ALUMINIUM NEWS

THE VOICE OF THE UK ALUMINIUM INDUSTRY

ISSUE 10 SEPTEMBER 2021

ALFED
ALUMINIUM FEDERATION

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CONTENTS

Front cover image: TOMRA Recycling. A collaboration between Centro Rottami, Indinvest LT and TOMRA Recycling boosts aluminium recycling in the Italian province of Latina.

ABOUT US

CEO -
Tom Jones
e: tjones@alfed.org.uk

Training & Education Manager -
Kathy Romback
e: kromback@alfed.org.uk

Technical Manager -
Jan Lukaszewski
e: jlukaszewski@alfed.org.uk

Administration Manager -
Margaret Lane
e: mlane@alfed.org.uk

Marketing & Comms Manager -
Kirsi Lintula
e: klintula@alfed.org.uk

Accountant -
Karen Williams

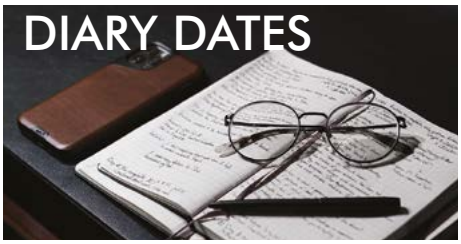
CONTACT US

Suite 9, Alcora Building
Mucklow Hill, Halesowen,
West Midlands B62 8DG
Tel: +44 (0)330 236 2800
www.alfed.org.uk

FOLLOW US

linkedin.com/alfed-aluminiumfederation
twitter.com/alfedaluminium

DIARY DATES



SEPTEMBER

21	ALFED Recycling Sector Group (members meeting)
22	ALFED Board Meeting
23	ALFED Health, Safety & Environment Support Group (members meeting)
28-29	World of Aluminium (training course)
30	Production of Aluminium & Global Demand (webinar)

OCTOBER

5	ALFED Health, Safety & Environment Conference (open to all)
5, 12, 19, 26	Digital Sales Programme (6 sessions) (training course)
11	ALFED Finishing Sector Group (members meeting)
13	Aluminium Distribution Sector Group (members meeting)
14	Wrought Aluminium & Applications (webinar)
28	Heat Treatment of Aluminium (webinar)

NOVEMBER

2 & 9	Digital Sales Programme (6 sessions) (training course)
3-4	Advanced Engineering Show (exhibition)
11	Elastic & Plastic Behaviour of Metals (webinar)
15-18	Aluminium for Engineers (training course)
24	Production of Wrought Aluminium (webinar)
25	ALFED Annual Dinner/ASA Dutch Party & Members Briefing (open to all)
30	ALFED Extrusion Sector Group (members meeting)

DECEMBER

1	ALFED Recycling Sector Group (members meeting)
7	ALFED Health, Safety & Environment Support Group (members meeting)
9	Extrusion (webinar)
9	ALFED Board Meeting

FOR MORE INFORMATION PLEASE VISIT:

EVENTS:
www.alfed.org.uk/aluminium-federation-events/

TRAINING:
www.alfed.org.uk/alfed-training/training-with-alfed/#ourcourses

MEMBERSHIP

ALUMINIUM FEDERATION IS THE VOICE OF THE UK ALUMINIUM INDUSTRY

The Aluminium Federation represents businesses who process, trade and work with aluminium. We foster innovation, promote best practice, develop skills and champion member interests. From training and networking to research, advocacy, lobbying and outreach, we help our members solve problems, capitalise on opportunities and boost their competitiveness.

As a member, you become part of an influential community, getting your voice heard within the industry and at the highest levels of government. Working together, we are actively driving UK aluminium forward - and we look forward to working with you in this endeavour.

COLLABORATION:

We bring together recycling and secondary producers, extruders, finishers and stockholders – helping everyone involved in UK aluminium make connections for mutually beneficial business and supply development.

INNOVATION:

You benefit from a range of services that help you stay at the cutting edge. From research and development through to industry benchmarking and technical support, you get insight that assists you to develop your business.

OPPORTUNITY:

We give you a unique opportunity to get your voice heard - within the industry and in government. Whether you're a global company or an SME, you can advocate and influence to improve market conditions for your products and services.

MEMBER BENEFITS:

Benefit from a range of services that help you develop your business, workforce and supply chain:

- Advocacy & lobbying
- Market insight
- Training
- Technical support
- Consultancy from energy management support to bespoke training, coaching and e-learning
- Events
- Influence & Policymaking
- Shared Learnings & Networking
- Savings & Partnerships

WHY JOIN THE ALUMINIUM FEDERATION

Whatever your company size or speciality within the industry, we help you access the technical expertise, market insight, business support and government influence you need to boost your competitiveness.

We offer different levels of membership based on your business size – so it's both affordable and valuable.

"As an ALFED member, you get your voice heard. We're a small metal finishing company, but I get my voice heard very loudly. When I was the ALFED President, this gave me influence at a high level with government – I was routinely on calls with ministers and civil servants. And I had my voice heard even before I was president. In 2004, the British standard changed to an EU-wide one that was much weaker. I campaigned to change it, and as an ALFED member, I had a say via the Finishing Group. I got my opinions over, and the standard is now changing. It was a real success for our business."

Giles Ashmead, Director, Powdertech

CONTACT US TO DISCUSS HOW ALFED MEMBERSHIP CAN HELP YOUR BUSINESS

T: 0330 236 2800

www.alfed.org.uk

ALFED
ALUMINIUM FEDERATION

EVERYTHING WE DO FOCUSES ON HELPING UK ALUMINIUM BUSINESSES CAPITALISE ON OPPORTUNITIES

CLIMATE CHANGE IS THE GREATEST RISK FACING US ALL

Are free markets critical to tackling climate change, enabling the free flow of information and proliferation of green technology, challenging the narrative that free trade is a threat to the environment?

Around the world storms, floods and wildfires are intensifying. Air pollution sadly affects the health of tens of millions of people and unpredictable weather causes untold damage to homes and livelihoods too.

The impacts of climate change are devastating, however advances in tackling it are leading to cleaner air, creating high value jobs, restoring the balance of nature and at the same time driving economic growth.

The Board of Trade 'Green Trade' report (https://bit.ly/2VPwfZD) outlines the role of free trade and free-markets can play in accelerating the global transition to a low-carbon economy, challenging green protectionism and unleashing economic growth. It demonstrates how green trade presents a major economic opportunity for Britain that will drive high-value jobs and sustainable growth into every part of the country.

UK CLIMATE LEADERSHIP AT COP 26 (https://bit.ly/3s6WDdj)

The UK has a lot to be proud of when it comes to acting on climate change, we have shown that climate action can go hand-in-hand with economic growth. Between 1990 and 2019, we achieved record clean growth. In that time, our economy grew by 78% and our emissions decreased by 44% over this time, the fastest decline in the G7.

The UK presidency objective at COP 26 will be to achieve four goals (https://bit.ly/3s8Plps)

- Secure global net zero by mid-century and keep 1.5 degrees within reach
- Adapt to protect communities and natural habitats
- Mobilise finance
- Work together to deliver

Countries are being asked to come forward with ambitious 2030 emissions reductions targets that align with reaching net zero by the middle of the century. These countries must agree on ambitious targets and goals, above all agree to work together to deliver the green industrial revolution.

ALUMINIUM – DRIVING A SUSTAINABLE FUTURE

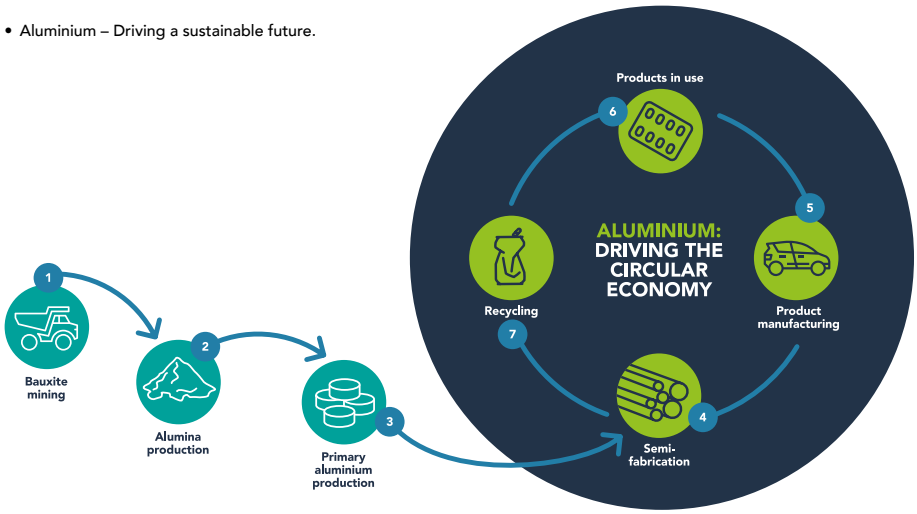
As a lightweight and highly recyclable material, aluminium is a key contributor to the UK's low-carbon economy. Its role will continue to expand as industries contribute towards the Government's green growth ambitions and 2050 net zero targets. From providing alternatives to single-use plastics to supporting more sustainable transport, aluminium is boosting recycling, driving the circular economy, and helping reduce carbon emissions.

ALFED have outlined a roadmap for boosting sustainability within the UK aluminium sector focusing on three pillars – decarbonisation, sustainable sourcing, and the circular economy. We look at ways in which those who process, trade and work with aluminium can harness sustainability as a competitive advantage, for the sector and for UK industry more widely.

However, aluminium is a global sector with global supply chains. In addition to these UK-specific sustainability goals and actions, the Aluminium Federation will continue collaborating with European Aluminium, the International Aluminium Institute, the Aluminium Stewardship Initiative and other organisations worldwide, aligning our approach with worldwide efforts to boost sustainability across the value chain. (https://bit.ly/3iCsShh).

Tom Jones
CEO
Aluminium Federation

- Aluminium – Driving a sustainable future.



THE ALUMINIUM INDUSTRY EVENT OF THE YEAR:
ALFED ANNUAL DINNER & ASA DUTCH PARTY AND BUSINESS BRIEFING - 25TH NOVEMBER 2021

SOLD OUT

ALFED Annual Dinner & ASA Dutch Party and Business Briefing is a highlight in the ALFED calendar - and this year more than ever we will appreciate the opportunity to reconnect once again with industry colleagues and friends. The last dinner in 2019 was attended by about 200 aluminium industry professionals offering an excellent networking opportunity.

GUEST SPEAKER:

Our after-dinner speaker this year will be **Matt Dawson, MBE.** Matt's early career was spent as a successful international rugby player, playing for the Northampton Saints and London Wasps between 1991 and 2006. Matt toured three times with the British and Irish Lions as well as being part of England's 2003 Rugby World Cup winning side. Since retiring from Rugby, he has forged a successful career in television and media which continuesto play an important role in his life whilst also making a successful transition into the corporate world.

VENUE:

The dinner will be held at the at the superb De Vere Tortworth Court. Situated just north of Bristol and easily accessible from the motorway, Tortworth Court is a historic hotel in stunning surroundings – a place where a centuries-old story meets an exceptionally modern experience.

BUSINESS BRIEFING:

A programme of industry speakers offering new insights on transformation, innovation and strategy in our current climate.

Business Briefing and lunch finishing mid-afternoon, followed by the Annual Dinner.

This event is free to attend and there are still places available. Open to ALFED members and those who are also attending the dinner in the evening. Reserve your place at bit.ly/3bJJSyg

TIMINGS:

11.00 Arrival & Networking, Business Briefing & Lunch

18.30 Welcome Reception

19:00 Dinner

DRESS CODE:

Black tie

ENQUIRIES:

Telephone: 0330 236 2800 or email: alfed@alfed.org.uk

ALFED BUSINESS BRIEFING PROGRAMME:

11.00 Welcome –
Clive Bush, ALFED President, Aluminium Federation

Aluminium market overview –
Paul Williams, Head of Aluminium, CRU Group

Global outlook –
Anissa Chabib, Economics, CRU Group

Department for Business, Energy & Industrial Strategy (BEIS) update –
Speaker to be confirmed, BEIS

The view from Europe –
Dr Gerd Gotz, Director General, European Aluminium

13.00 Lunch and networking

14.00 Aluminium Stewardship Initiative update –
Chris Bayliss, Director of Standards, Aluminium Stewardship Initiative

Aluminium and sustainability –
Christian Mildner, Head of Corporate Sales, and Alice Lim, Associate in the CEO office (sustainability and corporate strategy), London Metal Exchange

Grant funding for ALFED members and what it means for next 12 months –
James Edgar, Senior Manager Innovation Incentives, Ernst & Young LLP

15.30 Closing remarks

Reserve your place:
bit.ly/3bJJSyg

SPONSORS OF THIS YEAR'S DINNER

PLATINUM SPONSORS:

Arzyz

GOLD SPONSORS:

Aluminium Shapes

Ernst & Young LLP

SILVER SPONSORS:

Aluminium International

Amari Metals

Future Aluminium Forum Digital

London Metal Exchange

Real Alloy

BRONZE SPONSORS:

AES Metals

Isle of Harris Distillery

Metalogic

ALUMINIUM - THIRST FOR KNOWLEDGE

A key ALFED objective is to constantly bring new knowledge to our members to fundamentally stimulate innovation. These include such as technical, industry, process and product development:

- Holistic information, on topics outside the core expertise of the aluminium industry, energy, employment law and legal support.
- Insights and analyses of the global aluminium industry, that of UK industry, including product demands.
- Identify opportunities for aluminium as a strategic metal in emerging technologies, such as electro-propulsion and hydrogen as an energy store.

ALFED has created Knowledge Partnerships with universities, specialist providers, market analysis organisations and other trade bodies, to provide expertise, new thinking, and intelligence, to compliment that of the ALFED team and indeed wider membership. Knowledge Partnerships are dynamic, interactive, and reciprocal so partners bilaterally support each other and share information.

Aluminium is becoming the global designer's dominant choice, substituting, displacing other metals, steel, materials, plastic and even wood/paper. Global growth in aluminium is unprecedented, 30% since the millennium, with total predicted primary and secondary production of 95 million tons this year.

ALFED provides lectures to our knowledge partner universities; educating, cultivating, and nurturing the next generation of technologists and designers. Education includes that of the lecturers, identifying new course opportunities and topics for research.

Reciprocally ALFED is supporting knowledge partners bids for research funding, involving our members in collaborative research projects and participation in advisory bodies.

Increased comprehension of aluminium is creating new applications in cryogenics, in nuclear (aluminium is transparent to neutrons), in super microscopes and not least semiconductors. Research into new and higher strength alloys is phenomenal, with the creation of exciting new aluminium strontium alloys, bimetallic components and even High Entropy Alloys. Knowledge partners are changing the frontiers of metallurgy.

ALFED facilitating the collaboration between our knowledge partners has led to the automotive industry evolving aluminium fore front lightweight and decarbonising strategies.

