

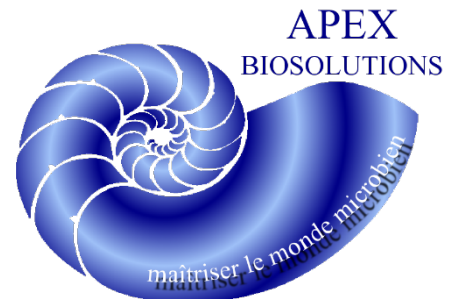
**TEST REPORT****DETERMINATION OF THE BACTERICIDAL AND YEASTICIDAL ACTIVITY OF THE DR SHEELD PRODUCT ACCORDING TO THE EN 17272 STANDARD**

Delivered to M PEREZ

For: **OTC CONCEPT**  
**7 ter rue des Ribes****63 170 AUBIERE**

Date of request: 04/05/2021

Study number: n°140D28-2021-02

**BACTERICIDAL AND YEASTICIDAL TESTS:**

According to the EN 17272 standard (Avril 2020) – Methods of airborne room disinfection by automated process — Determination of bactericidal, mycobactericidal, sporicidal, fungicidal, yeasticidal, virucidal and phagocidal activities

Tests against 5 strains: *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, *Enterococcus hirae* and *Candida albicans*.

This test report included 20 pages.

Study completion date: 06/15/2021

Stephanie MOROT - BIZOT

PhD in Microbiology

Study Director

<b>Writer</b>	<b>Supervisor</b>
Ms Emilie CANTREL, laboratory technician	Ms Stephanie MOROT-BIZOT, director

**SUMMARY**

1 PERFORMING LABORATORY ..... 3

2 SAMPLE IDENTIFICATION ..... 3



3 EXPERIMENTAL CONDITIONS..... 3

4 VALIDATIONS ..... 5

5 RESULTS ..... 10

6 CONCLUSION ..... 20

7 TECHNICAL APPENDIX ..... 20

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**1 PERFORMING LABORATORY**

APEX BIOSOLUTIONS  
 4, rue des Grandes Pièces  
 Zone EURESPACE  
 25 770 SERRE LES SAPINS  
 FRANCE

**2 SAMPLE IDENTIFICATION**

Product	Batch
DR SHEELD	See tables

Manufacturer: OTC CONCEPT

Date of manufacture: non communicated

Expiration date : non communicated

Active substance: chlorine dioxide

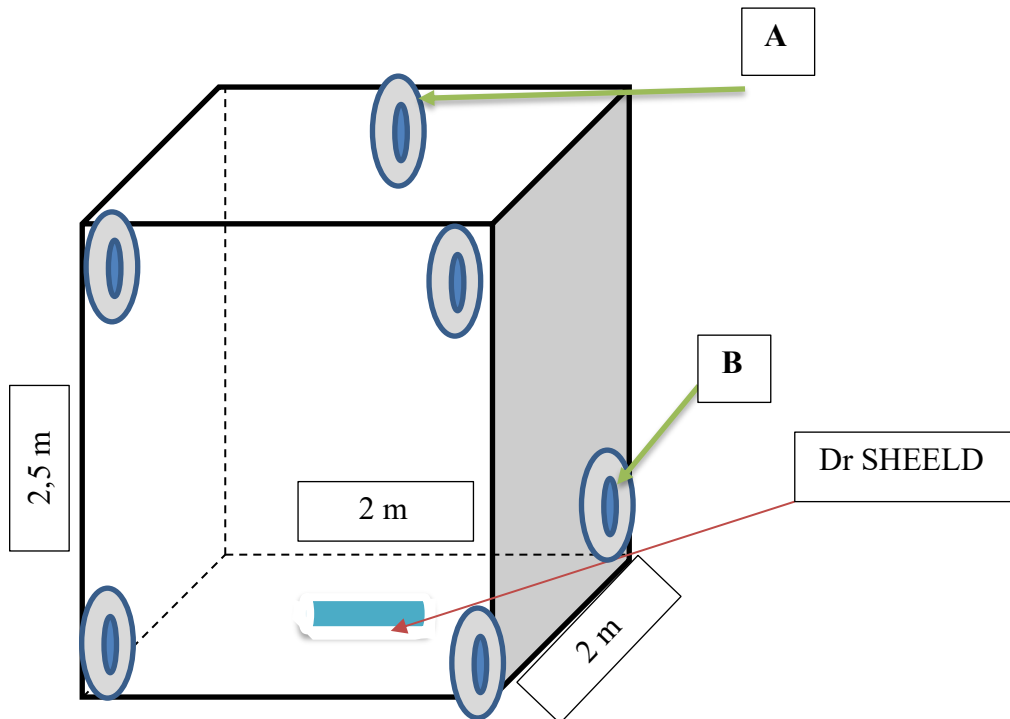
Date of delivery of the product: 04/13/2021



