

PRESS KIT

Arkema 4



ARKEMA
SAILING

Thierry LE HÉNAFF

Arkema President and CEO

The new *Arkema 4* trimaran is the result of 8 years of close and productive collaboration between the Arkema Group and the Lalou Multi team. This technical and human partnership is a concrete illustration of our commitment to the research and development of new high-performance materials as well as the application of existing materials in new areas of activity.

Sailing and racing boats in particular belong to a sector that never stands still and in which innovation is paramount to improving performance. Lalou Roucayrol is a perfect ambassador of this. He is committed to constantly innovating in order to find new, more efficient and more sustainable manufacturing solutions. The collaboration between a large group like ours and an SME with strong local roots is highly positive. Every day it makes sense thanks to the pervading nimbleness and creativity at the heart of our processes and in our respective DNA. Arkema and Lalou Multi also share the same eagerness to pass the baton by backing future generations in many fields, and to share their knowledge and their passions. Quentin Vlamynck is a perfect example of this. He has been part of the Arkema Sailing adventure since the project was conceived. He is a very talented skipper, as he showed at the helm of the *Mini 6.50 Arkema 3*, and a young man who espouses the same values as our Group.

We are confident that Quentin will proudly fly the colors of our Group on the world's oceans, at the helm of his new *Ocean Fifty Arkema 4*.



Lalou ROUCAYROL

Manager and Leader Skipper of Lalou Multi



Innovation and transmission are etched in Lalou Multi's DNA. In 2011, the company embarked on processes aimed at developing racing boats while minimizing their social and environmental impact. In their venture, Lalou Multi has had the backing of Arkema and the *Région Nouvelle Aquitaine* since 2013.

Over the same period, Lalou Multi has followed a proactive approach to welcoming young talent. It is not a school in the strict sense of the word, but the company provides technical, financial and human resources for the transmission of knowledge, skills and experience. Four young competitors have been selected: Quentin Vlamynck, Raphaël Lutard, Camille Bertel and Kéni Piperol. The *Arkema 4* program is indeed an excellent 'demonstrator'.

With the development and application of advanced and recyclable composite materials and with the advent of a young talent, Quentin Vlamynck, this project marks a great step in the partnership between Lalou Multi and Arkema.

ARKEMA
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Arkema 4: The new rocket, 1 concept, 3 hulls, 2 programs

1 SPORTING CHOICES: Aiming for Versatility



Quentin Vlamynck
Skipper of Arkema 4

The appeal of the Ocean Fifty Class is clear as it offers a diverse program ranging from inshore to offshore events in the brand new Pro Sailing Tour to Transat races in crew, double or solo mode. In the history of the Class, some Ocean Fifty boats have been specifically configured rather more than others to shine in various areas of the game. With the new trimaran Arkema 4, the specifications immediately focused on versatility: good in offshore and in coastal races, easy to handle solo but also ergonomic in crew sailing. Does this mean it can do everything you want it to? "It's true that the Arkema 4 design brief set out versatility as a priority," explains Quentin Vlamynck. "It's our vision, based on the experience gained on

our old platform, and it addresses the highly diverse program of the Ocean Fifty circuit. We also gave a lot of thought to protecting the spots where we keep watch as well as our living quarters," continues the man who will skipper Arkema 4 solo in the next Route du Rhum race. "Since the foils were added in 2018, boats have gained up to 5 knots at certain speeds. Everything happens faster on board, including crashing waves! And it's well known that at sea, the physical and mental fitness of a sailor is paramount. In the deckhouse of Arkema 4, headroom is 1.65 m, the grinders are protected, and we have almost 6 m² sheltered from heavy seas."



Romaric NEYHOUSSE
Architect of Arkema 4

2 ARCHITECTURAL CHOICES: Hydro et aéro !

The Ocean Fifty gauge is laid down strictly with mandatory guidelines, in particular minimum weight and monotype foils. Does this still leave room for innovation? "Quite naturally we ended up with an X-shaped structure," explains naval architect Romaric Neyhousser. So the outriggers do not run parallel, but converge towards the center of the hull: «This allows a concentration of the masses and significantly better protection for the crew, low down, at the rear of the structure. It's also a great feature as the crew and the cockpit are lower down, and we can fit the boom lower down too", the architect continues. In hydrodynamics terms, the support of the foils has helped limit the volume of the floats that also gain reserve buoyancy thanks to their raised section. The central hull is deep with

V-sections to cushion the impacts, with a clearer bow for directional agility in grand prix races. But it is probably in aerodynamics that the research has been most spectacular: "The outriggers' fairing has been extended by "aero" tarps at the rear, and the integration of fittings and devices has been extensive," explains Romaric. As for the deckhouse, it can be removed, leaving a simple windshield for crew racing!



