Sample name:	**Calcium hypochlorite**	From pages: 6
Client:	"B-KONTAKT" LtD Bulgaria, 23 "Nikola Petkov" Str., 7100 Byala, Rousse, Bulgaria	
Manufacturer:	"B-KONTAKT" LtD Bulgaria, 23 "Nikola Petkov" Str., 7100 Byala, Rousse, Bulgaria	
Sampling point:	"B-KONTAKT" LtD Bulgaria, 23 "Nikola Petkov" Str., 7100 Byala, Rousse, Bulgaria	

Incoming date: 22.11.2023

Delivery date: 16.1.2024

Digitally signed by Cireş Ion
Date: 2025.02.20 15:15:41 EET
Reason: MoldSign Signature
Location: Moldova
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Description: *Testing the efficacy of chemical disinfectants and antiseptics*

Sample ID:	S215/2023	Sampling date:	6.11.2023
Sample name:	**Calcium hypochlorite**	Sample delivered:	22.11.2023
Sampled:	by client	Testing date:	5.1. - 8.1.2024
Sampling point:	"B-KONTAKT" LtD Bulgaria	Delivered amount:	2 x 750 g
Client:	"B-KONTAKT" LtD Bulgaria	Page:	2

Subject of testing:
Determination of fungicidal activity of the product.

Information supplied by the client:

Name of the product:	**Calcium hypochlorite**
Batch number (Lot):	18
Date of manufacture:	6.11.2023
Expiry date:	6.11.2024
Manufacturer:	"B-KONTAKT" LtD Bulgaria, 23 "Nikola Petkov" Str., 7100 Byala, Rousse, Bulgaria
Incoming date:	22.11.2023
Storage conditions:	temperature up to 25 °C, dray and airy
Active ingredients:	CAS:7778-54-3, Calcium hypochlorite, 31%

Experimental conditions: **Testing of disinfecting efficiency of chemical disinfecting and antiseptic agents on carriers**

SOP:	SOP-M-22-12 (EN 13697:2015+A1:2019)	
Period of analysis:	5. 1. 2024 - 8.1.2024	
Test temperature:	18-25°C	
Test method:	dilution neutralization method	
Neutralization medium:	Dey-Engley Neutralizing Broth M 5344	
Appearance of the product:	white powder	
Product diluent:	hard water	
Test concentration:	1 % active chlorine (3,111 g/100 ml)	
Contact time:	10 min	
Interfering substances:	3 g/l BSA (dirty conditions)	
Test organisms:	*Candida albicans*	ATCC 10231
	Aspergillus brasiliensis (niger)	ATCC 16404
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:
Presence of a high concentration (at least 75%) of Aspergillus brasiliensis spiny spores in the test suspension – yes.
Fungicidal activity – the capability of a product to produce a reduction in the number of relevant organisms on carriers under defined conditions by at least a 3 lg reduction (10^3).
Yeasticidal activity – the capability of a product to produce a reduction in the number of viable yeast cells of relevant test organisms on carriers under defined conditions by at least a 3 lg reduction (10^3).
The drying time: 35 - 40 min

The standard:
EN 13697:2015+A1:2019 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) July 2019

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

Testing the efficacy of chemical disinfectant **Calcium hypochlorite** *on Candida albicans* ATCC 10231

Test suspension:

Dilution	Vc1	Vc2	N
10^{-5}	225	204	
10^{-6}	22	21	5,73
		$\Phi =$ 5,36x10^5	5,57 ≤ lgN ≤ 6,1

Method validation NC

Testing conditions	Dilution	Vc1	Vc2	NC
10 min, 3 g/l BSA (dirty conditions), 20°C	10^{-3}	34	52	NC:5,63 NC-Nc ≥ ± 0,3 lg

Metod validation NT

Testing conditions	Dilution	Vc1	Vc2	NT
1 %, 10 min, 3 g/l BSA (dirty conditions), 20°C	10^{-3}	37	38	NT:5,57 NT-Nc ≥ ± 0,3 lg

Method validation Nc

Testing conditions	Dilution	Vc1	Vc2	Nc
10 min, 3 g/l BSA (dirty conditions), 20°C	10^{-3}	31	40	Nc: 5,55
				NTS > 100

