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FEB 2020

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IMF DIARY

18TH, 19TH MARCH 2020

Surface World – Hall 9 NEC Birmingham

5TH JUNE 2020

Distance Learning Enrolment

20TH – 24TH MARCH 2020

Mach 2020

UPCOMING WEBINARS

24TH MARCH 2020

Cleaning & Pre-treatment prior to
Electroplating

21ST APRIL 2020

Care and Maintenance of Electroplating Baths

19TH MAY 2020

Anodising of Aluminium and its Alloys

Everyone is invited and if you wish to
attend, please contact: John Burgess
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An invitation will be sent to your email address.

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What a start to 2020. As we all got back to work after the Christmas and New Year break, we all thought the only thing to be concerned about was Brexit day on January 31st. This came and went without any real issues, and we all looked forward to getting through the transition period for the remainder of this year. I'm a little surprised that detailed negotiations don't begin until March but lets all hope that both sides conduct these sensibly with a positive result on trading for both sides.

Whilst we were waiting for Brexit Day, the news of the very infectious Coronavirus started to come out of China, with the virus spreading rapidly through South East Asia. My colleague from Indestructible and myself were set to attend the Air Show in Singapore during the second week of February, which meant close scrutiny of the position and recommendations from the Singapore government. 2 days before we were supposed to fly they raised the alert level to amber which invoked quite severe restrictions on meetings and groups. Discretion proving greater than valour, we decided to cancel the trip, so instead of enjoying several days of warm temperatures and sun, I'm now struggling through the worst that British weather can throw at us!

The Air Show went ahead, with the Indestructible distributor in Singapore continuing with their stand, but it has been reported that visitor numbers were minimal and very little business completed.

So, being restricted to the UK, like everyone else I've suffered the effects of storms Ciara and Dennis. I think most members know I live in a village in the wilds of Herefordshire, and whilst the winds of Ciara removed some branches from trees, this was nothing compared to the rains and flooding that Dennis gave us.

As I write this note in the relative safety of my village (we are quite high and not close to any rivers), I am hearing of the devastation caused to so many parts of the UK, and feel so sorry for the people affected, and not for the first time!

On a more personal issue, I think there is only one road open out of the village, and several main roads on my route from home to Birmingham are blocked with flooding! So perhaps working from home for a few days?

On a more positive note, all at the office are busy preparing for the surface World Show on the 18th and 19th March. This is a final reminder to sustaining members to let Helen have your logo and any videos so these can be featured on the IMF stand. You will remember we are hosting a "networking" stand with coffee, tea and pastries available throughout the day. Most of the IMF management team will be on the stand for the two days, so do please come along for a coffee and a chat!

Graham Armstrong

February 2020



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INDESTRUCTIBLE PAINT ANNOUNCES KEY APPOINTMENT AND FOCUS ON THE RAIL SECTOR

Indestructible Paint Ltd. is announcing major developments to the markets the specialist coatings manufacturer serves with the launch of a dedicated focus on the rail industry. The move marks a significant enhancement of the company's commitment to customers both in the UK and worldwide, and is set to match coating technology that is proven in some of the most challenging environments – not least aerospace – to the particular needs of the rail sector.

Importantly, Indestructible Paint has also appointed Mike Booth to the position of Product Specialist, Rail. He will oversee all activity in the rail market with the benefit of some 30 years' experience in the industry.



"I have been involved in a wide range of activities in the rail sector including, in particular, liquid applications of high performance coatings for customers that include passenger rail, underground operators, and the rail freight sector as well as an extensive number of infrastructure organisations," Mike says. He points out that he was also heavily involved in the move away from solvent

systems in the 1990's to water-based and solvent-free products, still the main product types used today.

"We are delighted that Mike has been able to join us and that his knowledge and expertise are now available to spearhead our move into the rail industry," says Brian Norton, Indestructible Paint's Managing Director. "Apart from his understanding of paint and coating technology, Mike is well versed in the specific needs of the rail sector, such as the critical requirement to observe very tight shut down or possession times, so I am very confident that he will be able to build our presence in this sector very quickly."

Acknowledged worldwide for its specialist R&D, manufacturing and supply capabilities – all from its Birmingham head office and production facility – Indestructible Paint has built a leading reputation in a long list of user industries. From aerospace to automotive and from general engineering to the military sector, the company's focus on meeting both larger volume and niche needs has enabled it to grow an industry-leading reputation which offers user benefits that are now being extended into the rail sector.



