



DOSSIER

INTERVIEW



Arnaud Maquinghen

After 25 years with Dubuis Inks, Arnaud Maquinghen joined VFP Ink Technologies (then called Chopin) in 2009 as Managing Director.

High-tech inks for the automotive of tomorrow

VFP Ink Technologies was one of the 10 French SMEs selected by French Tech and Business France to participate in the famous CES 2019 in Las Vegas last January. Specializing in the manufacture of screen printing inks and varnishes, the company unveiled to the public its innovations for printed electronics, particularly adapted to the vehicles of tomorrow. Interview with the company's managers.



VFP Ink Technologies was one of the 10 French SMEs selected by French Tech and Business France to participate in the CES 2019

What are the advantages of this technology and how does it fit into vehicle components/sensors?

We are at a stage where electronics is everywhere and has become the crux of the automotive industry. It is electronics that now shapes major developments. For an electronic device to operate, it is necessary to have current which passes from a point A to a point B. Our technology allows to conduct electrical current and thereby powers electronic components (LED, resistance, battery...). We propose a new way to integrate electronics with an additive and not subtractive method. By removing and replacing the electronic board and all its connections with circuit printed directly on the key parts of the vehicle, it will be possible to reduce the overall weight and to design new shapes, for example some rounded elements incorporating electronics on their surface.

How exactly do your inks look and how are they an integral part of the car of the future?

Our inks are put in pails in liquid form and allow the printing of new generation sensors. Sensors, which as you know, are at the core of the automotive industry. Tomorrow's vehicles incorporate an exponential number of data to ensure security, reduce energy consumption, increase travel performance and enhance passengers comfort. Vehicles are transforming themselves into entertainment space that are

also loaded with all sorts of electronics and sensors inside and out. Our technology will find itself in the vehicle cabin as well as on the center console, the doors, the dashboard or even the steering wheel. The optimum integration of this electronic solution onto 3D geometrically complex or curved plastic parts can be achieved thanks to a new process in plastronics. The plastronics: a contraction of plastic processes and electronics, allows the integration of electronic circuits directly into plastic material thus enabling products to become intelligent.



Our solution offers the possibility to superimpose many circuits isolated by a specific varnish. We also have the capability to print extremely thin electronic circuits onto highly complex 2.5D and 3D surfaces. Conductive ink is an answer to multiply flexible sensors (more flexible, thinner, smaller), it also allows to double the number of sensors on the same given area. Without forgetting to mention its advantage regarding the environment and finished raw materials, this innovation reduces environmental impact by integrating less precious and rare metals when produced.

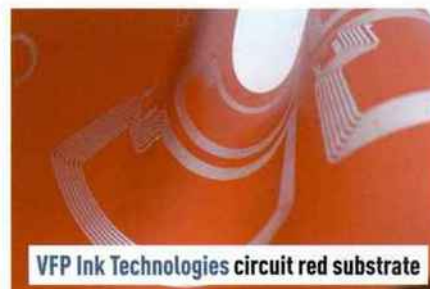
Printed electronics VFP Ink Technologies circuit cmnj



What are the future plans for these intelligent inks (in the field of R&D for example)?

Printed electronics opens new markets and new possibilities. Our second most important market is the medical and industrial textile market. Our inks enable us to print flexible and stretchable sensors directly onto fabrics. We have a very high demand in that field, as the user's main constraint is to have an electronic device that embraces the garment shape and is pleasant and easy to wear. It is the undeniable strength of printed electronics in comparison with conventional "rigid" electronic.

The third sector for our technology is smart packaging and labelling (intelligent label). Traceability is a key issue for the packaging industry. The consumer needs to have access to information instantly and keep a traceability about the products he purchased. Printed



electronics has the advantage to print electronic devices adaptable to all forms of packaging. Integrating electronic devices onto packaging opens a new world of possibilities for consumers and manufacturers alike.

We are in fact exhibiting at the Label Expo show in Brussels next September to present our screen printing conductive inks and our design proposals in flexible and pliable high-tech sensors that can respond to the industrial constraints of the packaging and labelling players. ●

Interview by Olivier Guillon