From climate change and globalisation, to feeding and caring for an ageing population, we have a key role to play in ethically and responsibly meeting the global challenges of the future. A major differentiator from our peers is our heritage of using bio-based raw materials. Lanolin, the very first product we made, is a natural and sustainable ingredient created as a result of processing sheep fleece for textile industries. Over 90 years later, 61% of our raw materials come from natural, bio-based sources.

By purposefully adapting to reflect changes in our operating environment, we have divested ourselves of many capital intensive, environmentally challenging businesses, particularly those with a higher dependence on fossil feedstocks. Our focus today is on delivering more benefit from less input, making a positive impact and further futureproofing our business with our capital and carbon light technology and intellectual property rich acquisition strategy.

Our overarching objective is to continually increase economic and shareholder value while reducing our environmental impact. This reflects our ongoing determination to constantly adapt and reshape our business, so that wherever we operate in the world, and whoever we serve, we make a positive difference, The Croda Difference.

Highlights

61% of our raw materials were from bio-based sources in 2018, an industry leading position

A- CDP rating for Forests in 2018

700,000 tonnes of GHG emissions were avoided through the use of just four of our product families in application during 2018
Product Innovation

Key to The Croda Difference is product innovation. Through close collaboration with our partners and customers, we design new products that help them meet their ever more demanding performance and sustainability needs. Our continued innovation in these areas is driven by our understanding of the intrinsic sustainability of our products, using techniques such as Life Cycle Assessment (LCA).

We continue to focus attention on the sustainability of our raw materials and seek to use bio-based instead of fossil-based feedstocks wherever possible. For us, the sustainability credentials of our raw materials extend to carbon footprint, land use, social accountability and equitable sharing of benefit in supply chains. During 2018, our raw material consumption comprised 91% organic and 9% inorganic origin. Within our organic origin raw materials, 65% were bio-based, coming from renewable crops and biotechnology, and 35% non bio-based.


Life Cycle Assessment

During 2018, we have mapped the steam and electricity distributions across some of our manufacturing sites to gain a greater understanding of the energy requirements of different processes. This data is used in our cradle-to-gate LCA calculations for new and existing products and will help us to evaluate which processes or chemistries have the greatest impact on our product carbon footprints. LCA data will also help to support capital expenditure proposals for investments in renewable energy generation or novel energy efficient processes. The mapping of our manufacturing sites will continue into 2019 and beyond.

2018 also saw a focus on the LCA calculations of our rapeseed oil derived products, following verification of the carbon sequestration figure for our purchased rapeseed oil. On leaving our gate, some of these products are still carbon-negative, having removed more CO₂ from the atmosphere during the growth of the raw materials than has been emitted during their manufacture.

External recognition

In January, we were awarded EcoVadis Gold Status for the fourth time, confirming our place in the top 1% of all chemical companies assessed by EcoVadis and ranking as “outstanding” in environmental and labour practices.

In May, we received the EU LIFE ‘Best environmental’ award for our innovative glycerine fermentation project at our Gouda manufacturing site in the Netherlands. This project has resulted in a reduction in their greenhouse gas (GHG) emissions of around 25%, due to the partial replacement of natural gas with bio-gas created from crude glycerine, a by-product of the major processes on the site.

In June 2018, recognition for our focus on carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award’. Success in this area came as a result of our stretching carbon management came when we won the UK Chemical Industries Association ‘Low Carbon Award'.

Sustainability Report 2018

Product Innovation: Nautilus Biosciences

Sustainably using the sea’s resources, known as Marine Biotechnology and Blue Technology, is inspiring us to produce new ingredients that will contribute to meeting the global food and health care challenges while minimising the environmental impacts of supply chains. Until recently, the almost limitless potential of these bio-resources remained largely untapped. However, our 2018 acquisition of Nautilus is applying scientific knowledge to living microorganisms, such as bacteria and fungi, from marine sources in order to develop a host of new ingredients and production processes.

Unlike compounds extracted from petrochemically derived feedstocks, or plants and field crops that can result in land use change and deforestation, the harvesting of marine bioresources by Nautilus has no impact on the environment in which they are found. As living, growing microorganisms, only a few microscopic cells are required to produce many tonnes of the bacteria or fungi that make the desired end product.