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CHARLES PARSONS TURBINE AND GENERATOR CONFERENCE

Recognition of the role played by Indestructible Paint Ltd. in the development of the highest quality specialist coatings, designed to meet demanding and complex industry needs, has now been demonstrated by its participation in one of industry's specialist conferences. The Birmingham-based company has taken part in the 2019 Charles Parsons Turbine and Generator Conference, organised on behalf of the High Temperature Materials Committee of the Institute of Materials, Minerals and Mining.

"This prestigious conference promotes a deeper connection between industry and academia so in many ways reflects our own approach and belief in meeting the needs of industry," comments Brian Norton, Indestructible Paint's Managing Director. He points out that the company places great emphasis on research and development, particularly where it can work closely with customers to meet precise industry objectives, so an event of this type is very much in line with the organisation's thinking.

"Environmental, legislative, social and corporate pressures all constantly call for the need to develop coating performance – and chrome or hexavalent chrome-free versions of ceramic-aluminium-coatings are prime examples," says Richard Banks, Indestructible Paint's Laboratory Manager, who delivered a talk entitled 'Chrome Free Galvanically-Sacrificial Coatings for Ferrous Metal Protection in Turbine Machinery'.

The development of a new coating, which has been undertaken with collaborative input from representatives of the end user and the academic world alike, all under the umbrella of

Innovate UK research funding, was the focus of the paper that he delivered and the associated talk at the conference.

Developing chrome-free alternatives through a growing number of performance paints and coatings is currently one of the principal focuses for Indestructible Paint's development programme, and it highlights the turbine industry as being one of the key markets in which it can be demonstrated.

"Our supply of coatings into this specialist sector aims to optimise engine operation whilst underscoring our drive and commitment to environmental improvement in the industry," concludes John Bourke, Indestructible Paint's Global Sales Manager.

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PRINTED ELECTRONICS: IDTECHEX RESEARCH REVIEWS THE DEFINING TRENDS IN 2019

Five Key Trends in 2019

IDTechEx has identified several key trends in 2019:

In-Mold Electronics gains momentum

In-Mold Electronics (IME) is a subset of structural electronics - ultimately 3D electronics with benefits including less components to integrate, faster turn around times, ease of design and light-weighting. It is also cost-competitive. The 2019 market for IME is \$5.6 million — barely a market — but one which IDTechEx expects to grow to over \$1 Billion in 2029. With strong engagement from automotive and white goods appliance makers to use IME for human machine interfaces, adoption is mostly hindered by scale up and reliability testing proof which is rapidly being worked through.

5G and electric vehicles create new markets for conductive inks

The increasing interest and inevitable move to 5G poses new material opportunities, in particular for electromagnetic (EMI) shielding due to the higher frequencies employed by 5G. IC plating can be slow, relatively expensive and difficult to get good coverage on all sides of the IC package. This is being targeted by those in conductive inks.

The adoption of electric vehicles means the greater use of power semiconductors. Here heat dissipation and management is an issue, and therefore printable thermal interface materials represent a large emerging opportunity and not just for power semiconductors in vehicles but also in other applications such as high power LEDs.

Component providers move downstream in search of niches

Printed or flexible components with new capabilities do not always replace existing components on a like for like basis,

unless there is a problem with the existing component. Often they enable new things to be done thanks to their new attributes. In this case, the supplier of such a novel component is not just inventing the component but also often needs to get involved in inventing the product and demonstrate the market demand. Numerous companies have therefore moved downstream, from creating electronic skin patches using flexible printed batteries to warehouse management systems using printed flexible organic photodetector strips. Hear case studies at Printed Electronics USA 2019.

Healthcare, healthcare, healthcare

systems using printed flexible organic photodetector strips. Hear case studies at Printed Electronics USA 2019.

The ability to utilize flexible and stretchable electronics is being increasingly utilized by the healthcare and related wellness industry. Consumer electronics companies are pivoting their wearable technology devices to being more focused on healthcare. The market for medical wearables over the coming five years will grow faster than the overall wearable technology market.

Companies are exploiting new form factors of electronics - such as stretchable sensors - to create increased user comfort while providing ongoing actionable data. Significant developments in gas sensors, enabled by materials such as graphene and carbon nanotubes, can maximize the benefit of utilizing the many biomarkers in breath, which is also an unobtrusive detection method versus alternatives.

