High target utilisation sputtering system for high performance coatings

Summary

A UK materials R&D focussed SME has patented a high target utilisation sputtering system capable of producing high performance thin film coatings which allows low temperature deposition onto plastics, high deposition rates, and low stress coatings for virtually flat thin films on plastics. Industry partners working with flexible electronics, transparent conducting oxides, high rate dielectrics are sought to test the system against their own needs via licensing or joint venture agreements.

Expiration Date 18 June 2017
Reference TOUK20150330001
Profile link

Details

Description

A number of industries benefit from the application of thin film coatings that can exhibit a host of key differentiators including low temperature deposition onto plastics, very high deposition rate coatings, low stress coatings enabling virtually flat thin film coatings on plastics, high density coatings and high adhesion coatings but it is not always straightforward to create such coatings using conventional methods.

The UK based materials R&D focussed SME described here has developed a patented plasma source based technology that produces a high density low energy magnetised plasma (ion density >1013 cm-3 and ion energy <10 eV) without the requirement for a target to strike or maintain the plasma. Using these methods it is possible to produce material properties unachievable by conventional deposition technologies.

The confined plasma interacts with the substrate coating process in a unique and beneficial manner compared to conventional sputter processes. An optimal balance of plasma density and deposition rate may be set to deliver a low energy ‘plasma assist' to the deposition process without the need for substrate bias. This beneficially impacts the thin film coating properties and enhances reactive deposition processes thereby resulting in the ability to coat fast deposition rate, high density films on to temperature sensitive polymeric substrates.

The system offers benefits to industry partners working with:
Flexible electronics
Transparent conducting oxides
High rate dielectrics
High mobility transparent thin film transistors (TFTs)
Photonics & precision optics
Electroluminescent devices
Barrier layers

Protective & resistant coatings

The company seeks partners working with flexible electronics, transparent conducting oxides, and high rate dielectrics to test the system against their own needs via licensing or joint venture agreements. If the system can be tailored to meet requirements via a joint venture or a licensing arrangement to allow feasibility testing and development work to be carried out, the SME envisages future licensing or other collaborative agreements with the partner.

Advantages and Innovations

Compared to competing techniques on the market this offer provides the following key benefits.

- The application of remotely generated plasma means that independent control of all process parameters is achievable including target voltage and ion current, something that is not possible using competing methods and which facilitates the production of superior high performance coatings.

- The low temperature conditions applied mean it is possible to deposit plastic or other 'delicate' substrates and by applying a stable high rate reactive process virtual elimination of target poisoning is possible since the surface of the target is uniformly eroded.

- There is the potential for multilayer devices to be created using this approach as the systems have the ability to deposit multiple layers without breaking vacuum - a key benefit.

Stage of Development

Already on the market

IPR Status

Patents granted

Comment Regarding IPR status

UK Patent GB 2 343 992.

Profile Origin

Other

Keywords

Technology

02002002	Coatings
02002015	Surface treatment (painting, galvano, polishing, CVD, ..)

Market

03001001	Semiconductors
03001008	Display panels
08001006	Processes for working with plastics
08001007	Coatings and adhesives manufactures
08001009	Speciality/performance materials: producers and fabricators

NACE

M.72.1.9 Other research and experimental development on natural sciences and engineering

Open for EOI : Yes

Dissemination

Send to Sector Group

Materials

Client

Type and Size of Organisation Behind the Profile

Industry SME 11-49

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English

Client Country

United Kingdom

Partner Sought

Type and Role of Partner Sought

- Type of partner sought: Industry or research organisations.

- Specific area of activity of the partner: Developers of flexible electronics, transparent conducting oxides, high rate dielectrics and a number of related technologies including high mobility transparent TFTs, photonics & precision optics, electroluminescent devices, barrier layers and protective & resistant coatings.

- Task to be performed by the partner sought: Work with the company to apply the system to meet their own needs via licensing or joint venture agreements.

Type and Size of Partner Sought

SME 11-50,University,Inventor,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Joint venture agreement

Aerosol Bottle Coating for Corrosive Iodine Solution

Summary

A Turkish SME that manufactures and distributes animal health products since 1997 is looking for a coating technology for aluminium or tin aerosol cans that enables safe storage of a corrosive iodine solution. The company is seeking technical collaboration agreements with interested parties for the development of the sought coating technology

Expiration Date 21 May 2017
Reference TRTR20160502001
Profile link

Details

Description

Iodine is a commonly used disinfectant with a wide range of applications. However, Iodine is not compatible with metals and this limits its use in aerosol applications since aerosol bottles are either aluminium or tin. An SME from Istanbul is looking for industrial coating solutions for aerosol cans so that iodine can be contained without damaging the container.