Date of tests: from 04/05/2021 to 05/20/2021

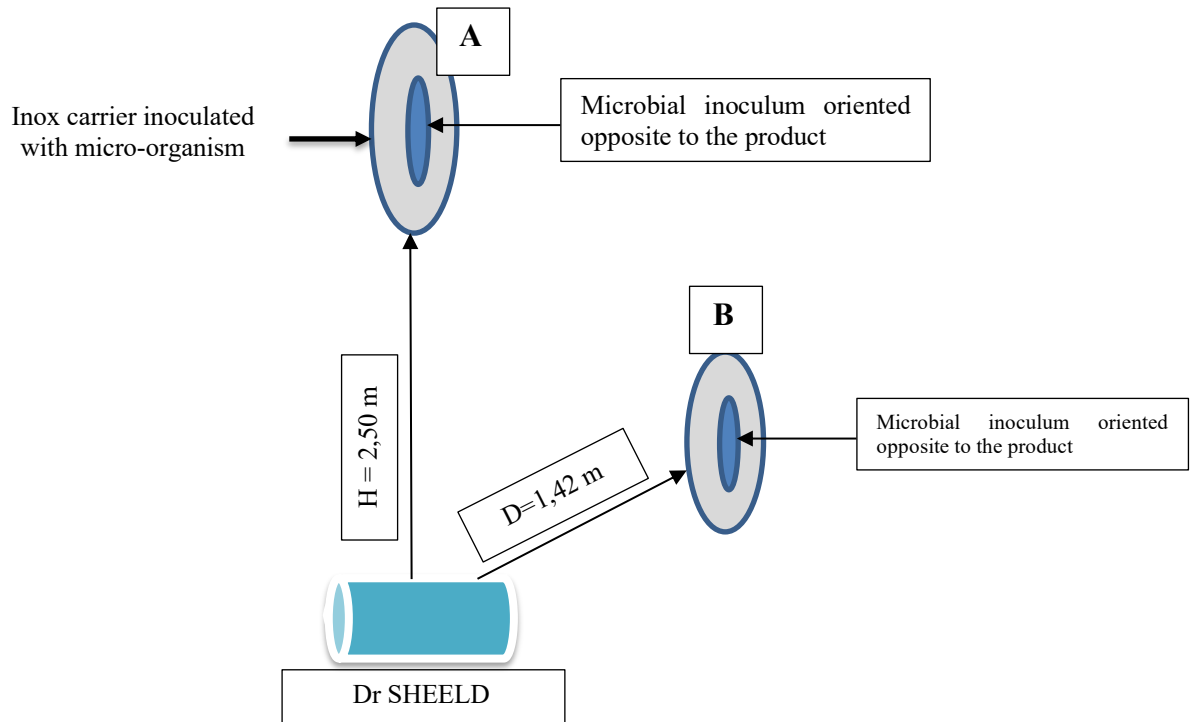
**3 EXPERIMENTAL CONDITIONS**

Process of disinfection by chlorine dioxide released by a Dr SHEELD stick.



The disinfection process is carried out according to the manufacturer’s instructions, with the stainless-steel carriers disposed as recommended by the standard in a room of 10 m<sup>3</sup> of volume. Other trials were performed in a 1 m<sup>3</sup> room.



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**Inox carriers disposition (example of two carriers for the 10 m<sup>3</sup> room):****Experimental conditions :**

- Temperature used during the assays:  $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$
- Humidity: 61%
- Distances:
  - For the  $10 \text{ m}^3$  room: 3 carriers at  $D = 1,42 \text{ m}$  and 3 carriers at  $H = 2,5 \text{ m}$
  - For the  $1 \text{ m}^3$  room: 3 carriers at  $D = 0,71 \text{ m}$  and 3 carriers at  $H = 1,0 \text{ m}$
- Culture conditions (bacteria and yeast): TSA (Trypton Soya Agar), at  $37^{\circ}\text{C} \pm 1^{\circ}\text{C}$  for bacteria, and MEA (Malt Extract Agar) for the yeast.
- Bacterial and fungal strains: *Staphylococcus aureus* subsp. *aureus* DSMZ 799 (ATCC 6538), *Pseudomonas aeruginosa* CIP 103467 (ATCC 15442), *Escherichia coli* ATCC 10536, *Enterococcus hirae* CIP 58.55 (ATCC 10541), and *Candida albicans* CIP 48.72 batch 265.09 (ATCC 10231).
- Microbial suspensions: contamination of the carriers with  $50 \mu\text{l}$  of microbial suspensions in skimmed milk.
- Organic soil load:  $0,3 \text{ g/L}$  BSA