Fixing hybrid electronics

Hybrid electronics — the mixture of conventional components and flexible or printed electronics components where needed — can bring the best of both worlds. However, there are several bottlenecks, which have mostly been treated as afterthoughts but are now holding back volume use. Examples include the need for conductive adhesives to attach components that can be cured at low temperature to utilize low temperature substrates and having high speed automated equipment to handle the many different shapes and formats of components and assemble these. These issues are still work in progress, but so far 2019 has seen some of these hurdles being broken down, which will open up more use cases.

THE IMF AT SURFACE WORLD



THE IMF AT SURFACE WORLD

This year the Institute of Materials Finishing (IMF) will be hosting a Stand at Surface World. Our aim this year is to invite visitors onto our stand in order to provide information on education and training; experts will be on hand to help you with any Finishing problems.

A little about us

The IMF is an international organisation set up to represent the interests of individuals and companies in the surface finishing sector. This sector is broken down into Electroplating, Painting, Powder Coating and other Surface Engineering processes.



The IMF is the only scientific body in the world connected to metal finishing, surface treatment and surface engineering and is very strong in providing Education and Training Courses. Gaining a certificate in a chosen subject will help the student be recognised worldwide and help develop his/her career.

Study modules which lead to an award are: **Foundation Certificate, Technician Certificate, Advanced Technician Certificate, Licentiate Certificate.**

By becoming a member of the Institute, professional qualifications such as AssocIMF, Tech IMF, LIMF and FIMF can be, in today's environment, an asset whereby you will be recognised as a true professional.



To be a member of the Institute of Materials Finishing is an honour and a sign of your status within the Finishing Sector.

The Institute also has branches in Ireland, the North and the South of England.

Branches hold regular technical meetings and seminars on varying topics which will enable you to keep up to date with all aspects of modern finishing.

A new addition to the Institute over the last year has been the introduction of Webinars; these are usually held on a Tuesday and last for about 35 – 45 minutes.

The webinars are given both by the IMF and also external members with an aim to provide further information on the technical courses and also new information by suppliers all of which have proven to be of great interest.

Anyone who may be interested in these, please visit the stand and ask for John Burgess FIMF.

We are now also on LinkedIn where the latest up to date information will be found.

Please come and see us on our Stand, have a coffee and see what we are all about.

GUYSON INTRODUCES NEW RANGE...



Guyson Introduces New Range of Benchtop Ultrasonic Cleaning Baths



Guyson International, the UK's foremost industrial finishing equipment manufacturer, has recently introduced a new and extensive range of benchtop ultrasonic cleaning baths replacing its previous 'Kerry' branded Pulsatron KC and MKC ultrasonic baths; which after many years of great service have now been phased out. This new Guyson ultrasonic bath range offers powerful cleaning in a reliable, affordable package and is ideal for laboratory or workshop use where precision cleaning is needed.

Available in seven stainless steel tank sizes, from 2 litres to a generous 45 litres, all models feature large and easy to use LCD display, dedicated heater control, drain valve (apart from

the smallest version GUK-2), as well as coming complete with stainless steel basket and lid. All models carry a two year no quibble guarantee and all Guyson products are backed with experienced national sales and service teams.

Selectable functions of this exciting new ultrasonic bath range includes: Heating, De-Gas, Memory, Sleep, Sweep and Adjustable Power and all provided in a full metal construction casing equipped with lifting handles. This new range also delivers excellent precision cleaning with very low noise levels, making it perfect for quieter operational environments such as science, medical and dental laboratories and jewellery and electronics workshops.

About Guyson

Guyson International Limited is a privately owned family company with a world-wide reputation for excellence in the design and manufacture of blast finishing, spray wash and ultrasonic cleaning equipment. Formed over eighty years ago, the company is registered to BS EN ISO 9001: 2015 and BS OHSAS 18001:2007, and its head office is located at Skipton, North Yorkshire, in the north of England. Guyson has four international subsidiary companies: Guyson Corporation of the USA, located in Saratoga Springs, New York State; Guyson SA, situated near Paris, France; Guyson Sdn Bhd in Penang, Malaysia; and Guyson CN, in Wuxi, Jiangsu Province, China.

