CHEMICAL INDUSTRY Awards

Celebration of Success

Showcasing winning examples of good practice from the

2018 Chemical Industry Awards

Responsible Care: continuously improving health, safety and environmental performance

www.ciaawards.co.uk

Chemical Industries Association
Kings Buildings, Smith Square, London SW1P 3JJ

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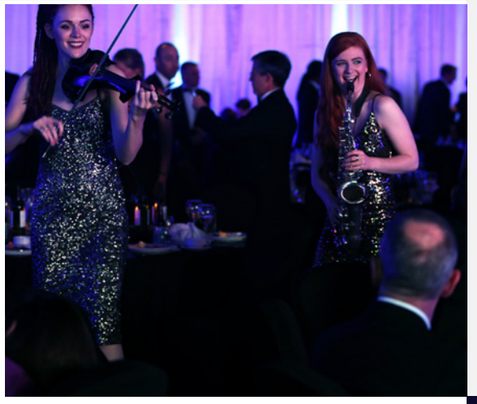
CIA Chemical Industries Association

Working for chemical and pharmaceutical businesses

Once again this year's Awards were made by Year 10 students at Bridgewater High School, Warrington as part of their GCSE Design course. This was made possible through generous sponsorship of Solvay.

The Chemical Industry Awards are the premier accolades for the UK chemical industry. The sell-out Awards ceremony took place on 14 June 2018 at the Hilton Newcastle Gateshead.

The case studies contained within this "Celebration of Success" brochure are all from winning entries and showcase excellent examples of good practice from the UK chemical and pharmaceutical industry, across a wide range of areas.



CHEMICAL INDUSTRY Awards

Foreword

Showcasing the best of the UK Chemical and Pharmaceutical Businesses

The 2018 Chemical Industry Awards saw the highest number of entries for the past ten years, with judges also reporting that the quality across all categories remained outstanding. Given the challenges of the year and the huge uncertainty generated by Brexit, this is a remarkable performance and highlights the willingness of the sector to share good practice as well as the drive for continuous improvement across all areas of the business.

Particularly popular and outstanding categories this year included the ABB Manufacturing and Resource Efficiency Award, the GSK Innovation Award and the BASF Young Ambassador Award. The latter award has been growing in popularity for a number of years, and given the tough interview process candidates go through, is testimony to the determination of candidates and the high esteem with which this award is held by company managers. On the back of this award, our Future Forum, led by the Young Ambassador, also continues to flourish, with exceptionally talented individuals from across all areas of business taking time to develop and contribute to the future success of our industry.

Innovation is key to the future success of the industry and is at the heart of the new Chemistry Council Strategy. The entries for the GSK Innovation Award this year highlighted the fantastic work being done to improve productivity of established processes, develop greener technology for existing products and commercialise new products to meet the changing needs of society. Another key driver for future industry success is productivity improvement and the ABB Manufacturing and Resource Efficiency Award demonstrated that this is occurring in every sector from bulk chemicals through specialties to pharmaceuticals, the latter sector being particularly well represented by companies shortlisted for this award.

The case studies showcased here are representative of many other success stories. We can all be proud of our industry for the innovative way in which new products and processes are developed and commercialised and the extent to which manufacturing is carried out to the most stringent health, safety and environmental standards. The huge amount of talent and competence shown by those relatively new to the industry is also something we should encourage and promote.

I would like to thank all our sponsors for their generous support for these Awards, especially ABB Consulting for their continued Headline Sponsorship. Sponsors and independent judges are recognised experts in the topics they sponsor and judge and have freely given their expertise and experience during the judging process to ensure these Awards are fair and challenging.

Apart from showcasing the best of UK chemical and pharmaceutical businesses, I hope these case studies will inspire your own work and encourage you to apply for the 2019 Awards. For further information on the Awards see **www.ciaawards.co.uk**.

Steve Elliott
Chief Executive, CIA

Johnson Matthey

Company of the Year Award

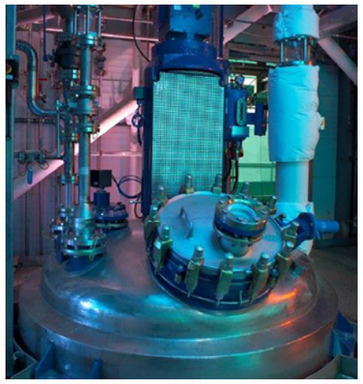
Winner: Johnson Matthey, London
Sponsor: Womble Bond Dickinson

This Award is given to the most outstanding CIA member company of the year, which has demonstrated growth to its business and sustained contribution to the UK chemical industry.

Johnson Matthey's science touches the lives of millions every day. As a global leader in sustainable technologies, it creates solutions for some of the most pressing challenges faced by the world today, whether that means preventing 40 tonnes of pollutants entering our air every minute, delivering active pharmaceutical ingredients that relieve the symptoms of people around the globe or recycling millions of tonnes of platinum group metals annually.