Global warming has focused humanity on the veracity of Maslow's hierarchy of needs, climate, food, architecture, housing, transport, energy production and the finite resources of earth, decarbonisation is the elixir and aluminium is the epitome of the circular economy. Knowledge partners are active within the entire hierarchy. Specific work is ongoing into the circular economy, packaging, material and alloy sorting technologies and recycling. The aluminium industry is facing the transition from gas to renewal electricity process heating, another knowledge partner expertise.

ALFED KNOWLEDGE PARTNERS

- Advanced Forming Research Centre
  www.strath.ac.uk/research/advancedformingresearchcentre/
- Bartlett School of Architecture (University College London)
  www.ucl.ac.uk/bartlett/architecture/
- British Safety Industry Federation
  www.bsif.co.uk/
- Brunel University London
  www.brunel.ac.uk/research/Centres/BCAST
- Burchill GC
  www.burchillgc.com/
- Coventry University
  www.coventry.ac.uk/
- CRU Group
  www.crugroup.com/
- Energy Management
  www.energymanagementltd.com/
- HanaTech
  www.hana-tech.co.uk/
- Institute of Materials Finishing
  www.materials-finishing.org/
- Make UK
  www.makeuk.org/
- Science and Technology Facilities Council part of United Kingdom Research and Innovation
  www.stfc.ukri.org/
- Swansea University
  www.project-metal.co.uk/
- The Society of Motor Manufacturers and Traders
  www.smmt.co.uk/
- The University of Sheffield
  www.sheffield.ac.uk/materials
- The Welding Institute
  www.twi-global.com/
- University of Warwick
  www.warwick.ac.uk/
- University of Wolverhampton
  www.wlv.ac.uk/

BARNSHAW SECTION BENDERS

With the greatest capacity range in the UK, Barnshaws is uniquely able to provide unrivalled metal bending solutions to the construction, architectural, oil and gas, mining, transport, engineering and other sectors.

With locations in the Midlands, Manchester, Hamilton and Poland and an outstanding track record since 1969, no project is too small or too challenging. Their goal is to always provide unbeatable service and turnaround, irrespective of scale.

Whether your requirements are for high volume standardised products to meet demanding timescale and logistical schedules, or one-off bespoke components, you will find their Customer First ethos both refreshing and the ideal way of building long term collaborative partnerships that yield exceptional results.

Sylwester Twardowski, Head of Engineering comments: "By becoming a member of ALFED, we have access to relevant training, innovative technical support and much more to help the Barnshaws team better understand our customers' needs in this sector. In addition, it will help us to better recognise industry trends, needs and other ways to deliver value to our customers."

www.barnshaws.com

ALIDECK

AliDeck is a UK company that is part of the Milwood Group, aluminium extrusion specialists that have been in the industry for over 25 years. They launched their first patented aluminium decking system in 2016 and have since developed and expanded their range of aluminium metal decking due to popular demand.

They are well equipped to supply in bulk and keep over 100 dies and profiles in stock ready to dispatch on demand. This includes their full range of aluminium metal decking boards, deck platforms, aluminium planters, stair profiles and subframe systems.

They continually improve their systems and products to make sure they offer the best service and decking systems available in the UK. Their customer-focused ethos is what drives them to be the very best to ensure you come back to them time and time again.

www.alideck.co.uk

ALUTRADE

They are one of the largest independent recycler of aluminium extrusion scrap and used beverage cans (UBC) scrap in the UK. They handle 10,000+ tonnes of UK extrusion production a year.

They provide aluminium scrap recycling at highly competitive prices. And thanks to their 17-vehicle fleet and extensive facilities, they offer tailormade services and 24-hour UK collection.

They are the best at what they do. And they do it all from their 100,000 sq ft site in Birmingham, the heart of the Midlands manufacturing industry.

www.alutrade.co.uk

ECODEK

Adek is a lightweight, non-combustible, A2FL-s1 fire rated, decking system which has been designed with the practicalities of everyday living in mind. Not only does it meet all the safety requirements for high rise balconies, roof terraces and walkways it is also simple to fit, either on-site or off-site.

Manufactured from 100% recycled aluminium with a durable decorative coating that provides both excellent slip and wear resistance, means that the system easily stands up to the rigours of everyday living.

The Adek Enhanced Grip range has been specifically developed to provide exceptional levels of grip in wet and dry conditions. Both the Adek Comfort Grip and Adek Enhanced Grip have achieved a classification of low slip potential when tested to BS7976-2. However, Adek Enhanced Grip provides an additional 15% grip in dry conditions and an additional 20% grip in wet conditions, over and above the Adek Comfort Grip range proving it really is an enhanced grip decking system.

Adek has been designed, engineered and evaluated by a cross-functional team of technical manufacturing experts at Ecodek and parent company Epwin Group PLC, who have a long established reputation for supplying decking into commercial high-rise buildings.

www.adek-aluminium-decking.co.uk

KEEN

Keen undertakes design and engineering projects.

They lead and project manage consortia in areas such as the UK aluminium industry, UK battery technology and manufacturing centre, 3D visualisation and BIM, aluminium product design with clients such as Apple in Cupertino and Europe, Armani, Dyson, the Design Council, with construction and property companies such as CBRE, Censervit, Carillion and Skanska, the UK Government Infrastructure and Projects Agency, resolving technical, commercial and operational issues, including developments in applied AI and augmented reality.

BACALL, initiated in 2015 by Keen Ltd, is a consortium for the sourcing of ultra-low carbon aluminium sheet in the UK, with industry, trade association and governmental stakeholders. In 2020 Keen authored Sustain Aluminium, an industry wide strategy for decarbonising and expanding the UK aluminium industry which was subsequentially proposed by the Aluminium Federation to UK Government.

www.keen.biz

LEVOLUX

Levolux combines decades of experience in the construction sector with the latest innovations in building design to bring their clients high performance solar shading, balcony and façade solutions. They engineer their products to provide you with value across the project life cycle, which may include design, supply and installation.

Levolux has a proven track record of innovation and solution development, with origins stretching back to 1834 with simple shopfront awnings. Today, their technical façade solutions are fully integrated, wholly intelligent and somewhat more advanced. Their products have been installed on many iconic projects across the UK and throughout North America.

They offer their clients a flexible range of service levels – including supply only, design and supply or design, supply and install - to ensure everyone who partners with them derives maximum value from their involvement.

www.levolux.com

RUSAL

RUSAL is a leading company in the global aluminium industry, producing metal with a low carbon footprint. 90% of the company's aluminium is produced from renewable electricity, and by implementing innovative and energy-saving technologies RUSAL is able to reduce greenhouse gas emissions at all production stages. This has enabled RUSAL to become one of the first in the world to master the production of 'green' metal under the ALLOW brand.

www.rusal.ru/en

UK PROFILE COMPONENTS

UK Profile Components have many years of experience in providing a vast range of aluminium services making them the perfect fit for clients from many industries, from construction and engineering to retail and marketing.

When it comes to design, they have the knowhow to provide the best solutions in aluminium extrusion and they have the highest regard in protecting your design rights.

Working closely with their clients UK Profile Components can help design, plan and deliver excellence in the realisation of many projects.

Their aluminium extrusions have been commissioned for both inside and outside signage, interior display units, automotive and aerospace products.

Using the latest CAD software, they can provide bespoke solutions making them the ideal choice for unique display requirements such as museum and gallery and point of sale products that are both decorative and functional.

www.lovealuminium.co.uk

THE REFILL PROJECT

On World Refill Day 2020 the Isle of Harris Distillery marked the occasion by launching a new Isle of Harris initiative called 'The Refill Project'.

As a growing business in a beautiful corner of the world they not only feel a genuine connection to nature but realise and accept there are responsibilities which inevitably come with this.

The Refill Project is another step in the right direction as they begin to experiment with more innovative ecological ideas.

So, to begin with the distillery is exploring the potential of aluminium as a high-quality packaging material with exceptional recyclability, lightness, and excellent carbon footprint figures.

At a smaller 500ml size, their new aluminium refill bottle is designed to top up the iconic glass Isle of Harris Gin bottle before it is empty, so customers never run out of their favourite island spirit again.

The new bottle is only available online through a limited annual subscription service initially, as they test the waters. But as demand grows, they plan to introduce more ways to get hold of one.

As The Refill Project progresses, the distillery will be doing more to mitigate environmental impacts, not just for their island, but for all who value the planet.

It will not be easy, they may often fall short. But, they have pledged they will make every effort to be a better, greener business when and where they can.

So why not 'Subscribe to Sustainability' with a year's supply of Isle of Harris Gin, and never run out?

For further details contact:
Kath MacDonald
Commercial Manager
E: corporategifting@harrisdistillery.com
T: +44 (0) 1859502212
www.harrisdistillery.com

ISLE OF HARRIS DISTILLERY

NEW HYDRO £5M INVESTMENT - PAINTING LINE

Hydro Aluminium UK Ltd have a new £5 million painting line driving sustainability and creating jobs at our Gloucestershire production site.

At Hydro we continue to push our ambitions for a sustainable future and to increase our capacity for the highest quality production for our offerings including extruded profiles, automotive components and fabrication.

Our latest development sees our automotive components facilities introducing a modern automated painting line with a total investment of over £5 million fine tuned to highlight our quality and sustainability. The development see's us bring work to our Gloucester site which would historically have been sent to mainland Europe, reducing the travel associated CO2 footprint whilst also creating 12-15 new jobs.

The new painting line, mainly serving the automotive industry for roof rails and trims, is also applicable for a variety of products, supporting our label of a 'one stop shop' which allows for better process control, reduced lead times, less manipulation damage and less working capital.

Within a brand new extension building, the painting line features 2 painting cabins with options for double layer applications, an environmentally friendly pretreatment and a powder painting line. We're also now able to control the air quality of application to further control quality, boost performance and reduce contamination.

www.hydro.com/en-gb

Hydro
Industries that matter

WELCOME TO OUR NEW BOARD MEMBER GEOFF SCAMANS

Geoff Scamans (right) is a Professor of Metallurgy at Brunel University and is the Chief Scientific Officer at Innoval Technology. His expertise is in aluminium alloys and their applications in the automotive and aerospace industries and in knowledge transfer from the research base to industry.

His main interests are in developing higher performance recycled aluminium alloys and in the closed loop recycling of end-of-life aluminium scrap in order to transform the aluminium industry from primary to secondary production dominance.

He has developed and managed a significant number of Innovate UK supported collaborative R&D projects on the sustainable use of aluminium sheet, extrusions and castings in industrial applications with, for example, automotive OEMs. These collaborative projects span applications from transportation to construction, packaging and energy with a core theme of full metal circulation. These have delivered major technological advances, including the development of high-performance alloys with excellent mechanical properties and structural integrity that can be fabricated using 100% recycled scrap content.

Read more: https://bit.ly/3j9TvKT

ADVANCED ENGINEERING IS BACK IN 2021

The UK's leading annual gathering of engineering and supply chain professionals, Advanced Engineering, will return to the NEC, Birmingham on November 3 and 4, 2021. Here, the UK's talented and vast engineering industry will come together to generate business.

Bringing together thousands of attendees from OEMs, tier 1 manufacturers, and supply chain partners, Advanced Engineering is the UK's leading annual advanced engineering and manufacturing event, promoting supply chain business and technology transfer across a vast range of sectors.

The show, which attracted over 10,000 visitors in 2019, highlights all aspects of engineering, from materials and production, design, test and measurement and inspection from sectors including aerospace, automotive, composites, marine, medical and more.

Visit the exciting new Space and Satellite zone, supported by ADS and UK Space, with innovative feature exhibits and headline topics in the Aero and Space and Satellite Forum. For the first time, Advanced Engineering will be co-located with its sister show, Lab Innovations. A long-awaited opportunity, visitors can move between the two shows without even leaving the hall.

The show offers a diverse range of exhibitors the opportunity to showcase their expertise, and offers engineering professionals the opportunity to source new products and solutions, and hear from a wide range of speakers in the free-to-attend open forums. To confirm your place at the show visit advancedengineeringuk.com, and register with the code 7025.

We look forward to having you at the show in November.

The Aluminium Federation recently formed a 'Knowledge Partnership' with Burchill GC. John Burchill of Burchill GC is a barrister with 30 years' experience of working as a lawyer, director and general counsel for a range of businesses.

He has advised on most business issues including negotiating contracts, managing disputes, advising on joint ventures and buying and selling businesses, handling employment and related people issues, advising on property matters and a wide range of other business, board and leadership issues.

We are delighted that John will run **a monthly legal and business affairs surgery on the first Friday morning of each month (9.00 – 12.00).** During these hours ALFED members can call John for on-the-spot free input and advice by phone.

Each call should take no more than 15 minutes. If you require more time, input and substantive advice, you can deal with John on a direct basis.

The next surgery will take place on Friday 1st October (9.00-12.00).

Please contact the ALFED team for further details. Tel: 0330 236 2800. Email: alfed@alfed.org.uk.

ASI CERTIFIES REAL ALLOY PLANT AND EUROPEAN HEADQUARTERS AGAINST ASI PERFORMANCE STANDARD

REAL ALLOY has achieved ASI Performance Standard certification for the recycling of aluminium scrap and production of recycled Aluminium alloys at its Deizisau, Germany plant, as well as at its European Headquarters in Grevenbroich, Germany. The plant produces alloys to specification by converting aluminium scrap into liquid metal which is delivered directly to customers´ foundries.

Aluminium Stewardship Initiative (ASI) recently announced that REAL ALLOY has been successfully certified against the ASI Performance Standard for responsible production, sourcing and stewardship of aluminium at its plant in Deizisau and European Headquarters in Grevenbroich, both in Germany. The plant delivers specified recycled aluminium alloys directly as molten metal to a range of customers, primarily from the automotive industry sector.

The ASI Certification program was developed through an extensive multi-stakeholder consultation process and is the only comprehensive voluntary sustainability standard initiative for the aluminium value chain. The ASI Performance Standard defines environmental, social and governance principles and criteria, with the aim to address sustainability issues in the aluminium value chain. It sets out 59 criteria under the three sustainability pillars of Governance, Environment and Social, which address key issues such as biodiversity, Indigenous Peoples rights, and greenhouse gas emissions.

The independent, third-party audit of the REAL ALLOY plant and European Headquarters was carried out by TÜV Rheinland Cert GmbH.

Russell Barr, Executive Vice President and Managing Director, Europe said, "We are proud to have achieved this first certification according to the ASI Performance Standard, especially since it includes not only our Deizisau site but also the central functions, policies and processes administered by our European HQ. Since we joined ASI it has become more and more important for us to understand and properly manage our sustainability footprint. Preparing for and going through the audit was both challenging and inspiring. And we see it as another successful step on our to-be-continued sustainability journey."

