

**Registered Office**

Croda International Plc  
Cowick Hall  
Snaith  
Goole  
East Yorkshire  
DN14 9AA  
England

T +44 (0)1405 860551

[www.croda.com](http://www.croda.com)

CRODA

Sustainability Report 2019

# Smart Science to Improve Lives™

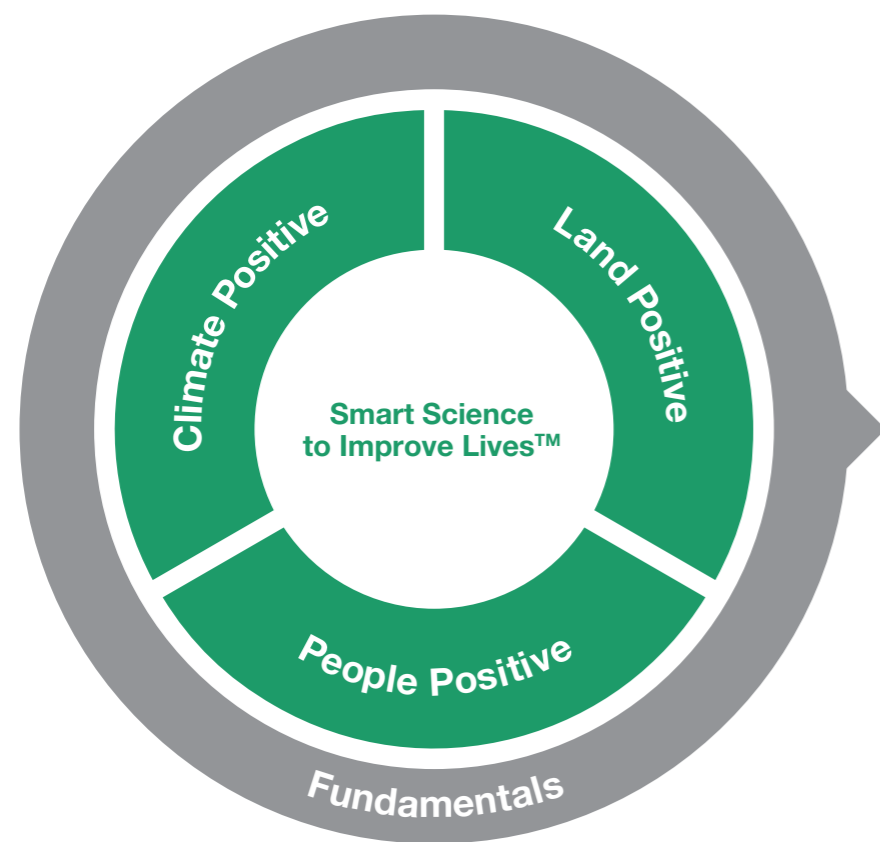
Sustainability  
Report  
2019

CRODA

CRODA



# Our 2030 Commitment



As we launch our Commitment to be Climate, Land and People Positive by 2030 and to be the most sustainable supplier of innovative ingredients, we will help provide solutions to some of the world's biggest challenges in the coming decades.

Today, atmospheric carbon dioxide concentration is

**146%**

of pre-industrial levels  
Source: World Meteorological Organisation

In 2017, global warming reached approximately

**1°C**

above pre-industrial levels. It must be limited to 1.5°C to avoid the catastrophic effects of climate change  
Source: IPCC Global Warming Special Report, 2018

We will help our customers to avoid carbon emissions through the benefits in use of our innovative ingredients, whilst continually reducing our carbon footprint. We will increase our use of bio-based raw materials, which absorb carbon from the atmosphere to grow. By combining these efforts, we will enable several times more carbon emissions to be avoided than we emit throughout our operations and supply chain. By 2030, we will be Climate Positive.

**By 2030 we will be**

Every tonne of GHG emitted by Croda, including our supply chain, will save or avoid four tonnes of GHG in use

**Climate Positive**

By 2050 we will have a population of

**9.8bn**

Source: UN DESA World Population Prospects

By 2050 we will need

**59-98%**

more food  
Source: Hugo et al, Agricultural Economics 2013

The use of our crop protection ingredients helps farmers to increase yields and crop resilience. Our continual innovation will help customers to mitigate the impact of climate change and land degradation, increasing the availability of land suitable for growing crops. The use of our products will enable more land to be saved than is used to grow our bio-based raw materials. By 2030, we will be Land Positive.

We will save more land than we use

**Land Positive**

**2m**

people newly infected with HIV each year

Source: Status of vaccine research and development of vaccines for HIV-1, Safrin et al, Vaccine 2016

**272,000**

child deaths from malaria in 2018

Source: World Health Organisation

We will use our smart science to improve the lives of our own employees and people all around the world. We will contribute to SDG 3, developing ingredients to improve health and wellbeing, provide access to our smart science through our Foundation, and encourage and promote diversity within our organisation. We will apply our innovation to increase our positive impact on society. By 2030, we will be People Positive.

We will improve more lives through improved health and wellbeing

**People Positive**

## Contents

### Smart Science to Improve Lives™

|                                   |    |
|-----------------------------------|----|
| Our 2030 Commitment               |    |
| Climate Positive                  | 2  |
| Land Positive                     | 4  |
| People Positive                   | 6  |
| Fundamentals                      | 8  |
| Chief Executive's Statement       | 10 |
| At a Glance                       | 11 |
| Business Model                    | 12 |
| Stakeholders                      | 14 |
| Management and Governance         | 16 |
| Sustainability Strategy           | 18 |
| Climate                           | 20 |
| Land                              | 25 |
| People                            | 28 |
| Fundamentals                      | 32 |
| Material Area Performance Summary | 40 |
| Glossary                          | 42 |

### Sales

**£1,377.7m**

2018: £1,386.9m

### Core Business sales growth (constant currency)

**-2.3%**

2018: +3.8%

### IFRS profit before tax (PBT)

**£302.3m**

2018: £317.8m

### Adjusted PBT growth (constant currency)

**-3.7%**

2018: +6.2%

### Ordinary dividend (proposed full year)

**+3.4%**

2018: +7.4%

### Energy from non-fossil fuel sources

**22.7%**

Rebased 2018: 21.1%

### Organic raw materials from bio-based sources

**63%**

2018: 65%

### Safety (Total Recordable Injury Rate)

**0.55**

2018: 0.72

### 1% Club volunteering hours

**5,883**

2018: 5,117

At Croda, we have made it our Purpose to use our Smart Science to Improve Lives™. We combine our knowledge, passion and entrepreneurial spirit to create, make and sell speciality ingredients that are relied upon by industries and consumers everywhere.

We were built upon a foundation of using smart science to turn bio-based raw materials into innovative ingredients. This focus still sits at our core, driving our innovation and sustainability to create market-leading products and ensure that we have a positive effect on the environment and society.

## Smart Science

## to Improve Lives

In line with our Purpose, our Commitment is to become the most sustainable supplier of innovative ingredients. By aligning our smart science with the United Nations Sustainable Development Goals (SDGs) we will ensure that we are helping to tackle some of the biggest challenges the world is facing. By 2030 we will be Climate, Land and People Positive.

From sustainable processes and innovative ingredients helping to protect skin, reduce carbon emissions and grow more food, to improving wellbeing and the efficacy of life-saving drugs, we are using our Smart Science to Improve Lives™ every day.

The impact of our smart science at a micro level creates sustainable benefits to improve lives at a macro level.

### Smart Science

## Fighting the climate emergency

Industrial development has powered humanity's journey towards a climate emergency. Now, smart science and collaboration are our most effective tools to start reducing our impact on the planet.

The link between climate change and human industrial activity is now well understood. The increase in greenhouse gases (GHG) emitted, especially carbon dioxide (CO<sub>2</sub>), has led to warming via the greenhouse effect, where heat from the sun's rays is trapped by the atmosphere. This warming is contributing to more frequent and devastating extreme weather events, rising sea levels and climate-led catastrophes around the world. This has driven our commitment to reduce our emissions in line with limiting global warming to 1.5°C above pre-industrial levels, in order to prevent the worst effects of climate change.

We are confident that we can deliver on this commitment. Our passionate experts are applying smart science to reduce the energy intensity of our manufacturing processes and investing in renewable sources of heat and electricity to decarbonise our manufacturing sites and fight climate change together.

Surface of unprotected steel. We help reduce wear to gears in wind turbines.

### to Improve Lives

## Being Climate Positive

At Croda, our commitment to becoming Climate Positive, providing low-carbon ingredients that help our customers avoid carbon when in use, means that we can improve lives worldwide by helping to reduce the impact of climate change.

Our climate commitment: through the use of our ingredients, our customers will avoid four times more CO<sub>2</sub> emissions than the total we emit from our activities and those of our supply chain partners. This could be, for example, through increased efficiency or extended product lifetimes.

We are committed to doing more:

- Reducing our CO<sub>2</sub> emissions from generating our heat and power to net zero by 2050. We have committed to set a 2030 Science Based Target (SBT), in line with limiting global warming to 1.5°C above pre-industrial levels
- Engaging with our key suppliers to encourage emissions reductions in our supply chain
- Increasing the use of bio-based raw materials from our current industry leading position
- Continuing to develop innovative ingredients that help our customers to avoid carbon when in use.

Smart Science

## Protecting our land resource

With the growing population, the increasing demand for food will require increased agricultural production. We are using smart science to maximise land productivity, whilst protecting soil health and biodiversity.

Population growth will be the main driver of consumption growth for most commodities. By 2050, the world's population is predicted to reach 9.8 billion and it is estimated this will require over 50% more food.

Today, society uses 50% of the world's vegetated land for agriculture and, to meet climate change objectives, we need to reduce the associated GHG emissions by over 50%. This forecast global demand is uneven, with slowing or decline in developed countries and increase in developing countries. The majority of growth in crop production needs to be as a result of higher yields and increased cropping intensity, with very little coming from land expansion. Almost all of the land expansion for food production is forecast to be in developing countries, predominantly sub-Saharan Africa and Latin America.

Whilst our land use footprint is predominantly in developed countries, presenting no conflict with food production, we are determined to minimise our footprint and the inputs required, as well as reduce GHG emissions and improve soil health.

Sources: UN SDG Report 2019 and WRI How to Sustainably Feed 10 Billion People by 2050.

Rapeseed leaf. Rapeseed is one of our key bio-based raw materials.

to Improve Lives

## Being Land Positive

At Croda, our commitment to becoming Land Positive means that we will save more land than we use. We will increase agricultural land use efficiency, protect biodiversity and ensure food security by sourcing sustainably and inspiring innovation through our crop businesses.

Our land commitment: by 2030 the land area saved through the improved yields and crop resilience as a result of the use of our crop protection ingredients and seed treatment technologies will exceed that used to grow our raw materials.

We are unique within our peer group due to our high usage of bio-based raw materials. We will increase this by accelerating our move away from fossil/petrochemical feedstocks, whilst maximising the amount of land available for crops to feed the growing population.

We are committed to doing more:

- We have calculated our land use footprint for the major crops we source and we engage with our supply chains to ensure there is no deforestation or conflict with food security. Protection of biodiversity, soil health and water consumption are key to sustainably sourcing our feedstocks
- Our crop, seed enhancement and biostimulant technologies improve yield and quality, allowing farmers to grow more food from less land
- We will invest in innovation projects and partnerships to mitigate the impact of a changing climate on land degradation.

### Smart Science

## Improving health and wellbeing

A growing but also ageing population presents health and wellbeing challenges worldwide. Our smart science is a positive part of the solution to these challenges.

The speed of change around us is staggering. The global population is growing and ageing, health needs are changing and technology has transformed the way we work and interact. At Croda, we want to apply our smart science to make a tangible difference to the lives of people around the world.

Noncommunicable and communicable diseases are still having a devastating effect on populations in all areas of the world. We are committed to helping people to live healthy lives, meeting the challenges posed by illness and disease as well as lifestyle choices. Specific targets within SDG 3, Good Health and Wellbeing, aim to reduce premature mortality and end epidemics. We will play our part in contributing to this reduction through our Health Care excipients and vaccine adjuvants as well as our Personal Care sunscreen actives.

Closer to home, we can also make a difference to gender balance, a focus of SDG 5, Gender Equality. We aim to increase the proportion of women in decision making positions and to encourage diversity of thought within Croda.

Influenza virus. We will identify where our vaccine adjuvants could be used to enhance vaccination coverage worldwide, including influenza.

### to Improve Lives

## Being People Positive

At Croda, our commitment to becoming People Positive means that we will promote healthy lives and wellbeing through the ingredients we make, the way we work and the impact we have on our local communities.

Our people commitment: we will apply our innovation to increase our positive impact on society. We are improving the lives of our own employees and people around the world by developing ingredients to improve health and wellbeing as well as encouraging and promoting diversity.

Every day, Croda ingredients already help to protect and care for millions of people worldwide and improve wellbeing through their use in vaccines, sun protection and skin care products.

We are committed to doing more:

- Contributing to the successful development and commercialisation of 25% of WHO listed pipeline vaccines. These include vaccines targeting HIV-1, malaria and tuberculosis
- Protecting people from harmful UV rays through our innovative ingredients for sun care
- Achieving gender balance in leadership roles across our business
- Establishing and funding a Croda Foundation to help improve more lives within our local communities, supported by our technologies.

### Smart Science

## A sustainable, safe business

Every business has responsibility to ensure the smooth running of a safe and sustainable company. At Croda we take these responsibilities further, putting safety and sustainability at the centre of the way we work together every day.

Producing a wide range of ingredients and delivering directly to a diverse customer base involves complexity and requires a robust infrastructure. This is built around our Fundamental Material Areas: Health, Safety & Wellbeing, Environmental Stewardship, Responsible Business, Process Safety, Quality Assurance, Product Stewardship, Fair Income, Supplier Partnership and Knowledge Management. We regard these as a prerequisite to operating a safe, sustainable business and constitute a licence to operate.

They are also fundamental to Environmental, Social and Corporate Governance (ESG) performance judged by key stakeholders such as our investors, this includes:

- Good governance
- Transparency in our supply chains
- Safety programmes
- Quality Assurance.

Behind these Fundamental Material Areas are our most important asset, our employees.

