

A spotlight on the vibrant north west chemicals sector

Elements



In this issue:

- Ambient Temperatures – Are we at risk of becoming complacent?
- Improving and implementing a corporate social responsibility (CSR) program
- Research & Development in the UK – Be a part of the Innovation
- No stopping the hydrogen economy's momentum
- Innovating Cosmetic Surfactants beyond 'Sulphate-free'
- Patent news updates
- New member spotlights



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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 Summer edition of Elements, as we welcome the Summer, we recap on the last couple of months.

The team at Chemicals Northwest held a very successful networking session at CHEMUK in May. It was good to catch up with members and industry colleagues and listen to presentations from the sector over the course of the two day event. The event was a huge success with plans for growth for 2024, and we look forward to being part of the event next year. A full recap of CHEMUK 2023 can be found on page 28 & 29 of Elements.

We held our breakfast networking event on the 15th June with a full round up of presentations from the industry and attended by a diverse audience. Tom Ventre, Operations Director at Lakers lead into the event giving a brief introduction to Lakers and the services they offer. Tom also discussed industry challenges faced by Lakers with regards to recruitment and retention.

Operations Manager Neil Swinburn and Technical Manager Stuart Carroll from John F Hunt Regeneration talked about a project in Deeside, dismantling an active paper mill so it could be repurposed into Europe's largest cardboard packaging plant.

Knowledge Transfer Manager Jodie Kershaw introduced Yordas Insight, the training arm of Yordas Group, a leading international provider of scientific, environmental, human health, global regulatory and sustainability services.

Colleagues from the Growth Company - Ben Peace, Net Zero Consultant from the Growth Company discussed the net zero context and introduced various support that is available to businesses of all sizes.

Steven Gasser from the IChemE provided an insight to IChemE and the role the organisation can play in the support and development of chemical, process and biochemical technician and engineering communities.

At the time of going to press, the team at Chemicals Northwest were about to host the Regulation update round table event on the 20th June. With presentations from Dr Iain MacKinnon, Managing Director at Dr Knoell Consult Ltd, giving an update on UK REACH from a practical perspective. James Killerby, Managing Director of Hibiscus Plc providing an overview of the key changes to EU chemical labelling, proposed under the revised Classification, Labelling and Packaging of Chemicals (CLP) regulation and Silvia Segna, Senior Chemicals Policy Executive from the Chemical Industries Association giving an update on the CIA position and engagement with DEFRA on policy development.

If you would like to present at the next event or would like to run some new topical industry events, please get in touch.

We are delighted to announce the date for the Chemicals Northwest 2024 awards as the 21st March 2024, taking place at the Hilton Manchester Deansgate. Save the date in your diaries and keep an eye out for further information.

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.



Newly crowned Northwest speciality bio-polymer business teams up with a global leader in the composites sector

Chemical Processing Services Ltd (CPS) was recently awarded the prestigious King's Awards for Enterprise in the innovation category. This was for the development of innovative bio-based polymers derived from a waste biomass that fit within their already extensive portfolio. CPS has a range of disruptive Bio-based polymers and some of these are now being tested in road, rail, and aircraft applications. CPS tend to align themselves with market leaders and they have recently teamed up with the composites engineering giant Röchling Industrial.

Röchling Industrial turnover in excess of €1 Billion and occupy 40 locations, they have more than 11,000 employees, and they are a world-leading composites manufacturer. CPS speciality matrix polymers are complementing the Röchling Industrial drive to lead the way in generating sustainable high performance structural components with reduced weight. Weight reduction is recognised as an essential part of extending vehicle performance and reducing emissions.

Electrification in the transportation sector is recognised as an essential part of decarbonisation. However, Electric vehicles require batteries, and the introduction of the battery units brings about several new considerations which includes a significant increase in weight. Additional weight is counter-productive to the economics of these changes and is not conducive to maximising sustainable performance. Certainly, in the case of Electric and Hybrid cars there remains a range of concerns, especially with the limited electrical charge station infrastructure. Of course, adding further batteries provides a means of attaining greater distance but again greater weight and the cyclic argument continues.

This creates a challenge, but with every challenge comes opportunity and the recently Patented CPS Bio-Benzoxazines, specialist reinforcements, and Röchling Industrial expertise appears to be providing a sustainable solution. CPS systems are forming the resin matrices that bind, protect, and provide load distribution across the various fibre reinforcements that are being used in these new lightweight bio-composite units.

The technology partnership has brought about a means of not only offsetting this supplementary weight, but providing lightweight composite parts that are corrosion free, offer fire protection, maintain their mechanical integrity, and reduced emissions, all of this with sustainable biogenic materials at the heart of the design.

Paul H. Jones Managing Director of CPS stated, "I am delighted that we have been presented with a Kings Award for Enterprise in the innovation category. We believe that the Scientific community will provide the solutions to meet our environmental and humanitarian obligations and these specialist products have been designed, scaled, and commercialised in order for us to make our contribution to society. We continue to develop disruptive technology and use our innovative products to try and address the problems of today, for the benefit of tomorrow. Our partnership with Röchling Industrial is a perfect fit and an excellent collaboration opportunity. They recognise the need for innovative biomaterials, they are at the forefront of sustainable solutions, and they lead the way in their markets."

The collaboration has resulted in the generation of some new pre-preg and laminates that comply with a variety of industry standards and allow a move away from petrochemical reliance. The CPS Bio-Benzoxazines, Poly-furfuryl alcohol [PFA], and bio-epoxide polymers are just some of the matrices being used with Glass, Carbon, and Natural reinforcements to satisfy a myriad of market needs and aiding organisations meet their own CSR policies.

Some of the products have been tested by the Fraunhofer Institute for Manufacturing Technology and Advanced Materials [IFAM] and Paul sits in the FOREST consortium with IFAM members working on the decarbonisation of the transport sector in the EU. It is expected that some of the findings from the Röchling Industrial collaboration will assist and aid the progression of the FOREST objectives.

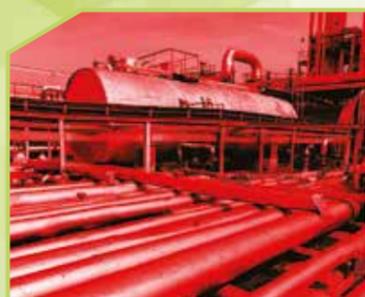
Röchling Industrial launched their Bio-Benzoxazine Durastone Green Range at the K-Fair in 2022, and CPS recently exhibited some honeycomb sandwich structure light weight flooring panels generated from Bio-Benzoxazines matrix systems at the JEC World 2023 in Paris.

For further details visit CPS Consultancy
cps-consultancy.com



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Ambient Temperatures – Are we at risk of becoming complacent?

When it comes to Process Safety and the containment of hazardous substances, temperature is an important factor which requires management and control to ensure accidents such as pool fires and flash fires don't occur. In the UK, when asked about potential risk factors leading to hazards, ambient temperature may not initially spring to mind, but with the dynamic and unpredictable nature of today's climate showing no signs of calming it is important that we are aware of what can go wrong and where we might need to change our approach to stay on top of these changing temperatures, both high and low. Highs of 40 degrees Celsius were experienced in summer 2022.

How can climate change introduce new hazards?

The general trend with climate change is average air temperatures increasing slowly but surely, but one thing that will remain the same is the flash points (the lowest liquid temperature at which, under certain standardized conditions, a liquid gives off vapours in a quantity such as to be capable of forming an ignitable vapour/air mixture) of the substances being handled. This leads us to think about the potential inevitability of ambient temperatures reaching, and eventually surpassing the flash points of these substances. For example, Jet A1 has a flash point of 38 degrees Celsius, which usually rules flash fires as non-credible in the UK but we have seen ambient temperatures exceed these levels in recent times. This risk is not exclusive to Jet A1, and leaves us with the task of preparing for greater average temperatures down the line.

How much of a threat is an increase in ambient temperature?

If ambient temperatures on site reach the flash point of a substance handled, this doesn't necessarily mean that a fire or explosion is going to follow, due to several factors. For instance, using Jet A1 as an example again, ambient temperatures may only exceed 38 deg. C for a couple of hours during the day, and during a heat wave temperatures may only rise to these levels for a couple of consecutive days, whereas it would take some time for the entire volume of the liquid in

a bulk storage tank to reach the highest air temperature due to the bulk thermal capacity of the liquid. Other factors that retard the storage temperature reaching the flash point include receipt via buried pipelines which is maintained at a low temperature, and the turnover of the liquid in the bulk storage tank.

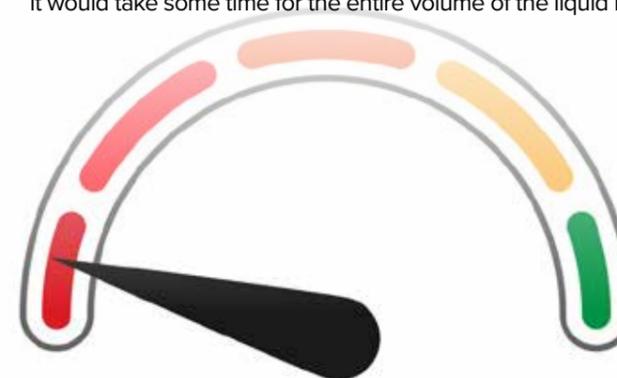
These factors contribute towards a low likelihood of liquids with moderately high flash points reaching these temperatures, but in the world of safety, anything that isn't impossible should not be brushed under the carpet.

The typical review cycle for risk assessment within industry is 5 years. Therefore, with climate change, it is important that sites don't just base their assessments on the current climatic state, but also account for predicted changes that may occur within the following 5 years, and even further into the future. Alongside this, sites need to be aware that different procedures can lead to liquids having the potential to heat up and reach their flash point more readily. Using airports as an example, sampling of fuel via small diameter pipework could lead to volumes of fuel to sit within pipework where it can heat up faster. Because liquids aren't always stored in large tanks in which ambient temperatures would take some time to be reached, it is important to recognise all equipment and processes at the site in question and understand the potential risks and act accordingly.

What can we do in response to changes in ambient temperature?

With temperatures rising, will every site be required to install new equipment to handle more flammable substances? In reality, this is an excessive measure to implement at this moment in time, and a less conservative approach can be taken. An automated alert system could notify workers when ambient temperatures around liquids are reaching potentially dangerous levels. This could subsequently trigger workers to carry out safer procedures, as part of a pre-planned emergency response, which all workers will be aware of and prepared for.

With the climate becoming increasingly difficult to accurately predict, it is essential that we are aware of new hazards it can present us with, as well as how we can be well equipped to adapt to these hazards, both temporary and permanent. Existing industry standard hazard study and risk assessment techniques can be easily applied to consider the effects climate change can introduce.



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Q & A with Sian Doyle – Chemicals Northwest Young Talent award winner

Following on from the Chemicals Northwest awards in March, Chemicals Northwest wanted to gain an insight into having a career in the chemical industry from our young talent winner Sian Doyle who works as a Shift Team Leader at Livent. Read the questions and answers below.

1. What first attracted you to working in the chemical industry? How does it now feel to be working in the sector?

I was just finishing my A levels and wasn't quite sure what route I wanted to go down so instead of just going to university like all my friends, I decided to see what else was out there for myself. I knew that I enjoyed more maths and science related subjects and decided I wanted to explore engineering. I found a college called TTE (Training Tomorrow's Engineers) and after tests and interviews I was invited for an interview with Livent for sponsorship. I was taken on a plant tour and the process was explained to me and from that moment I was really drawn in and I wanted to explore this field more. Luckily, I got offered that sponsorship!!

I feel as though I have come a long way and I really enjoy the field I am working in and I can't wait to see what's to come.

2. What advice would you give to anyone about to leave education for a job in the chemical industry?

I feel as though it's tough for young people to know what they want to do straight from education, so my advice would be to explore all your options and to keep an open mind, if you can do some work experience grab it with two hands so you get more of an understanding of the field. I feel like working in the chemical industry is a great career option and I don't think you would be disappointed with this choice!

