

Barcelona - January 2024

PURETECH

by noumena

REPORT ON TERMIX NATURE ABSORPTION ANALYSIS



INDEX

ABOUT PURE.TECH	4
FEATURES	5
HOW DOES IT WORK?	5
VALIDATION STUDIES	6
1. SPANISH NATIONAL RESEARCH COUNCIL (CSIC)	6
2. UNIVERSITY OF ALICANTE	7
3. VALENCIAN INSTITUTE OF MICROBIOLOGY (IVAMI)	8
CO ₂ ABSORPTION TESTING AND ANALYSIS	9
INTRODUCTION	10
STUDY DESCRIPTION	10
CONCLUSIONS	11
IMPACT	12
FEATURED APPLICATIONS	13
TEXTILES	14
RETAIL	15
INTERNATIONAL AWARDS	16

PURE.TECH absorbs CO₂, VOCs and NO_x, transforming them into inert minerals that purify the air we breathe. This technology can be applied to any surface, introducing a new line of products combating climate change.

ABOUT PURE.TECH



PURE.TECH is dedicated to advancing sustainability and environmental conservation through the use of programmable materials.

Our primary mission revolves around an extraordinary formula with the capability to absorb and eliminate CO₂ from the air.

This natural material forms the foundation of our ecological solutions across various industries.

PURE.TECH is a pioneer in material innovation, combining technology and sustainability to create inventive solutions against climate change. It boasts over thirty studies and certifications demonstrating its features and impact capacity.

Our manufacturing is conducted with a low carbon footprint to ensure efficiency throughout the entire life cycle, from production to application.

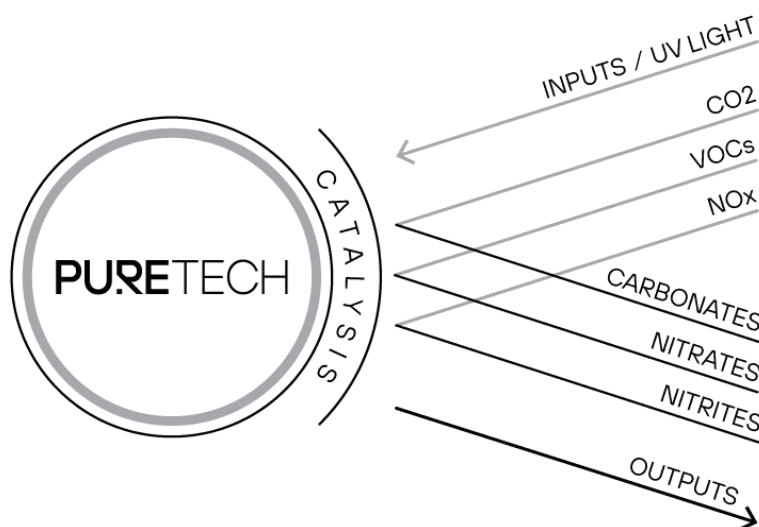
FEATURES

- Mineralises CO₂ and NO_x
- Eliminates VOCs (volatile organic compounds)
- Regulates humidity
- Antimicrobial and bactericidal
- Adsorbs pollution 24/7
- Naturally activated adsorption
- Unlimited industrial capacity

HOW DOES IT WORK?

PURE.TECH operates through various phases, utilising two catalysis processes (adsorption, dissociation and diffusion) via photocatalysis, carbonation and nitrification.

Thanks to these photocatalysis and catalysis processes, this material adsorbs CO₂, VOCs and NO_x, transforming them into harmless minerals like carbonates, nitrates and nitrites, safe for both the body and the environment.