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#### 4 VALIDATIONS



##### Escherichia coli

Counts (CFU/ml)					
		VC1	VC2	$\bar{x}$	
N	$10^{-6}$	246	236	241	<b><math>2,42 \cdot 10^8</math> N</b>
	$10^{-7}$	25	26	25,5	<b>241,0 N1</b>
N2	$10^{-6}$	235	241	238	<b>238,0 N2</b>
	$10^{-7}$	24	28	26	

CONTROLS					
		VC1	VC2	$\bar{x}$	
T1	$10^{-2}$	263	270	266,5	T1 = $2,68 \cdot 10^6$
	$10^{-3}$	29	28	28,5	
	$10^{-4}$	3	4	3,5	
T2	$10^{-2}$	255	247	251	T2 = $2,52 \cdot 10^6$
	$10^{-3}$	26	27	26,5	
	$10^{-4}$	3	3	3	
<b>T = <math>2,60 \cdot 10^6</math></b>					

VALIDATIONS					
		VC1	VC2	$\bar{x}$	
S	S $10^{-8}$	201	203	202	<b>n1 = 202,0</b>
	M $10^{-8}$	180	194	187	<b>n2 = 187,0</b>
	D $10^{-8}$	169	177	173	<b>n3 = 173,0</b>

validations							
T	$2,60 \cdot 10^6$	n1	$2,020 \cdot 10^2$	n2	$1,870 \cdot 10^2$	n3	$1,730 \cdot 10^2$
T > $10 \cdot 10^6$		n1 > 0,5 * N1		n2 > 0,5 * N2		n3 > 0,5 * N1	
x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no	

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**Enterococcus hirae**


Counts (CFU/ml)					
		VC1	VC2	$\bar{x}$	
N	$10^{-6}$	247	250	248,5	<b><math>2,49 \cdot 10^8</math> N</b>
	$10^{-7}$	25	26	25,5	<b>248,5 N1</b>
N2	$10^{-6}$	248	256	252	<b>252,0 N2</b>
	$10^{-7}$	26	28	27	

CONTROLS					
		VC1	VC2	$\bar{x}$	
T1	$10^{-2}$	278	263	270,5	T1 = $2,71 \cdot 10^6$
	$10^{-3}$	28	27	27,5	
	$10^{-4}$	3	3	3	
T2	$10^{-2}$	274	270	272	T2 = $2,72 \cdot 10^6$
	$10^{-3}$	28	27	27,5	
	$10^{-4}$	3	3	3	

**T =  $2,72 \cdot 10^6$**

VALIDATIONS					
		VC1	VC2	$\bar{x}$	
S	S $10^{-8}$	127	129	128	<b>n1 = 289,0</b>
	M $10^{-8}$	130	129	129,5	<b>n2 = 129,5</b>
	D $10^{-8}$	130	128	129	<b>n3 = 129,0</b>

validations							
T	$2,72 \cdot 10^6$	n1	$2,890 \cdot 10^2$	n2	$1,295 \cdot 10^2$	n3	$1,290 \cdot 10^2$
T > $10 \cdot 10^6$		n1 > 0,5 * N1		n2 > 0,5 N2		n3 > 0,5 * N1	
x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no	

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**Staphylococcus aureus**

Counts (CFU/ml)						
		VC1	VC2	$\bar{x}$		
N	10 <sup>-6</sup>	291	292	291,5	<b>2,93.10<sup>8</sup></b>	<b>N</b>
	10 <sup>-7</sup>	31	30	30,5	<b>291,5</b>	<b>N1</b>
N2	10 <sup>-6</sup>	286	290	288		
	10 <sup>-7</sup>	30	30	30	<b>288,0</b>	<b>N2</b>

CONTROLS						
		VC1	VC2	$\bar{x}$		
T1	10 <sup>-2</sup>	284	288	286	T1 = 2,87.10 <sup>6</sup>	T = 2,85.10 <sup>6</sup>
	10 <sup>-3</sup>	31	29	30		
	10 <sup>-4</sup>	4	3	3,5		
T2	10 <sup>-2</sup>	279	286	282,5	T2 = 2,83.10 <sup>6</sup>	
	10 <sup>-3</sup>	28	29	28,5		
	10 <sup>-4</sup>	3	4	3,5		

VALIDATIONS						
		VC1	VC2	$\bar{x}$		
S	S 10 <sup>-8</sup>	177	203	190	<b>n1 = 190,0</b>	
	M 10 <sup>-8</sup>	215	210	212,5	<b>n2 = 212,5</b>	
	D 10 <sup>-8</sup>	198	201	199,5	<b>n3 = 199,5</b>	

validations							
<b>T</b>	2,85.10 <sup>6</sup>	<b>n1</b>	1,900.10 <sup>2</sup>	<b>n2</b>	2,125.10 <sup>2</sup>	<b>n3</b>	1,995.10 <sup>2</sup>
	T > 10.10 <sup>6</sup>	n1 > 0,5*N1		n2 > 0,5 N2		n3 > 0,5*N1	
	x yes <input type="checkbox"/> no	x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no	