3. What do you think can be done to attract future talent?

More promotion of jobs/ apprenticeships in the chemical sector specifically for people who are about to leave

education. I found that I had to go looking for my apprenticeship more so than there being any promotion within my college. If colleges/ schools promote it more then I think there will be more interest in the field.

4. What is it that those who join the industry as a first job can do to help those who have worked in the sector for a long time? What changes do we need to make to enable that to happen?

I feel young people coming into the industry as a first job are very enthusiastic and open minded and I hope this is rewarding for people who have been in the sector for a long period of time to see. I feel it is refreshing and rewarding for them when young people develop skills that have been taught to them by the more experienced workers.

I can only really speak from my experience, and it has been a very positive one I have had a lot of support over the years from more experienced workers and I am so thankful for this knowledge and therefore I wouldn't change anything.

5. What do you consider to be the biggest challenges facing our industry right now?

The biggest challenges in our industry right now are probably the continued risks of ongoing conflict, energy prices and inflation.

6. What do you think the industry will look like in ten years' time?

I think the industry is only going to grow exponentially and I can not wait to see what it is

like and to also be a part of it!

7. Are we becoming a more diverse employer? Where should the EDI priorities be?

100% I believe that we have come along way, and we are just growing day by day. I feel so comfortable working in the industry as a woman and as a member of the LGBTQ+ community.

I feel as though we should continue to embed how important equality diversity and inclusion is to us and those around us within our sector as well as outside our sector.



Reinventing the Chemical Industry and our future workforce



The impact of the STEM skills gap is clearly very pertinent to the UK's chemical industry. Chemical manufacturers and suppliers require a workforce with varying levels of STEM skills not just to cope, but to innovate.

The UK chemicals sector is a key enabler for achieving Net-Zero. The sector provides many of the technologies needed to transition to a low carbon economy, and our highly skilled, technically advanced workforce can play a leading role in the charge for industrial decarbonisation.

Net zero and the introduction of new digital technologies, to name a few, are the leading trends altering the day-to-day operations of chemical businesses. There is a clear need to maintain and grow the sector's competitive position in global markets. However, the rapidly evolving nature of net zero and new digital technologies means that there is still so much unknown, and companies will need time and support to adjust and prepare for the world ahead. This is especially true given the hugely disruptive impacts of Brexit, COVID-19, the cost of living and Russia's invasion of Ukraine.

These challenges mean reinventing our current technologies, adapting and upskilling or reskilling the workforce. However, they also represent an opportunity to reinvent the sector and engage with the next generation of highly skilled workers.

Steve Elliott, Chief Executive of the Chemical Industries Association (CIA) said: *"We must recognise the move toward Net-Zero and Industry 4.0 as an attraction and perception opportunity. Now more than ever, it is important that chemical companies live up to the standards and expectations of the modern workforce. This also means a solid commitment to ED&I and a proactive approach to promoting the breadth of rewarding career pathways available in the sector"*.

While it is true the chemical industry has an important part to play in the achievement of net zero targets for the UK, for a long time it has been known as the primary contributor to toxic pollution, climate change and other problems that threaten our health. This certainly presents a challenge in terms of undermining the industry's contributions and to the industry's ability to attract new talent.

CHEMTALENT - Future talent changing the face of the chemical industry.

CIA's ChemTalent is working to shape perceptions and be part of exciting initiatives solving society's everyday challenges.

ChemTalent is a network of people working in chemical and pharmaceutical businesses located in the UK. Members are either at the start of their career or keen to broaden their skills and voice their opinions on behalf of the UK chemical industry.

This group aims to be a coveted platform to inspire, to debate and to transform the future of our industry.

It recognises the importance of supporting STEM education, to continue advocating for apprenticeships, recent graduates or those working towards a chemical engineering related degree, as well as early careerists in our industry. For that reason part our work has been delivering of the network's four pillars (Sustainability, ED&I, Mental Health & Wellbeing and Innovation) as well as promoting STEM education and inspiring the next generation of young people in science.

As a result, the network has put together a STEM Guide which contains useful information for organisations and schools who need help to start their own STEM programme and activities. The guide highlights key information such as how to become a STEM ambassador, links to useful websites with further training/ activities and case studies from multiple companies on what they do for STEM.

It does not end there. We understand most graduates come into the workplace with only academic knowledge unaware of the skills necessary for most job roles in industry. The network's aim is to help students and early careerists better understand our sector and upskill graduates to ensure a smoother transition from university to work. Therefore, with the help of the young ambassador and influencers ChemTalent plans to host a series of interactive workshops focusing on various useful topics. We hope to confirm workshop dates soon.

Do you want to join? The network provides the opportunity to broaden your horizons and understanding of the chemical industry beyond just your own job, enable you to contribute to the industry's policy and positions on key issues and allow you to be involved in building the reputation of the industry by being a key role model and by engaging with our stakeholders.

It's time to shape the industry! if you would like to find out more about our work or how to join please email chemtalent@cia.org.uk



Retaining your trainees

Following the CNW Business Breakfast on 8th March and the interactive discussion around training and development of high-potential apprentices, we have had a number of discussions in our office on the topic. Retention of staff is such a wide subject to debate, but we believe all tied in with communication and recognition.

It's a topic close to RMG's heart as a specialist search consultancy in the Chemicals sector. We see first-hand the need for companies to bring in the next generation of talent for future growth and succession planning.

Good companies are ones that actively invest in their people to develop their skills pipeline. They understandably want to retain their trained protégés for the medium-long term future if possible. Sadly, some SME's (and larger companies too) have accepted 'a reality' that is not ideal. Developing a new trainee (or an annual intake 'flow') and being happy to use their spark, enthusiasm, and new skills for maybe 1-2 years and accepting they may lose them in the competitive market for any number of reasons. Including overly impatient ambition, career development or the real need for wider experiences, support with studies, better pay or conditions.

It's been an impulsive candidate-led market in the last couple of years and whilst the market is starting to turn there is always competition for emerging or in-demand skills. 'Salary reality' is coming back into play, with motivations of good people being wider than just an uplift in salary, perhaps having heard stories of 'the grass not always been greener' rebounding in the market.

Here's our thoughts on retention of your graduates, apprentices, trainees;

- Ensure trainees understand the bigger picture – if they can see how their role contributes to the overall direction of the business, they will find the role more fulfilling. Take time to explain business goals for the year and how their work feeds in to this.
- It's essential to find out what motivates them; do your best to make it possible for them to achieve this. By challenging them and matching their ambition.
- Offer clear succession planning and development opportunities and tracking this. But be realistic, don't over-promise and raise their expectations to a level that can't be met, or set them on a pedestal in their own mind.
- FEEDBACK – perhaps the most important aspect. Make sure your trainees know what they are doing well (and not) right there and then. Behaviours become entrenched and difficult to change if not addressed in the moment.
- Introduce cross departmental working – get them involved. Conflicts often arise in projects when people don't know those who work in other teams, and this is particularly true for

trainees who may be trying to find their feet. Getting trainees to meet and work on projects with colleagues across the business will ensure better team working dynamics and also help them to see other opportunities across the business, that if left working in silos will rarely happen.

- Let them know they are valued. Talk openly to them regularly and encourage them to share their views. A monthly catch up is essential and in-person is far better than virtual to build solid relationships that last.
- Ensure your company is genuinely living up to its values – take temperature checks regularly with employee engagement surveys and consider 360 appraisal systems. These aren't expensive to implement but can provide valuable feedback and a good benchmark from which you can measure changes.
- Appreciate work-life balance matters.

All the above were made exceptionally hard during the pandemic with remote working, but we're pleased to see a change with more businesses returning to offices providing greater collaboration. It's the graduates and junior members of staff who have most to lose if working remotely. Things they would learn by being close to more experienced colleagues will accelerate learning and that can only have a positive impact on employee engagement and of course, in turn, business growth.

For further details visit - RMG – Recruitment Management Group - rmg-uk.com



Anita Caldwell, Principal Consultant, RMG

Centralised European patent protection and enforcement has arrived!

Last year we reported that both the new Unitary Patent (UP) and the Unified Patent Court (UPC) could be about to begin. After some delays, these new systems began on 1 June 2023.

The UP and UPC will centralise patent protection and enforcement within many EU countries and may make the European (EP) patent system more attractive to some. Moreover, the new systems will impact all existing granted EP patents and pending EP applications, such that patent proprietors need to make strategic decisions in relation to their EP patent portfolio.

The Unitary Patent

Currently patents granted by the European Patent Office (EPO) must be validated in all of the countries in which the patent proprietor wants to obtain patents. The validation procedure yields a number of individual patents in the countries of interest, which patents must then be enforced and/or invalidated individually at the national courts.

The UP will, for the first time, offer patent proprietors the option to have a single patent covering multiple EU member states. At present, these states are Austria, Belgium, Bulgaria, Denmark, Estonia, Finland, France, Germany, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovenia and Sweden. Further EU member states may join in future. If protection is required in other countries, such as the UK, these will remain available via the current validation route.

To maintain a patent in force, it is necessary to pay annual renewal fees. A single renewal fee based on the total cost of renewal fees for the top four UP states (namely Germany, France, Italy and the Netherlands) will be payable for a UP. Thus, the renewal fees for a UP will be significantly cheaper than renewing separately in all UP Member States, which could make a UP an attractive option. However, the renewal fees for a UP will be more expensive if you typically only validate and renew in two or three EPC member states. Renewal fees on any national validations, such as in the UK, will also be required.

Jurisdiction of the UPC

A UP will fall under the jurisdiction of the UPC, which is a new centralised court through which:

- a patent proprietor can enforce their European patent against an infringer and
- a third party can seek central revocation of a European patent

Decisions by the UPC will be effective in all UPC member states. Infringement and revocation decisions for non-UPC countries (such as the UK) will continue to be made by the national courts.

The UPC brings unknown opportunities and risks and there will thus be a transitional period of at least seven years to provide better certainty for users.

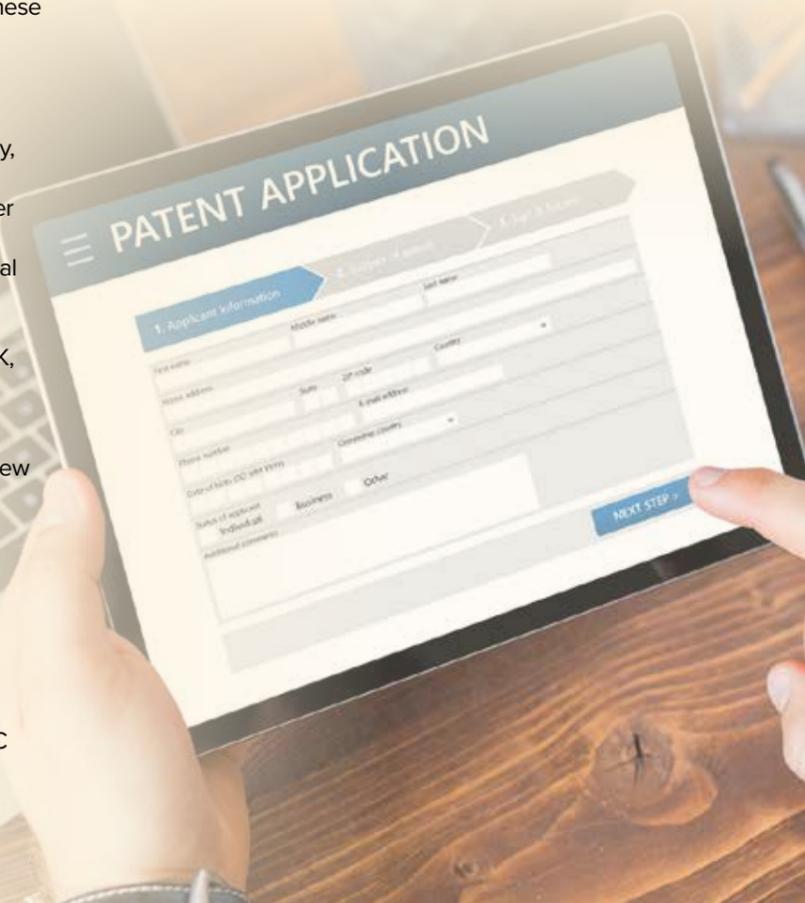
Transitional period

During transition, the national courts of UPC member states will also have jurisdiction over EP patents which are effective in these countries. A patent proprietor can thus choose between centralised patent enforcement before the UPC or enforcement in individual national courts. Similarly, a third party can choose whether to revoke a patent before the UPC or a national court.

