

An industry that once poisoned our rivers is changing its ways.

Words Paul Unger Photograph Jan Chlebik

CHEMICAL SOLUTIONS

To many it may sound like a contradiction in terms - the chemicals industry and water quality. Since the murky days of the industrial revolution and the damage it did to our rivers, the chemicals industry has been forced by the combined weight of the law and public perception to undergo a drastic makeover.

And it seems to have worked.

Nowadays the fight between commercial motivation and environmental responsibility is just as likely to be won by the green corner.

Take the decision in November 2002 by Croda Chemicals Europe, formerly Croda Colloids, to cease production of gelatine at its Ditton, Widnes, plant following difficulties sparked by the BSE crisis.

When British beef was banned due to the BSE scare, Croda lost one of its main raw materials, degreased cattle bone chips produced as waste from abattoirs. It was forced to rely on imports from a limited number of European countries.

However, the excessive cost of imports and a separate ban by the European Commission on the use of shredded leather off-cuts, also part of the gelatine process, forced the firm to examine alternative ingredients.

Lengthy trials eventually found that fish skins were a viable option, so the firm switched from beef and maintained production of its best-selling product, used in the food and photographic industries among others.

Meanwhile, Croda had been forced to put the price of gelatine up and consequently lost a valuable contract with Kodak that had been in place for decades.

Complications treating the wastes from the new fish-based process led to repeated loss of control of discharges. A court case last year for smell and water discharge violations resulted in fines payable to Halton Borough Council and the Environment Agency (EA) totalling nearly £30,000 and invaluable damage to the firm's reputation.

North Cheshire Magistrates Court found six occasions of unacceptable discharges over a five month period. On one occasion the discharge was found to be about twice as polluting as raw sewage. The discharge also contained unacceptable amounts of chromium and ammonia, both of which are toxic to aquatic life.

Croda decided to stop production of gelatine and write off millions of pounds, five years of wasted time and effort and make 70 staff redundant.

Martin Harrison, group safety health and environmental manager of Croda, says: "We were aware we had commercial pressures on us and faced prosecution each time we lost control of the manufacturing process. In hindsight it would have been better to get out of gelatine five years ago when the BSE crisis first hit."

Clearly, laws and standards protecting the water quality of our rivers and wider environment are nowadays a powerful force even in the face of a multi-million pound business.



Governed by the legislation of the Environmental Protection Act (EPA) 1990, currently being updated by the Integrated Pollution Prevention and Control Act 1999, the chemicals industry has been forced to take greater responsibility for its actions in the past ten years.

In doing so, it has helped turn the River Mersey from arguably the dirtiest river in Europe to a home for salmon and carp and the cleanest it has been since the industrial revolution.

Scientists this year recorded oxygen levels of well over 60% compared to the late 1970s when tests found none at all in many areas.

Alastair Waite, PIR/RSR team leader for the Environment Agency in Cheshire and Merseyside, comments: "Over the past ten years there has been a lot of improvements on all processes and significant reductions in pollution. As technology improves there is always room for improvements and that is something companies have got to look at by law." Once a company has gained a licence from the EA to discharge into the river, maximum discharge consent levels are set and monitored. The EA has the power to enforce improvements in a set timetable if it doesn't like what it finds or ultimately prosecute companies for breach of consent.

Mr Waite continues: "EPA '90 has been very successful in trying to get the environment in the centre of plans for companies whenever they are looking to upgrade plants or address deficiencies and getting it into the centre of decision making and keeping it there."

There are around 150 chemical processes in Cheshire

and Merseyside, a heavily industrial area, and sometimes one company has several processes on its plant, for instance around 12 at Ineos Chlor in Runcorn.

Mr Waite says there have been no major incidents of water pollution on the Mersey in recent times and the industry is more responsible than ever.

The need for continuous improvement at the heart of the EA's work is guided by BATEEC, an acronym for Best Available Technology Not Entailing Excessive Cost. This means that the environmental technology encouraged by the EA must be available and affordable to companies.

Mac Thorpe, corporate health safety and environmental manager at Brunner Mond, one of the chemicals operators on the River Weaver in mid-Cheshire, says: "We appointed our first environmental manager in 1975 and have taken our environment responsibilities seriously for over 25 years. The first steps during that 25 years to where we are today were things like energy efficiency savings and elimination of 'out of sight out of mind' practices.

"We encouraged our people to see our discharges not as the way out of a problem but as the front door to the river. Also containment control has meant we contain pollution within the plant. Constructing bunds, sealing drains and re-grading slopes means that any spillages are contained inside the operation. If you have to walk through a spillage you very quickly find ways not to spill it in the first place and to invest in improved plant control."

