

PRESS KIT

TRANSAT JACQUES VABRE NORMANDIE - LE HAVRE

Arkema 4



ARKEMA
SAILING

Thierry LE HÉNAFF

Arkema Chairman 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 Company.

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



Lalou ROUCAYROL

Manager and Skipper, leader 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' of this.

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
SAILING

The Arkema 4 trimaran: the new rocket

1 design, 3 hulls, 2 programs



Quentin Vlamynck
Skipper of Arkema 4

1 SPORTING CHOICES: Aiming for Versatility

The appeal of the Ocean Fifty Class is clear as it offers a diverse program ranging from the latest Pro Sailing Tour to transatlantic races like the Transat Jacques Vabre – Normandie – Le Havre, or the Route du Rhum, in crew, double or solo mode, with all formats competing to offer a full season to skippers and their crews. 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 design brief set out versatility as a priority,” Quentin Vlamynck explains. “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. 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 and Aero!

“Quite naturally we ended up with an X-shaped structure,” explains naval architect Romaric Neyhousser. So, the outriggers do not run parallel, but instead 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”, continues the architect. In hydrodynamics terms, the support of the foils has helped limit the volume of the floats. 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 and cockpit, which are areas where its impact resistance is invaluable. 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 Dobson, a specialist in pre-impregnated structures from the Lalou Multi team. *"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 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 Gilles Breton. So, 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.

"The very first outing was a tremendous occasion," skipper Quentin Vlamynck says, *"especially after we had spent months in the boatyard. From our first outings, we were reassured about the architectural choices we had made for this new trimaran. The boat is sound, aerodynamic, and I'm at ease and confident on board. It's an incredible feeling to be able to sail at more than 30 knots and know that I'm completely safe. 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."*



SAILS

The sails of the boat are all signed "Incidences", a company closely involved with the Arkema 4 project and the Lalou Multi team for many years. The gennaker, 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 were made by Lalou Multi from Elium®/ carbon composite rather than aluminium, with the added benefits of weight saving and recyclability.

DECKHOUSE / COCKPIT

These are 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, the cockpit and the deckhouse have been fitted with ShieldUp® Flex PMMA* glazing, the world's first flexible sheet recently developed. Its flexibility means straightforward installation, with no thermoforming, for highly curved designs. With 5 times more impact-resistance than a traditional PMMA, this "acrylic glass" also has a scratch-proof and water-repellent coating. The result: remarkable and durable optical properties, even in challenging conditions, and a weight saving of the order of 50%!

(*) 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.

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*.

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 for the floats and the arms, the structure and the bulkheads were assembled by structural bonding using methacrylate products from Bostik, an Arkema Group subsidiary.

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.



Quentin Vlamynck:

The skipper of Arkema 4, that's him!

The youngest skipper in the history of 50-foot trimarans, 29-year old Quentin Vlamynck is the skipper of *Arkema 4*, an Ocean Fifty Class trimaran launched in September 2020. Quentin is a core member of Lalou Multi, Lalou Roucayrol's enterprise. First a crew member of the *Arkema 1* Ocean Fifty, he was then skipper of the *Arkema 3* experimental prototype Mini 6.50 built from Elium® resin, which won him a great sixth place in the Mini Transat 2017. Level-headed, methodical, versatile, with a clear penchant for the open sea, Quentin was quite naturally chosen to take the helm of the new trimaran of Team Arkema Sailing, assisted and advised 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 indeed combine in the broadest possible sense!

"Some skippers are more experienced than me on the ocean, but I'm highly versatile. Of course, I still have plenty to learn, but I have a great deal of support, in particular from Lalou. After being around each other for 10 years, sharing countless outings at sea, we understand each other with a simple glance. We know our strengths and our weaknesses, and we complement each other very well. I'm delighted and proud to share this first transatlantic Ocean Fifty race with him."

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. In September 2010, the young sailor was studying composite materials at the maritime high school Gujan-Mestras when he met skipper and entrepreneur Lalou Roucayrol who came

to give a lecture. 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 still-unwritten story. 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 Multi50 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 colleagues and crew members speak about him.

