



ORGANICS SURFACE FINISHING SEMINAR IMF IRISH BRANCH ANNUAL CONFERENCE AND NETWORKING EVENT by Dr Bulent Tepe

On the 15th May 2018, Caterpillar Northern Ireland hosted over 75 delegates from the Institute of Materials Finishing (IMF) for their annual conference and networking event. Suppliers and manufacturers involved in surface finishing from across the world took part in the event. The seminar's aim was to bring together people from industry and academia.

The event was a great success and it was pleasing to see so many people attend. Participants had the chance to listen to a series of presentations on the surface finishing industry and learn about the latest technology and developments. The delegates also had opportunity to see newly

installed state of the art paint lines at the Caterpillar (NI) Larne site. The new paint line is the only one in the UK with a two-level power and free conveyor system installed and this was of great interest to the group. The event served as a unique networking and knowledge sharing opportunity for those who participated.

The seminar was opened by a welcome note from Caterpillar (NI) Technical Services Manager Mr Enda McKeever and IMF Secretary General Mr Graham Armstrong. The event was chaired by Dr Bulent Tepe. (IMF Ireland Branch)

IMF DIARY

IMF EVENTS

7TH SEPTEMBER – ENROLMENT

19TH - 20TH SEPTEMBER
SURFACE WORLD NEC

31ST OCTOBER – 1ST NOVEMBER
ADVANCED ENGINEERING – NEC

27TH NOVEMBER – AGM
COBDEN HOTEL BIRMINGHAM

SOUTHERN BRANCH

3RD OCTOBER – ELECTRONICS
GUERKA MUSEUM IN WINCHESTER

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**NEXT ENROLMENT
DATE FOR TRAINING
COURSES IS**

7th September 2018

Contact
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ORGANICS SURFACE FINISHING SEMINAR CONT..

During the event, there were 5 presentations delivered as below;

- Wet on wet liquid coating technology; Dr Nick Welton
- Development pathways & new insights in mature conversion coating technologies; Dr Steffen Rübbe,
- Dust on dust powder paint technology; Dr Nick Welton,
- Sol-Gel technology; Mr Sebastian Catel,
- Experiences of paint plant installation management; Dr Bulent Tepe,

Dr Nick Welton delivered a presentation on “Wet on wet liquid coating technology” The presentation mentioned all about reducing equipment cost, process time and easy application of coatings. It is already used and getting more attractive for the industry.



Dr Steffen Rübbe delivered a presentation on “Development pathways & new insights in mature conversion coating technologies”. The presentation was all about environmentally friendly conversion coating and its benefits like reducing running costs and energy saving due to low temperature cleaning and conversion coat.

Dr Nick Welton delivered a presentation on “Dust on dust powder paint technology” The presentation mentioned all about powder paint technology direct to metal (DTM) and edge coverage. The benefit of using dust on dust powder paint technology was a

great interest to audience. This technology is reducing equipment cost, process time and improving aesthetic and performance.



Mr Sebastian Catel delivered a presentation on Sol-Gel technology and difficulties with the paint system. The presentation was specifically on paint adhesion and filiform corrosion on rail and aerospace industry. The advantages of using Sol-Gel technology was presented on the areas of corrosion, conduction, adhesion and mechanical resistance.

Dr Bulent Tepe delivered a presentation on experiences of paint plant installation management. The challenges of the running project and integrating many contractors and suppliers from different cultural background were presented. Also managing of the projects was explained in bullet points.

After the presentations, all participants were taken to see the Caterpillar (NI) facility in Larne, Northern Ireland. The feedback from participants was all positive and especially seeing the newly installed powder paint system in the factory was a great interest.

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It hardly seems possible but we are now half way through 2018, and the dismal weather of the winter past a distant memory (almost)! I suppose time does go more quickly as one gets older, but this is not helped by the sheer volume of work requiring attention.

The past few months have seen much activity for me, both with the Institute and with my employer. Some of you may have seen the news reports of the cloud bursts that affected Birmingham over the Spring Bank Holiday weekend, where over a month's worth of rain fell in an hour. This led to severe flash flooding in many areas of the city, which included the Indestructible facility in Sparkhill. The factory was under over a metre of water, resulting in losses of both records, finished goods and raw materials. Thankfully nearly 4 weeks on the company is back in full operation, and achieving sales growth, although a near complete re-building of the site is ongoing. It was all hands to the pump in the first clean-up, which illustrated the resilience of the British!