REAL ALLOY

3M Science. Applied to Life.™

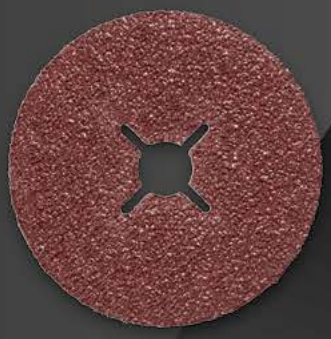
Up to 71%** reduction in airborne particles

Up to 91%* reduction in vibration

Up to 75%* reduction in noise energy

Reduce your abrasive risks and boost productivity with 3M™ Cubitron™ II abrasives.

3M™ Cubitron™ II Fibre Disc 982C significantly reduces exposure to hand-arm vibration, airborne particles and noise hazards compared to a traditional bonded grinding wheel.*



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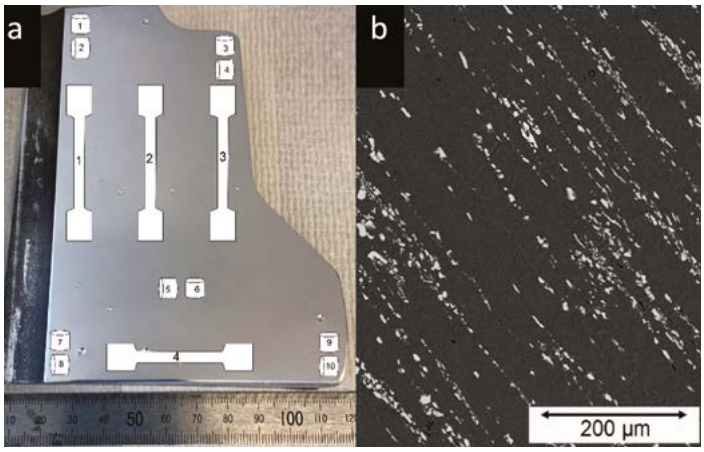
*Noise and hand-arm vibration compared 3M™ Cubitron™ II 982C fibre disc to a traditional grinding wheel – according to independent testing by Fraunhofer Institute.
**Airborne particles compared 3M™ Cubitron™ 982C fibre disc to a 3M™ High Performance Grinding Wheel – according to independent testing by VITO.

DETECTION OF LOCALISED VARIATIONS IN THE MECHANICAL PROPERTIES OF A FORGED ALUMINIUM PART VIA PIP TESTING

Profilometry-based Indentation Plastometry (PIP) is a novel mechanical testing methodology developed at Plastometrex.

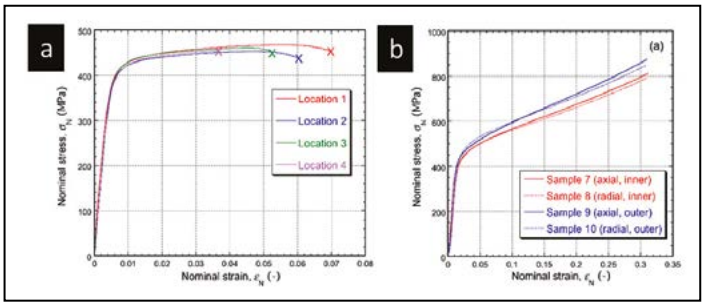
The method uses an inverse finite element methodology to generate stress/strain curves from a 3-minute indentation test. The method is deployed through the benchtop Indentation Plastometer device and supporting software package, SEMPID. The Indentation Plastometer is able to extract stress/strain data from all the common engineering metals and their alloys. It can also be used to test small samples and whole components.

In this case study Plastometrex use PIP testing to characterise the variation in plasticity across a forged Aluminium part. The microstructure of the part was unusual and varied somewhat between different locations. A significant volume fraction (~7 %) of second phase was seen, in the form of relatively coarse (~5-10 μm) precipitates. These were identified by X-ray diffraction as Fe0.7Ni1.3Al9. They showed a strong tendency to: (a) align so that their longer axis was in a particular direction and (b) be collected into parallel sets of "stringers" - see Fig.1b. Such a structure is indicative of large plastic strains being imposed in the direction concerned. The component was probably produced in a two stage process, being initially cast to a suitable shape and then forged, with the magnitude and directionality of the plastic strain varying between different locations.



- Fig.1a. Photo of the Al forging showing locations from where tensile and compress Fig.1b SEM micrograph of the Al forging.

Tensile samples were taken from the locations shown in Fig.1a. Tensile stress/strain curves are shown in Fig.2a, with labels corresponding to the locations shown in Fig.1a. These curves are all very similar, with a yield stress of around 420 MPa and a UTS value of about 450 MPa. It's also evident that there is little systematic difference between the individual curves. This is unsurprising in view of the information in Fig.1a. These tensile tests were interrogating relatively large volumes of material, over which the local variations would probably have had little effect. Illustrative compressive stress-strain curves are shown in Fig.2b. These relate to two pairs of samples, both from the base region, one near the inner surface and one near the outer surface – see Fig.1a. Even on the (relatively coarse) scale of compression samples, significant variations are apparent. The yield stress is noticeably higher for the outer region (samples 9 and 10), which may be associated with that region having experienced higher prior strains during manufacture. This type of relevant information is lost in the tensile test results of Fig.2a.

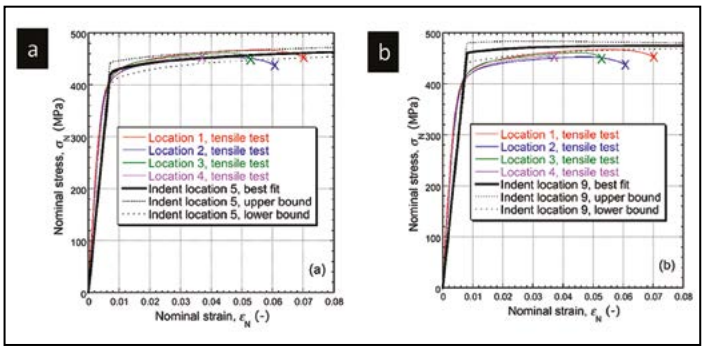


- Fig. 2a Tensile stress-strain curves for samples taken from the locations from Fig.1a. Fig. 2b compressive stress/strain curves for samples taken from the locations from Fig.1a.

PIP TESTING

PIP testing was carried out using The Indentation Plastometer with a 2mm cermet indenter. The need for indents in different locations became clear, since there were significant differences between some of the outcomes. Several runs were carried out, with the profile data being converted to tensile nominal stress-strain plots. Variations were observed from point to point, consistent with observed differences in local microstructure.

As an example, derived plots are shown in Fig.3 for two locations, compared in each case with the tensile curves of Fig.2a. While there are locations for which the indent profiles reflect the tensile test outcomes, and these were in the majority, in other locations the outcome indicated a slightly different response (with a higher yield stress). This outcome highlights the capability of indentation plastometry to obtain stress-strain characteristics on a much finer scale than is possible by conventional tensile (or compressive) testing.



- Fig.3: Conventional and PIP indentation-derived tensile stress-strain curves, with the indents located at (a) point 5 and (b) point 9 (as shown in Fig.1).

For further information about PIP testing and the services and products that Plastometrex offer visit www.plastometrex.com or get in touch with Dr. Mike Coto at m.coto@plastometrex.com

Plastometrex

CULTIVATING A DIGITAL DIALOGUE FOR CASTING

Affiliation: Bartlett School of Architecture at University College London

In our first article "Jean Prouvé: an aluminium pioneer" (Aluminium News, Dec 2019) we gave a historical account of the famous Aluminium Centenary Pavilion by the French constructor Jean Prouvé from 1954, an example from the Twentieth Century of what is possible in the design of our built environment when a designer worked with a comprehensive knowledge of the industrial production technology available at the time. In our follow-up article "UCL @ HereEast: A fun-palace for fabrication design and research" (Aluminium News, March 2020) we described a large-scale collaborative facility dedicated to supporting an approach to design for the built environment that connects the design studio to the point of industrial production with Twenty-first Century technology. Together with Professor Michael Stacey with whom I co-authored those two articles, the Bartlett School of Architecture have since agreed a Memorandum of Understanding (MOU) with the Aluminium Federation in which one of the key objectives is to promote excellence in design and the advancement of expertise in the use of Aluminium for manufacturing within the construction sector.

This article focusses on working with the technique of casting molten metal into green-sand moulds through a pedagogic perspective with a group of students taking the Masters in design for manufacture at the Bartlett led by Emmanuel Vercruysse, the programme's director. The focus on casting was motivated by a range of considerations, the observation that many functional parts of buildings and structures such as connector joints, furniture components and architectural fittings often consist of sculpted geometry. Beyond examples by Prouvé, we admired other famous historical precedents such as the connector components made for the IBM travelling pavilion designed by the Renzo Piano building workshop with engineering firm ARUP completed in 1984.

We developed an empathy for how sculpted geometries were strongly differentiated in the trade-off between subtractive processes from stock material using CNC (Computer-Numerically-Controlled) milling and the potential for comparatively minimal material waste from casting into green-sand moulds. We were also driven by exploring the potential to maximise resource utilisation and the potential for design for remanufacture within the framework of a circular economy using casting given the low-temperature melting-point of Aluminium (BSi, 2018). We also recognised the potential for applying design for manufacture principles to lower part-count through feature consolidation and careful separation of different alloys such that at the end of service, the construction can be disassembled and material recovered for contribution to high-purity waste-streams.

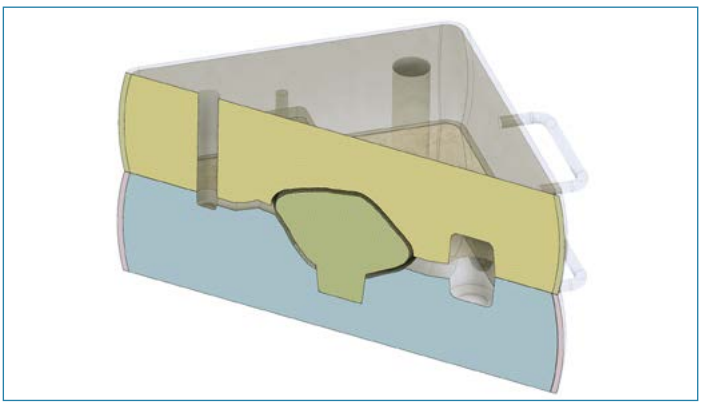
We also sought to calibrate the quantification of production volume to the scale of a single building project that might only need 10's or low 100's of bespoke components using the green-sand cast technique and not the 1,000's and 10,000's that might be needed to justify one die-cast.

A workflow for casting was developed by the design tutors in close collaboration with workshop staff for safe and practical hot-working in an educational environment, while also establishing logical terms of reference for the students to explore geometric arrangements. The workflow consisted of design intent expressed with hand-sketches that were then developed and analysed through digital models. Software for geometry modelling such as Rhino 3D and dedicated manufacturing software such as Autodesk Fusion 360 were used to generate, explore and analyse geometry. This provided a basic digital tool-set to test the feasibility of casting by studying draft angle, compensating for volumetric shrinkage during cooling and produce 3D printed and CNC milled patterns with sufficiently precise size, form and orientation tolerances. The digital tools supported the workflow with a "manufacturing model" that expressed the desired Near Net Shape (NNS) while modelling the sacrificial datum features and work-holding zones necessary for projecting precision machining selectively post-cast in order to achieve the functional requirements.

This also included metrology inspection to verify compliance with the design geometry and mating interfaces necessary for final assembly as a kit-of-parts. A C-9 microfinish visual comparator was used to assess areal surface finish, showing results at the finer end of the roughness range typically for casting into green-sand moulds within (300 to 560) micro-inches or (7.6 to 14.2) µm.

We have been adopting the Geometric Product Specification (GPS) framework and its rules of interpretation standardised in ISO documents to develop literacy for unambiguously expressing the functional requirements for cast parts. Specifically, how Theoretically Exact Dimensions (T.E.D.) in the CAD file describes the NNS

- Above: Set of patterns for cope, drag core box to sand mould the "Pebble" project by Melis Van Den Berg (2021)"



- Above: Section analysis through solid model of casting flask using Autodesk Fusion 360 software by Melis Van Den Berg (2021)

of the pattern to be cast, but GPS is used to account for material shrinkage during cooling and thermal distortion of the shape the three-dimensional tolerances are generous. Given the shrinkage inward from the NNS, we made extensive use of the UZ (Unequal Zone) modifier to express the desired three-dimensional form that could be verified by three-dimensional surface-scanning. From this, Datum features are established to coordinate the projection of precision turning, milling and drilling operations onto the parts post-cast using the specifications and basis for interpretation in (BSi, 2017).

We recognise the deep well of experience that builds up from years of practice producing varied foundry work projects, this is experience and know-how that is not captured in the features within digital tools in common usage by architectural designers. However, we would argue that merely using digital tools to translate sketches of design intent into printable patterns and moulds is also impoverishing limited. As such, we are motivated to exploit the range of analytical tools that are available in existing digital tools to provide useful terms of reference. Moreover, activities in UCL @ HereEast pursue the curation of digital tool-chains that facilitate a bi-directional flow of information between design intent that is expressed with functional specifications through the manufacturing process to the measurement of the parts produced. With this approach, we aspire that students acquire literacy in the process parameters to lead a meaningful dialogue between designer, maker and inspector.

On the basis that the application of systematic methods gives a structure to seek and identify value, it provides terms of reference between the stakeholders and perhaps most usefully it supports the effective communication and negotiation of value propositions that such an approach can identify in a digital dialogue for casting.

About the authors:

Dr Christopher Leung is an architect at the Bartlett School of Architecture undertaking research into industrial manufacturing for the construction sector. Emmanuel Vercruysse directs the Masters in Design for Manufacture at the Bartlett School of Architecture in University College London (UCL).

Acknowledgements

The authors wish to express their thanks to Melis Van Den Berg who is a Lecturer teaching design at the Bartlett School of Architecture and William-Victor Camelleri who is a Lecturer in Numeric Manufacturing teaching on the Masters in Design for Manufacture and is pursuing a Ph.D in architecture by design. Special thanks to the (2020-2021) cohort of students on the M.Arch in Design for Manufacture course at the Bartlett School of Architecture.

References

British Standard 8887-3, (2018), "Design for manufacture, assembly, disassembly and end-of-life processing (MADE) Part 3: Guide to choosing an appropriate end-of-life design strategy", British Standards Institute, London, ISBN-13: 978-0-5805-1403-6.

Ammen, C. W. (1982), "The Complete Handbook of Sand Casting", McGraw-Hill, Blue ridge summit, ISBN-13: 978-0-8306-1043-3.

