EVALUATION OF THE BIOCIDAL ACTIVITY OF THE PURACLENZ P3000 AIR PURIFIER AGAINST *CANDIDA ALBICANS* ATCC 10231 ACCORDING TO A TEST METHOD BASED ON EN 17272 STANDARD

Report written by: Mélanie BAROU

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INDEX OF REVISIONS

Each revision of the test report cancels/supersedes the previous one.
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Amendment history		
Report N°	Amended paragraph(s)	Purpose of the amendment
3300.PUR.21.P2.C1 Ca		First version
3300.PUR.21.P2.C1 Ca.v2	V. VI.	Addition of reductions in percentage

CONTENT

I. DESCRIPTION OF THE STUDY:

Title:	EVALUATION OF THE BIOCIDAL ACTIVITY OF THE PURACLENZ P3000 AIR PURIFIER AGAINST CANDIDA ALBICANS ATCC 10231 ACCORDING TO A TEST METHOD BASED ON EN 17272 STANDARD
Internal reference:	Study N° : 3300.PUR.21.P2.C1
Sponsor:	PURACLENZ P.O Box 733 Old Greenwich, CT 06870 USA Contact : Gonzague LEROUX
Test period:	From 11/05/2022 to 20/05/2022
Study manager:	Mélanie BAROU
Test laboratory :	Laboratoire EUROFINS BIOTECH – GERMANDE 505 rue Louis Berton Bâtiment 2 13290 Aix en Provence

II. OBJECTIVE OF THE STUDY:

Evaluate, according to a test method based on the EN 17272 standard(1), the ability of the PURACLENZ P3000 air purifier to reduce without interfering substances, in 8 hours and 12 hours, the number of viable cells of *Candida albicans* ATCC 10231.

III. TESTED PROCESS:

Name:.....	P3000
Manufacturer:.....	PURACLENZ
Technology*:.....	Photocatalytic oxidation PCO

*Data provided by the customer, do not engage the laboratory responsibility.

IV. METHOD:

a) Tested strain:

Candida albicans ATCC 10231

The conditions of preservation and control of the microbial strains used for the determination of the biocidal activity are those described in the European standard NF EN 12353[(2)] (internal protocol: T-DM-S-WO37879).

b) Neutralizing solution:

Composition of the neutralizing solution:

Tween 80:.....	10% (v /v)
Lecithin:.....	2%
Sodium thiosulfate:.....	2%
L-Histidin:.....	2%
Saponin:.....	1%
Tryptone soya broth:.....	q.s.p. 100ml

Steam sterilized (121°C, 21 minutes).

Batch number: E530.1.2, E530.1.4, E537.1.1.

c) Contamination solution

Contamination solutions were prepared in sterile deionized water in order to reach an inoculum of 10^4 CFU/ml at the end of the tested contact time on positive controls.

d) Growth and counting conditions:

For *C.albicans*: Fungal Agar. Steam sterilized (121°C, 21 minutes).

Batch number: E548.1.1
Incubation at 30°C ± 1°C during 48 hours

e) Carriers:

Stainless steel discs according to the paragraph 5.2.3.2 of the standard.

f) Conditions of use of the device:

The method used for the test is based on the standard EN 17272 (Fig. 1) but stainless steel discs are inoculated with the contamination solution without interfering substances. After drying, stainless steel discs are exposed to the tested process (3 test discs are exposed per tested contact time).

After exposure to the tested process for 8 and 12 hours, discs fall into the neutralizing solution where microorganisms are recovered by agitation. Viable microorganisms are incubated on the growth medium for 48 hours at 30°C. After incubation, viable microorganisms are enumerated and results are expressed in number of CFU (colony-forming unit) per disc.

At the same time, two positive control discs per tested contact time, inoculated in the same way as the test discs, are not exposed to the tested process. At the end of each tested contact time, microorganisms are recovered in the neutralizing solution by agitation and viable microorganisms are enumerated after incubation.

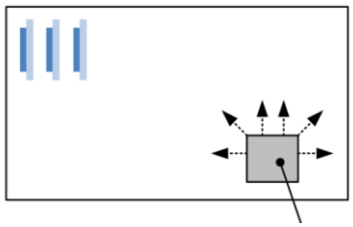

Figure 1. Arrangement of the equipment during the test. The carriers are placed at the opposite side of the tested process according to the specification of the standard.

Volume of the room:	34.5m^3
Temperature at the beginning of the tests:	20°C ± 2°C
Relative humidity at the beginning of the tests:	Between 50% and 75%
Negatively charged ions concentration* during tests:	≥ 500 ions/cm^3

*real-time ion monitoring system provided by the customer, do not engage the responsibility of the laboratory

V. RESULTS:

Table 1: Results. Evaluation of the biocidal activity of PURACLENZ P3000 air purifier according to EN 17272 against *Candida albicans* ATCC 10231. T: number of microorganisms on control discs. N1: counting of test suspension for dilution/inclusion – N2: counting of test suspension by filtration. n'1: number of surviving test organism in 100 ml of recovery liquid – n'2: number of colonies obtained directly by inclusion of the carrier. n'1+n'2: number of microorganisms on the test carrier.

Contact time	Microbial test suspension (N) (Nb. CFU/ml)	Positive control (T) (Nb. CFU/carrier)	Tests (3 replicates)		
			n'1+n'2 (Nb. CFU/carrier)	Mean Log_{10} reduction	Mean reduction (%)
8 hours	2.4×10^7	1.6×10^3	5.7×10^0	2.6	99.75%
12 hours		5.0×10^2	6.7×10^{-1}	2.7	99.80%

VI. CONCLUSIONS:

In the test conditions described, the P3000 process (PURACLENZ) induces a reduction of the number of viable cells of *Candida albicans* ATCC 10231 on surfaces of 2.6 log_{10} (99.75%) after 8 hours and 2.7 log_{10} (99.80%) after 12 hours contact times.

VII. REFERENCES:

1-EN 17272: April 2020. Chemical disinfectants and antiseptics – Method of airborne room disinfection by automated process – Determination of bactericidal, mycobactericidal, sporicidal, fungicidal, yeasticidal, virucidal and phagocidal activities.

2- NF EN 12353:2013. Chemical disinfectants and antiseptics – Preservation of test organisms used for the determination of bactericidal (including Legionella), mycobactericidal, sporicidal, fungicidal and virucidal (including bacteriophages activity).

VIII. STATEMENT GOOD LABORATORY PRACTICE:

The study was conducted according to NF EN ISO/IEC 17025 (2017) General requirements for the competence of testing and calibration laboratories. Applicable Standard Operating Procedures and Good Laboratory Practice were followed in this study.

The original records of this report, the notebooks, protocol, and final study report are stored in the archives of Eurofins Biotech-Germande «3300.PUR.21.P2.C1».

Mélanie BAROU
01/06/2022