JM was established in 1817 when Percival Norton Johnson started a gold assaying business with just £150 of capital - the equivalent of £15,000 today. The business quickly expanded thanks to the vision and determination of its founders, and JM has now been delivering solutions for customers worldwide for more than 200 years, with technologies that are making the world a cleaner, healthier place and improving lives across every continent. Its operations form an integral part of industries from automotive to pharmaceuticals and chemicals to oil and gas.

2017 was a very special year for JM as it celebrated 200 years of success. In a changing world innovation has been a crucial ingredient to its longevity, and the company continues to create new solutions, delivering on a strategy to build a sustainable business for the years to come. With science at the heart of what it does JM invested £193m in research and development in 2017/18, and now has more than 1,450 science and technology people. They are hard at work on the next generation of products and services in close liaison with customers, such as the battery cathode materials and fuel cell components that will enable the journey to pollution-free roads.



JM also recognises its power to have a wider impact on society and community, and with its new sustainable business goals it will drive towards sustainability leadership across the whole supply chain. It's also committed to supporting the next generation of scientists by enabling STEM education. Its extensive PhD sponsorship programme spans more than 25 British universities and many more worldwide, while its local sites engage with schools to encourage children to consider STEM subjects and careers in the industry, and several also run apprenticeship programmes to support young people into science and engineering roles.

With some of the most talented people in the industry and the vision and strategy to succeed, JM will continue to make an important contribution to making the world a cleaner and healthier place for many years to come – into the next century and beyond.

WOMBLE BOND DICKINSON

For decades Womble Bond Dickinson has provided legal and regulatory support and assistance to chemical companies across the UK and the US. We're proud of the recognition we have gained through our dedicated chemicals sector team. We offer a breadth and depth of expertise which few other law firms can match. This is why we're trusted by a diverse spectrum of clients across the industry, advising on day-to-day matters and strategic projects affecting their domestic and international operations.

gsk do more feel better live longer

Skills Award

Winner: GlaxoSmithKline, Ulverston
Sponsor: Cogent Skills

This Award is to recognise the employer that has done the most to contribute to the acquisition of skills by the company's workforce through working towards the Cogent Gold Standard.

GSK Ulverston is celebrating 70 years of manufacturing lifesaving antibiotics, each year producing hundreds of tonnes of active pharmaceutical ingredients which are sent worldwide.

Investing in the Site Learning Transformation programme has been essential for continued success to deliver the expectations of customers and patients, allowing them to 'do more, feel better, live longer'. GSK's focus and ambition is to achieve zero accidents, defects and waste through a continuous development programme that creates a sustained learning culture at all levels of the organisation.

During strategic workforce planning GSK Ulverston recognised that due to an ageing workforce there was a retirement peak looming and within the next decade significant skills and knowledge would be lost. To address this a small Learning & Development department was established to support the Site Learning Transformation programme, which encourages investing in early talent through the provision of site STEM ambassadors working with schools and colleges, this approach has seen a significant increase in the number of students applying for apprentice positions at the site, especially female applicants.

The apprentice programme is something GSK is very proud of, tapping into early talent from an early age and encouraging more females into STEM subjects. Today there are 32 apprentices at site with 40% female. GSK Ulverston has successfully transitioned to the new apprentice standards working with the Science Industry Partnership to ensure its programme will successfully deliver the capabilities and behaviours that are fit for the future.

To support and facilitate the Site Learning Transformation programme GSK invested in a Site Learning Zone (SLZ) which has helped facilitate the development programme by providing a dedicated safe, practical training space close to operations for hands-on training and practice of local site procedures and technical skills, such as site inductions, process safety, quality, compliance and the GSK production system. The SLZ is made up of four elements: a simulated work area, which replicates the working environment, creates 'hands-on' scenarios to build capability in a safe place; a Kaizen area, where teams can assemble for real time problem solving or to build capability and confidence with a scenario; a flexible classroom space which allows group learning including delivery of face to face training such as academy programmes and for connecting to global and external learning opportunities; and a breakout area for individual and group learning relationships (coaching, mentoring).

The SLZ has become the place to go for learning and development and recently played a successful role in the People and Operational Readiness associated with the site Manufacturing Technical Improvement Programme. The simulated work area has been extensively used to develop, trial and replicate new ways of working and the training of staff prior to go live in the new sterile manufacturing extension. This success has led to further enhancements and functionality of the SLZ, for example, a new cleanroom gowning mock up area and people air lock facility enabling training to take place.

Cogent skills for science industries

Cogent Skills supports science industry employers to attract, retain and develop people who can contribute to business success. We operate at every level of vocational training, qualifications and skills development, including recruiting the best new talent to your business via industrial placements and apprenticeships, to developing your existing workforce through training courses and skills benchmarking. All our products and services are designed with science industry employers, are underpinned by national standards and meet the unique requirements of the sector.

In addition, Cogent Skills facilitates the Science Industry Partnership (SIP), whose members provide an influential skills voice to Government, in order to ensure the sector can meet its skills ambition in the coming decades. The SIP works with key partners including trade and professional bodies as well as Local Enterprise Partnerships (LEPs)/ Combined Authorities.

