Chemicals northwest

ISSN 2396-8567 (Print)
ISSN 2396-8575 (Online)

Spring 2023

A spotlight on the vibrant north west chemicals sector

Elements

In this issue:

...Plus, news and articles from a wide range of our members

Awards Edition Winners inside this issue! Pages 8 - 15

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Designed and Printed by:

2co Limited
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Email: info@2-co.com

Chemicals Northwest is part of the Chemical Industries Association

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This edition is sponsored by RAS RISK & HAZARD MANAGEMENT

Contents Spring 2023

Membership

Would your company benefit from joining an organisation that supports and promotes the chemistry-using sector in the Northwest? Do you want to understand more, and contribute to, the industry issues within the region?
If you are a manufacturer, chemical user or offer products and services to the sector, why not join us today?

https://www.cia.org.uk/chemicalsnorthwest/Membership/Benefits-Costs/

2023 rates. ***(from 1st April 2023)***

Micro corporate membership	(1 - 10 employees)	£493.28
Standard corporate membership	(11-100 employees)	£857.97
Large corporate membership	(100+ employees)	£1091.85

Our membership year runs from 1 April to 31 March. A pro-rata basis usually applies to joining at other times in the year and we'd be happy to discuss on application.

Welcome

Dear Reader,

Welcome to the Spring edition of Elements and hot off the press announcement of our Chemicals Northwest 2023 Award winners.

We were delighted to celebrate the Chemicals Northwest Awards on the 23rd March at the Hilton Manchester Deansgate hotel. Sam McAlister hosted the evening brilliantly and our live band “Fleur and the Flamingos” ensured our 300+ guests were richly entertained throughout. A special “Thank You” to all sponsors without whom the event would not have been possible. The Chemicals Northwest team and expert judging panel were delighted at the exceptional standard and high number of award entries. Our sincere congratulations to all winners but also thanks and admiration to all who submitted an entry. Read more about our special evening on the inside pages.

Looking ahead CNW are looking forward to participating at CHEMUK 2023 (10/11 May). We are proud to be a “headline partner” for this impressive event and if you are attending do come and say hello on Stand N110. The CHEMUK expo will present 400+ specialist exhibitors and 150+ expert speakers split between three major show zones:

- Chemical Industries Supply Chain
- Chemical, Process & Plant Engineering
- NEW FOR 2023: CHEMLAB – Laboratory & Innovation

We held our breakfast networking event on the 8th March attended by a diverse audience. Ian Cranshaw presented a roundup of the latest industry news and gave updates on the REACHREADY programme, members of Chemicals Northwest receive a discount on this service, please get in touch for further details. Clive Meredith from TTE gave a fascinating history and round up of programmes that TTE provide and the training facilities available to students. Ged Moran, Sales Engineer at Atlas Copco Specialty Rental UK, introduced Atlas as a leading provider of temporary compressed air, power, industrial steam and nitrogen. Ged gave valuable insight into the true cost of ownership vs usership, how rental solutions can lead to cost savings and improved safety, as well as Atlas Copco Specialty Rental’s plans for developing future technology.

Our next breakfast event is on the 15th June in Daresbury, further details can be found on the website. If you would like to present at the next event or would like to run some new topical industry events, please get in touch.

Alex Abraitis - **Member Services and Events Manager**

About us...

Chemicals Northwest is an established business network wholly owned by the Chemical Industries Association.

With around 160 members we actively promote this important regional sector and our objective is to help membership to grow through;

- **facilitating** networking events, common interest groups and interactive workshops, all aimed at covering topical industry issues.
- **supporting** projects and programmes that identify and enhance business performance and generally support continuous improvement across the sector.
- **promoting** science and engineering based skills, helping to address the region’s future needs.
- **improving** the image of the industry overall, including generating a positive reputation, through communicating achievements and success.
- **contributing** to the industry’s strategic voice and the national growth agenda aligned to the work of the Chemical Industries Association.
- **connecting** the community of chemistry-using businesses and the vital supply chains here in the Northwest.

Chemicals Northwest really does bring people together! It is an essential feature of successful networking strategies used by many organisations. We coordinate a range of meetings and events to enable ‘face to face’ networking for the benefit of all members. Every successful business networking organisation also needs effective communications channels.

As a result of gradual development over recent years, getting messages across, promoting member companies and reporting news, Chemicals Northwest has reached new levels of topicality and quality.

Northwest businessman joins a specialist European team with a quest to decarbonise the transport sector

Advanced lightweight materials for energy-efficient structures

FOREST

Funded by the European Union

Paul H. Jones, the inventor of a broad range of innovative, reduced hazard, and bio-based speciality polymers has joined the FOREST consortium. FOREST is short for Advanced lightweight materials for energy efficient structures and is a Horizon Europe project. FOREST is a consortium that will develop innovative bio-based polymers & additives to reinforce recycled carbon fibres to produce lightweight structures that will help the transport sector move towards decarbonisation. The project has commenced and will run until May 2026. The aim of this project is fully aligned with EU 2030 Climate and Energy challenges.

The Transport sector accounts for more than 20% of the green-house emissions in Europe and has always been a key focus area for decarbonisation. Although global emissions declined because of the Pandemic and the associated impact it had on industry, the transport sector has rebounded to an all-time high in 2021. This trend is expected to continue as demand for goods to be moved increases and mitigating actions are needed now.

The FOREST project proposes a combination of three key-drivers for the future of the transport sector decarbonisation: Reduce, Recovery, Reshape.

Reduction in the structural vehicle weight of the vehicle will come through the generation of lightweight composite parts, and the matrix systems used to reinforce the fibres will be derived from sustainable feedstocks. Reducing the vehicle weight will reduce both the emissions and polluting gases of internal combustion engines and increase the efficiency of electric vehicles to meet the EU net-zero greenhouse gas emissions challenge by 2050.

Recovery of carbon fibre to allow switching virgin carbon fibres to recycled carbon fibres is also part of the program of works.

The novel polymers will be designed to adhere to the recovered Carbon and the composite part must maintain the same performance requirements in terms of the structural, safety, and reliability whilst meeting fire retardancy and electromagnetic wave absorption standards.

FOREST will lead the drive with two main approaches that consist of the development of bio-based and recycled materials. Two bio-based system resins (thermoset and thermoplastic) along with one bioadditive for fire-retardant (FR) properties. The consortium consists of industrial resin producers, raw material manufacturers and research centres.

There are three industrial resin manufacturers in the Consortia and they are charged with developing suitable matrix systems. Arkema, BASF, and Bitrez Ltd. The Forest project commenced in January when the Consortia met in Valencia, Spain for the kick off meeting and a series of presentations to outline the intended work and collaborative requirements to achieving their aims. The inaugural event ran across the 25th and 26th January and consortium partner Paul Jones, Managing Director of Bitrez attended to present some of the newly Patented Bio-Benzoxazines that he has developed and that may form part of the sustainable matrix resins employed in these future components.

PATHWAY TO MOBILITY DECARBONIZATION

Paul commented, " It is a privilege to be involved and to support such a worthy project that will target environmental and humanitarian needs through a combination of Science and Industrial pragmatism. It was a pleasure to meet fellow partners and I am delighted to be amongst such distinguished individuals in pursuit of these admirable goals. I am sure that collectively our work will see solutions materialise".

Wendy Howarth

Consortium members pictured outside the meeting venue.

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Only when the risk facing an organisation is well understood can it be effectively managed. Key to the successful identification, assessment and management of risk is engagement with the right people, using the right processes at the right time. We believe we are different to many of our competitors and our approach is distinctive, we don't always walk the well-trodden path but look at each client's particular risk context and develop a tailored solution, working in partnership with our client.

We work across all aspects of risk, from Quantitative Risk Assessments and Predictive & Consequence modelling, through to the 'softer' risks which may affect an organisation's reputation.

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Managing Flood Risk – What can you really do?

When we think of flooding, images of inundation and devastation typically come to mind, whether that's for domestic communities or industrial areas. The credibility of flooding initiating and exacerbating major accidents cannot be questioned. However, the stereotypical image of catastrophic flooding can sometimes lead to a degree of indifference or even fatalism when it comes to preparedness. The question of "what can you really do?" becomes more prominent, especially when larger, more sudden and severe flooding is imagined. With that, comes an implicit suggestion that there's little you can do to make a difference. Of course, the forces of nature are not always something that can be combatted, but there are numerous approaches that can be taken to manage the risk, and not only from a prevention perspective. Can we learn from past incidents and implement precautionary measures? And is it really worth it?

There are numerous historical cases which demonstrate the impact flooding can have on high hazard sites. Just one example in the UK is the East coast storm surge of December 2013. One particular site on the east coast, an upper tier COMAH establishment, was initially subject to some localised flooding and was undertaking clean-up operations. However, the resumption of normal operations rapidly came to a halt when a technician witnessed a 'tsunami like' crash of water flow into an area storing hydrocarbons. All hydrocarbon movements to and from the area were paused until damages could be investigated. Thankfully, no one was harmed and no hazardous substances were released to the environment. However, the delays caused to operations still had a negative economic impact, on this company but also a knock-on effect for other businesses relying on the site. This isn't to say that no flood risk control measures were in place. In fact, the consequences may well have been worse without measures that were in place. These included advanced isolation of all non-essential electrical equipment, sandbagging of vulnerable areas such as switch houses and the removal of all containers that could float. This helps to highlight the importance of preparedness.

Due to the often-unpredictable nature of natural hazards, it is important to be aware of the ways in which flooding can cause damage. It may not always be possible to completely prevent a site from flooding. Flood defences such as berms surrounding industrial complexes are designed to specific flood return periods, which can be exceeded. Damaged or unmaintained defences are also a factor that can reduce their reliability.

Although permanent and robust physical barriers to prevent flooding can be of great benefit, there are numerous other measures that can be implemented. Examples include the elevation of electrical equipment above worst case predicted flood levels. This is typically easier to incorporate into the design of new installations. However, for existing equipment, where it may not be practical to relocate, then a waterproof shelter or flood-proofing around the equipment can minimise the likelihood and extent of damage. The scale and cost of control measures is linked to the question of whether it is worth it. No two measures are the same in terms of cost and disruption, particularly for existing sites. Depending on the site, increasing drainage capacity can help to reduce surface water flooding. Beyond permanent measures, things like temporary flood doors can be used to create a water-tight seal, preventing water from entering buildings. In the aftermath of a flood, the presence of emergency backup generators can also be useful.

Procedural measures are also important in managing flood risk, including those that do not necessarily influence the extent of flooding. It is imperative that all individuals present onsite are fully aware of what to do in the event of an emergency. Additionally, easily accessible evacuation routes with clear signage are beneficial, and not purely in the context of flooding.

Natural hazards such as flooding, especially bearing climate change in mind, are often a matter of when, not if. For this reason, being suitably prepared is vital. Part of this is remembering that, regardless of flood magnitude, there are numerous approaches that can be taken to manage the risk.

For further details visit www.ras.ltd.uk

Chemicals northwest

AWARDS 2023

Chemicals Northwest 2023 Awards – The Awards are back!! Back at the Hilton Manchester Deansgate and back in terms of a record number of categories, entries and companies. Entries remained of the very highest quality showcasing the amazing achievements of companies operating in the sector. The vibrant atmosphere in the room was testament to a sector that continues to deliver across the board despite the challenges faced this year.

The 23rd March Awards Dinner brought together over 300 senior executives from the North West industry. Twelve Awards were presented during the evening but all shortlisted entrants should be very proud of the contribution made to our sector. We deliver innovation, our products are sustainable, the sector has an impressive H&S record and companies continue to invest in skills and talent, to secure the future of the industry. Steve Elliott, CEO of the Chemical Industries Association welcomed guests on behalf of Chemicals Northwest wishing everyone success in the year ahead.

Our host for the event was Sam McAlister

Sam McAlister is a BAFTA-nominated interviews producer who has negotiated with everyone from Buckingham Palace to The White House, Tesla to Facebook. With skills honed over a decade in the BBC's elite news programmes, notably BBC Newsnight. Exclusives include, most famously, the interview with HRH Prince Andrew — but also President Clinton, Elon Musk and Julian Assange. Negotiation, strategy and public speaking have always been at the core of everything that Sam has done — from her time as a criminal defence barrister to her public speaking and debating. Sam's book Scoops: Behind the Scenes of the BBC's Most Shocking Interviews was released in 2022.

Fleur and the Flamingos

Fleur and the Flamingos are a highly talented 4 piece pop band hailing from the musical epicentre of Manchester. The band performed the latest pop alongside classic dancefloor fillers from every era including Dua Lipa, Florence and the Machine and Aretha Franklin. All of the bands members have music degrees from some of the countries most prestigious music colleges, including The Royal Northern College of Music (RNCM), Royal Holloway University of London and Llandrillo college.

The Winners...

Engineering Firm of the Year 2023 - sponsored by Ingevity UK Limited

Winner - Axiom Engineering Associates Ltd

Axiom provide Asset Integrity Management Services to the UK's high-hazard and COMAH regulated sites. Axiom's ability to integrate Process Safety with its existing complementary disciplines provides a unique value proposition to operators. Axiom support clients as they transition away from conventional energy sources. The company continue to invest in skills and talent development with five new apprentices recruited since last year. The company must be doing something right as sales turnover grew 40% in 21-22 with further growth predicted this year.

