CASTRO COMPOSITES

TRAINING COURSE

INFUSION TECHNOLOGY

Collaborators:

SCOTT BADER

DIATEX

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ADVANCED TECHNOLOGY RESINS

PROSIX ENGINEERING

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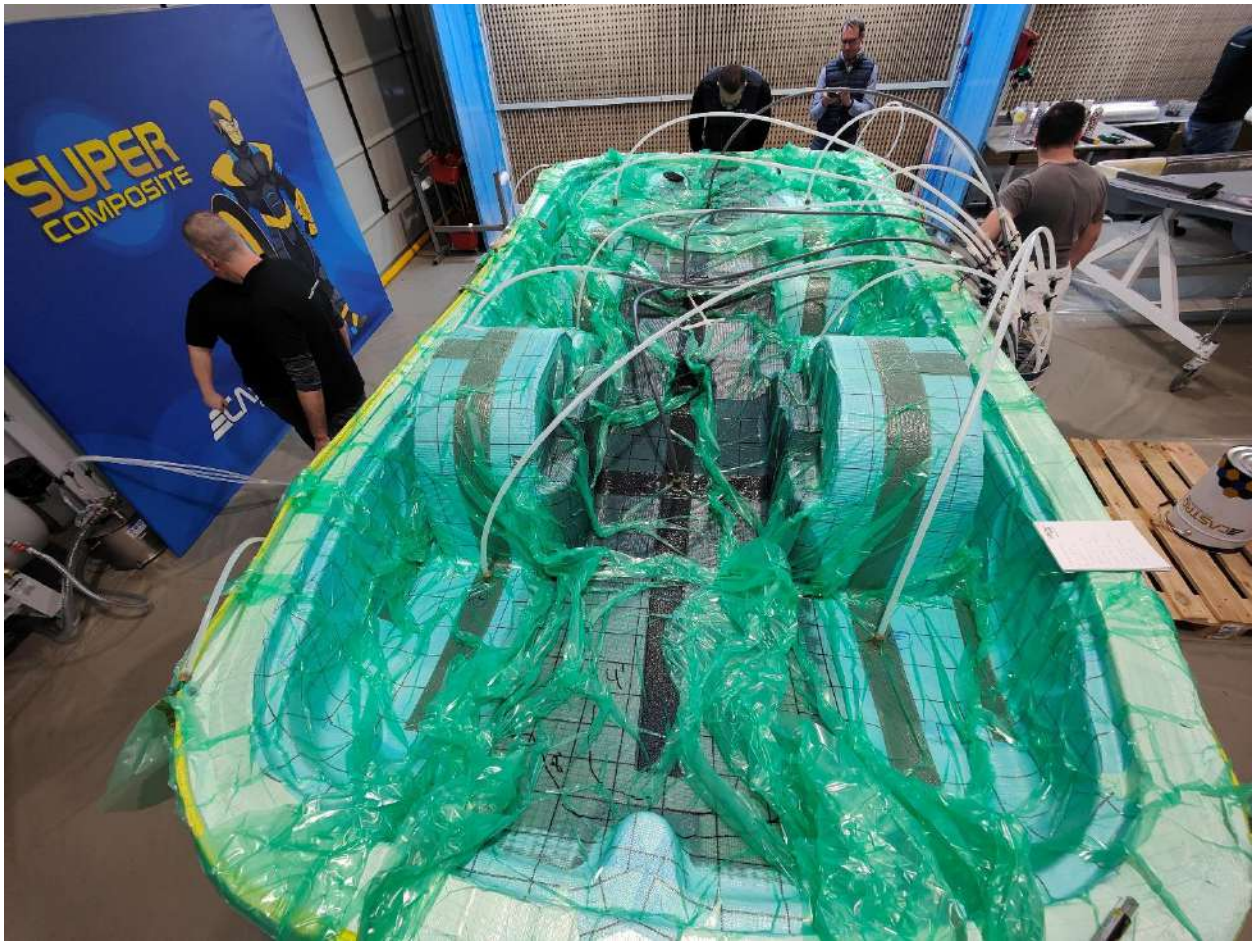
1 What is infusion technology?

Infusion technology in composite materials can be defined as an advanced manufacturing process that enables the impregnation of dry fibre reinforcements (such as fibreglass, carbon, or aramid) with a thermosetting resin by applying vacuum pressure to create a solid composite material with high structural performance.

