



# Media kit

**Revolutionizing Industrial Air Purification**



[www.pure-nat.com](http://www.pure-nat.com)

Media kit\_August2025



# A Promising Industrial Gem



Based in Bayonne, in the heart of the Basque Country (France), Purenat stands out as a rare example of **a female-led industrial deeptech startup**

- Founded by Natacha Kinadjian Caplat, PhD in Materials Physical Chemistry
- Joined by Manon Vaillant, a Biotechnology Engineer, as Co-founder and CEO

Two visionary women, with **perfect gender parity across its teams** — a notable achievement in a traditionally male-dominated sector.

At the core of Purenat's mission lies a **breakthrough innovation**, born from Natacha's PhD research, **designed to tackle one of today's most pressing yet under-addressed public health challenges: air pollution** (World's second leading cause of death, responsible for over 3 million fatalities globally every year.)



*From left to right: Natacha Kinadjian Caplat and Manon Vaillant*

# A Breakthrough Technology for Cleaner Air



Purenat has developed a **patented biomimetic photocatalytic material** that represents a true revolution in air decontamination. Unlike conventional filtration systems, largely based on imported activated carbon, **Purenat's solution**

- **Fully destroys harmful pollutants** without releasing secondary toxic by-products
- **Adress volatile organic compounds (VOCs), microorganisms** (viruses and bacteria), and **odors**
- Offers a **highly efficient, cost-effective, and sustainable alternative**
- Dramatically **reducing the carbon footprint of industrial air treatment.**



*From Specific Formula to  
Composite Granular*



*From Granular to  
Photocatalytic Fiber*



*From the Fiber to  
Spunbond Textile*



*From the Textile to  
Filtration Cartridge*



# Leading the Industrial Clean Air Revolution



Traditional filtration systems require frequent replacement, are non-recyclable, fail to eliminate all pollutants, and carry a significant environmental impact due to their production and transport. **Purenat's innovative technology** not only overcomes these limitations but **sets a new benchmark** for air purification across multiple industrial applications.

Currently in its **pre-industrial phase**, Purenat is scaling up production following :

- A successful **€1.1M seed round in 2023** to recruit, move to industrial pilot stage
- A successful **€1.5M second round in 2024** to accelerate R&D, pre-industrialization (mini-series), and first on-site installations.
- In **2025, initial pilot deployments in France and across Europe** have already delivered **75–100% pollutant removal** in a single pass, including sulfur- and nitrogen-based VOCs, under real-world industrial conditions.



*Purenat's growing team,  
January 2024*



*First pre-industrial production  
unit*



*Purenat's patented biomimetic  
material*

# Environmental and Social Impact



Driven by science, purpose, and environmental responsibility, Purenat is **pioneering a new era of clean air technologies** for a healthier, more sustainable industrial future.



