

On the road to net zero

Birla Carbon Sustainability Report 2022



Our progress on sustainability in FY2022

At Birla Carbon, we have been sharing our expert knowledge of carbon black and its applications for over a century. As our company has evolved, we have also been pushing sustainability forward for the environment, for our customers and suppliers and for our people and communities. We are proud to share our tenth sustainability report this year.

About our tenth report

Our tenth report includes performance highlights from April 2021 to March 2022 (FY2022) covering the full scope of our global operations. It contains a detailed analysis of performance against our Sustainable Operational Excellence (SOE) strategy and goals over the past year and highlights specific targets for the future.

Since FY2013, through our annual sustainability report, we have documented our journey to promote transparency while continuing to learn through ongoing monitoring and evaluation of our approach. We welcome suggestions and feedback from our stakeholders – including customers, employees and suppliers – as we work to fully embed sustainability-led thinking throughout our global business.

This report is approved by Birla Carbon's Senior Management Team and has been produced in accordance with the GRI 2016 Standards at Comprehensive level.

📄 [Read our Global Reporting Initiative and United Nations Global Compact \(UNGC\) indices 2022 \(PDF\), including references to the relevant Sustainable Development Goals \(SDGs\).](#)

📄 [Visit \[www.birlacarbon.com\]\(http://www.birlacarbon.com\) for additional information, including our detailed materials map.](#)

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Celebrating our tenth sustainability report

At Birla Carbon, we have been creating carbon black, which adds value to countless everyday products, for over a century. We share the strength of our product, organization and impact with our stakeholders as we drive circularity and sustainability progress. Our SOE strategy will continue to build on these foundations as we embed sustainable thinking at every level and advance responsible stewardship of the environment.



What we have achieved so far...

FY2013

- Adapted our sustainability and SOE strategy, and created our Sustainability Steering Committee
- Conducted our first materiality assessment
- \$25.8 million invested in process improvements related to energy efficiency and greenhouse gas (GHG) emissions reductions in 2012 and 2013
- 5.2% reduction in direct CO₂ emission intensity from 2011 to 2012
- More than 7 million people in 3,000 Indian villages supported through our community investment programs



FY2014

- First product Life Cycle Assessment conducted
- 100% of feedstock suppliers reviewed for their sustainability activity for the first time
- 16 of 17 manufacturing sites gained International Organization for Standardization 14001 certification
- First global customer satisfaction survey conducted

FY2015

- Launched our Code of Ethics to suppliers
- 47% reduction in Total Recordable Incident Rate
- Conducted first water risk assessment for all sites
- \$250,000 committed to supporting math and science students in Marietta, Georgia

FY2016

- \$33.4 million invested in process improvements related to energy efficiency and reducing GHG emissions
- Achieved our best safety record in 170 years
- Mapped our contribution to the UN SDGs



- Conducted our first megatrend analysis for future-proofing
- First CDP disclosures on climate change and water

FY2017

- Our Product Stewardship Standard active across all our sites
- \$21 million invested in process improvements related to energy efficiency and reducing GHG emissions
- Achieved our first EcoVadis Gold Rating
- Began rolling out Commitment Based Safety across our facilities



FY2018



- Uncovered our company's Purpose: Share the Strength
- Fulfilled the WBCSD Pledge for Access to Safe Water, Sanitation and Hygiene (WASH) at the workplace

- Our state-of-the-art greenfield facility began operating in Jining, China
- Set our target to repurpose 75% of waste by 2030
- Developing our third-party due diligence system to ensure we only work with suppliers, service providers, distributors and sales agents that have a good track record in terms of business ethics

FY2019

- Three-quarters of our plants achieved energy positive status
- 100% of our suppliers screened using NAVEX Global's RiskRate® due diligence system



- Introduced our Serious Injury and Fatality initiative to reduce accidents in six key operations areas
- Repurposed 43% of our waste

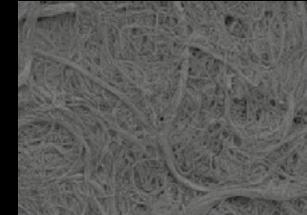


FY2020

- Launched our first Hype Open Innovation campaign for employees to submit their ideas to develop our business and products
- Became the first carbon black multinational to receive International Automotive Task Force (IATF) certification across all its manufacturing plants



- Following the COVID-19 outbreak, we leveraged our global geographical footprint to ensure employees could access personal protective equipment



- Developed a Nanocellulose Dispersion Composite (NDC™) in partnership with GranBio, which enhances the sustainability of tires and rubber goods

- Measured baseline circularity of our business using the Ellen MacArthur Foundation's Circulytics tool

FY2021

- Became signatories of the UNGC, committing to share the positive impact of our business with society
- Pledged to lower our carbon emissions to net zero by 2050

- Launched Continua™ SCM, our first Sustainable Carbonaceous Material designed to re-enter the economy as new tires, plastics or rubber compounds



- Awarded Gold rating by EcoVadis for the fifth consecutive year

FY2022 This year's highlights



Birla Carbon is refinancing existing debts through a **\$750 million** loan linked to our sustainability performance.