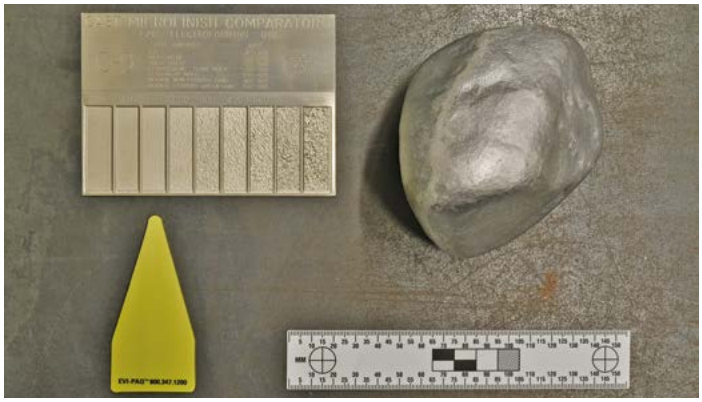
Chap. 3, "Component Design", (2001), Stacey, Michael, Architectural Press, ISBN-10: 0-7506-0913-3.

Ammen, C.W., (1985), "Casting Aluminium", Blue Ridge, Tab Books, ISBN-10: 0-8306-1910-0.

British Standard 8062-4 (2017) Geometrical product specifications (GPS) Dimensional and geometrical tolerances for moulded parts Part 4: General tolerances for castings using profile tolerancing in a general datum system, British Standards Institute, London, ISBN-13: 978-0-5807-8863-5.

Leung, C., (2020), *"Model-Make-Measure: Connecting the studio to the workshop"*, Industry Talk Session 463685, AU 2020, Autodesk Inc, Online: https://www.autodesk.com/autodesk-university/class/Model-Make-Measure-Connecting-Studio-Workshop-2020

Voelker, M. M. and Peters, F. E., (2017), "Development of a Digital Standard to Specify Surface Requirements of Cast Metal Surfaces," Materials Performance and Characterization, Vol. 6, No. 2, pp. 130–143, http://dx.doi.org/10.1520/MPC20160014 , ISSN: 2165-3992.



- Above: The hollow Pebble cast in Aluminium

- Right: Cast and machined component for shelter project by students on the design for manufacture course (2021)

The Bartlett School of Architecture

EXPERT COMMENT: DETERMINATION OF THE CHEMICAL COMPOSITION OF ALUMINIUM AND ALUMINIUM ALLOYS BY SPARK EMISSION SPECTROMETER TO COMPLY WITH EN 14726:2019

By Dr Sarah Wright, UK Sales Executive, Hitachi High-Tech Analytical Science

For many years, regulatory bodies like ASTM, DIN, EN and other national or international organisations have handed out norms and rulebooks for the determination of different metals and its alloys using spark-OES. In the past, these documents focussed more on technical details and numbers rather than on the methodical work with optical emission spectrometers. They contained detailed descriptions about capacitor, inductivity and frequency to characterise the spark emission, wavelength tables with suitable emission lines and pages of data about detection limits, precision and accuracy.

With the development of a wider variety of spark-OES instruments from simple benchtop versions to high-end laboratory equipment, it has become more and more difficult to define strict criteria for a spectrometer to be compliant with a norm or regulation. In addition, the technical solutions to provide a certain level of performance vary nowadays as seen in the development of the detectors used in the optical systems.

So, the 'old' norms make it difficult for manufacturers to comply in detail while introducing new technical innovations. Often it can create issues when participating in tenders which refer to those regulations. This could lock out more innovative instrument setups like the example from some years ago with semiconductor detectors (CCD, CMOS) versus photomultiplier tubes (PMT).

In the recent years, the 'design' of the normative documents has changed from number tables to a methodical description of how to choose, use and supervise an optical spectrometer, and operate it in accordance to the regulation. A good example is the new version of the norm EN 14726:2019.

EN 14726:2019 STRUCTURE

The document consists of 13 chapters and 5 supplements:

1 Scope of this directive
2 Norms and relevant regulations
3 Terms and definitions
4 Abbreviations and symbols
5 Short description of the method
6 Description of the instrument
7 Specimens and reference materials)
8 Samples and sampling
9 Working conditions
10 Calibration
11 Accuracy (precision and correctness of the mean)
12 Monitoring
13 Laboratory report
A Representative area for measurement
B Details about calibration methods
C Details about recalibration
D Details about accuracy and uncertainty
E Guidelines for monitoring

In general, the information in the individual chapters is generic and does not supply a detailed description of technical solutions or numbers. So, whilst the scope of elements is mentioned, it is now not defined by a given wavelength selection. This was the case in older norms and created issues when a manufacturer deviated from this. Known issues (e.g. the difficulties while measuring mercury with spark-OES) are still mentioned but only for reference. This gives the reader the possibility to discuss this subject with the manufacturer of the equipment in detail.

The supplements go into more detail and provide information about calibration, recalibration and the analytical performance data. Like the chapters before, all information is generic and useful for all types of spark-OES instruments. The reader receives formulas to calculate the uncertainty of a result or to monitor the analytical capability of the instrument. The norm does not deliver thresholds for precision, accuracy or reproducibility. This makes no sense because the demands are different for every application. But when referring to the norm, the reader will be enabled to talk about these performances to the manufacturer of the equipment and achieve mutual understanding about important key performances of the instrument.

This helps to define and agree the requested and granted data, allowing the selection of the best suitable instrument for a given application. Of course, it is easy to always buy the best and most powerful equipment, but would this be economically reasonable?

CONCLUSIONS

We as manufacturers see the upcoming norms and regulation as a big progress and a significant help to offer a tailormade solution to our customers.

If you'd like to learn more about how to conform with norms and regulations with material analysis equipment, we recently presented a webinar on norms and regulations which is available on-demand from the Hitachi High-Tech website: http://hhtas.net/qaqcwebinar

For further information please visit www.hitachi-hightech.com/hha or contact Laura Phimister, Marketing Lead EMEA, Hitachi High-Tech Analytical Science – email: laura.phimister.lp@hitachi-hightech.com

ARCHITECTURAL POWDER COATINGS - THE FACTS ABOUT FIRE

There has been a great deal of discussion that has taken place of late over the combustibility of the external envelope of some of our high-rise dwellings where aluminium composite panels (ACM) containing flammable cores have been used. These panels are in the process of being removed and replaced to meet stringent new standards.

Insurance companies, mortgage providers and other property stakeholders have also had their part to play to mitigate risk and have forced building owners to check for ACM and other issues such as areas of timber decking. All this will ensure a safer building stock for our city's high-rise dwellings.

The surface spread of flame on a high-rise dwelling can cause fire to spread quickly from floor to floor and legislation is now in place to ensure construction designs slow down the spread of a fire through the building envelope, or to stop it altogether, by correctly specifying the materials used in the building project. As a result, new and refurbished buildings deemed to be high-rise, over 18m in England (11m in Scotland), will be considerably safer.

Of late members of QUALICOAT UK & Ireland have seen a rising number of powder coating specifications that request an 'A1' classification for combustibility under BS EN 13501-1. When traced back through to the specifier, the origin of this requirement largely stems from property stakeholders who are misguidedly attempting to mitigate their risk by exceeding the current guidance, standards and legislation currently available. This can add both complexity and costs to projects without any benefit or reduction of risk.

When applied at standard industry thicknesses, architectural Polyester Powder Coating (PPC) achieves an 'A2-s1,d0' classification. This classification is required for compliance to the amended Building Regulations 2010 (Approved Doc B: Fire Safety) Nov 2018 and accepted as providing the necessary protection from the surface spread of flame on high-rise construction and other legislated buildings.

Ultimately, PPC does not promote combustibility or fire spread when tested to BS EN 13501-1. This is further supported by the testing required for London Underground approval, often lauded as a barometer of fire safety. This requires compliance to EN 45545, where spread of flame is measured objectively (ISO 5658-2) unlike BS EN 13501-1 which involves visual assessment only. Furthermore, PPC smoke production is extremely low or non-existent (s1) with no flaming droplets (d0). On the chart of combustibility, 'A2-s1,d0' sits just under the 'A1' classification.

It is important to assess the cladding system holistically and not just the performance of the constituent parts under BS EN 13501-1.

The predominant fire test for the whole external cladding system is BS 8414. This provides another route to compliance for buildings under 18m which requires materials to meet the performance criteria given in BRE report BR 135 for external walls using full-scale test data. The test itself involves a 9m high wall with a complete cladding installation, including the fixing of panels and insulation. It is therefore a through-the-wall test.

When tested to these stringent fire safety standards, PPC performs as well as anodised and pre-coated aluminium sheet material. The three images for each of the tests show the cladding after the test, then with cladding removed and then with insulation removed to show the membrane.

A blanket specification of 'A1' restricts the choices of colour for the facade, also it will no doubt incur increased supply costs and shows a lack understanding of the standards and current best practice. But, irrespective of whether aluminium cladding is 'A1' or 'A2- s1,d0' classified, the critical aspect is to ensure the full system is specified, configured and installed correctly. This ultimately governs all safe cladding installations.

In closing, QUALICOAT UK & Ireland firmly believe that the 'perceived' reduction in risk is not necessarily mitigated by moving from 'A2-s1,d0' classification to 'A1'.

Members of QUALICOAT UK & Ireland believe education on the subject is required and will be approaching the relevant property stakeholders, such as insurance companies, local councils, developers and building funders. QUALICOAT UK & Ireland will make representation to protect the industry, to ensure specification freedom and to negate unnecessary surface finish costs.

A more detailed guidance note is available on the QUALICOAT UK & Ireland website: www.qualicoatuki.org

Source: Qualicoat UK & Ireland.

Classification	
A1	No contribution to fire. Permissible under Part B Regulations for relevant buildings over 18m (11m in Scotland)
A2-s1,d0	
A2-s1,d1	Very Limited contribution to fire. Non-compliant for relevant buildings over 18m (11m in Scotland) but permissible for non-relevant buildings over/under 18m
A2-s1,d2	
A2-s2,d0	
A2-s2,d1	
A2-s2,d2	
A2-s3,d0	
A2-s3,d1	
A2-s3,d2	
B-s1,d0	Combustible. Non-compliant for relevant buildings over 18m (11m in Scotland) but permissable for non-relevant buildings over/under 18m
B-s1,d1	
B-s1,d2	
B-s2,d0	
B-s2,d1	
B-s2,d2	
B-s3,d0	
B-s3,d1	
B-s3,d2	
C	Combustible. Non-compliant for relevant buildings over 18m (11m in Scotland) and non-relevant buildings over/under 18m
D	
E	
F	

- *Above:* The fire classes stipulated in BS EN 13501
- *Top left:* Anodised aluminium sheet - tested to BS 8414
- *Middle left:* Pre-coat aluminium sheet - tested to BS 8414
- *Bottom left:* The fire classes stipulated in BS EN 13501

OXY-FUEL COMBUSTION FOR DECARBONISATION

By Dr Martin Lawrence CEng MIMechE, Combustion Development Specialist, Air Products

ABSTRACT

Government legislation is constantly tightening to move towards net zero carbon dioxide (CO_2) emissions. Many companies are planning their journey towards decarbonisation to include developing technologies and emerging markets that can drastically reduce their carbon footprint. However, roadmaps towards net zero CO_2 emissions must also include short-term goals, which need to be achievable with current technology. Oxy-fuel combustion is a well-established technology that has been proven to improve fuel efficiency and thus save up to 40% CO_2 emissions and can be retrofitted to existing furnaces. Decades of experience in implementing and operating oxy-fuel combustion have proven to bring benefits in safety, productivity, cost, emissions, and aluminium recovery.

CLIMATE CHANGE IMPLICATIONS ON INDUSTRY

Climate change has become a prevalent issue throughout society as people are recognising the effects of global warming. Since the first industrial revolution, there has been a continuing rise in global temperatures, which has worsened since 1980 and is causing more extreme weather events. Governments around the world are beginning to tackle the issues of emissions and waste, leading to circular economies, which are vital as the population further increases. There is significant focus around greenhouse gas emissions, particularly CO_2, as these gases prevent the heat from sunlight escaping the atmosphere. As a result, low carbon initiatives are being implemented, whereby government legislation and taxation on fossil fuels are being introduced and constantly tightened as we progress towards net zero goals.

The majority of countries that have pledged to become carbon neutral have set a target of net zero CO_2 emissions by 2050. So far, there are only six countries that have set their net zero targets into law, including the UK. Following the Climate Change Act in 2008, the UK has set carbon budgets that govern the total amount of greenhouse gases that can be emitted for a given time period. The UK's sixth carbon budget is set to bring emissions down by 78% by 2035, compared with 1990 levels. As part of this commitment, the UK government are setting policies into law and providing funding for development programs for feasibility and engineering studies to prepare industry for the transition to a lower carbon economy.

POTENTIAL LONG-TERM INDUSTRIAL OPTIONS

The industrial energy transition journey will be complex, involving various technologies and infrastructures to pave the way for diminishing CO_2 emissions. Companies with energy intensive processes, such as aluminium smelting and remelting are putting together roadmaps that include current and developing technologies to reach their goals. Electrification, fuel switching, and carbon capture are some of the likely options for future furnace operations, depending on individual circumstances, such as location, operation, and budget. Electrification utilises green energy, such as wind and solar, to power industrial processes either directly from the grid or from on-site power generation. In an example case for an aluminium recycling plant with gas-powered furnaces, manufacturers would be required to change to electric powered furnaces, which may not be economical or suitable for processing particular types of materials. Fuel switching involves changing from fossil fuels to a low carbon alternative energy carrier and there are several potential options including hydrogen, biofuels, and ammonia. Fuel switching options are likely to involve retrofit technology, which may be an easier and more cost-effective solution when compared with electrification. Carbon capture facilities can be added to the downstream equipment to directly remove the CO_2 from the effluent gas stream before it goes into the atmosphere. The captured CO_2 can then be either stored or used in another process, although due to technical and economical constraints might not be feasible for most aluminium recycling plants.

OXY-FUEL FOR SHORT-TERM GOALS

The options discussed above are considered emerging technologies, as the markets, infrastructures, and the technologies themselves are currently in development and therefore can be used as part of long-term solutions to achieve climate goals. Roadmaps towards net zero CO_2 emissions must also include shorter-term goals to remain in line with ever-tightening government legislation. Significant reduction in CO_2 emissions can be achieved with current technology by focusing on improving efficiencies.
In recent years there has been significant development in digitisation for industry, with Industry 4.0 technology providing new ways to optimise production using big data analytics, shifting focus onto improving efficiency, which impacts on carbon footprint. Waste heat recovery

• High yield burner flame

technology can be used to capture the heat from a process and convert it either into electricity or use it to preheat combustion reactants to improve efficiency. These technologies can provide decent reductions in CO_2 emissions through fuel savings of up to 15%.

Oxy-fuel combustion is a well-established technology, which has historically been implemented to increase productivity and aluminium yield, whilst also reducing fuel consumption and emissions. The potential for oxy-fuel combustion to achieve short-term climate goals as part of a roadmap towards decarbonisation is worth highlighting. Switching from a traditional air-fuel combustion system to an oxy-fuel combustion system has proven to save up to 40% energy consumption, which can be directly translated to 40% savings in direct CO_2 emissions. Companies like Air Products are also working on reducing CO_2 emissions for oxygen production and transport, leading to green oxygen. Oxy-fuel technology is suitable for retrofit and has been bringing environmental benefits to the aluminium industry for decades.