Engineering Firm of the Year winner - Axiom Engineering Associates Ltd

Manufacturing Company of the Year 2023 - sponsored by PM Group

Manufacturing Company of the Year winner - Libra Speciality Chemicals Ltd

Winner - Libra Speciality Chemicals Ltd

Libra set new production records in 2022, total production volume output was up by 10% year on year, up 50% over the last four years. Libra give credit to their people for boosting production and seamlessly introducing new technologies but the company have also invested in new production capacity. During 2022 Libra commissioned a new 20,000 tpa bespoke membrane system to produce low salt betaines. And then a new 850,000 litre fully automated bulk tank farm. Despite a challenging market Libra have continued to invest in new technology, process plant and its people.

Health and Safety Award 2023 - sponsored by Livent

Winner - Scott Bader Company Ltd

The Judging panel were excited by the citation from Scott Bader. Significant boxes were ticked around sustainability and waste reduction but it was the possibility of ceasing or reducing the use of acetone as a cleaning material that was recognised as a significant step forward in terms of health and safety improvements on chemical production sites. The citation included an excellent description of the hierarchy of control in H&S. The fire risks when handling acetone remain high but breathing even moderate amounts of acetone can lead to irritation of the nose, throat, lungs and eyes. The development of a new water based and efficient process to clean vessels and attachments is very welcome.

Health and Safety winner - Scott Bader Company Ltd

The Winners...

Sustainability Award 2023 - sponsored by Inovyn

Winner - Scott Bader Company Ltd

Scott Bader use batch manufacturing at UK sites, quality and traceability of products is an advantage but it requires the regular cleaning of vessels to avoid cross contamination. The industry knows that adhesives and bonding pastes are tough to clean, often requiring acetone, a highly flammable product. Scott Bader researched alternatives until discovering a water based solution using Ambimization fluid. The solution successfully cleaned vessels and attachments leaving them streak free. Since the start of 2023 Scott Bader no longer use Acetone to clean vessels, the solution is reusable up to 20 times and acetone usage has been reduced by over 50% at a single plant. In term of waste, 500kg of waste reduced to just 40KG.

Sustainability winner - Scott Bader Company Ltd

Operational Excellence Award 2023 - sponsored by Koura

Operational Excellence winner - Klüber Lubrication

Winner - Klüber Lubrication

Lubricants that actually do a lot more than “it says on the tin”. Klüber’s products improve efficiency, lower costs and reduce the carbon footprint of the equipment. Klüber worked closely with BASF at their huge Tarragona petrochemical complex. Existing products led to problems with agitators, requiring costly oil changes and time-consuming scaffolding. Klüber used synthetic oils with enhanced viscosity selection. Improved oxidation and thermal stability resulted in gear oil lasting longer with improvement in viscosity and protection film. The client reduced energy consumption by 5% and lubricant wastage by 66%. Gearbox servicing was extended from annually to once every four years.

International Trade Award 2023 - supported by the Department for Business and Trade

Winner - Anacarda Ltd

Anacarda produce sustainable bio based curing agents for epoxy resins with a reduced hazard rating. The company aspire to become a global leader in suppliers to the Marine sector. CARDAMINE cures faster than competitor products delivering faster turnaround times for improved efficiency. Cardamine is designed to be forgiving in extreme climatic conditions (hot and cold). Anacarda export to Australia, China, France, Germany, India, Indonesia, Italy, Korea, Vietnam and the US. The judging panel noted that 100% of company production is exported.

International Trade winner - Anacarda Ltd

Innovation Award 2023 - sponsored by Appleyard Lees IP LLP

Winner - Chemical Processing Services Limited – (FUROX Bio Benzoxazines)

CPS are recognised for the development of FUROX, a high performance Bio-Benzoxazines as an alternative to conventional petrochemical phenolic resins. In contrast to traditional oil derived resins Bio benzoxazines are derived from sustainable feedstocks and enjoy a reduced hazard rating and no by-products. Feedstock is furfural derived from hydrogenation of pentosane rich biomass including corncobs, sugar cane bagasse and rice hulls. CPS claim that FUROX polymers save between 45 and 85% of the carbon in oil derived equivalents. CPS are collaborating with Fraunhofer Institute for Manufacturing Technology and Advanced Materials and with Röchling to identify business opportunities following a successful launch at K-Fair in Dusseldorf.

Innovation winner - Chemical Processing Services Limited

Young Talent in the Chemical Industry Award 2023 - sponsored by SRG

Young Talent in the Chemical Industry winner - Sian Doyle, Livent

Winner - Sian Doyle - Livent Lithium UK Ltd

Sian joined Livent as an apprentice after completing her A-levels. She spent the next 4 years on college release while gaining experience at Livent's Bromborough site. The judging panel appreciated the huge commitment required for this level of study, combined with working full time and with increasing levels of job responsibility. Upon graduation Sian joined the business as a technician and was the first female production operative in 20 years. Further promotions have followed and Sian, now a Shift Team Leader has not finished with studying. In January 2023 Sian completed a HND in Process Engineering. Livent are proud to have Sian as part of their superb workforce and we are delighted to have her working in the North West.

Corporate Social Responsibility Award 2023 - sponsored by SLR Consulting Limited

Winner - The 2M Group of Companies

The Judging Panel considered against two critical elements when considering entries. The different areas of CSR and the breadth and variety of engagement. 2M Group hit all the right markers. The methods of engagement, knowledge sharing, mental health first aiders, charitable giving and Open Door activities to facilitate full engagement with all staff were noteworthy. STEM engagement with local schools and paid time away from work to invest in charitable work beyond best practise. A fantastic effort from a company that is a credit to our sector and region.

Corporate Social Responsibility winner - The 2M Group of Companies

Chemicals northwest AWARDS 2023

Charity of the Year Award 2023 – sponsored by Valtris Specialty Chemicals - Joint Winners.

Catalyst Science Discovery Centre & Museum

Catalyst successfully accessed the Inspiring Science Fund from UKRI and the Wellcome Trust to introduce new interactive exhibits this year. A particular focus was the challenge to decarbonise our sector by 2050. Catalyst worked alongside the North West Hydrogen Alliance to develop a touchscreen game for primary school children who are required to make difficult choices to decarbonise their homes, industry and infrastructure. More than 40,000 youngsters visited Catalyst in 2022.

Charity of the Year winners - Chemistry with Cabbage and Catalyst Science Discovery Centre and Museum

Chemistry with Cabbage

Chemistry with Cabbage continue to spread the gospel of chemistry within local schools and communities. The end of Covid restrictions has seen a return to in-school activities and Chemistry with Cabbage are already working with over 200 schools and 6000 students. Testimonials from parents, students and from Ofsted have been glowing in support of the interaction achieved. CwC is funded through sponsorship from North West businesses and a grant from the Royal Society of Chemistry has enabled them to reach larger numbers of students in areas of significant social deprivation.

Supplier to the Chemical Industry Award 2023 - sponsored by Otto Simon

Winner - Dr Knoell Consult Ltd

The chemical industry rightly welcomes the detailed regulation that governs our sector. We have to consistently show that our products do not harm either human health or the environment and we must provide safe facilities for people to work in and go home from. Consultants that advise our companies provide expertise to ensure compliance and best practise and to allow our products to be placed on the market. Dr Knoell Consult have supported a large number of companies in recent years. Knoell UK represent more than 100 non-UK companies selling into the UK market having developed a business model that offered their services to non-UK companies as their OR and partner for UK REACH.


Supplier to the Chemical Industry winner - Dr Knoell Consult Ltd

The Winners...

Partnership Award 2023 - sponsored by the Chemical Industries Association

Winner - Hibiscus Plc & Catriona Dunn from Leeds Teaching Hospital Trust (the National Pathology Imaging Cooperative)

The joint project aimed to improve the efficiency of cancer screenings. The old method involved the staining of tissue and the slide being inspected promptly under a microscope. Hibiscus developed a label, housing a specialist biopolymer which permitted slides to be read locally with information stored and then sent digitally. Additional data was stored using QR codes and it has allowed the University of Leeds Pathology and Tumour section to access modern digital technology and to deliver quicker and more accurate diagnoses.

Partnership award winner - Hibiscus Plc and Catriona Dunn from Leeds Teaching Hospital Trust

The Sponsors...

With thanks to our award sponsors

CHEMUK 2023 – Headline sponsor

CHEMUK 2023 will next be held on the 10th & 11th May 2023 at the NEC in Birmingham. The expo will present 400+ specialist exhibitors and 150+ expert speakers split between three major show zones: Chemical Industries Supply Chain, Chemical, Process & Plant Engineering, NEW FOR 2023: CHEMLAB. Find out more here - https://www.chemicalukexpo.com/

Appleyard Lees IP LLP – sponsor of the Innovation Award 2023

Appleyard Lees is a leading intellectual property law firm with over fifty patent and trade mark attorneys and litigators. Who they are and what they do – but also, how they do it – makes them distinctive. They help their clients protect and monetise their intellectual property. They offer broad sector and industry knowledge with offices in UK innovation hotspots, they are positioned to give clients expert strategic IP advice in the UK and worldwide. Find out more here - https://www.appleyardlees.com/

Axiom Engineering Associated Ltd – drinks reception sponsor

Axiom is a multi-award-winning engineering business with locations across the UK including in Runcorn. Delivering asset management solutions, Axiom is uniquely positioned to support clients to effectively manage their plant at every stage in an assets' life cycle, maximising asset performance and minimising risk. Find out more here - www.axiomengineeringassociates.com

Chemical Industries Association – sponsor of the Partnership Award 2023

The Chemical Industries Association (CIA) is the organisation that represents chemical and pharmaceutical businesses throughout the UK. Find out more here - https://www.cia.org.uk/

Department for Business and Trade – supporter of the International Trade Award 2023

The UK's Department for Business and Trade helps businesses export, drives inward and outward investment, negotiates market access and trade deals, and champions free trade. DBT offers expertise and contacts through an extensive network of specialists in the UK, and staff in the British Embassies, High Commissions and Consulates located abroad.

Find out more here - https://www.great.gov.uk/?utm_source=staffsignature&utm_medium=email&utm_campaign=GREAT

INEOS Inovyn – sponsor of the Sustainability Award 2023

INEOS Inovyn are the chlorvinyls supplier of choice for manufacturers around the world. With headquarters in the UK, 17 sites across the world, 15 of these being manufacturing facilities. A premier chemical company, INEOS Inovyn is at the heart of Europe's chemical industry. Their products find use in almost every aspect of modern society, keeping people housed, healthy and connected. Find out more here https://www.inovyn.com/

Ingevity – sponsor of the Engineering firm of the Year Award 2023

Ingevity provides products and technologies that purify, protect, and enhance the world around us. Through a team of talented and experienced people, they develop, manufacture and bring to market solutions that help customers solve complex problems and make the world more sustainable. Ingevity operate in two reporting segments: Performance Chemicals and Performance Materials, which includes high-performance activated carbon. Ingevity operates from 31 locations around the world and employs over 2,050 people. Find out more here - https://www.ingevity.com/

Koura – sponsor of the Operational Excellence Award 2023

Koura is the global leader in the fluoroproducts that play a fundamental role in enhancing everyday lives, in a vast range of applications, including construction, batteries, polymers, refrigerants, medical devices and active pharmaceutical ingredients, among others. Find out more here - https://www.kouraglobal.com/

Livent – sponsor of the Health and Safety Award 2023

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MannTek – sponsor of the awards dinner brochure

With over one million produced couplings and 25+ years of experience from developing, de-signing, and producing leading design for Dry Disconnect Couplings always with the cus¬tomer in focus, ManTek have the experience and knowledge to be the best. Find out more here - https://www.manntek.se/

Otto Simon - sponsor of the Supplier of the Year Award 2023

Otto Simon provides specialist engineering services for Emergent Technology, Chemical & Processing, and Thermal Industries.

Otto Simon is a diverse engineering consultancy and project delivery organisation based in Manchester. Established in 2004 but with origins dating back to 1872, Otto Simon work successfully with a wide range of clients to deliver cost-effective, innovative and practical solutions across the full project life-cycle. Find out more here - https://www.ottosimon.co.uk/

PM Group – sponsor of the Manufacturing Company of the Year Award 2023

With 3,700 people across a global network of offices, covering projects across Europe, the USA and Asia. Multinationals come to PM Group's employee-owned company for their expertise in project management, process design, facility design, construction management and commissioning of high-tech facilities for the world's leading pharma, food, data centre and med tech companies. Find out more here - https://www.pmgroup-global.com/

SLR – sponsor of the Corporate, Social Responsibility Award 2023

SLR are a global leader in end-to-end sustainability solutions: providing clients with strategic advice and on the ground support, partnering with them in Making Sustainability Happen. SLR achieve this by having a team of expert advisors and technicians, who partner with their clients to tackle some of the world's most complex sustainability challenges. Find out more here https://www.slrconsulting.com/en

SRG – sponsor of the Young Talent Award 2023

SRG is the leading specialist recruiter of permanent and temporary STEM talent for the UK. With over thirty years' experience serving the chemical and life sciences industries, SRG expertly takes recruitment projects from discovery to completion, developing tailored solutions that unlock new ways of working and thought. Find out more here - https://www.srgtalent.com/

Valtris Specialty Chemicals – sponsor of the Charity of the Year Award 2023

Valtris is a leading global producer of specialty chemicals, polymer additives and precursors. Find out more here - https://www.valtris.com/

10th & 11th May 2023 The NEC, Birmingham, UK

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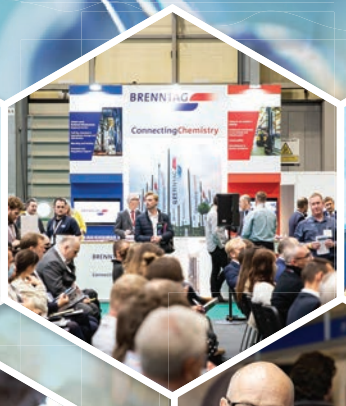

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Chemicals northwest

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10TH & 11TH MAY 2023 REGISTER FREE AT WWW.CHEMICALUKEXPO.COM

CHEMUK 2023 expo returns this May with over 400 exhibitors!