Top

10%

of French companies for  
environmental and social impact

Impact Score

76%

well above the national average of 54%

Labelled



# An Ecosystem of Innovation and Impact





# Air Pollution: A Global Health Crisis



2<sup>nd</sup> cause of death worldwide

€600+B/yr in external costs for the EU

40% of EU greenhouse gas emissions

3.2M deaths in 2021

# The Hidden Cost of Polluted Air



Selective and limited technology

Low efficiency

High operating costs

Energy-intensive

Clogged filters

Waste disposal costs

Penalties for non-compliance



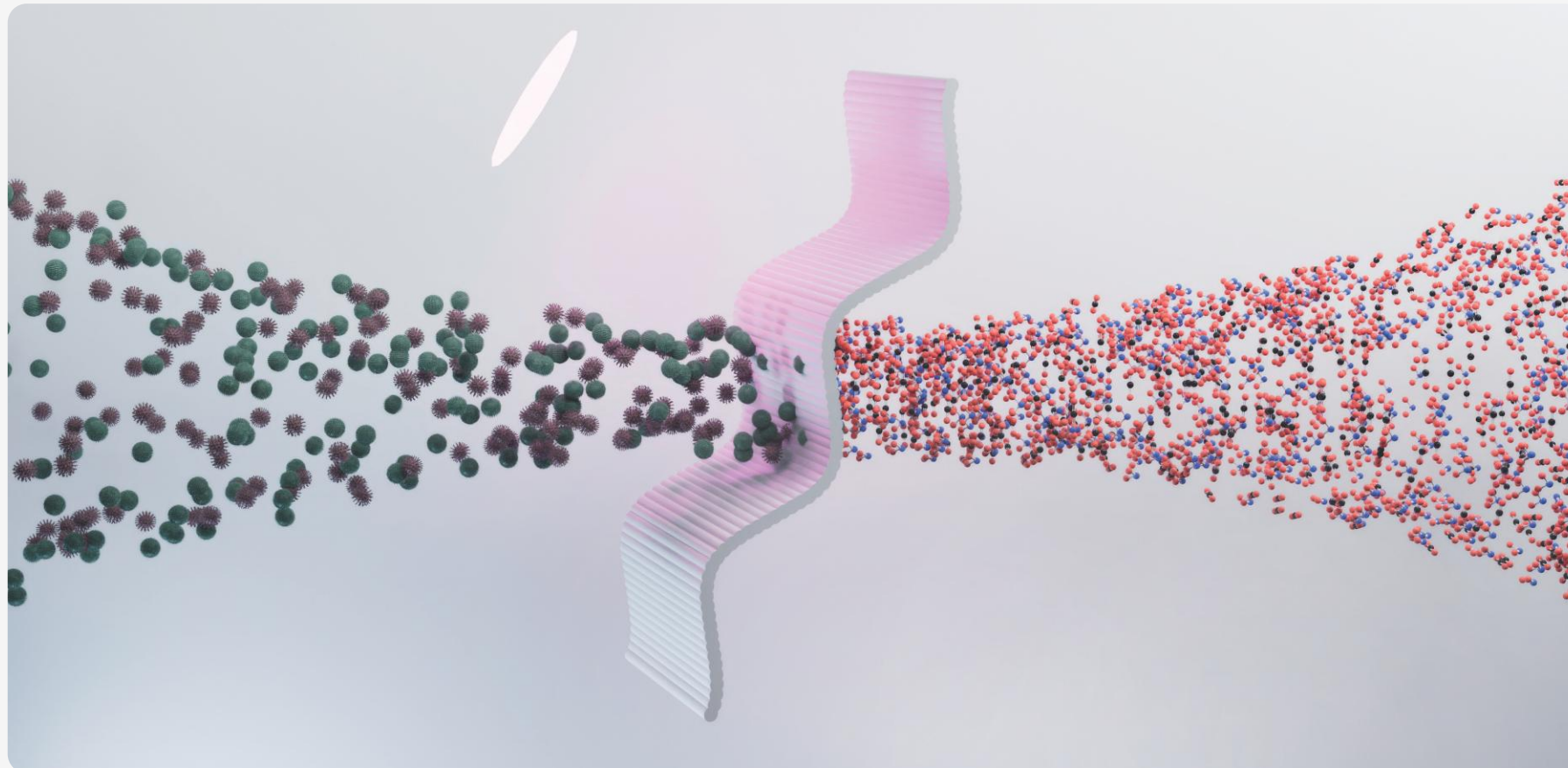
# Revolutionizing Industrial Air Purification



## 1<sup>st</sup> molecular and microbiologic filter

**Shatters harmful pollutants instead of storing them**

Efficient against VOCs, solvents, odors, viruses and bacteria



35x more pollutants shattered

10 to 20% global savings

Lifespan 5x longer

Pressure drop <10Pa

Decarbonation : Scope 3

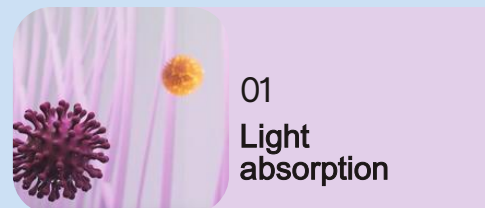
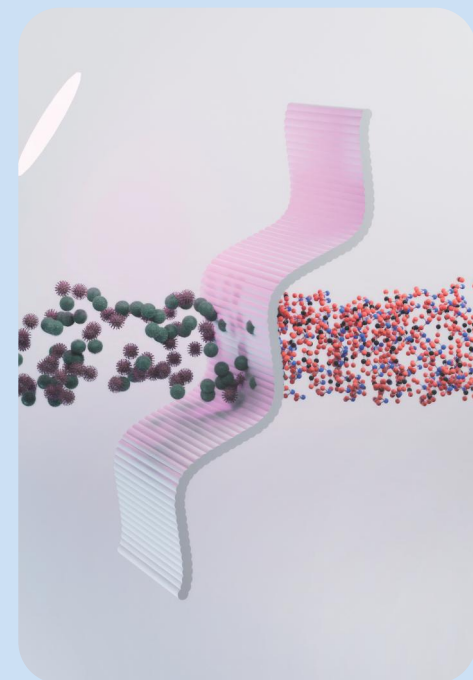