We will minimise our environmental impact associated with water.

### to Improve Lives

## Positive impact through Fundamentals

At Croda, our long-standing commitment to doing the right things fits perfectly with our Purpose, Smart Science to Improve Lives™.

Doing the right things: protecting the health and safety of all our people, contractors and the communities in which we operate is our number one priority. Our commitment is that by 2030 we will have zero significant process safety incidents per year and will achieve an OSHA Total Recordable Injury Rate (TRIR) in the top 10% for the chemical industry.

We are committed to doing more:

- Minimising our impact on the environment by eliminating process waste to landfill across our operations and reducing our water use impact
- Working with our key suppliers to ensure they are operating safely, ethically and responsibly, including paying a living wage
- Looking after our people by ensuring everyone, wherever they are in the Croda world, is paid a living wage, and that all employees receive a minimum of one week's training per year
- Increasing our Right First Time production rates, improving customer experience and reducing our carbon footprint
- Conducting full life cycle assessments of our top 100 ingredients to help our customers to move towards a circular economy and reduce potential chemical hazards
- Achieving outstanding CSR performance ratings across all themes within the EcoVadis assessment, demonstrating our position as sustainability leaders within our industry.

# Sustainability means positive impact



**“We must further accelerate our positive impact by creating and delivering solutions to tackle some of the biggest challenges the world is facing.”**

**Steve Foots**  
Group Chief Executive

Whilst sustainability has always been core to our business, today's global challenges dictate that we must qualify and quantify our positive impact. 2019 has been a transformational year in our sustainability journey. Building on our commitment to the United Nations Sustainable Development Goals (SDGs), we began the year with extensive employee engagement in uncovering our Purpose. I am proud to say that this process was widely embraced throughout the Group and, rather than simply identifying a purpose, it was a process of discovery: what we stand for as a business today and where we can continue to combine our knowledge, passion and entrepreneurial spirit to create a positive difference to the environment and to society.

## Smart Science to Improve Lives™

Our Purpose, Smart Science to Improve Lives™, sets out our ambitious goals to be Climate Positive, Land Positive and People Positive.

We have a long history as a supplier of sustainable innovative ingredients. As we enter the new decade, we must further accelerate our positive impact by creating and delivering solutions to tackle some of the biggest challenges the world is facing.

## Climate Positive

We are one of the few companies within the speciality chemicals sector to commit to Science Based Targets to limit global warming to 1.5°C above the pre-industrial average, accelerating the transition to a low-carbon economy. Enabled by our unique business model, we will not only play our part in meeting climate change objectives as we continue to decarbonise, but our aim is to be Climate Positive by saving and quantifying avoided carbon emissions through the application of our products and moving even further away from petrochemical raw materials.

## Land Positive

We will increase agricultural land use efficiency, protect biodiversity and ensure food security by continuing to source our bio-based raw materials sustainably and deliver targeted innovation in our crop businesses to improve yields. Our impact will be positive in saving more land than we use.

## People Positive

Unseen Croda technology touches virtually every one of us in our daily lives with the positive effect our products have in so many applications. In our Personal Care and Health Care businesses, millions of consumers benefit from our ingredients and technologies from infancy to those in later life.

Promoting healthy lives and wellbeing through the application of our technologies, together with investment in our employees and communities in which we operate, we will be People Positive.

## Acquisitions contributing to a sustainable future

Our acquisition of Biosector, a specialist in the manufacture and supply of adjuvants serving the human and veterinary vaccine market, focuses on the growing need for preventative treatments in contributing to human health directly contributing to SDG 3, Good Health and Wellbeing.

Acquiring Rewitec™ GmbH, a specialist in improving the efficiency and longevity of wind turbines and moving machinery delivers sustainability benefits by extending the lifetime and improving performance directly contributing to SDG 7, Affordable and Clean Energy and SDG 13, Climate Action.

## Our culture

Our people and our culture truly define our sustainability ethos. Our ambition and transformational goals have come from within and, I believe, represent a singular, Company-wide level of commitment in delivering positive impact. To further support this commitment throughout the Company, Stuart Arnott, previously President Global Operations, is appointed President Sustainability. Stuart has been extremely influential in shaping our ambitious 2030 Commitment and, together with me, and the rest of the Croda family, will continue to deliver on our targets.

I would like to thank everyone across the Group for their ambition and commitment to leadership in sustainability.



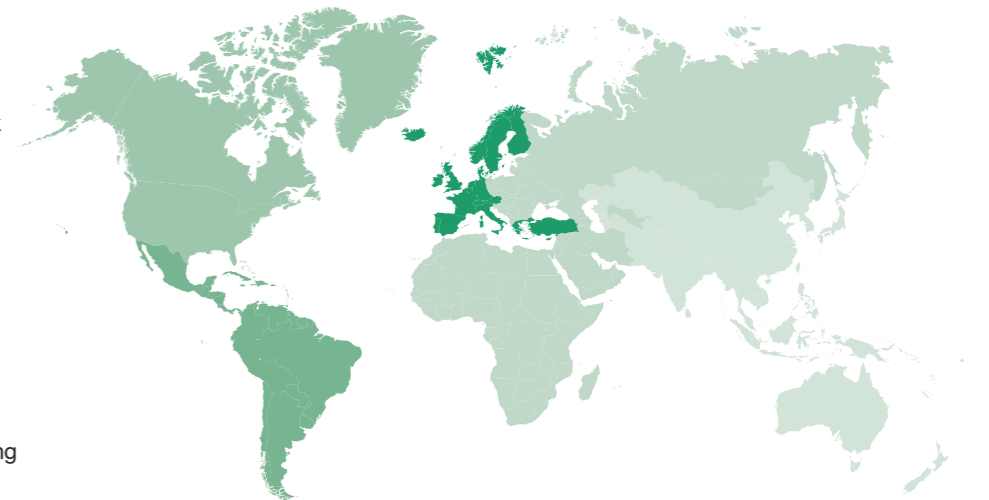
**Steve Foots**  
Group Chief Executive

# At a glance

| North America operations | Latin America operations | Western Europe operations | EEMEA operations | Asia Pacific operations |
|--------------------------|--------------------------|---------------------------|------------------|-------------------------|
| <b>10</b>                | <b>9</b>                 | <b>25</b>                 | <b>7</b>         | <b>23</b>               |
| Employees                | Employees                | Employees                 | Employees        | Employees               |
| <b>614</b>               | <b>311</b>               | <b>2,478</b>              | <b>105</b>       | <b>1,072</b>            |

## Where we operate

Every day our global team of 4,580 employees, across 38 countries, work together to inspire and influence each other and our customers.



## Our strategy to deliver strong growth

We deliver sustainable innovation, superior performance and value to our customers and their consumers through a business strategy comprising three objectives.

### Growth

Consistent top and bottom line growth, with profit growing ahead of sales, ahead of volume

We achieve this through:

- Our unrivalled local direct selling capability
- A balanced global footprint
- Accelerating sales in our core markets
- A disciplined approach to capital allocation
- Investing in high return opportunities.

### Innovation

The lifeblood of our business, we seek to increase the proportion of New and Protected Products (NPP) that we sell

We achieve this through:

- Investing in our own research and development
- Expanding the number of regional innovation centres
- Working closely with customers to better understand their specific needs
- Identifying disruptive technologies.

### Sustainability

Aligning our business with our Purpose and accelerating our customers' transition to sustainable ingredients

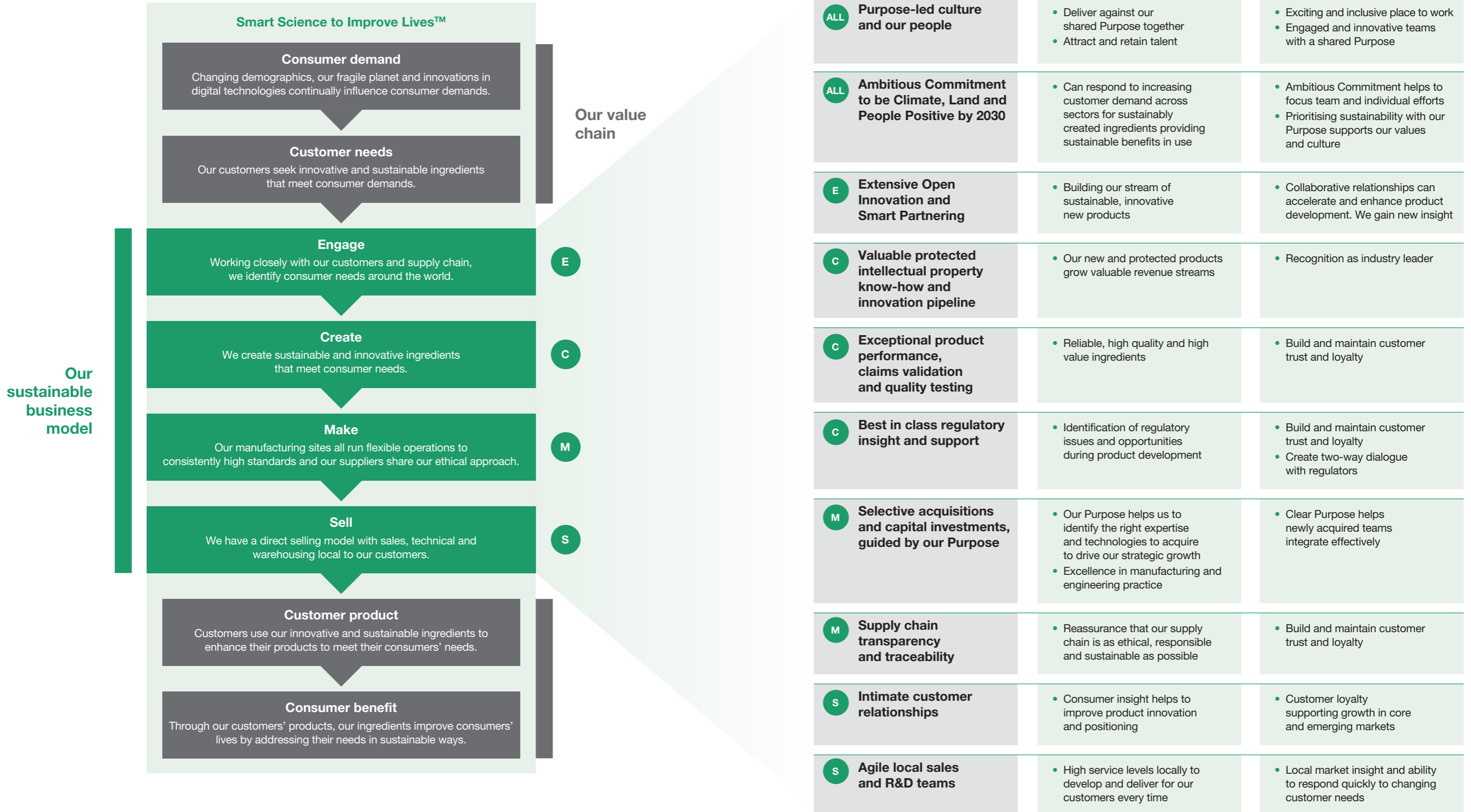
We achieve this through:

- Creating ingredients that provide a benefit in use with reduced environmental impact
- Aligning our business with the United Nations Sustainable Development Goals (SDGs).



# Creating value with Purpose

We generate long-term value by engaging with customers, creating, making and selling sustainable and innovative speciality ingredients in line with our Purpose. We use Smart Science to Improve Lives™.



## Stakeholders

Our Purpose and business model succeed on the strength of our stakeholder relationships. We prioritise engagement with these individuals and groups, striving to understand their key considerations and goals so that we can achieve these together.

# Engaging with our stakeholders every day

**GRI Standard Numbers:** 102-40, 102-43, 102-44

### Shareholders



**64%**

proportion of share capital held by the 347 investors met in 2019

### Our People



**3,500**

responses to Purpose Pulse Surveys

Oct – Dec 2019

### Customers



**25,000**

face-to-face meetings with our customers in 2019

### Suppliers



**1 of 125**

companies globally to join the CDP Supply Chain, engaging with suppliers on environmental issues

### Local Communities



**5,883**

hours of 1% Club time recorded in 2019, with 31% of this used for STEM activities

### Innovation Partners



**500**

Open Innovation partner collaborations since 2010

### Regulators & Trade Associations



**220**

active memberships of industry associations

### Non-Governmental Organisations (NGOs)



**99%**

of our manufacturing sites who use palm oil are RSPO certified

**GRI Standard Numbers:** 102-9, 15, 40, 43, 44, 404-2, 413-1

### Key considerations

### Why we engage

### How we engage

- Quality and effectiveness of governance
- Growth potential and profitability
- Share price appreciation
- Dividends
- Sustainability of ingredient creation and benefits in use

- Open and regular dialogue is critical to ensure that our strategy is understood
- We allow assessment of our Environmental, Social and Corporate Governance Performance (ESG)

- We attend investor events worldwide and invite groups of shareholders to visit us
- We keep shareholders up to date via our website, press activities, Annual Reports and Annual General Meetings (AGM)
- All Directors attend AGMs
- We conduct one-to-one meetings with investors

- Our 'Smart Science to Improve Lives™' Purpose directs and engages the knowhow, creativity and entrepreneurial spirit of our people
- First class new and existing talent is attracted and retained by organisations that share insight, develop skills, collaborate and innovate within a truly inclusive culture

- We need the best teams to be engaged and to collaborate every day if we are to achieve our Purpose together

- We run informal networks, local newsletters, cascade meetings, works councils and consultation committees
- We issue global email news notifications, intranet news and a regular global newsletter as well as webinars, culture surveys, Pulse Surveys, town halls and listening groups
- We use the Yammer internal social network to share insight
- We give employees the opportunity to become Croda shareholders

- There are exacting and changing demands from our diverse consumer base
- For our customers, innovative ingredients, created sustainably and with sustainable benefits in use are a priority if they are to meet their own SDG commitments

- By sharing market insight with customers, we identify future opportunities together
- Our insight helps to inform R&D, provide sustainable solutions and improve product performance

- Our market sectors have research, sales and marketing teams working closely with our customers' R&D, purchasing, regulatory and sustainability departments
- We have face-to-face meetings, attend industry events, speak at conferences and invite customers to our seminars, workshops and application laboratories