From the Institute's viewpoint the last few months have again been "involving"! You will all have heard that our long-standing membership and training manager, David Meacham, has elected to retire as he hits his 65th birthday in July (still a mere youngster really!). The management team moved rapidly to find a replacement, and I am very pleased to report that Karen Yates has started with us to take over these responsibilities. More information will be found elsewhere in this issue of IMFormation.

I have reported in the past on my involvement on the Institute's behalf with the formation of a "Surface Engineering and Advanced Coatings" (SEAC) leadership forum. This is now moving ahead apace, with terms of reference being drawn up and agreed and the election of officers.

The primary function of the forum is to provide leadership, direction and a single point of contact for the SEAC community; delivery of key objectives; high level interaction with such as the KTN, Innovate UK and EPSRC, and to improve awareness of SEAC technologies and processes across all UK manufacturing sectors, and with

government and other stakeholders.

David Elliott of the SEA has been elected chairman, and I have agreed to serve as his vice-chairman for the initial 2 year period.

I look forward to developing this leadership forum with help and backing from the IMF membership, and close co-operation with other industry bodies. Any thoughts from our members will be gratefully received, and if you could pass these onto me via Helen I would be obliged!

The Cross Sector Group on REACH met within the last month, but unfortunately other work pressures resulted in my missing the meeting. Representatives of both DEFRA and BEIS attended, and I understand were receptive to industry viewpoints on both the current REACH position, and how this will pan out post BREXIT. No minutes have been issued as yet, but I will update you all in the next issue of IMFormation.

We now look forward to our participation in two major shows at the NEC; Surface World in September and Advanced Engineering in November. Helen will no doubt be chasing us for help in manning the stand at both these shows! I hope to be there at both shows so look forward to meeting up with everyone again then!



Graham Armstrong
June 2018



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Poeton prides itself on being a local employer of choice, enabling employees to develop their careers in Surface Engineering and Surface Treatment Technologies, working as part of a growing multi-site company that is expanding into Europe. We are now looking for a Group L&D Manager to work alongside the HR function to develop a sector-leading approach to training.

The role of the Group L&D Manager is to develop a strong learning culture with a flagship training programme and knowledge hub, supporting Production & Operations, HR and R&D. This role is vital to support talent attraction – using the Technical Training School to enhance the Poeton Industries Employer Brand, to provide knowledge support and sector specific qualifications and to build Poeton's reputation for excellence. This role is vital to give Poeton Industries competitor advantage in the Surface Treatments Market and in the development of the Poeton Learning Academy.

The suitable applicant will have previous experience in a technical/production context, preferably from within the metallurgy industry. You will be comfortable in a multi-site context, delivering training to a variety of learners as well as working with internal and external suppliers to develop an exciting and dynamic learning academy for our teams.

About the role

As our Group L&D Manager you will be required to:

- Work closely with HR to identify and assess future and current training needs through job analysis, career paths, annual performance appraisals and consultation with the business
- Work with HR to organise and administrate a flagship apprentice programme – developing links with local schools and colleges
- Work with HR to develop and manage our graduate sponsorship programme – to train and support our talented graduate and post-graduate students during their career with us
- Advocate training within the business – advising on the apprentice levy and funding resources available for training
- Support the company to ensure it has competitor advantage in knowledge and skills
- Lead the Technical School Training Programme - using the training school resources to provide sector leading training for the Poeton Learning Academy (supporting new joiners, IMF qualifications, NVQs, Training Champions, Apprenticeships & talent progression programmes)
- Deliver and co-ordinate training programmes as per the company's L&D strategy

Working with us

At Poeton we seek to develop a positive culture throughout the company and we are looking for someone who shares our values of Pride, Openness, Excellence, and Teamwork. Working with a team of passionate, motivated and talented people, you would be working in an environment that strives for excellence in everything we do and seeks to nurture our people in their career journey with us.

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INDESTRUCTIBLE PAINT WINS PRESTIGIOUS EXPORT AWARD



Indestructible Paint's Finance Director, John Toon and Marketing Coordinator, Simona Matuozzo (second and third from left), receive the Insider 'Made in the Midlands' Export Award from Actor, Writer and Presenter Alexis Conran (left) and Max Morgan, Trade Director for sponsors Barclays (right).

Indestructible Paint Ltd., manufacturers of performance paints and coatings, is delighted to have won a major accolade at the prestigious Insider 'Made in the Midlands' manufacturing awards. The Birmingham-based organisation overcame competition from leading companies in the area to win the Export Award, selected by the judges in recognition of 'the most outstanding exporter' based on a combination of international presence, export growth and ongoing development of exports at a proportion of sales.