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**Pseudomonas aeruginosa**

Counts (CFU/ml)					
		VC1	VC2	$\bar{x}$	
N	10 <sup>-7</sup>	280	281	280,5	<b>2,81.10<sup>9</sup> N</b>
	10 <sup>-8</sup>	29	29	29	<b>280,5 N1</b>
N2	10 <sup>-7</sup>	277	276	276,5	<b>277,0 N2</b>
	10 <sup>-8</sup>	28	30	29	

CONTROLS						
		VC1	VC2	$\bar{x}$		
T1	10 <sup>-2</sup>	290	288	289	T1 = 2,92.10 <sup>6</sup>	<b>T = 2,92.10<sup>6</sup></b>
	10 <sup>-3</sup>	33	32	32,5		
	10 <sup>-4</sup>	5	5	5		
T2	10 <sup>-2</sup>	289	294	291,5	T2 = 2,92.10 <sup>6</sup>	
	10 <sup>-3</sup>	29	31	30		
	10 <sup>-4</sup>	6	5	5,5		

VALIDATIONS					
		VC1	VC2	$\bar{x}$	
S	S 10 <sup>-8</sup>	206	196	201	<b>n1 = 201,0</b>
	M 10 <sup>-8</sup>	184	191	187,5	<b>n2 = 187,5</b>
	D 10 <sup>-8</sup>	190	187	188,5	<b>n3 = 188,5</b>

validations							
T	2,92.10 <sup>6</sup>	n1	2,010.10 <sup>2</sup>	n2	1,875.10 <sup>2</sup>	n3	1,885.10 <sup>2</sup>
	T > 10E+06	n1 > 0,5*N1		n2 > 0,5 N2		n3 > 0,5*N1	
	x yes <input type="checkbox"/> no	x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no	

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**Candida albicans**

Counts (CFU/ml)					
		VC1	VC2	$\bar{x}$	
N	10 <sup>-5</sup>	217	229	223	<b>2,24.10<sup>7</sup> N</b>
	10 <sup>-6</sup>	24	23	23,5	<b>223,0 N1</b>
N2	10 <sup>-5</sup>	231	228	229,5	<b>2,30.10<sup>2</sup> N2</b>
	10 <sup>-6</sup>	25	25	25	

CONTROLS					
		VC1	VC2	$\bar{x}$	
T1	10 <sup>-2</sup>	197	183	190	T1 = 1,91.10 <sup>6</sup>
	10 <sup>-3</sup>	21	20	20,5	<b>T = 1,82.10<sup>6</sup></b>
	10 <sup>-4</sup>	3	2	2,5	
T2	10 <sup>-2</sup>	173	169	171	
	10 <sup>-3</sup>	19	18	18,5	
	10 <sup>-4</sup>	2	2	2	

VALIDATIONS					
		VC1	VC2	$\bar{x}$	
S	S 10 <sup>-8</sup>	131	128	129,5	<b>n1 = 129,5</b>
	M 10 <sup>-8</sup>	124	124	124	<b>n2 = 124,0</b>
	D 10 <sup>-8</sup>	126	109	117,5	<b>n3 = 117,5</b>

validations							
T	1,82.10 <sup>6</sup>	n1	1,295.10 <sup>2</sup>	n2	1,240.10 <sup>2</sup>	n3	1,175.10 <sup>2</sup>
	T > 10.10 <sup>6</sup>	n1 > 0,5*N1		n2 > 0,5 N2		n3 > 0,5*N1	
	x yes <input type="checkbox"/> no	x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no		x yes <input type="checkbox"/> no	

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## 5 RESULTS



For a 10 m<sup>2</sup> room

*Escherichia coli*

	Trials 45 min							
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	0	/	0	/	2	/	carrier 1	0
Mb (10mL)	0	/	0	/	0	/	carrier 2	0
10 <sup>0</sup>	0	0	1	3	1	1	carrier 3	0
10 <sup>-1</sup>	0	0	0	0	0	0		
10 <sup>-2</sup>	0	0	0	0	0	0		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	1,44.10 <sup>1</sup>	d	5,26					
n'2	0,00.10 <sup>0</sup>	d>5 x yes <input type="checkbox"/> no						

	Trials 40 min							
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	34	/	24	/	31	/	carrier 1	21
Mb (10mL)	4	/	2	/	6	/	carrier 2	19
10 <sup>0</sup>	33	35	26	29	29	35	carrier 3	24
10 <sup>-1</sup>	5	5	3	3	3	4		
10 <sup>-2</sup>	0	0	0	0	0	0		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	3,06.10 <sup>1</sup>	d	4,70					
n'2	2,13.10 <sup>1</sup>	d>5 <input type="checkbox"/> yes x no						

