



News release

June 2010

Significant EU funding announced for new 'CLIP' programme to develop low cost metal inks for printing industry

Aims to functionalise inks for printed electronics applications

It was announced today that the EU Commission through its 7th Framework programme has initiated the CLIP Programme. A Research for SME Associations programme, this project aims to develop a set of low cost inks to enable small and medium sized EU based businesses to address the growing potential of printed electronics.

Over the last 20 years the sophistication of printing systems and technology has grown to a point where the next step towards realising printed electronics will be in reach for a range of applications and companies, including SME's. However, to do this, there is a need for a low cost conductive ink to be developed which can act as the platform upon which more complicated and valuable technologies can be developed. This will accelerate the time to market for new electronic enabled products by utilising printing technologies that already exist within the EU. This programme brings together a selection of key EU research institutes, high tech SME's and industry associations, drawing on their specialist technologies, application knowledge and depth of expertise in printing and nanotechnology.

The range of organisations involved in the project cover all aspects of the supply chain, from basic materials (Intrinsiq Materials, UK; NANOGAP, Spain; AVL Powders, Belgium) ,supported by Research Organisations (University of Santiago de Compostela, Spain; Sirris; Belgium) through formulation expertise (Paint Research Association, UK) to printing expertise across a range of technologies and applications (Printed Electronics Ltd., UK; IMPIKA, France; CYPAK,ACREO, the Royal Institute of Technology KTH Sweden; Agfa-Gevaert, Belgium) supported by industry expertise from some key EU associations (ESMA, Belgium; the Institute of Nanotechnology, UK; PIRA International, UK; Plastic Electronics Foundation, The Netherlands)

Dr Peter Buttiens, CEO of ESMA, the programme leader and coordinator said *“We have brought together some key technologies that are state of the art, and we hope that as we move forward through the programme over the next three years we will be able to develop new conductive inks that can be printed, establishing a solid platform for the development of new printed electronic applications. Our aim is to initially focus on the development of the inks from both inkjet and gravure systems, and then develop a set of demonstrators that will answer the questions of conductivity, ease of use and flexibility, whilst also addressing environmental, health and safety issues”*

This project has received funding (*) from the European Union's Seventh Framework Programme for Research (FP7), which managed by the Research Executive Agency (REA, www.ec.europa.eu/research/rea)."

(*) [FP7/2007-2013] [FP7/2007-2011] under grant agreement n° [243557]

ENDS

Notes to Editors:

More information

www.clip-fp7.eu

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Technologies

Printed electronics aims to enable cheaper, greener and more flexible technologies to enable printing technologies to lay down circuits and components directly onto a substrate, replicating the current capabilities of printed circuit boards. This will enable EU industry to produce products with enhanced functionality, whether in RFID tags, circuits, sensors without the need for toxic chemicals, with minimum waste and at lower cost.

Project Team

About ESMA

ESMA (European Specialist printing Manufacturers Association) is a non-profit organisation started in 1990. The objectives of the association are to promote and encourage the use of screen or digital printing

technology in specialized applications. The association has 5 specific committees that handle specific important topics in the industry such as health, safety and environmental protection but also industrial applications, process optimisation and technical development and standardization. Furthermore, one of the important tasks is, to improve training and knowledge through technical articles and seminars. As well as identifying and supporting the association of major exhibitions that are relevant to all processes.

SME-AG (coordinator) | Belgium

<http://www.esma.com>

About Intrinsiq Materials

Intrinsiq Materials is a leading advanced materials company developing disruptive technology solutions for the printed electronics industry and a broad range of products that protect health and promote wellness. Our expertise lies in engineering solutions at the nano-scale that can make of products more effective, safer, and cost efficient. We provide an essential technology solution that helps our partners gain and defend market share in products as diverse as conducting inks, virus-killing facemasks, foods with healthy ingredients, and oral care products. Our active delivery technology protects and delivers ingredients in a wide variety of healthy foods, cosmetics, and personal care products and our tuneable antimicrobial technology provides truly effective broad-spectrum protection against infection and disease such as bird flu.