Justin DOBSON
Arkema 4 R&D

3 MATERIALS CHOICES: Efficiency and Recyclability

The specifications of the Ocean Fifty gauge limit the materials that are permitted in order to help control production costs. Like its competitors, the Arkema 4 trimaran is made primarily of a foam-glass-epoxy sandwich with carbon reinforcements. But the construction of this new trimaran has also been an opportunity to continue the research undertaken with the Elium® resin. This thermoplastic material formulated and developed by the Arkema Group has been used for all front fairings of the outriggers as well as the deckhouse

The construction of Arkema 4 has also been an opportunity to demonstrate the exceptional and unique recyclability of this resin. *"The outriggers' molds, for example, were made of Elium®, composite,"* explains Justin. *"They have since been cut up and crushed before the depolymerization and purification phases by which the monomer can be recovered. The monomer can then be reformulated into a new Elium® resin, therefore now a «recycled» resin, with identical properties."* In turn, the regenerated resin will then

and cockpit, which are areas where its impact resistance is invaluable. It has also been the subject of an analysis campaign with a series of test parts conducted by Englishman Justin Dobson, a specialist in pre-impregnated structures, who joined the Lalou Multi team in 2019: *"By using the Elium® resin for certain parts, we can capitalize on its reliability and mechanical properties."*

reappear in the construction process for the production of new composite parts. This is the case with the cockpit as well as part of the outriggers' fairing, built from recycled resin. So, the process has come full circle!



Gilles BRETON
Arkema 4 construction

4 CONSTRUCTION SOLUTIONS: Uncompromisingly High-tech

"It's very difficult to build a modern and powerful Ocean Fifty and keep to the minimum gauge weight," explains Lalou Roucayrol. For Arkema 4, the choice went to building the boat using pre-impregnated fabrics ("pre-pregs") baked in an oven at 120°C. This method ensures optimum resin rates in the composite, thus the best weight/rigidity ratio. Insulating the workshop and installing an oven to bake all the components were therefore prerequisites for the new Lalou Multi

project launched in September 2019. Head of the worksite Gilles Breton explains: *"With an 800 m² building, we can work comfortably. We made sure the ground was made perfectly level, a prerequisite for building accuracy and wedging the molds, and we were able to assemble the parts indoors since we have 21 linear meters of doorways. These are the right conditions to put together a really high-tech boat that fulfils Quentin's sporting ambition."*

First outings, first lessons, first nice surprises

Launched in the water on 23 September 2020, the brand new Ocean Fifty Arkema 4 did not wait long to put in its first tacks in the Gironde estuary. *"The first outing was a tremendous occasion,"* skipper Quentin Vlamynck says. With Lalou Roucayrol, boat captain Raphaël Lutard, and Keni Piperol by his side, Quentin completed around thirty daily outings to learn the ropes of this new racing craft. *"These confidence-building outings were soon very conclusive. The boat is sound, aerodynamic, and I'm at ease on board. It's an incredible feeling to be able to sail it without trouble at more than 30 knots and know that I'm completely safe."*

The boat performs really well. We're particularly pleased with the work that was done on the aerodynamic tarpaulins. At times, the boat barely touches the water, all pitched up and supported by its foils. It's an incredible feeling to experience that. Before the boat's winter check-over, we also had a 48-hour outing in strong winds. The conditions were not easy with heavy squalls now and then and a cross sea, but the boat performed well to our greatest satisfaction!" These initial outings gave us a wealth of information, and were also an opportunity for those involved in the construction of this new trimaran to step on board: sailmakers, naval

architect, head of design, electronics engineers. *"These outings are important for them in many respects. It's one way of thanking them for the work they have put in, but also and above all an opportunity for them to test all their systems in real-life conditions and analyze the behavior and performance of the boat in situ"* explains Quentin.

The hidden faces of performance

As in the past, this new trimaran is the result of intense technical collaboration between Arkema and Lalou Multi. With recyclable resins, new materials, 3D printing of technical parts, clean energy, many features are indeed driven by innovation, and others will remain flexible throughout the sporting life of Arkema 4.