	Trials 30 min							
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	55	/	49	/	52	/	carrier 1	66
Mb (10mL)	7	/	6	/	7	/	carrier 2	60
10 <sup>0</sup>	57	55	53	50	61	60	carrier 3	57
10 <sup>-1</sup>	7	6	6	5	8	6		
10 <sup>-2</sup>	0	0	0	0	0	0		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	5,36.10 <sup>1</sup>	d	4,36					
n'2	6,10.10 <sup>1</sup>	d>5 <input type="checkbox"/> yes x no						



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Enterococcus hirae

	Trials 45 min							carrier	
	Trial 1		Trial 2		Trial 3				
Mb (87mL)	0	/	1	/	3	/	carrier 1	0	
Mb (10mL)	0	/	0	/	0	/	carrier 2	0	
10 <sup>0</sup>	0	0	0	0	2	0	carrier 3	0	
10 <sup>-1</sup>	0	0	0	0	0	0			
10 <sup>-2</sup>	0	0	0	0	0	0			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	1,44.10 <sup>1</sup>	d	5,27						
n'2	0,00.10 <sup>0</sup>	d>5							
		x yes <input type="checkbox"/> no							

	Trials 40 min							carrier	
	Trial 1		Trial 2		Trial 3				
Mb (87mL)	27	/	30	/	30	/	carrier 1	22	
Mb (10mL)	5	/	2	/	2	/	carrier 2	31	
10 <sup>0</sup>	25	26	34	33	25	31	carrier 3	27	
10 <sup>-1</sup>	4	3	4	4	3	4			
10 <sup>-2</sup>	0	0	0	0	0	0			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	2,99.10 <sup>1</sup>	d	4,68						
n'2	2,67.10 <sup>1</sup>	d>5							
		<input type="checkbox"/> yes x no							

	Trials 30 min							carrier	
	Trial 1		Trial 2		Trial 3				
Mb (87mL)	51	/	44	/	50	/	carrier 1	51	
Mb (10mL)	6	/	7	/	6	/	carrier 2	46	
10 <sup>0</sup>	48	47	40	42	50	42	carrier 3	50	
10 <sup>-1</sup>	7	5	4	5	5	5			
10 <sup>-2</sup>	0	0	0	0	0	0			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	5,77.10 <sup>1</sup>	d	4,42						
n'2	5,20.10 <sup>1</sup>	d>5							
		<input type="checkbox"/> yes x no							


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**Staphylococcus aureus**

Trials 45 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	6	/	1	/	5	/	<b>carrier 1</b>	1
<b>Mb (10mL)</b>	0	/	0	/	0	/	<b>carrier 2</b>	0
<b>10<sup>0</sup></b>	2	5	4	4	6	2	<b>carrier 3</b>	0
<b>10<sup>-1</sup></b>	0	0	0	0	0	0		
<b>10<sup>-2</sup></b>	0	0	0	0	0	0		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	1,44.10 <sup>1</sup>	<b>d</b>	<b>5,29</b>					
<b>n'2</b>	3,33.10 <sup>-1</sup>	<b>d&gt;5</b>						
		<input checked="" type="checkbox"/> yes <input type="checkbox"/> no						

Trials 40 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	35	/	37	/	37	/	<b>carrier 1</b>	27
<b>Mb (10mL)</b>	5	/	4	/	2	/	<b>carrier 2</b>	31
<b>10<sup>0</sup></b>	40	41	39	36	38	35	<b>carrier 3</b>	33
<b>10<sup>-1</sup></b>	4	5	4	4	6	4		
<b>10<sup>-2</sup></b>	0	0	0	0	0	0		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	3,75.10 <sup>1</sup>	<b>d</b>	<b>4,62</b>					
<b>n'2</b>	3,03.10 <sup>1</sup>	<b>d&gt;5</b>						
		<input type="checkbox"/> yes <input checked="" type="checkbox"/> no						

Trials 30 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	70	/	60	/	64	/	<b>carrier 1</b>	77
<b>Mb (10mL)</b>	7	/	8	/	8	/	<b>carrier 2</b>	62
<b>10<sup>0</sup></b>	65	66	58	57	67	62	<b>carrier 3</b>	66
<b>10<sup>-1</sup></b>	9	7	6	6	10	7		
<b>10<sup>-2</sup></b>	1	0	0	0	1	1		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	6,67.10 <sup>1</sup>	<b>d</b>	<b>4,32</b>					
<b>n'2</b>	6,83.10 <sup>1</sup>	<b>d&gt;5</b>						
		<input type="checkbox"/> yes <input checked="" type="checkbox"/> no						