MANCHESTER 1824
The University of Manchester

Reputation Award

Winner: The University of Manchester's Science & Engineering Education Research and Innovation Hub, Manchester
Sponsor: Chemical Industries Association

This Award is in recognition of the organisation which can demonstrate excellence in managing or enhancing its external reputation with key stakeholders in response to a specific, identified opportunity, requirement or issue.

The Great Science Share for Schools (GSS) is a national campaign uniquely placing young people's scientific questions and investigations at the centre of all it does. Pioneered in Manchester, through the Science & Engineering Education Research and Innovation Hub, the campaign provides a distinctive non-competitive and collaborative approach to engaging children in sharing their science learning with new audiences.

Since the 2016 European City of Science, the Great Science Share for Schools has gone from strength to strength, reaching 10,000 young people in 2017. The engagement and interest to engage continues to grow, now reaching schools and STEM organisations UK-wide.

On 5 July 2017, 10,000 primary pupils supported by secondary peers joined forces to share and showcase their science learning to others. A flagship event held at the Etihad Campus in Manchester saw 1000 people celebrating science together with the children's voices truly at the heart of the event. The reach spread even wider through a snowballing effect of schools around the region and beyond getting involved.

What was it like?

- Scientists offered whistle-stop tours to schools
- A large flagship event at the Etihad Campus where children take control!
  - **they** delivered their own keynote addresses
  - **they** asked their scientific questions
  - **they** demonstrated science investigations
  - **they** sang and played the GSS anthem with the Halle
  - **they** debuted a mass participation dance communicating what it means to 'work scientifically'

What's the impact?

1. GSS reversed the roles of traditional public engagement events as children took centre stage in communicating science learning. Children were inspired by scientific research and scientists in a dynamic way.
2. Teachers used the event to engage youngsters who wouldn't traditionally be chosen for this type of event, thus the event helped to bring certain children 'out of their shell' and encouraged them to be involved and to 'have a go'.
3. GSS engaged teachers with professional opportunities to improve primary and secondary school science. 95% of teachers reported that 'GSS offered an opportunity for the quality of science to improve in your school' explaining that in particular they 'became more aware of, and focused on, the importance of child led learning and collaboration in science'.

This success saw the Great Science Share for Schools growing further into 2018 with a campaign day of 19 June 2018, working in partnership with the BBC Terrific Scientific Campaign and once again sponsored by BASF, Manchester City Council and the Manchester University.

This is a unique campaign that develops the pipeline of young scientists and engineers that we all need in our futures. It sets itself apart by the way it increases opportunities for young people to authentically think and work as scientists, underpinned by good teaching and learning in schools.

CIA | Chemical Industries Association
Working for chemical and pharmaceutical businesses

The Chemical Industries Association (CIA) is the organisation that represents chemical and pharmaceutical businesses throughout the UK.

Our activities are split between lobbying and provision of advice and services. Our policy agenda stretches across the economy and competitiveness; our products and the way we work; health, safety & environment and employment issues.

We represent all sizes of chemical and pharmaceutical businesses, of which approximately 70% are overseas headquartered. This illustrates the increasingly international nature of the industry.

Contract Chemicals

GSK Innovation Award

Winner: Contract Chemicals, Knowsley
Sponsor: GlaxoSmithKline

This Award acknowledges the successful use and application of innovation within a business or across a supply chain to achieve tangible business results with clear societal impact.

In January 2017, Contract Chemicals Ltd (CCL), a UK SME and world leader in bromine chemistry, was approached by a major US pharmaceutical company to produce a dibrominated olefin intermediate for a new hepatitis vaccine, to be launched in early 2018. The intermediate is toxic, a severe lachrymator and extremely corrosive to skin. It would need to be manufactured under the strictest conditions for Health, Safety and Environmental control; conditions which had proven impossible to find with other potential supply sources. Therefore, CCL was chosen to fast-track both process development and then plant installation and commissioning to hit the extremely challenging manufacturing timetable.

The initial bromination step itself was problematic, giving low yields and high waste costs. In addition, the intermediate produced is a dibrominated olefin with a predominately cis orientation of the bromine atoms around the double bond. The desired product is the trans isomer. Attempts to convert the cis to the trans isomer using conventional chemical or thermal techniques led to significant levels of polymerisation and degradation, creating high levels of waste, a low yield of the desired product and consequent high costs. Essentially, the entire process was unsustainable.

CCL redesigned the initial bromination process by manufacturing the brominating agent in situ. This gave a much cleaner reaction, with the total impurities reduced to a single figure percentage of the crude product mass.

However, the main problem of how to flip the cis to the trans isomer at low temperature remained. Through extensive research and calculation of bond energies, it was considered that the double bond of the cis isomer could be broken using ultra violet light and that it would rotate to the trans isomer through steric repulsion of the large bromine atoms. Further, through careful selection of the solvent for the isomerisation, the lower solubility of the trans isomer in the system would cause it to preferentially precipitate from solution, thus driving the conversion forward.