[Watch the video](#)

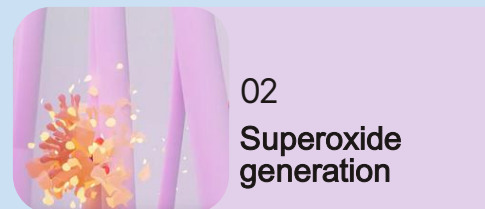
# Beyond Filtration: A New Standard



Biomimetic Photocatalysis  
Purenat Technology, a unique patented technology



01  
Light  
absorption



02  
Superoxide  
generation



03  
Elimination of  
harmful  
pollutants

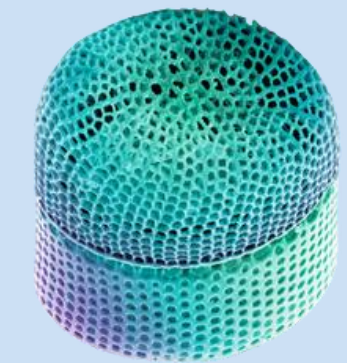
**Organic** – VOC, odors  
**Inorganic** -  $\text{NH}_3$ ,  $\text{NO}_x$ ,  $\text{H}_2\text{S}$   
**Biologic** - viruses, bacteria

**Basic molecules**, i.e. water  
vapor, harmless to humans  
and the environment

## Biomimicry: boosting performance

Inspired by the champions of  
photosynthesis: **diatoms**.

We imitate the porous structure of  
diatoms to enhance the material's  
photocatalytic performance.



This is the first time that a fiber, then a filter, has been  
composed of such an active agent rather than simply  
being coated with it.

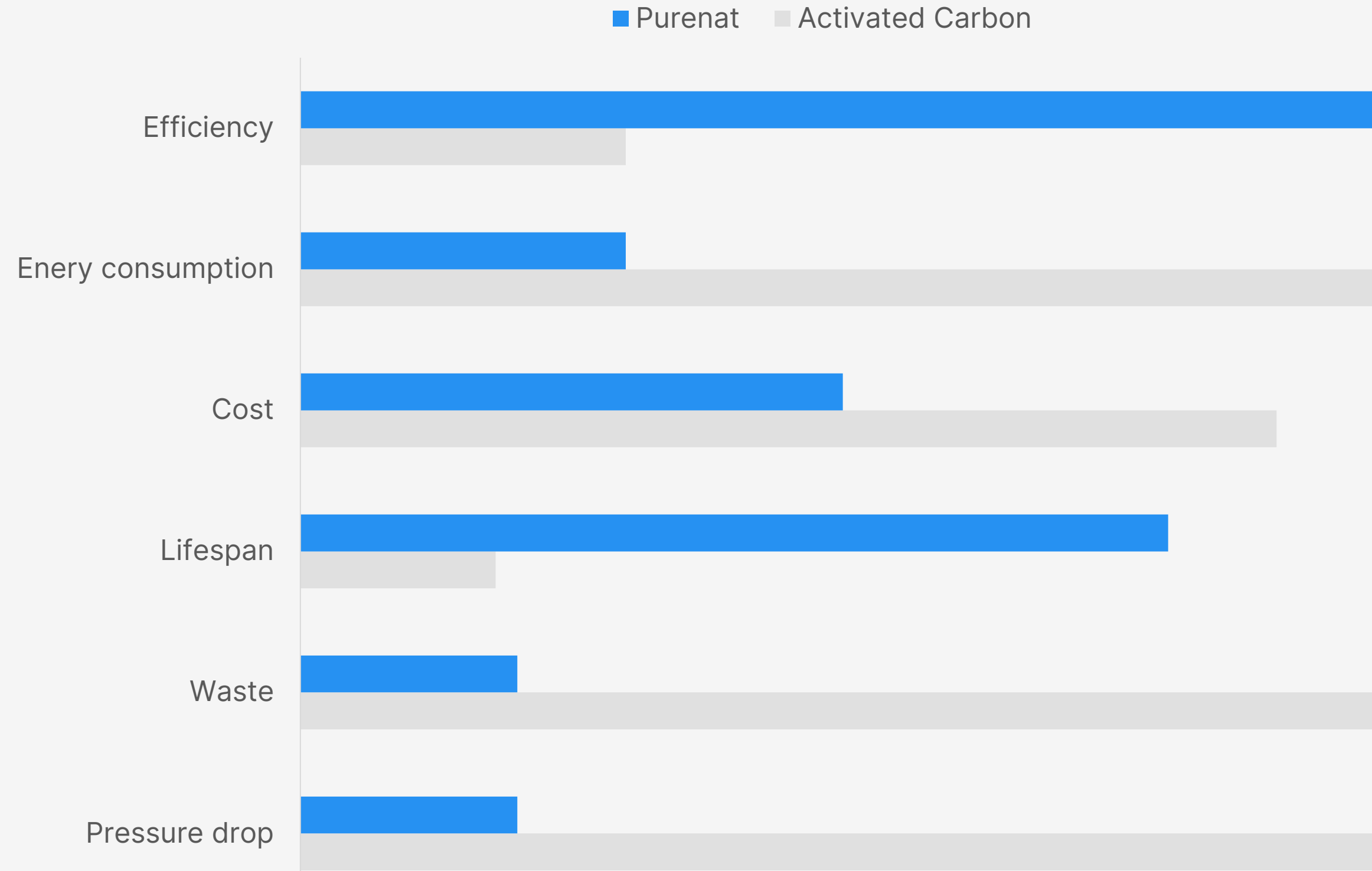
**Natacha Kinadjian Caplat**  
Founder & President