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**Pseudomonas aeruginosa**

Trials 45 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	10	/	8	/	12	/	carrier 1	5
Mb (10mL)	1	/	0	/	2	/	carrier 2	11
10 <sup>0</sup>	11	9	7	4	10	10	carrier 3	0
10 <sup>-1</sup>	2	1	0	0	1	1		
10 <sup>-2</sup>	0	0	0	0	0	0		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	1,44.10 <sup>1</sup>	d	5,17					
n'2	5,33.10 <sup>0</sup>	d>5						
		x yes <input type="checkbox"/> no						

Trials 40 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	70	/	68	/	75	/	carrier 1	90
Mb (10mL)	9	/	9	/	11	/	carrier 2	88
10 <sup>0</sup>	72	73	65	66	79	81	carrier 3	79
10 <sup>-1</sup>	8	9	7	7	10	9		
10 <sup>-2</sup>	0	0	0	0	1	1		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	7,32.10 <sup>1</sup>	d	4,26					
n'2	8,57.10 <sup>1</sup>	d>5						
		<input type="checkbox"/> yes x no						

Trials 30 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	102	/	96	/	120	/	carrier 1	121
Mb (10mL)	13	/	11	/	13	/	carrier 2	115
10 <sup>0</sup>	111	110	90	93	118	123	carrier 3	118
10 <sup>-1</sup>	11	12	9	10	13	14		
10 <sup>-2</sup>	1	1	1	1	2	3		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	1,09.10 <sup>2</sup>	d	4,11					
n'2	1,18.10 <sup>2</sup>	d>5						
		<input type="checkbox"/> yes x no						



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**Candida albicans**

Trials 45 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	25	/	17	/	18	/	carrier 1	20
Mb (10mL)	3	/	2	/	4	/	carrier 2	16
10 <sup>0</sup>	28	22	19	15	21	22	carrier 3	19
10 <sup>-1</sup>	4	3	2	2	3	3		
10 <sup>-2</sup>	0	0	0	0	0	0		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	2,06.10 <sup>1</sup>	d	4,67					
n'2	1,83.10 <sup>1</sup>	d>4						
		x yes   □ no						

Trials 40 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	96	/	106	/	106	/	carrier 1	101
Mb (10mL)	11	/	12	/	9	/	carrier 2	110
10 <sup>0</sup>	99	100	101	96	112	115	carrier 3	110
10 <sup>-1</sup>	11	12	12	11	14	12		
10 <sup>-2</sup>	1	1	2	2	2	2		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	1,06.10 <sup>2</sup>	d	3,93					
n'2	1,07.10 <sup>2</sup>	d>4						
		□ yes   x no						

Trials 30 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	130	/	121	/	139	/	carrier 1	133
Mb (10mL)	11	/	14	/	15	/	carrier 2	122
10 <sup>0</sup>	133	125	125	118	130	126	carrier 3	129
10 <sup>-1</sup>	16	14	13	13	15	13		
10 <sup>-2</sup>	2	2	3	2	2	2		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	1,34.10 <sup>2</sup>	d	3,84					
n'2	1,28.10 <sup>2</sup>	d>4						
		□ yes   x no						



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For a 1 m<sup>2</sup> roomEscherichia coli

	Trials 5 min							carrier	
	Trial 1		Trial 2		Trial 3				
Mb (87mL)	0	/	1	/	5	/	carrier 1	0	
Mb (10mL)	0	/	0	/	0	/	carrier 2	0	
10 <sup>0</sup>	0	0	1	3	2	2	carrier 3	0	
10 <sup>-1</sup>	0	0	0	0	0	0			
10 <sup>-2</sup>	0	0	0	0	0	0			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	1,44.10 <sup>1</sup>	d	5,26						
n'2	0,00.10 <sup>0</sup>	d>5 x yes □ no							

	Trials 2 min							carrier	
	Trial 1		Trial 2		Trial 3				
Mb (87mL)	30	/	24	/	33	/	carrier 1	33	
Mb (10mL)	4	/	2	/	5	/	carrier 2	37	
10 <sup>0</sup>	27	21	28	25	28	25	carrier 3	32	
10 <sup>-1</sup>	3	3	3	3	3	3			
10 <sup>-2</sup>	0	0	0	0	0	0			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	2,99.10 <sup>1</sup>	d	4,61						
n'2	3,40.10 <sup>1</sup>	d>5 □ yes x no							

	Trials 1 min							carrier	
	Trial 1		Trial 2		Trial 3				
Mb (87mL)	69	/	58	/	79	/	carrier 1	77	
Mb (10mL)	7	/	6	/	9	/	carrier 2	72	
10 <sup>0</sup>	73	70	64	67	73	75	carrier 3	79	
10 <sup>-1</sup>	9	7	8	7	10	8			
10 <sup>-2</sup>	1	1	0	0	1	1			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	7,08.10 <sup>1</sup>	d	4,25						
n'2	7,60.10 <sup>1</sup>	d>5 □ yes x no							



