INGENIOUS PROBIOTICS

RESEARCH STUDY

DENAA+ ALLERGY-FREE SPRAY INDOOR AIR CONTROLLED ANALYSIS REPORT

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INDOOR AIR CONTROLLED ANALYSIS REPORT

DENAA+ ALLERGY-FREE SPRAY

Thank you for choosing to be part of the brands that respect the health of consumers.

You will find below the complete report of the analysis of your product.

1. Introduction

This report follows the request to obtain 'Indoor Air Controlled' certification by Probiotic Group. It concerns the evaluation of the emissions of aldehydes and volatile organic compounds (VOCs) of the sample PB1.

The scientific chamber tests were carried out according to the protocol set by the standards NF EN ISO 16000-9 and NF EN ISO 16000-11. The levy follows the prerogatives of the norms NF ISO 16000-3 and NF ISO 16000-6.

The tests were carried out by our partner laboratory, which is approved by COFRAC, the French accreditation committee, for air quality measures.

2. The Label

Index of the Emission of Products in the Indoor Air

'Indoor Air Controlled' certification allows consumers to select products that emit the least volatile substances in the indoor air, and which are therefore more respectful of their health.

'Indoor Air Controlled' assigns each tested product a pollution index ranging from A + (very low emissions) to C (high emissions). This index represents the risk of inhalation toxicity pollutants detected.

'Indoor Air Controlled' takes into account all toxicity limits for this index. These are defined by all existing international recommendations and regulations identified, including:

- INDEX 2005, SCOEL and ACSHW: European Union.
- ACGIH, NIOSH and OSHA: United States of America.
- MAK, AGS and AgBB: Germany.
- Affset, OQAI, INRS: France.
- Workplace Exposure Standards for Airborne Contaminants.
- OELs (Occupational Exposure Limits) from more than 35 countries.

The 'Indoor Air Controlled' label incorporates more than 119 recommendations and controlled regulations. This labelling gives users clear and transparent information when choosing their products.

3. Methodology

Conditioning and Sampling of Materials

The application is based on standard:

- NF EN ISO 16000-11 (adapted to cleaning products): Emission of volatile organic compounds (VOC) from products - sampling, preservation of samples and preparation of samples for testing (AFNOR, 2006).

Packaging is according to the standard:

- NF EN ISO 16000-9: Determination of the emission of volatile organic compounds from products - emission test chamber method (AFNOR, 2006).

Samples and analysis are carried out according to the standards:

- NF ISO 16000-3: Determination of formaldehyde and other carbonyl compounds - Sampling method active (AFNOR, 2011).

- NF ISO 16000-6: Determination of volatile organic compounds in the indoor air of rooms and test chambers by active sampling on Tenax TA adsorbent, thermal desorption and gas chromatography using MS or MS-FID (AFNOR, 2012).

VOC analysis is performed using a Perkin Elmer 650 thermodesorber coupled to a Clarus 680 / MS GC Clarus 600C / FID Perkin Elmer according to the NF ISO 16000-6 standard. The tubes are heated by the thermodesorber for 30 minutes at 280 ° C. This heating causes a desorption of the volatile substances which then pass to through the chromatographic column of GC then are detected by the mass spectrometer (MS) and FID.

Screening is done in MS and quantitation in FID in toluene equivalent for total VOCs and in specific for the different molecules.

The analysis of the aldehydes is carried out according to the NF ISO 16000-3 standard. The cartridges are eluted in 5 ml of acetonitrile. An injection of 6 µl of this elution solution is then analyzed by liquid chromatography.

High performance (HPLC) on a Shimadzu system equipped with a UV detector with diode array. The aldehydes are identified and quantified by specific calibration.

The methodology is scrupulously followed by our partner laboratory, approved by COFRAC, the laboratory OFFICE VERITAS.

Analysis Scenario

The analysis sample scenario is based on actual scenarios, developed by the experts of 'Indoor Air Controlled' and corroborated by the partner laboratory. The scenario is extrapolated based on 4 sprays in a space equivalent to the volume of a toilet is 2.5m^3.

Data on the Analysed Sample

Denomination	Reference	Containing	Category	Lot Number
DENAA+ Allergy-Free	PB1	300ml	Spray	8710128120324

Sample Data Note: The score obtained is valid only for products whose lot number is identical or later.