During transition, a patent proprietor can also request an opt out to remove their EP patents from the jurisdiction of the UPC. The patent proprietor can withdraw this request at a later stage, for example, if they wish to initiate a pan-European infringement action. Many opt outs have now been filed, but for some of our clients decisions on whether to opt out still need to be made.

There are various factors to consider, and different decisions may be appropriate for different patents in a portfolio. Currently about half of our clients are deciding to opt out, with some deciding to opt out their entire patent portfolio and others making decisions on a case-by-case basis.

For more information on the UP and the UPC, contact [Kate Hickinson](mailto:kate.hickinson@ras.com), Partner, Appleyard Lees



ENABLING A BETTER FUTURE

At Ingevity, our purpose is to purify, protect and enhance the world around us. We're committed to creating products and technologies that help people reduce their impact on the environment.

More than 77% of our 2021 revenue came from products made with renewable raw materials

- Activated carbon helps prevent, globally, 8 million gallons of automobile gasoline from emitting as vapor into our environment each day¹
- Evotherm warm mix asphalt technology for lower temperature applications and reduced energy use
- 100% Biobased surfactants for multiple industrial applications
- Capa Polyols that enable highly durable polyurethane materials that last longer in use than alternative technologies
- Capa Bioplastics that offer sustainable end of life solutions

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¹ Management estimate based on novel and externally published methodologies

Pressure relief to atmosphere – Is it safe?

BACKGROUND - The Chemical Industry is required by law to prevent or limit the consequences of major accidents. The release of hazardous substances can pose fire or explosion risks if ignited or toxicity or asphyxiation hazards. Equipment and pipework are designed to prevent the loss of containment of hazardous substances. Overpressure due to external fire, maloperation, equipment failure, change in ambient conditions or chemical reaction are common causes of loss of containment.

Pressure relief devices (e.g., relief valve, bursting disc) are typically considered as the last line of defence against overpressure which could result in failure of equipment and pipework. The relief device is usually set to operate at the design pressure of the system it is protecting. Best practice requires the vent from a relief device to discharge to a 'safe location'.

Industry evidence suggests that the discharge from a relief valve, if not properly handled, can escalate the initial incident, or create a new hazard. Examples include when vented substances from a relief valve have been ignited downwind and flashed back to the source. This has led to fires and explosions that have damaged nearby equipment and structures. A recent example occurred at Kuraray Pasadena, Texas in May 2018. The incident occurred during the startup of a chemical reactor associated with the ethylene and vinyl alcohol co-polymer plant when the PSV vented ethylene vapor horizontally into a congested process area with surrounding equipment, structures, and occupied work platforms. High-pressure conditions developed inside the reactor that activated the reactor's emergency pressure relief system, discharging flammable ethylene vapor horizontally into the local atmosphere that was ignited. The incident resulted in a total of 30 workers harmed with 2 suffering serious injuries. The relief system functioned as designed, however no consideration was given to the discharge location of the relief valve tailpipe.

This begs the question as to what is a safe location? In this discussion, we highlight a set of questions that must be answered before deciding on relief device tailpipe length, elevation of discharge and orientation.

Relief System Design

Several design codes and standards are available that provide guidance for the sizing of relief devices including API 521, API 526, API 2000, ISO 4126 etc. UK HSE provides guidance for sizing relief and vent systems Relief systems / vent systems ([hse.gov.uk](https://www.hse.gov.uk)). The discharge from a relief device can be designed to vent into a closed system, scrubber, flare or vent to atmosphere. This design process has its pit falls but this commentary is focused on the relief valve discharging to atmosphere.

Care must be taken when venting to ensure the safety of personnel and the surrounding systems. The following questions should be asked as a minimum:-

- What are the properties of the substance? Flammable, toxic, asphyxiant?
- What are the prevailing wind conditions? Adverse conditions, day or night?
- What is the discharge velocity and exit gas temperature? Hot or cryogenic temperatures?
- What is around the vent? Roads, equipment, structure or personnel?
- What is the relative molecular mass and quantity of the exit gas? Buoyant or dense?
- What is the discharge elevation? Towards personnel or work platform?
- Is noise level acceptable?

Dispersion Analysis

Although API 521 Section 5.8.2.2 provides guidance for deciding whether a dispersion analysis is required, caution should be applied to ensure that all possible scenarios are considered during design. Dispersion analysis allows for more detailed analysis of flammable and toxic discharges to decide on the minimum tailpipe height and discharge elevation. This will give an indication of the distance to the lower flammability limit (LFL) and confirm the restricted zone (personnel, ignition sources, vulnerable equipment or structures) around the relief discharge. It also helps the designer decide on the most appropriate route for the tailpipe that avoids downwind ignition sources. The tailpipe should be earthed to minimise potential for ignition by lightning strike.

The analysis should also consider both the worst-case release scenario and reduced flow because relief devices can leak and lead to flammable and toxic atmosphere within the tailpipe. If ignited, this can escalate the incident.

Oyinda Gunn BSc (Hons), MSc
Principal Process Safety Engineer

To find out more how Axiom can support you with relief device design verification, flare system design and consequence modelling using PHAST, please visit <https://www.axiomengineeringassociates.com> or contact Oyinda Gunn at oyinda.gunn@ax-ea.co.uk

Innovating Cosmetic Surfactants beyond 'Sulphate-free'

BACKGROUND - There has been a significant rise in 'sulphate-free' cosmetics in the personal care industry over recent decades. This trend demonstrates the growing development of 'natural' and diversified cosmetics, however, this backwards mindset has potentially stalled new product development and innovation for the industry.

In the global cosmetics industry, surfactants like Sodium Lauryl Sulphates (SLS) / Sodium Lauryl Ether Sulphates (SLES) have developed negative associations. Tags like 'sulphate-free' imply a mild, natural and greener product. The discourse on this topic is extensive, with opinions varying from marketing/consumer misconception to valid scientific evidence. Regardless, these ingredients are associated with labels of 'unnatural' and 'harmful'. These opinions are supported by bans of components like 1,4-Dioxane in some American states, a potential carcinogen that is a by-product in sulphate formulations.

Sulphates remain the primary surfactant in personal care. There have been barriers facing products that have strived to replace sulphate-based surfactants and replicate their five key responsibilities: **cleaning, foaming, rheology control, skin mildness and polymer deposition**. Sulphates are easily compatible with secondary surfactants like Betaines or Alkyl Polyglucosides (APGs), additions of fragrances, synthetic boosters and salt are also relatively inexpensive whilst improving performance.

Milder cosmetic alternatives are available for specific markets, like extra-sensitive skin, but are more expensive whilst not offering the same performance. Replica formulas require additions and secondary surfactants which, alongside development and production, increases the end price. Consumers in personal care are growingly concerned with sustainability, animal welfare, biodegradation, and 'natural' materials. However, these product points are seen as luxury purchase to a small segment of consumers, with the majority prioritising price.

Loss of interest?

The novelty of the sulphate-free surfactant has arguably worn off, with the premium status and innovative tag fading away, despite the seemingly permanent negative framing of SLS/SLES surfactants.

To successfully replace sulphates, a new primary surfactant needs to clean efficiently and match or improve the key properties of surfactants at an affordable price. These markers include **flexibility in formulations, mildness, foaming and lather, natural, friendly and certified**.

Flexible formulations are of growing importance in cosmetics. Primary surfactants are needed market-wide that are compatible with other co-surfactants and avoid negative results like irritation, which was a key factor in the negative perception of Sulphates. Mildness is essential to avoid disrupting skin pH which negatively effects the skin barrier, causing inflammation. Part of this responsibility includes modernising production methods to reduce any contamination or irritants.

Foaming has had historical importance to consumers in surfactants, providing the perception of quality and premium. Foaming is the result of surfactant blends, with alternatives yet to replicate foaming at a sufficient scale. Similarly, a strong lather provides the impression of efficient cleaning and quality.

Producing 'natural' products requires both science and consumer intuition. There are essential areas to meet, such as sourcing increasingly naturally derived ingredients, reducing unsustainable production in palm oil, eliminating synthetics and more. There is an expectancy to improve biodegradation profiles, reduce water usage and eliminate animal cruelty & testing.

The Future for Surfactants

The next step is to focus on the future of surfactants, rather than the past.

This means developing innovative surfactants, such as Libra Speciality Chemicals' Low-Salt Cocamidopropyl and Laurylamidopropyl Betaine.

This Low-Salt range is a step forward for cosmetics products and is an example that high-performance cosmetics do not need to rely on the 'sulphate-free' tag.

These speciality surfactants provide a new option to consumers, and eliminates choosing between key-feature performance, price or environmental awareness. Instead, this is a surfactant that matches sulphates in flexibility and price across a wide range of applications, whilst improving certain properties like foaming. A unique formulation that reduces the need for secondary additions and thickeners, which are salt-sensitive and reduce viscosity. Its production eliminates animal cruelty and improves product compliance to multiple lifestyles.

Libra's Low-Salt Betaines are already distributed from a state-of-the-art plant in North England and used globally, supported by assurances provided through multiple certifications and accreditations of performance, efficiency, and natural profile. Overall, this is an example of a product in an industry that strives to **innovate, not substitute**.

To find out more about the innovation and applications of our primary surfactants, visit <https://librachem.co.uk> or contact us at communications@librachem.co.uk



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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.

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- Hazard identification and risk analysis (including HAZOP and LOPA)
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Process and plant operations

- Chemical engineering for scientists and other engineers
- Distillation technology
- 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



Sustainability

- Leading an ESOS Assessment
- Introduction to sustainability
- Life cycle assessment (LCA)

No stopping the hydrogen economy's momentum

A safer and less uncertain world' is probably the best slogan imaginable for the hydrogen economy, as it perfectly addresses the geopolitical, economic, environmental and social dimensions. Nevertheless, hydrogen is volatile, extremely explosive, hard to transport and expensive to produce. Despite these challenges, I don't doubt we can use green hydrogen to reverse climate change and create a more sustainable world for our 8 billion-strong population.

Under societal and political pressure, Germany was forced to change its energy strategy radically. While the Russian-Ukrainian war led to the share of Russian natural gas dropping from 55% to 0%, hydrogen was promoted as a strategic alternative long before the conflict began. The German government adopted a National Hydrogen Strategy in 2020 that outlined a vision to reduce CO2 emissions in the areas of industry, transport and energy based on hydrogen technology boosting the competitiveness of the German economy and opening new markets by promoting technology made in Germany around the hydrogen economy.

With the ongoing geopolitical troubles, energy security has had a wake-up call that hydrogen is poised to solve. The hydrogen phenomenon is not new but has been gaining traction thanks to the decarbonisation of economies. It has struggled to compete against cheap fossil fuels in the past, but today the possibilities are becoming more attractive as the price disparity shrinks.

Synonymous with sustainable development and heralded as a sector with great potential to reduce energy emissions, the hydrogen economy can only positively impact climate change if the electrolysis process is powered by renewable energy sources such as solar, wind and hydropower—better known as green hydrogen.