The CHEMUK 2023 EXPO will return this 10th & 11th May to the NEC, Birmingham. CHEMUK 2023 continues to grow with over four hundred exhibitors confirmed for this year's event.

CHEMUK brings together the entire chemical industry, with the exhibition floor split into three focused zones: **The Laboratory & Innovation Zone; The Chemical, Process & Plant Engineering Zone; and The Chemical Industries Supply Chain Zone.**

The Laboratory & Innovation Zone

The Laboratory & Innovation Zone will showcase specialist laboratory chemical and chemical equipment suppliers supporting **research & development, analysis, process design & development, flow chemistry, scale-up, and quality testing** within the chemical and chemical product industries.

Exhibitors confirmed to exhibit in this area include: *Radleys, Huber UK, Temperature Control Ltd, IKA England Ltd, Ziath Ltd, Kays Medical, Asynt, ThalesNano, IS-Instruments, LABTEX, Autichem, AM Technology, Fluorochem, Doug Discovery, ESSLAB, Metrohm UK, Chromatography Direct, GPE Scientific, plus many others!*

The Chemical, Process & Plant Engineering Show

The Chemical, Process & Plant Engineering Show will showcase the latest technology and specialist services to attending **UK Plant, Process, Control & Engineering professionals from across the chemical and wider process industries.**

Exhibitors confirmed to exhibit in this area include: *Siemens Automation, BRAY Controls UK Ltd, Fileder Filter Systems Ltd, sera Technology, HYTORC UK, DEC UK, Suurmond UK, Grundfos Pumps, Amazon Filters, Siga Filtration, Aalco Metals, Crest Pumps, ABB, Gee Graphite, plus many others.*

The Chemical Industries Supply Chain Show

The Chemical Industries Supply Chain Show will showcase **manufacturers and distributors of chemicals, ingredients and raw materials**, as well as organisations providing specialist solutions supporting **chemical logistics; HSE management and regulation; contract fulfilment; storage, labelling & packaging; and, business management.**

Exhibitors confirmed to exhibit in this area include: *Brenntag UK&I, BTC UK, Univar Solutions, Azelis, Surfachem, BOC Limited, Lake Chemicals, AST Plastic Containers, ITAL Logistics, DURA-ID, SAFAPAC, PORTAKABIN, Ramboll, IMCD UK Ltd, Norkem Ltd, Cod Beck Blenders, and many others!*

CHEMUK 2023 Speaker Programme

In addition to the exhibition floor, visitors can attend any of the **40+ hours of keynotes, feature sessions, and panel discussions**, running across the show's five auditoriums, embracing some 150+ contributing speakers.

The speaker programme will address the key challenges and opportunities facing today's chemical industry covering **R&D, Innovation, Industrial Process Efficiency, Flow Chemistry, Plant & Asset Management, HSE, REACH Regulation and Sustainability.**

Speakers already provisionally confirmed to keynote this May include **Richard Haldimann, Chief Technology & Sustainability Officer, Clariant; Professor Gill Reid, President, Royal Society of Chemistry; Thomas Birk, Managing Director, BASF UK & Ireland; Tim Doggett, Chief Executive Officer, Chemical Business Association**, plus many more. The full speaker schedule will be hosted on the CHEMUK website.

Organisations provisionally confirmed to be contributing to the 2-day programme include: **Unilever SEAC; CIA; Innovate UK / KTN; Chemical Industries Association; BCMPA; BioVale; HM GOV inc Defra, BEIS, DIT & HSE; GAMBICA; IBioIC; NEPIC; UKLA**, plus many more.

Register for your FREE entry badge at www.chemicalukexpo.com

DATES FOR DIARY:

- ***CHEMUK 2023 takes place on Wed 10th & Thu 11th May 2023.***
- ***Day 1 - 9.30am - 5pm, Day 2 - 9.30am - 4pm***
- ***Venue: NEC - National Exhibition Centre, Birmingham, B40 1NT***


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Challenges and Opportunities facing the UK Chemicals Industry

While UK Chemical industry performance rose over the course of 2021, 2022 marked a challenging year where rises to both producer price inflation and customer inflation heightened the importance of an agile and efficient business model.

Today, chemical leaders face navigating a complex and competitive landscape to achieve organisational hiring success.

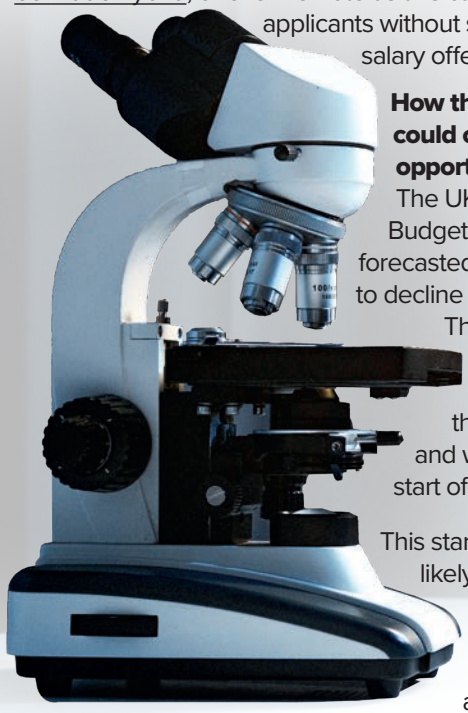
Read on for more about:
- Managing labour costs along with other company benefits
- How the recession could create new hiring opportunities
- Supply chain strategies to minimise disruption
- Talent shortages and graduate opportunities

Managing labour costs along with other company benefits
90% of organisations report that challenges surrounding labour costs in chemicals worsened towards the end of 2022 as sales made a marked downturn after initial growth at the start of the year.

To stay competitive and improve investments or other business opportunities it's important to take the time to build a strong talent attraction strategy with cost control in mind.

My advice would be to focus on establishing what a competitive market rate is for the positions you're looking to fill. If you can't pay over that amount, map out the benefits your organisation can provide, which can help mitigate additional costs your applicants might experience such as lifestyle benefits, insurance or health benefits.

Alongside this, considering where and when roles can be made hybrid, or even remote as this can encourage applicants without starkly increasing salary offering.



How the recession could create new hiring opportunities
The UK's Office for Budget Responsibility has forecasted the UK economy to decline by 1.4% in 2023. This downturn will plunge the UK into negative growth for the full calendar year and will mark the official start of the recession.

This stark economic shift will likely see organisations experiencing a reduction in product demand, and a loss of profit which may incentivise redundancies. This will culminate in experienced talent re-entering the candidate market en masse. Leaders can prepare for this by establishing competitive recruitment campaigns in advance, while bearing in mind that some candidates may become more flexible with their salary expectations.

Focusing on new product applications and innovation across the course of a recession can seem cost-heavy at first, but research shows that in previous recessions successful chemicals organisations made the investment to restructure applications to match market realities and make the most of new niche markets that emerged.

Supply chain strategies to minimise disruption
The UK chemicals sector has notoriously complex supply chain flows which typically involve multiple border crossings as 27% of raw materials and other ingredients are sourced from across the EU.

Today, post-Brexit, 66% of chemicals leaders say that leaving the EU has hampered business.

To address the challenge, 31% of chemicals leaders are planning to bring part of their supply chain in house – for example, by purchasing precursor ingredients and internally manufacturing the required chemicals. Alternatively, 35% of organisations are now sourcing domestically in the UK to attain the components required faster.

Talent shortages and graduate opportunities
87% of leaders are concerned about skills leaving their business, and 58% of leaders say access to labour in terms of skills and talent was their biggest business risk.

Taking a proactive approach to graduate recruitment and ensuring that your pipeline is well thought out and considered in advance of graduation season (May to October) will help ensure that you get premium access to the best new candidates.

When the recession is in full force, the talent shortage will likely be balanced out by the influx of redundant chemical professionals entering the market (this has occurred before when prices dropped in the oil industry) – however, these redundancies won't happen right away.

Chemicals organisations should map out their business, and talent strategy in advance to ensure that they're in a competitive position to grow and make the most of the influx of candidates on the market across the year.

SRG – Young Talent Award Sponsors
As leaders in the chemicals recruitment space, SRG are proud to sponsor the Chemicals Northwest Young Talent Award.

Faye Allison, Head of Sector for Chemicals Recruitment at SRG

Connect with Faye Allison on Linkedin
Click here to get in touch

Axiom's Vision

is to act as trusted partners providing technically excellent asset integrity consultancy services to support our clients through the asset life cycle.

Working in partnership with you, our support is delivered via our regional offices in the UK industry hubs of Teesside, Humber, North West and Grangemouth. Our collaborative approach ensures that we listen, taking an informed view to understand the challenges faced by our clients, delivering safe and tailored solutions. Delivering our award-winning capabilities across a range of industries including Energy, Pharmaceutical, Chemical, Oil & Gas, Bulk Storage & Distribution and Food sectors, Axiom's reach extends globally to deliver class-leading, value-adding solutions which comply with industry best practice.

Complementing our existing offerings of Inspection & NDT, Materials and Mechanical Engineering services, Axiom now also deliver Process Safety Services supporting sustainably safe operations as your true through-life Asset Management partner.

Process Safety Capabilities:

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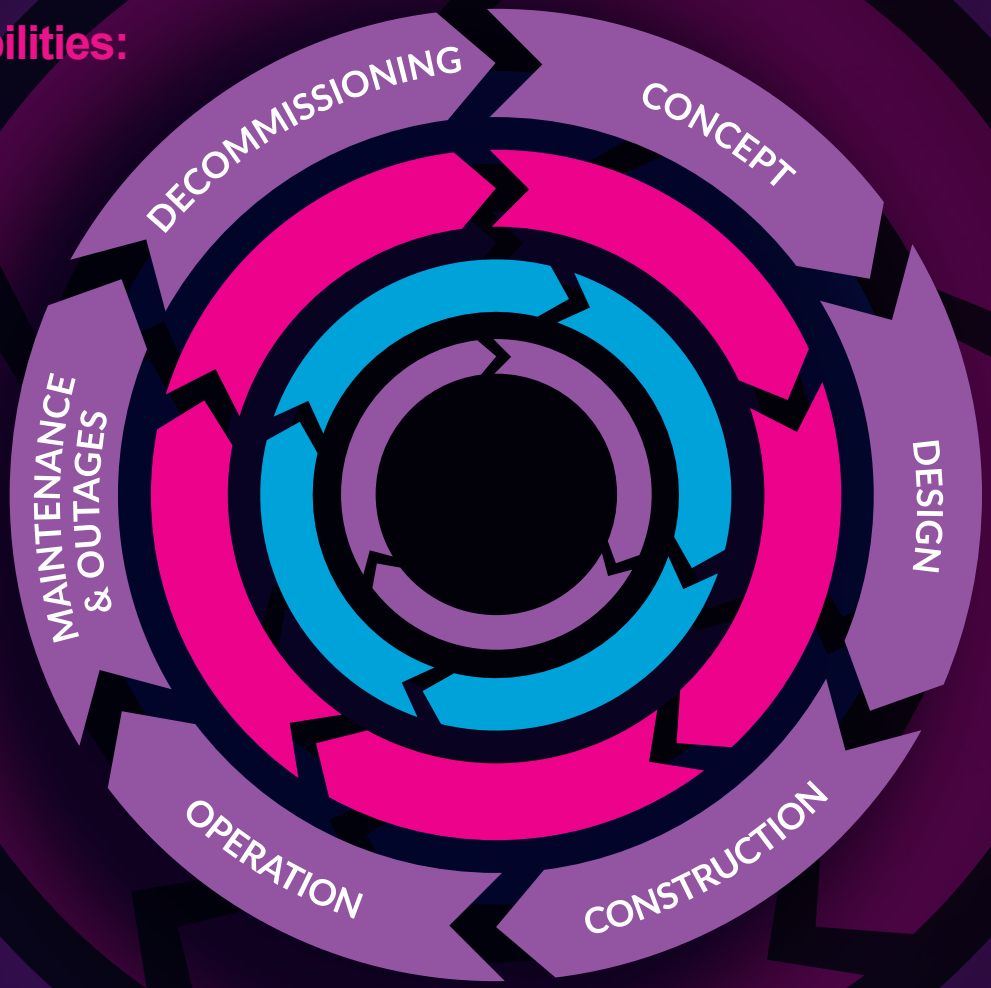

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The Hydrogen Future for the North West

Background - The UK Government have set an ambitious target to achieve net zero carbon emissions by 2050. Several financial packages have been announced including the £240 million to support the production of "clean" hydrogen.

The North West region of England is at the forefront of the drive towards net zero and decarbonisation due to the presence of several petrochemical clusters. Several projects are ongoing in the region as part of this development including the HyNet North West project to produce hydrogen from methane with Carbon Capture Utilisation and Storage (CCUS) in the depleted gas reservoir rocks beneath Liverpool Bay. This scheme is intended to supply hydrogen fuel for industrial use, domestic heating, flexible power generation and transportation.

"Clean" hydrogen cannot be achieved overnight due to the lack of infrastructure and the technology needed for large scale electrolysis of water. The UK does not currently have the capacity to generate the electricity required for large-scale hydrogen production by electrolysis.