SAILS

The sails are entirely signed *Incidence*, these sailmakers being closely involved with the Arkema 4 project and the Lalou Multi team for many years. The gennakers, Code 0 and J3, are cable-less, therefore do not have any tension cable: the leading edge is thinner and the void better distributed.

The fixture points designed by Lalou Multi are made of Elium®/carbon composite rather than aluminium, with the added benefits of lower weight and recyclability.

CENTRAL HULL

Validated by many digital simulations (CFD), this hull is wide at the bridge to increase the sheet effect on the front sails. Below the waterline, it is deep with V sections for less bumpy sailing. The clear forefoot allows for more efficient rotations. As with the floats and the outriggers, the structure and bulkheads were assembled by structural bonding using methacrylate products from the Arkema Group subsidiary Bostik.

DECKHOUSE / COCKPIT

The whole unit is completely recyclable and made entirely of composite based on the recycled Elium® resin. Approximately 80 cm lower than on the other Ocean Fifty boats, the cockpit allows for sheltered maneuvering. For superior visibility whatever the sea conditions may be, the cockpit and deckhouse have been fitted with glazing in ShieldUp® Flex PMMA*, the world's first newly developed flexible sheet. Flexibility makes for easy installation, with no thermoforming for sizably curved shapes. 5 times more impact resistant than a traditional PMMA, this "acrylic glass" has also been given a scratchproof and water-repellent coating. The result: remarkable and long-lasting optical properties, even in challenging conditions, and some 50% lighter!

(*) polymethyl methacrylate

ENERGY

Latest-generation lithium batteries using Arkema's Kynar® technology were selected. Developed by the young French company Powertech, they help increase energy storage capacity by 50%, with no increase in weight. Combined with a larger surface of photovoltaic panels installed on the front outrigger arm, the system delivers fully autonomous energy supply to on-board equipment, without emitting a single gram of CO₂.

FLOATS

The floats feature raised sections, but their volume is smaller since the foil gives the necessary support. The dihedral angle (between outrigger and horizontal plane) has been increased to prevent the windward float from dragging in the water in light winds.

2019

Record in Gran Canaria two-handed race with Lalou Roucayrol on Ocean Fifty [Lalou Multi]

2017

6th in the *Mini Transat* and 3rd in the French Championship offshore racing in Mini 6.50 [Arkema 3]

2015

Winner of the Armen Race in Mini 6.50 [Arkema 2]

2014

8th in the *Les Sables-The Azores-Les Sables* in Mini 6.50 [Arkema 2]

2013

Crew winner of the *Route des Princes* in Ocean Fifty [Arkema 1].

2010

French Champion *UNSS Habitable*

Quentin Vlamynck the skipper of Arkema 4, that's him!

Born in Arcachon

On 21/10/92

Lives in Verdon-sur-Mer

Has a partner

The youngest skipper in the history of 50 ft trimarans, Quentin Vlamynck, at the grand old age of 28, is the skipper of *Arkema 4* launched in the water in September 2020.

Quentin is an integral part of Lalou Multi, Lalou Roucayrol's team. First as crew of the Ocean Fifty *Arkema 1*, he then became skipper of the Mini 6.50 *Arkema 3* experimental prototype built from Elixir[®] resin, winning a fine sixth place in the Mini Transat 2017. Calm and collected, methodical, versatile, with a keen interest in the open sea, Quentin was quite naturally selected to take the helm of the new trimaran of Team Arkema Sailing, assisted and coached by his mentor Lalou Roucayrol.

At the helm of *Arkema 4*, Quentin will be able to show that innovation, high performance and sustainable development can combine in the broadest sense!

Passing the baton

The tides have seen plenty of ebbs and flows since his first family outings on Lake Biscarrosse (south-western France) aboard a *Surprise* or a *Requin* sailboat. The young sailor was studying composite materials at the maritime high school *Gujan-Mestras* when he met skipper and entrepreneur Lalou Roucayrol who was giving a lecture there in September 2010. Ten years on, their collaboration is still going strong, and, within the team, passing the baton is the patently obvious thing to do. This is because since then, Quentin has earned his stripes, one at a time, in a story that he has been writing himself. On his return from the Mini Transat 2017, Lalou promoted him to boat captain so he could hone his skills on the trimaran *Arkema 1*. "For ten years, I was involved in the Mini and the Multi only, but I know them by heart!" recalls Quentin who loves the open seas and knows how to push himself when the going gets tough. Composure, drive, determination: these are the attributes that invariably come to mind when his team-mates speak about Quentin. Just as well, because sailing a trimaran solo is still to this day the most demanding event in ocean racing. Bon voyage, Quentin, and may the winds be good to you!