The challenge for large economies like Germany, which generated about 48% of its electricity needs from renewable sources in 2022, is that they must import green hydrogen from countries with more favourable climate conditions. We must double or even triple the current amount to satisfy that demand, which is why Germany is looking for partnerships

with African countries—Chile, Colombia, and Brazil also want to seize the opportunity and become hydrogen exporters.

According to the International Renewable Energy Agency (IRENA), Chile and Colombia could be among the countries with the lowest production costs worldwide in 2050. However, they all have an excellent climate for generating solar power, sparsely populated areas that make it easier to install wind parks (on/offshore), a large workforce and environmental legislation that is more relaxed than the EU.

This means the main issue is cost, both logistical and production. Green hydrogen is still much more expensive than other types, such as grey hydrogen, produced by splitting natural gas but has a high carbon footprint.

The hydrogen mega start-up

The economic factor is critical. When hydrogen begins to be adopted in mass, you can expect economies of scale to kick in, significantly lowering the price and making it even more attractive. This will take many years, but we must start somewhere, and that's where we are now.

To achieve that, it is about creating a market. Countries like China may be able to create a market by governmental mandate, but this is different from how we operate in Western societies. Countries like Chile only count a little on government subvention and are still among the most economical hydrogen producers. Governments will play an important role because they create the boundary conditions companies need to perform. Whether it is environmental legislation or subsidies, politicians are in a powerful position to move the hydrogen economy forward.

Mass adoption will require absolute safety, which is where Beamex comes in. If you look at any production facility, you have countless sensors monitoring everything from temperature to pressure. For example, this has led our customers in the gas transport sector to request support from Beamex to define calibration procedures and technologies suitable for H2 applications. While the degree of uncertainty is high among customers, Beamex already enjoys a high degree of trust within the industry. We are well-positioned to provide a solution that meets the current and future requirements of a hydrogen economy.

Depending on their role, many stakeholders are investing in technologies and solutions, but only time will tell if they will be successful. It's like a mega start-up with many risks. The whole of society and the economy will be affected once it is adopted, raising countless questions like: How will we incorporate it? Who's going to produce it? At what price?

Who's going to consume it? Where can I buy it?

The expectation right now is that hydrogen will coexist with electric mobility because almost everybody assumes that cars will be electric in the future. Despite few hydrogen-fuelled cars, Shell is creating a hydrogen gas station network. But they're building for the future. It's like Tesla building their supercharger stations because nobody else was doing it.

Despite the enormous potential, actors driving the hydrogen economy must face reality and obstacles posed by current technological difficulties and competition with other technologies. Still, I would say that we are at the point of no return. With our customers expanding or adapting their product portfolios to include hydrogen transport and end products, there are many opportunities for Beamex to explore and make the planet greener.

*Antonio Matamala, Beamex Germany.
Learn more: www.beamex.com*

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Are green chemistry approaches and Life Cycle Assessment compatible?

Green chemistry and Life Cycle Assessment (LCA) are potentially complementary approaches that are effective at facilitating more sustainable products and processes. Green chemistry focuses on the design of chemical products and processes that are less hazardous to human health and the environment. LCA, on the other hand, is a tool for evaluating the environmental impact of a product or service throughout its entire life cycle, from raw material extraction to disposal or recycling.

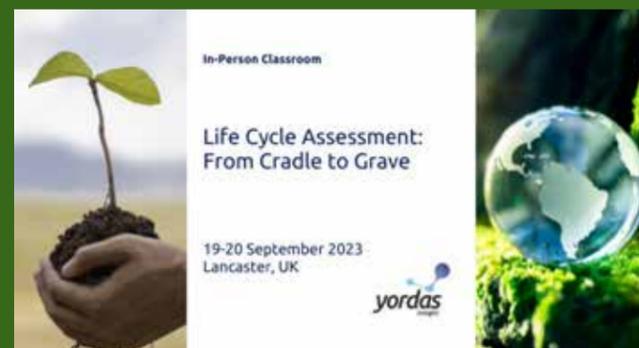
By applying green chemistry principles during the product design and development phase, the environmental impacts can be reduced at the source. This may be achieved through the use of renewable feedstocks, adopting waste minimisation actions, or assessing the hazard profile of chemicals.

Once a product or process has been designed and developed, an LCA can be used to evaluate its environmental impact utilising data from a pilot project and compare them to alternatives. This approach can help to identify unintended consequences or areas of improvement before scale-up. For example, an LCA may reveal that the largest source of the environmental impact comes from the disposal of the product at the end of its life. In this case, a green chemistry approach such as designing for recyclability or biodegradability can be implemented to reduce this impact.

It's also important to consider the entire product life cycle to ensure that the green chemistry principles not only relate to the production process but also to the product's usage and disposal. This can include designing products that are more energy-efficient, designing packaging that can be easily recycled, and providing clear instructions for safe disposal.

Integrating green chemistry and LCA approaches can enable organisations to create products that are more sustainable and cost-effective. At their core, the objectives of LCA and

green chemistry align with one another, both aiming to deliver reduced environmental impacts. Green chemistry principles can be used to design products that have a lower environmental impact, which can subsequently be quantified using LCA. LCA studies can also be used to inform the development of green chemistry strategies and to identify areas for improvement. This not only benefits the environment but also helps to create a more competitive business environment.



If you want to advance your sustainability journey join Yordas Group experts on 19-20 September 2023 at our offices in Lancaster, UK for a 2 day workshop "Life Cycle Assessment: From Cradle to Grave"

Topics covered in this workshop include:

- Introduction to Life Cycle Assessment
- Life cycle goal and scope definition
- Life Cycle Inventory (LCI) development
- Handling multifunctionality
- Life Cycle Impact Assessment (LCIA) modelling
- LCA interpretations & communication
- Dissemination methods

You can find out more [here](#).

Author: Damon Waterworth

As a Chemicals Northwest member you can also receive an additional £100 discount - contact Jodie to receive this at j.kershaw@yordasgroup.com

Patenting research outputs – post-published evidence

As we continue our series on considerations for researchers interested in patenting their research outputs, WP Thompson looks at a recent decision under the European Patent Convention, which offers some much-needed clarity on an issue that can significantly impact the perceived inventiveness of a patent application; namely, the possibility of relying on supporting data published after a patent application's filing date.

Walking the tightrope

Naturally, the more experimental data that a researcher generates in the development of an invention, and the more that they include in a patent application for that invention, the more evidence they can use to support arguments that the invention is plausible. However, as this series discussed back in Autumn 2021, there is a tightrope to be walked between collating enough supporting data to make the description of an invention plausible and filing early enough to beat any competitors to the punch.

Of course, regardless of how long one takes to collect supporting data, the examination process can still throw up unexpected questions and obstacles. For example, an examiner might disagree that a given example plausibly substantiates a claim that an invention has a certain effect. In this case, if explanations and/or amendments fail to move the examiner, the applicant might be tempted to bolster their arguments by submitting a dataset generated after the filing date of the patent application. The allowability of such a move has long been a source of contention before the European Patent Office (EPO), but a recent decision (G2/21) by the Enlarged Board of Appeal (EBA) - the highest and final judicial instance at the EPO – appears to have shed some much-needed light on the matter.

Decision G2/21 of the Enlarged Board of Appeal

In March 2023, the EBA decided on a matter regarding plausibility, with respect to European patent EP2484209. This patent relates to an insecticide composition suitable for pest control, which comprises two compounds already known for their use as insecticides. The patent claims that a mixture of the two has a synergistic effect. The question before the EBA was whether test data filed and published after the filing date of the patent application could be considered when assessing whether there was support for claiming this synergistic effect.

The EBA decided that evidence submitted in defence of an inventive step cannot be disregarded solely because it is made available to the public after the filing date of the patent application in question. This is in accordance with the EPC's principle of free evaluation of evidence. Effectively, this means that late-filed data could, in theory, be used to support arguments in favour of an inventive step.

However, the EBA held that such late-filed data will only be considered if any technical effect shown by the new data would have been known at the patent application's filing date. That is, a person skilled in the art, having access to all relevant prior art and the available common general knowledge, must have been able to understand the technical teaching in the data at the point the application was filed. In other words, late-filed supporting data will only be considered by the European Patent Office if it supports an inventive step already disclosed in the application as filed. One cannot simply file new data and claim that they demonstrate a heretofore unmentioned technical effect that makes the subject of the patent application inventive.

Preparation is key

As ever, a key element of success in acquiring patent protection is preparation, from clearly identifying the inventive feature of an invention to generating sufficient supporting data to substantiate claims to that feature. This decision by the EBA is not a "magic bullet" that allows applicants to fix any and all shortcomings in an application's sufficiency. Rather, it introduces some welcome flexibility to the balancing act of when to file and when to gather more data, whilst avoiding giving applicants a second bite of the cherry. Thus, applicants can reinforce their arguments without being given an unfair advantage over competitors who are keeping a weather eye on the progress of the patent application.

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

Research & Development in the UK – Be a part of the Innovation

In November 2021, the UK Government published its [Innovation Strategy](#), with a vision to make the UK a global location for innovation by 2035. In March 2022, the largest ever budget of £39.8 billion for [research & development](#) for the period 2022-2025 was announced, with the aim to help deliver the government's innovation strategy and advance its ambitions as a scientific superpower.

Three key areas of this strategy are Net Zero, Healthy Living and Agriculture, and Digital and Technologies. The different elements that characterise innovation - discovery, invention, development and manufacturing require a complete ecosystem of companies, governments, research and development organisations, funders and international partners in order to succeed. This is why [UK Research & Innovation](#) was established in 2018, which is responsible for uniting the seven disciplinary Research Councils, Research England, supporting research and knowledge exchange in universities and Innovate UK, the UK's innovation agency.

In chemistry in particular, it is important to invest in innovation because it is only through this that it is possible to work on the development of new technologies from water treatment membranes and drought-resistant crops, to new antibiotics and vaccines, batteries and solar cells.

British chemical companies lead the way in innovation - not necessarily only the large companies but SME's which start at a University and manage the transition to becoming a company. The UK is home to the best universities in the world. In the field of chemistry in particular, the universities of Oxford, Cambridge, Imperial College London, York University and the University of Manchester are pioneers. One example of a

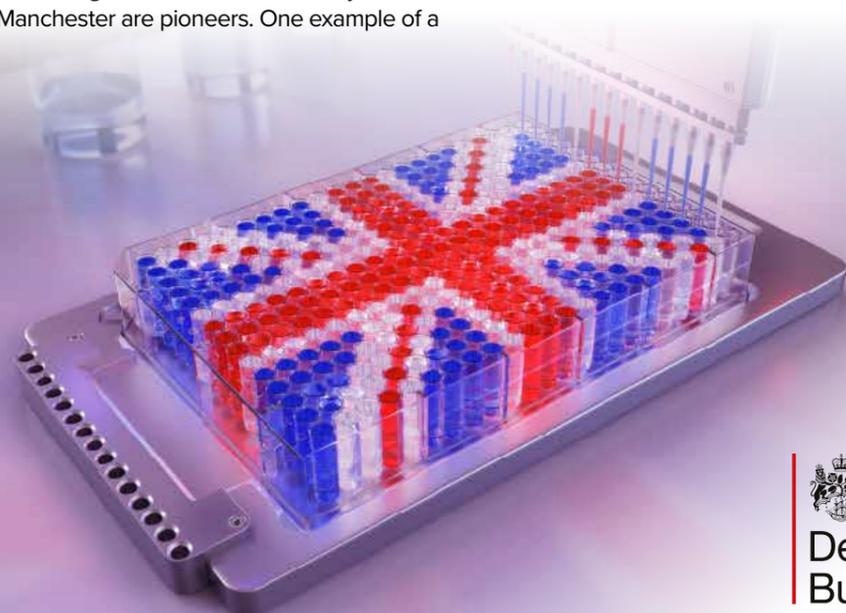
University of Manchester spin-off is the company Holiferm. The company's founder, Ben Doleman, explored the possibilities of bringing environmentally friendly organic products to market. Holiferm's first process, developed from a research and development lab to a commercial plant, is a patented fermentation with integrated gravity separation technology, for the production of sophorolipids. Holiferm is the first company to use this technology. It uses natural raw materials in a process that produces significantly less CO2 and consumes less energy compared to conventional surfactant production methods using petrochemicals. The biosurfactants produced by Holiferm are more sustainable, milder and more efficient.