Following successful laboratory trials, a system was designed where the crude product, dissolved in a hydrocarbon solvent, was circulated through a UV lamp. The lamp had to deliver the correct wavelength to efficiently flip the cis to the trans isomer, in addition the recirculation rate of the liquors and depth of the annulus surrounding the lamp were critical to ensure effective exposure of the molecules to the light. Through effective temperature control, the precipitation of the trans isomer could be effected and the desired product isolated and dried on a Rosenmund filter-dryer, ensuring essential compliance with strictly controlled conditions.

The plant was commissioned in October 2017 and has produced product of high purity; product which has been converted successfully to the active ingredient.

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gsk do more feel better live longer

We are a science-led global healthcare company with a special purpose: to help people do more, feel better, live longer. We have three world-leading businesses that research, develop and manufacture innovative pharmaceutical medicines, vaccines and consumer healthcare products.

For the last 300 years we have helped transform the health, lives and futures of billions of people around the world. From our early beginnings creating milk-based baby food, to the challenges of developing the world's first malaria vaccine, we continue to take a pioneering approach to developing breakthrough healthcare products and solutions.

Environmental Leadership Award

Winner: BASF, Alfreton
Sponsor: ERM

This Award is for the company or operating unit that can demonstrate excellence in environmental leadership through the development or use of innovative clean technology or products that help reduce the environmental footprint of chemical manufacturing.

BASF plc supplies a wide range of polyurethane systems for the construction, consumer, industrial and transportation sectors. For many years physical blowing agents have been used, either solely or in combination with water, to make polyurethane foams. Water reacts with isocyanates to form carbon dioxide gas which then acts as a blowing agent.

Historically CFCs (ozone depletors) were used, although these were phased out and ultimately banned by the Montreal Protocol. In 2007 HFCs, which are less damaging to the ozone layer, were used to replace CFCs and, in some cases, the CFC was replaced by water alone.

In the furniture industry, flexible polyurethane foams are crucial in providing cost effective cushioning solutions which offer the consumer a combination of comfort and durability whilst allowing furniture manufacturers design freedom. In the UK foam cushioning materials must also meet the flammability performance requirements of Schedule 1 Part 1 of the Furniture and Furnishings (Fire) (Safety) regulations 1988, amended 1989, 1993 and 2010.

The European F-Gas Regulations (fluorinated greenhouse gas) will come into effect in 2023 and this bans the use of HFCs. Although many of the systems previously blown by CFCs and HFCs had been replaced by water blown alternatives, a system used for the manufacture of moulded upholstered furniture cushions still relied on HFC blowing agents.

BASF had to find a new solution which would give a system which, as far as the customer was concerned, offered the same physical properties, comfort and durability whilst also being able to be satisfactorily processed on existing machinery. All of this also had to be achieved without any cost penalties.

Chemists and technologist at BASF worked closely with customers to develop a new fully water blown system that met all the required characteristics. This involved laboratory trials at the BASF Alfreton site, numerous trials at customers and extensive physical property and fire performance testing to ensure that foam was fit for purpose. Unusually and because of the importance of the foam quality to the furniture manufacturers, a furniture manufacturer was also involved in the assessment of the new foam and they gave regular feedback regarding the comfort and feel of the foam.

Trials are now complete, and BASF customers are now in full production using the new system. The system is future proof and has been introduced without any modification to processing machinery. The planned phase out of HFCs has already seen an increase in the cost of these blowing agents so the new system has already proven to be cost effective.

Compliance with the F-Gas regulations has been achieved five years in advance of their implementation.

ERM is a leading global provider of environmental, health, safety, risk, social consulting and sustainability-related services. Headquartered in the UK, we have more than 160 offices in over 40 countries and territories employing more than 5,000 people who work on projects around the world.

ERM partners with chemical industry clients, offering value added advice to deliver their Responsible Care obligations in the operation of facilities and the manufacture of sustainable products. More recently ERM has supported the World Business Council for Sustainable Development (WBCSD) and is proud to be a contributor in the preparation of the Chemical Sector Roadmap.

Low Carbon Award

Winner: Croda International, Goole
Sponsor: ENGIE

This Award is to recognise the company which can best demonstrate enhanced carbon management through initiatives such as improved resource efficiency, the use of alternative energy sources and solutions designed to achieve energy saving across their supply chain.

Sustainability is one of the three pillars of Croda's strategy. Investing in innovative product design and with flexible operations, they work with their supply chain to develop ingredients that deliver more benefit, with less environmental impact.

In 2018 Croda introduced a new target to reduce Scope 1 and 2 Greenhouse Gas (GHG) emissions intensity by 10% from a 2015 baseline. They also have a large focus on understanding and measuring their upstream and downstream scope 3 carbon, for example the emissions embedded in the purchase of their raw materials as well as the carbon savings associated with the sustainability benefits to their customers of their products in use.

Croda's largest manufacturing site, in Gouda, has shown leadership in reducing operational GHG emissions through its innovative glycerine fermentation project, which opened on 1 June 2017. The Croda Gouda plant processes vegetable triglyceride oils, a carbon negative feedstock because of the biogenic carbon sequestered from the atmosphere during plant growth. The derived components are supplied to many industries. Glycerine is a side stream from the vegetable oil splitting process. Often in surplus, glycerine is a commodity chemical widely available.