"This is a highly respected series of awards which is growing in both size and standing each year and we are very proud to have won in the export category," says Brian Norton, Indestructible Paint's Managing Director. "This success reflects our longstanding focus on overseas markets and acknowledges the steps and successes we have achieved recently in a range of industries, not least the highly challenging aerospace sector."

Indestructible Paint now exports to more than 60 countries and has developed a network of stockists in seven key territories. The company can point to significant growth in overseas markets such as the USA where it reported an 18 percent increase in sales in 2017.

"We are also placing emphasis on the Far Eastern marketplace, with not only sales increases in established areas – such as

12 percent growth in China – but also the opening of new distribution networks," comments John Bourke, Global Sales Manager. He singles out the agreement with distributor Todo International in Japan as an excellent example. He also points out that over 70 percent of the company's products are now being manufactured for export.

"In all cases, our commitment to working closely with customers to develop tailored solutions, often in niche sectors, is fundamental to our success," continues Brian Norton. "Our Research and Development facility is central to this approach and links directly to our ability to guide and advise customers on key industry issues, such as the requirements of the REACH regulations." He points out that the company is also heavily involved in the development of ISO and EN standards.

Indestructible Paint says that these are all factors that contribute to the success it has achieved both in the UK market and overseas. "Our winning of this major regional award is clear evidence of the importance of overseas markets to this pattern of growth and I would pass on my congratulations and thanks to everybody at the company who has contributed to this important achievement," concludes Brian Norton.

PAINTING THE TOWN RED (OR THE CAR PARK BLUE?)

We all like to brighten our image, not least the Institute. We had been aware that the car park was looking a bit shabby, and that graffiti was appearing on the walls. We therefore decided that “a lick of paint” would be in order, but what should we use?

Knowing that we had a sustaining member in Indestructible Paint, and several of their technical gurus as members, we asked for their advice.

The walls of the car park are a mixture of concrete and brickwork, some of which was crumbling quite badly. The Indestructible team therefore recommended a system of clear sealant and exterior durable paint from their “Agricoat” range. This range has for many years been used for the decoration of both external and internal farm and industrial buildings and gives superior exterior durability as well as chemical resistance.

Indestructible matched the topcoat to “IMF Blue” and very kindly donated both the sealer and the finish paint. The painting was completed earlier this year and the resultant effect is amazing.

Thank you from the management team to Indestructible for their kind help in smartening up our image!

Au Revoir.....

At the end of June we said good-bye to David Meacham, who having reached the ripe old age of 65 decided to take his retirement!

David had been with the Institute for over 15 years, looking after both membership and education and training, and had seen many changes throughout that time in both people and operations.

However, he provided a steady hand on the tiller, and continued to grow the numbers of students right up to the

intake at the beginning of June.

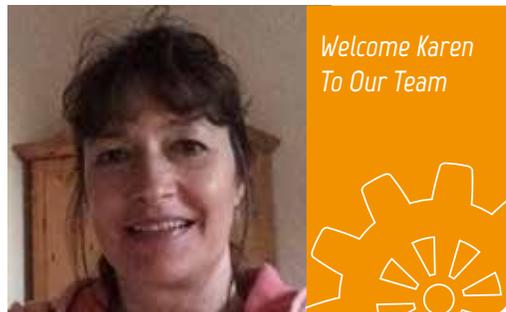


David will now look to enjoy his many interests away from the working environment, and I’m sure everyone will join me in wishing him a long and happy retirement.

.....and welcome

To replace David, we welcome Karen Yates to our team, as Development Manager, Membership and Education. Karen joins us after many years experience in office management and administration roles, latterly with Birmingham City University where she had responsibility for applications for both undergraduate and post-graduate courses.

Karen will initially concentrate on continuing the sterling work David had done on running the administration of our education and training offer, but will in the medium term start to work in conjunction with board members on development of membership, both sustaining and individual.



THE SOUTHERN BRANCH – “WATER, WATER EVERYWHERE”

On Wednesday 23rd May, the Southern Branch of the IMF held a mini-symposium entitled Water, Water Everywhere at The Port House, Marina Keep, Portsmouth, Hampshire.

The symposium was designed around the theme of water and the presentations were as follows:

Water Water.....what happens to it?