« Some skippers are more experienced than me on the ocean, but I am highly versatile. Even if, at my grand old age of 28, I know I still have plenty to learn (quite normal for someone who isn't 30 yet), I feel ready... Besides, I'm happy to be where I am! »



You can't be a skipper overnight!

Becoming the skipper of an ocean racing trimaran is not something you learn overnight. Quentin Vlamynck knows it well, after almost 10 years spent training continuously alongside Lalou Roucayrol. Beside getting the feel for the boat, Quentin can also draw on wide-ranging training support: electronics, weather, mental and physical preparation; the young skipper is determined not to leave anything to chance.

« You need to be an all-round sailor. The job of a sailor has never been only about knowing how to steer a boat. You have to know how to use on-board electronics and IT, be able to analyze weather and routings, not to mention being fit and well prepared mentally too, because these boats are highly demanding. I really want to absorb all of it and be able to do everything all by myself! »

A champion in the making!

"I realized the value of working on my physical condition a few years ago, especially by sailing an Ocean Fifty boat. Sport takes up quite a lot of my time, and it's at the heart of the project. Boats are physical, especially during manoeuvres. I swim, run and cycle, and I ride between 150 and 200 kilometers a week. Together with the team's colleagues, we train and this creates a good atmosphere within the team. Raphaël Lutard, my boat captain, organizes the sessions and it's great to be able to share these moments together. Especially as here in the Médoc region, the environment is perfectly suited to this.

We also have the support of a professional coach who prepares each of us specifically based on our needs. Especially as she knows us well, as she is Lalou's sister Valérie!"

No overlooking matters of the mind

« My coach Emmanuelle Fouillet follows my progress. This preparation is important and goes beyond psychology to tackle the races. I'm young and I have to learn to communicate properly, to clearly express my intentions and my demands, and to establish my leadership within a team. This coaching means very positive and essential support when you look at performance overall. Sailing an Ocean Fifty requires genuine mental effort. In a multihull, there's always a small risk of capsizing. You can never shut off your mind, but instead you should keep on focusing, holding on to the sheet. In sailing, we work on how I steer the boat and how I can stay focused by creating anchor points, as well as on communication with my team-mates. It's long-term work, and it's already showing results.»



Ocean Fifty Class

High standards, budget control, conviviality

OCEAN
FIFTY

For a reasonable budget, Ocean Fifty boats are among the most spectacular and fastest offshore racing yachts in the world. The high standards required for these high-flying machines does not preclude conviviality. No wonder this circuit is undergoing a complete renewal!

2021 indeed marks a turning point! With the previous Multi50 Class now renamed Ocean Fifty Class, the circuit has been given a genuine, professional, new impetus. In light of this, the Class this year has a new organizer: Upswing Prod, a company specializing in event and audiovisual production.

For over 15 years, this circuit has brought together talent from all walks of life for both the greatest offshore races and restricted events. Solid and durable, the Ocean Fifty boats have emerged from a now well-established and mature set of specifications, preventing

undue technological drifts while giving some degree of freedom to the biggest names in naval architecture. This makes for a highly homogeneous fleet, guaranteeing close-run regattas! The sailing schedule comprises coastal regattas and ocean races, and combines solo, two-handed and crew events. With seven competitive boats, the Ocean Fifty Class will this year see two new prototypes, one of which is Arkema 4. So, plenty of fierce tussles to look forward to in the Atlantic ... and in the Mediterranean!

The 2021 program

With its crewed and two-handed regattas, the 2021 program is the perfect opportunity for Quentin Vlamynck to take his new boat in hand!

Arkema 4 will take part in the brand new Pro Sailing Tour: five inshore and offshore regattas between Brest, La Rochelle, Las Palmas de Gran Canaria and Marseille, when an immersive documentary series will be shot following the lives of the crews. Accompanied by 4 crews at each event, Quentin Vlamynck will take part in his first competitions as skipper of an Ocean Fifty.