A staged approach is therefore required to phase-out the use of fossil fuel while allowing the advancement in technology for large scale production of hydrogen by electrolysis. Blue hydrogen is the bridge between the current status quo and the "clean" hydrogen future.

Hydrogen production

Large scale hydrogen production requires the development of the facilities for its manufacture, safe handling, storage, and distribution. Before hydrogen can become the fuel choice for domestic and industrial use, several factors require consideration including the human factor design associated with the use of hydrogen.

Hydrogen is a highly flammable and explosive gas with several hazardous properties associated with its use that require critical scrutiny. These include its wide flammability range, tendency to leakage and low ignition energy. The properties of hydrogen should be considered in the re-purposing and modification of existing equipment (e.g., burners, and combustion chambers) and pipeline in the chemical industry for hydrogen fuel usage.

An incident associated with the industrial use of hydrogen can result in major consequences such as injuries, fatalities, damage to property and delays to production. Operators of chemical plants must ensure that their employees and members of the public are adequately protected during an incident. A negative public perception of hydrogen fuel could hinder general belief to support the drive towards net zero using "clean" hydrogen. Therefore, there is a significant benefit in ensuring the safe use of hydrogen fuel by applying risk reduction measures to prevent, control and reduce the consequence of an incident.

Assessment of risk

A HAZID assessment is a useful tool that can be applied early in the design to identify potential hazards and threats in a process including potential for human error. Human errors are generally as a result of a mistake, lapse, slip or violation that can result in the failure to carry out a required duty which could subsequently lead to an accident.

Human factors can be significant and must be considered in the design of equipment handling hydrogen. As an example, hydrogen gas is odourless and hydrogen flame is almost invisible during daytime. To minimise potential for human error in detecting a leak or fire, preference must be given to automatic instrumented systems rather than relying on human intervention particularly for critical events or situations. If designed correctly, it ensures that protective measures are integrated to prevent foreseeable major accidents and helps to ensure that risks are reduced to ALARP.

Performing a consequence analysis of the worst-case hydrogen release can help understand the range of possible outcomes, ensuring that adequate safeguards are in place to reduce the severity of an incident. It also helps the emergency services to develop and put in place adequate recovery plan following an incident.

Axiom can support you by undertaking safety studies (HAZID, HAZOP), consequence modelling and human factors review for new technologies and feasibility studies. In collaboration with you, we can also deliver support as your technical partner throughout the project life cycle, providing safety assurance that your hydrogen project will be expertly managed to ensure that any residual risks are no greater than for conventional fossil fuels currently used today.

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What can patent data tell us about the state of progress in the development of green technologies?

The 2022 edition of Appleyard Lees' annual *Inside Green Innovation:* Progress Report examines patent data, in industry context, as a barometer of green innovation activity.

The data-driven report gets behind the rhetoric, to shed light on the state of progress in the development of green technologies. How close are we to finding the technological solutions that will be so important for achieving sustainability? Where, and by whom, are these innovations being developed?

This article highlights some of the report's key findings related to chemistry-focussed innovation.

2020 spike in biodegradable plastics innovation ends two decades of decline in patent applications

After almost two decades of decline, there has been a sharp spike in biodegradable plastics-related patent applications. Technology innovation in this area peaked in 2020, when 423 priority patent applications were filed – an almost 130% increase on 2018 (186) and the most prolific patent filing year since 2000 (294).

The largest sub-group within biodegradable plastics patent applications was related to butylene-based bioplastics. Many of these applications focused on improvements to biodegradable packaging and single-use items. Butylene-based polymers are biodegradable and as such, are anticipated to become more important in the global transition to bioplastics because they have properties that are parallel to conventional plastics.

In the case of monomers, patent data research reveals that pyrolysis – a process for decomposing plastic feedstock into smaller hydrocarbons – is currently taking the top spot among regeneration recycling technologies. In 2020, this technology accounted for about 70% of patent filings among the four most common decomposition recycling approaches.

Innovation activity is dominated by Eastman Chem Co., with more than 70 patent applications for plastics recycling technologies in 2019-20 alone, followed by Sabic Global Technologies, whose applications include technology to process plastic waste by hydrotreatment and pyrolysis.

Increasing innovation in hydrogen fuel cells for use in transportation

According to the report, innovation in the priority energy technology of green hydrogen is reaching record highs. While the patent filing rate for green hydrogen production via electrolysis of water has increased steadily since the 1990s, it leapt by 160% in the second half of the 2010s.

In recent years there has been a notable upsurge in patent filings for the use of blue and green hydrogen in fuel cells to power transport, particularly for trains, buses, trucking and lightweight aircraft. Increased innovation in hydrogen fuel cells is being driven by improvements in electrical and mechanical engineering and focused on safety and function – such as gas detection – diagnosis of faults in pressure and control of valves and machinery, important for commercial transport.

However, for widespread application in cars, for example, the distribution and storage of hydrogen, as well as the re-fuelling of hydrogen tanks, are major challenges to be met before this energy source can realistically find mass application outside of the heavy-transport sector.

Innovation in carbon capture utilisation and storage (CCUS) has reached highest peak since 2012

The report points to a steady upturn in CCUS patent filing numbers in recent years, with more than 140 in 2020 – approximately 60% higher than 2015 – and an ongoing increase expected from 2021-22. Half of the new, priority patents filed in 2020 relate to direct air capture, where innovation is needed to address this emerging technology's current challenges.

Innovation in direct air capture has shown considerable growth over the past decade. For CCUS, it is expected to be a necessary part of meeting climate goals, though it comes with challenges such as the lower concentration of carbon dioxide in air compared to gas power stations. Further technology advances will be required to reduce the cost of large-scale adoption.

Innovation in this area of CCUS is currently led by companies such as Climeworks AG in Switzerland, which uses filters containing amines which bind carbon dioxide from the air. The company launched "Orca", the world's largest direct air capture and storage plant, in 2021, while its "Mammoth" plant project – expected to capture 36 kilo-tonnes of carbon per annum when operational – was announced in June this year.

Scan the QR code to read the full Inside Green Innovation: Progress Report 2022. Email ip@appleyardlees.com for further information.

Bio-based adhesives and coatings: the environmental challenge and sustainable quality

Increased pressure from environmental groups, recent natural disasters, and increased environmental awareness has pushed climate change further up the agenda as a major global concern for governments, businesses and the public across the world. Consumer needs, wants and expectations for "greener" products, services and innovations continue to rise exponentially, placing demands on whole supply chains. Not only are businesses therewithin now identifying with these changes as a priority factor in their day to day running, but they are also recognising their own accountability towards environmental protection. As they are critical components in countless manufacturing processes, applications and end products, adhesives and coatings companies must also commit to driving their own environmental initiatives.

Adhesives and coatings can be enablers of sustainable design in their own right. For example, when marine anti-fouling coatings are applied to a ship's hull, this can result in up to a 40 per cent reduction in fuel consumption. Adhesives enable a uniformed distribution of stress over the whole bonded area.

This reduces the risk of fracture associated with concentrated stress loads caused by mechanical joining, enhancing durability and preventing waste. However, greater emphasis is now being placed on more sustainable bonding and coating processes without compromising the quality, performance and functionality of the end product. Commercial success can only be possible if sustainability and quality work hand in hand. It is this sustainable quality that will enable businesses to satisfy customer needs, wants and expectations simultaneously, whilst actively contributing towards environmental protection.

Bio-based products are ones that are made using raw materials from renewable resources rather than increasingly depleted fossil-based raw materials. Mass extraction and processing of the latter for commercial inputs is associated with the climate change crisis, soil degradation, irreversible ecosystem damage, pollution and scarcity of resources for future generations. On the other hand, bio-based raw materials are produced using agricultural and silvicultural processes. Amongst others, they include vegetable oils, starches, proteins, lignin, and resins and are associated with low carbon footprint, low toxicity, high biodegradability, and being much kinder to the planet overall! However, when used in the formulation and manufacture of adhesives and coatings, can bio-based renewable raw materials provide the same high-performance properties customers have come to expect from conventional formulations?

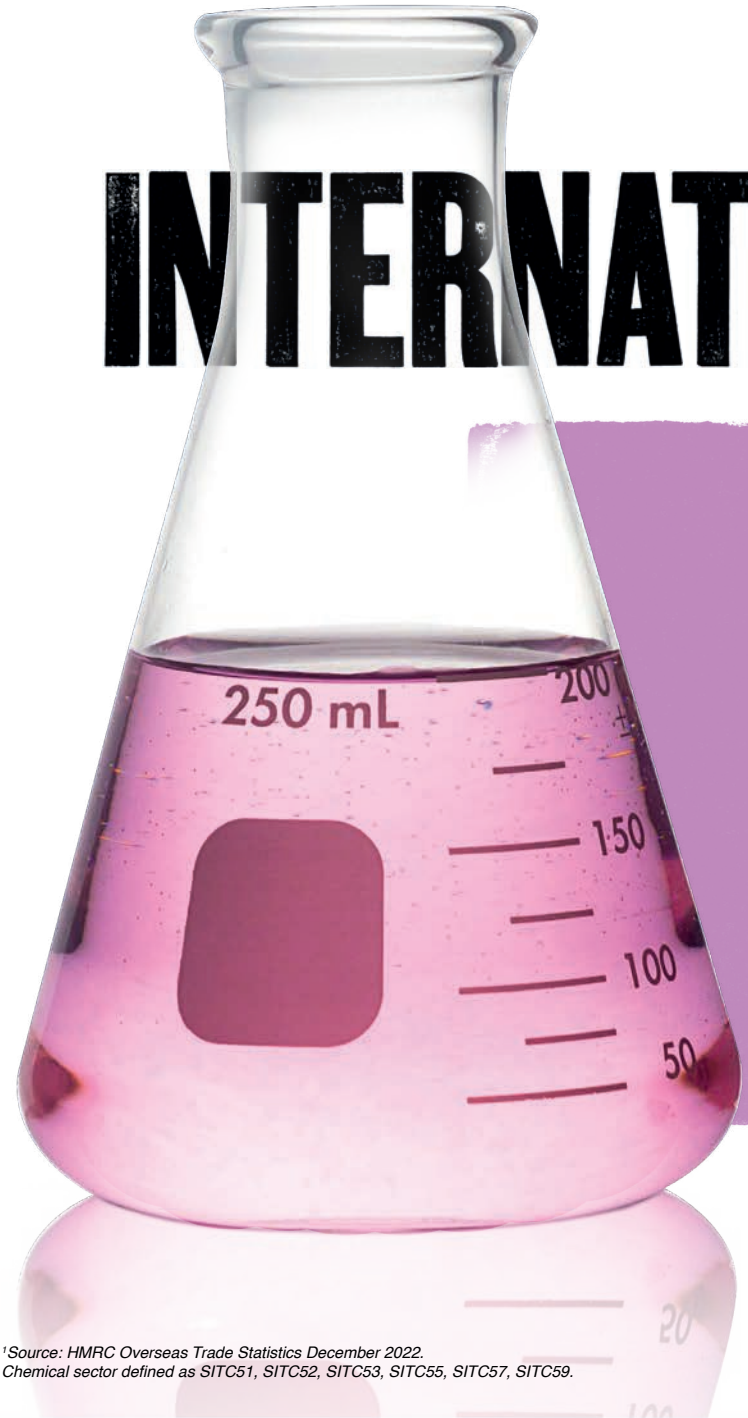
Evidence suggests that for many application scenarios, bio-based adhesives and coatings can compete with conventional ones as an eco-friendly alternative. For example, using lignin in formulations has been found to increase curing speeds and bond strength and the water resistance of coatings can be increased by the inclusion of vegetable oils due to their long alkyl chains. Furthermore, the inclusion of dispersing agents and cross-linkers to enhance or improve the mechanical properties of bio-based adhesives and coatings, has resulted in their increased viability and potential for many applications. Therefore, ITAC have committed to bio-based research and development initiatives that will contribute towards the increased sustainability of our products and manufacturing processes.

One area we are currently active with is a bio-based alternative to one of our solvent-based polyurethane coating lines. Its properties make the coating a suitable solution for a variety of commercial and industrial applications as a primer or an adhesive. Initial testing has indicated that for its adhesion properties, similar adhesive strengths can be achieved using bio-based polymers with only a small loss of adhesion based on average peel force. Given the potential green credentials of this result, further research and development is underway for other bond strength metrics. This will ensure reliability and uniformity in the bonding characteristics of tested formulations within parameters that may also influence performance. For example, these may include different application substrates and environmental conditions. Stick with us for further developments!

Further information on ITAC's research and development activity or capabilities can be found by contacting our commercial or technical teams on 01204 573736 or by email at info@itac.uk.com.

UK Government

LOOKING TO GROW YOUR BUSINESS INTERNATIONALLY?



The UK chemicals industry is one of the most important exporting sectors in the UK, with more than £37bn of goods exported overseas each year.[1]

Demand for the UK chemical industry's innovative and sustainable products remains strong, with companies across the world choosing the UK to manufacture their products.

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[1]*Source: HMRC Overseas Trade Statistics December 2022.*
Chemical sector defined as SITC51, SITC52, SITC53, SITC55, SITC57, SITC59.

Patenting research outputs – understanding ownership

As we continue our series on considerations for researchers interested in patenting their research outputs, we turn to some of the finer details of entitlement. This time we ask the question, "Who actually owns the rights to your invention – you or your employer?"