- Supply chains in our industry can be long and complex. We need to secure our materials at the right time and price
- Complexity increases the risk of association with companies that do not share our ethics and values

- Supply chain integrity is critical to deliver a sustainable business
- We must source from suppliers who share our standards of ethics, values, transparency, quality and reliability

- We are trusted industry leaders on traceability and sustainability; in part this is due to our characterisation of key physical supply chains
- We have strong global, regional and local partnerships with suppliers
- We work with our suppliers through initiatives such as CDP (formerly Carbon Disclosure Project), Sedex and EcoVadis, and oversee compliance through our Group Ethics Committee

- Communities rightly expect local employers to operate safely, effectively and sustainably and to give back to society

- Strong local relationships help us to maintain trust and our social licence to operate
- Our education activities support local schools, give our people new skills, help us recruit new talent in the future and create a positive societal impact

- We invite local people to join our site committees
- We maintain open dialogue with Government officials and emergency services
- We support education programmes to raise the profile of Science, Technology, Engineering and Maths (STEM)
- Our 1% Club volunteers give up to 1% of their employed time to support local community needs

- Potential and existing Open Innovation partners seek opportunities to collaborate with companies leading advances in speciality ingredients, to benefit from shared insight and find new ways to develop ingredients that improve lives together

- A collaborative approach to innovation can accelerate time to market, reduce costs and differentiate products
- Universities and SMEs give us access to extended R&D capability and public funding to enhance our product development

- We seek Open Innovation and Smart Partnering opportunities with our customers, academics, university start-ups and technology providers
- We encourage partners worldwide to approach us with innovations

- Regulatory complexity is a necessary part of our industry
- Consumers and policy makers have an increasing influence on regulators and trade associations regarding issues such as climate change and microplastics

- We are committed to transparency, trust and meeting the needs of our customers and consumers
- Keeping informed, leading and supporting legislative and regulatory change help us to direct, anticipate and prepare for changes that will impact our business

- Our people chair and are members of national and international industry associations, where our voice is highly respected
- We attend meetings with local Government officials and emergency services to support community needs

- The consumer voice is powerful
- NGOs representing consumers are rightly pressurising businesses to take responsibility for their impacts
- Our customers receive the majority of NGO interest, but we have a responsibility to support them

- Engagement on the ingredients we make and how we make them is increasingly important
- Understanding the NGO perspective helps us to achieve our Purpose and protect our reputation

- We regularly collaborate with NGOs and work with our customers, trade associations and regulators
- Since 2009 we have been a lead voice in driving industry transformation to certified sustainable palm oil (CSPO)
- A founder member of Action for Sustainable Derivatives, we have encouraged wider membership to harmonise requirements on transparency and risk monitoring as part of our commitment to deforestation-free and responsible sourcing

# Delivering sustainability



**“We use our smart science to innovate with our customers, to meet their needs and improve lives by contributing to the challenge of the SDGs.”**

**Stuart Arnott**  
President Sustainability

## Delivering sustainability

Our two most senior committees, the Board of Directors and Group Executive Committee, are ultimately responsible for our economic, environmental and social performance. They maintain an active role in ensuring that sustainability remains an integral element of our business strategy.

In 2019, in recognition of the importance of sustainability as part of our business strategy and purpose, a position of President Sustainability was created on our Executive Committee, filled by Stuart Arnott, former President Global Operations. This full time focus on sustainability will help us to achieve our commitment to become the sustainability leader in our industry, with a continued focus on driving behaviour change across the organisation.

## 2030 Commitment development

The development of our 2030 KPIs has involved input from key internal stakeholders as well as external review throughout 2019. Alongside this, we have been embedding our Purpose across our organisation. The timeline highlights some of our key activities over the last 18 months.

“Throughout my 32 years with Croda I have seen the evolution of our positive environmental sustainability agenda, having overseen the installation of our first wind turbine at our Hull manufacturing site, over 10 years ago, and the many subsequent renewable energy projects including biogas and solar around the world. Today, operational efficiency and sustainability go together, and I am proud to have played a role in synchronising our efforts. Our unique business model, particularly with respect to our industry leading bio-based raw material footprint and limited dependence on fossil feedstocks, clearly positions us as a low-carbon company, not only to meet the challenges of climate change but to become Climate Positive.

My responsibility for operations has also given me unique insights into our processes, our innovation pipeline and the application benefits of our products in many markets. Innovation is a cornerstone of our business and integral to our Purpose, Smart Science to Improve Lives™.

We are proud of our heritage and sustainability achievements, but as we enter a new decade, we are determined to step up our efforts. The Croda Board and Executive Committee have placed sustainability at the very heart of our strategy and my appointment is testimony to that commitment.

We have ambitious targets for 2030 and I am confident that with the commitment throughout the Group, coupled with our unique Croda culture and talented workforce, we will achieve great things and maintain our leadership position.”

**Stuart Arnott**  
President Sustainability

Our Vice President (VP) Sustainability reports to our President Sustainability and manages our global sustainability team. Our VP Sustainability also chairs our global Sustainability Steering Committee, which is composed of functional experts and regional representatives. The role of the Steering Committee is to develop our sustainability strategy and communicate progress made on the various components of our sustainability programme, as well as providing guidance to line managers on sustainability matters.

## Reporting progress

We have 62 reporting operations covering the whole Group, each with a sustainability champion who reports progress against our targets and key performance indicators (KPIs). This information is communicated to the Executive Committee on a quarterly basis. Our Board of Directors also receives quarterly summary reports, along with bespoke presentations on key sustainability topics throughout the year, as it is an integral part of their agenda.

## ISO 26000: guidance on Corporate Social Responsibility

We apply ISO 26000 as a framework, to provide guidance and to help us drive the continual improvement of our sustainability programme. In 2019 we continued to review and implement actions arising from a Bureau Veritas independent review of our alignment with ISO 26000, which was carried out in 2018.

## 2019 reporting parameters

This report covers the sustainability performance of Croda International Plc for the period 1 January 2019 to 31 December 2019. The scope of this report is all wholly owned operations, plus those operations where we have significant management influence due to a majority shareholding. Unless otherwise stated, the data provided throughout the report is for continuing operations\*.

\* Excluding Biosector and Rewitec, unless otherwise stated.

## Developing our 2030 Commitments

In 2018, our Board and Executive Committee began working with the Cambridge Institute for Sustainability Leadership (CISL) to receive expert guidance on becoming a purpose led organisation and develop a long-term sustainability strategy. As part of this, the United Nations Sustainable Development Goals (SDGs) were prioritised, with our Leadership team identifying the eight driver SDGs upon which we could have the greatest impact, and would help to shape our strategy to 2030.

During 2019, our Group Finance Director, Jez Maiden, led a working group to define our future sustainability ambition. Formed of sustainability experts from around the business, this group were tasked with developing stretching 2030 KPIs that aligned with the SDGs. These ambitious targets have been subject to external review by sustainability experts and provide the direction to drive behaviour change around our business to enable us to meet our Commitment to be Climate, Land and People Positive by 2030.

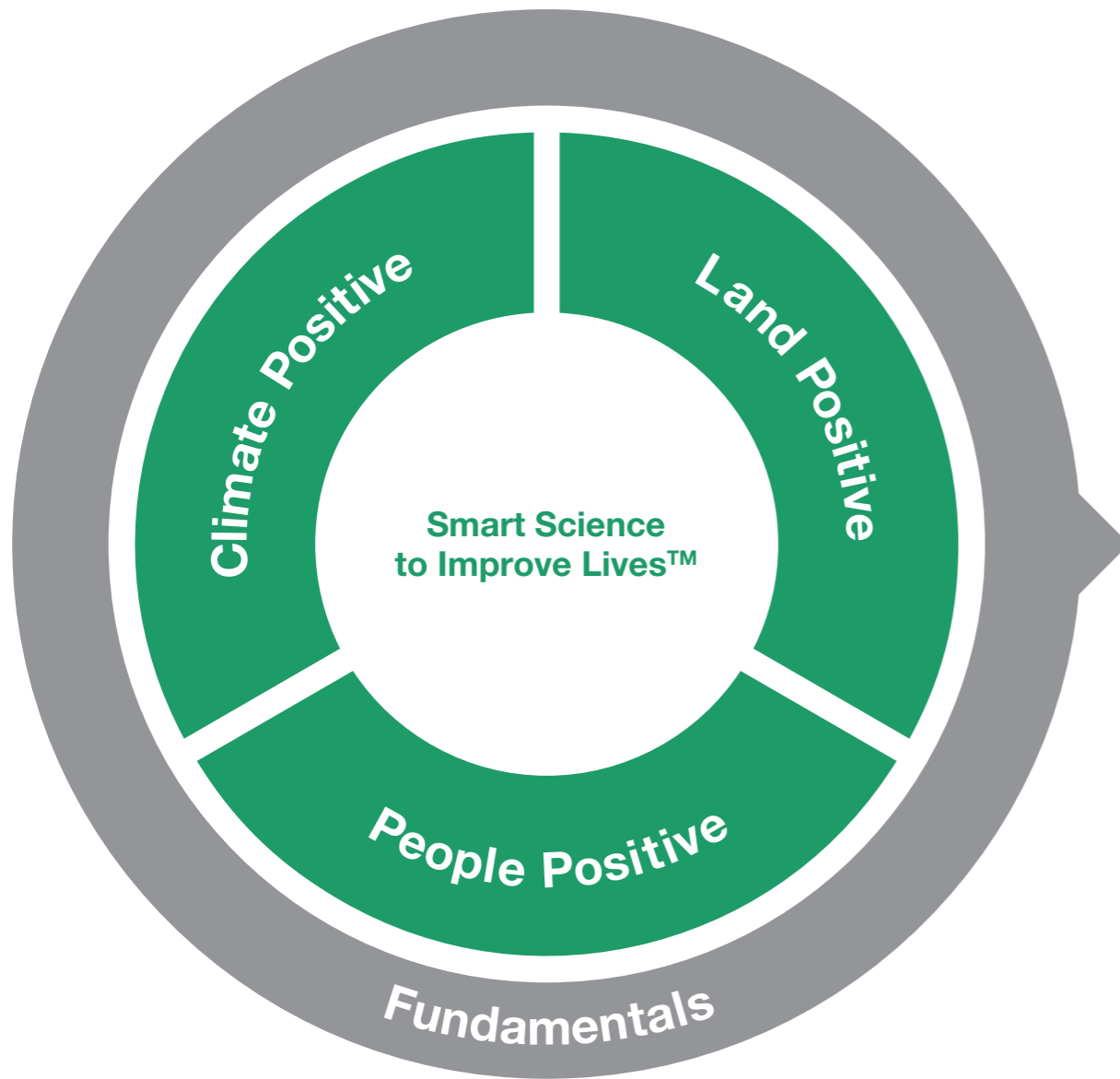
## Bringing our Purpose to life

During 2019 we have been working to empower and excite everyone within Croda and build engagement around our Purpose. This has primarily focused on sharing messaging reflecting the meaning of our new Purpose statement, through formal cascades and encouraging employees to share their thoughts and have conversations across the organisation on what our Purpose means. As part of this, we encouraged all employees across Croda to submit a short video, either as an individual or as a group, explaining what our Purpose, Smart Science to Improve Lives™ means to them. We have had great engagement globally with many heartfelt and creative videos shared.



# Our Commitment

We will be the most sustainable supplier of innovative ingredients. We will create, make and sell solutions to tackle some of the biggest challenges the world is facing. By 2030 we will be Climate, Land and People Positive.



Throughout the 2030 KPI setting process, we were keen to develop an overarching objective, something for all employees around the Croda world, to inspire and drive behaviour change. This is our Commitment, with an objective to be Climate, Land and People Positive by 2030. We grouped a selection of our KPIs into each of these three categories, setting the direction for our business to ensure we can achieve our Commitment.

We also have important KPIs outside of these three categories which we have classified as fundamental to the success of our business, as they give us our social licence to operate.

These include critical areas such as safety, quality assurance and fair income.

In meeting the ambitious objectives we have set in these areas, we will be having a positive impact on the environment and society, ensuring a sustainable business well beyond 2030. This is an embodiment of our Purpose, Smart Science to Improve Lives™.

# Material areas

Each of our 2030 targets sit under a Material Area, with links to the most relevant SDGs, as shown in the table below.

|  |                                       |
|--|---------------------------------------|
| <h2>Climate Positive</h2>                    |                                       |
| <p><b>Carbon Cover</b></p>                   | <p><b>Sustainable Innovation</b></p>  |
| <p><b>Reducing Emissions</b></p>             |                                       |
| <h2>Land Positive</h2>                       |                                       |
| <p><b>Land Use</b></p>                       | <p><b>Crop Science Innovation</b></p> |
| <h2>People Positive</h2>                     |                                       |
| <p><b>Health &amp; Wellbeing</b></p>         | <p><b>Gender Balance</b></p>          |
| <p><b>Improving More Lives</b></p>           |                                       |
| <h2>Fundamentals</h2>                        |                                       |
| <p><b>Health, Safety &amp; Wellbeing</b></p> | <p><b>Knowledge Management</b></p>    |
| <p><b>Process Safety</b></p>                 | <p><b>Quality Assurance</b></p>       |
| <p><b>Environmental Stewardship</b></p>      | <p><b>Product Stewardship</b></p>     |
| <p><b>Fair Income</b></p>                    | <p><b>Responsible Business</b></p>    |
| <p><b>Supplier Partnership</b></p>           |                                       |

# Climate Positive

We will continue to reduce our carbon footprint and increase our use of bio-based raw materials, whilst the benefits in use of our ingredients will enable more carbon to be saved than we emit through our operations and supply chain.