Dry air contains 20.95% oxygen, 78.09% nitrogen, 0.93% argon, and small amounts of other gases. Combusting fuel with pure oxygen is more efficient than air-fuel combustion, as the fuel can react much faster with the oxygen, which increases the flame temperature by around 1000°C.

• Transient heating burner flame

This increases the heat transfer rate from the flame to the metal, resulting in significant improvements in specific energy usage of up to 40% and potentially doubling productivity. With correct burner design and combustion staging, oxy-fuel combustion can also improve aluminium yield up to 2%. Due to the lack of nitrogen present in the reaction, nitrogen oxide production can be eliminated with proper consideration to burner design and furnace operation. Oxy-fuel combustion also results in more complete combustion, leading to a considerable reduction in unwanted combustion emissions, such as carbon monoxide, soot, volatile organic compounds and unburned hydrocarbons.

CONCLUSION

Oxy-fuel combustion can provide up to 40% savings in direct CO_2 emissions, as well as increased productivity and aluminium yield. Oxy-fuel technology is well-established and proven throughout the aluminium industry as a safe, economic, and accessible solution for reducing carbon footprint. Decades of operating experience and implementation on new furnaces, as well retrofits have shown to reduce specific energy usage by up to 40%, increase production by up to 100% and increase aluminium yield by up to 2%. Switching from air-fuel to oxy-fuel combustion is an ideal solution for starting out in the roadmap to net zero CO_2 emissions.

• Oxygen tank and tanker

For more information, please contact Dr Martin Lawrence, CEng, MIMechE, Combustion Development Specialist at Air Products PLC.
Mobile: +44 (0) 7887624893.
Email: lawrenm1@airproducts.com.
Or visit: https://www.airproducts.com/applications/melting-non-ferrous

AIR PRODUCTS

The Aluminium Federation has successfully spearheaded Europe-wide research to establish a crucial new technical benchmark.

ALFED CEO Tom Jones says the BS EN 12206-1: 2021 is not exactly something to catch the eye of the general public but is of huge significance to UK-based companies who supply, or specify, powder coatings.

"The original European standard was published in 2004, and a British standard ran alongside it for years.

"Unfortunately, the latter was then withdrawn in 2016, which seriously handicapped our members working in this niche."

ALFED then asked one of its members, Portsmouth-based Tomburn, to take up the cudgels on behalf of its peers.

Its commercial director, Chris Mansfield, became convenor of a team of experts from across Europe to carry out the revision.

"Tomburn is a very successful family-owned enterprise that owns LBL Finishers and has a subsidiary in the Czech Republic," said Jones.

"Chris is very passionate about both innovation and technical standards, and we knew he was the ideal person to lead this project.

"I am delighted to report that despite multiple challenges, the revised standard has now been accepted which will be a great boost for ALFED members".

DURBIN METAL INDUSTRIES

A leading supplier of cut aluminium plate & bar in the UK

ALUMINIUM PLATE SERVICES
A company you can count on

Durbin Metals is one of the leading suppliers of cut Aluminium plate & bar in the UK.

Durbin Metals combines the strengths of a large organisation with the friendly, flexible and customer service-oriented approach of a local family business. We are simply here to help our customers to be successful.

The company is committed to a continuous programme of investment in technology and tooling, highlighted by recent expenditure in cutting facilities. The new equipment can process up to 350mm thick Rolled Plate, 1000mm thick Cast Plate and 21" diameter Bar. Stainless Steel long products can also be processed.

The in house plate plant includes a capacity of up to 4000mm long, 2000mm wide and 1000mm thicknesses, all capable of tight cutting tolerances.

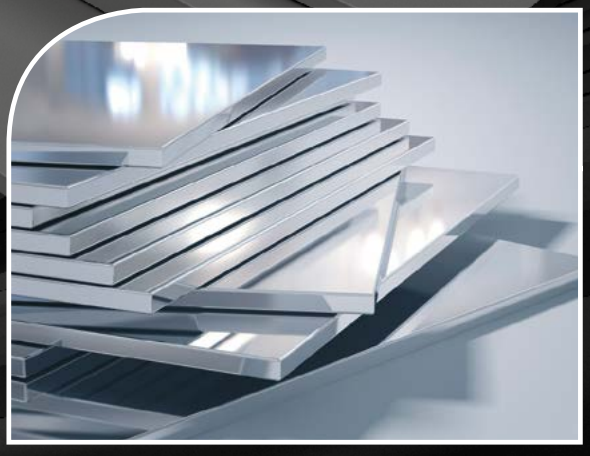
Durbin Metals provides additional processing capability for customers that do not have the capacity or machinery that is sometimes needed, and supports engineering and manufacturing units across a wide range of industries.

In addition to Plate and Bar saws, in-house plant includes a specialist vertical borer dedicated to cutting circles and rings up to 1450mm diameter and 160mm thickness with fine tolerance machined edges.

Durbin also supplies yellow metals and plastic solutions to UK industry.

For 'Just In Time' materials supply and processing, Durbin Metals is the supplier of choice.

Call today to discover why.



#weareheretohelp

Tel: 01922 453982
Email: sales@durbinmetals.co.uk
www.durbinmetals.co.uk

ON-SITE CHARGING POINTS

For all workplaces, providing on-site charging points for clients, visitors and employees alike will become increasingly important moving forward as petrol and diesel-powered cars are phased out and replaced by EVs.

There are a number of different schemes open to those looking to install this facility, including the government-backed Workplace Charging Scheme (https://bit.ly/3ACoq8y) which enables businesses, local authorities and charities to claim up to 75% of the charge point installation cost.

This applies to up to a maximum of 20 charge points, each with a value of no more than £350, and the installation must be carried out by an Office for Low Emission Vehicles (OLEV accredited installer).

Firms based in the United Kingdom (excluding the Channel Islands and Isle of Man) can claim and don't necessarily need a plug-in vehicle on the company's books. In Scotland, funding is available through a different scheme called the Energy Saving Trust.

A ballpark figure for a standard, double-header charging unit is around the £1,500 mark, after the WCS Grant has been applied. But costs can escalate depending on the type of unit, its position and its charging speed.

Customer and visitor electric cars will have different charging connectivity needs, so it is important to install a charging point most likely to be compatible with the widest range of vehicles possible. An Energy Management EV installation project manager offers advice on this and all other aspects of the EV charging infrastructure (https://bit.ly/3xOwpxp) process.

In addition to the WCS, charging infrastructure providers operate fully-funded, loss leader and profit-making schemes.

The fully-funded model is attractive in that it comes with no operational cost but it may not always be the most appropriate solution for your needs.

With the loss leader model, EV charging is provided free by suppliers to grow market share by attracting and retaining customers, with costs offset by increased revenue gained through existing business activity.

A free top-up charge can be the deciding factor for a driver in choosing where to offer their custom and the costs of offering, for example, 7kW charging to attract these drivers can be relatively modest.

As such, your first consideration as a business should be whether you can offer charging for free to maximise the number of drivers you attract to your location, grow brand loyalty and encourage on-site spending.

Meanwhile, with profit-making models a higher fee is levied on drivers to use the charge points. This fee covers operational, hardware and installation costs and provides a profitable revenue stream on top.

Profit-making models have broadly the same constraints as the cost recovery models, albeit with preferential financial spin-offs for those locations where there is no alternative for drivers to charge their vehicles. One downside is the risk of reputational damage as your business could be accused of unfairly exploiting drivers by setting tariffs too high.

For further information on our EV infrastructure installation service, please call us on 01225 867722 and ask to speak to one of our consultants.

Energy Management

UK ALUMINIUM SUSTAINABILITY ROADMAP TO 2050

As a lightweight and highly recyclable material, aluminium is a key contributor to the UK's low-carbon economy. Its role will continue to expand as industries contribute towards the Government's green growth ambitions and 2050 net zero targets. From providing alternatives to single-use plastics to supporting more sustainable transport, aluminium is boosting recycling, driving the circular economy and helping reduce carbon emissions.

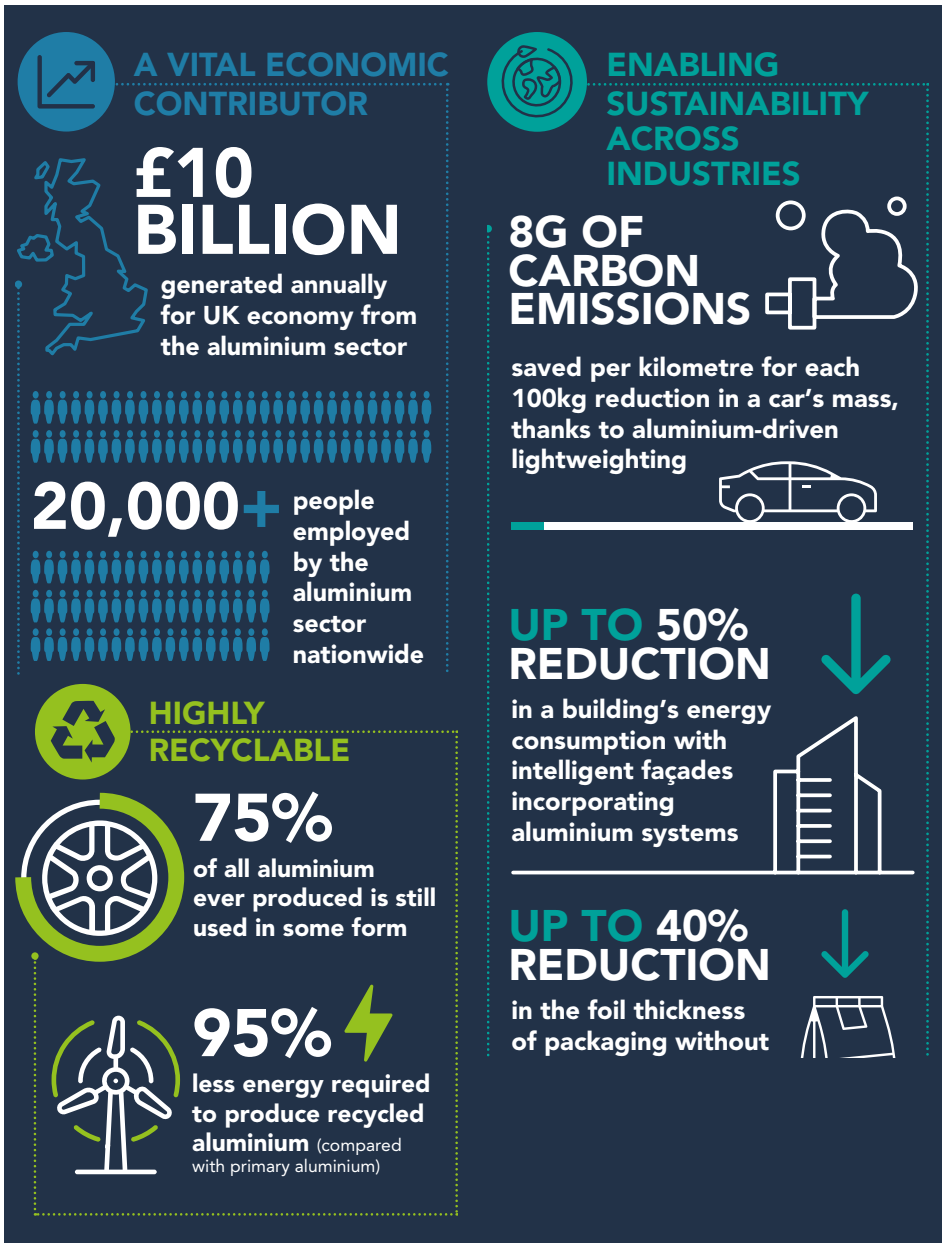
The aluminium sector generates £10 billion annually for the UK economy and employs more than 20,000 people nationwide. It plays a vital role in the supply chains of high-value sectors – aerospace, automotive, rail and construction – as well as mass markets for packaging.

AS A SECTOR, WE'RE ALWAYS LOOKING FOR WAYS TO ADD MORE VALUE TO PARTNERS, CUSTOMERS AND SOCIETY AS A WHOLE. SUSTAINABILITY IS AN ESSENTIAL PART OF THAT.

Here, we outline a roadmap for boosting sustainability within the UK aluminium sector focusing on 3 pillars – decarbonisation, sustainable sourcing and the circular economy. We look at ways in which those who process, trade and work with aluminium can harness sustainability as a competitive advantage, for the sector and for UK industry more widely.

However, aluminium is a global sector with global supply chains. In addition to these UK-specific sustainability goals and actions, the Aluminium Federation (ALFED) will continue collaborating with European Aluminium, the International Aluminium Institute, the Aluminium Stewardship Initiative and other organisations worldwide, aligning our approach with worldwide efforts to boost sustainability across the value chain.

ALUMINIUM: KEY TO THE UK'S LOW-CARBON ECONOMY



Source: European Aluminium, Vision 2050

DECARBONISATION GOALS

ALFED'S GOAL IS TO SUPPORT THE SECTOR TO ACHIEVE NET ZERO BY 2050.

Although primary aluminium production is a carbon- and resource-intensive process, the emissions intensity depends on the electricity source used for electrolytic reduction during smelting. In the UK, there is minimal primary aluminium production. Nearly all primary aluminium is imported, and the minimal domestic production already uses hydroelectric power. As a result, the UK aluminium sector is already carbon and resource efficient. No hazardous waste is currently being sent to landfill. Drosses and slags are hazardous as they contain various metals impurities and salts. However, they are rendered non-hazardous because they are reduced to pure salts, which are used in melting furnaces, potash (used as fertiliser) and aluminium returned for recycling.

Therefore, the UK aluminium sector can decarbonise in two major ways. The first way is by importing the lowest-carbon primary aluminium, either in ingot form or incorporated in semi-fabricated or finished products. The second way is for UK industry to maximise the use of end-of-life aluminium. This aluminium has the lowest available carbon and energy intensity. It also has the highest potential to become zero-carbon if the heating source for scrap melting can be from a clean fuel, such as green hydrogen, or electrified and fuelled by renewable electricity sources.

ACTIONS

- **R&D acceleration**
  Work with the UK Government and knowledge partners to develop policies and programmes that support the transformation of end-of-life aluminium into semi-fabricated and finished products in the UK. This will require investment in R&D to evolve additive manufacture, develop recycling-friendly alloys and design sensing and sorting systems that segregate alloys from mixed scrap. We will also support the development of high-performance alloys to optimise material utilisation across the widest possible spectrum of applications.
- **CapEx support**
  Work with Government and knowledge partners to develop the financial support and tax breaks needed to enable investment in low-carbon, energy- and water-efficient, UK-based manufacturing facilities. This should focus on rolled and extruded products, as well as other forms that are currently imported.