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THE M&M GROUP AND THE SOUTHERN BRANCH REVIEW OF 2019

The M&M Group (Membership & Marketing) and the Southern Branch review of 2019

First of all I apologise of this being a little late, but I unfortunately missed the deadline for the last IMFormation.

2019 had been an eventful year for the M&M group with two major tasks being undertaken.

Firstly, it was decided to revamp the website to be able to be more up to date and capable of being used on mobile phones and tablets.

This was quite an undertaking as there was a lot of old material in the old website which needed archiving in order to make way for new up to date material.

As always with challenges like this it did not cruise along as well as we wanted, but after much discussion I think that we have finally got there.

The site does load very quickly and is more graphic than the old system, it looks a lot fresher and more modern.

We are continuing to improve it and hopefully add more features during next year.

The second major thing to happen was the **Webinar Events**.

These have been very well received and we have had events given by both me, Graham Armstrong and external suppliers.

Going forward into next year we are looking at using webinars to aid people who are primarily doing the IMF Foundation Course.

The idea of this is to allow students the opportunity to discuss aspects of the subject that is being given and hopefully get a better understanding of that particular part of the course.

Tuesday 26th November saw a webinar on "The Principles of Electroplating" and was well attended by students.

The IMF has now also started a YouTube site. The idea of the site is mainly for students to revisit the webinars (This will be by request only) and also for anyone to look at seminars that have been held by the Southern Branch during the year. Going forward we are going to video the presentations (subject to a general release agreement) and it is hoped that

people will see what the Institute has to offer and consider joining.

LinkedIn

The IMF now has a LinkedIn page which I am endeavouring to keep up to date. For anyone who is a member of LinkedIn, please take the opportunity of visiting the page and see what latest information is there.

There will be notices of upcoming webinars, educational topic and anything pertaining to the Institute.

Southern Branch

The Southern Branch of the Institute is still very active, and 2019 saw us hold two events. Our first event "**Coatings...Are you up for it?**" was held at Fischer Instruments during April.

The event was well documented in the April/May issue of IMFormation but suffice to say that it went down very well with all who attended, both in papers given and also practical demonstrations of what some of today's modern technology can offer the industry and the IMF would once again like to thank Fischer Instruments for their hospitality and the excellent buffet that was provided.

Our second seminar was held at The Churchillian in Portsmouth and was entitled "A Night with Ali"

This was our first venture to hold a seminar in conjunction with another Institute (The Welding Institute) and from the many people that attended it proved to be very successful.

The subject "A Night with Ali" was all about Aluminium and its alloys.

Again, the seminar was well documented in the last IMFormation so suffice to say The Branch would like to thank all the speakers and the Churchillian for laying the buffet and providing an excellent room.

Looking forward, the committee is busy with the 2020 seminars and as soon as subjects have been finalised, they will be presented in IMFormation

John Burgess FIMF (M&M committee / Southern Branch Publicity)

The clock is ticking for nPB

With only a few months to go until the use of nPB is banned, businesses are required to act now.



What is nPB?

Short for normal Propyl Bromide, nPB is also known as solvent 1-bromopropane. It is a solvent commonly used in the cleaning and degreasing process for the aerospace, precision engineering, medical, optical and electronic industries.

Why do I need to stop using nPB?

nPB is as a hazardous substance, which can damage fertility and harm unborn children. It is identified in the risk section of the MSDS sheet. As such, it has been registered as a Substance of Very High Concern (SVHC) under REACH which regulates the supply and use of chemicals in Europe.

Any substance meeting the criteria for SVHC may be placed on the 'Candidate List' and/or the 'Authorisation List' (Annex XIV), which invites companies wishing to use these substances to seek an 'authorisation' from the European Commission (EC).

nPB has been placed on Annex XIV, so a 'sunset date' of **4 July 2020** has been set. After this date, its use is banned, unless an authorisation has been granted for a specific use and no alternative is available.

In most cases, there are suitable, safer alternatives to nPB, so unless they have a permit, the majority of businesses will be prohibited from using the substance from July.

What do I need to do?

If you're still using nPB, now is the time to act as the process of selecting an alternative can take time.

The first step is to find an alternative solvent. The good news is, there's a range of new generation solvents which are much safer, and also more environmentally friendly.

For solvent cleaning, the Opteon™ range from Chemours™ is an extremely safe, ultra-low environmental impact and cost-effective option.