Taking over

In September 2020, Quentin Vlamynck officially became the skipper of the Ocean Fifty *Arkema 4*. Following an intense start of the season in the Pro Sailing Tour, in which the *Arkema 4* crew came in second, Quentin has clearly shown that he has taken on his role and responsibilities as skipper fully. With the reputation of a leader and no hesitation in delegating some of the technical work to concentrate on other issues related to performance, Quentin has rightly established himself both at sea and on land.

"I'm incredibly fortunate to be supported by Lalou Multi, and especially by Fabienne and Lalou Roucayrol. Their experience in all aspects of offshore racing serves the project as a whole, from admin to technical matters, including of course sailing. This saves me valuable time and allows me to focus on my role as a skipper."



You can't be a skipper overnight!

Becoming 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 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 highly demanding, especially during manoeuvres. I swim, run and cycle, take part in triathlons, and ride between 150 and 200 kilometers a week. Together with the team's colleagues, we train and this creates a good atmosphere between us. 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."

No overlooking matters of the mind

"My coach Emmanuelle Fouillet follows my progress. This preparation is important to tackle the races, and goes beyond psychology. I'm young and 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."



Lalou Roucayrol, a skipper-mentor

Lalou Roucayrol is one of the greatest sailors in solo offshore racing! With a wealth of sailing supports and experiences since the 1980s, Lalou has always been committed to passing on his knowledge and know-how. Quentin Vlamynck joined the team in 2012. First as crew member of Arkema 1, then skipper of the Mini 6.50 Arkema 3, then boat captain of Arkema 1, and finally skipper of Arkema 4! A dazzling progression built on a solid footing over 10 years.

"When Quentin joined the team, he was only 19 years old. I appreciate how far he has come with us since Arkema 1 was first built in 2011. He inhabits his projects 200%, and has a genuine winning mindset. It's a pleasure to sail with him. He never complains, despite the tough sailing and extreme living conditions when racing."

Youth and wisdom

Whereas Quentin Vlamynck will be taking part in his very first Transat Jacques Vabre this year, Lalou Roucayrol is returning to this event for the 10th time! Quite an achievement given there will have been 15 such races! When Lalou took part for the first time in this race in 1993, Quentin was just 1 year old... This age gap is clearly the strength of the pair, with distinct skills in different areas.

"Quentin and I complement each other perfectly. I like doing what he is not keen on, and conversely. Personally, I like being at the helm and I'm fussy about all the settings being right so we can count on 100% of the boat's capabilities, whereas Quentin prefers to work on maneuvers, tactics and navigation, areas in which he excels. So, it all works out well between the pair of us!"

ARRA

Quentin Vlamynck Lalou Roucayrol

An obvious companionship in
the Transat Jacques Vabre – Normandie - Le Havre.

*"I have a huge amount of respect
for Lalou. For his skills, his
experience, his humanity...
We know each other like the back
of our hands!"*

Born in Arcachon
on 21/10/92
Lives in Verdon-sur-Mer (33)
In a relationship

2021: 2nd in Pro Sailing Tour
2019: Record in Gran Canaria race
2017: 6th in Mini Transat
2017: 3rd in Mini 6.50 French Championship
2015: Winner of Armen Race in Mini 6.50
2014: 8th in Les Sables-The Azores-Les Sables in Mini 6.50
2013: Winner of Route des Princes
2010: French Champion UNSS Habitable

Born in Nantes
on 09/07/64
Lives in Verdon-sur-Mer (33)
Married

2021: 2nd in Pro Sailing Tour
2019: Record in Gran Canaria race
2017: Winner in Transat Jacques Vabre
2016: Winner in Transat Québec - St Malo
2015: 3rd in Transat Jacques Vabre
2014: 2nd in Route du Rhum
2013: Retired from Transat Jacques Vabre
2013: Winner in Route des Princes
2010: 2nd in Route du Rhum
2009: 3rd in Transat Jacques Vabre
2007: 4th in Transat Jacques Vabre
2003: 6th in Transat Jacques Vabre
2001: 6th in Transat Jacques Vabre
1999: 4th in Transat Jacques Vabre
1998: Winner in Golden Route
1996: 2nd in Transat Québec - St Malo
1995: 4th in Transat Jacques Vabre
1995: 3rd in Round Europe Yacht Race
1993: World champion in F28
1985: Winner in Mini Fastnet



Transat Jacques Vabre Normandie - Le Havre race A brand new route!