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**Enterococcus hirae**

Trials 5 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	0	/	0	/	0	/	<b>carrier 1</b>	0
<b>Mb (10mL)</b>	0	/	0	/	0	/	<b>carrier 2</b>	0
<b>10<sup>0</sup></b>	0	0	0	0	0	0	<b>carrier 3</b>	0
<b>10<sup>-1</sup></b>	0	0	0	0	0	0		
<b>10<sup>-2</sup></b>	0	0	0	0	0	0		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	1,44.10 <sup>1</sup>	<b>d</b>	<b>5,27</b>					
<b>n'2</b>	0,00.10 <sup>0</sup>	<b>d&gt;5</b>						
		<input type="checkbox"/> yes <input type="checkbox"/> no						

Trials 2 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	58	/	66	/	61	/	<b>carrier 1</b>	61
<b>Mb (10mL)</b>	7	/	8	/	9	/	<b>carrier 2</b>	68
<b>10<sup>0</sup></b>	60	63	61	58	60	64	<b>carrier 3</b>	64
<b>10<sup>-1</sup></b>	7	7	7	6	6	7		
<b>10<sup>-2</sup></b>	0	0	0	0	0	0		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	6,36.10 <sup>1</sup>	<b>d</b>	<b>4,33</b>					
<b>n'2</b>	6,43.10 <sup>1</sup>	<b>d&gt;5</b>						
		<input type="checkbox"/> yes <input checked="" type="checkbox"/> no						

Trials 1 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	90	/	98	/	95	/	<b>carrier 1</b>	103
<b>Mb (10mL)</b>	11	/	12	/	13	/	<b>carrier 2</b>	112
<b>10<sup>0</sup></b>	94	99	102	100	91	90	<b>carrier 3</b>	104
<b>10<sup>-1</sup></b>	12	11	11	10	11	10		
<b>10<sup>-2</sup></b>	2	2	1	1	1	1		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	9,73.10 <sup>1</sup>	<b>d</b>	<b>4,13</b>					
<b>n'2</b>	1,06.10 <sup>2</sup>	<b>d&gt;5</b>						
		<input type="checkbox"/> yes <input checked="" type="checkbox"/> no						

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**Staphylococcus aureus**

Trials 5 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	13	/	8	/	7	/	<b>carrier 1</b>	3
<b>Mb (10mL)</b>	1	/	0	/	1	/	<b>carrier 2</b>	0
<b>10<sup>0</sup></b>	12	11	10	11	9	5	<b>carrier 3</b>	0
<b>10<sup>-1</sup></b>	2	2	1	1	1	0		
<b>10<sup>-2</sup></b>	0	0	0	0	0	0		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	1,44.10 <sup>1</sup>	<b>d</b>	<b>5,27</b>					
<b>n'2</b>	1,00.10 <sup>0</sup>	<b>d&gt;5</b>		<input checked="" type="checkbox"/> yes <input type="checkbox"/> no				

Trials 2 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	66	/	73	/	62	/	<b>carrier 1</b>	64
<b>Mb (10mL)</b>	8	/	9	/	6	/	<b>carrier 2</b>	69
<b>10<sup>0</sup></b>	64	60	77	71	60	60	<b>carrier 3</b>	71
<b>10<sup>-1</sup></b>	8	6	9	8	6	6		
<b>10<sup>-2</sup></b>	1	1	1	1	0	0		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	3,75.10 <sup>1</sup>	<b>d</b>	<b>4,32</b>					
<b>n'2</b>	3,03.10 <sup>1</sup>	<b>d&gt;5</b>		<input type="checkbox"/> yes <input checked="" type="checkbox"/> no				

Trials 1 min								
	Trial 1		Trial 2		Trial 3		carrier	
<b>Mb (87mL)</b>	88	/	84	/	95	/	<b>carrier 1</b>	99
<b>Mb (10mL)</b>	7	/	10	/	13	/	<b>carrier 2</b>	93
<b>10<sup>0</sup></b>	90	87	88	83	92	91	<b>carrier 3</b>	100
<b>10<sup>-1</sup></b>	11	12	10	9	13	10		
<b>10<sup>-2</sup></b>	2	2	1	1	2	2		
<b>10<sup>-3</sup></b>	0	0	0	0	0	0		
<b>n'1</b>	6,67.10 <sup>1</sup>	<b>d</b>	<b>4,18</b>					
<b>n'2</b>	6,83.10 <sup>1</sup>	<b>d&gt;5</b>		<input type="checkbox"/> yes <input checked="" type="checkbox"/> no				