The specified solution contains of approximately 1% Iodine, and the coating is expected to be stable for 1-2 years at room temperature (25 C). The SME intends to apply the offered coating technology at an industrial facility using semi-automatic or automatic machinery.

The Turkish company is looking for technical cooperation agreements primarily with universities and research institutes for developing the technology but is also open for licensing agreements with the technology providers from industry.

Technical Specification or Expertise Sought

The SME is looking for coating experts who can find the appropriate coating material for the product and devise a coating method which is applicable at an industrial site.

Comments Regarding Stage of Development

Turkish company gives priority to a joint technology development project but is also open for licensing the solutions already existing in the market.

Keywords

Technology

02002002 Coatings

Market

08001007	Coatings and adhesives manufactures
08001013	Ceramics
08001016	Commodity chemicals and polymers
08001018	Polymer (plastics) materials
09004006	Packing products and systems

NACE

C.21.2.0	Manufacture of pharmaceutical preparations

Open for EOI : Yes

Dissemination

Send to Sector Group

Materials

Client

Type and Size of Organisation Behind the Profile

Industry SME 11-49

Year Established

1997

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

Turkish
English

Client Country

Turkey

Partner Sought

Type and Role of Partner Sought

- Type of partner sought: universities, research institutes or companies

- Specific area of activity of the partner: Material Sciences with expertise in coating

- Task to be performed by the partner sought: The partner should determine the correct coating material as well as the application method so that the coating will be stable under predetermined conditions

Type and Size of Partner Sought

SME 11-50,University,Inventor,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Technical cooperation agreement

Technology Request

Spanish corrugated cardboard and paper manufacturer for packaging is looking for new technologies to implement in its factories

Summary

A Spanish corrugated cardboard group dedicated to packaging is looking for innovative technologies in corrugated cardboard, packaging using cardboard or paper manufacturing process. They are interested in a licensing agreement, a commercial agreement with technical assistance or a technical cooperation agreement with a technology provider.

Expiration Date	20 January 2018
Reference	TRES20170109001
Profile link	

Details

Description

The Spanish group is in charge of the product development of corrugated packaging, from the beginning to the end, from the design up to the delivery to the client. The main activities are:

Manufacture of corrugated cardboard and paper.

-Graphic solutions
They are able to create a personalized graphic design for each client and offer a complete range of finishes

-Structural solutions
They are able to advice about the best material or design that fits with the client's application.

-Process solutions
They can adapt the manufacturing process of the packaging to the needs of each client in terms of costs or sustainability

They are now looking for innovative solutions from any sector to implement into their activities.

They are looking for:
Materials, processes, technologies that could be interesting for their clients.

The Spanish company is interested in a licensing agreement if the new technology offered meets their industrial requirements.
If the new technology requires assistance they would accept a commercial agreement with technical assistance.
If the technology needs to be adapted to their productive plants or specific processes, they

would ask for a technical cooperation agreement with the technology provider.

Technical Specification or Expertise Sought

The Spanish group is open to any new suggestion to improve their product that could be a competitive advantage.

The main fields of interest are:

-corrugated cardboard
-packaging using cardboard
-paper manufacturing process

They are looking for partners able to present new ideas that can be scaled up to industrial processes.

IPR Status

Trade Marks

Keywords

Technology

02007013	Paper technology

Market

09004006	Packing products and systems

NACE

C.17.1.2	Manufacture of paper and paperboard
C.17.2.1	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard

Open for EOI : Yes

Dissemination

Send to Sector Group

Materials

Client

Type and Size of Organisation Behind the Profile

Industry >500 MNE

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English
Spanish

Client Country

Spain

Partner Sought

Type and Role of Partner Sought

The partner sought should provide a valuable and scalable innovation in one of the 3 following fields:
-corrugated cardboard
-packaging using cardboard
-paper manufacturing process

The solution once implemented should lead to a competitive advantage for the Spanish company.
The Spanish company is interested in a licensing agreement if the new technology provided meets their industrial requirements.
If the new technology is ready for implementation but requires assistance they would accept a commercial agreement with technical assistance.
If the technology needs to be adapted to their productive plants or specific processes, they would ask for a technical cooperation agreement with the technology provider.