VALIDATION STUDIES

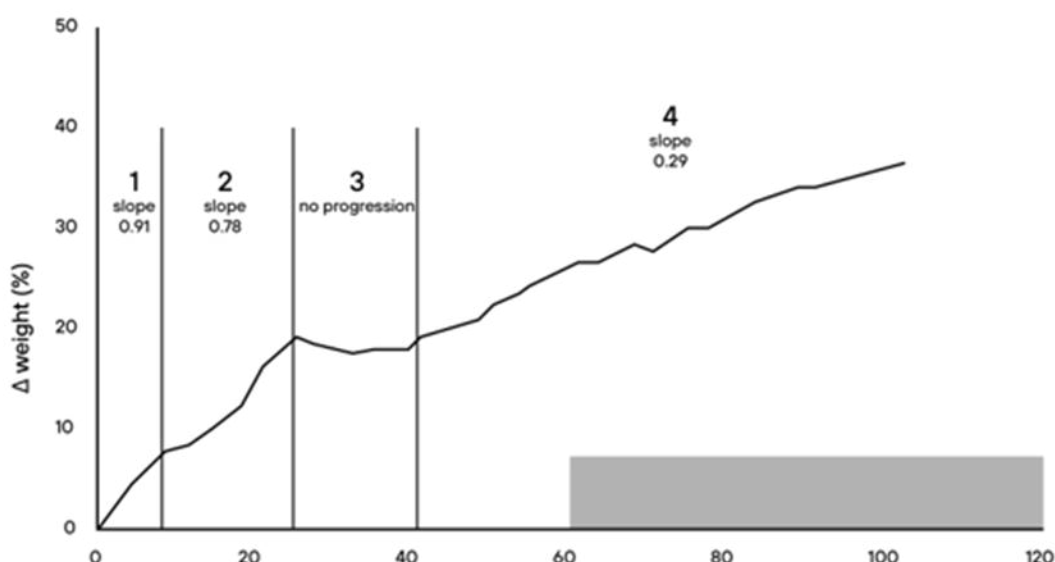
At PURE.TECH, we are committed to upholding the highest standards of quality and environmental impact. Our products undergo rigorous validation processes, including third-party testing and certifications, to ensure compliance with sustainability and industry standards.

This commitment to validation and quality assurance is integral to our mission.

1. SPANISH NATIONAL RESEARCH COUNCIL (CSIC)

The Spanish National Research Council (CSIC) is the largest public institution in Spain dedicated to research, as well as one of the most prominent in the European Research Area (ERA). It is the main implementing agent in the Spanish Science, Technology and Innovation System (SECTI).

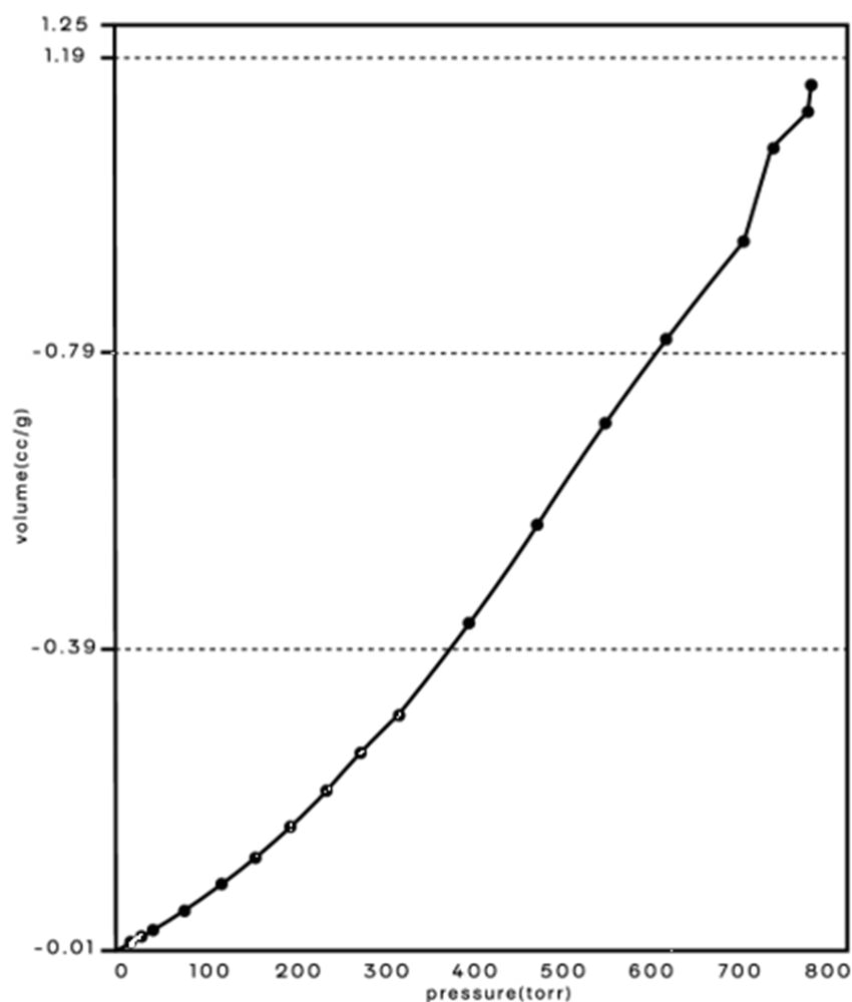
The certificate estimates the adsorption capacity of our active ingredient.