The partial replacement of natural gas fuel with bio-gas created from this crude glycerine generates up to 2MW of electrical power through an efficient Combined Heat and Power system. The project has seen the site reduce GHG emissions by 25%, increasing the use of renewable, sustainable fuel for site processes and reducing noise and odour emissions.

The novel glycerine fermentation project combines a large scale anaerobic digestion of a single source feedstock, an economical design facilitating very high conversion rates and a very large upscaling factor with far reaching process integration. Thanks to the innovative aspects of this project it has been accepted as a demonstration project under the EU LIFE+ scheme with the general objective to contribute to the implementation, updating and development of EU environmental and climate policy and legislation by co-financing projects with European added value. The learnings from this project can be used in other similar projects across Europe.

The last ten years have also seen many other carbon reduction initiatives actioned across Croda's manufacturing sites. Their Hull site in the UK installed a 2.05MW wind turbine in 2008. There are solar panel arrays at three of their global locations, capable of generating a combined 1.2MW electricity. Their Leek site in the UK installed a 650kW CHP generator in 2013, fuelled with by-products from processes on site. In 2013, their Atlas Point manufacturing site in North America began burning landfill gas in a 2MW CHP engine, after Croda invested US$8 million installing a pipeline from a local landfill site. The resulting reduction in natural gas use, as well as avoidance of release of methane to the atmosphere, has led to an aggregate reduction in GHG emissions of close to 1 million tonnes CO2e since 2012.

These combined actions demonstrate that Croda has carbon management at the heart of decision making and strategy setting.

ENGIE is a leading energy and services company focused on three key activities: energy, facilities management and regeneration. Our 17,000 employees combine these capabilities for the benefit of individuals, businesses and communities throughout the UK & Ireland.

With a strong focus on creating great sustainable business environments ENGIE works in partnership with customers to help them to optimise the efficiency of their buildings and operational processes. By integrating energy supply, efficiency, facilities management and business support services, we can deliver guaranteed savings, combined with improved efficiency and sustainability.

Chemical Industry Service Provider Award

Winner: Centre for Process Innovation, Redcar
Sponsor: Centre for Industry Education Collaboration

This Award is to recognise the contribution service providers make to the success of the UK chemical industry. The Award will recognise innovation and outstanding delivery of services for example, engineering, IT, legal, and training to the chemical or pharmaceutical sectors.

The Centre for Process Innovation (CPI) plays a crucial role in bridging the gap between innovation and commercialisation. Working with SMEs, large corporates, universities and charities, it supports the development of next generation products and processes to deliver sustained UK economic growth. Using state-of-the-art facilities, CPI, and its highly-skilled and experienced team, acts as a gateway for businesses to get more products to market faster at lower cost.

CPI's industry reputation and expertise, allied to its strong partner network, creates strong collaborative projects, strengthening a development pathway across a range of emerging and enabling technologies, including nanotechnologies, formulation science, new materials and biotechnology. Such knowledge and problem-solving capabilities were highlighted in a project alongside Oxford Biotrans.

Having developed a unique process for enzymatic process technologies which yield high value chemical compounds, Oxford Biotrans sought CPI's support to develop a scalable fermentation process for its propriety enzyme whilst maintaining IP ownership. Working out of its industrial biotechnology and biorefinery base in Wilton, Redcar, CPI helped update the company's techno-economic business case, which in turn validated the commercial viability of the nootkatone process for Oxford Biotrans' investors.

As the project concluded, Oxford Biotrans' enzyme production process had moved from the innovation stage to a point where it was seen as scalable and ready to be transferred to a contract manufacturing facility. The work was a reflection of CPI's long-term commitment to providing partners with support to progress their ideas and products to market, and has since been augmented by the introduction of a new operational structure.

Recognising the importance of measuring, analysing and reporting its influence on the outcomes of public and private projects, CPI created a dedicated Performance and Impact team to embed and implement an Impact Framework. Working closely with internal and external stakeholders to validate the methodology, define key metrics and implement analytical tools, with the ultimate aim of utilising the data to inform future strategy, aid decision-making and work with customers and stakeholders to demonstrate the impact of technology innovation centres working with industry.

Information collated to date is already providing valuable insight into the effectiveness of CPI's support, the links between its activities and services, outputs derived from the help, and the longer-term outcomes on the businesses and overall impact on the UK economy. Work has started on case studies to prove the concept.

Louise Barker, CPI's Head of Performance and Impact, added: "We take great pride in helping businesses succeed and progress. Our work enables us to tailor support packages and track and monitor the progress of companies with greater insight, helping us better understand the innovation space and enhance the UK's manufacturing sector competitiveness."

The Impact Framework complements further work by CPI to strengthen its market position, which has included the opening of new cutting-edge development centres that will create an environment for innovation that allows businesses and academic partners to collaborate to develop, prove and commercialise innovative products and processes.