This method relies on the controlled injection of resin at low pressure, utilising vacuum to ensure the resin flows evenly and fills all the spaces between the fibres, achieving good adhesion and a compact laminate. Infusion technology is ideal for producing large and complex parts, as it reduces the presence of air bubbles, enhances the structural quality of the final material, and ensures an optimal resin-to-reinforcement ratio.

It is a highly efficient technique for manufacturing sandwich-type composite parts by incorporating low-density cores, resulting in very lightweight laminates with excellent flexural strength.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2 In which sectors of activity are composites manufactured using the infusion technique present?

Composites manufactured using the infusion technique have a wide presence in sectors that require strong, lightweight, and durable materials. The main sectors of activity include:

Aerospace: Infusion technology enables the production of components for airplanes, drones, and spacecraft, such as casings, fuselages, wings, and internal structures. The high strength and light weight of composites reduce aircraft weight, improving fuel efficiency and overall performance.

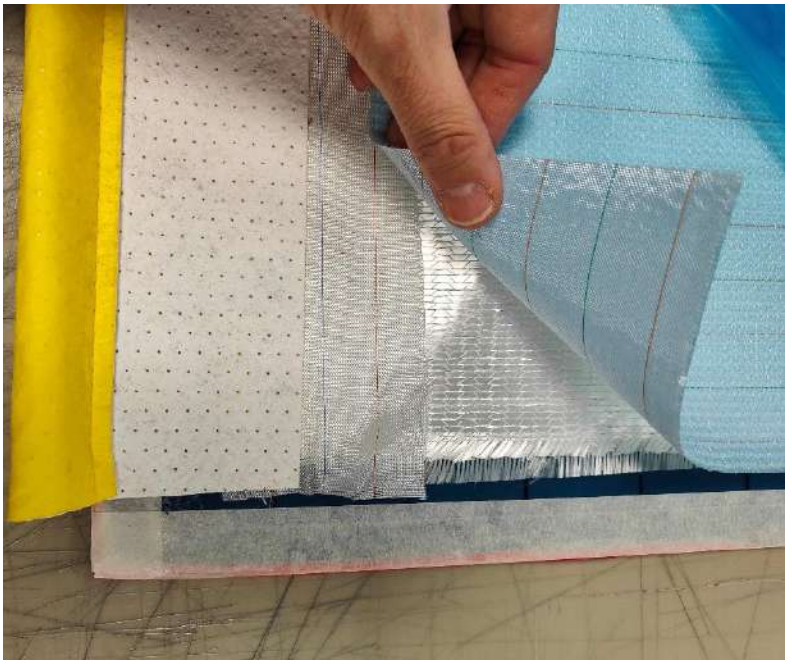
Marine and Nautical: In boat construction, from yachts and fishing vessels to military ships, infused composites are used to create hulls, decks, and other structures. These materials are ideal because they resist corrosion and harsh marine environments, while also reducing weight and enhancing manoeuvrability.

Automotive: In this sector, infusion is employed to manufacture structural parts, body panels, and components for high- performance vehicles, such as racing cars and electric vehicles. The weight reduction improves performance, fuel efficiency, and the range of electric vehicles.

Wind Energy: The production of wind turbine blades is one of the main uses of infusion technology. The blades need to be large, lightweight, and extremely strong to withstand wind loads, and the infusion technique ensures the necessary density and homogeneity for durability.

Construction and Infrastructure: In construction, these composites are used to create bridges, prefabricated structures, and reinforcements in buildings due to their durability and resistance to corrosion. Infusion allows the production of larger components with superior surface finishes, ideal for infrastructure applications.

Infusion technology is highly valued in these sectors because it enables the production of large and complex parts with an excellent strength-to-weight ratio and uniform finishes, which are crucial for high-performance applications.



3 ¿Who is it for?

- **Employees of any company related to Composites** The courses are designed to be taken by personnel with a wide range of technical qualifications, from those with low technical expertise to production managers or technical area leaders who wish to strengthen or expand their theoretical and practical knowledge.

With over 1,200 students trained!

Individuals or independent professionals with a desire to start a new business or career who want to enter this sector with a deep understanding of the materials and processes related to Composites, or independent professionals.

- **Technicians from research and R&D centres** who wish to gain training in the production techniques used in Composites, as well as study the properties of new materials and manufacturing processes.