SUSTAINABLE SOURCING GOALS

BREXIT AND THE CORONAVIRUS PANDEMIC HAVE GIVEN THE UK ALUMINIUM SECTOR A UNIQUE OPPORTUNITY TO RESTRUCTURE AND REBUILD KEY SUPPLY CHAINS.

It's an opportunity to increase the focus on sustainably sourcing primary aluminium and semi-fabricated products the UK imports at present.

The UK's high-value manufacturing industry can secure a competitive advantage by having easy access to a UK-based sustainable supply chain, with reduced reliance on carbon-intensive imports and greater utilisation of UK end-of-life scrap. We will help the aluminium sector capitalise on this opportunity by providing frameworks and support to simplify processes, foster collaboration across the value chain, close skills gaps and increase workforce diversity. Our efforts will have a major focus on SMEs to ensure it's time- and cost-efficient for them to drive initiatives forward.

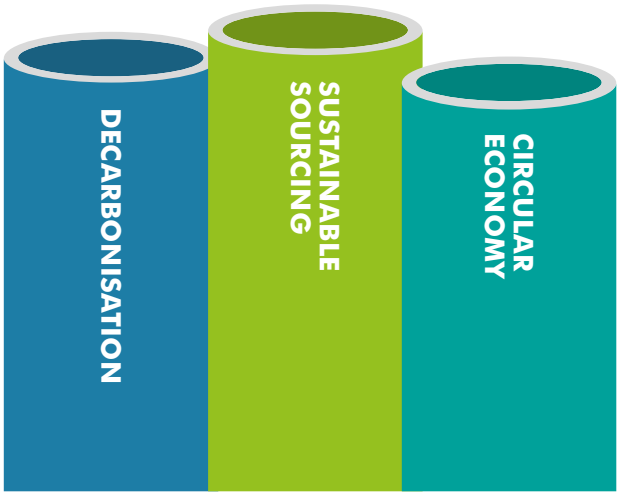
ACTIONS

- **Traceability**
  Support members with implementing best-practice traceability standards[1] relating to environmental and social issues, for example building on the Aluminium Stewardship Initiative (ASI) Performance and Chain of Custody Standards and European Aluminium's responsible sourcing toolkit for SMEs[2].
- **Domestic supply chain development**
  Encourage ongoing development of the UK aluminium value chain, working with other trade associations like Make UK and the Society of Motor Manufacturers and Traders. For example, UK-based OEMs could reduce CO2 emissions by 1 million tonnes for every 100,000 tonnes of prime-based (new aluminium from ore) sheet replaced with domestic supplies[3]. At the same time, they can also reduce strategic supply chain risks.
- **Skills development**
  Work with industry, universities and other knowledge partners to develop programmes that expand the UK's skills base – and provide a sustainable talent pool for expanding domestic capabilities across the aluminium value chain.
- **Diversity and inclusion**
  Collaborate with knowledge partners and industry to foster diversity within the aluminium workforce, including boosting the proportion of women in the aluminium sector. We will also promote STEM careers to young people, helping develop programmes that broaden access to work experience and apprenticeships.
- **Social engagement**
  Develop a best practice framework for driving CSR and voluntary initiatives that help members contribute to more socially conscious supply chains.

[1] Aluminium Stewardship Initiative, Standards for the aluminium value chain.
[2] European Aluminium, Responsible sourcing toolkit.
[3] British Aluminium Consortium for Advanced Alloys, February 2021.

continued on page 23 >>

UK ALUMINIUM SECTOR SUSTAINABILITY ROADMAP
3 PILLARS



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CIRCULAR ECONOMY GOALS

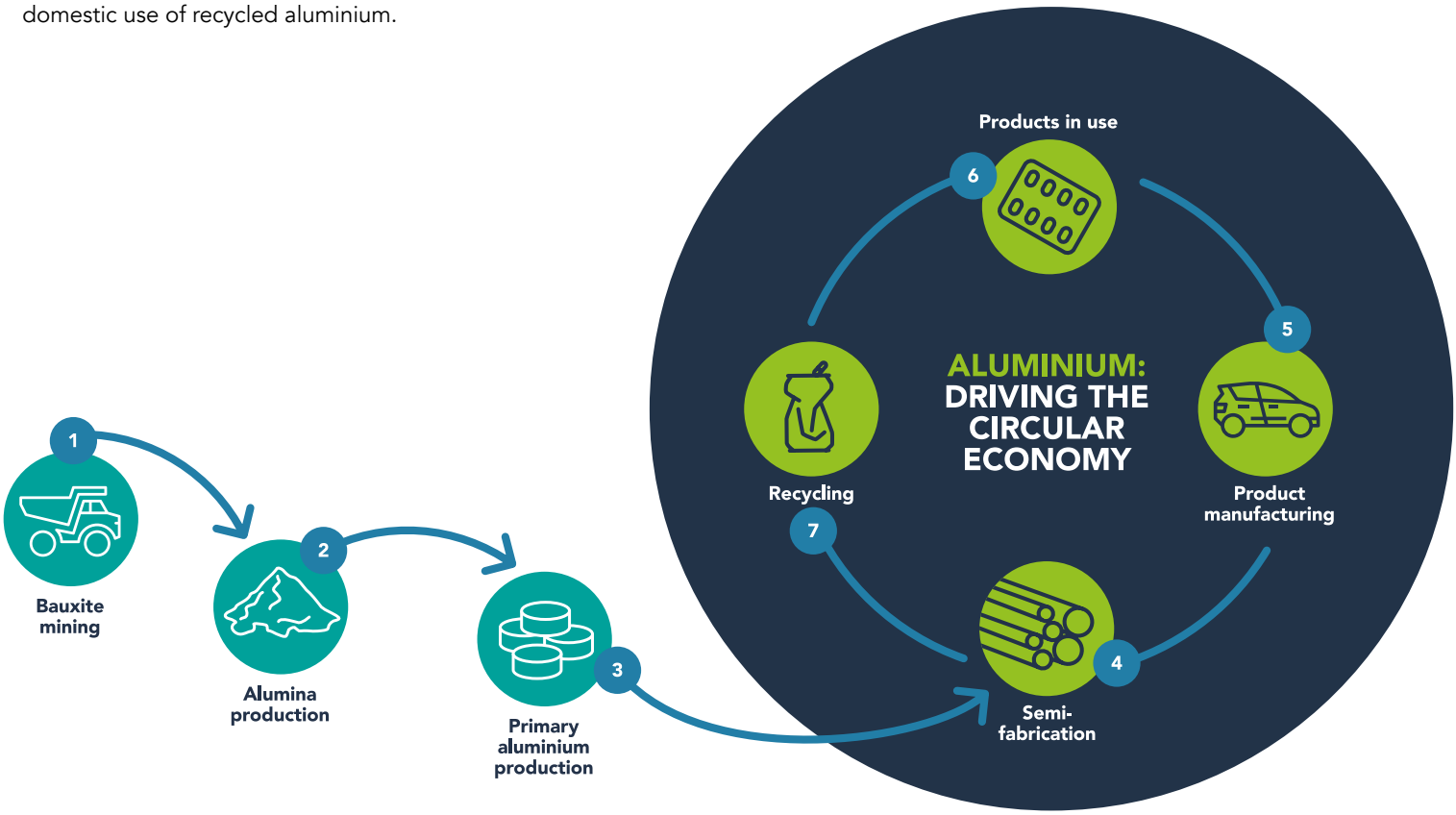
75% OF ALL ALUMINIUM EVER PRODUCED IS STILL IN USE IN SOME FORM, AND IT TAKES 95% LESS ENERGY TO PRODUCE RECYCLED ALUMINIUM THAN PRIMARY ALUMINIUM[4].

In fact, by automating sorting processes, aluminium's quality can even improve during recycling. Aluminium therefore has a unique role to play in the circular economy.

The UK is a global leader when it comes to aluminium recycling, generating an estimated 1.4 million tonnes of aluminium scrap per year[5]. 500,000 tonnes of that scrap is currently exported. We will support the sector – and the supply chains it's part of – to leverage the benefits of recycled aluminium, helping achieve a 50,000-tonne annual reduction in scrap exports. By 2050, we aim to achieve a 90% increase in the domestic use of recycled aluminium.

ACTIONS

- **Closed-loop supply chain development**
  Work with the sector and knowledge partners to drive alloy innovation and grow domestic capacity in re-processing and semi-finishing. Given that aluminium production, consumption and recycling is an ecosystem, this is essential to increasing scrap re-utilisation.
- **Whole-life design innovation**
  Collaborate with knowledge partners and application-specific stakeholders (packaging, construction, automotive, aerospace and rail industries) to embed aluminium recycling into the whole-life design process. This includes looking at how to replace other materials that are more difficult to recycle with aluminium, thereby increasing product recyclability. It also includes making it easier to dismantle and sort parts for more efficient recycling, as well as designing ways of extending life through upgrades and re-use.
- **National recycling strategy**
  Support Government in developing a national reuse, remanufacturing and recycling strategy to reduce aluminium scrap exports and boost domestic use of recycled aluminium. This includes developing and supporting community initiatives to promote recycling and reduce waste going to landfill.



[4] European Aluminium, Vision 2050.
[5] Excluding packaging scrap.

ALFED
ALUMINIUM FEDERATION
TRAINING ACADEMY

TRAINING ACADEMY & BLOODHOUND EDUCATION UPDATE

TRAINING SO FAR - ACADEMY MODEL FLOURISHES DESPITE COVID

Our training and education manager, Kathy Romback, considers the evolution of our academy model during Covid – and looks to its future.

"Fostering a culture of continuous improvement, for ALFED staff and members' employees, has been at the heart of our academy since it was established three years ago.

However, over the last three years we have transformed how we deliver training, in terms of both its range and its quality, and as we finally emerge from Covid, I thought it time to offer an overview of the changes.

Until 2018, we offered just two courses: World of Aluminium (intermediate) and Aluminium for Engineers (advanced), but when members revealed retention had become a significant challenge, we developed a management training programme and began to develop an academy model.

We also saw the need to deliver entry level technical training, aimed at new recruits, back-office staff and sales teams, so we developed an introductory-level Aluminium Light programme, based on ten webinars of 45 minutes apiece.

These have been tremendously successful, which justified our decision to keep them relatively short and make them easily accessible, so staff weren't taken away from their workplace for too long.

In October 2018, we launched our first leadership and management training, offering a CPD accredited programme in-person at our venues in Coventry and Halesowen. Pleasingly, these sessions also proved popular, and even during lockdown we delivered them to small groups online.

Inevitably though, when Covid suddenly impacted everything and everyone in March 2020, we had to change our model to suit the new requirements of members and the restrictions placed on ourselves.

It was clear that enhanced sales and marketing campaigns were pivotal if members were to withstand the impact of lockdown, so we developed new one-day sessions and also created a six-week digital sales programme which will run again this October.

As our training went online, it became instantly more accessible, and as well as delivering to UK-based members, we welcomed a host of international newcomers, including delegates from Mexico, the Republic of Ireland, Norway, Russia, South Africa, Sweden, Turkey, the UAE and the USA.

At the same time, we stepped up our technical programmes to include welding, casting and further industry-specific webinars, and all those courses are also now available in-house.

During 2021, the audience for such training continues to expand, and we have delivered technical webinars to such diverse organisations as the Aluminium Federation of South Africa (which has a wonderful 'aluminium - light, strong and beautiful' slogan).

Lectures to our knowledge partners, which include six leading universities, have been in great demand right through Covid with hundreds of students joining us online.

Even as the most visible signs of Covid continue to fade, we will continue to focus on delivering online training, however we can offer bespoke in-house technical training at members' sites.

Our series of free webinars currently includes such topics as marketing in a post-Covid world, mental health, sales, working from home and the 'Contribution Compass' profiling process.

Our online health & safety short courses are also available on our e-learning platform along with a module we created to help members get the most from LinkedIn.

During Q4 2021, we will be adding new sessions on the casting of aluminium, digital transformation, and the latest marketing techniques.

As we move into 2022, we will continue to both be pro-active on behalf of our members, listen intently to feedback and focus on new health and safety, leadership and sales programmes.

We will also extend our series of free webinars and develop our e-learning platform to further extend our reach, both nationally and overseas."

BLOODHOUND EDUCATION UPDATE

The Bloodhound Education Charity is fortunate to have a range of individual, organisational partners and supporters who make their work possible. Thanks to the continued support from ALFED they have been able to create their Sustainable Schools Project for Key Stage 3 students.

This project went live in January 2021 exemplifying the cutting-edge technologies of the Bloodhound Land Speed Record Car, and the resourceful engineering required in remote parts of Africa.

It is ideal for a home-schooling task and may also be more complex processes and equipment available in a school workshop.

Designed to cover the KS3 Design and Technology National Curriculum, it may easily be adapted for D of E participants, Enterprise students and more.

The objective is to design, develop, create and share a tool or idea, which solves a real-world problem sustainably.

The mission is to:

1. Identify a problem in your community or globally.
2. Design and develop a tool or idea to help solve the problem.
3. Have an impact!
4. Share your tool, you can change the world.

WHAT BLOODHOUND EDUCATION OFFER?

Parents, teachers and educators, PowerPoint slides, with teacher's notes and worksheets. They are happy to report so far this project has reached over 2,800 students which will continue to grow once the school term starts again in September.

For further information on how to access this project for your school please contact Kathy Romback at ALFED - kromback@alfed.org.uk.

ALFED TECHNICAL TRAINING COURSES

INTRODUCTION TO ALUMINIUM
– Introductory/Beginner Level

These webinars introduce and provide a broad basic knowledge of aluminium and its industry for support staff, administration, accounts, purchasing, for those who are progressing their careers into sales, marketing, manufacturing or quality roles and for new entrants into the aluminium industry assuming no prior knowledge of aluminium or understanding of manufacturing

Production of Aluminium & Global Demand – Module 2

- Sources of aluminium, how it is refined and produced
- Growth relationship with the availability of electricity
- Low carbon recyclability of aluminium
- What differentiates it from other materials
- Understanding how supply is matching demand

When: 30 September

Wrought Aluminium & Applications – Module 3

- How aluminium alloys group specifications were developed
- Focusing on the properties of each alloy specification group, explains their uses and illustrates applications
- Concluding by dispelling myths on aluminium, fire and health demand

When: 14 October

Heat Treatment of Aluminium – Module 4

- The difference between non-heat treatable alloys and heat treatable alloys
- How non heat treatable alloys are strain hardened and heat treatable alloys age hardened
- Understanding this module completes the understanding required to select correct alloys for applications

When: 28 October

For more information or to book a place please click: bit.ly/TrainWithALFED

Elastic & Plastic Behaviour of Metals – Module 5

- Understanding how metals behave under load, and the applicability of the significant characteristics to product design
- How characteristics are determined/ proved by tensile and/or hardness testing

When: 11 November

Production of Wrought Aluminium – Module 6

- How plate, slab, shate, sheet and foil are produced and some of their innovative applications
- Introduction to product defects

When: 24 November

Extrusion – Module 7

The super-plasticity of aluminium at moderate temperatures sets aluminium apart from all other metals in its ability to be extruded. This module outlines:

- The extrusion process
- Exploring its potentials, product designs and applications
- A study of extrusion introduced defects

When: 9 December

The format of these modules is live, tutor-led interactive webinar and the approx. length of each is 30-45 minutes.