Type and Size of Partner Sought

SME 11-50,University,Inventor,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Commercial agreement with technical assistance
Technical cooperation agreement

Technology Offer

Embedded condition monitoring of power transmission of a pellet mill

Summary

Serbian company developed a low-cost optimal micro configuration for measurement and condition monitoring of data collection system of pellet mills power transmission. Product is unique and represents new application of PIC (Programmable micro-controllers). Compared to other solutions, this system can be customized for individual customer request. The company is looking for manufacturing agreement.

Expiration Date	31 October 2017
Reference	TORS20161013004
Profile link	

Details

Description

A Serbian company was established in 2010 by the experts in field of mechanical and electrical engineering. The experts are university professors with long-term experience in science who developed and applied a lot of technical solution in small and medium enterprises in region. The company´s products are different innovative devices for electronic measurements.

The PIC (Programmable Interface Controller) micro-controller based system also has an integrated function with control application based on fuzzy logic. The system is based on PIC micro-controllers and represents the complete solution for condition monitoring regarding vibration, temperature and rpm measurement.

The goal of the predictive condition monitoring of planetary power transmissions in pellet mills is to indicate deterioration in the condition of the power transmissions before the actual failure occurs. In many cases, the defect does not cause an immediate interruption of the process. If this is the case, the defective part can be replaced or repaired during normal, scheduled maintenance periods, provided that the defect has been found in a sufficiently early stage. The most common causes of failure of rotary machines are faults in bearings, the stator and the rotor.
There are many methods for the predictive condition monitoring of rotary machines. The analysis can be based on different measured quantities. These include, for example, temperature, current, magnetic flux density and vibration. The basic design idea was to create a measurement and data collection system for condition monitoring in which the data analyses and decision making are based on fuzzy logic programming.

The data collection system for a pellet mill consists of several sensor units attached to data collecting units. There can be one or more collector units all having one or more sensor units connected. In order to keep the sensors inexpensive, they are based on a simple micro-controller with no external memory. Therefore, the collector units provide a temporary storage

for the measurement data. If a particular measurement generates data, more than the internal RAM of the micro-controller can store, the data transmission between the sensor unit and the collector unit has to be in real time. However, the data transmission from the collector unit onward can be slower and can be packet based.

Current and Potential Domain of Application: Diagnosis regarding vibration, temperature and rpm measurement of any type of pellet mills power transmission. The company seeks manufacturing industrial company for potential manufacturing agreement.

Advantages and Innovations

The advantages of a multi channel collector unit realization include a simple communications protocol, because each transmission line has only one communicating pair, the collector unit and the sensor unit. Furthermore, the interface between the sensor unit and the transmission cable can be made fixed (i.e. on conectorless), thus making the connection both more reliable and less expensive. In the case of the bus based realization, the connections can be fixed too, but this makes it very difficult to modify an existing system. Moreover, in the case of the multi channel collector unit, the whole system is more reliable, since a defect in one spot of the cable cancels the connection between the collector unit and one sensor unit only, instead of, in the worst case, making all of the sensors unavailable to the collector unit.

The system architecture is distinctively minimalist. It is characterized by the following features:
• Separate code and data spaces
• A small number of fixed length instructions
• Most instructions are single cycle executions with single delay cycles upon branches and skips
• A single accumulator the use of which is implied
• All RAM locations function as registers of both source and/or destination of math and other functions.
• A hardware stack for storing return addresses
• A fairly small amount of addressable data space, extended through banking
• Data space mapped CPU, port, and peripheral registers
• The program counter is also mapped into the data space and writable

Stage of Development

Available for demonstration

IPR Status

Secret Know-how

Profile Origin

Private (in-house) research

Keywords

Technology

03004004	Electrical Engineering/ Electrical Equipment
09001	Measurement Tools

Market

03007002	Other measuring devices

NACE

C.26.5.1	Manufacture of instruments and appliances for measuring, testing and navigation

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Send to Sector Group

Nano- and Microtechnologies

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

2010

Turnover

<1M

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English

Client Country

Serbia

Partner Sought

Type and Role of Partner Sought

The preferred partners are industrial SMEs involved in the electronic industry, as well as manufacturers of electronic equipment. The Serbian company has developed an innovative product and it is looking for manufacturing agreement with potential partner.

Type and Size of Partner Sought

SME 11-50,SME <10,SME 51-250

Type of Partnership Considered

Manufacturing agreement