Since refining and optimising this process, Holiferm has worked on the rhamnolipid production process and the maximum loading threshold. These processes are currently being piloted and are due to be introduced commercially in 2024.

The UK has a long history of innovation and commitment to world-leading research and development. The need to research more and develop more, particularly in chemistry and biotechnology, is endless - without this we could not meet the challenges we face. The UK innovation landscape is optimal for companies looking to invest and grow in this area for many reasons.

Interested in finding out more about the above project or how to grow your idea into a company or get your product export-ready? The UK's Department for Business and Trade (DBT) team are here to help you. Our mission is to advise, support and promote British businesses wanting to grow and export as well as open up new markets for businesses. We have staff all around in the globe based in British Embassies, Consulates and missions.

For more information or assistance go to www.great.gov.uk or email: DBTGermany.enquiries@fcdo.gov.uk

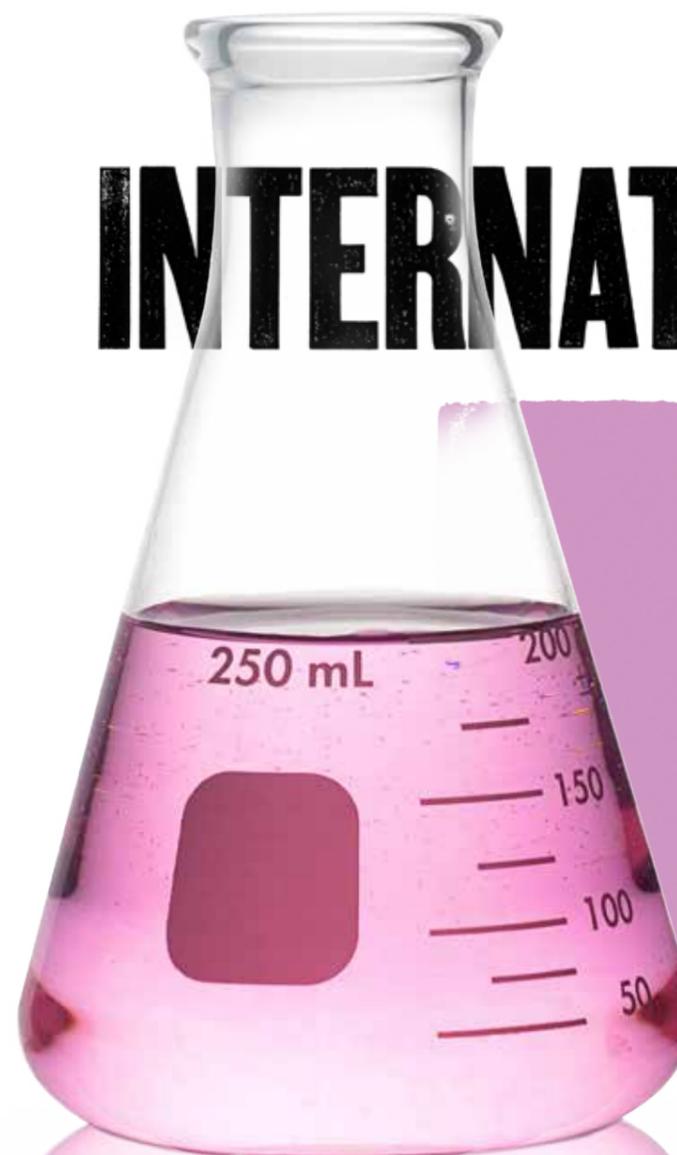


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The UK chemicals industry is one of the most important exporting sectors in the UK, with more than £37bn of goods exported overseas each year.¹

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Improving and implementing a corporate social responsibility (CSR) program

The 2M Group of Companies has made significant efforts in recent years to improve and implement its corporate social responsibility (CSR) program. Our actions have recently been recognised by Chemicals Northwest who awarded the 2M Group with its 2023 CSR Award.

Like many organisations, 2M Group of Companies approach to CSR has been guided by the UN's comprehensive Sustainable Development Goals. This approach has given the Group a structured framework to implement towards our vision to be a sustainable and responsible business.

This article explores the recent initiatives that have been successfully introduced across the 2M Group of Companies.

Wellbeing

Our top priority is the wellbeing of our employees. The 2M Group of Companies is very proud to offer employee benefits above industry norms, including enhanced paternity and maternity leave, life insurance, and critical illness insurance cover for all staff.

Recognising that mental health is a major factor in employee happiness we partnered with 'Spill' in 2021, to provide free counselling to ensure mental health support for all employees when needed. We have also trained numerous people in the organisation as mental health first aiders and menopause champions, providing a support system for those who may be struggling.

Additionally, in 2020, we introduced the 'Active Teams' initiative, which acknowledges the important link between physical health and mental health. We encouraged our team to do 150 minutes of moderate exercise per week, supporting them with access to a Group coach and a smartwatch to track their activity.

Knowledge Sharing and Social Dialogue

The Group has implemented various initiatives to promote knowledge sharing and social dialogue among our employees. In 2022, the company introduced an annual knowledge exchange event that highlights different areas of the business, including training on key CSR issues such as bribery and corruption. The event aims to improve transparency and social dialogue. This has been complimented by a regular "open-door calls", hosted virtually by our Chair & CEO, Mottie Kessler OBE.

We also conduct wellbeing and employee satisfaction surveys that encourages staff to share their ideas, suggestions, and improvements.

Training, Development, and Career Management

We are committed to the training, development, and career management of our team. This is coordinated through our internal training program, the '2M Academy.'

The 2M Academy is home to a broad range of programs to support our team at different stages of their careers and personal development. This includes; accelerating the careers of future leaders, team management, supporting flexible career paths, creating STEM apprenticeships, supporting flexible employment post-retirement, mentoring, and secondments.

In 2021, we introduced 'HigHER' our women's leadership program aimed to empower women within the organisation and improve equality.

Education and Community Interaction

The 2M Group has a long-standing commitment to promoting Science, Technology, Engineering, and Maths (STEM) education. We aim to raise awareness of STEM and give young people a thorough understanding of what it is like to work within a STEM industry. To facilitate this, we established a STEM hub at our head office in 2018 to enable live demonstrations and interactive workshops. We also hold annual STEM days at our Runcorn and Leeds offices, where demonstrations are given by our employees to children in education. Additionally, we partner with the Centre for Industry Education Collaboration (CIEC) to promote STEM throughout schools by training our staff to deliver virtual science experiments and career talks.

Charitable Giving/Match Funding

We actively encourage and support our team with any fundraising efforts, ensuring that any money raised or donated is matched by the Group.

In 2021, we also introduced volunteering days for staff, giving all employees two days per year, fully paid, to support a charity or educational establishment of their choice.

Sustainable Procurement

As a company, we are committed to sustainable procurement. We develop partnerships with suppliers who share our common principles of ethical trading and social responsibility & accountability. To aid in this, we subscribed to the EcoVadis sustainable procurement program in 2021, which allows us to request and view our suppliers' EcoVadis assessments and work with them to improve

areas of weakness. The program is also used to formally communicate our own sustainability goals to our suppliers.

Sustainability Working Group

In 2022, we appointed a team of forward-thinking individuals from our employees as our 'sustainability working group.' This working group is looking to introduce a culture of sustainability in the organisation as well as develop projects addressing key issues in areas falling under the definitions of 'sustainability', 'Environmental, Social & Governance (ESG)', and 'Corporate Social Responsibility (CSR).'

In 2023, we will be assigning further ambassadors to advocate sustainability to stakeholders and the wider community, and we have started the process of hiring the first member of our sustainability department – a sustainability analyst.

About the 2M Group of Companies

Maintaining a portfolio of Material & Life Science companies, the 2M Group of Companies is committed to delivering chemistry-based solutions for a better life today and a better world tomorrow.

Headquartered in the UK, with customers in over 90 countries, we have established a strong presence as market leaders in the chemical industry since our formation in 2004.

We are a friendly team with an innovative culture that works together to get things done. We trust everyone equally and fairly and encourage our people to be truly creative and think outside the box. For further details visit <https://www.2m-holdings.com>

CSR

2M

How to place fertilising products on the EU market?

As from 16 July 2022 the Fertilising Products Regulation (EU) 2019/1009 (FPR) is fully applicable, and the ancient Fertiliser Regulation (EU) 2003/2003 is repealed.

The FPR in a Nutshell!

(1) What are the FPR Milestones?

The FPR regulates product formulations by defining a set of Product Function Categories (Table 1). This is a major difference from the regular EU Commission approach, where substances require approval decisions from competent authorities for registration and classification prior to placing products on the market. Secondly, the FPR is a non-compulsory voluntary certification system for defined inorganic and organic fertilising products. For a number of products this constitutes a self-certification system. Thirdly, the origin and identity of each ingredient in the fertilising product formulation require a conformity assessment according to a binding legal set of quality criteria. The FPR appears a 'living' regulation, not a static, which means that the FPR is continuously subject to changes and developments, which are published via delegated acts. This article provides some highlights for consideration when placing fertilising products on the EU market.

Table 1: Product Function Categories (PFC)

PFC 1A	Organic fertiliser (solid vs liquid)
PFC 1B	Organo-mineral fertiliser
PFC 1C	Inorganic fertiliser (macro and micro)
PFC 2	Liming material
PFC 3A	Organic soil improver
PFC 3B	Inorganic soil improver
PFC 4	Growing medium
PFC 5A	Nitrification inhibitor
PFC 5B	Denitrification inhibitor
PFC 5C	Urease inhibitor
PFC 6A	Microbial plant biostimulant
PFC 6B	Non-microbial plant biostimulant
PFC 7	Fertilising product blend

(2) A certification system for fertilising product formulation

The EU Commission decided to make use of product certification schemes from other European sectors, like the CE-marking of electrical sockets, batteries, machinery, etc. The FPR recognises three major certification processes. One is the CE-marking of fertilising products by self-certification and

the other is the CE-marking based on dossier submission and evaluation by non-governmental, private organisations. Such organisations are called Notified Bodies (NoBo) and require national accreditation for their FPR activities from National Accreditation Institutes (NAI). The NAI's will nominate such organisations as an EU Notified Body for specified product and compound categories as well as for the appropriate assessment. The approved NoBo's, with their particular accreditation are listing in the NANDO -database. The third road to certification fertilising products is via auditing the production process according through NoBo's.

Table 2: Component Material Categories (CMC)

CMC 1	Virgin material substances and mixtures
CMC 2	Plants, plant parts or plant extracts
CMC 3	Compost
CMC 4	Fresh crop digestate
CMC 5	Digestate other than fresh crop digestate
CMC 6	Food industry by-products
CMC 7	Micro-organisms
CMC 8	Nutrient polymers
CMC 9	Polymers other than nutrient polymers
CMC10	Derived products within the meaning of Regulation 1069/2009 (on animal by-products)
CMC 11	By-products within the meaning of Directive 2008/98/EC (waste-products)
CMC 12	Precipitated phosphate salts & derivates (e.g. struvite)
CMC 13	Thermal oxidation materials & derivates (e.g. ash-based materials)
CMC 14	Pyrolysis & gasification materials (e.g. biochar)
CMC 15	Recovered high purity materials

(3) Conformity Assessment according to quality criteria

Any manufacturer that would like to place a fertilising product on the market should identify an appropriate Component Material Categories (CMC) for each ingredient of the fertilising product, as specified in Table 2. For each CMC an appropriate set of quality criteria and a number of requirements are defined. A fertilising product may consist of one or more CMCs, which are under a given set of definitions, and criteria funnelled into a designated Product Function Category (PFC) as specified in Table 1. Further, the EU Commission has mandated the EU Standardisation Institute CEN to develop standards and methods to analyse the quality criteria of a

fertilising product. In 2024, a first batch of standards will be harmonised for use under the FPR.

