Due to the current Covid restrictions Exeter House is closed and will reopen on Monday 4th January 2021 providing this complies with Government instructions.
Exeter House Staff will be working from home during this period.

You can email us on:
helen@materialsfinishing.org or **karen@materialsfinishing.org**

OR Telephone **078 763 47787**

Institute of Materials Finishing
Exeter House, Birmingham B1 1NQ
Email— info@materialsfinishing.org
Website— www.materials-finishing.org

IMFORMATION DECEMBER 2020

DIARY

IMF DIARY

DISTANCE LEARNING START DATES

Friday 22nd January 2021

Friday 4th June 2021

Friday 10th September 2021

You may enrol up to 30 days in advance of the start date.

Please note that all course fees must be paid in full before any course materials can be released.

Please contact Karen Yates by email karen@materialsfinishing.org

You can find details of courses and qualifications on our website

UPCOMING WEBINARS

8th December 2020

"Chromium Plating for Engineering Purposes"

UPCOMING SEMINARS

17th February 2020.

Southern Branch Seminar "Learn to Paint a Train?"

Everyone is invited and if you wish to attend any webinar or seminar please contact John Burgess by email JohnB_IMF@btinternet.com

SECRETARY GENERAL'S COLUMN DECEMBER 2020

Where has 2020 gone? As I put this together at the beginning of December I look back on a year unlike any other. And that's not just due to Covid!

2020 started with great hopes, but with some uncertainty as we moved into the transition period for the United Kingdom exiting from the European Union. Now with 30 days to go, even less when you read this, it's still not certain what sort of relationship we will have with the EU – talk about brinkmanship! And it won't be a relationship between the EU and the UK, but with Great Britain, as Northern Ireland will almost certainly be a separate entity!

I've thought all along that any deal with Europe would "go down to the wire", but into the last four weeks of the transition period is in my view "pushing it a bit"!

Whatever trade deal we do or do not establish will bring new challenges for trading with Europe. Even if we get an FTA, there will still be much change and bureaucracy for us all to get our heads around: new customs regulations, different border procedures, and the new chemical regulations under GB REACH. But if there is no deal and we end up with WTO trading?

The thought of GB REACH really worries me. And note that this is now being described as GB REACH, not UK REACH, as Northern Ireland will still be applying EU REACH. Argh!!!

Whilst GB REACH will "Grandfather" most of the EU legislation, all chemicals currently sold to British users will have to be registered again, with initial information having to be supplied by October 2021. This will need to be followed by full information packages, depending upon volumes by up to 2026.

My big fear is that these additional costs, for no additional sales, will cause many suppliers of the smaller volume chemicals to come to the conclusion that re-registration is not commercially viable, and many chemicals will be withdrawn.

On top of all this, we are still trying to cope with confusing requirements for dealing with the Covid pandemic. Coming out of the second English lockdown, and back into the "tier" system, I have to admit to being totally confused. And then having different "rules" in Wales and Scotland: where am I allowed to go and what can I do? And now we're going to have a bit more freedom over five days at Christmas; but what will this do to the infection rate?

I did think the very positive news of the first three successful vaccines would help relieve our Covid gloom; I do hope the authorities approve all these for use, so that we can all look forward to a couple of jabs in the new year and getting back to being able to meet up with people and working in a more usual manner: gosh I'm so fed up with these small four walls!

So, let me wish you all the best possible Christmas holidays that we are all able to enjoy, and my best wishes for a healthy, successful and travelling 2021!

Graham Armstrong
December 2020.

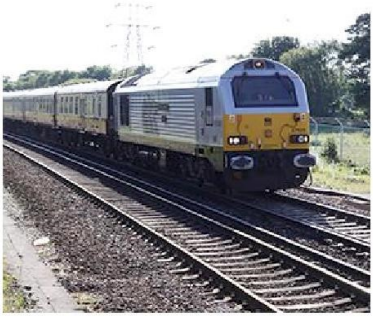
Institute of Materials Finishing
SOUTHERN BRANCH

The Southern Branch of the IMF is holding a "Zoom Seminar" entitled:

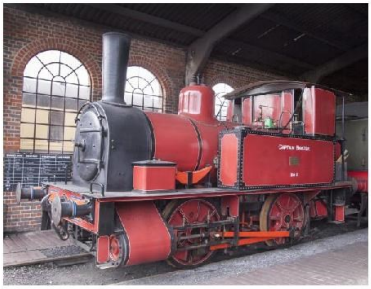
Learn to Paint a Train?