Sharon Holdstock (Southern Water)

All you need to know about pumps

Daryll Astbury (Hendor Pumps)

The disinfection of water

Ryan Abraham (A-Gas Electronic Materials)

The conservation of Marine Guns

Matthew Hancock (Royal Armouries)

Sharon Holdstock from Southern Water opened the presentation by discussing the various different things that can affect the sewer network.

'FOG', an acronym for FAT, OIL AND GREASE are classed as 'flushables'. People often say that they mix the 'FOG' with washing up liquid to aid dissolution but one of the problems is that chemicals in the washing up liquid mixed with 'FOG' then sent down in cold sewers causes the fats to settle even harder creating a worse problem.

Unflushables are classed as sanitary items, condoms, wipes (even wipes described as flushable). A 5-year programme (started some 2 – 3 years ago) is now showing that people are becoming more aware of the issues and therefore are more careful as to what is thrown down. The latest push is to incorporate plastic materials and people are unaware how much plastic material is in shower gels, shampoos etc.

The Thames and Brighton were where sewer networks were engineered by Sir John Hawkshaw. From these two areas was where the rest of the country adopted sewer networks with the rest of the world following.

A video of the sewers of Brighton was shown. The film showed the effects of throwing the wrong materials down the sewers and also how the waste water is treated before being sent back to the rivers to be reused again.

All you need to know about Pumps



Darrell Astbury from Hendor Pumps was our next speaker who gave a talk on pumps and filtration.

Today's market sees pump and filter products manufactured from Polypropylene (PP), PVDF and Stainless steel (SS) both vertical and horizontal with the latter having magnetic drive and seal pumping systems. There are also special systems which are capable of precious metal recovery, stannic sludge adsorption (from tin processes) and grease/fat separation.

Pump selection is a critical and the following should be taken into consideration:

- Solution
- Solution Temperature
- Solution Volume
- Available Space
- Temperature
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THE SOUTHERN BRANCH – “WATER, WATER EVERYWHERE”



“True Cost of a Pump” is the “Life Cycle Cost” and NOT the “Initial Buying price”

With the new and more efficient pumps, the use of a smaller, more efficient motor can deliver the same flow rate so using say a 1.5kW motor instead of a 2.2kW is a reduction of 0.7kW which is a 31 percent improvement.

Vertical pumps which can be used In tank or Out of Tank have full length SS motor shafts for high pump stability, can be run dry without damage, require no seals or bearings and have a cantilevered drive shaft.

The trend for vertical pumps is to use them in an “Out of Tank” application which is

Reliable – less down time

- No wear – less maintenance
- Low operational costs
- Available with a filter chamber

Horizontal pumps are divided into Magnetic Drive and Mechanical Seal.

Magnetic pumps are smart in design and have no mechanical seals, robust for minimal wear and easy maintenance.

Filter chambers

- Filter chambers can be used with:
- Cartridges, discs, bags and microfibres
- Welded sealless cylinder bottom
- Bottom, side, top inlets and outlets
- Combination with vertical / horizontal pumps
- In – tank / out-of-tank / with frame, wheels or legs

Filter systems can be:

- Multi chamber
- With horizontal / vertical pump
- In-tank / out-of-tank
- Cartridges / discs / bags / slurry tank (or combination)

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The disinfection of Water

Our third speaker was Ryan Abraham from A-Gas Electronic Materials (A-Zone division) who gave a talk on “The Disinfection of Water”

As soon as the water comes in to the factory, it stops becoming the suppliers water and becomes the owner’s responsibility to ensure that the water will not give such things as e-coli or Legionnaires Disease both of which are bacterial infections. The ramifications of being known to have these types of diseases is significant with very high fines and the risk of a custodial sentence.

Manufacturers are also now becoming aware that the quality of the water can make a big difference to the output of the factory especially when water is used in high volume such as in electronics. There is also an appreciation that by keeping the water ‘clean’ then some of this used water can be recycled hereby saving costs in the use of water.

Disinfection is basically the killing of pathogens, bugs, sterilisation takes it one step further by removing everything and it is important to have a system that will not only do this

THE SOUTHERN BRANCH – “WATER, WATER EVERYWHERE”

but also will continue to look after water further down the line such as in the subsequent pipework.

Three methods of purification were discussed namely, Ozone, Ultra Violet (UV) and Chlorine Dioxide.

Ozone

Ozone is effectively O₃ and is an extremely unstable molecule but is a very strong disinfectant due to its nature of being a strong oxidiser.