The Centre for Industry Education Collaboration (CIEC) began life in 1988 as the Chemical Industry Education Centre, based at the University of York. Since its inception, it has had the support of both the university's Department of Chemistry and the CIA. CIEC continues to work closely with the chemical sector to ensure that its science and related careers are easily understood by primary school children and their teachers.

Our existence is reliant on the support of organisations that share our passion and provide funding for us to engage children in meaningful, contextualised science and to learn about the opportunities for careers in industry.

ABB Manufacturing and Resource Efficiency Award

Winner: GlaxoSmithKline, Irvine
Sponsor: ABB

This Award is to recognise the company or individual operating unit that can demonstrate world class manufacturing performance or the most successful improvement to its manufacturing performance involving demonstrable excellence and/or significant improvements to resource efficiency within the manufacturing process.

GSK Irvine manufactures Penicillin-based antibiotics. A well-established medicine, which the site has produced for over 35 years, means that there is no longer any patent protection and GSK faces stiff global competition from generic foreign manufacturers.

Due to a number of key competitors producing in India and China, GSK is consequently subject to less regulatory controls and lower manufacturing costs. The challenge therefore is to look at opportunities to reduce the cost of production so that GSK remains competitive. Ultimately, this means eliminating 'waste' from the processes.

To drive step change improvement, the company had to look at waste elimination across the business. Starting with waste and value stream mapping, it was able to identify and prioritise significant waste items to get after. These items combine to create GSK's Productivity Improvement Plan (PIP) and, along with implementation of site strategy activities, are subject to rigorous governance processes.

Last year, the PIP covered a range of activities which together delivered an improvement of over £3million in operational performance verses 2016.

Key initiatives identified included:

1. Driving significant yield improvement of 3%.
2. Reducing the cost of waste, which covered 'not right first time' performance on a continuous manufacturing process with a 14-day operating cycle and reducing costs associated with poor quality. The target was to reduce the cost of waste material by 20%, and reducing the cost associated with poor quality by 50%.

The framework used to drive the individual improvement activities is the GSK Production System (GPS) - a continuous improvement system. Its aim: to add value to patients, the consumer and the business by driving zero accidents, zero defects and zero waste through the continuous development of people, processes and the organisation using a simple set of standards called the GPS Basics. In the context of this scenario the focus was on zero waste.

The GPS Basics are the fundamental components of the GSK Production System. Each GPS Basic consists of a standard with supporting documents and tools to drive deployment and a maturity roadmap to support progression across each of the five maturity levels.

The six Basics enable everyone to adopt a simple, standardised way of working everywhere across all sites and supply chains. To be successful everyone needed to be engaged; understanding their current performance; aware of what their improvement targets were and why they are important; and converting that into action for them to help drive towards achieving them. This is changing the way GSK works as a site and an organisation, and will help drive performance.

As GSK continues to look at removing waste from the business, this year for 2018, equally energising targets were set for waste reduction. Year on year delivery is a measure of success and to sustain this GSK has implemented a system for driving reactive problem solving and proactive continuous improvement. This system, the GPS, engages all their people, drives improvement and eliminates waste.

ABB provides expertise in inspection, integrity management, process safety, process engineering and projects, to the chemicals, oil & gas, pharmaceuticals and power industries worldwide.

With offices in the heart of the chemicals manufacturing industry in the North East, North West and Humber regions, as well as local offices in Aberdeen and Grangemouth, our unique breadth and depth of services combining specialised consultancy, professional engineering services and operational experience, allow us to bring both pragmatic and practical solutions to our clients.

lyondellbasell

Health Leadership Award

Winner: LyondellBasell, Carrington
Sponsor: Macnaughton McGregor

This Award is for recognition of the company that has achieved excellence in health leadership demonstrated by improved or optimum sustained health programme performance and a healthy workforce and workplace. The key characteristics of effective health leadership include senior management commitment, employee engagement and evidence of a culture of proactive health risk management and wellbeing support initiatives that align with sustainable development goals and metrics.

LyondellBasell regards its employees as a valuable asset and it is one of their corporate missions to safely and reliably deliver high quality products to customers. With this in mind their key focus is the health and wellbeing of employees and contractors - at work and at home. Like all other manufacturing companies within the UK, regulatory requirements with regards to health and wellbeing have to be met; COSHH, Manual Handling, DSE, Legionella, just to name a few. As such, the Carrington site operates a health risk assessment programme for all tasks that are carried out by employees and contractors. These assessments are reviewed annually by a focal point within the different functional teams on site. The programme control measures are justified through a monitoring of systems and processes to ensure standards are being maintained.

Key health risks from a site perspective are the manual handling of goods and possible emissions of fume and dust. Before any work starts on site, a health and safety risk assessment called "Check Signals" is applied. The Check Signals pre-task analysis is a tool for identifying potential safety risks immediately before performing a job and has been amplified with an emphasis on staying focused. LyondellBasell staff ask the questions: What can go wrong? Which precautions should I take? Can I do the job safely?