- **Students from universities and professional training centres** who aim to be equipped with future-oriented education.

- **Postgraduate students:** architects, technical architects, industrial engineers, aerospace engineers, naval engineers, chemists, and others

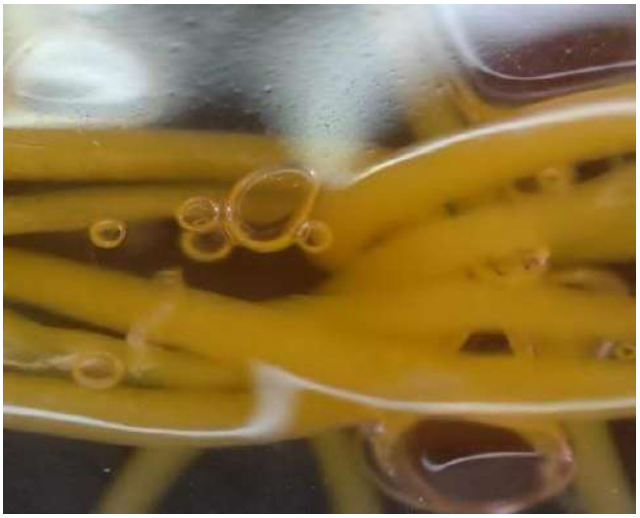
- Unemployed individuals, whether from sectors related to Composites or not, who seek to gain professional qualifications oriented toward new technologies.

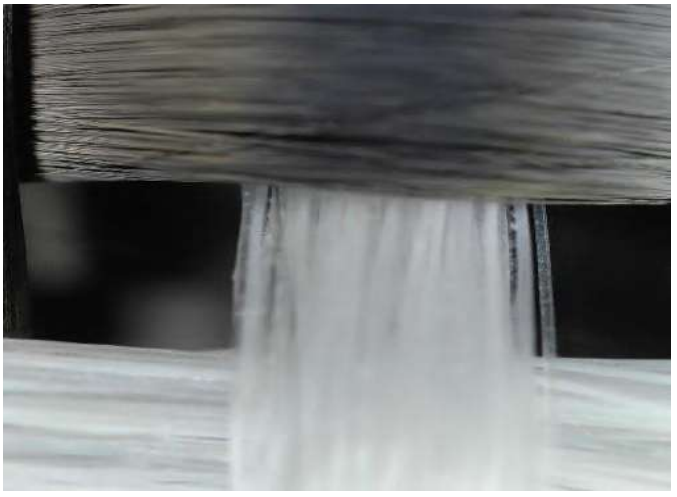
4 ¿What is the course content?

Theoretical content

This is a highly practical course in which we will dedicate just 2 hours each morning to analysing the infusion process, focusing on the following points:

- The Theory Behind the Infusion Process
- Darcy's Law
- Advantages of the Infusion Process
- Infusion Strategies
- Types of Moulds
- Types of Materials



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Contenido práctico

1. Manufacture of a 5-meter-long pedal boat for beach use.
2. The hull will be made using carbon fibre and urethane-acrylic resin (Crestapol 1261), while the deck will be manufactured using fibreglass and epoxy resin (Resoltech). In both cases, cores will be incorporated to increase flexural strength without significantly increasing the weight of the structures.
3. For both components, a protective laminate layer for the gel coat, also known as a “skin coat,” will be prepared to ensure a higher-quality surface finish for the final piece.
4. Students will work in two groups of up to 10 people each, carrying out all the tasks, including application of the gel coat using a spray gun and brush, manual lamination of the skin coat with Novolac vinyl ester resin and vinyl ester-DCPD resin, preparation of fibres, cores, and all vacuum materials required for the infusion process.


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5 Where will the training courses take place?

Castro Composites (Resinas Castro, S.L.) has excellent facilities at the Areas Industrial Estate in Tuy (Pontevedra, Spain), with perfectly equipped classrooms for both the theoretical sessions and the practical workshops.

We also deliver our training courses at our clients' facilities; in such cases, we provide special offers tailored to meet their specific needs.

6 ¿Who have benefited from our past training courses?

