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FEATURE

An interview with Sicomin's President: Philippe Marcovich

Philippe Marcovich *, **Callum McGuire**

1. Tell us a bit about Sicomin as a company

Sicomin is a leading formulator and manufacturer of advanced epoxy systems. Our dedicated team has over 35 years of experience in the production of high-quality resins. From Sicomin's state of the art facility in Southern France we formulate highly specialised, custom made epoxies and off the shelf solutions. Founded in 1946, Sicomin has grown consistently and today our epoxy solutions are used extensively in the following market areas: Marine & Defence, Winter & Water Sports, Civil Engineering & Construction, Automotive & Rail, Aerospace and Renewable Energy across Europe, the USA, Asia and Middle East. As true innovators and trusted suppliers, we are proud to have been involved in some of the most high-profile global composite projects to date.

2. Can you give us a brief overview of the range of products produced by Sicomin?

The Sicomin product range comprises of Clear, Foaming, Fire Retardant and Bio-based formulations that are suitable for a variety of processing techniques including Infusion, RTM, HP-RTM, Pultrusion, Tooling, Hand lay-up and onsite Prepreg manufacturing. Sicomin also offers high performance composite solutions including a vast range of structural core materials, fabric reinforcements (carbon and glass), fillers and consumables.

Sicomin invests heavily in the innovation and development of environmentally enhanced bio-based epoxy systems, derived from natural origins. As a result, we are one of the leading suppliers today – with the largest number of products within the GreenPoxy® range. Our Greenpoxy® range includes 5 different bio products for infusion, foaming, laminating and injection that contain bio-based carbon contents up to 51% which is the highest on the market and tested in accordance with ASTM D6866. We are about to launch another bio epoxy for Industrial Automotive applications.

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3. At JEC world 2019 Sicomin unveiled MaxCore, a revolutionary method of dry fibre insertion for sandwich core sheets, can you tell us a bit about the concept of MaxCore?

MaxCore is a new method of dry fibre insertion into sandwich core sheets for infusion manufacturing of large composite parts for civil engineering, transportation, wind energy and marine industries. Dry fibres are inserted into foam in multiple orientations and are responsible for 100% of the mechanical properties of the infused processed core. With a unique patented manufacturing process, Sicomin is able to place these reinforcement fibres with precise fibre angles and positions within the core.

4. Following on from that, what drew Sicomin to maximising the properties of sandwich panels?

MaxCore stands for Maximum Core. The MaxCore technology has been developed to maximise sandwich panel properties in large thickness formats. Typically, the thicker the core, the higher are the shear loads calling for denser and costlier materials. MaxCore addresses shear loads with precise orientations of cross fibre with minimal weight penalties. It is a cost-effective option compared with classic foam cores used in composite panels, especially the thicker the core, for example from 30 mm to 200 mm or more.

The options for panel dimensions are almost unlimited up to 2.5 m wide with lengths up to 12 m or more depending on customer requirements and transport.

5. You claim that the MaxCore system is 'redefining engineered sandwich construction', what sets MaxCore apart from competitors in terms of traditional sandwich core construction?

The MaxCore system has a unique patented manufacturing process, which allows Sicomin to place the reinforcement fibres with precise fibre angles and positions within the core. Fibre insertion

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is precise and consistent, resulting in a 70% fibre content by weight of infused glass.

MaxCore's unique fibre insertion method can be applied to kits in which fibre orientations are engineered within each panel to incorporate openings such as portholes, windows and doors, and to provide additional local reinforcement.

The core material is ideal for infusion processes with epoxy, polyester and vinylester resin systems. Its unique fibre insertion technique can be applied with a variety of materials, including aramid, carbon, basalt, natural and glass fibres. It is also compatible with thermoplastic processes as thermoplastic filaments can be inserted through the foam.

6. You seem keen to highlight the cost-effective nature of MaxCore, what makes MaxCore an affordable option?

Due to the mechanical contribution of the fibre reinforcement, MaxCore does not rely on denser core material, and is therefore a cost-effective option compared with classic foam cores used in composite panels. As the core material is solely a carrier for the fibre reinforcement, cores can be selected based on other required parameters such as fire and smoke behaviour, water resistance, thermoformable ability, low resin absorption or sustainable chemistry.

7. What practical challenges needed to be overcome when designing the MaxCore system?

As a result of MaxCore's numerous possibilities of fibre insertions and orientations, many mechanical testings are underway to provide data to engineers and architects, which is essential for incorporating MaxCore into projects. In addition to these tests, MaxCore panels will be exposed to wave slamming simulations.

8. When will MaxCore come to market?

It is already on the market and is currently being tested by a number of OEM's across a wide range of applications.

9. Do you think MaxCore technology will allow Sicomin to engage with new markets, if so which markets?

Yes, Sicomin will now be able to supply engineered cores in very large panel formats for the civil engineering, transportation, wind energy and marine industries.

10. And finally, what does the future hold for Sicomin and the MaxCore system?

MaxCore will first be produced in large quantities in a brand-new state of the art factory located in Northern France. Because of the very large volumes of foam involved, MaxCore will also have to be produced in North America and Asia and possibly the Middle East.

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