It is used in water treatment as it does kill virtually everything, it is not selective by its nature. It is 51 percent stronger and 3.5X faster than chlorine.

Not only does ozone remove algae, bacteria etc. it is also capable of oxidising soluble metals such as iron, manganese that are found in bore hole water and odours, tastes and tannins.

A-Zone use a unique electrolytic cell consisting of 12 boron doped diamond electrodes with a proton exchange membrane in the middle and is capable of producing ozone from water into water without the addition of any chemicals. The H₂O molecules are split, the hydrogen molecules being vented away with the oxygen molecules being reformed into O₂ and O₃. The unit sits next to a storage tank and circulates the water within, keeping it clean, working 24/7, and is a very efficient and safe. Because the unit generates ozone within the water, there is not the need for ozone gas to be bubbled into the water and any unused ozone quickly reverts back into oxygen and then to water.

The unit uses very small amounts of electricity and the amount of ozone generated is in the order of parts per billion rather than parts per million. The half life of the ozone is only 30 minutes meaning that the effectiveness of the ozone is half what it was 30 minutes previous but because it is very fast acting continuous generation means that the effectiveness is maintained.

The other method of ozone generation (which can be used for waste water) is corona discharge which produces ozone from air or oxygen and is injected into the water. Units can produce

very high volumes of ozone and clean millions of litres of water. It is generated on site meaning it doesn't have to be stored or transported.

UV (Ultra Violet)

Ultra Violet breaks down the DNA in a cell and destroys it which in turn stops it from reproducing. The process does not require any further chemicals so therefore does not leave any taste or odour such as chlorine.

The disadvantage of UV is that it has no residual properties so that a few seconds later after the water has been treated, any cells that are not destroyed have the potential to regrow. Because of this the water needs to be used as close as possible to the point of exit from the UV unit.

Chlorine Dioxide

Chlorine does have the benefit of having a very long residual time and can stay in the water even when it is travelling through a large amount of pipework. There is a high knowledge of how much needs to be added to the water volume and how long it will stay there and this is one reason why the water authorities use it.

The disadvantages are that the product has to be transported, purchased, handled and dosed.

The conservation of Marine Guns

Our final speaker was Mathew Hancock from the Royal Armouries who gave a talk on the effects of water on very old marine guns.

In conservation water is often used with tannic acid and a wetting agent and subjecting an iron part to this mixture will convert the corrosion material into a more stable state.

Mathew concentrated on a diffusion process which removes chloride ions from salvage objects from the sea. Sea water is rich in chloride ions and this diffuses into the porosity of the metal and the guns that are currently being treated have been in the bottom of the ocean for some four hundred years.

THE SOUTHERN BRANCH – “WATER, WATER EVERYWHERE”

Water is known as the universal solvent and it is capable of dissolving more chemicals than any other liquid and even though it will dissolve chloride ions out of the guns this could take up to a further five years.

The guns are immersed in tap water (containing sequestered sodium carbonate) in desalination tanks and the chloride ions diffuse out of the material. The water becomes saturated with chloride ions and when it reaches a certain level, the water is changed, and the process started again. This is normally monthly. Once the chloride ions reach a level to that of water, the process is repeated using deionised water and the process repeated until all the chloride ions are extracted and then the pH is checked until it is showing neutral at about 30 - 40°C. The gun is then lightly polished, and a barrier treatment is put on it to prevent oxygen from coming into contact with it. After this application the barrier coating is lightly buffed up and the gun is dehydrated in acetone to rid it of all water.

The gun is finally coated in wax before displaying to the public.

The current project is a 17th Century marine salvage of 3 guns which were found off the Kent coast.

Guns were retrieved from a 76 gun second-rate ship of the English Royal navy. In 1665 it sank in the Thames where according to Samuel Pepys, 300 of her crew were killed, 24 blown clear and survived including one woman.

The wreck was discovered in 2005 and to date less than 12 guns have been recovered.



One gun that survived was a “Peter Gill” gun and this was stamped with the name.

Another gun that was shown was “The Commonwealth Gun” which was Dutch made and installed on the HMS London during a refit. The gun is in a similar condition to the Peter Gill gun and will take around 4 – 5 years for restoration.



Various other guns were discussed and overall the talk was very interesting.

Overall the evening was a great success and the Southern Branch will be looking forward to its next presentation in October when we will be taking our first venture into Electronics.



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SURFACE ENGINEERING PROVIDES FOR A PROFESSIONAL AND DIVERSE CAREER.