Ensuring people come to work in the right state of mind and health is important at LyondellBasell, and health and safety is promoted through a programme called 'Life Beats'. Life Beats is a corporate initiative to focus on health and wellbeing of employees and highlights one key theme each month, i.e cancer awareness, diabetes, healthy eating and fitness tips. Being a global programme, the Carrington Life Beats programme is supported by the site manager through communications and participation in some of the initiatives. These include onsite activities that raise the profile of health and fitness with events such as Global Step Challenge, challenges in the site gym, table tennis tournaments, walking clubs and football games. These sessions are used to challenge people to become more active and get enjoyment out of physical exercise.

The focus for 2018 is the health assessments of employees which is provided every two years and includes lung function tests, audiometry and cholesterol checks for all of the site teams. The site is currently looking at what additional health checks can be included. Part of the review of the assessments will be to analyze the results from a site-wide health and wellbeing survey which was carried out to understand whether there are any underlying health issues within the teams. Following the review, the company will be communicating the results and putting together an action plan to address some of the trends which have been identified.

Macnaughton McGregor
Training Learning Impact

Macnaughton McGregor is the UK's leading specialist in drama based skills training, working all over the world with a myriad of clients to improve their Health & Safety cultures. We have unparalleled experience and the fact that our client bank is littered with household names speaks volumes about the effectiveness of our unique training, which covers: Behavioural Safety from top to bottom of organisations; and Mental Health & Wellbeing - managing stress. All of our training is individually designed for you and is universally well received - plus it works!

BASF
We create chemistry

INEOS Responsible Care Award

Winner: BASF, Alfreton
Sponsor: INEOS

This Award goes to the company or site which has excelled in Responsible Care by demonstrating leadership and a creative approach.

As a signatory to the Responsible Care Global Charter, BASF has embraced the goals of the chemical industry's voluntary initiative. This is extensively demonstrated at BASF's Alfreton (Polyurethanes manufacturing) site where the principles of Responsible Care are promoted at all levels across the site with an empowered workforce; visually and practically supported and encouraged by a passionate site management team.

The site has worked tirelessly to develop the health, safety and environmental culture of the site, taking every audit, assessment, visit or meeting within BASF and with its peers and the enforcement bodies as an opportunity to learn and improve. A visible management team, actively promoting the ideals and principles of Responsible Care at all times and without hesitation has been essential to help in this.

For the site the biggest element has been involvement and "buy-in" at all levels. This has involved everyone on site signing the Site Policy document, acknowledging that they understand the site's requirements. Risk assessment training has been provided to all staff, enabling them to better assess any risks on a daily basis. This also enables all staff to participate constructively in formal risk assessments. Regular consultation and communication with the workforce at each step of the journey, using a variety of communication methods (site briefings, email updates, face to face discussions etc.) has helped to ensure this buy-in.

During the site's exploration of lean manufacturing and 5S in recent years, staff have been assigned their own "zones" around the site. This, coupled with everyone being involved in safety inspections, has led to increased ownership and pride for all the workforce.

The wellbeing of the site personnel has been boosted by site investment in training staff and providing a pleasant working environment, which supports the local flora and fauna. Voluntary initiatives with organisations such as the Derbyshire Wildlife Trust to turn unutilised areas of the site into havens for indigenous plants and wildlife has resulted in pleasant areas on site where staff can relax in their breaks. They have also resulted in staff members becoming actively involved in supporting these sustainability activities. The level of interest and excitement when a rare species of orchid is found growing, or a protected species of butterfly is spotted, is a reward all by itself!

Each year BASF holds a safety week to highlight safety and promote Responsible Care. At a site level this involves numerous activities aimed at differing audiences, so that there is "something for everyone". Competitions are held for staff and their families, to encourage involvement of the whole workforce, resulting in over 80% participation across the site.

All of these elements and others have combined to result in a site that has a motivated workforce which takes great pride in its site and Responsible Care performance. Winning this Award has increased that pride and shows valuable recognition of BASF's hard work.

INEOS
THE WORD FOR CHEMICALS

INEOS products help people enjoy longer and healthier lives. But it's not just what we make that matters, it's how we operate; building confidence and trust, by safely contributing to the sustainable development of local communities and of society as a whole.

We have 171 sites in 24 countries, with one vision of improving safety, health and environmental performance and a commitment to Responsible Care, which means we're not just making a difference today but for future generations too.

INEOS is proud to sponsor the Chemical Industry Responsible Care Award, which encourages members to highlight superb examples of their commitment to continuous improvement across all aspects of health, safety and environmental (HS&E) performance and to engage with all stakeholders.

Stepan

Special Responsible Care Award for Process Safety Leadership

Winner: Stepan UK, Stalybridge
Sponsor: HFL Consulting

This Award is given to the company or site that can demonstrate excellence in Process Safety Leadership performance.

The site embraces the principles of Responsible Care to minimise the impact of its activities on stakeholders and the environment. In particular, there is a culture of continuous improvement focused towards risk management and this has resulted in an excellent health, safety and environmental performance in recent years.