2. UNIVERSITY OF ALICANTE

The University of Alicante, a public university situated on the Mediterranean coast, boasts strong scientific and academic credibility, allowing it to adapt to social changes and the needs of our environment while leading a shift in the economic model based on research, innovation, entrepreneurship and real knowledge transfer.

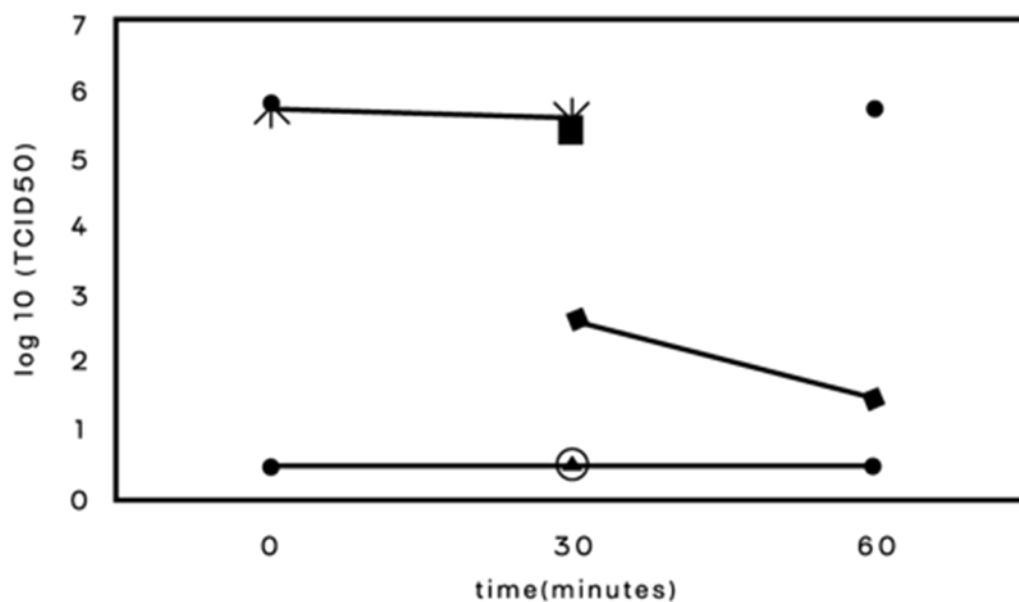
The certificate validates the adsorption capacity of our active ingredient.



3. VALENCIAN INSTITUTE OF MICROBIOLOGY (IVAMI)

The Valencian Institute of Microbiology is a leading private laboratory with specialised professionals engaged in specific areas to conduct microbiological tests, epidemiological surveillance studies on public health and research on antimicrobial resistance.

This certificate verifies the antimicrobial and antiviral capacity.



CO₂ ABSORPTION TESTING AND ANALYSIS

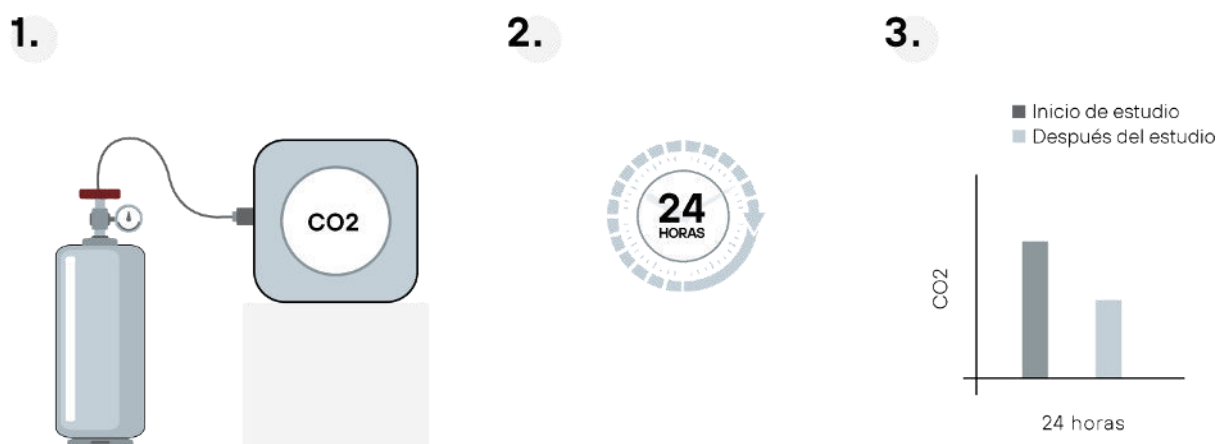
TERMIX NATURE



INTRODUCTION

This section outlines the laboratory analysis conducted on the TERMIX NATURE product, made with PURE.TECH polymer material, to verify its CO₂ absorption capabilities.

