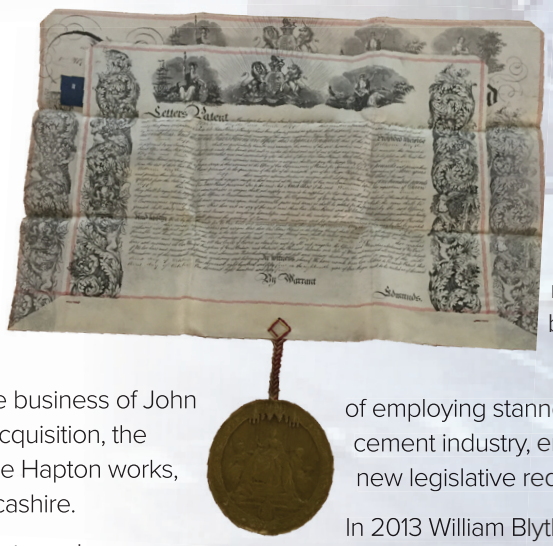
William Blythe: 175 years of innovating chemistry

William Blythe Ltd. is now one of the oldest speciality chemical businesses in the UK. 175 years on from its start today's product range largely comprises the main three chemistries of copper, iodine and tin derivates, which are supplied into diverse markets, such as life sciences, performance coatings, polymers, electronics, catalysis and renewable energy.

The Industrial Revolution saw a boom in manufacturing and the textile industry in the North West of England due to inventions such as the spinning jenny and the power loom. William Blythe initially produced inorganic chemicals for use in the textile industry, notably zinc sulphate for use in the production of rayon and zinc chloride for batteries and the dissolution of cellulose.

1854 saw the first William Blythe patent filed and granted for the development of a novel manufacturing route for sulfuric acid.

By the turn of the century William Blythe was also manufacturing picric acid for use in the local dyestuffs industry.



In 1919, William Blythe acquired the business of John Riley & Sons. By completing this acquisition, the company became the owner of the Hapton works, the largest chemical works in Lancashire.

New plants to make sodium sulphate and hydrochloric acid from sodium chloride and sulphuric acid were constructed in 1955 and 1957, using two state-of-the-art, oil-fired Mannheim furnaces. Acid from these plants was sold throughout the North West of England and had a reputation for exceptional purity. These are core principles and values we maintain today.

Hickson & Welch acquired William Blythe in 1969 to safeguard the supply of arsenical salts used in their inorganic wood preservative business.

One of current product lines, Flamtard H&S which are flame retardant synergists, were developed in association with Alcan, in 1989.

William Blythe was acquired by Holliday Chemicals in 1990. This led to significant investment in new products and plants, including the development of a continuous process to produce copper carbonate for use in the timber treatment and catalyst industries.

In 1998, William Blythe became a wholly owned subsidiary of Synthomer (then named Yule Catto) as part of its strategy to become a major producer of speciality chemicals as well as latex based polymers. The development and commercialisation of a process to make high-grade periodic acid to meet the requirements of the electronic industry began in 2001.

Four years later, we developed a means of employing stannous chloride solution as a reductant in the cement industry, enabling cement manufacturers to meet the new legislative requirements for Chromium 6+ content.

In 2013 William Blythe won the Gold Standard Skills Award in recognition of the extensive training programme it had run over the preceding years. In the same year, a new analytical and R&D laboratory was opened as the company focus

shifted to new advanced materials development.

The expansion of R&D over the past ten years has been one of the key enablers to the success of new product development, the commercial benefits of which are being realised today as a result of the bold move made by the senior management at William Blythe to use innovation as a key tool for achieving long-term, sustainable financial success of the company.

Polymer Additives, Gas Absorbents and advanced materials are key growth areas for the company where R&D efforts have led to development of commercialised products.

Energy Storage is a major focus in our current R&D portfolio with several projects investigating the manufacture of the active materials that store energy in batteries. In these projects, William Blythe works closely with its parent company, Synthomer, which is active in the battery materials market producing SBR latex binders for lithium battery anodes. In parallel we are working with the National Graphene Institute in Manchester, investigating the use of its graphene materials in lithium-ion battery applications.

The chemistries we use to create the product range are controlled bi-tri metallic precipitation, redox reactions and hydrothermal synthesis. These processes allow strict control over the material's physical and chemical properties, both of which are directly related to application performance.

The firm's continued success as one of the UK's largest speciality chemical manufacturers, however, lies not in the specific chemistries, but more in its flexibility and experience in tailoring each inorganic chemical to the specific needs of the customer, regardless of the challenges associated with the requirement. This encapsulates the core capability of William Blythe.

The ability to tune the physical and chemical properties of its products to optimise performance whilst providing additional functionality is key in ensuring the continued growth of the company.

William Blythe also is able to perform a wide variety of purification techniques based around filtration, electrodialysis and ion exchange that can produce very low impurity levels in the resultant materials. In some cases, this extends to parts per trillion levels of trace impurities when supplying products into the electronics industry.

A part of providing additional and increased performance, post-synthesis enhancement is also used throughout the William Blythe manufacturing line. When the required product characteristics cannot be met by first intent, i.e. via precipitation chemistry alone, the material will then be further treated to optimise the properties. Examples of this include granulation, milling, masterbatch and surface modification.

The above capabilities have been demonstrated most recently in the development cycle of two of William Blythe's newest products: Luxacal and graphene oxide. Luxacal is a doped tungsten oxide nanomaterial, which possesses near-IR absorption properties that enables applications in inkless in-line digital printing and solar control technology. Graphene oxide, by contrast, utilises the company's expertise in redox chemistry.

The rapid development of these two products exemplifies William Blythe's vision for the future in becoming a global leader in the development of advanced materials for 21st century applications.

As these projects come to fruition and new products emerge into the pipeline, William Blythe has the capability to scale these new processes on the original Accrington site, either onto the flexible multi-purpose plant or by designing new dedicated production facilities that will continue to build on from the company's long and successful past.

Visit https://www.williamblythe.com for further details.