## Highlights

**B**

2019 CDP Climate Change score, recognising our management of climate related risks and opportunities

**63%**

of our organic origin raw materials were bio-based in 2019, coming from renewable crops and biotechnology




**850,500**

tonnes of CO<sub>2</sub> will be avoided through the use of four of our products sold during 2019, as verified by Carbon Smart

**28.5%**

reduction in scope 1 and 2 GHG emissions intensity since 2015

## Climate Positive by 2030

| Objectives   | Target   | Next steps and definitions  | SDGs  |
|--|--|---|---|
| <b>Carbon Cover:</b><br>We will enable the transition to a low-carbon economy. We will be Climate Positive, working closely with our customers to develop products that offer carbon saving benefits in use.   | <ul style="list-style-type: none"> <li>By 2030, use of our products will avoid four times the carbon emissions associated with our business, our 4:1 carbon cover</li> </ul>   | <ul style="list-style-type: none"> <li>Our carbon emissions calculation includes scope 1, 2 and 3 emissions (p22-23)</li> <li>We have an auditable framework to report our avoided emissions, which are externally verified</li> <li>We are integrating a carbon reduction/avoidance in use framework into all our innovation processes</li> </ul>  |   |
| <b>Reducing Emissions:</b><br>We will achieve our Science Based Targets (SBTs) by reducing our emissions in line with limiting the global temperature rise to 1.5°C above pre-industrial levels, maximising the use of renewable energy in our operations. | <ul style="list-style-type: none"> <li>By 2030, we will have achieved our SBTs, in line with limiting global warming to 1.5°C</li> <li>Thereafter, by 2050 we will achieve net zero scope 1 and 2 GHG emissions</li> </ul> | <ul style="list-style-type: none"> <li>We are working with South Pole Group to finalise our 2030 intermediate SBTs in line with limiting global warming to 1.5°C (p23)</li> <li>We will be rolling out an internal carbon pricing mechanism to support decarbonisation investments (p22)</li> <li>All our locations are tasked with generating decarbonisation roadmaps, with priority given to those with the largest GHG emissions</li> </ul> |  |
| <b>Sustainable Innovation:</b><br>We will accelerate the transition to bio-based products, moving away from fossil/petrochemical feedstocks.   | <ul style="list-style-type: none"> <li>By 2030, over 75% of our organic raw materials by weight will be bio-based, absorbing carbon from the atmosphere as they grow</li> </ul>  | <ul style="list-style-type: none"> <li>Innovation programmes will be prioritised, wherever possible, on bio-based platforms (p24)</li> <li>We are accelerating activity to identify and commercialise novel process technologies that allow increased bio-based raw material consumption</li> <li>We will accelerate work to identify bio-based alternatives for all our petrochemical-derived raw materials</li> </ul>                         |  |

## Carbon Cover



Inclusion of our ingredients into our customers' formulations can offer many kinds of benefit in use: social, economic and environmental. In 2019, we continued to quantify the avoidance or reduction in GHG emissions associated with the use of our products by customers or consumers in the end application. Our Product Sustainability sub-group of our Sustainability Steering Committee has played a key role in identifying examples from all around our business areas, demonstrating that our products have benefits in use across many markets. The aggregation of these individual product by product case studies will provide us with our overall carbon cover ratio. This is the amount of carbon that is saved through the use of our products, as a ratio of our organisational carbon footprint (scope 1, 2 and 3 emissions).

### Carbon cover methodology and reporting

During 2019 we have worked with Carbon Smart to develop a methodology and reporting framework to allow consistent calculation and reporting of these benefit in use carbon savings. The framework ensures the benefit related to the inclusion of our ingredient is fully clarified and relevant literature sources are included, along with a rigorous data quality assessment. Using this framework, the carbon savings associated with the 2019 sales of products from four case studies have been externally verified.

### The four product case studies verified in 2019 are:

- Coltide™ Radiance, an additive for fabric conditioner that reduces pilling and colour fade, extending the lifetime of clothes, avoiding carbon intensive clothing manufacture
- Perfad™ friction modifiers, an additive in engine oils that increases the fuel efficiency of vehicles
- Maxemul™ surfactants, these are used as emulsifiers in water-based paints enabling VOC reduction associated with solvents
- Priplast adhesive additives, these allow adhesion between composite and metal, enabling automotive lightweighting and increased fuel efficiency.

Total sales of these products into these applications led to a combined total of 850,500 tonnes CO<sub>2</sub> avoided, giving us a carbon cover ratio of 0.8:1.

In 2020, we will continue to work on further case studies for verification. To drive behaviour change and help us to meet our 2030 target, we will be calculating a carbon cover ratio for new products launched in 2020, and looking for market opportunities where our ingredients and technologies can help to reduce or avoid GHG emissions, and contribute to the fight against climate change.



### Rewitec™ DuraGear

Wind turbines are a source of renewable energy, contributing to the decarbonisation of the global electricity grid. As with many mechanical systems, the gears in a wind turbine require lubricating. Over time the gears can deteriorate, and due to their inaccessibility maintenance is difficult, limiting a wind turbine's lifetime. Our 2019 acquisition Rewitec™ supply a gear conditioning agent for wind turbines, which, when added to the gearbox lubricant, helps to condition the gears and repair damage to gearboxes. This can avoid downtime associated with repairs, during which electrical demand would need to be made up by other sources, including fossil energy.

Manufacture of wind turbine parts is very energy intensive, as is carrying out repairs. Consequently, by decreasing the frequency of downtime, there are significant carbon savings from both an increase in renewable energy generated; and a reduction in new parts and repairs needed. Reducing the need for repair reduces frequency of wind turbine servicing which comes with considerable safety considerations. In addition to this, by increasing the lifetime of parts, which are integral to the performance of the turbine, it is possible to increase the overall lifetime of the turbine. This leads to further carbon savings from avoided emissions during manufacture and decommission of each turbine.

# Reducing Emissions



The chemical industry as a whole is challenged in playing its part in meeting climate change objectives for two reasons: it is predominantly fossil-based and it is energy intensive.

At Croda, we are different, being predominantly bio-based rather than fossil and targeting significant scope 1 and 2 reductions through conversion to green electricity and our in-house renewable energy initiatives including wind, solar, biogas and landfill gas.

We are one of the few companies within the speciality chemicals sector to commit to Science Based Targets (SBT). The SBT initiative is a collaboration between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). It signals an acceleration in the transition to a low-carbon economy and supports companies who are already demonstrating they have the skills, expertise and ingenuity to make this a reality.

With reductions in GHG emissions a priority, in 2018 we established a Group target to achieve a 50% reduction in absolute scope 1 and 2 emissions based on 2006 levels by 2030 and an 80% reduction by 2050. These targets have now been superseded by our new and more demanding commitment to 1.5°C SBT by 2030, and to be net zero by 2050.

We are working with the South Pole Group to establish targets for scope 1, 2 and 3 emissions reductions. These will align with the requirements to limit the global temperature rises to

1.5°C above pre-industrial levels in order to prevent the worst effects of climate change.

We have already been working on initiatives across our manufacturing sites to reduce our emissions. As well as increasing our solar capacity, through new installations in Germany and North America, we have approved the installation of a large electric power cable to our Gouda manufacturing site in the Netherlands, in order to prepare for decarbonisation via electrification across several projects around the site.

### Internal carbon pricing

To deliver on our 2030 Climate Positive Commitment, we are launching an internal carbon pricing (ICP) mechanism during 2020. Even though a small number of our operations are currently subject to external carbon-pricing policies and regulations, we are setting a monetary value internally for our carbon emissions that reflect possible future carbon prices outside the Company. Assigning a value to carbon will enable the right strategic choices and long-term decision-making at all levels, taking into account and helping us prioritise major projects that reduce our carbon emissions. It will also continue to fuel our innovation, using our smart science to meet our Group targets in this area. We are currently working out the exact mechanism we will choose and the price level to set, engaging with third parties to consider best practice in the industry.

### GHG emissions

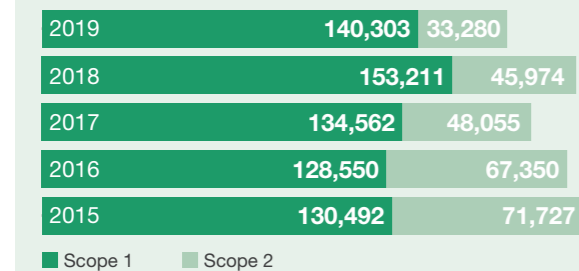
Since 2015, our baseline year, total scope 1 and 2 GHG emissions have reduced by 14.2%. Within this, our scope 1 emissions have increased by 7.5%, whilst we have seen a greater than 50% reduction in scope 2 emissions.

We have been reporting market-based scope 2 emissions since 2017, which better reflect our efforts in purchasing renewable electricity at greater levels than the national averages in the countries where we operate. We have seen a 67% increase in the absolute amount of non-fossil based scope 2 energy purchased between 2015 and 2019, now representing >70% of our indirect energy consumption.

Our chosen measure of GHG emission intensity divides our GHG emissions (market-based scope 2 emissions) by value added<sup>2</sup>: a measure of our business activity. Our 2015 baseline year, along with 2016, were calculated using location based scope 2 emissions as a proxy. Since 2015, our GHG emissions intensity has fallen by 28.5%, illustrating how we are decoupling growth from our environmental impact.

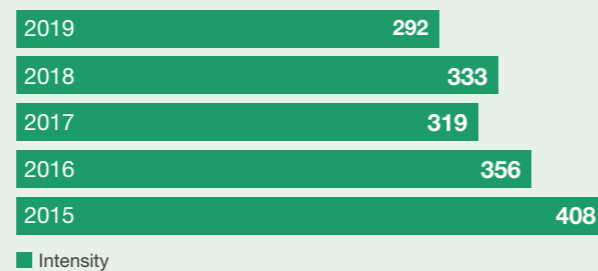
Our scope 1, 2 and 3 GHG emissions are verified by Carbon Smart. Their formal Independent Verification Statement is available at [www.croda.com/carbonverification](http://www.croda.com/carbonverification)

### GHG emissions (TeCO<sub>2</sub>e)<sup>1</sup>



1. Scope 1 emissions are calculated using the International Energy Agency's published conversion factors for the tonne equivalents of CO<sub>2</sub>. Scope 2 emissions are market-based (location-based by proxy for 2015 and 2016).

### GHG emissions intensity (TeCO<sub>2</sub>e/£m)



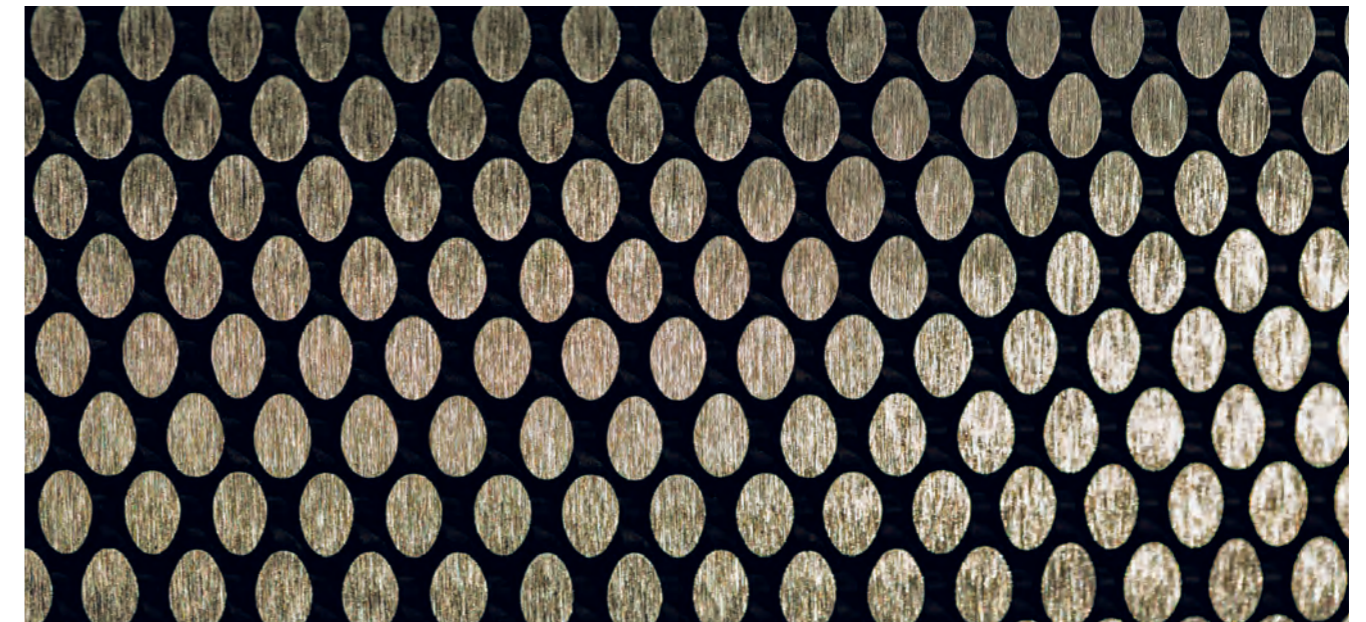
2. Value added is defined as operating profit before depreciation and employee costs at 2015 constant currency.

### Scope 3 emissions

The majority of our GHG emissions lie within our supply chain (scope 3) and we are working to reduce these, developing a scope 3 SBT, with the support of South Pole Group. This will be focused on our purchased goods and services, as the majority of our scope 3 emissions are embedded in the raw materials we use. As part of this, we will engage with key suppliers to obtain primary carbon emissions data. This will enable us to focus our efforts on carbon reductions associated with these major raw material streams.

Currently we use a hybrid model to report on our raw material scope 3 emissions, having developed impact tools for key raw materials to map the carbon footprint of our supply chains. For the remaining raw materials, we use a DEFRA spend factor.

In 2019, we invited 133 suppliers to respond to the CDP Climate Change questionnaire, through our CDP Supply Chain membership. We received a 43% response rate, with 56 suppliers submitting their questionnaire. 25 suppliers reported allocated emissions associated with the volumes of raw materials which we purchased from them during 2018, a 47% increase on 2017. This information helps us to build a more accurate picture of our scope 3 emissions based on primary data. Seven of our suppliers who responded have an absolute emissions reduction target. We will continue engagement with suppliers, encouraging them to carry out emissions reduction initiatives and set appropriate emission reduction targets.



### Nanofiltration

We recently invested in new nanofiltration technology for a new application at one of our manufacturing sites. Initially targeted at reducing salt content in the final product, it also presented an opportunity for replacing high energy thermal evaporative technology at the site.