Wednesday 17th February 2021 @ 19-15 hours

There is no charge for this seminar



Painting of Railway Rolling Stock by Mike Booth (Indestructible Paint Ltd)



The Preservation of Heritage Railways by Paul Lansdell (Forest of Dean Preservation Society)

If you are interested in this seminar then please register with either:

John Burgess: JohnB_IMF@ btinternet.com
OR
Helen Wood: Helen@materialsfinishing.org

IMF EDUCATION & TRAINING COURSES

Business Growth Through Skills Development

imf
Institute of Materials Finishing

0121 622 7387
www.materialsfinishing.org

The Institute of Materials Finishing is a leading provider of technical training and skills development for employers and individuals. IMF courses lead to recognised qualifications and cover a wide range of materials finishing and surface engineering applications. IMF tutored courses, distance learning and corporate training underpin business performance and enable profitability.

DISTANCE LEARNING AI

Foundation Module Basic Surface Finishing

Develops fundamental understanding from 29 Units of which a student studies 15, including 7 mandatory units. One of three core technology blocks are chosen, either **Electroplating** (8,9,10 & 18); **Organic Coating** (19, 20, 21, 22, & 23); or **Aerospace Finishing** (19, 21, 23, 24 & 25), each comprising 5 units plus 3 optional units relevant to the student or their employer – all units are listed below.

Two pieces of marked coursework are required and on passing an examination a student is awarded the **Foundation Certificate.**

Unit 1 *	Surface Finishing
Unit 2 *	Corrosion
Unit 3 *	The Environment & Surface Finishing
Unit 4 *	Health and Safety
Unit 5 *	Cleaning and Pre-treatment
Unit 6 *	Sacrificial Coatings
Unit 7 *	Services
Unit 8	Surface Improvement
Unit 9	Principles & use of Electroplating - ***double unit***
Unit 10	Plant and Equipment
Unit 11	Copper, Silver and Gold Plating
Unit 12	Nickel Plating
Unit 13	Chromium Plating
Unit 14	Zinc & Cadmium Plating & Passivation
Unit 15	Electroless Plating
Unit 16	Alloy Plating & Composites
Unit 17	Printed Circuit Board Processes
Unit 18	Electroplating - Care & Maintenance of Solutions & Product Quality
Unit 19	Conventional Paint Processes
Unit 20	Electrophoretic Paint Processes
Unit 21	Paint Application Methods
Unit 22	Coating Powders & Application
Unit 23	Testing Paint & Powder & Coatings
Unit 24	Chemical Conversion Coatings and Sol Gel Coatings
Unit 25	Anodising of Aluminium & Alloys
Unit 26	Vacuum Coating Processes
Unit 27	Duplex Coatings of Galvanising plus Paint
Unit 28	Electroforming
Unit 29	Nanotechnology

** Mandatory units*

On achievement of the **Foundation Certificate** candidates may wish to progress to the **Technician level modules,** please see over the page for details.

ND TUTORED MODULES

Technician Modules

Develops in-depth knowledge for key finishing technologies and their application and best practice methods.

Principles of Electroplating	Broad introduction to electroplating technology
Electroplating Practice	Industrial application of major metals and supporting pre-treatments for electroplating and electroless deposition
Paints, Lacquers & Varnishes	Application methods, equipment, curing, drying and testing of solvent and water based industrial finishing processes
Powder Coating	Application methods, testing, environmental, health & safety topics
Environment, Health & Safety	Legislation information on environmental, health & safety topics
Materials Science	Manufacture, properties and examination of materials which require various forms of coating or treatment to meet service life needs
Automotive Surface Finishing	Applications specific to the automotive industry
Electroforming	How electroforming can be used to manufacture components and tooling

On successful completion of four marked assignments and passing an examination, a student is awarded a **Technician Module** certificate.