STUDY DESCRIPTION



To conduct the analysis, different samples of Nature brushes are classified with the following characteristics:

- Sample 1. with 3% PURE.TECH and a surface area of 147.09 cm²
- Sample 2. with 5% PURE.TECH and a surface area of 119.7 cm²
- Sample 3: with 10% PURE.TECH and a surface area of 147.09 cm²

The analysis involves placing the samples inside a chamber where a controlled amount of CO₂ is introduced. Over a 24-hour period, absorption data is examined using a probe and processed through specialised software. The results are studied based on the sample classification and surface area of each.

By calculating the difference in CO₂ concentration between the start and end of the experiment, considering the chamber volume and sample dimensions over 24 hours, the grams (g) of CO₂ eliminated per m² per year are determined for the samples, as detailed in Table 1.

TABLE 1

Samples	No. of pieces analysed	Piece surface area 2 π.r (r + h)	Max. ppm	Min. ppm	Difference in ppm/day	Elimination in g of CO ₂ m ² /year	Elimination in kg of CO ₂ in 10,000 m ² /year
Samples 1	4	0.0147 m ²	1406	1353	53	38.48	384.84
Samples 2	2	0.0119 m ²	1149	1082	67	120.19	1,201.93
Samples 3	3	0.0147 m ²	1427	1378	49	47.43	474.30

Table 1: Results of the conducted analysis

Table 1 presents the maximum and minimum values (in ppm) of the samples analysed over 24 hours, along with the difference in elimination in ppm. The elimination in grams of CO₂ per m²/year has been extrapolated, and an approximate calculation of this elimination on a surface of 10,000 m² for the PURE.TECH sample has been made.

CONCLUSIONS

After concluding the analysis, it has been observed that there was a CO₂ elimination in all samples within 24 hours, demonstrating the absorption and conversion performance of PURE.TECH in Termix Nature brushes.

Sample 1 exhibited an elimination of 38.48 g/m²/year with a daily absorption value of 53 ppm, considering the total surface area of 0.0147 m². Extrapolating these results to a surface area of 10,000 m² could lead to an annual elimination of 384.84 kg.

Sample 2 exhibited an elimination of 120.19 g/m²/year with a daily absorption value of 120.19 ppm, considering the total surface area of 0.0119 m². Extrapolating these results to a surface area of 10,000 m² could lead to an annual elimination of 1201.90 kg.

Sample 3 exhibited an elimination of 47.43 g/m²/year, with a daily absorption value of 47.43 ppm, considering the total surface area of 0.0147 m². Extrapolating these results to a surface area of 10,000 m² could lead to an annual elimination of 474.30 kg.

Note: These values depend on the ambient pollution in the atmosphere where the product is exposed.

IMPACT

The following data has been obtained using the results of Sample 1 with 3% PURE.TECH, as it was the material used in producing TERMIX NATURE.

These results were calculated by analysing the reduction of greenhouse gas ppm (parts per million) from indoor plants, obtained in the study *Effectiveness of Indoor Plants to Reduce CO₂ in Indoor Environment**, and the ppm reduction based on the absorption analysis of TERMIX NATURE brushes exposed in TABLE 1.

The selected plant species for the study are as follows:

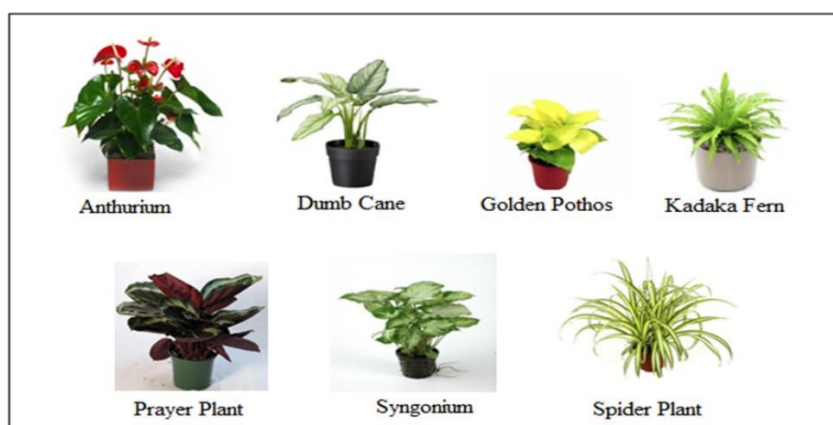


Fig 2. Reference image of the plants. Source: Effectiveness of Indoor Plant to Reduce CO₂ in Indoor Environment*

The objective is to provide a comparison of the CO₂ absorption quantity of the product for better understanding. It should be noted that plants have an absorption period of 8 hours, unlike PURE.TECH, which boasts a 24-hour absorption thanks to its catalytic action.