Nanofiltration membranes can retain the product whilst allowing water and salt to be removed from a solution under moderate conditions. This means that rather than using heat to concentrate a water-soluble product, we can use membrane filtration. This has a number of benefits including: lower energy requirements, fewer side products, less discoloration of thermally sensitive products and shorter batch concentration times.

To ensure all the benefits of using nanofiltration were identified, our Process Innovation Team completed a Sustainability Impact Assessment (SIA). This is a newly designed in-house methodology to consider the holistic sustainability impacts of a project. As part of our SIA process, several sustainability benefits were identified:

- The use of nanofiltration reduces steam, and therefore gas consumption, by up to 50%
- Improved health and safety impacts of production due to lower operating temperature

- Customers provided with improved product quality and consistency
- Increased capacity of the plant.

The methodology also identified risks with the technology to be considered, for which mitigations are being developed by the project team:

- Additional cleaning chemicals are required to keep the membranes in good condition
- Membranes can be damaged by particulates or extremes of pH, with exposure to these risks reducing membrane lifetime
- The membrane modules are made of multiple polymeric materials and are, therefore, not straightforward to recycle at end of life.

Our SIA process helped us to identify the key opportunities and risks in implementing this technology and is a useful tool in measuring the potential sustainability impact of a project. The tool demonstrated the project's alignment and positive impact towards several of the SDGs: 3, Good Health and Wellbeing, 7, Affordable and Clean Energy, 9, Industry, Innovation and Infrastructure and 13, Climate Action.

# Sustainable Innovation



The chemical industry must transition towards a bioeconomy, replacing fossil with bio-based raw materials and biotechnology. The RoadToBio\* chemicals roadmap for the European chemical industry aspires to increase the share of bio-based raw materials from <10% to 25% of the total volume of organic raw materials used by 2030.

Our bio-based raw material feedstocks absorb carbon from the atmosphere as they grow, meaning that even after processing, some of our ingredients leave our manufacturing sites as carbon negative. During 2019, our raw material consumption comprised 94% organic and 6% inorganic origin. Within the organic origin

raw materials, 63.3% were bio-based, a unique industry-leading position. Almost 30% of our turnover is represented by new, patented and protected products (NPP). With this level of constant innovation and working with our suppliers, we are targeting a 75% bio-based organic raw material consumption by 2030, 7.5 times greater than the industry average today and three times greater than its 2030 aspiration. We are working to identify bio-based alternatives for all of our petrochemical-derived raw materials and will continue to focus our research and development efforts on bio-based platforms.

\* Published by Dechema, BTG, E4Tech, Nova Institute for Ecology & Innovation

## ECO bio-based surfactants

Our new ECO range of 100% bio-based, 100% renewable non-ionic surfactants were voted the 'Bio-based Industry Story of the Year' and also received the 2019 Bio-based World News Innovation Award.

Reducing our reliance on petrochemical feedstocks, using an increased level of renewable energy and eliminating rail transportation of ethylene oxide are all part of our continued assessment of the total life cycle impact of our products.

Our ECO range lends itself to the USDA BioPreferred® Program\*, with 131 ingredients listed versus our peer group average of just 17. Out of 3,247 companies registered with the USDA BioPreferred® Program across all industries, including ingredient suppliers and personal care consumer product companies, we have the fourth highest number of ingredients listed.

\* USDA BioPreferred is a registered trademark of the US Department of Agriculture.



Our ECO plant at Atlas Point, North America

## Crodamide ER life cycle assessment

Crodamide ER is a polymer additive produced at our manufacturing site in Hull, UK. The raw material used in its production is rapeseed oil, sourced from rapeseed grown locally and shipped to the site via barge. A study of our supply chain has shown that this rapeseed oil has a carbon footprint of -1.71kg CO<sub>2</sub>e/kg.

In 2019 we mapped the energy requirements to produce a batch of Crodamide ER. For this we used new Aspentech software, which allows live tracking of steam use across site. Our Hull manufacturing site is partly powered by its own 2.05MW wind turbine, and all purchased electricity is also from renewable sources. Using SimaPro software and following ISO 14067, we calculated the cradle-to-gate carbon footprint of Crodamide ER, proving that on leaving our manufacturing site in Hull, Crodamide ER is carbon negative, offering our customers a carbon saving on purchasing this bio-based ingredient from us. This study has been externally verified by Carbon Smart and is specific to our manufacturing process.



Crodamide ER is manufactured from rapeseed oil

# Land Positive

Our products will enable more land to be saved than is used to grow our bio-based raw materials. Our innovation will help customers to mitigate the impact of climate change and land degradation, increasing the availability of land suitable for growing crops.

## Highlights

**B**

CDP Forests score in 2019, recognising our management of our palm oil supply chain in reducing deforestation risk

**Founder 55,000**

member of Action for Sustainable Derivatives, working together to increase transparency in our palm oil supply chain

**230,000**

tonnes of CO<sub>2</sub> sequestered during the growth of one of our key bio-based raw materials, as verified by Carbon Smart

## Land Positive by 2030

| Objectives   | Target  | Next steps and definitions  | SDGs         |
|--|---|---|--------------|
| <p><b>Land Use:</b><br/>We will save more land than we use. We will increase agricultural land use efficiency, protect biodiversity and improve food security by sourcing sustainably and inspiring innovation in our agrochemical businesses.</p> | <ul style="list-style-type: none"> <li>By 2030, the land area saved through the improved yields and crop resilience as a result of the use of our crop protection ingredients and seed treatment technologies will exceed that used to grow our raw materials</li> </ul>  | <ul style="list-style-type: none"> <li>We have calculated our land use footprint attached to the major crops we source and working with key suppliers we shall continue to seek details of yield improvements, protection of biodiversity, soil health, water consumption, GHG data and certification standards where possible (p26)</li> <li>Developing yield enhancement data, we shall calculate land use savings for all new Life Sciences crop, seed enhancement and stimulant technology</li> </ul> | <br><br>     |
| <p><b>Crop Science Innovation:</b><br/>We will invest in innovation projects and partnerships to support crop and seed enhancement in mitigating the impact of a changing climate and land degradation.</p>  | <ul style="list-style-type: none"> <li>Through to 2030 we will bring an average of two Crop technological breakthroughs to market each year that are in alignment with our SBTs and which help our customers mitigate the impact of climate change and land degradation</li> <li>By 2030, we will have established 3 new partnerships to contribute to the recovery of compromised farmland. We will work with customers, universities and business councils to achieve this</li> </ul> | <ul style="list-style-type: none"> <li>Review current innovation activity to assess technology breakthroughs in our Crop Care pipeline</li> <li>Drive the evolution of our innovation pipeline across our Crop Care businesses</li> <li>Engage with key stakeholders, such as business councils (e.g. WBCSD) and Multinational Corporations (MNCs), to collaborate in projects to recover compromised farmland</li> </ul>   | <br><br><br> |

## Land Use



Our Land Positive target means we will save more land than we use by increasing agricultural land use efficiency, protecting biodiversity and improving food security by sourcing sustainably.

To help us achieve this we have calculated our land use footprint attached to the major crops we source. This has been achieved through detailed and expert knowledge of our supply chains gained through engagement with our suppliers, ensuring that none are associated with deforestation or in conflict with food security. Protection of biodiversity, soil health and water consumption are also key measures for sustainably sourcing our feedstocks.

### Organic bio-based raw materials

By 2030, over 75% of our organic raw materials by weight will be bio-based. These organic bio-based raw materials deliver a lower carbon footprint. We have already calculated that during 2019, 230,000 tonnes of CO<sub>2</sub> was sequestered during the growth of one of our key bio-based raw materials, as verified by Carbon Smart. In 2019, 63.3% of our organic raw materials were bio-based, already a leading position compared to our peer group, and the rest of the chemical industry, who are primarily using fossil-based raw materials.

Building on our unique position compared with our peer group, our 2030 bio-based raw material target is three times the target the European Chemical industry has set\*, as we continue to lead the transition away from organic fossil/petrochemical feedstocks.

### Sustainable palm oil

Our preference is in using bio-based feedstocks that deliver a lower carbon footprint than fossil-based alternatives. These natural feedstocks are sourced from crops that are well established and widely grown. However, the potential environmental issues of deforestation and loss of biodiversity surrounding palm oil production make end-to-end engagement in supply chains vital to ensure transparency and sustainable practices throughout. RSPO-certified palm is recognised to deliver a 35% lower global warming impact than non-certified.\*\*

We fully support the RSPO, and all our relevant manufacturing sites processing over 99% of our global palm derivative volumes are RSPO Supply Chain Certified. In 2019 we also became founder members of the Action for Sustainable Derivatives (ASD).

\* Published by Dechema, BTG, E4Tech, Nova Institute for Ecology & Innovation

### Domestic Material Consumption

We believe it is increasingly important to source locally and reduce environmental impact by all means available. This is described by the United Nations in the Sustainable Development Goals Report 2019 as Domestic Material Consumption (DMC).

DMC measures the total amount of materials directly used by an economy to meet the demands for goods and services from within and outside a country/region. According to the UN\* the material footprint per capita has increased from 8.1 tonnes in 1990 to 12.2 tonnes in 2017. For high-income countries it's approximately 27 tonnes per person, upper middle-income



\*\* Jannick Schmidt and Michele De Rosa, the LCA consultants, Denmark.

The ASD is co-managed and co-facilitated by BSR (Business for Social Responsibility) and Transitions, organisations with extensive experience and expertise in supply chain sustainability and business collaborations. Together with leading home and personal care companies including L'Oréal, Beiersdorf, The Body Shop and Estée Lauder Companies, the coalition will further develop operational solutions to ensure progress towards fully sustainable and deforestation-free sourcing.

**“The home and personal care industry has made enormous progress in supporting sustainable palm and extending positive influence beyond its own supply chains. The ASD is a perfect example of businesses coming together to complete the industry transformation to sustainable palm and partnering to meet the United Nations Sustainable Development Goals.”**

**Chris Sayner**  
Vice President Customer Alliances,  
Corporate Sustainability

countries 17 tonnes per person and low-income countries 2 tonnes per person. The material footprint of high-income countries is greater than their domestic material consumption, on a per-capita basis. High-income countries rely on 9.8 tonnes of primary materials extracted elsewhere in the world.

We believe DMC will be an increasingly important measure in sourcing sustainably and based on regional usage in Asia, Europe, North America and Latin America, approximately 85% of the volume of raw materials we consume are sourced locally, within the region.

\* The Sustainable Development Goals Report 2019

## Crop Science Innovation



Our Crop Care businesses offer innovative ingredients to help farmers increase yields as well as crop resilience. To increase our contribution to SDG 2, Zero Hunger, we want to invest in

projects and partnerships, using our smart science to support agriculture in mitigating the impact of a changing climate and land degradation.



Above: pictures showing a field treated with Incotec's PaddyRise product at the Kedah facility (left), and without (right).

### Incotec Kedah: improving rice yields in Malaysia

In 2019 we opened a seed enhancement facility in the Kedah province of Malaysia to treat rice seeds with our new PaddyRise™ technology. In Malaysia, imports of rice are 25% higher than the amount the country can produce, meaning fluctuations in price can greatly affect food security.

We have demonstrated that PaddyRise can improve the yield by up to 25%. By increasing the yield of rice, the land area required to grow a tonne of crop is lower, effectively leading to a 'land saving'. This land saving has an associated carbon and water cost. For every tonne of seeds treated, there is the potential benefit to save up to eight tonnes of CO<sub>2</sub>e and 20,000m<sup>3</sup> of water.

Prior to opening the site, a Sustainability Impact Assessment (SIA) was carried out. In this assessment the opportunities for sustainability and their impact on each of the SDGs were established. There were four SDGs that the project was found

to have the greatest impact towards. These include SDG 2, Zero Hunger, SDG 6, Clean Water, SDG 12, Responsible Consumption and Production and SDG 15, Life on Land. The increase in crop yields mean there is more food available, which is especially important in the region where the quality of seeds is low and there is high dependence on the rice crop. Previously, farmers had come into direct contact with the crop protection products during labour intensive treatment of the rice. Coating the seeds minimises the exposure of the farmers to chemicals and reduces pesticide run off into watercourses.

The main findings of our SIA were that the project is inherently sustainable. By opening the facility and providing the seed treatment we are enabling farmers to increase their yields and reduce pesticide spraying, which has a positive impact on the lives of the farmers as well as the environment.

### Plant Impact: more blueberries, less waste, more grower income

Our Plant Impact technologies use biostimulant chemistry to improve the quality and yield of field and horticultural crops globally. As well as helping to improve food security, these products support an increase in grower incomes and contribute to a reduction in food loss and waste.

As an example, our InCa™ foliar spray, based on patented CaT™ biostimulant technology, is significantly increasing the marketable yield of blueberries for growers in Chile. This safe and easy-to-use technology improves the mobility of calcium within the plant, which helps to increase crop and storage quality. In trials led by independent distributor, Hortifeeds International, after 30 days of sea and road transport from Chile to the UK, on average, the blueberry shipments of fruit treated with InCa had 42% less softened berries than a shipment grown without such treatment (softened berries are rejected as they are unacceptable for retail). The calcium content of the treated blueberries was up to 19% higher and it is estimated that their shelf-life was extended by more than

four days. As Chilean growers are only paid for fruit that is saleable, this improvement makes a significant difference to their income, whilst reducing food waste.

According to the Food and Agricultural Organization of the United Nations, around 45% of all fruit and vegetables are lost or wasted between harvest and consumption. We see our biostimulant chemistry as a key tool to help growers and the food supply chain to reduce this shocking statistic.













# People Positive

We will apply our innovation to increase our positive impact on society. We are improving the lives of our own employees and people around the world by developing ingredients to improve health and wellbeing as well as encouraging and promoting diversity.