SME | United Kingdom

<http://www.intrinsiqmaterials.com>

About The Institute of Nanotechnology

The Institute of Nanotechnology (IoN) is an independent membership organisation that works closely with government, industry, academia and the general public to support and promote the responsible development of nanotechnology for the benefit of wider society. It is an organiser of international scientific events, conferences and educational courses that examine the implications of nanotechnology for industry, society, health, energy, the environment, and disadvantaged communities across the globe.

Services include:

- providing information to the public
- cutting edge conferences and courses
- market intelligence
- advertising and sponsorship opportunities
- identifying and coordinating research projects
- promoting education and training.

SME-AG | United Kingdom

<http://www.nano.org.uk>

About Plastic Electronics Foundation

The Plastic Electronics Foundation (PEF (SME Assoc)) is a non-profit organisation, established in April 2005 by a small group of entrepreneurs and scientists. PEF a global pre-competitive and non-commercial organisation with long-term objectives. It aims to be an open network, in which there is a place and opportunity for every stakeholder, from both science and industry, to contribute to and benefit from its participation.

In this respect, the Foundation can be compared with organisations such as the Society of Information Display (SID) in the display industry and SemaTech in the semiconductor industry. Main objective of PEF (SME Assoc) is to provide the PE community with a variety of communication channels, enabling the initiation of innovation projects and new ventures. PEF operates in a number of platforms, such as OPERA and OLAE.

SME-AG | Netherlands

<http://www.plastic-electronics2010.com>

About Sirris

Sirris is the collective innovation centre of the Belgian technological industry. Our high-tech experts assist companies with the execution of their novel ideas. We draw from our 120 specialists to go on site, give technological advice, start innovative projects, and guide until the project's implementation.

Sirris has over 2400 member companies for which it gives support more than 4000 times a year. We involve these companies in over 100 European projects. Sirris has an annual turnover of about 20 million Euro.

RTO | Belgium

<http://www.sirris.be>

About PRA - Paint Research Association

Paint Research Association is a membership based non-profit research company with approximately 100 industrial members. PRA has operated for over 70 years as a non-patent holding business, its constitution dictates that it generates and transfers technology for the benefit of the manufacturing sector. PRA provides industry support services with the objective to provide step changes for products and processes. Work conducted at PRA is a direct result of market pull from individual industrial companies, or on behalf of regional agencies, national government, national agencies and European agencies. PRA is a globally recognised centre of excellence for the coatings industry, with particular expertise in the areas of: coatings for exterior wood, metal finishes, coatings for plastics, radiation curing coatings and printing technologies. This includes knowledge on product formulation, application and testing. PRA has conducted previous research projects in the area of conformal coatings for printed circuit boards. PRA runs training courses in ink and print technology that draw delegates from across the industry globally. PRA will further develop its expertise in the fields of nano-dispersion as applied to printing inks technology. PRA will not share in the IP derived from the project and will have no post-project exploitation of the IPR. As a result of its project work and in developing relationships with partners, it may benefit from performing future R&D on behalf of these companies.

RTO | UK

<http://www.pra-world.com>

About PIRA international

Pira International is a leading commercial consultancy, testing and media business specialising in retail supply chain technologies that benefit industries that include printing, paper, plastics, packaging, publishing and consumer goods. Pira's media business provides events, training, online information and publications across a wide range of disruptive technologies and their application in the aforementioned industries, on a global basis, through its UK and US offices.