A career in surface engineering is not just about using strange coloured liquids in big tanks – it is about being a professional and developing skills that will take you into a huge range of alternative career opportunities.

Professional and trained surface finishers, painters, engineers or coatings operators are in a unique position of having, and demonstrating, skills that are highly transferrable to other business sectors, such as research, development, marketing, sales, quality control, quality assurance and even management! By the very nature of the jobs involved, surface processors also become extremely aware and proficient in health and safety, so there is virtually no career opportunity that is not open to the surface engineering practitioners.

Surface engineering is one of the most important business sectors in the UK and, indeed, in the global economy. Without it, we would not be able to produce 50 percent of our manufacturing GDP, which is worth about £173bn each year, although the UK's surface engineering industry's direct value is



less than 10 percent of this (£13.5bn).

To maintain our dominance in the surface engineering and coatings sector, we need to have a highly trained and professional workforce, as otherwise we will lose out to other nations that take the time and effort to invest in their people. The IMF provides a wide range of excellent and up to date training courses that can be done by either distance learning or through tutors; we can also provide bespoke courses to meet the needs of specific employers and technologies.

Not only do the training courses make our workforce a more potent and skilled group, but it also helps secure long term jobs through being highly efficient and professional and ensuring that employers remain competitive.

Encourage your friends and colleagues to become members of the Institute and take advantage of the opportunities we can offer you, both employer and employee.

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Key Duties and Responsibility

- Day-to-day setting and operation of our strip and barrel zinc electroplating units
- Ensuring production targets are met on responsible processes
- Participation in fault-finding and first line maintenance activities within the department
- Operation and monitoring of our effluent treatment plant
- Laboratory testing to ensure components and processes comply with internal and regulatory requirements
- Completing production and process control documentation

Desirable Experience & Skills

- Experience working in a plating environment with an emphasis on electroplating processes
- Experience of analysing chemicals and solutions (Hull Cell)
- Experience of the treatment and discharge of effluent

Essential Experience/Skills Required

- The ability to read and understand operating and laboratory testing procedures
- Experience of COSHH, risk assessment and the safe use of chemicals
- Ability to operate a production unit autonomously in a fast-paced metal working environment to meet stringent deadlines and maximise efficiency
- Ability to maintain in process quality control systems to ensure product quality

Personal Attributes

- Attention to detail and the ability to accurately follow procedures
- The ability to work autonomously and as part of a team
- High regard for Health and Safety
- A strong commitment towards quality
- Confident oral and written communication skills in English
- Proven record of performance

Salary depending on skills, experience and qualifications. Training will be given. 39 Hours per week

Normal Shift: 08.00-17.00 Monday to Thursday and 08.00-13.00 Friday

Please note that only candidates with the required experience will be considered for this post.

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RESEARCH FUNDING FOR INNOVATIONS AND BUSINESS DEVELOPMENT IN SURFACE ENGINEERING.

The surface engineering industry enables 50 percent of the UK's manufacturing GDP to be achieved. It is crucial to the future of the UK's economy and is the single most important aspect of manufacturing, but is a very little understood business sector. To maintain its dominance in the global market, UK manufacturers need to develop new products and processes and to help them do so, the Government provides funding through its UK Research and Innovation (UKRI) program.

Part of the UKRI is InnovateUK (<https://www.gov.uk/government/organisations/innovate-uk>), through which companies can obtain funding and lead projects where their objectives are to create new opportunities, jobs and wealth within the UK and to encourage entrepreneurship. Funding is generally up to 70 percent of eligible costs, so successful applicants only need to obtain 30 percent of their costs to carry out their work and develop their ideas. However, some types of organisations are eligible for 100 percent funding.

As a general guide, InnovateUK funded projects



need to be industry led, although academia and Research Institutes can take part, as long as their costs do not exceed 30 percent of the total grant. However, different specific calls have differing criteria, so it is important to check the funding terms and partner eligibility. Typical projects can be either single partner or consortia and can last between 6 months and 3 years; funding levels are between £25k and £1-2 million, depending on the call. In these days of continued austerity, we as an industry should take every opportunity for using this cheap money, because if we don't, there is a high risk that the funding will be reduced and we will lose our influence and impact on the global economy.

The IMF is very keen to help its members, both corporate and individual, obtain funding and we can even take part and help with activities such as project management and dissemination. We can also provide brokerage skills and technical advice.

If any member wishes to develop these exciting and low cost opportunities any further, please contact Exeter House or Trevor Crichton (chair of the Science Committee).



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