(4) What bottlenecks should you overcome?

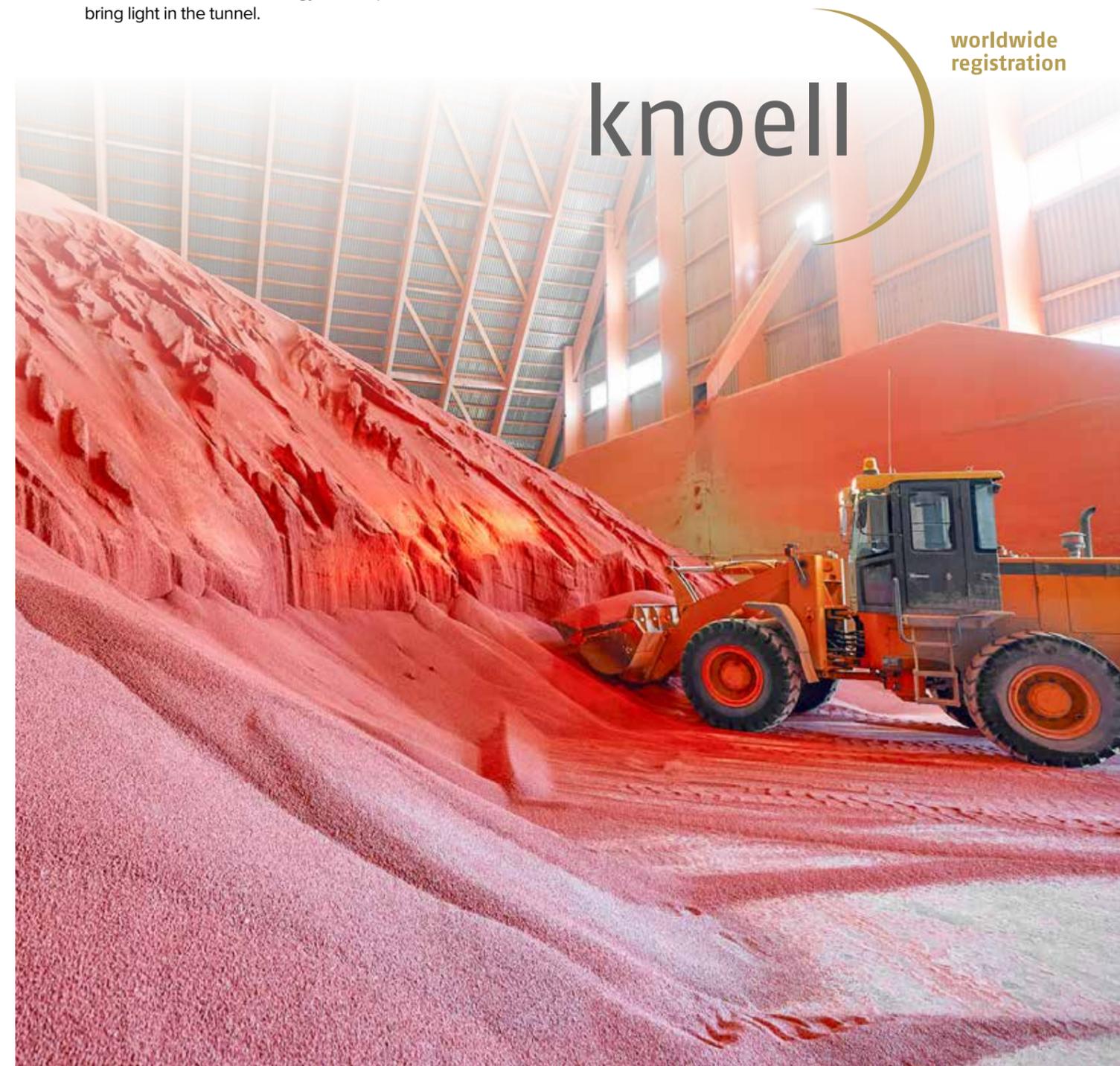
A compliance check is recommended to verify if all ingredients from your Fertilising Product can be brought under one of the current available 15 CMCs. When from a definition point of view such tailored fit exist, the next step is to evaluate if the ingredients meet the defined requirements and quality criteria for the particular CMC. If it appears impossible to meet the criteria, then an applicant can request for an additional CMC category, or request to amend definitions and/or add new quality criteria. In any case, it is important to make a thorough evaluation on the best strategy how to proceed. Knoell can bring light in the tunnel.

For help in the regulatory world for product registration and certification in EU countries and outside, please contact the Knoell Crop Protection & Nutrition Team cropnutrition@knoell.com and Dr Jayne Harris, Group Lead Crop Protection & Nutrition jharris@knoell.com

'New Approach Notified and Designated Organisations - Information System

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worldwide registration

knoell

REACHReady, the supporting arm of Chemicals Management

Since its inception in 2006, REACHReady has provided support to individuals in companies affected by the EU REACH (Registration, Evaluation and Authorisation of Chemicals) Regulation, CLP (Classification, Labelling and Packaging) regulation and the BPR (Biocidal Products Regulation) regulation. Now, REACHReady continues to support individuals in companies with both their UK and EU requirements under these regulations.

REACHReady Gold Membership

Being wholly-owned by the Chemical Industries Association (CIA), REACHReady is fully supported by the Chemicals Management policy team at CIA who provide in-depth and up-to-date knowledge of the EU & UK REACH, CLP and BPR legislations. The Chemical management policy team expertise feeds into the REACHReady helpdesk support which is available to all REACHReady Gold members.

Whereas members of CIA have a FREE REACHReady Gold membership, REACHReady has a partnership programme with other Trade Association through which it extends its Gold membership at a 25% discount rate. Current Trade Association partners include: The British and Irish Adhesives & Sealants Association, British Essential Oils Association, The British Toy & Hobby Association, Cosmetic, Toiletry & Perfumery Association, Chemicals Northwest, Food Additives and Ingredients Association and the Minor Metals Trade Association

Individuals who are non-members of the REACHReady Partner Programme can also apply for a REACHReady Gold membership at a standard rate.

Benefits of the REACHReady Gold membership include:

- Helpdesk support to comply with EU and UK REACH, CLP and BPR
- Up to one hour free consultancy for first-time subscribers
- 20% reduced rates for REACHReady public training
- Comprehensive e-mail technical alerts
- Use of our member logo on your company website and promotional materials to show customers and suppliers you are on the road to compliance
- Use of SVHCs Resource guide
- In-depth knowledge through our exclusive guidance and analysis documents

In addition to its Partner Programme, REACHReady has recently introduced a membership referral programme which rewards existing Gold members with a 20% shared discount off their membership fee for successfully referring REACHReady Gold membership services to a new Gold subscriber. Terms and Conditions apply.

REACHReady Training

REACHReady has a strong reputation and extensive experience of the chemical and downstream industries stemming from the involvement of the Chemicals Management Policy team at CIA who keep up to date with both the UK, the EU and Global chemicals management regulatory strategies. This provides REACHReady's training programme a competitive advantage to deliver training programmes based on timely industry and business needs.

REACHReady training workshops are designed for new professionals to the Chemicals Management regulations, and those looking to refresh their knowledge especially those in regulatory affairs or product stewardship roles.

Many companies who would rather have inhouse training and tailor content to meet local business requirements, or for the training to be delivered to specific teams within their organisation such as regulatory specialists to sales, procurement and quality manager, have found REACHReady's Bespoke training service of great use. This service offers a closed and safe environment for the delegates and trainer to discuss aspects of compliance, the products and related activities without concerns of revealing confidential information publicly.

Whether public or bespoke, REACHReady training offers practical exercises as well as discussions and questions and answers to help delegates to understand key concepts of REACH, CLP and BPR regulations.

REACHReady Consultancy

REACHReady recognises that there are instances when companies need more support beyond its Gold membership benefit of a 1-hour focused free consultancy. Both members and non-members have access to REACHReady's consultancy to help them understand the potential impact of REACH, CLP and BPR regulations on their business, explain practical issues with key workers and senior management and devise a practical compliance action plan.

REACHReady also supports companies who are already on a compliance road to carry out a REACH audit or develop their own audit plan, double-check that they correctly interpret information received from their SIEF or from REACH or CLP service providers as well as review and offer feedback on chemical safety reports, use scenarios and safety data sheets.

REACHReady Matchmaker

REACHReady recruits chemical management service providers who go through a rigorous approval process which includes a business and insurance track record check; and once registered, REACHReady Approved Service providers are monitored to ensure they maintain high business service standards.

Whether it is finding an Only Representative, obtaining legal advice, conducting environmental risk assessments, managing Safety Data Sheets, compiling human health

assessment tests, preparing an IUCLID dossier, deriving hazard classification or any of the other tasks required to comply with EU and UK REACH, CLP and BPR, REACHReady can supply companies with contacts within a selection of reputable suppliers.