According to the results of this comparison, it can be stated that, as an individual benefit, one pack of 5 TERMIX NATURE brushes absorbs approximately the same amount of CO₂ as one plant.

However, to make an impact and reverse the greenhouse effect generated by human activities, it is necessary to shift our perspective on individual actions and recognise the positive impact we, as a global community, can generate to protect our planet. Imagine the substantial impact that can be achieved with the production commitment of 1,000,000 combs by TERMIX.

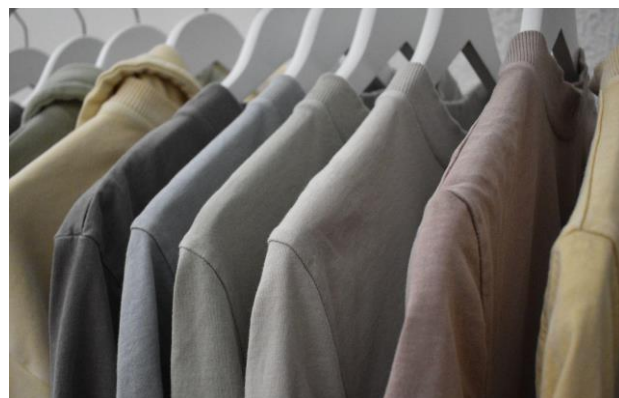
* Mohd Suhaimi, A.M Leman, Azizi Afandi, Azian Hariri, Ahmad Fu'ad Idris, S.N. Mohd Dzulkifli, Paran Gani (2017). Effectiveness of Indoor Plants to Reduce CO₂ in Indoor Environment.

FEATURED APPLICATIONS

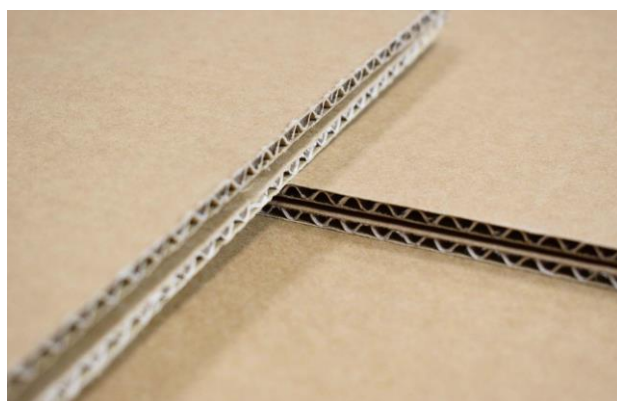
The PURE.TECH product line encompasses a range of applications, spanning paint, textiles, carton, paper, polymer, wood and construction materials.



PURE.TECH PAINT
SUSTAINABLE PAINT



TEXTILEPURE.TECH
TEXTILES FOR CLIMATE CHANGE



CARTONPURE.TECH
PAPER FOR CLIMATE CHANGE



PLASTICPURE.TECH
PLASTIC FOR SUSTAINABLE CHANGE



CONCRETEPURE.TECH



WOODPURE.TECH

TEXTILES

The use of PURE.TECH in textiles is important because it allows for the production of eco-friendly garments by lowering the carbon footprint, meeting the rising consumer demand for sustainable fashion and contributing to a healthier planet.



RETAIL

PURE.TECH can be applied to enhance indoor air quality and reduce the carbon footprint in retail spaces, thereby creating a healthier and more sustainable shopping environment for consumers.



INTERNATIONAL AWARDS

PURE.TECH has earned recognition with multiple international awards, from ClimateLaunchPad to Expoquimia, and has been showcased at Milano Design Week, Dubai Expo 2020, TedX and more.



PURE.TECH FUTURE INDUSTRY S.L.
C/ Cristóbal de Moura, 203 Postcode 08019 - Barcelona (Spain)
VAT NR. B44778439
PHONE: +34 937 42 09 27