Highlights

- >2bn** equivalent doses of our vaccine adjuvants sold in 2019, increasing efficacy of the drug formulations
- 44m** lives improved through sales of our sun care filters in 2019
- 5,883** 1% Club hours volunteered by our employees in 2019
- 31.6%** of 1% Club hours spent on STEM activities

People Positive by 2030

| Objectives  | Target   | Next steps and definitions   | SDGs  |
|---|--|--|---|
| <b>Health &amp; Wellbeing:</b><br>We will use our smart science to promote healthy lives and wellbeing through the development and application of our ingredients and technologies.   | <ul style="list-style-type: none"> <li>By 2030, we will contribute to the successful development and commercialisation of 25% of WHO listed pipeline vaccines</li> <li>By 2030, we will protect at least 60 million people annually from potentially developing skin cancer from harmful UV rays, through the use of our sun care ingredients</li> </ul> | <ul style="list-style-type: none"> <li>The WHO lists 24 diseases for which vaccines are in the pipeline. Those specifically referenced in SDG target 3.3, are HIV-1, malaria, and tuberculosis. Part of Life Sciences, our vaccine adjuvant business will help us deliver on this target (p30)</li> <li>Target 3.4 of SDG 3, Good Health and Wellbeing, references cancer as part of reducing premature mortality from noncommunicable diseases. We are developing a roadmap for our sun care business to ensure we meet our challenging target (p29)</li> </ul> |    |
| <b>Gender Balance:</b><br>We will achieve gender balance in our business by focusing on recruitment and development opportunities to increase the number of women in decision-making positions.   | <ul style="list-style-type: none"> <li>By 2030, we will achieve gender balance across the leadership roles in our organisation</li> </ul>  | <ul style="list-style-type: none"> <li>We are rolling out gender balanced shortlisting recruitment across Croda, with a target of having 80% of shortlists gender balanced by 2023 (p30)</li> </ul>  |    |
| <b>Improving More Lives:</b><br>We will promote our smart science and help improve lives using our technologies within our local communities, where our science can make a positive difference. We aim to create STEM educational opportunities and provide basic necessities through the use and application of our ingredients. | <ul style="list-style-type: none"> <li>We will establish and fund a Croda Foundation to help improve more lives in our local communities, supported by our technologies</li> </ul>   | <ul style="list-style-type: none"> <li>We will establish a Croda Foundation during 2020</li> <li>As part of this, we will also establish a full funding plan</li> </ul>  |      |

# Health & Wellbeing



Every day, our smart science is improving lives through improved health and wellbeing. As manufacturers of the widest range of ingredients for the Personal Care industry, most personal care products around the world contain our ingredients. It is important not to underestimate the contribution to health and wellbeing provided by skin care and hair care products. Skin care is often a daily routine and can include moisturising, nutrition, sun protection, use of emollients on skin that is either too dry or too moist, prevention of dermatitis and prevention of skin injuries. Our ingredients have a positive impact on health and wellbeing, for example:

- Our lanolins are used in the major brands of nappy cream worldwide, providing 700 million applications each year
- Our surfactants provide the necessary purity and mildness in over 270 million bottles of baby shampoos produced each year, delivering up to seven billion applications
- Every year, we manufacture 500 million daily dosage units of EPA and DHA Omega 3 fish oil concentrates, helping to support good health across life stages and targeted across many health conditions.

In order to increase our positive impact on SDG 3, Good Health and Wellbeing, we have a 2030 objective to promote healthy lives and wellbeing through application of our ingredients and technologies. This will focus on prevention of skin cancer through our sun care business, and prevention of communicable diseases through our vaccine adjuvants.

When assessing our contributions to SDG 3, and how we can increase our positive impact by 2030, we have focused on SDG target 3.3, ending epidemics of communicable diseases such as AIDS and malaria. We will develop adjuvants to be included in 25% of the WHO listed pipeline vaccines to tackle these diseases. We are also focusing on SDG target 3.4, reducing premature mortality from noncommunicable diseases. Here our biggest impact is in the production of sun care filters, to help prevent skin cancer for millions of people every year. By 2030, we want to improve 60 million lives annually through improved health and wellbeing due to protection from skin cancer.

Sun care in Togo

We are delighted to be part of a collaborative project based in Togo, where we donate our Solaveil inorganic UV filters to the National Association of Albinos for use in local production of sunscreens.

For Africans living with albinism, sun protection is paramount for preventing skin lesions, the most serious being skin cancer. Togo is a developing country with around 1,500 residents suffering from albinism.

ANAT (Association Nationale des Albinos du Togo) is the main organisation in Togo for people with albinism, and is run by people with albinism. In order to contribute to the improvement of the living conditions of people with albinism in Togo, ANAT has implemented the following activities:

- Dermatology consultation campaign in two regions in Togo
- Local production of sunscreen
- Awareness campaign for people with albinism and their families.

By working alongside a consultant, our technical expertise has been key to developing a formulation for ANAT's sunscreen project.

We will continue to work with ANAT on their important sun protection project, contributing to the health and wellbeing of this community in Togo.

References:  
<https://anattogo.org/>  
<https://african-albinos.org/ons-werk/albinisme-in-togo/>

**“The Croda Personal Care team prides itself on our passion to understand and protect the skin from harm. Our innovation aims to not only provide the best ingredients to shield us from the sun’s harmful rays, but also increase consumer awareness that effective solar protection brings significant health benefits.”**

Simon Bennett

Sales Director Personal Care, Eastern Europe, Middle East and Africa



**Biosector**

At the end of 2018 we acquired Biosector, a leading adjuvant specialist for vaccines. Adjuvants are critical components of vaccines enabling a higher efficacy and improved safety profile while potentially reducing the antigen concentration.

This acquisition is fully aligned with our Purpose of using Smart Science to Improve Lives™ by advancing disease prevention. It is estimated that, each year, our adjuvant facility in Denmark supplies ingredients that are used in over two billion vaccines globally. We have acquired a strong pipeline of innovative, next generation vaccine adjuvants, that will be beneficial to the pharmaceutical industry in tackling more challenging pathogens.

Through partnering with our customers we will be able to positively contribute to SDG 3, Good Health and Wellbeing, aimed at the successful development and commercialisation of many of the World Health Organisation (WHO) listed

pipeline vaccines, including those targeting HIV-1, malaria, and tuberculosis. As an example, this year we have introduced QS-21, an adjuvant for use in human vaccines. This is a purified and potent plant extract included in projects to prevent malaria.



**Gender Balance**



As a business with innovation at its heart, diversity of thought and ideas is critical to our long-term success. We have, therefore, set stretching targets to double the number of women in leadership positions by the end of 2025. To help us achieve this target we are working to achieve balanced candidate shortlists for all internal and external recruitment.

In 2019 we began to measure and report the gender balance of shortlists in recruitment for the first time. This has encouraged us to think more carefully about how we advertise roles and select candidates; we recently changed our approach to how we advertise production roles in the UK to successfully attract more women to apply. In addition, we have included elements of diversity and unconscious bias training in our corporate training programmes. Through these actions, we are already seeing an improvement in our gender balance and are confident that we will be able to meet our target of having 80% of shortlists gender balanced across all roles by 2023.

2018 saw us establish a global Diversity and Inclusion (D&I) Committee whose remit is to be a conduit both from and to senior leaders within the business on a range of D&I issues. During 2019, the Committee has reviewed and recommended several global D&I related training programmes, facilitated listening groups within their locations, as well as developing material for publication on our intranet.

We have also worked to develop our female talent through bespoke development plans and training programmes for women. This has helped them to realise their own authentic leadership style and to develop specific areas of focus to encourage them to aspire to the next organisational level.



Process engineer at our manufacturing site at Rawcliffe Bridge  
Picture courtesy of WIME and Green Port Hull

**Improving More Lives**



We are committed to supporting and engaging with the communities in which we operate. In 2019 our employees donated 5,883 hours of 1% Club time, volunteering within their local communities, with 31.6% of this spent on STEM activities, encouraging the next generation of scientists.

We feel that to maximise our contribution to the SDGs we can do more, and have set ourselves the target of establishing and funding a Croda Foundation, to act as a philanthropic enterprise. The Foundation will be set up as an independent charitable trust, based in the UK but with a global reach, run

and administered by an independent Board of Trustees. The Foundation will be solely funded by Croda and have a small number of dedicated employees.

In 2019, a group of our future business leaders were tasked with defining what our Croda Foundation will look like and clarifying the project selection criteria. This work is still ongoing, but we know that the projects funded must improve lives within our local communities, where our science can make a positive difference.

**1% Club community volunteering**

Our 1% Club enables employees to give 1% of their work time to volunteering within their local communities. 2019 saw a diverse range of community engagement through the 1% Club, including:

- A team from Croda Canada cleaning up a pond close to their office at Marita Payne Park in Vaughan, Ontario
- An employee from Croda Inc. helping at the North Texas Food Bank
- A team from Croda Singapore taking part in the inaugural Earth Day Beach Clean-up event
- Employees at Croda Germany volunteering at the Children's Summer Festival organised by 'Die Arche', an organisation who help underprivileged children and young people
- Our Croda Middle East team preparing food for people staying at a local hostel over Ramadan.



Croda Canada team



Solar panels on the esters storage facility at Gouda

**Gouda solar panels**

Our manufacturing site in Gouda, the Netherlands, has partnered with Goudse Panelen, an energy co-operative that develop solar roof projects to deliver renewable electricity benefits to the local community. As part of this project, and our commitment to our local community, we have provided roof space, free of charge, on which 670 solar panels have been installed, these will generate around 188MWh of electricity per year.

These panels can be 'bought' by local residents, who then receive a reduction in their energy bill related to the number of panels they have. The scheme is particularly attractive for those living in rented accommodation or apartments, without available roof space. We are very proud to be involved in developing a sustainable local community and hope to increase the number of solar panels installed in the future.









# Fundamentals



We will protect the health and safety of our people, contractors and communities in which we operate, thus giving priority to the areas of our business that give us our social licence to operate.

Highlights



Fundamentals

| Objectives  | Target  | Next steps and definitions   | SDGs  |
|---|---|--|---|
| <b>Health, Safety &amp; Wellbeing:</b><br>We will protect the health, safety and wellbeing at work of all of our people and contractors.                        | <ul style="list-style-type: none"> <li>By 2030, we will achieve an OSHA Total Recordable Injury Rate in the top 10% for the chemical industry</li> <li>By 2030, we will achieve a 30% increase in positive responses to the wellbeing areas in our Global Employee Culture Survey</li> </ul>  | <ul style="list-style-type: none"> <li>We aim to be in the top 10% of chemical manufacturers with over 1,000 employees according to the OSHA Total Recordable Injury Rate</li> <li>We are finalising wellbeing plans for every Croda location and will monitor progress through our regular Global Employee Culture Surveys (p34)</li> </ul>   | <br>  |
| <b>Process Safety:</b><br>We will protect the health and safety of all of our people, contractors and the communities in which we operate.                      | <ul style="list-style-type: none"> <li>By 2030 we will have zero significant process safety incidents per year. We will continue to investigate and apply learnings from minor incidents and near misses</li> <li>By 2023 we will conduct an independent peer review of our Process Risk Reviews (PRR) for high hazard processes</li> </ul> | <ul style="list-style-type: none"> <li>Significant process safety incidents are those reportable against the ICCA metric</li> <li>We will continue to monitor performance using our own, internal, more stringent process safety metrics to drive continual improvement (p35)</li> </ul>   | <br>  |
| <b>Environmental Stewardship:</b><br>We will protect the natural environment through the responsible management of our water consumption and waste production.  | <ul style="list-style-type: none"> <li>By 2025, we will eliminate process waste to landfill across our operations</li> <li>By 2030, we will reduce our water use impact by 50% from our 2018 level</li> </ul>   | <ul style="list-style-type: none"> <li>We will build on our significant success in recent years to reduce our waste to landfill in order to meet this target, while evaluating broader reduction strategies for all waste types (p35)</li> <li>We are working to develop a water impact measure, which will take into account the quantity of water withdrawal as well as level of water stress at source; water displacement effects and quality of discharged water (p35)</li> </ul> | <br><br> |
| <b>Fair Income:</b><br>We will contribute to sustainable and inclusive economic growth by ensuring that everyone working at Croda sites receives a fair income. | <ul style="list-style-type: none"> <li>By 2030, everyone working at Croda locations, including temporary and permanent employees, and all contractors will receive a living wage that is monitored and reviewed annually</li> </ul>   | <ul style="list-style-type: none"> <li>We have set ourselves a target that all our employees globally will be paid a living wage by the end of 2022 (p36)</li> <li>We intend to set a similar target for our contractor workforce as the next priority (p36)</li> </ul>  |    |

|   |  |  |  |
|---|--|--|--|
| <b>Supplier Partnership:</b><br>We will ensure that all of our key suppliers are operating safely, ethically and responsibly, and will promote the equitable sharing of benefits within the supply chain.   | <ul style="list-style-type: none"> <li>By 2030, we will ensure that all key suppliers are responding to EcoVadis and engaging with us to improve practices</li> </ul>  | <ul style="list-style-type: none"> <li>We will continue to monitor supply chain risks using global indices and continue promotion of EcoVadis, increasing the number of suppliers responding to the questionnaire (p36)</li> <li>We will target an increased number of suppliers responding to CDP Supply Chain questionnaires with key suppliers providing primary GHG data</li> <li>We will focus on completion of transformation to physically certified RSPO palm derivatives</li> </ul> | <br>   |
| <b>Knowledge Management:</b><br>We will manage our intellectual capital, ensuring employees acquire the knowledge and skills needed to promote the sustainable development of our business and promote lifelong learning opportunities for all.   | <ul style="list-style-type: none"> <li>By 2025, 100% of our employees will receive a minimum of one week's training per year</li> </ul>  | <ul style="list-style-type: none"> <li>We will use our recently rolled out MyCroda HR system to record and monitor progress against this target (p36)</li> </ul>   |   |
| <b>Quality Assurance:</b><br>We will maximise our resource efficiency and minimise all types of waste energy, water and materials across our operations.  | <ul style="list-style-type: none"> <li>By 2030 we will achieve a 99.5% Right First Time (RFT) rate</li> </ul>  | <ul style="list-style-type: none"> <li>Efficient manufacturing means very low levels of rejects, which in turn means that resources are consumed responsibly and not wasted. Efficiency is measured by our ability to make products to the right quality first time every time, our RFT rate (p37)</li> <li>We will also calculate and monitor GHG emissions savings resulting from these improvements</li> </ul>  |   |
| <b>Product Stewardship:</b><br>We will take a leadership role in life cycle assessment of our ingredients and their impact on the life cycle of our customers' products. This will help the markets in which we operate move towards more circular economies and reduce consumer and employee exposure to chemical hazards. | <ul style="list-style-type: none"> <li>By 2030, we will have conducted full life cycle assessments for our top 100 ingredients</li> </ul>  | <ul style="list-style-type: none"> <li>Top ingredients are being identified based on their overall sustainability impact, both positive and negative, not solely on volume and/or value to us</li> <li>We are extending the use of verifiable life cycle assessment to enable us to achieve this target</li> </ul>   | <br><br> |
| <b>Responsible Business:</b><br>We will verify and maintain our position as the most sustainable supplier of innovative ingredients within our industry.  | <ul style="list-style-type: none"> <li>By 2023, we will achieve an EcoVadis score of at least 85</li> <li>By 2030, we will achieve 'outstanding' CSR performance ratings across all themes within the EcoVadis assessment</li> </ul> | <ul style="list-style-type: none"> <li>To be considered the most sustainable supplier of innovative ingredients we believe external verification is essential, and we should strive for excellence across all the sustainability areas</li> <li>Based on stakeholder feedback we have selected EcoVadis as our benchmark rating, however, we will continue to submit and review our ratings against various industry and stakeholder sustainability standards (p39)</li> </ul>               |   |

# Health, Safety & Wellbeing



Safety is the most important aspect of our sustainability programme. Our 2020 target for Total Recordable Injury Rate (TRIR) was achieved a year ahead of our deadline, with most manufacturing sites operating without incurring a recordable injury throughout 2019. Our Mill Hall manufacturing site, in Pennsylvania, USA, achieved this for the first time since 1990, whilst many others also showed an underlying improvement. There were no recordable injuries in the Group in November and December, the first time that the milestone of two consecutive months injury free has been achieved. We will use this positive performance to launch our 2030 target, stretching our ambition and continuing to reduce our TRIR from within the top 25% in our industry into the top 10% by 2030.