The newest product in our portfolio is Opteon™ SF80, which is a non-flammable, and environmentally friendly solvent with no ozone depletion potential, an ultra-low global warming potential (<2) and does not contain any products regulated under F-gas regulations. SF80 is an effective replacement for nPB, TCE, HCFCs, PFCs, HFCs and HFEs solvents, and is becoming known as the leader within a variety of cleaning applications.

Things to consider

- Don't replace one harmful substance with another
- Make sure you comply with F-gas regulations
- Allow plenty of time

For more information on how the nPB ban could affect you and your business please visit us at Surface World 2020 stand C17.

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10th - 11th March 2020, Hall 9, NEC, Birmingham • we have everything covered

THE FASCINATING WORLD OF ELECTROPLATING

[My previous article entitled "Nostalgia" appeared in an earlier IMFormation and looked at some of the earlier equipment used in electroplating, in this series of articles I hope to highlight some of the hidden dark secrets of Electroplating that cannot be found in books or even perhaps the internet Having conducted several Webinars over the past year, I thought that it might be of interest to students as to how I got into Electroplating and how students, who are doing some of the courses, might look to perhaps continue their career in this fascinating subject].

Having reached the great age of 18 (how long ago was that!!!!), I decided that university life was not for me and that I wanted to earn some money and also have something to do with chemistry.

I was living in Birmingham at the time and my mother found an advert in the paper for an junior assistant to help in the Research Department of a chemical supplier known as W.Canning & Co. I duly went along to the interview and was shown around the R&D plating shop, only to have my eyes opened wide by these wonderful coloured solutions bubbling away and electroplating dummy sheets with metal. Blue liquids produced red metal, green liquids produced bright shiny white metal & I thought pure magic. I was offered the job together with a chance to attend day release, to gain advanced qualifications so I was earning money and learning at the same time. (Nowadays this would be called an apprenticeship)

I worked with the departmental head of each section (Copper, Nickel, Chrome, Zinc) and continued my studies learning all the time how organic additives interacted with the solution to produce wonderful shiny deposits.

I stayed in R&D for about 4 years and moved onto technical service and trouble shooting at customers factories and this was when my eyes were really opened.

Everything in the R&D department was very clinical and clean but when it came to the real world, my word, a lot of that went out of the window.

You must remember that back in the late 60's early 70's there was little in the way of "elf & safety" and many of the so called "jobbing shops" were just small units with very little in the way of proper drainage or even rinsing facilities... to say the least wellington Boots were definitely the order of the day.

Most platers wore boots and large plastic aprons and rinsing in manual lines consisted of placing the part in the rinse tank and withdrawing it (and half the water in the tank) all over the floor which was often eaten away by the chemicals that were spilt.

It is fair to say that "platers" were real characters and a lot of them had grown up in the business from young lads but what most of them knew were all the tricks of the trade that you will never find in the Canning Handbook and it is these mysteries that make the subject so interesting.

Next time: "How not to make additions to a nickel bath unless you want to cause further problems than you already have"

- John Burgess FIMF



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What does every product have in common? From a complex aero-engine to a simple saucepan and everything in between – they all have one thing in common: a surface.

Whatever the product, engineers have to carefully consider the surface, taking in various concerns such as design and cosmetic appeal, functionality, wear characteristics, operating environment and longevity.

That's why visiting Surface World Live 2020 is essential for all in the manufacturing sector. This major international exhibition in Hall 9, NEC, Birmingham, on 18th and 19th March, will showcase the very latest in the world of surface coatings; including surface engineering, surface technology and surface finishing – in all its many guises.

This important engineering event enables designers and production engineers to

keep abreast of evolving surface technology, equipment and services – vital in order to remain competitive in world markets.

Surface World Live 2020 is being held in Hall 9 at the NEC which is easily accessible by train, road and air, and offers a wide variety of convenient visitor facilities including accommodation if you want to stay for the duration of the show.

The Institute of Materials Finishing (IMF) are sponsoring the 2020 show. They will be offering a range of seminars on both days and the team will be on hand within the IMF Lounge to assist with any questions or problems you may be searching for answers to.



You can save time and money by seeing every aspect of the surface finishing industry under one roof, over two days, at Surface World Live 2020.

If you would like to pre-register to attend Surface World Live 2020 please visit www.surfaceworld.com to get your FAST TRACK free entry ticket.



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