Testing the efficacy of chemical disinfectant

Testing conditions	**Dilution after test procedure**	**Vc1**	**Vc2**	**Nd**	**R**
1 %, 10 min, 3 g/l BSA (dirty conditions), 20°C	**10^0**	**<14**	**<14**	**<2,15**	**>=3,40 NTS 0**

N = log10 [{0.025 • (x + x')} /2 • 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 or NT = log10 [{10 • (y + y')} /2 • 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

Nc or Nd = log10 [{10 • (a + a')} /2 • 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:	S215/2023	Sampling date:	6.11.2023
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Testing the efficacy of chemical disinfectant **Calcium hypochlorite** *on Aspergillus brasiliensis (niger)* ATCC 16404

Test suspension:

Dilution	Vc1	Vc2	N
10^{-5}	>165	>165	
10^{-6}	19	21	5,7
		$\Phi =$ $5x10^5$	$5,57 \leq lgN \leq 6,1$

Method validation NC

Testing conditions	Dilution	Vc1	Vc2	NC
10 min, 3 g/l BSA (dirty conditions), 20°C	10^{-3}	79	72	NC:5,88 NC-Nc ≥ ± 0,3 lg

Metod validation NT

Testing conditions	Dilution	Vc1	Vc2	NT
1 %, 10 min, 3 g/l BSA (dirty conditions), 20°C	10^{-3}	81	112	NT:5,98 NT-Nc ≥ ± 0,3 lg

Method validation Nc

Testing conditions	Dilution	Vc1	Vc2	Nc
10 min, 3 g/l BSA (dirty conditions), 20°C	10^{-3}	105	99	Nc: 6,01
				NTS > 100

Testing the efficacy of chemical disinfectant

Testing conditions	**Dilution after test procedure**	**Vc1**	**Vc2**	**Nd**	**R**
1 %, 10 min, 3 g/l BSA (dirty conditions), 20°C	**10^0**	**40**	**42**	**2,61**	**3,40 NTS 7**

N = log10 [{0.025 • (x + x')} /2 • 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 or NT = log10 [{10 • (y + y')} /2 • 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

Nc or Nd = log10 [{10 • (a + a')} /2 • 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*

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Evaluation of FUNGICIDAL (EN 13697:2015+A1:2019) activity of the product **Calcium hypochlorite**

Strain	Test conditions	lgR	lgR
Candida albicans ATCC 10231	1 %, 10 min, 3 g/l BSA (dirty conditions), 20°C	≥3	**> 3**
Aspergillus brasiliensis (niger) ATCC 16404	1 %, 10 min, 3 g/l BSA (dirty conditions), 20°C	≥3	**> 3**

N = log10 [{0.025 • (x + x')} /2 • 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 or NT = log10 [{10 • (y + y')} /2 • 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

Nc or Nd = log10 [{10 • (a + a')} /2 • 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

Prepared by: Hana Konevalíková, Lab Technician, Bc. Šárka Vašíčková Dohnalová, Lab Technican

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

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Sampling point:	"B-KONTAKT" LtD Bulgaria	Delivered amount:	2 x 750 g
Client:	"B-KONTAKT" LtD Bulgaria	Page:	6

Conclusion:

The tested product:	**Calcium hypochlorite**
Batch number:	18
Standard:	EN 13697:2015+A1:2019
Test method:	dilution neutralization method

For conditions: 1 % active chlorine (3,111 g/100 ml), 10 min, 3 g/l BSA (dirty conditions), 20°C
Candida albicans the efficacy is confirmed.

For conditions: 1 % active chlorine (3,111 g/100 ml), 10 min, 3 g/l BSA (dirty conditions), 20°C
Candida albicans, Aspergillus brasiliensis (niger)
the efficacy is confirmed.

The tested product is capable of reducing the number of viable cells and mould spores of the relevant organisms under defined conditions to the declared values, and consenquently, can be called yeasticidal and fungicidal on carriers.

Approved by: Ing. Barbora Stoklásková, Leader of Study

Hodonín, 16.1.2024

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Ing. Jana Sidrová, Head of Laboratory