



## United Kingdom

### Chemical Industries Association (CIA)

Number of companies

**3,460**

Capital spending

**€4.7 billion**

R&D investment

**€6.3 billion**

Turnover

**€59.5 billion**

Direct employees

**140,000**

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## CHEMICAL INDUSTRY SNAPSHOT

### The third-biggest industry

With £48.7 billion of revenues and £17.8 billion value added in 2016, chemicals & pharmaceuticals is the UK's second largest industry. Only the food, beverages and tobacco processing sector is bigger.

### Offering a full product range

The UK industry is active in all key areas: basic inorganics, petrochemicals, polymers, agrochemicals, paints, detergents and personal care products, in specialties such as adhesives, flavours and fragrances, and in a host of industrial specialties including lubricants, fuel additives, construction chemicals and catalysts. It is also a global leader in pharmaceuticals.

### Employing and investing

Together these businesses employed 140,000 in 2016, and around half a million if you include all whose jobs depend on the industry. Public and private R&D spending in chemical and pharmaceutical manufacturing businesses was £5.1 billion (€6.3 billion) in 2016, of which £4.1 billion in pharmaceuticals.

## Recovering growth

Chemical production grew by 3.5% in 2017 but pharmaceutical production contracted by 4.4%. Both sectors have struggled in the face of uncompetitive energy costs due to ambitious climate policies in the UK.

## Revitalising pharmaceuticals

Output of pharmaceuticals, for decades the fastest-growing sector, fell as companies sought to counter increased R&D and regulatory costs and fewer blockbuster drugs by moving production elsewhere. This led to outsourcing of active ingredient production both elsewhere in Europe, including Ireland, but also to industrializing nations with or near large consumer populations, including India, China and Singapore.

But the outsourcing trend has been called into question, because of higher-than-expected costs, extended supply chains and poor quality control in some new production locations.

The UK's strong science base has helped UK R&D spending stay high but the UK has struggled to attract significant manufacturing investment.

## Strong in the north

There are chemical manufacturing sites in all UK regions. Primary commodity chemicals are produced mainly in Scotland and Northern England. Feedstocks include hydrocarbons (mainly gas and refined petroleum fractions), minerals and vegetable or animal-derived oils and fats.

## Clustered with customers

Sequential processing is the norm, with co-located processing clusters adjacent to industrial customers in other industries.

## Close to feedstocks

North West England is the leading chemical producer, followed by Scotland, North East England and the Yorkshire/Humber areas, while the South East and East of England regions also rank highly. Locations often depend upon availability of feedstocks such as North Sea hydrocarbons, salt and limestone, and energy (originally coal).

## Handy for ports

Though peripheral to the centre of the European market, all chemical-producing regions have access to good ports and many benefit from an ethylene pipeline network, while Liquefied Natural Gas (LNG) re-gasification terminals complement natural gas supplies from the North Sea and Europe.

## Investing to cut costs

Recent investments underpin long-term viability by enabling several petrochemical crackers to use cheap ethane from the US or UK shale gas, if available.

## Main UK chemical sites and the ethylene pipeline



### Building on knowledge

Speciality chemicals and pharmaceuticals are more widely distributed. In recent years pharmaceutical R&D has increased in South-East and Eastern England, close to the renowned universities of Oxford and Cambridge.

### HOW ARE WE DOING?

#### Strengths

- Ethane import infrastructure and three crackers able to use ethane as a feedstock
- LNG import and re-export facilities
- Several closely integrated clusters

- An extensive ethylene pipeline network
- Modern chlor-alkali and derivatives production based on membrane technology
- Strong exports to geographically diverse markets
- High resource efficiency
- Strong pool of highly-skilled researchers and staff
- Highly innovative, backed by exceptional research and university infrastructure
- Excellent labour relations
- Strong safety and responsibility culture and performance in production and distribution
- Able to satisfy sophisticated consumer demands
- Government becoming more supportive of new technologies and domestic shale gas exploration
- Improving public perception
- Heightened political recognition due to Brexit and new Industrial Strategy

## Weaknesses

- The uncertainty of Brexit
- Fragmented ownership of plants within clusters can lead to non-optimal long-term strategies
- Energy prices are globally uncompetitive, driven up by EU and UK climate policies while US Middle East and Russian rivals access cheap hydrocarbons
- Mature European market: growth is faster in Asia and the US
- Scarcity of skilled craft workers because of ageing and competition from other sectors
- Relatively weak domestic manufacturing base despite strengths in automotive, aerospace and pharmaceuticals

## OUR CONTRIBUTION TO A COMPETITIVE EUROPE

### Strengthening strategic planning

In 2014 the UK chemical industry established a sector partnership with Government to address long term growth based on competitive energy; reinforced and new supply chains; and collaborative innovation. Against the backdrop of a new industrial strategy from the British government, this Chemistry Growth Partnership is now being revised with a new strategy to be published in April 2018. This, in turn, will be followed by a proposed “sector deal” between the industry and government – a limited number of collaborative strategic actions/projects to deliver growth out to 2030. The country’s industrial strategy is very much focused on manufacturing and regional economic development and job creation. This represents a good opportunity for the UK chemical industry given it is located in a number of northern clusters – especially Humberside, Teesside, the north west, Yorkshire and Scotland (Grangemouth).

### Putting science to work

The current UK government has committed around £4.7bn to support R&D and innovation. This commitment should be seen against the broader ambition to boost R&D spending to 2.4% of GDP by 2027. The majority of this money is being directed to the country’s Research Councils and around £725m is being earmarked to support the sector deal initiative through the Industrial Strategy Challenge Fund (ISCF). The Chemistry Growth Partnership will be aiming to access ISCF funding for its proposed sector deal by the end of June 2018. In the meantime, March 2018 will see the opening of the country’s new National Formulation Centre in the north east of England – an earlier deliverable from the CGP’s collaborative work with government.

### Working together

Through cross industry collaboration, chemistry aims to facilitate solutions the growth of automotive, aerospace, construction, life sciences and personal care through development of better products. Chemical industry links with UK academic centres are strong and R&D spending intentions rising, despite concerns triggered by the Brexit referendum over future access to talent and the EU's Horizon funding programme.

### **Removing barriers**

A ban on shale gas exploration was ended in 2016, with planning permission granted in the north of the country. These actions, allied to the more immediate benefit of imported ethane feedstock from the US into Grangemouth and Teesside should enable growth in primary petrochemicals, fertilisers and related sectors. Further progress is expected in 2018 with Cuadrilla's horizontal drilling and fracking anticipated to begin in Q2 of this year.

### **Navigating Brexit**

Modified Patent Box incentives and the new National Formulation Centre, combined with pharmaceutical re-shoring, should aid investment. The UK chemical industry will be working hard with Cefic and its European national counterparts to minimise any adverse impact from the Brexit referendum and its aftermath. More specifically, CIA and Cefic have signed a joint statement calling for minimal disruption as the desired outcome from the Brexit negotiations.

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Landscape of the European Chemical Industry Website:

<http://www.chemlandscape.cefic.org/country/united-kingdom/>