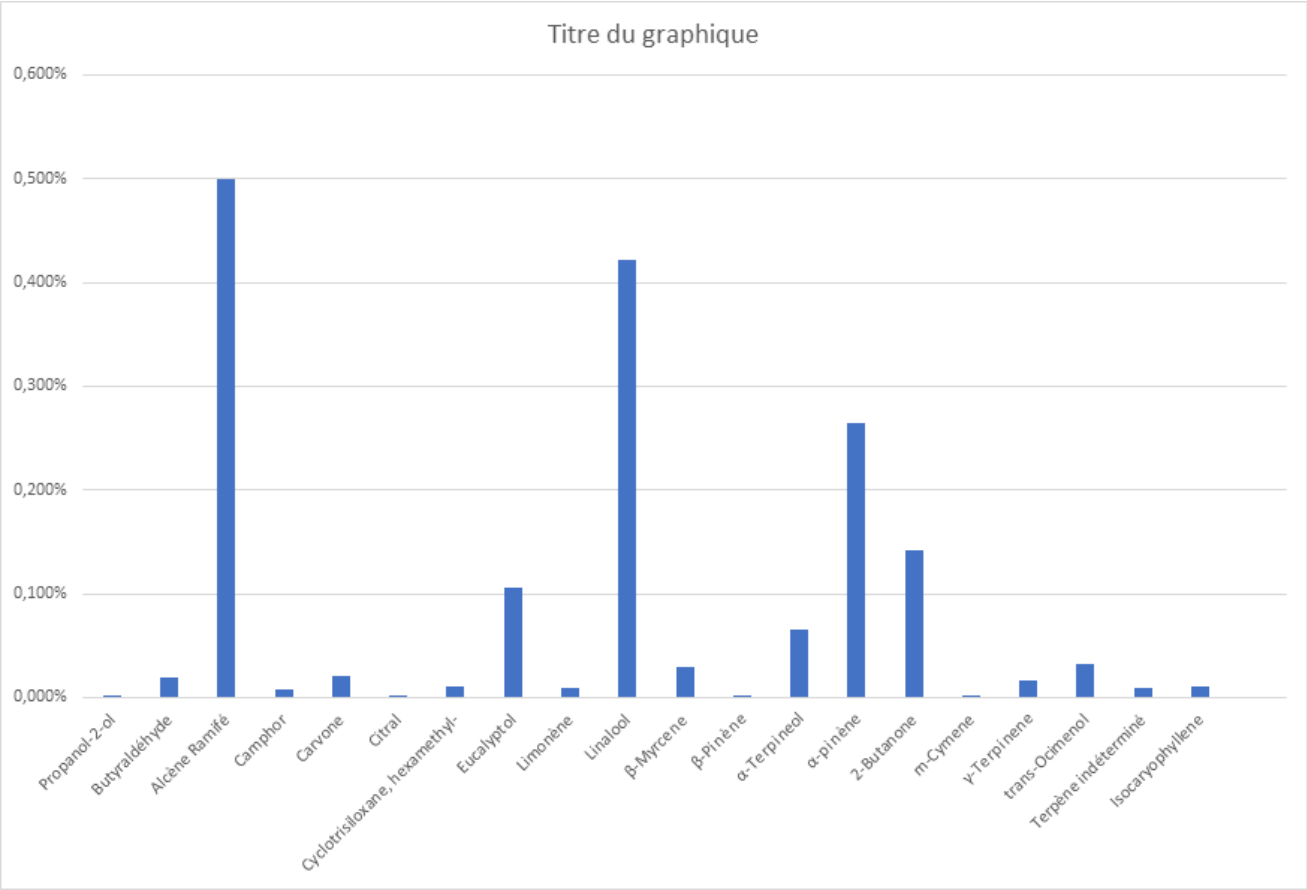
Specification of the Test Chamber

Reference	Test Date	Chamber Volume	Average Temperature °C	Relative Humidity %	Room Airflow L / min	Time to Sample
PB2	23/09/2019	225 L	23 +-2	50 +-5	1.65	T0+1h

4. Results and Interpretation

Concentration by Substances and Limits

Compound Name	CAS Number	Substance Type	Concent-ration in µg/m3	Limit A+ in µg/m3	Strictest Source Standard'
Propanol-2-ol	67-63-0	COVTV	3.33	500.000	OEL Romania
Butyraldéhyde	123-72-8	Aldehyde	4.7	25.000	OEL Romania
Alcène Ramifié	-	COV	0.5	100	Environment Agency
Camphor	76-22-2	COV	0.46	5.700	OEL Finland
Carvone	99-49-0	COV	0.81	4.000	No Value
Citral	5392-40-5	COV	0.48	54.000	OEL Poland
Cyclotrisiloxane, hexamethyl-	541-05-9	COV	0.41	4.000	No Value
Eucalyptol	470-82-6	COV	4.24	4.000	No Value
Limonene	138-86-3	COV	26	300.000	OEL Sweden
Linalool	78-70-6	COV	16.9	4.000	No Value
β-Myrcene	123-35-3	COV	1.17	4.000	No Value
β-Pinène	127-91-3	COV	1.10	224.000	OEL Switzerland
α-Terpineol	98-55-5	COV	3.28	5.000	OEL France
α-Pinène	80-56-8	COV	0.66	250	Kirkestov
2-Butanone	78-93-3	COV	4.10	2.900	Kirkestov
m-Cymene	535-77-3	COV	0.38	270.000	OEL Denmark
γ-Terpinene	99-85-4	COV	0.68	4.000	No Value
Trans-Ocimenol	7643-60-9	COV	1.29	4.000	No Value
Terpène Undetermined	/	COV	0.38	4.000	No Value
Isocaryophyllene	118-65-0	COV	0.42	4.000	No Value
Total Compounds (TVOC) C6- C16		**VOC**	**66.7**	**4.000**	**'Indoor Air Controlled'**



Concentrations of the Sample

To A VOC with no limit value receives a limit of 4000µg / m3 per precautionary principle.

Limits of Quantification:

- LQ formaldehyde COFRAC: 2.0 µg / m3
- LD formaldehyde COFRAC: 0.5 µg / m3
- LQ acetaldehyde: 2.8 µg / m3
- LQ other VOCs: 2.0 µg / m3 LD: 0.67µg / m3
- LQ Benene, Trichlorethylene, DEHP, DBP: 1.0µg / m3

VOC:	Volatile Organic Compound
COVTV:	Very Volatile Organic Compound
TVOC:	Total Volatile Organic Compounds

INTERPRETATION OF RESULTS

Your product is rated A +. Your product has very low emissions in the indoor air.

This notation allows you to tell the consumer that the risk of inhalation toxicity is very low and respects all standards and recommendations for indoor air quality.

All substances detected during the test comply with the most stringent short-term values. The total VOC load does not exceed the limit of 4000 µg / m3.

Do not hesitate to contact us for any questions about this report.

DENAA+ Allergy-Free Spray

Pure Ingenious Ltd
trading as Ingenious Probiotics