An inventor has the right to be named as such for patent applications filed in the UK at the United Kingdom Intellectual Property Office (UK-IPO). The right to prosecute the application belongs to the applicant, and the right to enforce a granted patent belongs to the proprietor, rather than to the inventor. The Patents Act 1977 states that a patent may be granted "primarily to the inventor or joint inventor", which means the inventor can be the applicant/proprietor. However, third party agreements and employment contracts entered into before the making of an invention take precedence over an inventor's default right to the invention, potentially granting the rights to the invention to the third party or employer, respectively.

Sole inventors

Individuals can make inventions completely on their own, outside of their field of employment and with no third-party involvement. In these cases, if the inventor files a patent application, then they should be entitled to be named as an applicant. Of course, sole inventors working with relatively limited resources are more likely to develop simple mechanical inventions than chemical ones. More often than not, chemical and life sciences-based inventions spin out of an inventor's work.

Duties of an employee

An invention made by an employee is taken to belong to their employer if it was made in the course of the employee's normal, or specifically assigned, duties, assuming those duties might reasonably be expected to result in an invention. Employees in Research and Development departments can generally expect their employer to own the rights to any inventions resulting from their work. Further, although a contract cannot leave an employee in a worse position than is granted by law, it is not simply the employee's contractual obligations that determine the right to an invention because roles evolve over time. As such, it is not always immediately clear whether an invention results from an employee's duties, often leading to contested rights.

The grey area

Areas of contention might include cases where inventions are tangentially, or distantly, related to the employee's duties, or where they are invented outside of the employee's contracted hours. For example, a researcher employed to create a new compound might use their initiative to invent a piece of laboratory equipment that aids in that process. The extent to which the researcher used the employer's premises and/or equipment to develop the invention might determine their rights to the invention, although each case must be examined on its individual facts. Further, researchers at universities are often not contracted to set working hours, in which case it could be argued that any inventions even distantly related to their research are always created "on the clock" and are thus owned by the university.

Even less clear are cases where a researcher uses knowledge acquired during the course of their employment to privately create an invention. Whether or not they arrive at the idea for the invention in their spare time is immaterial. Rather, such matters often hinge on whether the knowledge that led them to the invention is so inextricably linked to their work that their employer could argue that it inevitably resulted from their duties. Again, all matters must be considered on their merits, which can make some disputes lengthy and costly.

Establish entitlement early

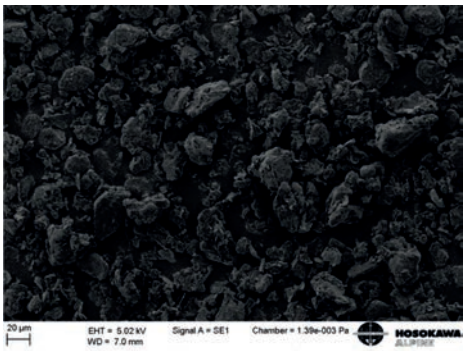
The entitlement of the applicant/proprietor is best established before an application as filed. This will also apply when using the upcoming European Unitary Patent system (as discussed in the Summer 2022 edition of Elements magazine). Patents will only be granted unitary effect, or allowed to opt-out of the system, by the entitled rights holder. The consequences of being locked in or out of the system could be costly, making it more important than ever for researchers and employers to understand their rights to any inventions from the outset.

To find out more, including how IP could benefit your work, please visit https://www.wpt.co.uk or contact Stuart Forrest at sfo@wpt.co.uk

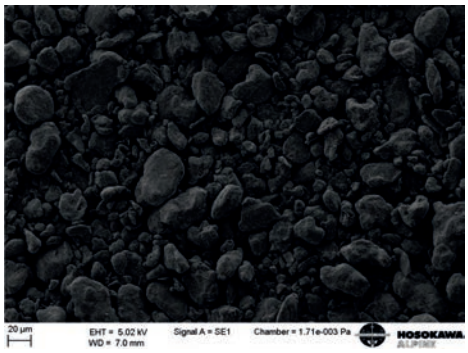
Graphite Rounding: The Key to Premium-Quality Lithium-Ion Batteries for Electromobility

Electromobility is the key to climate-friendly mobility. The growing production of lithium-ion batteries for electric vehicles (EVs) makes the sustainable use of valuable raw materials, such as graphite, essential. Processing solutions for lithium-ion batteries are evolving at pace to meet the rapidly increasing demand for longer-lasting products. Graphite rounding offers one of the best technical solutions for increasing EV battery quality, storage capacity and longevity.

On 14th February 2023, the European Parliament formally approved a landmark law to ban the sale of new petrol and diesel cars in the EU from 2035, with car manufacturers obliged to achieve an ambitious 100% cut in CO2 emissions (a 55% cut in CO2 emissions is required for new cars sold from 2030 – known as the EU's 'Fit for 55' package). Making electric vehicles more affordable and more practical, in terms of battery range and the recharging infrastructure, is going to be crucial for car, lithium-ion battery and graphite manufacturers.



Tap density of feed material 691g/L



Tap density of rounded graphite 1,002g/L

Traditionally, battery production has largely taken place in Asia, but Europe is in the midst of developing its own dynamic battery market, with investors backing lithium-ion battery Gigafactory projects throughout the continent. Manufacturers are keen to reap the benefits of customs duty exemptions and shorter transport routes for the raw materials, while additional advantages include securing supply chains and being able to adapt capacity and quality more easily to meet the needs of individual markets. For car manufacturers and lithium-ion battery producers alike, this means working together to be as sustainable and efficient as possible while manufacturing premium-quality products that consumers are satisfied with and want to buy.

Game-changing EV battery production with more efficient graphite processing

Synthetic and natural graphite are the most important anode materials used for producing lithium-ion batteries and with natural graphite now classified as a critical raw material by the EU Commission – and the demand for the material increasing in line with the demand for more efficient, longer-lasting lithium-ion batteries – it is estimated that up to 1,600,000 tonnes will be required globally by 2030, increasing almost five-fold by 2050. The graphite used in lithium-ion battery production must therefore be processed to as high a yield as possible.

The three-stage process of 'rounding' the graphite comprises grinding, rounding and dust removal. It increases the tap density to ensure a better volumetric storage capacity of the battery anode and improves the intercalation kinetics to allow the battery to charge more quickly whilst also being more durable and its cycle stability increased.

Traditional graphite rounding produces yields of only 30% to 50%, but Hosokawa Micron Group – renowned worldwide for its innovative powder processing techniques and equipment – has developed new graphite rounding techniques and a collection of specialist tailor-made milling equipment that, between them, efficiently produce a higher quality natural or synthetic graphite product with low BET values, which is perfect for the lithium-ion battery market. Material yields of between 80% and 90% are typical and achievable in a shorter, more energy-efficient and cost-effective processing time.

For platelet-shaped natural graphite the Alpine Particle Rounder APR, in concert with a classifier mill, has the capability to almost double the tap density of the graphite material, while the pressure-shock-resistant Zirkoplex ZPS is the perfect all-in-one option for rounding synthetic graphite.

Despite the challenges of building lithium-ion battery Gigafactories, aligning their supply chains and improving EV battery products, there is rapid European market growth to produce higher quality graphite for lithium-ion batteries as the global appetite for electromobility increases.

For further information, please contact: John Buck at Hosokawa Micron Ltd,
jbuck@hmluk.hosokawa.com
+44 (0)1928 755164
+44 (0)7734 098904


1. Hosokawa Alpine Zirkoplex ZPS

Using patents to secure a competitive advantage

When I mention that I am a patent attorney, people often remark that I must see some interesting new technologies. Whilst this is of course the case, much of my time is spent helping clients protect small modifications to existing technologies.

In the chemical sector a small change to a product or process can have a significant impact on performance. If this change has not been tried before and it is not obvious then you may have a patentable invention.

What is obvious?
To obtain a patent an invention must be novel and inventive in view of the "prior art". The prior art encompasses anything that has been made publicly available before a patent application is filed. This includes written and spoken disclosures and public uses of a product.

As well as being new or in some way different, an invention must also be inventive or not obvious compared to the prior art. From a legal point of view, whether something is obvious is considered from the point of view of a fictitious "skilled person" who is very knowledgeable but has no imagination. What this means is that even small modifications that have an unexpected improvement may be considered inventive.

What you can protect
In the chemical area, we often use patents to protect formulations. It can take a lot of time to develop an optimum formulation for a product. Often many different possible components of a formulation are assessed and the amounts of each component adjusted before a final commercial formulation is selected.

When developing formulations, challenges may arise, for example an unexpected antagonism between particular components. Finding a component which resolves that antagonism may be a patentable invention.

Sometimes researchers find that the inclusion of a particular surfactant, for example, unexpectedly improves performance to a significant degree compared with alternative surfactants. Such an effect may be patentable.

In some cases an invention may arise when a particular combination of components allows another more expensive or more toxic component to be replaced or used at a lower concentration.

Optimisation of concentrations or ratios of ingredients can lead to a patentable invention if data can be provided to illustrate that an unexpected benefit is achieved when particular amounts are used, even if the ingredient combination is generally known in the prior art.

The finding that a material provides a previously unrecognised technical effect can also result in a patentable invention even if the same material has already been used in the same way in the prior art. For example, showing that a surfactant compound provides oxidation stability could allow that surfactant to be patented for use as an anti-oxidant.

What should you protect?
Potentially patentable inventions arise frequently during chemical research and development.

Many companies do not have the resources to protect all of their inventions, and thus choose to protect those which are likely to be commercially important.

Whilst many processes are patentable, if the resultant product of a process is indistinguishable from a product made by an alternative method then it may be better to keep the invention secret if you can. Patent applications are published 18 months after filing.

Patents can often be advantageous in a crowded field to protect the latest developments. Even if the scope of protection achieved is narrow, if you have carried out extensive research and know that particular components in particular amounts provide a benefit, it may be worth protecting the favoured product so that competitors have to work around your patent and can only offer an inferior product.

Most businesses do not want to infringe a patent and thus protecting your key products by filing patent applications can be commercially very advantageous. Marking a product as "patented" also lets your customers know that they will be unable to obtain a product having the same features from an alternative supplier.

Often the key to securing good patent protection, especially in a crowded field, is providing good data to illustrate superior performance. Therefore keeping good records of disappointing results as well as your successes is critical. And be sure to keep everything secret until a patent application is filed!

If you would like advice or information on how to obtain patent protection for inventions arising from chemical research and development please contact Jennifer Delaney, Partner, Appleyard Lees.

Green Chemistry – for a sustainable future

What is Green Chemistry? Is this only a buzz word that is used to give a more positive image of the Chemical Industry, or it is a true concept influencing Chemical Companies to adapt their behaviours and activities at their production sites?

The concept of Green Chemistry continues to gain momentum in the Chemical Industry and describes taking an environment-driven approach to reduce environmental and health impacts from chemicals by minimising pollution or saving energy. It is becoming increasingly important that the products being manufactured, and processes involved contribute towards a sustainable future.

Klüber Lubrication is part of Freudenberg Chemical Specialities – a chemical company itself, so consequently we know the challenges the Chemical Industry face. Local production, local material sourcing, installing solar energy to our sites, optimizing our processes to improve efficiency, generate less waste and implementing a safety-first philosophy in our operations are only a few things we do on our end to get in line with Green Chemistry, but Green Chemistry is more than just aiming towards substantiable operations and reducing GHG emissions. Green Chemistry has 12 clear principles that touch various topics including of course sustainability, efficiency, and environmental, but also extend to subjects like safety and the circular economy. Klüber Lubrication has never stopped improving its processes according to these 12 principles to reduce its footprints on the environment. We attach so much importance to Green Chemistry that we have created our own sustainability matrix to measure our progress in this regard.

How can Lubrication Solutions contribute to Green Chemistry?

Lubrication is not the first thing that comes to mind when our customers' want to fulfill their Green Chemistry principles, however as a lubricants manufacturer we know that the choice of a suitable lubricant solution is an important factor of sustainability and that we can have a positive impact on at least half the 12 Green Chemistry principles.

Our high-performance specialty lubricants and individual services offer many benefits:

Reliability: This is the decisive factor to be considered when starting a project to optimise your lubrication processes. It is the one aspect that must never be jeopardised.

Energy efficiency: Energy savings are possible in many of your installations using the right lubricant. We can prove energy savings and carry out projects that comply with internationally recognised standards such as the International Performance Measurement and Verification Protocol (IPMVP) or DIN ISO 50015.

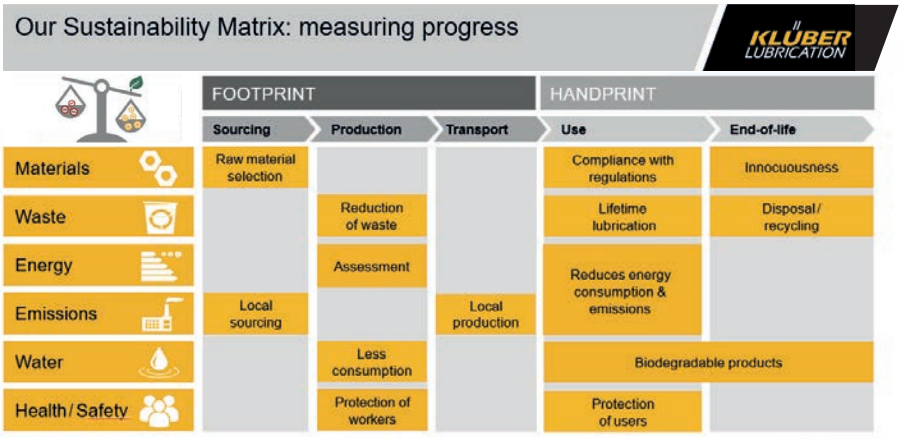
Plant availability: The long service lives of our lubricants extend the operation of your plant and reduce the need for maintenance

Safety: Our specialty lubricants and Klübermatic lubricant dispensers offer the maximum safety in areas exposed to explosion risks.