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**Pseudomonas aeruginosa**

Trials 5 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	7	/	5	/	9	/	carrier 1	10
Mb (10mL)	1	/	0	/	2	/	carrier 2	6
10 <sup>0</sup>	92	91	6	6	10	7	carrier 3	3
10 <sup>-1</sup>	13	10	0	0	1	1		
10 <sup>-2</sup>	2	2	0	0	0	0		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	1,44.10 <sup>1</sup>	d	5,15					
n'2	6,33.10 <sup>0</sup>	d>5						
		x yes <input type="checkbox"/> no						

Trials 2 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	87	/	81	/	85	/	carrier 1	93
Mb (10mL)	9	/	9	/	11	/	carrier 2	99
10 <sup>0</sup>	83	84	80	79	89	92	carrier 3	86
10 <sup>-1</sup>	9	9	9	8	9	10		
10 <sup>-2</sup>	1	1	0	0	1	1		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	8,69.10 <sup>1</sup>	d	4,21					
n'2	9,27.10 <sup>1</sup>	d>5						
		<input type="checkbox"/> yes x no						

Trials 1 min								
	Trial 1		Trial 2		Trial 3		carrier	
Mb (87mL)	115	/	106	/	119	/	carrier 1	125
Mb (10mL)	13	/	11	/	13	/	carrier 2	120
10 <sup>0</sup>	120	118	127	122	117	118	carrier 3	116
10 <sup>-1</sup>	13	12	15	13	14	12		
10 <sup>-2</sup>	2	2	2	2	2	3		
10 <sup>-3</sup>	0	0	0	0	0	0		
n'1	1,17.10 <sup>2</sup>	d	4,09					
n'2	1,20.10 <sup>2</sup>	d>5						
		<input type="checkbox"/> yes x no						



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**Candida albicans**

Trials 5 min									
	Trial 1		Trial 2		Trial 3		carrier		
Mb (87mL)	5	/	3	/	8	/	carrier 1	4	
Mb (10mL)	3	/	2	/	0	/	carrier 2	0	
10 <sup>0</sup>	6	4	2	4	11	12	carrier 3	7	
10 <sup>-1</sup>	0	0	0	0	2	2			
10 <sup>-2</sup>	0	0	0	0	0	0			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	1,44.10 <sup>1</sup>	d	5,00						
n'2	3,67.10 <sup>0</sup>	d>4							
		x yes □ no							

Trials 2 min									
	Trial 1		Trial 2		Trial 3		carrier		
Mb (87mL)	101	/	108	/	96	/	carrier 1	99	
Mb (10mL)	11	/	12	/	12	/	carrier 2	95	
10 <sup>0</sup>	100	103	112	107	99	99	carrier 3	102	
10 <sup>-1</sup>	11	11	13	12	11	12			
10 <sup>-2</sup>	1	2	2	2	2	2			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	1,06.10 <sup>2</sup>	d	3,95						
n'2	1,07.10 <sup>2</sup>	d>4							
		□ yes x no							

Trials 1 min									
	Trial 1		Trial 2		Trial 3		carrier		
Mb (87mL)	133	/	129	/	137	/	carrier 1	133	
Mb (10mL)	11	/	14	/	15	/	carrier 2	144	
10 <sup>0</sup>	129	138	144	137	128	136	carrier 3	137	
10 <sup>-1</sup>	14	15	16	14	13	14			
10 <sup>-2</sup>	2	3	2	2	4	3			
10 <sup>-3</sup>	0	0	0	0	0	0			
n'1	1,37.10 <sup>2</sup>	d	3,82						
n'2	1,38.10 <sup>2</sup>	d>4							
		□ yes x no							

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## 6 CONCLUSION

### The assays performed with the Dr SHEELD product demonstrated:

- The Dr SHEELD has a bactericidal and yeasticidal activity, according to the EN 17272 :2020 standard, **in a 10 m<sup>3</sup> room, for an exposure time of 45 min, at 20°C, in clean conditions.**
- The Dr SHEELD has a bactericidal and yeasticidal activity, according to the EN 17272 :2020 standard, **in a 1 m<sup>3</sup> room, for an exposure time of 5 min, at 20°C, in clean conditions.**

## 7 TECHNICAL APPENDIX

### Media:

TSA (Trypto casein Soya Agar), THERMOFISHER, ref. n° 1176-8822, batch n° 3298495

MEA (Malt Extract Agar), Dominique DUTSCHER, ref. 777304, batch n°307171

### Recovery liquid

Trypton-Salt Solution (TS)

- Trypton, Dominique DUTSCHER, ref. 777472, batch n° 090633-----1,00 g/l
- Sodium chloride, Dominique DUTSCHER, ref n° 19032391, batch n° 836751-----8,50 g/l

pH at 25°C : 7,0 ± 0,2

### SKIM MILK

Skim milk, Régilait, batch n° L M F N 15:27.

**STAINLESS STEEL CARRIERS** – stainless steel disks, 2 cm diameter, 1.4301, 2B grade (MECAPOL).

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