Pira's publishing activity in the area of printed/organic electronics includes the flagship +Plastic Electronics magazine (x 6 issues a year, printed), which provides global, independent, critical analysis of developments in this dynamic industry (and has been the official publication of the PIRA since launching in October 2007), an e-journal, a website, market reports and technical studies. Publications in related fields include e-journals on nanomaterials, digital printing, brand protection and smart packaging. All are 100% independent products, researched and written by business and technology journalists and industry experts. Since it began focusing publishing activity on organic/printed electronics in 2002, Pira's reputation as a leading information provider to this growing industry has started to evolve rapidly, particularly since it started co-producing the PIRA event and launched the magazine in 2007. Taking a key role in disseminating information about this project will further build Pira's offering to this industry and its core traditional audience of the European printing and related industries, as well as open up opportunities for the company's related consultancy and technical services business, market report publishing and events activities.

SME-AG | UK

<http://www.pira-international.com>

About Impika

Founded in 2003 by a team of experts, Impika is a French company known as a world leader in digital printing for the industry. Based on a high mastering of the DOD inkjet technology, Impika develops, manufactures and markets worldwide innovative customer-focused complete printing solutions addressing different markets : commercial, industrial, security, label and packaging printing.

IMPIKA customers are mainly national and international industrial leading groups.

SME | France

<http://www.impika.com>

About NANOGAP

NANOGAP develops, manufactures and sells novel nanomaterials including sub nanometre Atomic Quantum Clusters, NanoParticles in the typical size range of 5 to 50nm and high aspect ratio NanoFibres. We serve a broad range of industries including coatings and inks, plastics and composites, textiles, electronics and biomedical, with products that exhibit properties including antimicrobial, conductive, magnetic, fluorescent and catalytic. NANOGAP technology is based on wet chemistry which allows for the precise control of a number of reaction parameters and the optimisation of product characteristics. This allows us to work closely with our customers to develop fully dispersed customised products that maximise value for both parties.

SME | Spain

<http://www.nanogap.es>

About Royal Institute of Technology - KTH

Royal Institute of Technology accounts for one-third of Sweden's technical research and engineering education capacity at university level. The iPack center at KTH is a multi-disciplinary research platform and meeting place that establishes collaborations between forest products industry, electronic industry and bio-medical industry, in area of intelligent packaging for biomedical applications and hybrid media.

The center develops core technologies for heterogeneous integration of bio-medical sensors, energy supplies, computing and wireless communications on fiber-based packaging and paperboards, for innovative products such as smart bio-paper, intelligent pharmaceutical packaging and storage, intelligent patient monitoring devices. The iPack centers' main contribution is through its competence in high speed printing for printed

electronics applications and integration of printed electronics in systems. In this case iPack will perform research in WP3 (printing of new inks developed in WP2) and realisation of demonstrator WP4. The iPack center expects to strengthen its research capabilities as well as contacts in the printed electronics community.

RTO | Sweden

<http://www.kth.se>

About University of Santiago de Compostela – USC

University of Santiago de Compostela, over 500 years old, maintains one of the most important academic traditions in Europe. The university has over 44,000 students, more than 1,000 people working in administration and services and represents a huge potential of scientists (more than 2000) dedicated to research and higher education, grouped in more than 400 research teams from 76 different departments. The Magnetism and Nanotechnology group (NANOMAG) of the USC directly involved in the present project is an interdepartmental group directed by professors M.A. López-Quintela (Dept. of Physical Chemistry) and J. Rivas (Dept. of Applied Physics), and is part of the Institute of Technological Investigations of the University of Santiago since its foundation in the 90's. This research unit –with more than 250 peer-review papers- has a long history in the preparation of nanomaterials as well as in the study of their properties.

The group is actually formed by 2 full professors, 4 associate professors, 3 assistant researchers, 3 postdoctoral researchers and 10 PhD students. The role of the USC group will be related with the WP1 and WP2. The expertise of the group in the fields of the synthesis of nanomaterials, colloidal stability and electrical transport will be directly applied in the development of those work packages. The benefits for the USC group will be related with the possibility to apply its scientific expertise in order to produce final products of interest for a large demanding area of applications. This will open the opportunity of increase the contacts with industrial sectors related with the basic research carried out in the USC (RTO) labs.