Passing two Technician modules leads to the award of **Technician Certificate.**

Passing four Technician modules leads to the award of **Advanced Technician Certificate.**

For more comprehensive details of all modules offered please refer to the IMF website **www.materialsfinishing.org** where you find the full syllabus for each module.

AGM & AWARDS 2020(i)

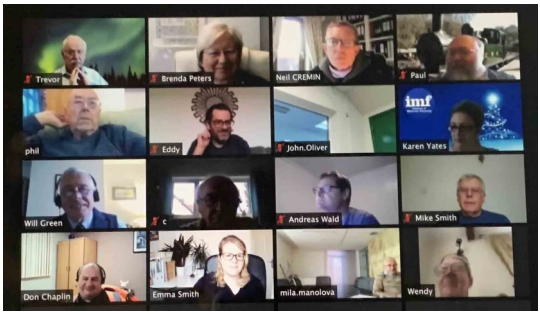
What a year it has been, with Exeter House being forced to close twice Due to Covid we are pleased to say we have remained open throughout working from home.

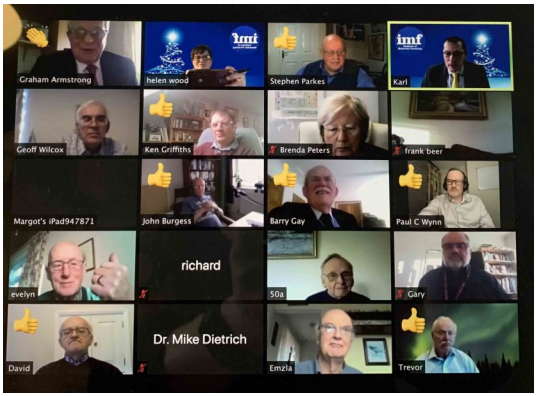
We held our AGM on the 25th November via Zoom; unfortunately this year we couldn't have our usual 'First Christmas Lunch of the Year event' which we all missed but we are please to say the Zoom meeting went really well with a good turn out of members and award winners. Some screen grabs of some of the attendees is included.

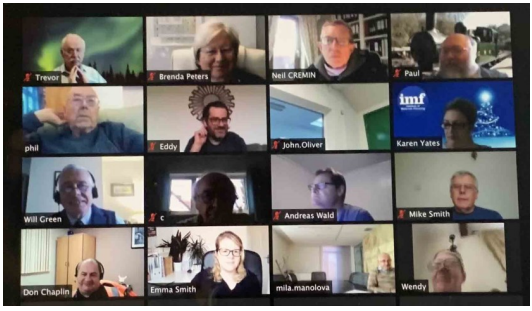
Our President K Ryder hosted the event starting off with the awards for 2019/20 and then getting on with the serious business of the AGM.

The Awards ceremony was "different" with an absence of physical recipients and no hand over or applause but seeing the pleasure from some overseas folk on Zoom was heart warming.

On the following page you will find the list of awards and names of awardees. We congratulate all of them!







2020 Award Winners

CANNING BI-CENTENARY MEDAL

'Measuring business performance in the metal finishing industry by combining theory with practice'.

M.Dietrich and A.Wald

THE WESTINGHOUSE PRIZE

'Electrodeposition of Pd from a deep eutectic solvent system: effect of additives and hydrodynamic conditions.

M.Manolova and R.Böck

JIM KAPE MEMORIAL MEDAL

'Laser texturing as an alternative to grit blasting for improved coating adhesion on AZ91D magnesium alloy'.

S.S.Aulakh and G.Kaushal

PEXA AWARD

"Experimental investigation of mechanical and tribological behaviours for organic and inorganic coatings deposited on mild steel substrate", published in volume 97 number 6 November 2019.

Authors M Abid, M Boujelben, M Kharrat and M Dammak University of Sfax Tunisia.

BEST STUDENT at FOUNDATION LEVEL

Michael Corke

BEST STUDENT at TECHNICIAN LEVEL

Emily Laura Armstrong

UK Team to be world leaders in studying the recovery of gallium from WEEE

A consortium of six UK companies has been awarded funding by Innovate UK for a nine months project to study the opportunities for recovering pure gallium metal from LED lights obtained from Waste Electrical and Electronic Equipment (WEEE). The gallium found in LEDs is in the form of gallium nitride (GaN), which is a high-performance semiconductor and a vital component in LEDs. The project started on 1st November 2020 and will be the first time that gallium will be recovered from End-of-Life components. Currently, gallium is only recovered from material offcuts and shavings.