1 **Client companies of Castro Composites** involved in any of the previously mentioned sectors, such as Sociedad Andaluza de Componentes Especiales (S.A.C.E.S.A.), EUROCOPTER ESPAÑA (Rota base, Cádiz), GURIT (a global leader in the manufacture of epoxy resins, prepregs, etc.), No rdex Blades S.A.U. (wind turbine blade manufacturer), Coverwind (wind turbine blade repair), BTREN Bombardier (trains), PATENTES TALGO (trains), TRETY (automotive sector), RODMAN POLYSHIPS (nautical sector), Grupo Navec, Dronetools (UAV helicopters), ELA Aviación (autogyros), FIBERGLAS (tank and container manufacturer), AMORIM (Core Cork manufacturer), INGEMAT (Composites engineering), TALIO Ingeniería, Astilleros Cata, Zyvax (release agent manufacturer), Grupo Navec (refineries and installations in nuclear power plants), Constructora Eshor, ALSA AUTOBUSES, Aseguradora Mapfre, Rodman Polyships, Astilleros Prosailing, Palfinger Marine, Intermas Nets, Stahl Sac (Peru), Transportes Navarro Puente, S.A. (Lima, Peru), MOLDEAR PILETAS Y PREMOLDEADOS, S.A. (pool manufacturer in Argentina), nautical companies dedicated to the repair of GRP vessels, and many more.

2 **Public organizations** such as the University of Vigo (Faculty of Industrial Engineering and Technical Engineering School), the University of Navarra, the Polytechnic University of Madrid, the Polytechnic University of Catalonia, the Rey Juan Carlos University (Madrid), the Jaime I University (Castellón), the University of La Frontera (Chile), the National Center for Research and Development in Telecommunications (CENDIT) (Caracas, Venezuela), the University of Puerto Rico, and others.

3 **Technological centers:** The Automotive Technology Centre of Galicia (CTAG), AIMEN Technology Centre (Porriño, Pontevedra), AITEX Technology Centre (Alicante), CTM Technology Centre Foundation (Manresa), Gaiker Foundation (Vizcaya), Galician University-Business Foundation, Cidaut Foundation (Valladolid), Ascamm Foundation (Barcelona), CEDER-CIEMAT (Centre for Energy, Environmental and Technological Research) of the Spanish Ministry of Economy, Prodintec Foundation (Asturias), CETIM Technology Centre (Barcelona), and others.

4 **Individuals or self-employed professionals** who wanted to start a business project and were unfamiliar with these applications, or simply sought to enhance their qualifications and explore new materials and processes related to Composites.

5 **Unemployed individuals or those seeking their first job:** We have trained dozens of people and helped them secure employment in the composites sector or develop their own business projects.

6 **We have trained students from all over Spain and abroad**, including countries such as Portugal, Italy, Germany, the USA, Australia, Mexico, Costa Rica, Panama, Venezuela, Colombia, Ecuador, Peru, Paraguay, Puerto Rico, Argentina, Chile, Uruguay, Brazil, Lithuania, England, Western Sahara, India, Andorra, France, Macedonia, Moldova, Ukraine, Hungary, Norway, Switzerland, Poland, Scotland, Ireland, Sweden, Romania, the Dominican Republic, the United Kingdom, Slovakia, the Netherlands, Morocco, and Angola.

7 What is the training course schedule?

A five-day intensive course from Monday to Friday

Schedule:

- Mornings: from 9: 00 to 14: 00 horas
- Afternoon workshops: from 15: 30 to 18: 30

8 What is the Price of the course?

1595 €/delegate (+ 21% VAT).

Cofee break at 100: AM and late lunch at 15:00 included in the fee for the duration of the course.

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Special discount for groups! Check out our offers.

9 When is this course held?

From September 30 to October 03, 2025

From 9:00 to 14:00 and from 15:30 to 18:30

1595 €/delegate + VAT

The reservation of the spot is only guaranteed by payment of 1.595 € + VAT into the La Caixa account number IBAN: ES 02 2100 5911 1302 0000 0430 and the submission of this form with your personal or company data by fax or by email to the address listed at the bottom.