PRO SAILING TOUR

- 1st event: **Brest** 19-22 May
- 2nd event: **La Rochelle** 26-30 May
- 3rd event: **Las Palmas de Gran Canaria** 30 June-4 July
- 4th event: **Marseille** 21-25 July
- Final event back to **Brest** 1-7 August

The Ocean Fifty Arkema 4 team on the Pro Sailing Tour



Lalou Roucayrol – Hauler and gennaker trimmer

As one half of the duo with Quentin, Lalou Roucayrol will naturally take part in every event of the Pro Sailing Tour. Part of every outing since the boat was launched, Lalou shares his experience of the multihull and the fine-tuning of a new boat. With exchange and transmission always in mind, he leaves no room for error, pays attention to the smallest detail, with the sole purpose of having a high-performance boat!

- His greatest quality: **fastidious**



Raphaël Lutard – Reefing line tuner

Eager to get to know the boat inside out, the Arkema 4 boat captain will also be on board for most events of the Pro Sailing Tour. Always on the lookout for new solutions to improve systems and devices, Raphaël will be in charge of the organization of manoeuvres on board Arkema 4.

- His greatest quality: **“Gyro Gearloose”**



Kéni Piperol – Tactician

A member of the Lalou Multi team since 2020, the young Guadeloupean played an active role in the construction of Arkema 4. Also a skipper and busy with building his new Class40 at Lalou Multi, Kéni will be on board as tactician for the 1st event in Brest. One way for the Arkema Sailing team to thank him for the work and the energy he has put in.

- His greatest quality: **dynamism**



César Dohy – Hauler and sail trimmer

Closely involved with Team Lalou since 2012, co-skipper of Lalou Roucayrol on Arkema 1 in 2015 in the Transat Jacques Vabre, César has always been in charge of making the sails for the Arkema Sailing fleet. An excellent trimmer, he is also a very good observer of water bodies and always makes apt comments to improve sailing. He will be part of the Brest and La Rochelle events.

- His greatest quality: **enthusiasm**



Cédric Pouligny – Tactician

Cédric is well known for his vast experience in coaching and assisting with ocean racing projects. He knows how to ask the right questions to coax a crew in the right direction. He will look after the manoeuvre notes, and take part in the La Rochelle and Marseille events.

- His greatest quality: **rigor**



Étienne Carra – Hauler

Étienne wears two hats: preparer and sailor as part of the Arkema Sailing team. In charge of seamanship, he knows Ocean Fifty boats very well as he has taken part in plenty of grands-prix races and ferrying trips on board Arkema 1 alongside Lalou Roucayrol. His knowledge of the boat's behavior and stress will be beneficial in preparing for the Transat Jacques Vabre. He will take part in the Gran Canaria and Marseille events.

- His greatest quality: **technical expertise**



This 2021 crewed sports program promises to be the best preparation for the 15th edition of the Transat Jacques Vabre Normandie Le Havre race, due to start on 7 November heading for Martinique.

A 5,800 mile course that is new for the Ocean Fifty Class, via the Fernando de Noronha archipelago in Brazil, sailing across the equator and the doldrums twice. Note that the Ocean Fifty boats are the first expected in Fort-de-France, after a 12 to 15 day voyage.

This will be Quentin's third race across the Atlantic Ocean, following his two participations in the Mini Transat 6.50. He will be accompanied by Lalou Roucayrol, and the pair hope to make headlines for the Arkema 4's first major ocean event.



Arkema, the value of long-term and commitment

Since 2013, Arkema and Lalou Multi have been collaborating on the construction of highly innovative offshore racing yachts and their racing schedules. Both partners have continued to innovate in this area where they inspire and instill great impetus. With composite materials, new energies, adhesives, the Group's innovations have been implemented by Lalou Multi, successively in the design and improvement of performance of an Ocean Fifty multihull, a Mini 6.50 monohull, and, since 2018, in the construction of the new trimaran *Arkema 4*.

These exchanges between an innovative specialty materials group and a bold SME have given rise to both tremendous research and development successes and formidable racing machines. This collaboration

is driven by a spirit of solidarity and commitment typified in particular by the transmission of know-how and the backing of young talents to help them fulfil their professional aspirations with passion, responsibility, commitment, and clear-mindedness.

Finally, this partnership over the past eight years has shown both the general public and boating specialists that innovation, performance and sustainable development can indeed mingle. The boats of the Lalou Multi team bear witness to this and illustrate the partners' real commitment in this regard.

ARKEMA
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