The commercially focussed consortium comprises: S2S - a circular economy specialist SME with expertise in IT asset recovery and WEEE recycling; Envaqua Research Ltd - a company devoted to the development and implementation of resource recovery technologies; E. C. Williams Ltd – another SME that specialises in electroplating and surface finishing; Recolight – a not-for-profit company that operates over 2,000 collection points in the UK for the collection of waste lamps; HSSMI – a company specialising in advancing innovative manufacturing techniques; and the Institute of Materials Finishing – a charitable organisation that focuses on surface coatings, engineering and related technologies, as well as providing educational courses for the sector.

Gallium nitride is used in an ever-increasing range of applications which currently include lasers and photonic applications (LEDs etc), solar cells, RF (Radio Frequency) power amplifiers, wireless chargers for phones, heart pumps, etc. and light detection systems in autonomous cars. Gallium is also used as a cost-effective substitute for crystalline silicon and in high temperature thermometers and barometers due to its unique property of having the widest liquid element temperature range of any known element, with the liquid phase spreading between 29.8 °C to 2,204 °C. It is widely thought that, as the demand and use of electric vehicles rises, there will be a corresponding increase in demand for gallium, which will also be used in PEMD (Power, Electronics and Machine Drives). Hence, gallium and its compounds will play an increasingly important role in our futures.

LEDs have been known for over a century and the first one was a crystal of silicon carbide (SiC), but it was not until the early 1960s that a visible light LED was developed. These LEDs use materials including gallium arsenide (GaAs), gallium phosphide (GaP) and gallium arsenide phosphide (GaAsP) to make the light-producing process more efficient. LEDs also have carefully controlled amounts of indium or aluminium added, and they can

also be doped with other elements such as magnesium. These dopants result in the generation of coloured LEDs – notably red, orange, yellow and green. LEDs emitting blue light are based on silicon carbide and gallium nitride. The colour and intensity of an LED depends on the combination of materials used and the energy gaps of the positive (p) and negative (n) materials used in the diode. An important part of the project will be to separate out these dopant metals to ensure a high purity output of metallic gallium.

Gallium is not considered to be a precious metal element, but it does command a relatively high value of about £2,500/tonne, (although this does fluctuate). It is classified as a Critical Raw Material by the EU, with the largest producers of gallium being China (80%), followed by Germany (8%) and the Ukraine (5%).

Gallium is found naturally in bauxite (an aluminium ore), which provides over 95% of gallium extraction and in sulfidic zinc ores, as well as some coals. It is usually only found naturally in very low concentrations of less than 50 ppm; this makes it uneconomic to extract as a primary product, but it is recovered from the processing of bauxite to make aluminium and from zinc ores used for zinc production, so its availability is directly linked to demand for other metals. However, where extraction has been considered, it has required the use of highly corrosive and hazardous materials.

To mitigate the use of hazardous extractive processes, this study plans to demonstrate that the more benign Deep Eutectic Solvents (DES), or "Ionic Liquids", will be able to deliver a cost-effective method for recovering high quality gallium metal from the mixture of materials found in LED lights. The consortium is very aware of the challenges it faces but is very confident of success.

UK Business Hero Award

Manchester -based HMG Paints Ltd have been awarded a UK Business Hero Award from the British Chambers of Commerce. Announced by The Greater Manchester Chamber of Commerce, HMG were honoured with the award after converting alcohol stocks into hand sanitiser, to support locally and nationally, during the pandemic.

Supported by BIBBY FACEBOOK Stagecoach

Based on World Health Organisation (WHO) recommended formulations, thousands of litres of HMG's hand sanitiser has been provided to key workers, care providers and charities throughout the COVID-19 crisis. Accepting the award on behalf of HMG Paints Ltd, Managing Director, John Falder said "It is a tremendous honour to receive this award and a recognition of the work the HMG Paints staff have done throughout this turbulent year. Throughout HMG the adaptability and determination of staff has shone through, especially as we switched from making paint to hand sanitiser virtually overnight and doing so in a safe manner. The company of HMG Paints is the people of HMG – and that really is what we're all about, it is not just the people who work at Riverside Works but the wider HMG family and our community and we're proud to have been able to assist those in the essential services, frontline workers and charities who have been working tirelessly during the pandemic."