- PhD in Physical Chemistry of Materials
- Air Quality Expert (exp +14 years)
- Top 100 inventors of the year 2024, Le Point





# Purenat vs Activated Carbon



# Where Purenat Makes a Difference



Purenat works hand-in-hand with industrial clients to deploy tailor-made pilot installations, precisely sized to their operational needs and environmental constraints. Each project considers all relevant technical parameters — including pollutant types and concentrations, air flow rates, and site-specific requirements — to ensure the most effective solution.

These real-world pilot units are a critical step toward a definitive large-scale installation, as they enable us to:

- **Validate pollutant profiles:** confirm average VOC concentrations and peak levels specific to the client's activity.
- **Optimize system design:** adapt the depollution unit's sizing and engineering for maximum efficiency and ROI.
- **Measure on-site performance:** assess real-life effectiveness under industrial operating conditions.
- **Plan seamless scale-up:** ensure future large-scale deployments are perfectly adapted to the site's needs.



*Example of a pilot installation*



# Where Purenat Makes a Difference



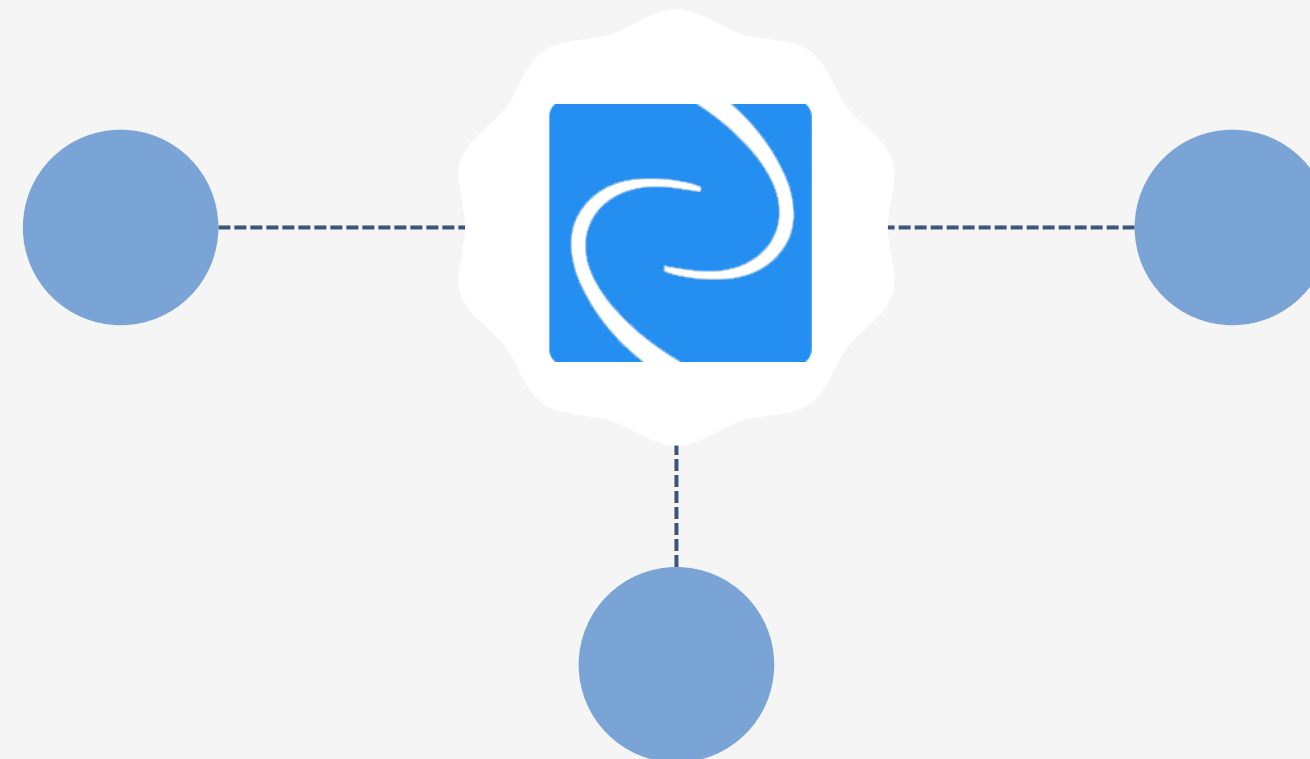
Our technology can be used as a substitute for, or as a complementary finishing step to, traditional solutions such as scrubbers, biofilters, or activated carbon systems.