Optimisation: We carry out lubricant analyses, oil condition monitoring, equipment labelling and fault analyses.

Clear overview: We can help you consolidate your lubricant inventory and lay out your lubricant storage site.

Sustainability: Less waste and lower lubricant consumption. Ecovadis, a leading provider of sustainability ratings for corporations, has rated our sustainability management with its gold medal. This grades Klüber Lubrication among the best 6 % of over 90,000 companies rated worldwide.



At Klüber Lubrication, our quest to reach Green Chemistry excellence is a never-ending story. We are proud of what we achieved over the past years and hope to do more to keep our highly engineered world moving in a way that is sustainable for us and the future generations.

Visit https://www.klueber.com/uk/en/ for further information.

How calibration can help enable operational excellence

Calibration is a documented comparison of the device to be calibrated against an accurate traceable reference device (often referred to as a calibrator). In process industries, calibration plays an important role in operational excellence. A good calibration process ensures processes work as designed and plays an important role in ensuring the quality of the end product. The efficiency of the calibration process is an important element of overall operational efficiency and greatly depends on the type of calibration process.

Reasons for calibrating

Aside from enabling operational excellence, there are various reasons to perform calibration. All measurement instruments drift over time, meaning their accuracy deteriorates and regular calibrations are required. In the process industry, this fact is directly linked to the quality of the end product. In many industries, such as the pharmaceutical industry, regulatory requirements set tight rules for the calibration of critical process instruments. Likewise, quality systems set requirements for calibration.

As with many other things, money is also an important reason. In many cases money transfer depends on measurements, so the accuracy of the measurements directly effects how much money is transferred. In some processes, the safety of both the factory and its employees, as well as that of customers or patients who use the end product, can be the main driver for calibration.

Calibration interval

To maintain the traceability of all your process measurements, a valid unbroken traceability chain needs to be maintained. This means regular recalibrations at all levels of the traceability chain – not only all the process measurement instruments, but also the working standards and reference standards (or calibrators).

Finding the proper calibration interval is important. If you calibrate too often, you end up wasting resources. But if you calibrate too infrequently, you face the risk that instruments will drift outside of set tolerances – and in many cases that can have serious consequences.

This means companies are constantly balancing risk against wasted resources. A proper analysis of calibration history and calibration interval is key, and finding the right sweet spot helps to contribute to operational efficiency.

Digitalising, streamlining and automating the calibration process – finding a better way

When we realise calibration's role in operational excellence, we understand the importance of making calibration processes more efficient – how can we produce less waste and do more with less?

At many industry sites, there are thousands of calibrations carried out annually. To streamline those processes and save time with every calibration can save a huge amount of money and have a big impact on the bottom line.

One of the main opportunities for time saving is to ditch manual calibration processes – typing or using pen and paper to document things – and instead move to a modern digitalised world where the calibrator automatically stores the calibration results in its memory, from where they can be digitally uploaded to calibration management software. Not only does this digitalised and paperless calibration process save a lot of time, it also eliminates all the errors related to manual data entry. Digitalisation also dramatically improves the quality of calibration data. And given that analysis and decisions are based on data, it's clear that data should be of high quality.

The streamlining of calibration processes with the help of digitalisation is one major contributor to their operational excellence. As with any processes, when working to improve operational excellence there is a constant quest to find better ways of doing things. If the calibration processes are very outdated, relying on manual documentation and lacking automation, then it's possible to make a major leap in excellence by moving to digitalised and automated processes. After that is done, the next step is to constantly find small improvements.

Make sure you leverage automation in calibration whenever possible, that is a great way to improve efficiency. Consistent automated processes will also improve the quality of data by eliminating the risks for human errors. It will also make it quicker and easier for new employees to get up to speed with higher quality of work.

Calibration can help unlock operational excellence by moving to a modern digitalised process that reduces the time needed for calibrations and improves data quality.

To learn more, visit www.beamex.com

Update your CV, just like your Will!

My Financial Adviser regularly asks me whether I have updated my Will, perhaps because I am ‘of a certain age’ but hopefully it’s also to ensure I have a meaningful document, relevant to my circumstances today in case the unexpected happens. (Or the cynic in me does wonder whether they are trying to upsell a new Will writing service!)

It’s the same with your CV, most of us rarely review them until we are asked for them, but I would urge you to rethink. As a team we read thousands of CVs each year and less than one in five show a person’s strengths and experiences in the best way.

Now I can understand how this happens. A new opportunity presents itself, and from a desire to impress, the CV is updated quickly with the latest role. But in reality, that never provides enough time to reflect on career highlights and personal skills then encapsulate all of this information into two sides of A4!

A poor CV restricts your chances to sell yourself or to attract those invaluable, early conversations with decision-makers.

Your CV should be a very personal reflection of you. To me, the style of a CV says nearly as much about a person before you meet them, as do all the contents. I firmly believe that agencies detract from a CV if they sterilise it, by re-writing to fit their 'house style', stripping out the individual character.

From experience, it is easy to spot two or three immediate areas for improvement having simply read the CV, but we usually find many more when we have spoken to the candidate as these natural and relaxed conversations draw more examples out which can often make the difference to whether you are shortlisted or not.

We've just been involved in an excellent 'Chemistry at Work' STEM event helping local school pupils as they prepare to think about CVs, and it made me realise how many of these basic CV tips are relevant to all levels of experience. The principles don’t change even when you are a 15 year old student to a 50+ C-Level Exec.

- Keep your CV relevant to what you are seeking today. Cut it down as you update it. Three sides are ok but spill over to four and you may lose someone’s attention.
- Use bullet points and keep your language succinct.
- Give the greatest emphasis to your current role and other most significant roles. Don’t give the same space to every minor role.
- Always be truthful and don’t miss out any roles. Dates on your CV should run in sequence with current job at the top.
- Be ready to explain gaps and short roles outlining why you moved on.
- Sell yourself - but don’t exaggerate.
- Use a consistent professional font, watch your spelling, and carefully consider your use of bold/italics/bullet points.
- Make sure your personal email is a professional one – if in doubt set up a new one.

Not many people in a permanent role want to openly show that they are updating their CV, but many of the ‘best’ candidates do quietly keep an eye for their next career step, and most people try to start a new job search whilst in a secure role. So if you are thinking about something new, before you start looking take some time to review your CV.

For anyone considering their next career move, we’ll be happy to talk and offer any advice we can.

For further details visit the RMG website https://www.rmg-uk.com/

LIVE ONLINE | ON-DEMAND | FACE-TO-FACE | IN-COMPANY

Learn with IChemE

The Institution of Chemical Engineers (IChemE) is a market leader in process industry training. We offer an extensive range of courses to help chemical and process engineers, and their colleagues, develop their chemical engineering and process safety knowledge.

Learn online or face-to-face, and consider an in-company course if you have a team to train.

Course topics include

Process safety

- Hazard identification and risk analysis (including HAZOP and LOPA)
- Process safety management
- Understanding hazards (including hydrogen hazards)
- Human factors

Process and plant operations

- Chemical engineering for scientists and other engineers
- Distillation technology/troubleshooting
- Plant and production management
- Scale-up of chemical processes

Contract and project management

- Contract law for engineering contracts
- Engineering project management
- IChemE Forms of Contract

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Discover how IChemE can support your training needs.
www.icheme.org/training

IChemE ADVANCING CHEMICAL ENGINEERING WORLDWIDE

Measuring steam at temperatures exceeding 220 °C, non-invasive ultrasonic clamp-on flowmeters are ensuring high system availability

Once considered an almost insurmountable challenge for non-invasive measurement technology, steam is being accurately and reliably measured by clamp-on ultrasonic flowmeters with no disruption to normal system operations whatsoever.

To deal with incredibly high temperatures, and where a system shutdown is simply not an option, the superheated steam flow meter is a tailormade solution. Two pairs of ultrasonic sensors are mounted on the pipe at a defined distance from one another, forming two acoustic measuring 'gates'. Ultrasonic signals are radiated into the pipe and modulated by the vortices of the turbulently flowing fluid. Because the vortices are carried along by the flow, they pass between the two measurement gates with a time delay. By cross-correlating the modulation signals over time, the flow velocity of the steam can be determined, and the mass flow can be calculated based on the geometry of the measuring point and the physical parameters.

Essential real-time data delivered precisely when and where needed.
A major German chemical manufacturer needed a flow measuring point retrofitted, in order to accurately assess the quantities fed into and consumed by their steam networks, in real-time. A metering orifice was already installed at the outlet of the waste incineration plant to indicate the amount of steam generated, however a corresponding input measurement on the part of the grid operator was missing. So with no interruption to normal operations, no pressure loss and therefore no energy loss, FLEXIM's clamp-on ultrasonic technology was employed.

Reliable and accurate recording of steam quantities from outside the pipe.
A key advantage of non-invasive ultrasonic flow measurement, is that it can easily be trialled for suitability in operation before a commitment to investment is made. Following a convincing test period on the plant's DN250 steam feed line, an ultrasonic system was permanently installed, enabling the operating personnel to have the real-time data they needed to feed steam from the waste treatment plant into their medium-pressure steam network.

As users in the chemical and petrochemical industries look to minimise energy costs wherever possible, accurate steam flow measurements will continue to be essential. Ultrasonic clamp-on technology is the perfect partner, offering reliability, accuracy, no drop in pressure and no need for regular maintenance.

For more information on the benefits of non-invasive ultrasonic flow measurement of steam in the chemical industry, contact Simon Millington - www.flexim.co.uk | sales@flexim.co.uk | +44 (0)1606 781 420

Lokring UK have continued their sponsorship of Runcorn Town FC, by becoming front of shirt sponsors for the clubs under 16's team

Runcorn Town FC were born out of the local chemical industry, initially being known as Mond Rangers, the works team of Brunner Mond who was the predecessors of ICI and they currently play in the North West Counties Football league.

Lokring have sponsored Runcorn Town for a number of years, with the Lokring advertising boards complementing the teams industrial landscape home ground.

Lokring UK managing director Ross Millar knows the importance of sponsoring local grass roots football, having previously played as a professional in the Scottish Leagues and managed a team within Scottish amateur football.

All at Lokring UK wish Runcorn Town and their teams all the best for the season.

https://www.lokring.com/

Catalyst Announces Two New Patrons

Catalyst Science Discovery Centre and Museum Trust is delighted to announce that two significant national figures have agreed to became Patrons of the Centre and Museum based in Widnes. Both have said they are honoured to become Patrons and delighted to help Catalyst in whatever ways they can, in its most important work of STEM education and preservation of the heritage of the chemical industry of the NW region.

George Windsor, Earl of St Andrews, is a direct descendent through his mother, the Duchess of Kent, of Sir John Tomlinson Brunner who worked in the Catalyst building in the 1860s and went on to found the great firm of Brunner Mond at Northwich with chemist, Ludwig Mond, who had also worked in Widnes. George visited Catalyst in October 2021 and officially opened the newly-refurbished Henry and John Brunner Room where Catalyst's extensive collection of chemical industry archives are held. He is very proud of his Brunner ancestry. George studied history at Cambridge and was a diplomat. He is currently the Chancellor of the University of Bolton and the Chairman of the Great Britain Sasakawa Foundation which supports scientific as well as artistic collaboration between the UK and Japan. His father, the Duke of Kent, has long connections with Catalyst having opened a new laboratory and theatre for school and public workshops back in 2006.

Dr Helen Czerski, is a British physicist, oceanographer, writer and broadcaster based in the Mechanical Engineering Department at University College, London. Since 2012 she has been a TV Presenter for the BBC of a series of science documentaries. In 2020 she co-presented the Royal Institution Christmas Lectures. Helen was brought up in Cheshire where she attended Altrincham Grammar School for Girls before studying physics at Churchill College, Cambridge.

Research at other universities across the world followed. She says she is a physicist with a love for the natural world and cares deeply about explaining the ideas and challenges in the physical world around us and championing the physics of everyday life to a worldwide audience of millions. In 2018 she was awarded the Lord Kelvin Medal and Prize of the Institute of Physics for physics communication.

Chair of Trustees, Dr Diana Leitch MBE, FRSC and CEO, Dr Lee Juby CEng, FIET said that they were both delighted and honoured that George Windsor, Earl of St Andrews and Dr Helen Czerski had agreed to become Patrons of such an important organisation as Catalyst and were willing to support and promote its work in the NW Region which covers both STEM education and also the preservation of the chemical heritage of the area.

For further information about Catalyst, images and interview opportunities, please contact Meryl Jameson, Marketing Manager, Catalyst Science Discovery Centre and Museum, Mersey Road, Widnes WA8 0DF. Email meryl@catalyst.org.uk www.catalyst.org.uk

spotlight *on new member*

John F Hunt Regeneration Ltd

John F Hunt Regeneration is a trusted partner for dismantling/demolition, remediation and water treatment. We are committed to finding effective ways to increase the value and de-risk your industrial legacy site using innovative, industry-leading techniques.

Our business has been built on experience, integrity, and hard work. We can offer you the highest level of service and expertise, leading the industry in best practice and good governance.

Land and Water Remediation
Working alongside you and your team, we can determine the best way to remediate a site and deliver those works effectively. We consider the regulatory and technical aspects, how quickly the site needs to be remediated and financial viability.

Whether consultant-led or Design and Build, we have the skills and technologies to assist you.