Nutrients, including sugar and amino acids, that support the growth of microorganisms in closed, controlled tanks are sustainably derived either from existing production processes where there is global excess, or from by-products of other manufacturing, such as brewing and paper production. Moreover, because the process uses living organisms, conditions are milder, fewer chemicals are used and it is less hazardous than many traditional chemical processes.

The number of compounds from marine organisms found in personal care products, agrochemicals and medicines will increase rapidly over the coming years. Their discovery by Nautilus and production by Croda through low impact, biological manufacturing processes will play a significant role in marrying corporate responsibility goals with consumer sustainability demands and lead to new, high value commercial opportunities.
Product Stewardship: Sourcing areas

Proportion of sourcing

- 0%
- <1%
- 1-5%
- 5-10%
- 10-20%
- >20%

Supply chain mapping: Sourcing areas

Brazil has the greatest biodiversity in the world, representing 20% of the total species of the planet (water and land) and in 1998 the country ratified the United Nations Convention on Biological Diversity. The Convention has three main goals: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources.

We are developing ingredients using sources derived from Brazilian biodiversity and the greatest challenge of regulatory compliance in biodiversity is that each country defines the mechanisms of regulation. We have a responsibility to assure our customers of the compliance of our products and our Product Safety and Regulatory Affairs (PSRA) department has registered more than 70 products with the Ministry of the Environment. This enables our customers to register their final products using our ingredients from these sources. The complex process was achieved through many meetings and training sessions with our customers, receiving their recognition and acknowledgement of us as a key supplier for new product developments.

All major personal care consumer companies are members of the Roundtable on Sustainable Palm Oil (RSPO) and have made enormous progress in adopting sustainable supply chains. Despite being such a low-volume consuming industry (personal care consumes just 2% of the world’s palm oil output), its influence has been huge, effecting positive change beyond the boundaries of its own sector.

In 2018, we further strengthened our commitment by working with an independent organisation to confirm and verify the transparency of our supply chains. This work involved collecting data from major suppliers, responsible for 80% of the volume of palm oil derivatives we use. We have identified the mills associated with this volume, including location and GPS coordinates. With 99% of the volume originating from Malaysia and Indonesia, ongoing risk assessment of the sourcing areas will ensure progress towards fully sustainable and deforestation-free sourcing by 2020.
Customer Intimacy

Inclusion of our products in customer formulations can offer many kinds of benefits in use: social, economic and environmental, for both our customers and their consumers. For new products launched during 2018, 67% have a known sustainability benefit in use. Last year, we began to quantify the avoidance or reduction of GHG emissions associated with the use of our products by our customers or consumers in the end application.

This work has been driven through the formation of a Product Sustainability Sub-Group of our Sustainability Steering Committee, bringing together representatives from all of our businesses who each have close relationships with our customers and an understanding of the applications our products are used in. Although we have thousands of product and customer combinations, we have already uncovered large emissions savings through specific case studies.

Perfad™ friction modifiers

Included at very low levels in engine oils, we have proven that our friction modifiers can increase vehicle fuel efficiency by 1%. Just 1 tonne of our Perfad friction modifiers can be used in 50,000 vehicles, so assuming an average distance of 20,000 km between oil changes, the avoided emissions associated with the increase fuel efficiency of these vehicles equates to more than 1,700 tonnes of CO2e.

Coltide Radiance™

Our studies have shown that including Coltide Radiance at low levels in fabric softener means clothes can be washed up to twice as many times before fading or becoming bobby. Just 1kg of Coltide Radiance is enough to be included in the wash of 195kg of clothes throughout their lifetime. If we assume that 10% of clothes are disposed of due to washing damage, then this 1kg of Coltide Radiance will have avoided the manufacture of 19.5kg of cotton and polyester clothes, avoiding over 450kg CO2e emissions and saving 150,000 litres of water.

Climate Action

The need to address society’s impact on climate change through a global reduction in GHG emissions is a hugely important aspect of our strategy and ‘The Croda Difference’. Our work in this area is driven by our own operational emissions reduction targets, alongside an understanding that our impact on emissions also encompasses our upstream and downstream supply chain, which includes our high usage of bio-based raw materials. This is in addition to the emissions avoided through the performance benefits our ingredients offer when in use by our customers and their consumers.