RTO | Spain

<http://www.usc.es>

About Acreo

With the overall aim to provide technology that can be commercialized Acreo engages in contract R&D with assignments ranging from coordinating large international R&D projects to short term pre-studies. Specifically Acreo develops and transfers innovative research into profitable technology based on high competence and development resources in the areas of Printed Electronics, Fiber Photonics, Broadband Technology, Micro- and Nanoelectronics. Concluding successful development projects Acreo can help customers evaluate the market potential for the developed components and products by offering small scale production.

Acreo has a well proven record of creating value for our customers and society, and besides transfer of the R&D results to industrial use in established companies Acreo also has a well established model for spin-off of new start ups. By Technology Transfer Acreo also helps small and medium sized enterprises through different support programs with new technology and business development.

RTO | Sweden

<http://www.acreo.se/>

About AVL Metal Powders – AVL

AVL METAL POWDERS is a worldwide known producer of aluminium , bronze (brass) and copper under the form of powders , pastes and granules as pigment to provide a Silver, Rich Gold - Rich Pale Gold - Pale Gold

and Copper Gold metallic color in the decorative applications such as the printing inks, paints, masterbatch/compounding industries and in many chemical reactions as in cellular concrete and other with aluminium.

Our reputation lies in the ability to produce and deliver products at customer demand with very narrow tolerances on a consistent basis in various applications depending of the shape and of the surface treatment of the different metals used.

The strength of our company, especially in the current times, is our flexibility to adjust to the changing requirements of our customers through projects which are defined, approved, and swiftly executed in collaboration with all parties concerned. The projects can range from requests of tailor made quality adjustments to requests for specific applications, for which the AVL production process is very adaptable.

SME | Belgium

<http://www.avlmetalpowders.com>

About Printed Electronics Ltd. – PEL

Printed Electronics Limited is a Cambridge - UK based company focused on the development of process and systems for the commercial fabrication of electronic circuits, structures and devices using inkjet methods. PEL offers commercial access to an industry-leading ink jet deposition platform (using the iTi XY MDS) capable of producing multilayered electronic structures with micron-level accuracy. This unique system has been designed to deliver functional electronic inks at extremely high print resolutions using both binary and gray scale deposition. The system has built-in UV curing, heated substrate plate, and image alignment for 3D structures.

PEL offers ink development services using its state-of-the art fluid analysis tools. PEL recognises that the fundamentals of successful ink jet printing of functional materials are (i) the fluid ("ink"), (ii) the head and (iii) the substrate; PEL brings expertise in all three areas.

SME | UK

<http://www.printedelectronics.co.uk>

About Cypak

CYPAK is a small privately held company based in Stockholm, Sweden. CYPAC has been active in paper-based electronics since 1999. Cypak serves manufacturers in the market for Connected Health. Cypak provide key technology in the form of electronic modules, Application Specific Integrated Circuits (ASICs), standard software modules, and intellectual property.

Cypak will participate in the specification of inks and in the evaluation of the pharmaceutical package demonstrator.

From the results of the project, Cypak expects to be able to improve and broaden their technology platform. A further benefit is to establish relationships with the key actors in the ink development field as well as with companies that can benefit from printed electronics.

A new ink designed for high volume print techniques will reduce the cost of printing traces into paperboard products. This will open up for lower production cost of existing products but also open up for new products.

SME | Sweden

<http://www.cypak.com>

About AGFA Gevaert NV – AGFA

AGFA Materials (as a business unit of AGFA Gevaert NV) in Belgium supplies a wide variety of film-based products and high-tech solutions to large business-to-business customers. Its main products are film for non-

destructive testing, motion picture film, film for the production of printed circuit boards (PCB's), aerial photography film and microfilm. The business group also supplies products based on conductive polymers for the production of electroluminescent lamps, organic photovoltaic devices or laminates for the packaging and protection of electronic components.

LE | Belgium

<http://www.agfa.com>