## Food Industry

**The food and flavor manufacturing sector**

By significantly reducing odor emissions from production processes.

- **Animal production chain: livestock facilities, slaughterhouses**
- **Food processing plants**
- **Flavor and fragrance manufacturers**



## Waste Management & Recycling

**Environmental Services & Waste Management Sector**

Our technology helps reduce odors and VOCs, toxic gases generated from process and sludge.

- **Waste Management**
- **Recycling Facilities**
- **Wastewater Treatment Plants (WWTP)**

## Chemical Industry

**The chemical and petrochemical sectors**

Helping to reduce odors and harmful emissions generated during production processes.

- **Construction materials manufacturing (BTP sector)**
- **Chemical transformation plants**
- **Paint manufacturing facilities**
- **Surface treatment activities**

# Key figures



- Founded in 2020
- 14+ years of R&D
- 3M+ deaths/year caused by air pollution worldwide
- 75–100% pollutant removal in real-world tests
- €1.1M seed funding (2023), €1.5M second round (2024)
- Impact Score 76% (Top 10% of French companies)
- Pilots deployed in France and Europe
- 7 patents worldwide
- Team of 10



*Purenat's growing team, January 2024*

Purenat is the story of two entrepreneurs who have surrounded themselves with a team of committed experts.



# Two Women Driving Industrial Change



Driven by a shared passion for innovation and environmental impact, these two women combined their complementary expertise to embark on a unique industrial adventure, paving the way for next-generation clean air solutions.



## **Natacha Kinadjian Caplat – President & Founder**

A PhD graduate in Physical Chemistry of Materials from the University of Bordeaux, Natacha has dedicated over 14 years to researching indoor air quality challenges. Her doctoral work led to the breakthrough biomimetic photocatalytic material that underpins Purenat's patented technology. Today, she heads the company's R&D efforts, constantly pushing the boundaries of innovation in industrial air decontamination. Beyond Purenat, Natacha plays an active role in French and international standardization groups focused on indoor air depollution and environmental performance indicators for buildings. She was named among France's Top 100 Inventors of 2024 by Le Point.



## **Manon Vaillant – Chief Executive Officer & Co-Founder**

An Engineer in Biotechnology, graduate of ENSTB Bordeaux, Manon brings expertise in strategic marketing and business development. Inspired by the disruptive innovation created by Natacha, she joined Purenat as co-founder and CEO, leading the company's commercial strategy, partnerships, and market positioning. A certified coach, Manon also oversees human resources and organizational development, fostering a strong and inclusive company culture as Purenat scales its industrial ambitions.

# Celebrated for Impact and Excellence



Purenat's breakthrough innovation, disruptive material technology, and strong market potential have earned it prestigious awards and accolades from leading organizations in industry and innovation.

## 2021

- **Innovation Workshop Award** – Pays Basque

## 2022

- Winner – **Sustainable Construction & Living Environment competition**
- **French Tech Pays Basque Award** – Basque Invest

## 2023

- Listed in **NA20 French Tech** – Bordeaux
- Winner – **Pollutec Innovation Awards**
- Winner – **Global Industrie Awards** (Young Startup category)
- Regional Finalist – **CIC Sud-Ouest Start Innovation Business Award**
- Winner – **AGIPI Entrepreneurship Contest**
- Awarded at **MaddyTour by Maddyness**



*Manon Vaillant at Pollutec Innovation Awards 2023*





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