Our carbon strategy

In this context, we use the term ‘carbon’ as shorthand for carbon dioxide (CO2). CO2 is the main source of GHG emissions, the key contributor to climate change. Climate change is a major threat to global sustainability and we are determined to reduce the contribution we make to GHG emissions in the atmosphere by several means:

• Reducing our energy use overall by investing in more energy efficient processes, such as biotechnology and novel plant equipment, and running them more efficiently
• Using a lower percentage of fossil fuels to meet our heating requirements. For example, reducing our current reliance on burning natural gas as a heat source by using renewable electricity for heat production and re-use through heat storage and recovery
• Purchasing electricity only from non-fossil sources, which is now available in an increasing number of countries in which we operate
• Using renewable crops that have absorbed CO2 from the air as raw materials
• Selling products that when included in customer formulations reduce the CO2 emitted in use
• Encouraging our suppliers to measure the CO2 emitted during manufacture of our raw materials and share their plans for reduction
• Using internal carbon pricing to encourage investment in carbon reduction capital expenditure projects.

Through a combination of these initiatives, our strategy is to reduce GHG emissions associated with our burning of fossil fuels and purchased energy by 80% by 2050, compared to a 2006 baseline, and by 50% by 2030. At the end of 2017 we calculated...
Climate Action continued

that our emissions had already reduced by 32% from 2006.

The graph shows the forward projection of our GHG emissions to 2050 and the contribution of scope 2 carbon (mainly emissions associated with the generation of our purchased electricity) and scope 1 carbon (almost all natural gas). The targeted reduction is in line with UK government and European Council targets and broadly compatible with the UN’s Paris Agreement or COP 21, as well as supporting SDGs 7 and 13.

Raw material scope 3 models

To understand and report our scope 3 emissions with ever-greater accuracy, in 2017 we began calculating carbon footprints for four of our largest raw material streams: ethylene oxide, rapeseed oil, woolgrease and fish oil. Engaging with suppliers, working with Carbon Smart and using literature data, we mapped the processes involved in our upstream supply chain before our raw materials reach our factory gates. The product impact tools developed mean that for a given tonnage of raw material purchased we can now calculate the associated scope 3 GHG emissions.

The data gathered has been used in the calculation of our own product carbon footprints and provides us with much more information as to where the largest carbon impacts lie within our raw material supply chains. This can help inform decisions around raw material choice in new product development. In 2018, we have continued this work and developed three further product carbon footprints for key raw materials: stearyl alcohol, stearic acid and sorbitol.

Sustainability at our Cowick Hall headquarters

To reduce our GHG emissions and our reliance on fossil fuels at our global headquarters in the UK, we have formed a Cowick Sustainability Steering Committee and worked with several energy solutions companies to decide the best pathway for our journey towards carbon neutrality.

The result is that we will now invest in on-site sub-metering, which will allow us to accurately measure the energy consumed by each building, including our laboratories, to define peaks in energy consumption at different site locations and analyse seasonal variations. This sub-metering will gather vital information to inform our strategy to go carbon neutral in the future. We aim to directly link the data collected to display screens across site, allowing employees and visitors to see the energy they are using in real time. This visibility of data is aimed at triggering behavioural changes to energy consumption and is an important initial step towards reducing our GHG emissions.

In addition to this work, the newly formed Cowick Biodiversity Committee has worked with an external specialist to develop a woodland walk on-site. The project involves employee volunteers who are preparing the walkways and who will also be responsible for looking after new bird feeders, along with implementing many other biodiversity initiatives. A number of employees have also tended to their own allotments within the site’s walled garden and grown some impressive fresh produce.

Our People

At the heart of our business, and The Croda Difference, are our people. We want our people to enjoy working for us and to enjoy the work that they do, forging long, rewarding careers and fulfilling their potential. We work hard to create a stimulating, energetic and fun place where everyone can thrive, offering training and development opportunities to support everyone’s goals. We do this because we recognise that our people’s can-do attitude, family spirit and customer focus is at the heart of what makes Croda different and a true source of our competitive advantage.

Following extensive work in 2018 to refresh our values, the philosophy that drives our behaviours 2019 will see their relaunch to the business. These values focus on togetherness; working as one global family, building a culture of trust and transparency and valuing everyone’s unique contributions. They will speak to our philosophy of taking care of the communities that we serve, the environment and each other.

Our values will also reflect our desire to relentlessly innovate across everything that we do, so that we can serve all our customers in an agile and effective way. These values are a continuation of the cultural journey that we have been on since we began in 1925, though we hope that this rejuvenation will help us meet the challenges of the businesses’ 2030 goals, and enable us to continue to attract and retain amazing people.