Greater Manchester Chamber of Commerce (GMCC) announced that HMG Paints Ltd had one the newly established award commenting "The national UK Business Hero awards were established this year to recognise businesses that have gone above and beyond for their local community during the covid-19 pandemic. The awards paytotheir contributions by giving themBusiness Hero stamp, which demonstrates that that they have gone the extra mile to support their local community during the Coronavirus outbreak." Greater Manchester Chamber of Commerce.

Throughout the coming weeks GMCC will be spotlighting the different businesses who received a UK Business Hero award, and hearing from them in their own words what the award means to them. you require further information on the press release, please contact: Gracienne Ikin or Stephen Dyson HMG Paints Communications

The Days I Remember

I was looking the other day at LinkedIn and came across a short video of a company in Turkey who were making up a brass solution (I can smell the cyanide now).

The video showed the bath being made up with warm water and the tin of brass salts being tipped in….no gloves……no protection and I thought that's just how it was when I were a lad learning about the process.

There were lots of comments about "Where is the PPE, Where are your gloves?; admittedly we did have some gloves but protection was at a minimal and we just got on with the job.

Nowadays obviously this would not be allowed but I did reflect on the times when I visited plating shops only to find myself in wellie boots traipsing around in who knows what in the plating shop area.

It was not uncommon for the Plating shop floor to be floating around in water, rinses to be sawn off 45 gallon drums and cleaners to be old chromic acid tins resting on bricks with a gas flame underneath.

The rinses often only had a hose pipe in them and the water allowed to overflow and find its own way over the floor to disappear down some hole in the ground. Where it ended up is anyone's guess.

Obviously not all places were like this but a great majority of "jobbing" platers resorted to this as it was all that could be afforded.

Looking back on it, one can only wonder how it was allowed, but it was, and in my 53 years of plating I only ever remember two serious accidents ever happening.

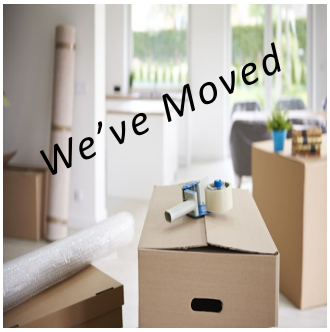
I did enjoy, do I miss it, sometimes but I'm not sure I could work with all the red tape.

J Burgess FIMF

The IMF website has moved and can be found at www.materials-finishing.org

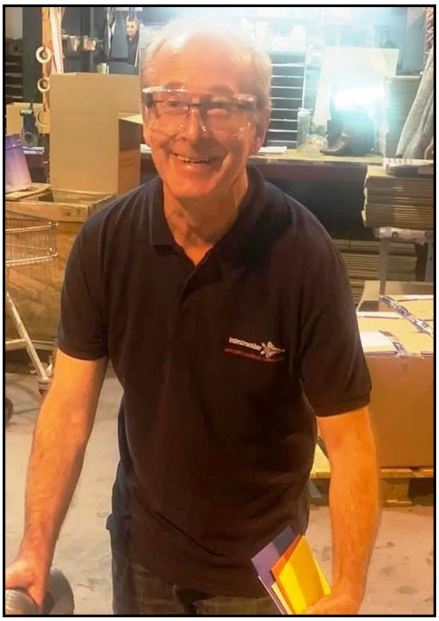
Opening up the new website you will find a completely refreshed appearance and by becoming a member and logging on, the ability to see extra items such as Webinars, Seminars, access to all IMFormation and much more.

So go ahead, type in the new address and look around.



INDESTRUCTIBLE PAINT SAYS THANK YOU AS LONG-TERM EMPLOYEE RETIRES

The importance that Indestructible Paint Ltd. places on building excellent employee relationships has been demonstrated once more with the retirement of key production worker Dave Hammond – after 21 years' service. The Birmingham-based performance paint and coating manufacturer is sending Dave into a well-deserved retirement after his time as a specialist paint maker and colour matcher – a position that plays an important role at the heart of the company's reputation in its field.