Several of our sites introduced training programmes to address specific workplace hazards, such as the hazard presented by various forms of stored energy, and precautions to be taken when working with scaffolding. Our Gouda manufacturing site in the Netherlands introduced an e-learning system with over 100 safety related subjects, a system proven in other organisations to enhance retention of critical information whilst being interesting and easy to use by those receiving the training.

Manufacturing sites in the Group have had behavioural safety observation programmes in place for several years, with participation by all line managers and frontline supervisors. In addition, visiting managers are also encouraged to undertake behavioural safety tours during their time spent on site.

2019 saw our new standard for safety, health and environment related behaviours developed, with the assistance of a specialist consultancy, and is centred on the four themes of risk management, standards, involvement and communication. It specifies the behaviours expected of everyone throughout the organisation from the most junior to the most senior personnel and will be implemented during 2020.

In addition, the top 40 most senior managers in the Company worked with the leadership behaviours agreed as part of the Safety Leadership Improvement Programme (SLIP), with regular surveys and feedback to individuals on their performance in order to help achieve consistency of approach.

## Wellbeing

The physical and mental wellbeing of our employees is important in maintaining the morale of everyone at Croda, and this is closely associated with improved and sustained productivity. More importantly, wellbeing is critical for us to maintain a safe working environment. We believe that wellbeing initiatives are best led locally and, therefore, require all locations to have an active wellbeing programme.

In 2019, we saw some innovative examples of wellbeing initiatives across the Group; these included making free fruit widely available, pilates and yoga classes, step challenges, keep fit classes, and moving to healthier menu choices in our employee restaurants.



Free fruit was available to employees at Sederma as part of their wellbeing days

In the UK, there was a focus on mental health, with a series of workshops run by the UK mental health charity 'Mind'. The workshops were attended by all employees, as well as specific training sessions for line managers, including the CEO and Executive Committee. In addition, the UK has trained several mental health first aiders who, at each of our UK sites, can provide support to our colleagues in times of need.

Also linked to wellbeing is a range of flexible working initiatives across all our global sites. We believe that employee wellbeing and the management of a work-life balance are closely linked, therefore, wherever possible, we are increasing and improving opportunities for employees to work flexibly. This includes initiatives such as flexible hours, part time working, job shares, and opportunities to work from home.

Looking forward, we are asking all our sites to continue to think about wellbeing and provide innovative and useful programmes in 2020 and beyond. We intend to repeat our Global Employee Culture Survey during 2020, the survey will include a range of questions about wellbeing, giving us a baseline to monitor improvements going forward towards 2030.

# Environmental Stewardship



Beyond carbon, we strive to minimise the environmental impact of our operations, with a particular focus on process waste to landfill and total water withdrawal.

Since our baseline year of 2015, we have made significant progress in both areas. Our process waste to landfill has reduced by 27%, with 10 of our 19 manufacturing sites sending zero process waste to landfill in 2019. We will continue to work to eliminate process waste to landfill and aim to achieve this by 2025.

Our water withdrawal has also reduced significantly, falling 17.4% since 2015. In 2019, our manufacturing site in Ditton, UK, reduced its water withdrawal by 58% by increasing the efficiency of its wastewater treatment plant.



Increasing efficiency of our wastewater treatment plant at Ditton reduced site water withdrawal by 58%

We are proud of our achievements across the Group in reducing total water withdrawal. However, as we develop a new water target for 2030 we want to focus more on the impact of our water use. Very few of our products contain water, most of the water we withdraw is simply borrowed and used on site as process water before being discharged. We operate predominantly in locations where water scarcity is not an issue. Therefore, we are working to develop a measure that looks at the quality and temperature of discharged water, any location difference between abstraction and discharge point, as well as quantity extracted. This will give us a better understanding of the impact of our water use and will enable us to minimise our environmental impact associated with water.

# Process Safety



2019 was a good year for process safety in Croda with no incidents of significant severity. We were also pleased to see a threefold reduction in minor losses of containment against our demanding internal measurement threshold.

A week-long training course on process safety management was designed and delivered by specialists from the Group Safety, Health and Environment (SHE) team. It was based upon the guidance published by the Institution of Chemical Engineers Safety Centre on process safety competence, which has international recognition as industry best practice. It was attended by representatives of our site leadership teams from all seven sites in the Group that handle ethylene oxide and propylene oxide, the highest hazard materials we use. Attendees were from India, Singapore and North America as well as the UK and Europe. As a result of its success, we plan to extend the course to representatives from other sites during 2020.



Process Safety Management attendees

Several sites in the Group established dedicated improvement teams to investigate and reduce the number of process safety incidents. Due to the low number of significant incidents, the teams investigated minor or zero loss events to ensure that root causes were identified, and actions taken to prevent a potentially more serious event from occurring in the future.

The Group SHE audit programme continued in 2019, with six manufacturing sites audited by Group SHE specialists as part of a three-year cycle. The current series of audits focuses explicitly on topics directly relating to the management of process safety, including safety in design, in addition to general SHE management topics such as management of contractors and the safe control of work activities.

## Fair Income



In 2018, we were very proud to become a UK living wage employer. This means that all our UK employees receive a wage that has been independently verified to be of a sufficient level to provide an income to cover the necessities of life. Being a living wage employer also means that we ensure all our regularly employed contractors are paid at this level and we are working on plans to ensure contractors that work on an ad-hoc basis are also paid at least the living wage.

Our Executive Committee felt strongly that it was not enough to do this only in the UK and, as a result, we have set ourselves a target that all our employees globally will be paid a living wage by the end of 2022.

The challenge with this objective will be to understand, by location, what a 'living wage' is. We are fortunate in the UK to have the Living Wage Foundation, which does the necessary research to set the amount for us, however, similar organisations are not available in all countries across the world.

During 2019 we worked with PwC to help us start to establish what would constitute a living wage at each of our locations, particularly with a focus on China and India in the first instance. We intend to expand this work globally to apply a consistent methodology to ensure that all our employees receive a fair income. We hope to complete this work by the end of 2020 so that any necessary increases to salaries can be made in time for us to reach the 2022 target.

We employ a large number of highly skilled engineers, scientists and production operators, so do not believe we will need to take significant action on salaries, but we want to ensure that in making this commitment we can explain our methodology. Beyond 2022, we intend to set a similar target for our contractor workforce as the next priority.



## Supplier Partnership



Effective supplier engagement is hugely important for the success of our business. In order to ensure that our key suppliers are operating safely, ethically and responsibly, in 2018 we began working with EcoVadis and requested that key suppliers complete their comprehensive questionnaire. The evidence-based assessment provides our suppliers with a corrective action plan to ensure continual improvement and increased transparency within our supply chains. We have ranked our suppliers in terms of geography and industry, prioritising the highest risk suppliers with potential for exposure to modern slavery, and this work will continue into 2020 and beyond. At the end of 2019, 96 suppliers had responded to our request and had submitted their EcoVadis questionnaire, a 54% response rate.

## Knowledge Management



As a business that relies on being innovative for its success, our intellectual capital and ability to retain knowledge within the Company is vital. We, therefore, place a great emphasis on providing training to everyone in the business to ensure that they can do their job as effectively as possible, but also to ensure that knowledge is maintained and transferred where necessary. We see the benefit of training in creating a more engaging and inclusive environment, promoting opportunities for lifelong learning.

All our employees receive significant on-the-job training, which is supplemented by a range of locally provided technical and managerial training. In addition, we run a suite of management and leadership development programmes that are delivered regionally but with a globally built curriculum. For our most senior leadership programmes, we've partnered with Ashridge Hult Business School to ensure that our leaders are receiving the most up-to-date and relevant development.

In addition, through our new MyCroda HR system, we have been able to significantly increase the number of online training programmes we offer, which are freely available to all our colleagues on a global basis, with many of the programmes available in local languages. It is our intention, through 2020, to further increase this catalogue of training programmes. The other benefit of our MyCroda system is that we can more effectively record training however it is delivered, for example, in a classroom, online, or on-the-job. This system is helping us to ensure that we meet our objective that everyone in Croda dedicates one week of their year to training and learning.

## Quality Assurance



Efficient manufacturing means very low levels of rejects which in turn means that resources are consumed responsibly and not wasted. Efficiency is measured by our ability to make products to the right quality first time every time, our Right First Time (RFT) rate. Whilst we consider our Group average RFT rate to be at a sector leading level, internal benchmarking suggests we can do better and doing so will help achieve our other targets such as reductions in GHG emissions and water use. Driven by SDG 12, Responsible Consumption and Production, we are therefore setting an ambitious target to improve our Group average RFT to 99.5% by 2030.

Our quality assurance systems now apply across our manufacturing and non-manufacturing sites. All major locations globally are now certified to ISO 9001, the global quality assurance standard. Our objective is always to deliver a consistent and reliable quality. Learning from our mistakes is central to ensuring these are not repeated. Investigations drive learning at three levels, operational, supervisory and within management ensuring that root causes are identified and remedied. Our global quality assurance network ensures this learning is applied across all our sites.



### High quality, high-purity excipients

Excipients are the inactive components in medicines and are critical to their effectiveness. Without them the active ingredients that are responsible for the therapeutic benefits could not be delivered to the patient. Excipients have to meet well defined standards of quality so that they are safe to be used in medicines. Our extensive range of excipients are supplied to customers around the world and can be found in many types of medicines.

Another critical role for excipients is to help prevent the degradation of the active ingredient, which can have a significant impact on the efficacy of the medicine. Our standard grade excipients perform acceptably, but our high-purity technology has the ability to purify our

excipients to unsurpassed levels whilst remaining fully compliant with global standards. When using high-purity excipients, interactions with the active ingredient are minimised leading to an improved stability profile for the medicine. With better shelf life the medicine can be made safely available to patients for longer periods of time, thereby minimising waste through unnecessary disposal of aged medicines.

# Product Stewardship

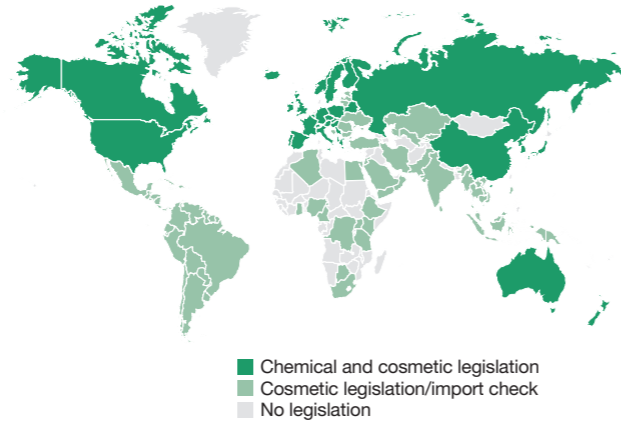


Effective Product Stewardship is about ensuring that all products marketed and sold are safe for their intended uses throughout their full life cycle and can be manufactured and used without adverse effects on human health or the environment. It involves cooperation throughout the supply chain, from producers to final consumers.

Product Stewardship principles are increasingly becoming enshrined within both chemical and end use legislation across the globe. The map to the right shows the current reach of chemical and cosmetic legislation as an example.

We are actively engaged within trade associations and through meetings with government bodies working to shape the legislation and its effective implementation.