In terms of process safety, the site poses societal risk due to its location and the hazards of the chemical processes carried out. It is an Upper Tier COMAH site. It is old and has grown in a manner which makes it difficult to operate and maintain. However, by continuing to challenge the way that things are done the site has improved process safety in many ways. Employees at all levels in the organisation are encouraged to contribute by providing suggestions and getting involved in improvement working groups. The Site Leadership Team promotes this by walking the plant and engaging people in discussion about the tasks being carried out, and human factors which may impact process safety.

The Leadership Teams, with support from the parent Stepan company, always aim to minimise risks to the lowest practicable level and, preferably, eliminate them completely.

A range of improvements have been made in recent years:

- Ageing assets have been replaced, often with equipment of higher integrity
- Shift working patterns have been revised to reduce fatigue
- Health and welfare facilities have been upgraded to provide better rest breaks
- Systems and procedures have been improved to specify responsibilities and accountabilities
- Safe systems of work have been revised in line with industry best practice
- Employees have completed a recognised Process Safety Management for Operations training programme delivered by site trainers and tailored to cover site hazards
- A competence management system has been developed which defines role specific training requirements and validates competence in carrying out safety critical work
- Organisational changes have been made to provide higher levels of technical competence in manufacturing and engineering management

By continuously reviewing major accident hazards at the site risk reduction has been achieved by, for example, substituting hazardous chemical additives with less hazardous ones and inventories of some others. Containment systems to limit the impact of any loss of containment have been improved along site increasing emergency response capability. Improved control room facilities have been installed and process alarms rationalised. Safety performance is continuously monitored through investigation of incidents and near misses to identify and communicate learnings and improvements. Leading and lagging indicators are used to measure performance and ensure that protective systems are functioning correctly. This is backed by regular auditing of safety, environmental and quality critical processes to assure compliance with standards.

hfl consulting
Safety Sustainability Profitability

HFL Consulting provides a unique blend of leadership, management, consulting, engineering and training services, that makes us the partner of choice for businesses of all sizes across the process industries, including those in the oil and gas, chemicals, polymer, pharmaceutical, healthcare, waste and allied industries.

As a forerunner in sustainable process safety management, with proven business improvement capabilities, we provide a comprehensive set of services to promote safety and efficiency in design, operation, maintenance, modification and decommissioning of complex hazardous facilities. What's more, our collaborative approach to problem solving equips our clients with the information and skills they need to continue their work independently and with confidence.

williamblythe
Excellence in chemistry

BASF Young Ambassador

Winner: Jennifer Peake, William Blythe, Accrington
Sponsor: BASF

This Award is to recognise an outstanding young person who is demonstrating communication skills and leadership associated with the chemical industry and contributing to its success.

Always interested in science subjects at school, Jennifer studied Chemistry at the University of St Andrews, graduating with a MChem in 2015. As part of her degree, Jennifer completed a twelve month Industrial Placement at William Blythe working as part of the R&D team. Returning to William Blythe as a Development Chemist in 2015, Jennifer has worked on a variety of projects and worked in different aspects of the business.

While studying for her degree, Jennifer had a clear preference for inorganic and physical chemistry and enjoyed lab work over the rest of the course. As such, Jennifer was keen to partake in an Industrial Placement as part of her degree, with the intention of developing her lab skills further and developing an understanding from an industrial perspective. A large proportion of the businesses offering industrial placements were life science-based, so the position offered by William Blythe felt quite unique. The opportunity provided by William Blythe to undertake a year-long placement proved to be the perfect fit; Jennifer really enjoyed her time there and was delighted to return after graduating.

William Blythe is an inorganic speciality company with about 85 employees. Based in Accrington, Lancashire, all R&D and production activities take place on the original site purchased by William Blythe in the early 1800s. The company has evolved several times and is now focused on the development of advanced materials. The current R&D programme is very diverse, working on developing materials which will be required to enable some of the technologies of the future, including materials for energy capture and storage. Setting up the energy storage projects at William Blythe is one of Jennifer's favourite experiences to date – the alignment with William Blythe's core capabilities combined with the growing global demand makes this a perfect opportunity for the R&D team to work on.

Over the past three years, Jennifer has spent a significant amount of time working on the commercialisation of graphene oxide – understanding the market and opportunities in applications, building a network and creating awareness of William Blythe's graphene oxide have been key focus areas. Jennifer hopes that the skills she has developed while working on this project will help her with her plans for the Future Forum this year.

Over the next 12 months, Jennifer has decided to focus on increasing awareness of the Future Forum, which in turn will hopefully result in increased membership and participation from the young careerists the group was formed for. A key part of this will be finding the right way to engage with the target demographic, be that arranging regional events or publicising the activities of the Future Forum to a greater extent online. From Jennifer's experiences so far, it is a great time to be working in the chemical industry in the UK. To maximise the opportunities which exist for the UK chemical industry great people need to be trained by – and then retained within – the chemical industry. Hopefully the Future Forum will continue to play a role in this for the years to come.

BASF
We create chemistry

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The more than 115,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is organized into five segments: Chemicals, Performance Products, Functional Materials & Solutions, Agricultural Solutions and Oil & Gas. BASF generated sales of €64.5 billion in 2017. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (BAS). Further information at **www.basf.com**