"We are hugely grateful to Dave for his input over this time and wish him a long and happy retirement," says Brian Norton, Indestructible Paint's Managing Director. "He leaves as one of several long-term employees – all of whom have been with us for more than 20 years. This, itself, pays testimony to our belief in building long-term relationships with people without whom we could not have enjoyed so much success over the years."

"It will be nice to put my feet up – and I certainly won't miss the commute around Birmingham – but I am sure I will miss everyone I have worked with," says Dave Hammond. "There is a real sense of belonging to a team that is expert at what it does and, I am sure, Indestructible Paint will continue to grow and thrive long into the future."

Issued on behalf of –
Indestructible Paint Ltd.
Contact : John Bourke
Tel : 0121 702 2485
Email : johnb@indestructible.co.uk
Website : www.indestructible.co.uk

Oxford nanoSystems

The Role:

We are currently looking for a **Senior Process Engineer** for an initial 6-month contract. The role will involve.

- Working with our research chemists and mechanical engineers to raise the production readiness of our coating processes
- Defining, optimising and documenting the coating processes.
- Developing and optimising designs and specifications for production-scale plant, working with external equipment suppliers and process design consultancies as needed
- Developing capex and opex models for production-scale plant and processes.

The Company:

With world-wide use of air conditioning and other energy-hungry cooling systems growing year on year, the demand on global generating capacity is becoming significant. Today, cooling systems alone emit 7% of total GHG and consume 17% of worldwide electricity, numbers projected to double by 2030. New technologies are urgently needed to reduce the impact of these systems.

Oxford nanoSystems develops advanced and highly innovative coating technologies that enable heat exchangers to be made smaller, lighter and more efficient – and at lower cost. Our mission is to drive improvements in the cost and environmental impact of cooling, heating and energy recovery systems.

We are looking for a talented, motivated and self-directed process engineer to join our informal, innovative team.

Candidate Profile:

The ideal candidate will be degree qualified in chemical/process engineering; a chartered professional registration would be viewed as advantageous.

Main Duties and Responsibilities:

- Collaborating with R&D personnel, supply chain, project engineering and external parties to coordinate and drive process development and scale-up projects
- Assessing processes and interpret data to understand and specify production coating parameters
- Defining and documenting coating processes using accepted industry practices
- Leading on the creation of process engineering deliverables for the design of large-scale plant, including scope, H&MB, and equipment specifications
- Identifying and developing working relationships with equipment manufacturers, technology providers and material suppliers to create supply chain for future plant operations
- Design and develop robust processes of control, routines and other solutions to optimise production rates and quality of output
- Assessing and addressing safety and environmental issues
- Provide regular monitoring and feedback to the CTO.

Skills and Experience:

- Ideally have experience in the scale-up of relevant process technologies such as wet chemistry and flow processes
- Experience in electroplating, electroless processes and water purification
- Developing, configuring, and optimizing industrial processes from inception through to start up and certification
- Have had experience in process development programmes
- Knowledge of process related standards
- Proven history in improving supply chain efficiency
- Experience with design of large-scale process equipment
- Track record of meeting targets within budget, with focussed results

Apply Now:

Please email your CV and cover letter outlining your interest in this role to recruitment@oxfordnanosystems.com

Please ensure that you have the right to work in the UK before applying to work with us. We are based in Abingdon, Oxfordshire and the role requires you to be on site but some home working would be acceptable.

SURFACE WORLD LIVE

SUPPORTED BY THE INSTITUTE OF MATERIALS FINISHING - we have everything covered

Revised dates:12th and 13th May 2021, NEC, Birmingham

SURFEX

The complete event for surface & coatings technology

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8-9 June 2021
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THE Advanced Materials SHOW

New dates confirmed:
7th & 8th July 2021
NAEC Stoneleigh, Coventry, UK

Find out more

www.advancedmaterialsshow.com

ADVANCED ENGINEERING 2021

3rd & 4th November 2021 at the NEC

MACH

4-8 April 2022
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