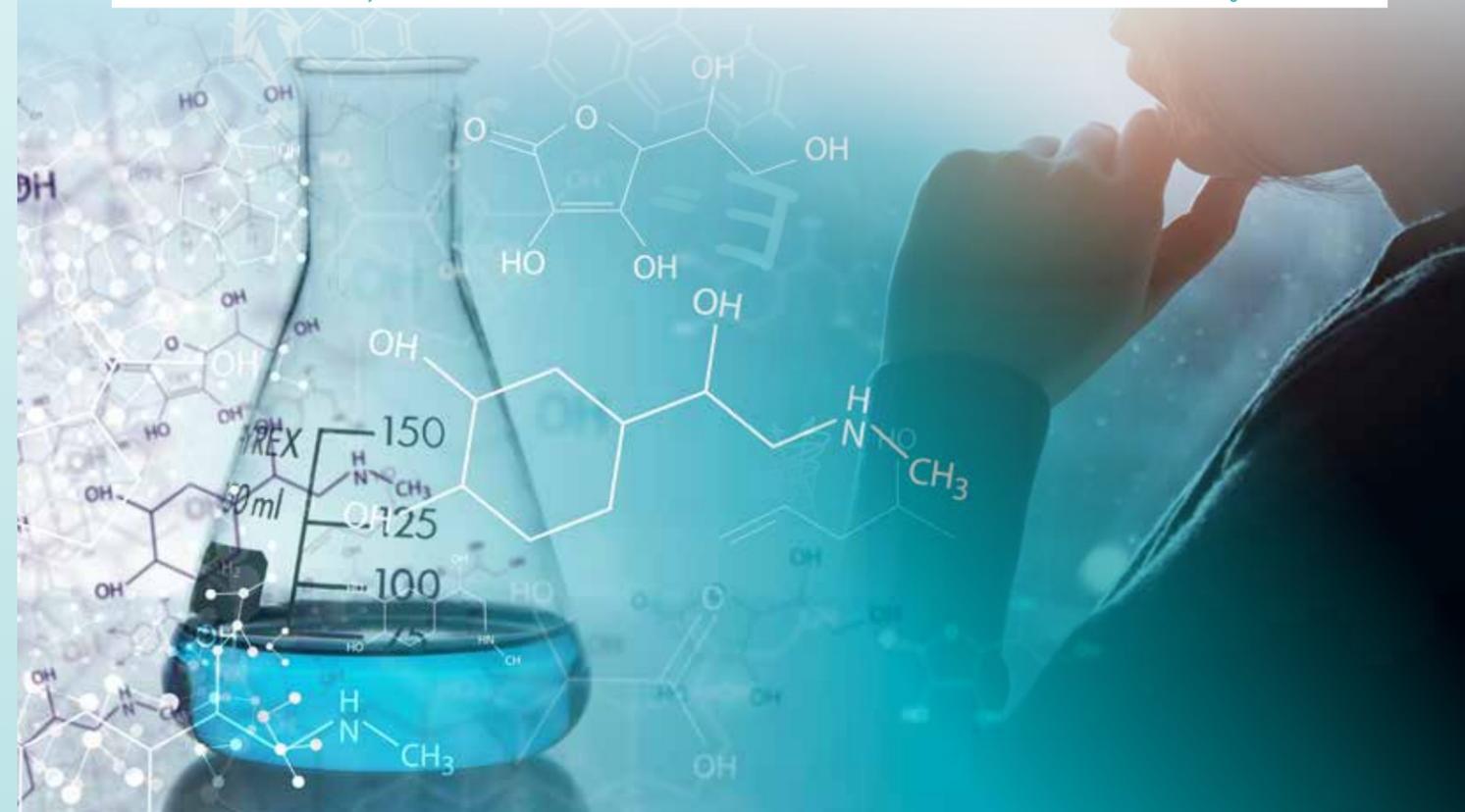
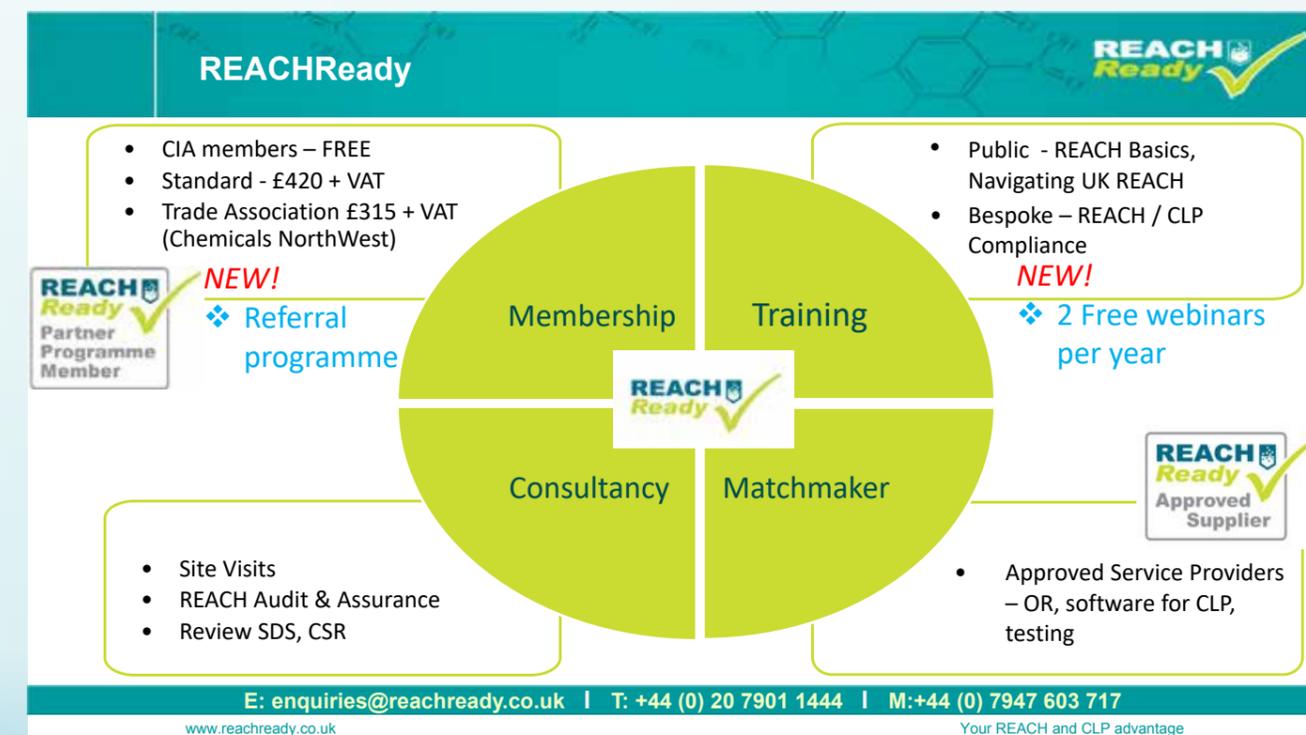
This free service, saves companies time and money as REACHReady aligns them with the most appropriate supplier to meet their business need.

Why don't you call REACHReady today to take advantage of their experience and knowledge of the chemical industry

and their associated service suppliers as well as their extensive networking opportunities through their parent organisation, Chemical Industries Association? Remember, if your company is a member of Chemicals Northwest, you can benefit from a 25% reduction in the price of a Gold subscription.

Contact REACHReady today:

Helpdesk +44 (0) 20 7901 1444 | enquiries@reachready.co.uk
| www.reachready.co.uk |



PRE-REGISTER FOR FREE ENTRY!



CHEMUK 2024

The UK's largest EXPO for the Chemical, Laboratory & Process Industries

FREE ENTRY
WHEN
PRE-REGISTERED

2 Packed Days
500+ Exhibitors
Process & Plant Engineering
Chemicals & Materials Sourcing
Laboratory Innovation
Operations & Logistics
150+ Speakers

Headline Partner



Supporting Partners include:



CHEMUK records 41% increase in visitors for 2023 Expo!

CHEMUK 2023 opened its doors on Wednesday 10th & Thursday 11th May at the NEC in Birmingham to a record attendance of 3956 visitors (excluding exhibitor staff) over the two days, representing an increase of 41% from the 2022 edition. The total two-day attendance (visitors plus exhibitors) was 5559.

CHEMUK show founder, Ian Stone, sums up this year's event: "The industry is now responding to the single 'destination experience' of CHEMUK providing deliberately segmented zones of specialist industry capability and solutions, supported with unmissable intelligence, whilst at the same time uniting the entire UK chemical industries 'value chain' under one giant roof annually".

Minister George Freeman leads UK Government briefing

A dedicated video address from the Minister of State at the Department for Science, Innovation and Technology, George Freeman, underpinned a comprehensive UK Government presence and input across the two days, with show floor presence and vital conference input from the Department for Business and Trade, the Department for Environment, Food and Rural Affairs, and Health and Safety Executive. You can watch the full address at www.chemicalukexpo.com.

CHEMLAB Laboratory & Innovation Zone launches at CHEMUK 2023

Commenting on the introduction of the 'CHEMLAB' Laboratory & Innovation Zone this year, Stone states, "This addressed, head-on, the need of R&D teams, analytical chemists, and teams in the crucial areas of early-stage growth and scale-up, showcasing a wide range of progressive lab-based solutions from the latest lab automation, chemical analytical tools, speciality services, flow chemistry innovations, innovation ecosystems, and much more, supporting the quality and acceleration of R&D cycles in the chemical, biochemical, and formulated product sectors."

IChemE adds to the line-up of supporting bodies.

The 2023 show saw the Institution of Chemical Engineers (IChemE) join an already impressive line-up of supporting industry and trade bodies both on the show floor and hosting crucial intelligence and keynotes across the integrated CHEMUK conference. This included the likes of CBA, BCA, BASA, BioVale, BCMPA, CIA, CPI, CCIUK, IBioIC, GAMBICA, NEPIC, SIA, and InnovateUK KTN, to name a few.

RSC as CHEMUK 2023

The Royal Society of Chemistry (RSC) was again at the centre of CHEMUK, with a packed two-day programme including an RSC stand, careers clinic, feature RSC conference sessions, a keynote from current RSC President, Professor Gill Reid, and a dedicated members reception.

'Sustainability' ever-present at CHEMUK

Sustainability was the common thread across the event this year, with progressive energy and emissions reduction

solutions, process optimisation and greater operational efficiency of petro-chemical-based plants, through to a wealth of coverage on developing 'green chemistry' innovation supporting the transition towards bio-based chemicals and downstream products. Industrial Biotechnology and Bio-process innovations were reflected across all three zones and extensively through the conference programmes.

Where the magic happens!

CHEMUK has become the only destination in the UK where all the key bodies, major companies, and industry stakeholder groups embracing organic and inorganic synthetics, formulation chemistry, analytical and materials chemistry, industrial biotechnology, and chemical and process engineering are 'predictably' in the same 'time' and 'space', under one giant roof, alongside a wealth of downstream chemical-dependent industries.

Stone reflects on this crucial sector-wide annual convergence under the CHEMUK canopy: "This is where the magic can happen, where conversations can take place with wider networks, outside often restricted 'silos of interest' in pursuance of wider common industry goals, fostering exciting dialogue and new project momentum".

DATES FOR DIARY:

- CHEMUK 2024 (NEC, Birmingham)
Wed 15 & Thu 16 May 2024
www.chemicalukexpo.com

CHEMUK 2023 Exhibitor Testimonial:

- ChemUK has been a great way to connect businesses and build relationships for the benefit of the industry. We have exhibited since the beginning and have found that it has always been a well-executed and positive experience for everyone and has become an integral part of our business's marketing strategy. Business Manager, 2M Holdings Ltd

CHEMUK 2023 Visitor Testimonials

- "There is nothing like this in the UK and is a must for anyone working in the chemical industry. It is an opportunity to find out what is happening in your area and others, discuss opportunities with exhibitors showing their novel ideas and also meeting up with old and new connections." Operations Director, Eternis Fine Chemicals UK Ltd
- "CHEMUK 2023 was Disney for Chemists!" Section Head, Concept Life Sciences
- "I really enjoyed attending CHEMUK 2023, this was a great event to meet new customers and contacts. I look forward to attending CHEMUK 2024 next year." Commercial Director, Sulfo Surfactants Ltd

CDR Pumps Introduces QUANTM: The revolutionary electric diaphragm pump that reduces energy consumption by up to 80%

CDR Pumps (UK) Ltd is excited to introduce QUANTM, the revolutionary electric diaphragm pump that is set to transform the industry.

Launched in 2023, QUANTM features a brand-new electric motor design, which promises to reduce energy consumption, lower expenses, and make operations more environmentally friendly.

Unlike regular electric diaphragm pumps, QUANTM is lighter, more dependable, and simpler for anyone in your team to maintain. Its intelligent, straightforward, cost-efficient, clear, and ecologically sound design makes it the perfect replacement for pre-existing pumping technologies. By converting to QUANTM,

you can safeguard your profits and be at the forefront of the revolution.

QUANTM technology is capable of consuming up to 80% less energy compared to other models, making it a quantum leap towards a superior facility. It doesn't require any compressed air, doesn't ice, and will stall under pressure. Additionally, QUANTM is self-priming, can be run dry, and can manage both solid and abrasive fluids. You can control the flow and pressure at the pump, and it can be operated remotely with I/O.

Available in a variety of options to serve both industrial and hygienic applications, these pumps are straightforward to use, maintain, and sanitise, making them an ideal choice for a wide variety of fluid applications.

Don't miss out on the opportunity to reduce energy consumption, lower expenses, and make operations more environmentally friendly. [Book your QUANTM demo](#) today and experience the revolutionary technology for yourself.

Designed by Graco, QUANTM a new electric double diaphragm pump that meets the growing demand for clean energy and sustainable technologies and is available from CDR Pumps (UK) Ltd.

Find out more on our website at www.cdrpumps.co.uk/quantm or call 01933 674777

Optimising compressed air supply with ultrasonic clamp-on flowmeters

Providing reliable and precise measured values for compressed air, clamp-on ultrasonic flowmeters offer the added benefit of a straightforward retrofit. Using ultrasonic sensors, the flowmeter is clamped to the outside of the compressed air pipe, and because it's non-intrusive, this measurement technique is ideal for applications where the pipe is under pressure or where the fluid is difficult to access. The flowmeter can be installed with no need to shut down the compressed air system or disrupt the flow of the air.