First Name and Last Name: _____

Address: _____

_____

VAT (companies) or Personal ID (individuals): _____

Phone: _____

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Signature: _____

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10 Last promotions


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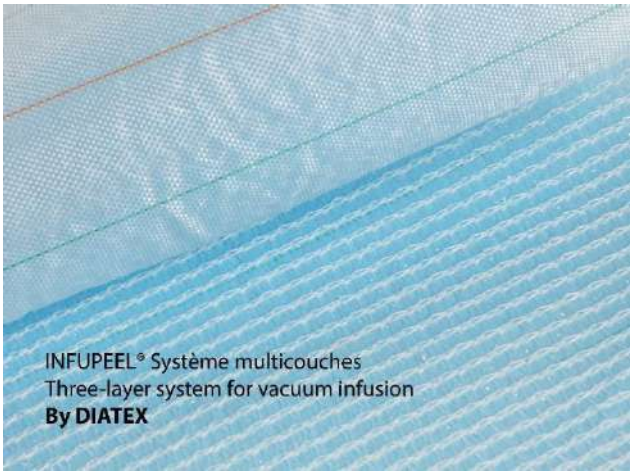
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11 What do they think of our training course?

A few years ago, I embarked on a project to develop a sailboat that was innovative in terms of accessibility for people with special needs. At that time, I participated in a practical training course on composite materials at Castro Composites. After completing the course, I began making my first parts and, over the following months, I regularly consulted with Castro Composites. Eventually, we worked together at the Skillful3D facilities to build the model, molds, and hulls of the first Inclusion Catamaran. This project also enabled me to create my own company, which remains closely connected to Castro Composites for the supply of materials and technical support.

FREDERICO CERVEIRA

Inclusive Sailing

The training courses at Castro Composites are an investment in the future. They have provided me with a more comprehensive understanding of the composites world, along with the tools and knowledge necessary for my professional development. Specialized training is both key and essential to standing out in the job market. Their continuous support and guidance have motivated me to start my own business in this sector, leading to the creation of Volcan Boats, a company primarily dedicated to the production of high-performance dinghies for competitive sailing.

FERNANDO MESA GARCÍA

Volcan Boats S.L.

Since I was very young, I have been passionate about rowing and always dreamed of having my own business manufacturing rowing boats. From the very first moment I contacted the Castro Composites team to take their course, and later when I started my business, I received exceptional technical support that enabled me to establish my own company building both sliding and fixed-seat rowing boats. With Castro Composites, I gained valuable knowledge about resins, reinforcement fibres, cores, and—most importantly—all the techniques needed to produce high-quality composites. Today, I have mastered infusion processes thanks to their constant support in resolving any questions or challenges. I am deeply grateful to the Castro Composites team for their unwavering support and patience over these years.

ANTONIO ABEL SALAS MÉNDEZ

La Línea de la Concepción, Cádiz (España)

Excellent course. The theoretical and practical content was well-structured, and whether you are a beginner looking to seriously delve into the field of composite materials or an experienced professional aiming to improve, the instructors guide you effectively and teach you good technical practices to make the most of your work. The attention to detail, the approachable attitude of t he management and technical staff, create a very welcoming learning environment. These are professionals who inspire confidence, and their extensive experience is evident in every action. Dedicated to clarifying doubts and committed to their students, they build lasting connections that continue after the course, helping you put all the knowledge into practice. A highly recommended course for anyone looking to explore the complex world of composite materials!

OTTO RAFAEL OLIVARES SIERRA
Barcelona (España)

A well-known slogan says: "Power is nothing without control." Similarly, no matter how much enthusiasm and effort you put in, without proper learning, your project will hardly succeed! In this regard, the Composite Materials Course at Castro Composites laid the foundation for channeling all that energy in the right direction. With solid and quality training, the journey has been much easier. After many months of self-taught work, I decided to take their Composite Materials course. Just one day into the course, I realized all the time, effort, and money I could have saved if I had done it earlier. If, like me, you want to make a living from composites, training is not just recommended—it is essential. I will be forever grateful to the team at Castro Composites.

DAVID SEGADE FREIRE
Karbonius Composites

A I currently work at the training center for the AD Parts group, a role that requires me to constantly keep learning. My experience with the two courses, each over 50 hours long, was very positive. Learning new things is always constructive, but when you do so with people who are professional, intelligent, have a good sense of humor, and, above all, are genuinely kind, it makes the course week fly by. I truly believe the field of composite materials has significant potential in the job market. Another aspect I greatly appreciated was the attention I received whenever I needed to ask questions. They are under no obligation to provide guidance after the course, yet they do so with professionalism and kindness.

Would I recommend the Resinas Castro courses? Without a doubt!

CARLOS FERNÁNDEZ PIÑEIRO
AD Parts

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