Brunner Mond makes sodium carbonate, or soda ash, for use primarily in the glass and detergent industries and

MORE INFORMATION:

www.cia.org.uk

www.brunnermond.com

www.croda.com

www.environment-agency.gov.uk

www.nwci.org.uk

NORTHWEST CHEMICAL INITIATIVE

One of the ways the chemical industry is looking to the future is through the Northwest Chemical Initiative (NWCi), which is part funded by the Northwest Development Agency (NwDA). The idea is to forge links between the initiative's members so they can develop best practice and use their expertise to create cluster networking, something the NwDA is especially keen on.

The NWCi has five overlapping priorities, and noteworthy among them is the goal of sustainable development:

1. **Innovation** Help academia to be more accessible to industry; focus academic resources into specialist areas and emergent markets.
2. **Develop specialist skills** Identify, nurture and supply the specialist skills required for growing and innovative companies.
3. **Sustainable development** Drive more industrial symbiosis, waste elimination and brownfield development.
4. **Encourage high growth areas** Strengthen both new companies and sub-clusters by supporting finance, incubation facilities and targeted inward investment.
5. **Improve industry image** Focus and align existing resources to influence stakeholders as diverse as schoolchildren, NGO's and opinion formers.

Overall, the stated aim is to re-establish England's Northwest as a world class hub for innovation and specialist skills for the chemical industry.



sodium bicarbonate for pharmaceuticals and baking. Mr Thorpe continues: “We decided we needed a better management system, along the lines of our established quality assurance registration, so we went for and achieved ISO14001 [the industry standard] for environmental management systems.

“At the end of the day if we fail to meet our consents we have to answer to the EA and we upset our neighbours.” In its quest to become more environmentally efficient Brunner Mond has spent £120 million replacing three outdated power stations on site with a combined gas-fired heat and power station and Thorpe estimates another £20 million has been spent on other environmental improvements over the past 20 years.

The next generation of chemicals and environmental policy is currently being drawn up by the European Commission under the name REACH, standing for the Registration Evaluation and Authorisation of Chemicals. As with many business directives born in Europe, REACH is not popular and has been criticised for generating excessive bureaucracy.

The chemicals industry prefers to see the future in its own hands and has devised several pro-active and systematic programmes for managing responsible production (see separate panels).

Whatever the outcome of consultations over REACH, the industry has come a long way since the industrial revolution and can be proud of its part in making the River Mersey the cleanest it has been in over 100 years.

Scientists this year recorded oxygen levels of over 60% in the River Mersey. In the late 1970s tests found none at all in many areas.

60-second expert

- the Environment Agency is the regulator that works to clean up polluted waters and to reduce the risk of further pollution. It aims to ensure that aquatic and wetland wildlife has the amount of clean, healthy water it requires and that abstractions and discharges will neither damage the environment nor threaten human health.
- there has been a substantial improvement in the biological and chemical quality of rivers since 1990. This is due to a number of factors including a major clean-up of discharges from sewage-treatment works and industry. There has been tighter enforcement of discharge consents and more focus on pollution prevention. But there are still many rivers with high levels of nutrients and frequent examples of poor and bad aesthetic quality.
- in 2000, the EA found 94% of rivers were of good or fair quality, compared with 87% in 1990. A survey the following year found that the percentage had inched up again, to 95%.
- in November 2002, an EA survey into salmon in the River Mersey revealed the species is now returning to what was once one of the UK's most polluted rivers.

CIA

As part of the drive to sweep away the defensive attitude of the chemicals industry, responding to issues as they come to public concern, the Chemical Industries Association has drawn up its own pro-active programme called Confidence in Chemicals.

The CIA states that the “aim of the programme is to reassert the industry's control over its own future by earning public confidence and showing in a highly visible way that it is willing and able to manage its products responsibly.”

The Confidence in Chemicals programme has four main principles behind it:

1. **A new regulatory climate** The CIA is concerned that some European countries are urging the adoption of new and stricter policies based on precautionary action. New rules are likely to mean a product can only stay on the market if its supplier could demonstrate the product was harmless. The CIA says this is equal to ‘guilt until proven innocent’ and is opposed to “illogical and unreasonable regulatory action of this kind.”
2. **Responsible Care for Products** This updates Responsible Care, a programme that has been around since the 1980s. The CIA has drawn up new guidelines for chemical companies around assessment, management, product stewardship, long-range research and stakeholder engagement and communication.
3. **Implication for products and markets** This aims to provide a “timely and appropriate” response to the results of risk assessments and long-range research. The CIA says: “Where a chemical was agreed to involve an unacceptable risk it would be withdrawn from an application where it was shown to involve an unacceptable level of risk to human health or the environment.”

An international programme - The Confidence in Chemicals initiative is backed by the European Chemical Industry Council and International Council of Chemical Associations, because it is “ambitious but necessary”.