Industrial Dismantling and Demolition
Our Industrial Dismantling team undertakes specialist decommissioning, dismantling and demolition of manufacturing and industrial facilities, chemical refineries, power and nuclear processing plants.

The sites we work on are high-risk and sensitive, therefore every aspect of our projects is meticulously planned with the client's representatives and the regulatory authorities to guarantee a safe, timely outcome on budget.

Water Treatment
Our water treatment business provides bespoke solutions to water pollution control issues experienced throughout the construction and industrial sectors. With in-house engineering, construction and operational resources, we can design, build, install and manage systems to meet your specific process requirements.

Pumping Technology
Our Pumping Technology team are leading experts in supplying, installing, operating, and maintaining all forms of water pump systems. We have a strong background in the industrial and construction sectors and currently have numerous systems operating on major projects in the infrastructure, marine, and oil/gas/chemical sectors.

Contact:

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https://www.linkedin.com/company/john-f-hunt-regeneration

O'Hare Engineering Design Ltd

Innovative, Detailed, Working Solutions
O'Hare Engineering Design Ltd. are providers of 3D laser scanning, mechanical and pipe design solutions. With over 18 years' experience, we know that accuracy is fundamentally the most important element in every engineering design project, so our client focused approach uses the latest technology to provide an effective solution that is sure to hit the brief, every time.

Mechanical Design
Our highly skilled engineers apply the latest 3D design softwares and their in-depth experience and knowledge to deliver all aspects of mechanical design of piping systems. We listen to your needs and requirements, utilise the space available and provide the best design solutions for your project.

3D Laser Scanning
Using world class laser scanning technology, we are able to digitalise existing site parameters to make retrofitting existing sites as easy as building from new with little or no site disruption. It also allows us to capture vital and dimensional information that is often missed by traditional surveying techniques to improve your design and fabrication outputs.

3D Modelling and Visualisation
Our 3D models and tools for design review enables us to collaborate more effectively and reduce project lead-times for your business. We will also provide a beneficial engineering model for you to utilise after the project to improve your chances of investment success with shareholders or to upgrade your current training and marketing materials.

Our services provide you with value throughout the project life-cycle phases, from initial feasibility and front-end engineering, through detail design to construction and as built. Our team of engineers and designers work closely with you, developing an understanding of your needs to provide a range of deliverables including raw point cloud data, asset documentation, 2D and intelligent 3D models. If you'd like to find out more, get in touch.

Contact:

Main Contact: Martin O'Hare
Director/Mechanical Designer

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Supplying to the Chemical Industry

Knowing your local supply chains is important, and suppliers of expertise, solutions and great products are right here in the northwest. CNW members have a strong association with and many years of experience supplying to the chemical industry. The companies listed in this directory cover a wide range of products and services. They have established customers in the sector, with proven track records. Many will be well known, long-standing firms and there will also be new and innovative businesses that you may not have heard about. Effective supply partnerships, delivering success for all! For more details, the websites for the listed companies and organisations can be found at:
https://www.cia.org.uk/chemicalsnorthwest/Membership/Our-Members/

Chemicals Distribution, logistics & chemical handling

2M Holdings Ltd
Chemical distribution and related services of sample management, storage and blending. Provision of AdBlue, Samsol products, packed chlorine and TRIKLONE & PERKLONE chlorinated solvents. Markets served include: automotive, precision cleaning, coating, oilfield & refineries, flavours, fragrances, surfactants for personal care, household and industrial cleaning and pharmaceuticals.

Actikem Ltd
An ISO9001 certified business, specialising in a range of chemical processes and manufacturing services, including mixing, storage and re-packaging. We provide toll and custom manufacturing services for SMEs as well as blue-chip organisations, and supply customers with on-tap production facilities, offering them potential cost-savings and greater flexibility.

F2 Chemicals Ltd
As a specialist in the handling of fluorine gas, F2 Chemicals Ltd offers a variety of organofluorine products all manufactured at our Preston plant. Our primary product is a range of high specification perfluorocarbons, such as octafluoropropane and perfluorodecalin, under the Flutec tradename, used in applications including medical, tracers, plasma-cleaning, cooling and cosmetics.

Hosokawa Micron Ltd
Integrated powder processing technologies including: size reduction, air classification, mixing, drying, containment equipment such as gloveboxes and downflow booths. Contract processing services for 1kg to multi-tonne lots. Remote monitoring solutions that include: condition monitoring, analytics for improving product quality and energy efficiency and on-line diagnostics for predictive maintenance and improved plant availability..

Itac
Itac specialise in developing high performance solvent-based adhesives and coatings. We design and manufacture bespoke adhesives and coatings formulations, enabling our customers to develop market leading products critical to countless end use applications. Itac also provide confidential toll manufacturing services allowing our clients to focus on their business objectives.

Kanon Liquid Handling Ltd
Design and manufacture of drum, IBC and container filling systems ranging from fully automated robotic systems to simple manual machines. Full range of marine, road and rail tanker loading/unloading and safe access equipment. Distributor for Mann-Tek couplings, with repair facility and 'return to base' option.

Klüber
Global manufacturer of over 2500 specialty lubricants for virtually every industry, Klüber Lubrication high-performance speciality lubricants and effective lubrication management programs enable customers to achieve their operational efficiency goals, increase reliability, and lower the total cost of ownership across assets.

Suez Water Technologies and Solutions
Suez Water Technologies and Solutions is one of the world's leading providers of water treatment chemicals, services and equipment. Through focussing on customer service, value delivery and research and development of new products, we have been instrumental in helping our customers overcome the world's toughest water and process challenges.

Education, training & skills

All About STEM
Lots of different projects to bring exciting Science, Technology, Engineering and Mathematics to schools across the region, linking them with business and industry expert volunteers inspiring the next generation of STEM specialists. Building and maintaining relationships with our schools, businesses, industry, colleges and universities so that we can strategically match-make opportunities with need.

Catalyst Science Discovery Centre
An independent charitable trust playing a pivotal role in promoting science across the Northwest. Catalyst works in conjunction with industry partners to excite young people about all STEM subjects and careers available within the science sector. Companies can also sponsor a local school to visit and attend industry days.

Centre for Industry Education Collaboration
CIEC supports companies in making credible and sustainable links with primary schools, in order to inspire the next generation of scientists and engineers. We train STEM professionals to improve their communication skills, and develop industry-focused activities for use directly by teachers or by ambassadors visiting schools.

Chemistry with Cabbage
We work with students of all ages, demonstrating through practical experiments, the relevance of chemistry in solving problems. Research shows that children make career choices very early on, so capturing their imagination early is important. Chemical companies are welcome to support our hands-on work in primary schools.

EngineeringUK
Not-for-profit organisation promoting the contribution made by engineers to society. We partner business and industry, government and the wider science & engineering community, producing evidence of the state of engineering. Sharing of knowledge and inspiring young people to choose a career in engineering.

Lancaster University
Lancaster University's award-winning partnerships and engagement team facilitates business collaborations, including student placements, access to over £45m scientific facilities, training, contract research, and multi-partner collaborative research projects. We liaise with all areas of the chemical industry, from multinational oil, chemical and pharmaceutical companies, to SMEs producing new and specialised products.

SEERIH
The Science & Engineering Education Research and Innovation Hub positively influences the experience of young people in science and engineering. Expertise in curriculum and teacher development, applied research and creation of innovative projects related to primary science and associated STEM disciplines. Inspiring excellence in teaching and learning in science education.

The Outward Bound Trust
An educational charity that uses the outdoors to help develop young people. Experts in the development of early talent and specialising in providing experiential learning and development programmes for apprentices and graduates. Identification, development and change of people behaviours in line with organisational needs.

TTE Training Ltd
Engineering training and apprenticeships focused on whole person development and bridging the sector's skills gap. The learning environment will be one which is welcoming, safe and inspiring, appropriate to the subjects and responsive to the needs of the learner.

Warrington & Vale Royal College
Delivering vocational, professional and apprenticeship qualifications across science and engineering. Home to a new Advanced Manufacturing & Engineering Training (AMET) centre and dedicated science laboratories. Continually building relationships with schools, businesses and industry to help bridge the skills gap. Bespoke course and packages available. www.wvr.ac.uk

Wirral Met College
Provision of education and training, supporting innovation and development. The College is pioneering SIP traineeship programmes with local employers, preparing young people for science apprenticeships. New STEM Centre opened in 2016.

Engineering products & services

Addison Project
Addison Project is a Multi-Disciplined Engineering Project Management & Design organisation, established in 1997, with offices located in Cheshire, Lancashire and Teesside. We have an in-house team of engineers and designers circa 130 people, catering for mechanical, civil, structural, EC&I, process engineering and a full range of CDM services.

Beamex
Beamex helps its customers to find a better way to calibrate, according to the most demanding requirements of process instrumentation. Beamex offers a comprehensive range of products and services – from portable calibrators to workstations, calibration accessories, calibration software, industry-specific solutions and professional services.

continuted overleaf

Know your supply chains

Engineering products & services

CDR Pumps UK
A leading independent Pump manufacturer. Since opening our doors 60 years ago, we have gone from strength to strength bringing you a company that has the product, service and knowledge to support the chemical, nuclear and pharmaceutical industries on a global scale. And small enough to give you the individual care and attention you need yet big enough to support multi-site,multi-national blue-chip chemical companies. Our global manufacturing facility in Milan is strategically located to support our customers across the world.

DHD Cooling Limited
Design, installation and maintenance solutions for industrial cooling. Our service extends to cooling system inspection, testing, service, maintenance and new equipment capability. Regulatory and reliability assessments, thermal performance improvements, turnkey projects and carbon footprint reduction.

Dron & Dickson
Dron & Dickson are recognised market leaders in the supply and maintenance of hazardous area electrical equipment. Our Engineering Services and Wholesale divisions offer bespoke solutions incorporating the very latest industry standard and safety legislation.

Flexim Instruments UK Ltd
We support UK clients with their measurement, commissioning, verification & maintenance needs. Offering clamp-on flow metering of liquids & gases; SIL 2 for safety critical duties; mass flow or concentration measurement options from outside the pipe; virtually zero maintenance; no cost escalation with exotic pipe, pressure or temperature; no outages for commissioning or maintenance; zero leak paths

Glacier
With a track record spanning over 80 years, we offer a full turnkey service comprising the design, manufacture, repair and maintenance of pressure vessels and heat transfer equipment, including full failure analysis to help restore assets to optimal working condition, saving significant time and money.

Laker Vent Engineering Ltd
Supply, fabrication and installation of process and utility piping systems. Project management, detailing, procurement, on and off-site fabrication and installation of pipework and coded welding. Associated steelwork supporting and mechanical installation of plant and equipment. Testing and Handover. Pipework and steelwork is fabricated to specific customer-needs and conforms to all appropriate ISO, BS EN and ASME standards and specifications.

Lokring UK
Lokring UK offer technical engineering support and sales for Lokring technology across the UK. The Lokring “Cold Weld” pipe and tube joint reduces the need for hot work, NDT inspection and reduces on site resources. Code compliant with ASME B31. Lokring is a Safer, Faster, Lower Cost replacement for site welding and flanged fabrication.

Manntek AB
Supply of safety dry disconnect and safety breakaway couplings. Comprehensive range of specialist dry quick release couplings to suit 99% of known chemical applications. Bespoke solutions with a size range of ¾” to 8” nb. Dry disconnect couplings are made to NATO standard Stanag 3756.

METTLER TOLEDO
Mettler Toledo manufacture & service weighing, analytical and inspection equipment used throughout the product cycle from Research & Development, through Scale-Up & Production to Quality Control, Storage & Despatch. We work with our customers to understand and achieve their business goals, including key areas of safety, quality, productivity and sustainability.

MCE Group
Offering valve service and overhaul in our state-of-the-art service workshops, or on site, using OEM parts, from single valves to complete outages. European distributor for ValvTechnologies, providing severe service, zero-leakage isolation valve solutions, setting the standard for the next generation of valves for the chemical industry.

O’Hare Engineering Design Ltd
Innovative, Detailed, Working Solutions.
O'Hare Engineering Design Ltd. are providers of 3D laser scanning, mechanical and pipe design solutions. With over 18 years' experience, we know that accuracy is fundamentally the most important element in every engineering design project, so our client focused approach uses the latest technology to provide an effective solution that is sure to hit the brief, every time.

Perry Process Equipment Ltd
Buying and selling of high quality used processing plant and equipment. Savings of up to 70% on the cost of process equipment, full mechanical and electrical refurbishment and equipment immediately available form stock. Centrifuges, dryers, evaporators, filters, heat exchangers, mills, mixers, reactors, separators, tanks.

Pumptec Engineering Services
Specialises in supporting the chemical industry in the inspection, repair, overhaul and fitting of all types of rotating equipment. Our highly trained engineers can support your routine maintenance, call outs and shutdowns. Our Wirral based machine shop can complete overhauls on your pumps, fans and mixers.

ProDecon®
Providing industrial service solutions to the Oil&Gas, Chemical, Power, Pharmaceutical and Industrial sectors. Specialising in hazardous hydrocarbon and chemical environments. ProDecon® has a unique range of technical expertise, that enables us to support customers with restoring process performance and providing maintenance risk management through bespoke industrial cleaning solutions.