The starting signal of the 2021 Transat Jacques Vabre – Normandie - Le Havre, bound for Martinique, will be given on 7 November. For this 15th edition, the 7 competing Ocean Fifty boats will set off on an unprecedented 5,800 nautical mile course, via the Fernando de Noronha Brazilian archipelago, crossing the Equator and the doldrums twice. The Ocean Fifty boats are expected to reach Fort-de-France first, after 15 to 17 days at sea.

Lalou Roucayrol's thoughts on the course:

"I'm delighted with this new course! Martinique has been looking forward for years to hosting a major offshore racing event, and we do know that the public will be happy to welcome us at the finish! Regarding the course itself, it will be fraught with obstacles! First of all for Quentin, whom I fully intend to baptize for his first time crossing the Equator. I've already given it some thought!

From the very start, we'll have to be on the lookout. Sailing out of the English Channel and down across the Bay of Biscay is never fun at this time of year. Then we'll have to contend with either an Azores high or a transition between the two trade winds. We'll then head south to the latitude of Cape Verde to best deal with crossing the doldrums. We should then make swift progress reaching up to Fernando de Noronha. We'll have to keep on our toes around this archipelago as this area teems with marine animals. This should finally culminate in a great speed race up to the Caribbean islands, correctly negotiating the disturbances from squalls but also and especially the many fishing boats present along the coast. This will require unrelenting watch. We'll also have to be very careful about sargassum, these ever greater masses of gulfweed floating off the coast of those islands, which can really slow us down a lot."

Routing in the Transat Jacques Vabre

Sailing a multihull boat double-handedly, constantly on the edge of a float, spending several hours at a computer screen inside the boat to analyze the weather forecast is not feasible. Which is why routing is permitted for the Ocean Fifty (and Ultim) boats in transatlantic races. A weatherman and an onshore router analyze in detail the weather forecast expected on route, draw up the best course for the boat, and then pass on their views to the crew.

"Our routing unit comprises Eric Mas, meteorologist at Météo Consult, and Alexandre Ozon, router who won the last Transquadra race", Quentin explains. "Their input is crucial for our performance but also for our safety. They have distinct roles as the router will work out the fastest route, while the strategist will look at our position in relation to the rest of the fleet. The goal is not to have a speed race but rather to adopt the best tactics in order to cross the finish line before the others, of course!"

"In terms of how they operate, they work on the weather charts, launch routings, receive the data on wind, course and speed of the boat; so, they're able to adjust or reset the weather data and check the accuracy of the forecasts. Every day they send us an email with the routing we should follow and the thinking for the coming days. This information is updated in the course of the day via brief messages. A routing unit requires great commitment and permanent availability (24/7) throughout the race."



Ocean Fifty Class

High standards, budget control

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 a certain conviviality. No wonder this circuit is undergoing a complete renewal!



, conviviality

2021 indeed marks a turning point in the development of this class! With the previous Multi50 Class now renamed Ocean Fifty Class, the circuit has been given a new genuine and more professional 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 this year has seen two new prototypes, one of which is Arkema 4. So, plenty of fierce tussles to look forward to in this Transat Jacques Vabre – Normandie - Le Havre race!



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 taken on board by Lalou Multi, successively in the design and improvement of performance of an Ocean Fifty multihull, a Mini 6.50 monohull, and, since mid-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. The stuff that great

and unique stories are made of. 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 are indeed compatible. 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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