## Legislation controlling the use of chemicals used as cosmetic ingredients



# Awards and recognition during 2019

|  |   |  |   |   |  |
|--|---|--|---|---|--|
| <p><b>EcoVadis Gold Status</b><br/>January 2019</p> <p>In January 2019 we were awarded EcoVadis Gold Status for the fifth year.</p>  | <p><b>11th Most Sustainable International Company</b><br/>February 2019</p> <p>We were ranked 11th Most Sustainable International Company by Barron's, who are a leading source of financial news for the American Stock Exchange.</p> <p>This Top 100 listing looks at the 1,000 largest publicly held companies by market value across 24 developed-country markets, excluding the United States, which has its own Top 100.</p>  | <p><b>Bio-based Industry Story of the Year winner</b><br/>April 2019</p> <p>In April we were awarded the 2019 Bio-Based World News Innovation Award for 'Bio-based Industry Story of the Year' for the launch of our new 100% bio-based, 100% renewable range of non-ionic surfactants, our ECO range.</p> | <p><b>Winners of the CIA Awards Company of the Year</b><br/>June 2019</p> <p>In June we were named the UK Chemical Industries Association (CIA) Company of the Year, as well as winning the CIA Environmental Leadership Award. These awards highlight the excellent performance of companies and individual manufacturing sites within the UK chemical industry.</p> | <p><b>Most Admired Company in the British Chemical Sector</b><br/>December 2019</p> <p>In December we were voted most admired company in the British chemical sector for the third year running at the 'Management Today' awards.</p> <p>We received high recognition from peers regarding leadership and were specifically recognised for our focus on sustainability.</p> | <p><b>Crodarom wins the 2019 Mediterranean Chemical Industry Responsible Care® Award</b><br/>December 2019</p> <p>Crodarom was awarded the 2019 Mediterranean Chemical Industry's 5th Responsible Care® Award in the Health category. This award recognised its employee engagement around wellbeing, specifically its employee wellbeing days.</p> <p>The Responsible Care® Awards constitute a means to stimulate and highlight remarkable initiatives, good practices and management systems.</p> |
| <p><b>Crystalide recognised with the PCHi Fountain Award 2019</b><br/>March 2019</p> <p>In March, Sederma received the PCHi Fountain Award in China for Moisturising/Hydration Active Ingredient, Crystalide™. Confirming Sederma's global leadership in peptide technology this unique, 96.68% natural ingredient contributes to healthy skin bringing visible results in only six weeks.</p> | <p><b>Winner of the ICIS Surfactants Product Innovation Awards</b><br/>May 2019</p> <p>In May, we received the ICIS Surfactants Award for Product Innovation for our unique, patented molecule, the Star Polymer. This novel, star-shaped, polymeric non-ionic surfactant serves as a building block for the development of more stable and effective formulated products across multiple applications. It is 100% bio-based when built with ethylene oxide derived from biomass, making it unique for North America.</p> | <p><b>Best Product Innovation at the Global ICIS Innovation Awards</b><br/>October 2019</p> <p>In October we were recognised again with 'Best Product Innovation', this time at the Global ICIS Innovation Awards.</p> <p>The award was given to our novel patented star-shaped polymer molecule.</p>      | <p><b>Board of the Year at the Yorkshire Business Awards</b><br/>December 2019</p> <p>2019 saw the leadership and vision of our Board recognised at the Yorkshire Business Awards.</p>  |   |  |

# Responsible Business



Leadership in Product Stewardship means going beyond the minimum requirements for compliance. We build and act on the knowledge we have learnt through complying with regulatory programmes so far. We will take a leadership role in the life cycle assessment of our ingredients and their impact on the life cycle of our customers' products. Helping the markets in which we operate move towards more circular economies and reducing consumer and employee exposure to chemical hazards. By 2030, we will have conducted full life cycle assessments for our top 100 ingredients.

## Discontinuing APEs

Alkyl phenols and their ethoxylates are widely recognised to cause endocrine disrupting effects and have the potential for adverse effects on health and the environment. Although their use has been heavily restricted in Europe for many years this has not been the case in other regions. These chemistries are not in line with our sustainability goals and, as a responsible supplier, we discontinued manufacture and supply of alkyl phenol ethoxylate (APE) based products globally during 2019. At the same time, we engaged with our customers to work on sustainable alternatives.

Throughout the year we received many awards both at the corporate level and recognising our innovation. The timeline below highlights these awards. In January, we were awarded EcoVadis Gold Status for the fifth time, confirming our place in the top 1% of all chemical companies assessed by EcoVadis and ranking as 'outstanding' in labour and human rights, with an overall score of 77. EcoVadis remains an important benchmark for an increasing number of customers and we use the assessment as a means of constant improvement. By 2030 we target an Outstanding rating across all four assessment areas, and target an overall score of 85 or more.

# 2019 performance

● Met ⊗ Not met ● Ongoing ○ New

| Target   | Maturity | Status | 2019 Progress Summary   |
|--|----------|--------|---|
| <b>Climate Action</b>  |          |        |   |
| Reduce total Group energy intensity by 5% from 2015 baseline   | 2020     | ●      | We achieved this target a year early, with a 13% reduction in energy intensity at the end of 2019 compared to 2015. Energy intensity is calculated by dividing total energy consumption by 'value added' (operating profit before depreciation and employee costs)  |
| Generate 27% of the Group's total energy requirements from non-fossil fuel sources.  | 2020     | ⊗      | This was a challenging target for us. In 2019, 22.7% of our energy was from non-fossil sources which, for the first time, was externally verified by Carbon Smart. While we missed our five year headline target, significant progress was made during the period transitioning our indirect scope 2 emissions, with a 67% increase in the absolute amount of non-fossil based scope 2 energy between 2015 and 2019, now representing >70% of our indirect energy consumption |
| Reduce total Group scope 1 and 2 carbon intensity by 10% from 2015 baseline.   | 2020     | ●      | We achieved this target a year early, with a 28.5% reduction in scope 1 and 2 GHG emissions intensity at the end of 2019 compared with 2015, highlighting our ability to decouple growth from our impact on the environment. (p22)  |
| <b>Environmental Stewardship</b>   |          |        |   |
| Reduce total Group VOC emissions by 10% from 2015 baseline.  | 2020     | ●      | We have achieved this target a year early, with a 13.7% reduction in VOC emissions since our 2015 baseline. Our Group VOC emissions are very small, and whilst we will continue to monitor them we will not have a 2030 target focusing specifically on VOCs. Instead these will form part of our overall GHG emissions reduction target  |
| Reduce total Group water withdrawal by 10% from 2015 baseline.   | 2020     | ●      | Since 2015, our total water withdrawal has reduced by 17.4%, due to water saving initiatives across our manufacturing sites. We have a new 2030 target to reduce the impact of our water use by 50%, understanding that the impact is very dependent on geographical location. (p35)  |
| Reduce Group waste to landfill by 10% from 2015 baseline.  | 2020     | ●      | We have made great progress in this area, far exceeding our 2020 target, with a 27% reduction in waste to landfill since 2015. We will continue to stretch ourselves and have set a 2025 target to eliminate all process waste to landfill. (p35)   |
| <b>Process Safety</b>  |          |        |   |
| Conduct an independent review of our Process Risk Reviews (PRR) for high hazard processes.   | 2023     | ●      | As part of our commitment to the fundamental aspects of our business ensuring independent review of our PRRs will continue. We have set ourselves a new target of completion in 2023 in order to avoid reassessing some PRRs before they had reached their five year interval for resubmission  |
| <b>Health, Safety &amp; Wellbeing</b>  |          |        |   |
| Achieve a sustained OSHA Total Recordable Injury Rate (TRIR) in the top quartile of chemical manufacturing companies with more than 1,000 employees. | 2020     | ●      | We have achieved this target a year early, with a TRIR rate of 0.55 at end 2019. We are setting an even more ambitious target for 2030, and plan to move from a TRIR in the top 25% of the chemical industry, to the top 10%. Benchmarking is required during 2020 before we can set an absolute rate   |

| Target   | Maturity | Status | 2019 Progress Summary  |
|--|----------|--------|--|
| <b>Product Stewardship</b>   |          |        |  |
| Only supply RSPO-certified palm oil ingredients subject to the feasibility of the supply chain.  | 2018     | ⊗      | Palm has been a focus for us for the last eight years and we fully expect to complete the transformation to 100% RSPO-Certified Supply Chains in 2020. Beyond this, we have calculated our land use footprint attached to the major crops we source and working with key suppliers we shall apply the same rigour as we have to palm derivatives. This will include primary yield data, carbon footprint calculations and certification standards where possible. This will continue to be a focus for us as part of our new Land Positive Commitment. (p26) |
| Work with a third party independent organisation to increase traceability of our palm derived raw materials ensuring progression towards zero deforestation in our palm oil supply chains. | 2020     | ●      | As a founder member of Action for Sustainable Derivatives, which launched in 2019, we have strongly encouraged other companies to join the coalition in order to harmonise requirements on transparency and risk monitoring in order to better support commitment to deforestation-free and responsible sourcing. (p26)  |
| <b>Our People</b>  |          |        |  |
| Ensure that all employees have a formal annual appraisal.  | 2019     | ⊗      | 94% of all employees received a formal appraisal in 2019. We will continue to monitor this KPI annually and our intention is for all employees to receive a formal annual appraisal. Our new online platform MyCroda has been successfully rolled out to assist this process.  |

### 2030 Targets

During 2019 we worked with the Cambridge Institute of Sustainability Leadership (CISL) to develop and finalise our sustainability strategy to 2030. This new strategy will help us focus on the SDGs that we believe we can make the biggest difference to.

Our Commitment is to become Climate, Land and People Positive by 2030. To enable us to achieve this, we have developed stretching targets that will help us deliver on this ambitious commitment. As part of this focus, we continued to progress our current sustainability targets during 2019, their progress is noted in the Performance table above, and from 2020 any outstanding targets will become part of our 2030 Commitment.

### Global Reporting Initiative

Our 2019 report is in accordance with the GRI standards: Core for the period 1 January 2019 to 31 December 2019. Throughout this report, look for the green reference icons as shown below, which indicate where information against our chosen GRI disclosures can be found.

**GRI Standard Number**

Read our full 2019 GRI report online at [www.croda.com/GRI](http://www.croda.com/GRI)

## Report abbreviations

|                          |  |                          |  |
|--------------------------|--|--------------------------|--|
| <b>£m</b>                | Million pounds sterling                                      | <b>MW</b>                | Megawatt   |
| <b>®</b>                 | Registered trademark   | <b>MWh</b>               | Megawatt hour  |
| <b>AGM</b>               | Annual General Meeting                                       | <b>NGO</b>               | Non Governmental Organisation                          |
| <b>AIDS</b>              | Acquired Immune Deficiency Syndrome                          | <b>NPP</b>               | New and Protected Products                             |
| <b>ANAT</b>              | Association Nationale des Albinos du Togo                    | <b>Organic</b>           | Carbon containing from renewable and/or fossil sources |
| <b>APE</b>               | Alkyl phenol ethoxylates                                     | <b>OSHA</b>              | Occupational Safety and Health Administration          |
| <b>ASD</b>               | Action for Sustainable Derivatives                           | <b>Plc</b>               | Public Limited Company                                 |
| <b>BSR</b>               | Business for Social Responsibility                           | <b>PRR</b>               | Process Risk Review                                    |
| <b>Bio-based organic</b> | Carbon containing from renewable, non-fossil sources         | <b>PwC</b>               | PricewaterhouseCoopers                                 |
| <b>CDP</b>               | Formerly 'Carbon Disclosure Project'                         | <b>R&amp;D</b>           | Research and Development                               |
| <b>CEO</b>               | Chief Executive Officer                                      | <b>RFT</b>               | Right First Time                                       |
| <b>CIA</b>               | Chemical Industries Association                              | <b>RSPO</b>              | Roundtable on Sustainable Palm Oil                     |
| <b>CISL</b>              | Cambridge Institute for Sustainability Leadership            | <b>SBT</b>               | Science Based Target                                   |
| <b>CO<sub>2</sub></b>    | Carbon Dioxide   | <b>SDG</b>               | United Nations Sustainable Development Goal            |
| <b>CO<sub>2</sub>e</b>   | Carbon Dioxide Equivalent                                    | <b>Sedex</b>             | Supplier Ethical Data Exchange                         |
| <b>CSR</b>               | Corporate Social Responsibility                              | <b>SHE</b>               | Safety, Health and Environment                         |
| <b>DEFRA</b>             | Department for Environment, Food and Rural Affairs           | <b>SIA</b>               | Sustainability Impact Assessment                       |
| <b>DHA</b>               | Docosahexaenoic Acid   | <b>SLIP</b>              | Safety Leadership Improvement Programme                |
| <b>DMC</b>               | Domestic Material Consumption                                | <b>SME</b>               | Small and Medium-sized Enterprise                      |
| <b>D&amp;I</b>           | Diversity & Inclusion  | <b>STEM</b>              | Science, Technology, Engineering and Mathematics       |
| <b>ECO</b>               | Environmentally Conscious Option Range of bio-based products | <b>Te</b>                | Tonne  |
| <b>EEMEA</b>             | Eastern Europe, Middle East and Africa                       | <b>TeCO<sub>2</sub>e</b> | Tonnes Carbon Dioxide Equivalent                       |
| <b>EPA</b>               | Eicosapentaenoic Acid  | <b>TM</b>                | Trademark  |
| <b>ESG</b>               | Environmental, Social and Corporate Governance               | <b>TRIR</b>              | Total Recordable Injury Rate                           |
| <b>GHG</b>               | Greenhouse Gas   | <b>UK</b>                | United Kingdom   |
| <b>GRI</b>               | Global Reporting Initiative                                  | <b>UN</b>                | United Nations   |
| <b>HR</b>                | Human Resources  | <b>USA</b>               | United States of America                               |
| <b>ICCA</b>              | International Congress and Convention Association            | <b>USDA</b>              | United States Department of Agriculture                |
| <b>ICIS</b>              | Independent Commodity Intelligence Services                  | <b>UV</b>                | Ultra Violet   |
| <b>ICP</b>               | Internal Carbon Pricing                                      | <b>VOC</b>               | Volatile Organic Compound                              |
| <b>kg</b>                | Kilogram   | <b>VP</b>                | Vice President   |
| <b>KPI</b>               | Key Performance Indicator                                    | <b>WBCSD</b>             | World Business Council for Sustainable Development     |
| <b>LCA</b>               | Life Cycle Assessment  | <b>WHO</b>               | World Health Organisation                              |
| <b>MNC</b>               | Multinational Corporation                                    | <b>WRI</b>               | World Resources Institute                              |
|                          |  | <b>WWF</b>               | World Wide Fund for Nature                             |

### Cautionary Statement

The information in this publication is believed to be accurate at the date of its publication and is given in good faith but no representation or warranty as to its completeness or accuracy is made. Suggestions in this publication are merely opinions. Some statements and in particular forward-looking statements, by their nature, involve risks and uncertainties because they relate to events and depend on circumstances that will or may occur in the future and actual results may differ from those expressed in such statements as they depend on a variety of factors outside the control of Croda International Plc. No part of this publication should be treated as an invitation or inducement to invest in the shares of Croda International Plc and should not be relied upon when making investment decisions.

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