Cost: **ALFED members offer 2 for 1: £33.33+vat/2 persons Non members: £33.33 +vat/person**

ALUMINIUM FOR ENGINEERS
– Advanced Level

An intensive course that creates the foundation and builds up knowledge from basic introduction to metals to the wide application of aluminium. The 'Aluminium for Engineers' syllabus covers metallurgy, specification, heat treatment, wrought processing, joining, testing, corrosion, coating and more.

All participants get a complimentary copy of the Aluminium Federation's book 'The Properties of Aluminium and its Alloys'.

This course is aimed at metallurgists, designers, manufacturing engineers and companies transitioning into aluminium.

This live, tutor-led interactive workshop will be delivered over four mornings via our online platform.

When: 15, 16, 17 & 18 November: 9.30-12.30

Cost: ALFED members £395+vat/person Non members £495+vat/person

The World of Aluminium is an intermediate level technical course and is specifically designed for production engineers, process and quality technicians, stockholders, customer facing sales/marketing persons and material/product purchasing individuals.

This course is aimed at individuals who require a solid basic understanding to confidently engage with the aluminium industry and its products.

The course creates a solid basic understanding of aluminium, aluminium metallurgy, heat treatment and metal forming processes. It assumes no prior knowledge of metallurgy.

Technical elements are balanced with insights into the history of aluminium, its growth as the strategic metal of society, its sustainability properties and illustration of products, to create a holistic broad rounded knowledge.

This live, tutor-led interactive workshop will be delivered over two consecutive mornings via our zoom platform.

When: 28 & 29 September 2021: 9.30-12.30

Cost: ALFED members £199+vat/person Non members £299+vat/person

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ALFED SALES & HEALTH AND SAFETY COURSES

SALES COURSES

Digital sales programme

The ALFED digital sales programme will equip you with the skills needed to drive more sales and increase your on-target earnings.

You will learn how to make extra sales faster and more effectively using social selling techniques.

This course is a live, interactive, presenter led online training one morning a week for six weeks to include tools like LinkedIn and other social media platforms.

We will start from the basics of selling up to some advanced techniques, such as:

- Introduction to digital selling
- Advanced consultative selling
- Using social channels to prospect and generate new leads
- Communication and engagement
- Social content
- Integration and strategy

Designed to help you integrate digital techniques into your sales process to acquire more prospects, reduce lead times, nurture customers and drive revenue.

When: 5, 12, 19 & 20 October and 2 & 9 November

Duration: One morning a week for six weeks

Cost: ALFED members £595+vat/person
Non members £695+vat/person

For more information or to book a place please click: bit.ly/TrainWithALFED

HEALTH AND SAFETY COURSES

The ALFED online health and safety courses are all CPD accredited and certified by various accrediting agencies, including iirsm, The CPD Certification Service and ILM.

All of these courses are fully online and the course material will be available to the candidate for one year after the completion of the certification period.

- Asbestos Awareness (RoSPA & IATP Approved)
- Manual Handling (CPD Approved)
- Basic Fire Safety Awareness (RoSPA, IFE & CPD Approved)
- Fire Marshal (RoSPA & CPD Approved)
- Fire Extinguisher Safety (RoSPA & CPD Approved)
- Abrasive Wheels (IIRSM Approved)
- Working at Height (RoSPA Approved)
- Control of Substances Hazardous to Health (COSHH) (IIRSM Approved)
- Working Safely (RoSPA & IIRSM Approved)
- Emergency First Aid at Work - Refresher
- Workplace Health and Safety (IIRSM Approved)
- Working in Confined Space (IIRSM Approved)
- Introduction to Risk Assessment (IIRSM Approved)
- Electrical Safety (IIRSM Approved)
- Slips, Trips and Falls (IIRSM Approved)
- Noise Awareness (IIRSM Approved)
- Risk Assessment
- Personal Safety for Lone Workers
- Display Screen Equipment
- Behavioural Safety

Cost: Prices start from £45+vat/person per course

ALFED HEALTH, SAFETY & ENVIRONMENT CONFERENCE

TUESDAY 5 OCTOBER 2021
WOLVERHAMPTON POSTPONED

A free to attend one-day health, safety & environment conference with presentations on current issues and upcoming legislation.

It is anticipated that this event will attract around 100 delegates representing most sectors of the UK aluminium industry and is an excellent networking opportunity for quality, health, safety & environment professionals and anyone interested in the H, S & E issues.

PROGRAMME

09:15 Registration & Refreshments

Welcome

HSE Update - Martin Giles, HSE

Construction Design Management - Alastair Mitchell, HSE

11:00 Coffee Break and Networking

Alcohol & Drug Abuse in the Workplace - Sarah Taylor-Robinson, Go2Wellbeing

Overview of National Resources Wales regulation and how Wales differs slightly from the rest of the UK Jeremy Walters, National Resources Wales

Metal Working Fluids – Paul Smith, HSE

12:45 Lunch

Lisa Ramos, Inspirational Speaker Lisa Ramos was involved in a forklift accident at work in 2006 and as a result of this, is now an above knee amputee. Lisa and her husband Dave offer a unique alternative to raising awareness of health & safety issues within the workplace, with their frank and honest account of her rehabilitation, and the long-term struggles that are part and parcel of adjusting to life, as a disabled person.

14:45 Coffee Break and Networking

UK Best Available Techniques (BAT) - Oluwafemi Akinremi, DEFRA

Welding and Grinding. Improving Worker Health through Better Understanding the Hazards and Provision of PPE – Scott Blakelock and Theo Simon, 3M

Occupational Health and an Ageing Workforce – Ian Kendall, Croner

Closing Comments

16:30 End of Event

THIS EVENT HAS BEEN POSTPONED DUE TO UNFORESEEN CIRCUMSTANCES. WE ARE LOOKING AT RE-ARRANGING IT AND WE'LL PUBLISH A NEW DATE SOON.

RESERVE YOUR EXHIBITION SPACE:

There is an opportunity for your company to secure an exhibition space enabling your company to promote your products and to network with companies. There will be plenty of opportunities during the breaks for delegates to view the exhibits and discuss your products.

- Space approx. 2m wide
- Table and 2 chairs, with space behind it for a pull-up banner(s)
- All refreshments including lunch for your representative(s)

Cost: £325.00 + vat per exhibition space

Reserve your space: Please email Margaret Lane at ALFED: mlane@alfed.org.uk.

INSURANCE

BUSINESS INTERRUPTION – GROSS PROFIT

In almost every case we see in business interruption insurance policies that we review, gross profit is incorrectly calculated for insurance purposes – insurable gross profit is different to accounting gross profit - making it harder to return to a pre-loss trading position.

A BIG DEAL?

- The definition of accounting gross profit is not the same as insurance gross profit
- Applying the wrong definition can carry a significant impact and the value attributed to the insurance is going to be incorrect
- The length of time it will take to get back to a pre-loss position (or indemnity period) is often significantly understated
- Supply chain vulnerability is often overlooked. Being prepared with the correct schedule of trading partners helps both the insured and insurer to identify and calculate the risk, and the impact on insurance gross profit
- Location, location, location. Insurance claims relate to the specific physical location where products and services are `made`, not the corporate Head Office. Get it wrong, and you've got a problem on your hands – a big issue when addressing suppliers and customers.
- Even in the current climate, businesses are outperforming against their original plan. Regularly reviewing your levels of cover and making mid-term adjustments is important to avoid being under insured in the event of a claim.

The issue: Misunderstanding the correct definition of gross profit and value.

Which translates to: Not insuring what you're intending to insure.

Moral of the story: Business interruption insurance applied incorrectly can take the business backwards.

GET IT RIGHT, AND YOU GET THE RIGHT RESULT. LEAVE IT TO CHANCE, AND PREPARE FOR THE INEVITABLE.

At Gallagher Major Risks Practice - we listen, understand and deliver.

Gallagher Major Risks Practice (MRP) are associated partners to ALFED. This article is intended for guidance only.

For further information, please contact: Russell Gregg, Technical Director – Strategic Business Partner (MRP) - russell_gregg@ajg.com

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ST R | 01932 249546 | www.airproducts.co.uk/

AKZO NOBEL POWDER COATINGS
ST F | 0121 5551500 | www.akzonobel.com/

AKZO NOBEL POWDER COATINGS
ST F | 0191 4012362 | www.akzonobel.com/

ALIDECK
ST | 01622 235672 | www.alideck.co.uk

ALL METAL SERVICES
ST D | 01895 444066 | www.allmetal.co.uk

ALLOY HEAT TREATMENT
ST A | 01384 456777 | www.alloyheat.co.uk

ALMETRON
ST F | 01978 660297 | www.almetron.co.uk/

ALPHA ANODISING & FINISHING
ST F | 01384 233330 | www.alpha-finishing.co.uk

ALUBEND
ST | 03333 050690 | www.alubend.com/

ALUK (GB)
ST F | 01633 810440 | uk.aluk.com/

ALUMINIUM SHAPES
ST EX | 01536 262437 | www.alishapes.co.uk/

ALUPRO
BD R | 01527 597757 | www.alupro.org.uk/

ALUTRADE
ST R | 0121 5520330 | www.alutrade.co.uk/

ALVANCE BRITISH ALUMINIUM
BD R | 01397 902233 | alvancegroup.com/

AMAG UK
ST D | 01372 450661 | www.amag-al4u.com/en

AMARI METALS
BD A D | 01442 260845

ARCHITECTURAL & METAL SYSTEMS UK
ST EX F | 00353 214705100 | www.ams.ie/

ARCHITECTURAL POWDER COATINGS
ST F | 0191 4990770 | apc-gb.com/

ARCONIC GLOBAL ROLLED PRODUCTS
BD D | 01274 805104 | www.arconic.com/

ARCONIC MANUFACTURING (GB)
BD | 0121 2528000 | www.arconic.com/

ARGENTUM METAL MANAGEMENT
ST | 01827 726493 | www.argentum.uk.com/

ARGUS MEDIA
ST | 02077 804200 | www.argusmedia.com/

ARZYZ UK
ST R | 0052 8182880000 | www.arzyz.com/en/

ASC METALS LINCOLN
ST D | 01522 501777 | www.ascmetals.com/

ASH & LACY FINISHES
ST F | 0121 5251444 | www.ashandlacy.com/

ASPECT POWDER COATING
ST F | 01384 826115 | www.aspectpowdercoatings.com/

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AVON METALS
ST R D | 01452 874500 | avonmetals.com/

AXALTA POWDER COATING SYSTEMS UK
ST F | 01325 347003 | www.axalta.com/powdercoatings_gb/en_GB

B

BARLEY CHALU
ST F | 01953 602771 | www.barleychalu.co.uk/

BARNSHAWS SECTION BENDERS
ST | 0121 5578261 | www.barnshaws.com/

BARTLETT SCHOOL OF ARCHITECTURE
KP | 020 76792000 | www.ucl.ac.uk/bartlett/architecture/

BCAST, BRUNEL UNIVERSITY LONDON
KP | 01895 274000 | www.brunel.ac.uk/research/Centres/BCAST

BRIDGNORTH ALUMINIUM
BD R | 01746 788111 | www.bridgnorthaluminium.co.uk/

BRITISH SAFETY INDUSTRY FEDERATION
KP | 01442 248744 | www.bsif.co.uk/

BROMPTON BICYCLE
ST | 020 82328484 | www.brompton.com/

BURCHILL GC
KP | 07766 461018 | burchillgc.com/

C

CAPALEX - CAPITAL ALUMINIUM EXTRUSIONS
ST EX | 01946 811771 | www.capalex.co.uk/

CAPITAL REFRACTORIES
ST | 01246 811163 | www.capital-refractories.com/

CASHMORES METALS
ST D | 01922 720930 | www.cashmores.com/

CHEMETALL
ST F | 01908 649333 | www.chemetall.com/

CMK (TREATMENTS)
ST F | 0121 5523131 | www.cmkgroup.co.uk/

COLESHILL ALUMINIUM
ST R | 01675 463170 | www.coleshill-aluminium.com/

CONCORDIA INTERNATIONAL FORWARDING
ST D | 01784 262200 | www.concordiafreight.com/

COVENTRY UNIVERSITY
KP | 02477 657688 | www.coventry.ac.uk/

COVENTYA
SU | 01902 797990 | www.coventya.com/

CRU INTERNATIONAL
KP | 02079 032000 | www.crugroup.com/

D

DORE METAL SERVICES
ST D | 01795 473551 | www.doremetals.co.uk/

E

ECODEK
ST | 01978 667840 | www.ecodek.co.uk

ELECTROSTATIC COATING
ST F | 01162 624671 | www.escoating.co.uk/

ELUMATEC UNITED KINGDOM
ST | 01908 580800 | www.elumatec.com/en/

EMR - EUROPEAN METAL RECYCLING
ST R | 0121 5288961 | www.uk.emrgroup.com/

ENERGY MANAGEMENT LLP
KP | 01225 867722 | www.energymanagementltd.com/

ENVIROBUILD MATERIALS
ST | 02045 028968 | www.envirobuild.com/

EPWIN GROUP
ST F | 01952 293229 | www.epwin.co.uk/

EURAMAX COATED PRODUCTS
ST F | 01536 400800 | www.euramax.eu/

EXLABESA EXTRUSIONS DONCASTER
ST F | 01302 762500 | www.exlabesa.co.uk/

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F

FABAL UK
ST | 01865 589398 | www.fabal.com.tr/

FOUNDRAX ENGINEERING PRODUCTS
ST | 01458 274888 | www.factorysuppliers.com/

FRONIUS UK
ST | 01908 512300 | www.fronius.com/en-gb/uk

FUEL FURNACES
SU | 01922 458330 | -

G

GARNALEX - GARNER ALUMINIUM EXTRUSIONS
ST | 01332 883950 | www.garnalex.com/

GESTAMP CHASSIS
ST | 01325 313232 | www.gestamp.com/en/home

GESTAMP TALLENT
ST | 01325 313232 | www.gestamp.com/en/home

GESTAMP TALLENT (WOLV)
ST | 01543 456507 | www.gestamp.com/en/home

GESTAMP UK
ST | 01325 329168 | www.gestamp.com/en/home

GOULD ALLOYS
ST D | 01246 263300 | www.gouldalloys.com/

GSM ALUMINIUM
ST D | 01274 581710 | www.gsmltd.co.uk/

H

HANA-TECH LTD
KP | 01384 913010 | www.hana-tech.co.uk/

HARSCO ALTEK EUROPE
ST R | 01246 383737 | www.altek-al.com/

HEAT TREATMENT 2000
ST A | 0121 5262000 | www.heattreat2000.co.uk/

HERAEUS NOBLELIGHT
SU | 0151 3532710 | www.heraeus-infraredsolutions.co.uk/

HITACHI HIGH-TECH ANALYTICAL SCIENCE
SU | 01235 977900 | www.hha.hitachi-hightech.com/