SABSCO (Steam and Air Blowing Service Company)
is the British subsidiary of the Solarca Group, with offices in Kent. They have been providing world-class steam/air blowing services on projects across the globe since 2003. With the addition of SABSCO, the Solarca Group gained a major competitive advantage: the ability to offer integrated chemical cleaning and steam/air blowing services. World-renowned in their field, they have been selected by leading engineering companies for large-scale steam/air blowing projects in every corner of the globe

Studley Engineering Ltd
A multi-disciplined mechanical and electrical engineering contractor, providing a comprehensive service to the process industries in disciplines including: steelwork, welding, maintenance, site services, pipework, tanks and vessels. Over time we have gained an enviable reputation as a reliable, responsive, motivated contractor that delivers safe, high quality, cost effective work.

Swagelok Manchester
Fluid system solutions, products, training and services. Supply of over 7000 fluid system components including; fittings, hoses, tubing, regulators, equipment servicing and custom fabricated solutions. Provision of practical information, know-how, tools and speciality services needed to purchase, manage and apply them successfully.

Yokogawa
Yokogawa is a leading provider of field instrumentation, safety systems, industrial automation and digital transformation solutions. IIOT, OT Cybersecurity and Alarm Management are specific areas of focus for Yokogawa’s Advanced Solutions team with a number of major projects currently being delivered across Europe.

Engineering project management & energy

6 Engineering
Is a safety engineering consultancy for the major hazard industries specialising in process and functional safety. Our mission is to provide world class safety expertise, helping you to keep people and assets free from unnecessary risk. Our site engineers can be there to support you when you need us. See more at www.6engineering.co.uk

Atlas Copco Rental UK
Provides temporary cost and energy efficient solutions for long- or short-term demands, planned maintenance or unexpected emergencies. Our engineers design the most suitable temporary installation, utilising our fleet of state-of-the-art equipment which includes 100% oil-free Class 0 and oil-injected compressed air at medium or high pressure, generators for power, and nitrogen. Quality of service, environmental care and personnel safety are guaranteed by our triple ISO certification.

Axiom Engineering Associates Ltd
A multi-award-winning, asset management solutions provider, supporting the chemical, pharmaceutical, oil & gas, bulk storage, power, renewables and related industries. With integration of their Materials, Mechanical, Inspection, Process Engineering and Process Safety Services, Axiom are uniquely positioned to identify and mitigate key through-life risks across the entire asset life cycle.

Graham Hart (Process Technology) Ltd
Delivering high integrity heat transfer equipment for over 45 years. The company has a strong emphasis on Chemical/Process & Mechanical Engineering backed up by an advanced manufacturing facility.

IKM Consulting
With 25 years of civil & structural engineering and environmental consulting experience, IKM's portfolio in high-hazard and regulated industries is extensive. With offices in Runcorn and Grangemouth, IKM specialises in consulting services around asset integrity, secondary & tertiary containment, asset infrastructure inspections, environmental risk assessments and COMAH compliance.

John F Hunt Regeneration Ltd
John F Hunt Regeneration are a trusted partner for brownfield demolition, remediation, water treatment and enabling services. As part of the John F Hunt Group, we have the scale and financial stability to provide a complete works package no matter the size of the scheme.

Otto Simon Ltd
Diverse engineering consultancy and project delivery organisation. Initial consultations, technical and commercial due diligence and front-end design and definition. Feasibility studies through design, supply, erection, and commissioning services using in-house and licensed technology. Services for complete plants or upgrades. Procurement, construction management, start-up and operation & maintenance expertise.

PM PROjEN
A multi-disciplined engineering, design and project management business working across a range of market sectors for a diverse mix of clients from SMEs to multinational blue-chip companies. We are part of PM Group, a 2,200 strong, employee owned company operating across Europe, Asia and the USA.

Engineering, IT & process consultants

EJ Peak Technology Solutions
Process control, industrial automation systems and manufacturing analytics. A unique combination of automation projects, consultancy, and performance improvement services delivered by experienced teams. FEED, process control projects, legacy asset replacements, control room and operational technology, modern manufacturing analytics solutions.

Gexcon UK Ltd
Safety and risk management and advanced dispersion, explosion and fire modelling. Unique expertise and shared knowledge on how to prevent explosion accidents. Carrying out accident investigations and dedicated facilities for physical testing. Ventilation and dispersion modelling also available. Hazardous area classification and quantitative and qualitative risk analysis and assessment.

Siemens Digital Factory & Process Industries and Drives
Productivity and efficiency requirements continuously increase in the field of process automation. A comprehensive range of process automation and Drives products as well as an award-wining range of training and support services.

Environment, health & safety risk management

ABS Consulting
A global process safety consultancy and training services provider with regional headquarters in Warrington, UK. Our expertise in data-driven risk and reliability includes a range of capabilities: root cause analysis, incident investigation, organisational culture evaluation, risk management, process hazard analysis, bow-tie and data science techniques. Our approved process safety leadership training courses and proficiencies also include building risk assessments, HAZOP analysis, compliance auditing, asset integrity management competency assurance and management systems certification services.

BakerRisk Europe Ltd
Dedicated to help predict, prevent and mitigate hazards and explosions, fires and toxic releases. Specialising in process safety and risk management, we help clients understand their risks and offer cost-effective risk management solutions. Success id delivered through proven knowledge and experience, innovative research and unique engineering capabilities.

Chemical and Industrial Consultants Association
An association of independent consultants with extensive experience, many having worked in the chemical industry, across various fields. Provision of technical and business advice on almost every aspect of chemical manufacture, development, marketing and management.

RAS Ltd
Expertise that covers the full range of risk assessment and management services across; safety risk, business risk and environmental risk. Carry out Quantitative risk Assessments and Predictive & consequence modelling, through 'softer' risks affecting an organisation's reputation.

RPS Group
Provision of specialist consultancy to help those with responsibility for health and safety achieve compliance. With particular expertise in the chemicals sector, we provide support from plant development through to operation. Core services include: ATEX/DSEAR, asbestos, BowTie analysis, CDM, COMAH support, fire safety engineering, functional safety, hazard identification, Legionella, occupation health and risk assessment/analysis.

SLR Consulting
A unique blend of leadership, management, consulting, engineering and training services is offered to the chemicals industry. A forerunner in sustainable process safety management combined with proven business improvement capabilities enables delivery of practical solutions to promote safety and efficiency in design, operation and maintenance of complex hazardous facilities.

Facilities, finance and other business services

Department for International Trade – Northwest
Operational support for British exports as well as facilitating inward and outward investment activity. Support is given to first-time exporters or established exporters requiring more help with accessing more difficult markets or putting strategic alliances in place. Access to expert advice, trade services, training and events.

Halton Borough Council
World renowned research facilities such as Sci-Tech Daresbury and The Heath alongside many companies at the cutting edge of science, technology and advanced manufacturing. We oversee capacity in terms of land, buildings, people and business support creating a world class location.

Pen Underwriting incorporating OAMPS
Specialist Insurance services to high hazard manufacturing and haulage industries. Motor fleets, property, liability and transit policies. We help clients minimise risk through proactive risk management and a range of training and response services to assist companies in planning for and dealing with incidents and emergencies.

Sci-Tech Daresbury
We are a national science and innovation campus, and enterprise zone providing a range of office, laboratory and workshop accommodation for technology companies (from a desk to large laboratory and office units). Companies have access to a range of facilities covering material analysis, virtual design & simulation, and rapid prototyping.

STFC Innovations Technology Access Centre
A unique, fully equipped space for innovation, research and development. Providing flexible access to laboratory space, "hot labs" and scientific equipment. Ideally suited to start-up companies, smaller and medium size enterprises and R&D team from established companies.

TW Languages Ltd
Provision of a professional and reliable multi-lingual translation service delivering high quality translations. We specialise in business, technical and scientific translations into 250+ language combinations. We provide certified translations for legal purposes. We are full members of the ATC & EUATC and ISO 17100 Translation Services certified.

Laboratory products, testing and services

XCellR8 Ltd
A world leader in animal-free testing. Our GLP accredited laboratory provides ground-breaking in vitro safety tests for the chemical and personal care industries. We are passionate about delivering testing strategies that are both scientifically advanced and ethically sound. Our award-winning work is recognised at a regulatory level by the OECD and ECHA.

Legal & patents

Appleyard Lees LLP
Patent and trademark attorneys. Aim to obtain the best possible patent protection for clients. Experience of product clearance against competitor patents and in due diligence for mergers and acquisitions. Advice on licensing issues and collaboration agreements relating to IP.

Bawden and Associates
A legal firm providing professional services across all IP matters. Drafting and prosecution of patent applications, handling opposition and appeals in the EPO and in litigation in UK and international courts. Business led and strategic approach to generate assets of real commercial value.

Mathys & Squire LLP
Mathys & Squire LLP is a full-service intellectual property law firm with industry-leading expertise in patents, trade marks, design protection and IP litigation and including a dedicated chemistry team of highly experienced attorneys holding higher degrees and research or industrial experience who are passionate about innovation in the chemical field.

RW Legal Ltd
Provision of pragmatic legal advice to companies in the chemical sector. Particular expertise in drafting and negotiating commercial contracts. Managing legal risk through early involvement to save time and resources in the long run. Competitive rates and flexible fees without sacrificing quality.

Squire Patton Boggs (UK) LLP
Global legal company providing legal, regulatory and advocacy assistance to the chemical and performance material industries. Expertise that emphasises areas that mean the most to industry such as environmental, mergers and acquisitions, commercial finance, construction, litigation, Ip, public policy and international expansion.

Withers & Rogers LLP
A leading UK and European intellectual property law firm with five offices including London and Munich. We offer a range of IP services including obtaining UK, European and worldwide patent or trade mark protection, the handling of contentious matters, advice surrounding licensing arrangements and issues including validity of patents and "freedom to operate".

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Know your supply chains

Legal & patents *continued*

WP Thompson
Intellectual property attorneys providing high quality advice to start-ups, SMEs or FTSE 100 companies. Team of experienced IP attorneys specializing in chemistry and life sciences, with first degrees and PhDs in these fields. Securing the most appropriate, cost effective and commercially valuable protection for your intellectual investment and innovation.

REACH and chemicals services

Dr Knoell Consult Ltd
An independent service provider for the chemical and related industries. Globally the Knoell group has over 450 employees covering all aspects of regulatory compliance for industrial chemicals, agrochemicals and biocides: e.g., strategic planning, dossier preparation, exposure assessment, SDS preparation, and from REACH to K-REACH!

GlobalMSDS
A complete safety data sheet/literature and regulatory service for your entire product communications in any language, style and format required. Hazmix is a new 'pay as you go' web-browser product that is setting a new standard in SDS authoring. A Solutions service that also provides technical advice.

Intertek Regulatory Services
Health, environmental and regulatory services for implementation of chemicals management. Worldwide registration of chemicals, food contact compliance and notification, global chemicals compliance, design/optimisation of toxicological and eco-toxicological studies, hazardous substance management, EU cosmetic and biocidal products compliance, classification & labelling, SDS consulting.

Yordas Group
Yordas Group is a leading provider of scientific, environmental, human health and global regulatory consulting services. They offer chemical regulatory support, expert scientific services and support on chemicals management and product stewardship, global hazard communication, hazard and risk assessment, analytical and (eco)tox testing.

Recruitment

Adepto Technical Recruitment
A specialist engineering, manufacturing and scientific recruitment consultancy that focuses upon the provision of permanent staff and contract resource to the Chemicals industry. Established in 2015, Adepto has quickly become the partner of choice for many blue-chip and SME manufacturers, engineering companies and consultancies due to our deep knowledge of the industry, credibility and professionalism.

Eleven Recruitment
Eleven Recruitment has been a specialist recruiter in the chemicals, energy and commodities sectors since 1999. We have a strong track record of sourcing mid and senior level talent, including C-Suite, with specialist knowledge and experience. We can provide both contingent and retained recruitment services or work with clients as an integrated recruitment partner.

Handley James Chemical
Mid to senior level appointments solely within the Chemical Manufacturing space. Over 30 years search experience. The company was built on the success of Stuart Tomkinson's successful 11-year recruitment career primarily within the chemical manufacturing arena. Focusing on providing the best talent in the chemical industry. We work closely with you, to understand your business, your culture and exactly what you are looking for from a recruitment partner.

RMG
RMG is an award-winning headhunting consultancy with a difference - we make it our business to search and understand who's who in the Chemicals and STEM sectors and have the know-how to find talented people who will deliver lasting impact and add financial value to your organisation.

Science Recruitment Group
Experts in the recruitment of scientific, regulatory, quality, engineering and technical professional across all areas of the industry. Support in recruiting temporary, contract or permanent staff for your team.

Science Solutions Recruitment
Is a specialist science & technical recruiter with specific expert teams to service niche fields, including speciality chemicals, drug discovery, polymers, materials, cosmetics, personal care, household products, pharmaceuticals, biotechnology & medical devices.

TransitionPlus Ltd
Executive search for science-based organisations, talent development, outplacement and career transition support. Experienced chair, NED, coach and business development consultancy. The "Plus" is to ensure that considerable attention

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TRAINING

Human Factors in the Chemical and Process Industries

Modular human factors training

Would you like to develop your understanding of human factors in the chemical process industries?

Are you looking for practical guidance, tools and approaches to help you manage human factors effectively at your organisation?

Sign up for our human factors training and take your human factors understanding to the next level.

Training is delivered online and face-to-face in Edinburgh, UK. It can also be delivered in-company.

What's available?

Human Factors in the Chemical and Process Industries consists of four modules:

- Managing Human Factors
- Managing Human Failure
- Strengthening Organisational Performance
- Human Factors in Design

Complete individual modules or all four depending on your training needs.

> *"Human Factors in the Chemical and Process Industries has given me the confidence to lead the human factors agenda at a top tier COMAH site."*
>
> Ian Taylor, SABIC UK Petrochemicals

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