

# Design innovation makes sustainable anticorrosion paint a reality

## Unikalo at a glance

Unikalo is the No. 1 independent French manufacturer of construction paints.

Founded in 1936, today the medium-sized company employs 400 skilled workers and produces 45,000 tons of paint annually.

Its 2022 sales topped €140M.

The company's artisanal ability has always allowed it to excel at crafting high-quality technical goods. Now it operates large-scale production facilities with industrial sites in Mérignac and Cestas (France).

Unikalo is ISO 14001 certified in design and production for its environmental management systems. By integrating environmental considerations right from the design phase and the paint reformulation phase, the R&D lab can lessen its products' impact. Production is guided by ecological concerns in the areas of waste management, air and water pollution control, also energy and raw material consumption.

Unikalo's short-term goal is to become the French market leader in the design, production, and distribution of paints.

*"At Unikalo, our employees are fully committed to innovative, more sustainable solutions, it's part of our business culture, supported by an unwavering eye on technology."*

*Projects in our R&D strategy reflect three major themes: health and safety for operators and customers, the environment with the energy performance of buildings and ecotoxicology, also product quality and technical aspects, because we are mainly a manufacturer of paints for professionals."*

*The collaboration under way with Carbon Waters fits perfectly into this strategy."*

explains Charlotte Moeyaert, Director of R&D and Innovation.

*"We started the project by testing the various types of graphene available on the market, most of which were in powdered form. We ran numerous tests and the only technology we chose was from Carbon Waters."*

*We quickly gave up on the others for various reasons, particularly due to the difficulty of incorporating the additive or unsatisfactory results."*

*Also, for an additive like graphene, having a ready-to-use liquid solution is a real advantage. It helps make it more efficient to incorporate into paint and saves the operators from having to work with a powder that has to be handled with personal protective equipment."*

The collaborative R&D project consisted of multiple stages. Numerous iterations between the respective labs had to be validated by aging tests, since the analyses were spread out over long periods.

During the last three years, these iterations allowed substantial improvements.

## Sharing expertise

*"We're not materials specialists, and incorporating a new material into a paint requires validating the proper dispersion and the resulting performance."*

*For this project to be successful, it required the collaboration of experts, with Unikalo contributing its mastery of formulation and technical specifications of the final products, and Carbon Waters bringing its scientific knowledge of graphene. So the concentration of graphene was greatly increased, thereby reducing the proportion of additive that had to be incorporated."*

*For us this was very reassuring from an industrial perspective, and also recognized economic realities by limiting production costs. The Carbon Waters added value on this project was high."*

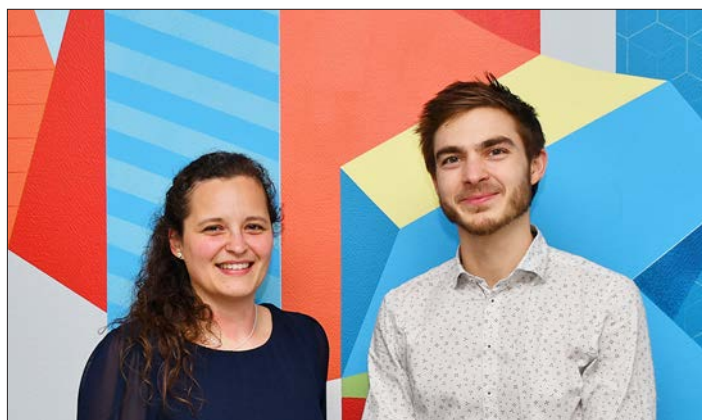
*In addition to the anticorrosion performance study, we ran numerous joint analyses on paint qualities. We even did a specific analysis of its protective power using the electrochemical impedance technique."*

## Open innovation

*"We choose our partners very carefully to protect our know-how. These types of projects are launched if they have real potential for industrializing and marketing a new product."*

*Collaboration with start-up is a fairly recent move, but we hope to become even more proactive in terms of innovation and sustainable development with disruptive technologies."*

sums up Charlotte Moeyaert.



Élise Grandfils, Innovation Project Manager at Unikalo  
with Thomas Bottein, Project Manager at Carbon Waters

The goal of the project, begun in 2019, is to create an aqueous-phase, high-performance anticorrosion paint.

Because of its intrinsic barrier effect with water and its eco-friendliness, graphene was chosen as the best additive.

## Graphene dispersions

Graphene dispersions are produced from graphite using a patented chemical exfoliation process. Graphene in dispersion is characterized by its high quality, purity and stability.

## Graph'Up additives

Graph'Up additives are ready-to-use, graphene-based solutions compatible with a broad range of resins and polymers.

Graph'Up is an alternative to anticorrosion additives and preservatives.

These products can also be adapted to meet the new demands created by the transition to new ways of approaching the environment and energy.



**Carbon Waters**  
 ENDLESS HORIZON OF MATERIALS