HOGANAS (GB)
ST | 01732 362243 | www.hoganas.com/

HULAMIN OPERATIONS
ST D | 01227 479180 | www.hulamin.com/

HUTTENES-ALBERTUS (UK)
ST | 01226 760910 | www.huettenes-albertus.com/en/

HYDRO ALUMINIUM DEESIDE
ST | 01978 660231 | www.hydro.com/en-GB

HYDRO BUILDING SYSTEMS UK
BD F | 01684 853500 | www.hydro.com/en-GB

HYDRO COMPONENTS GLOUCESTER
BD A | 01452 502502 | www.hydro.com/en/gloucestercomp/

HYDRO COMPONENTS UK
BD | 01773 549300 | www.hydro.com/en-GB/about-hydro/hydro-worldwide/europe/uk bedwas/hydro-fabrication-bedwas/

HYDRO EXTRUSION UK
BD EX F | 01773 872761 | www.hydro.com/en/cheltenhamextr/

HYDRO EXTRUSION UK
BD F R | 01773 549300 | www.hydro.com/en-GB

I

IMA SCHELLING UK
ST D | 01937 586340 | www.schelling-solutions.co.uk/

IMPRESSION TECHNOLOGIES
ST A | 02036 673593 | www.impression-technologies.com/

INAL (2020)
ST EX | 01617 900118 | www.inal.com/

INDUSTRIAL PHYSICS
SU | 02039 363565 | www.industrialphysics.com/ic

INNOVAL TECHNOLOGY
ST | 01295 702800 | www.innovaltec.com/

INSTITUTE OF MATERIALS FINISHING
KP | 0121 6227387 | www.materials-finishing.org/

MEMBER TYPE: BD Board; ST Standard; SU Supplier; KP Knowledge Partner

SECTOR GROUP: A Automotive; D Distribution; EX Extrusion; F Finishing; R Recycling

IPG PHOTONICS (UK)
ST | 02477 103831 | www.ipgphotonics.com/en

ISC - INTERNATIONAL SAFETY COMPONENTS
ST | 01248 363125 | www.iscwales.com/

J

JENKS AND CATTELL ENGINEERING
ST | 01902 305530 | www.jcel.co.uk/

K

K HOME INTERNATIONAL
ST | 01642 765421 | www.khe.co.uk/

KEEN
BD A EX F R | 01865 261431 | www.keen.biz/

KINGSPAN (SHERBURN)
ST | 01944 712000 | www.kingspan.com/gb/en-gb

KLUTHE UK
ST F | 01908 698990 | www.kluthe.com/en

KNOWLEDGE MASTER UK
SU | 07739 420535 | www.knowledgemasteruk.com/

KYOCERA SGS PRECISION TOOLS EUROPE
ST | 01189 380567 | www.kyocera-sgstool.eu/

L

LASER PROFILES
ST D | 01202 875657 | www.laserprofiles.co.uk/

LEVOLUX
ST | 01452 500007 | www.levolux.com/

LONDON METAL EXCHANGE
ST | 0207 1138888 | www.lme.com/

LUXFER MEL TECHNOLOGIES
ST | 0161 9111000 | www.luxfermeltechnologies.com/

M

MAKE UK
KP | 020 72227777 | www.makeuk.org/

MATERION UK
ST | 01252 375001 | www.materion.com/

MCA UK
ST D | 0121 7094813 | www.mcalloys.com/

MECHATHERM INTERNATIONAL
ST | 01384 279132 | www.mechatherm.com/

MEPS INTERNATIONAL
ST | 01142 750570 | www.meps.co.uk/gb/en/

METAL COATING SERVICES
ST | 01482 820202 | www.metalcoatingservices.com/

METALEX ACP LTD (FORMERLY ALIMEX)
ST D | 01908 224240 | www.metalex.co.uk/

METALEX PRODUCTS
ST D | 03302 232653 | www.metalex.co.uk/

METALFIN
ST D | 01922 451115 | www.metalfinstockholders.com/

METALLIC PROTECTIVES
ST F | 01926 811851 | www.metallicprotectives.co.uk/

METALWEB
ST D | 0121 3287700 | www.metalweb.co.uk/

MICAS SIMULATIONS T/A QFORM UK
ST | 01865 775412 | www.qform3d.co.uk/

MILVER METAL CO
ST R | 02476 667098 | www.milvermetal.com/

MULTI METALS
ST D | 01698 841199 | www.multimetals.com/

MULTIPANEL UK
ST D | 01304 831319 | www.multipaneluk.co.uk/

N

NCH CHEM AQUA
ST | 01902 510200 | www.ncheurope.com/en/

NEXTDAY METALS
ST D | 01604 415036 | www.nextdaymetals.co.uk

NORTON ALUMINIUM
ST R | 01543 279329 | www.nortal.co.uk/

NOVELIS AUTOMOTIVE EUROPE
BD R | 0121 5656228 | www.novelis.com/

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NOVELIS EUROPE
BD R | 01483 853136 | www.novelis.com/sustainability

NOVELIS UK
BD R | 01925 784113 | www.novelis.com/

P

PHOENIX MATERIALS TESTING
ST | 01384 382253 | www.phoenix-mt.co.uk/

PLASTOMETREX
SU | 01223 867992 | www.plastometrex.com/

POWDERTECH (CORBY)
ST A F | 01536 400890 | www.powdertechcorby.co.uk/

POWDERTECH SURFACE SCIENCE
ST A F | 01869 320600 | www.powdertech.co.uk/

PRESS METAL UK
ST D | 01902 498667 | www.pressmetalukltd.com

PRETREAT
ST F | 01422 847671 | www.pretreat.co.uk/

PRE-TREATMENT SOLUTIONS
ST F | 02475 090133 | www.pretreatmentsolutionsltd.com/

PRIMETALS TECHNOLOGIES
ST | 01709 726571 | www.primetals.com/

R

REAL ALLOY UK
BD R | 01792 871000 | www.realalloy.com/eu/#

REAZN UK
ST | 01543 276666 | www.reazn.com/

RICHARD AUSTIN ALLOYS (GLASGOW)
ST D | 01417 718391 | www.raaltd.com/

RIGHTON BLACKBURNS (PART OF AMARI GROUP)
ST D | 01384 276400 | www.rightonblackburns.co.uk/

RIMSTOCK
ST | 0121 5252525 | www.rimstock.com/

ROTECH LABORATORIES
ST | 0121 5054050 | www.rotechlabs.co.uk/

RUSAL MARKETING GMBH
ST R | 0041 415609800 | www.rusal.ru/en/press-center/press-releases/uc_rusal_opens_trade_office_in_switzerland/

S

SCANSTRUT
ST | 01392 531280 | www.scanstrut.com/

SCIENCE AND TECHNOLOGY FACILITIES COUNCIL PART OF UNITED KINGDOM RESEARCH AND INNOVATION
KP | 01235 445962 | www.stfc.ukri.org/

SDE TECHNOLOGY
ST | 01743 450501 | www.sde.technology/

SENIOR ARCHITECTURAL SYSTEMS
ST | 01709 772600 | www.seniorarchitectural.co.uk/

SHERWIN WILLIAMS UK
ST F | 01514 860486 | www.inver.com/en

SILBERLINE
ST | 01333 424734 | www.silberline.com/

SIMMAL
ST | 01772 318218 | www.simmal.com/

SKF (UK)
ST | 01275 876021 | www.skf.com/uk

SMITHS ADVANCED METALS
ST | 01767 604671 | www.smithsadvanced.com/

SMITHS METAL CENTRES (BEDFORDSHIRE)
ST D | 08455 273331 | www.smithmetal.com/

SMITHS METAL CENTRES (NOTTINGHAMSHIRE)
ST D | 08455 273331 | www.smithmetal.com/

SMITHS METAL CENTRES (HERTFORDSHIRE)
ST D | 08455 273331 | www.smithmetal.com/

SNELSONS
ST F | 01606 553580 | www.snelsons.co.uk/

SPA ALUMINIUM
ST D F | 01892 533911 | www.spaaluminium.com

SPARTAL
ST | 01386 700898 | www.spartal.co.uk/

MEMBER TYPE: BD Board; ST Standard; SU Supplier; KP Knowledge Partner

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SPEIRA UK
ST D | 01902 396630 | www.speira.com

SUPERIOR PAINT & POWDER COATING
ST F | 02476 464676 | www.sppcltd.co.uk

SWANSEA UNIVERSITY
KP | 01792 606770 | www.project-metal.co.uk/

T

TANDOM METALLURGICAL GROUP
ST R | 01260 271122 | www.tandom.co.uk/

TECOMET (SYMMETRY MEDICAL)
ST | 01142 855881 | www.symmetrymedical.com/

THE METAL CENTRE
ST D | 0121 3527200 | www.themetalcentre.com/

THE SOCIETY OF MOTOR MANUFACTURERS & TRADERS (SMMT)
KP | 020 72357000 | www.smmt.co.uk/

THE UNIVERSITY OF SHEFFIELD
KP | 01142 222000 | www.sheffield.ac.uk/materials

TIMET UK
ST | 0121 3561155 | www.timet.com/

TIMET UK
ST | 01792 873471 | www.timet.com/

TOMBURN
ST F | 02392 692020 | www.tomburn.com/

TOMRA SORTING
ST R | 01162 181430 | www.tomra.com/en

TWI - THE WELDING INSTITUTE
KP | 01223 899000 | www.twi-global.com/

U

UK PROFILE COMPONENTS
ST | 0333 4560121 | www.lovealuminium.co.uk

ULTROMEX
SU | 01512 038377 | www.ultromex.com/

UNITED ANODISERS (WEST YORKSHIRE)
ST F | 01484 533142 | www.unitedanodisers.com/

UNITED ANODISERS (MIDDLESEX)
ST F | 01895 871700 | www.unitedanodisers.com/

UNIVERSITY OF WARWICK
KP | 02476 523523 | www.warwick.ac.uk/

UNIVERSITY OF WOLVERHAMPTON
KP | 01902 323900 | www.wlv.ac.uk/

V

VERTIK-AL
ST F | 0121 6087171 | www.vertik-al.com/

VOITH TURBO
ST | 02086 670333 | www.voith.com/uk-en/

W

W H TILDESLEY
ST | 01902 366440 | www.whtildesley.com/

WESTMORELAND MECH.TESTING & RESEARCH
ST | 01295 261211 | www.wmtr.co.uk/

WILLIAM KING
ST A | 0121 5004100 | www.williamking.co.uk/

WILSONS
ST D | 01487 833600 | www.wilsonsmetals.com/

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For more information, please contact:

Russell Gregg

T: **07708 483 717**

E: **russell_gregg@ajg.com**

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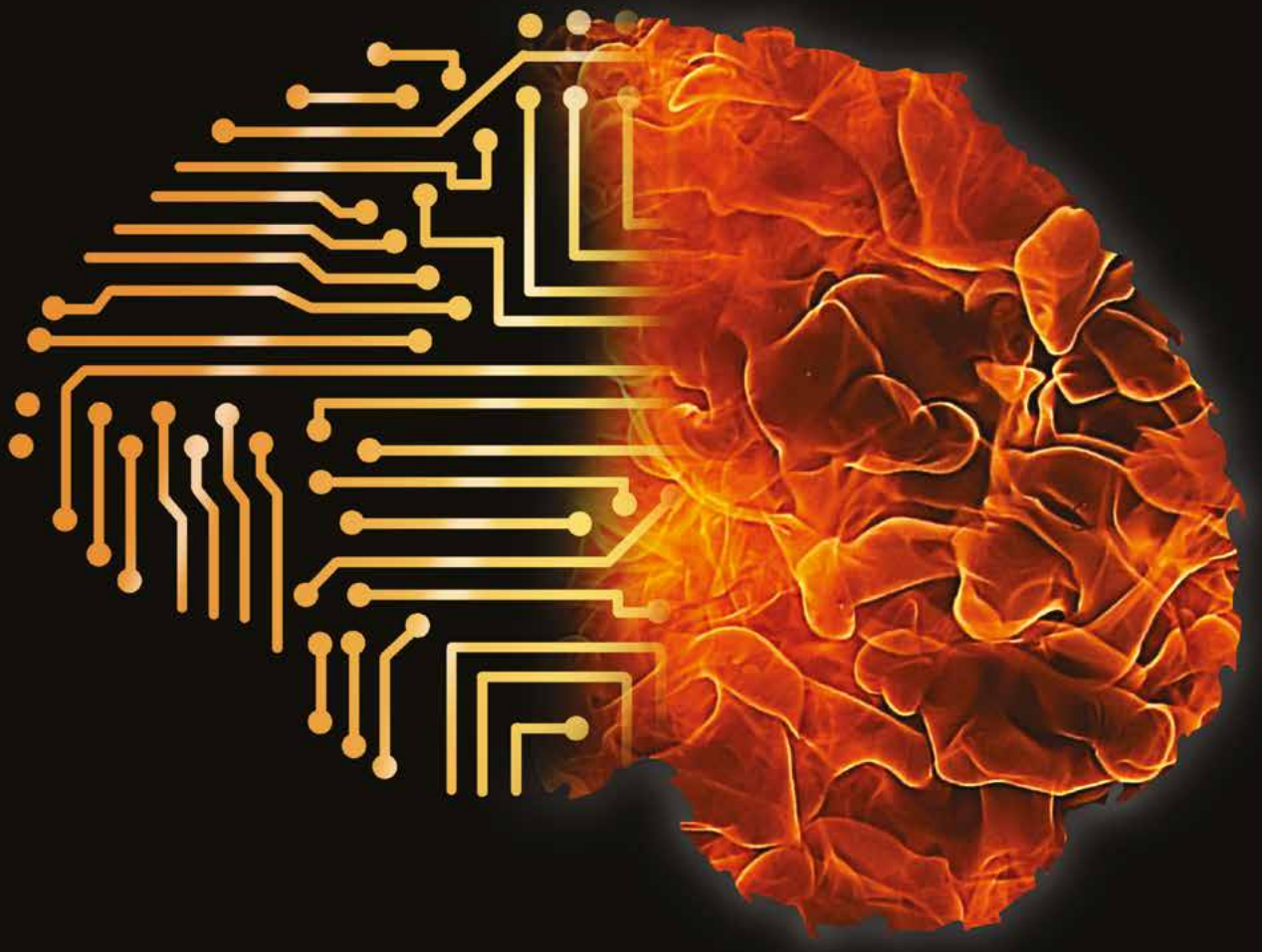

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