Highly accurate, clamp-on ultrasonic flowmeters are able to measure a wide range of flow rates and pipe sizes. Using the time it takes for the sound waves to travel between the sensors, the flowmeter calculates the flow rate of the compressed air. Because the sound waves are affected by the speed of the compressed air, the flowmeter also measures the velocity of the air and uses this information to determine the flow rate.

Compressed air balancing

Supplying compressed air to a chemical park at various pressure levels, as well as control air, one of Germany's largest chemical-technical service providers tasked FLEXIM with flow measurement of the entire volume of

compressed air generated in their L57 power plant. They had been using inline flowmeters which were consistently showing discrepancies in the balancing of generation and consumption qualities. It was suspected that there was an incorrect quantity measurement on one of the generating units, so to get to the root cause of the problem it was decided to empirically record the total amount of compressed air generated in the L57 power plant through a control measurement. Downtime was out of the question, so non-invasive clamp-on ultrasonic flow measurement was the obvious solution.

Dealing with a disturbed flow profile and possible very high flow velocities

The unique challenges of this measurement lay in the disturbed flow profile and the possibility of very high flow velocities, with the most suitable measuring point being located behind a bend. A key advantage of non-invasive clamp-on ultrasonic flow measurement is that it can be tested without disturbing plant operation, so following revealing test results, a stationary clamp-on ultrasonic system was permanently installed.

Clamp-on flowmeters offer fast channel switching for good compensation of the disturbed flow profile, and its high measuring dynamics also facilitate the recording of small consumption quantities.

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



Institution of Chemical Engineers (IChemE)

Founded in 1922, IChemE is the UK based and internationally recognised qualifying body and learned society for chemical, biochemical and process engineers. We exist to advance chemical engineering's contribution for the benefit of society.

We support our members in applying their expertise and experience to make an influential contribution to solving major global challenges, and we are the only organisation to award Chartered Chemical Engineer status.

Membership

IChemE membership demonstrates professional competence and commitment to employers, policy makers, regulators and society. A key benefit of membership is connecting with peers. IChemE members get access to a supportive network of contacts via regional member groups and technical special interest groups.

Training

Our extensive programme of training courses and conferences is designed to give delegates access to the latest thinking and good practice, and attracts participants from many sectors including energy, water, pharmaceuticals,

agriculture, healthcare, and food production.

A growing collection of sustainability-themed on-demand online training courses are currently offered as part of IChemE membership.

Learned society

We recognise the importance of continued learning and keeping up to date with all the latest industry news and technical knowledge. IChemE members benefit from resources such as The Chemical Engineer magazine, Loss Prevention Bulletin, the Knowledge Hub and more.

Standards

Through our accreditation of university programmes, training courses, apprenticeships, and graduate training schemes, we aim to raise standards and foster good practice and help provide graduates with a route to qualification as a Chartered Chemical Engineer. We are also licenced to award various registrations on behalf of the Engineering Council, Science Council, Society for the Environment, Engineers Europe, and the Environment Agency.



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<https://www.linkedin.com/company/icheme>

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Facebook: <https://www.facebook.com/icheme1>

Instagram:

https://www.instagram.com/icheme_official/

YouTube: <https://www.youtube.com/c/IChemE>



CC 0003_23

Accredited Company Training Schemes

IChemE accredits company training schemes throughout the chemical, biochemical, and process engineering industry, in organisations employing any number of graduates from one to 100.

An Accredited Company Training Scheme (ACTS) offers quality assured professional practice, improved recruitment and retention, and ultimately helps your trainees gain the experience and competencies needed to achieve Chartered Chemical Engineer status.

See www.icheme.org/acts for more details



OpenPSM

OpenPSM® is a cloud-based software product, developed specifically to help businesses manufacturing or handling hazardous chemicals meet the requirements of modern risk-based process safety legislation.

OpenPSM® provides a unique framework that allows you to log and assess every aspect of your company's process safety management programme. At any given time, you have a live snapshot of the key risk controls, strengths, and weaknesses. OpenPSM necessarily supports engagement from shopfloor to boardroom, allowing everyone with an active part to play in process safety to have relevant information to hand.

Under a Duty of Care, chemical and pharmaceutical operators in the UK must ask themselves three simple questions (ref. Gordon MacDonald, UK Health & Safety Executive):

- Do we fully understand what can go wrong within our operations?
- Do we know what systems are in place to prevent this from happening?
- Do we have relevant and up to date information to assure us these systems are working effectively?

OpenPSM® will help operating companies gain tighter control over their own process safety management programmes. Using a state of the art fully relational database, it enables companies large and small to map out their management systems against recognised good practice guidance and conduct deep dive audits and assessments to determine just how well reality matches expectation.

Where weaknesses exist, it allows evidence to be gathered and actions to be set and managed to completion. Equally, examples of good practice can be captured and shared across the business. The in-built maturity model also ensures that all necessary steps for progression are encapsulated, ensuring continuous improvement can become a reality rather than an aspiration.



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Twitter: <https://twitter.com/OpenPsm>

YouTube:

https://www.youtube.com/watch?v=RdZn1R_z7C4

We're making Process Safety Management more manageable

OpenPSM provides a unique framework that allows you to log and assess every aspect of your company's process safety management programme. Every major hazard business must demonstrate to regulators they have strong hazard leadership in place.

With OpenPSM in your corner, you have the tools to do just that with these 9 must-haves:

- 1 Senior manager level awareness
- 2 Promoting a positive culture
- 3 Understanding regulatory insights
- 4 Investing in competence
- 5 Active staff engagement
- 6 Effective peer review
- 7 Responsive to problem areas
- 8 Reporting with meaningful measures
- 9 Stakeholder engagement



Call: 0161 509 9392
openpsm.uk



Annual Awards Dinner 2024

SAVE THE DATE
21st March 2024
@ Hilton Deansgate

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.

Hibiscus

Hibiscus is one of the UK's leading manufacturers of chemical labels and hazard communication compliance software. For over 40 years they have specialised in providing high-quality labelling solutions for the chemical and hazardous goods industries and are renowned for their knowledge of industry legislation and for the durability and excellent performance of their products.

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.

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.

TTE Training Ltd

Engineering training and apprenticeships focused on whole person skills 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.

Mirral 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.

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.

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

Know your supply chains

Engineering products & services

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 ValTechnologies, 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. IOT, 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

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.

OpenPSM

OpenPSM® is a cloud-based software solution, developed to help businesses manufacturing or handling hazardous chemicals meet the requirements of modern risk-based process safety legislation. Providing a unique framework allowing you to log and assess every aspect of your company's process safety management programme, OpenPSM® necessarily supports engagement from shopfloor to boardroom, allowing everyone with an active part to play in process safety to have relevant information to hand.

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-winning 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 Business & Trade

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.

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

XCellIR8 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.

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".

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.

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.

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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FACE-TO-FACE



IN-COMPANY

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.

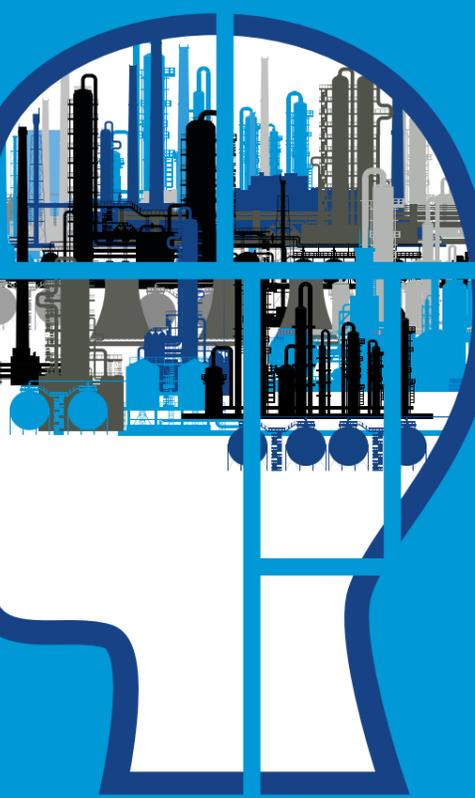
“*Human Factors in the Chemical and Process Industries has given me the confidence to lead the human factors agenda at a top tier COMAH site.*”

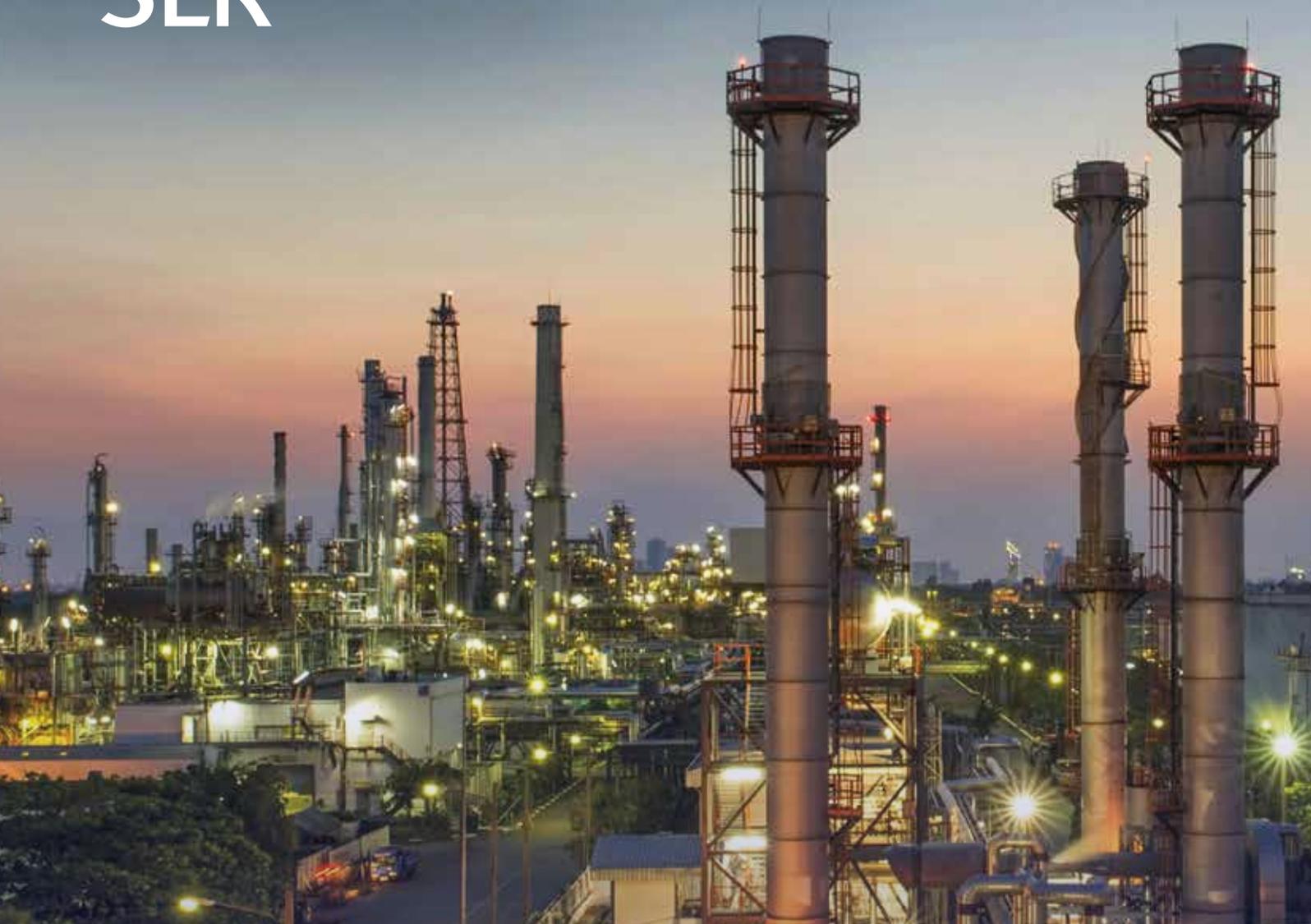
Ian Taylor, SABIC UK Petrochemicals

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