Committed to protecting our planet



The 4Rs: Research, Reduce, Replace and Repurpose, lead our strategy for lowering GHG emissions **to achieve net zero**.

Reducing our GHG emissions



Developed our Continua™ SCM **Carbon Footprint Statement**, a publicly available document developed to promote transparency and help our customers determine the complete carbon footprint of their own products.

The circularity of carbon black



Upon completion of Cirtec's new facility, **73,000 tonnes of Continua™ SCM** will eliminate 228,000 tonnes of direct and indirect CO₂ emissions annually when compared to the conventional carbon black process.

The circularity of carbon black



We launched our **new Hype Open Innovation campaign** for employees to submit their ideas to improve workplace safety and achieve our net zero target.

Employee engagement



We have been awarded a **Platinum Rating** by EcoVadis, following five consecutive years of Gold Ratings.

Global recognition



All our 12,000+ suppliers screened using NAVEX Global's RiskRate® due diligence system.

Supplier management



Seven Birla Carbon plants and two research and development laboratories received a Gold Award from the International Carbon Black Association (ICBA) for their safety performance.

Health and safety



Repurposed 67% of waste, reducing the amount of waste sent to landfill.

Waste



Birla Carbon remains the only **carbon black multinational to receive IATF certification** across all its manufacturing sites.

Product quality

Progress towards our FY2030 goals

Goal	Status	FY22 Figure
Improve our leadership position in terms of carbon black production capacity	On track	No. 2
Approximately double our annual capital spending against FY2012 baseline to reach \$100M	On track	\$81M
100% of active employees to receive Code of Ethics training	Behind schedule	52%
Increase our absolute energy-conversion efficiency to 80%	On track	71.6%
Reduce our direct CO ₂ emissions intensity by more than 22% against the 2005 baseline	Behind schedule	95%
Reduce our water withdrawal intensity (m ³ per tonne of carbon black) by 50% versus FY2013 baseline at our high- and medium-risk sites ¹	Behind schedule	97%
75% waste repurposed, including recycling, reuse and recovery, by 2030	On track	67%

Goal	Status	FY22 Figure
Record zero environmental releases year on year	Behind schedule	12
Achieve zero recordable injuries year on year (employee and contractor Total Recordable Incident Rate (TRIR))	Behind schedule	0.52
100% of Birla Carbon managers to have stated and measured goals set annually (percent of managers by year)	Target met and retained	100%
Remain above the chemical industry annual benchmark for employee engagement ²	Target met and retained	86%
Remain above the Net Promoter Score threshold of 35 ³ (score by year)	Target met and retained	63
100% of our facilities participate in community engagement	Target met and retained	100%

1 Key performance indicator (KPI) includes Hickok, Cubatão, Gummidipoondi, Alexandria, Weifang and Bahia.

2 This KPI was amended in FY2020 to exclude the results of the Team Vibes survey. It has also been modified to show results for calendar year rather than financial year, in line with Vibes survey timings.

3 Net Promoter Scores range from -100 to +100.

Our approach

Driven by our Purpose, Vision and Strategy

In this section:

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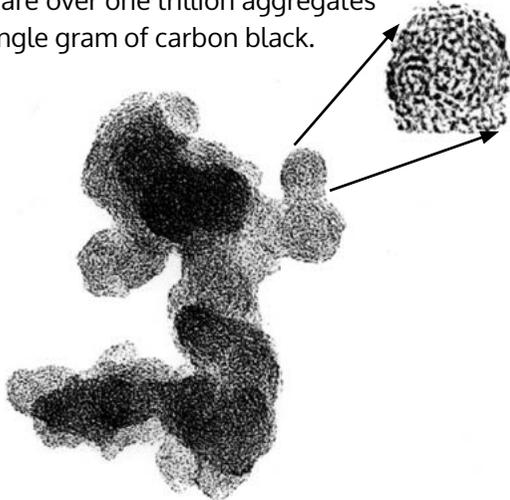
Who we are

We are driven by our Vision and Strategy, leveraging the power of carbon-based solutions to create social value. For centuries, carbon black has played a vital, but often overlooked, role in making our lives better, advancing agriculture, aiding safer travel and improving the performance of everyday products.

We are sharing our knowledge with customers, finding new and sustainable carbon black solutions that support their business goals and our own.

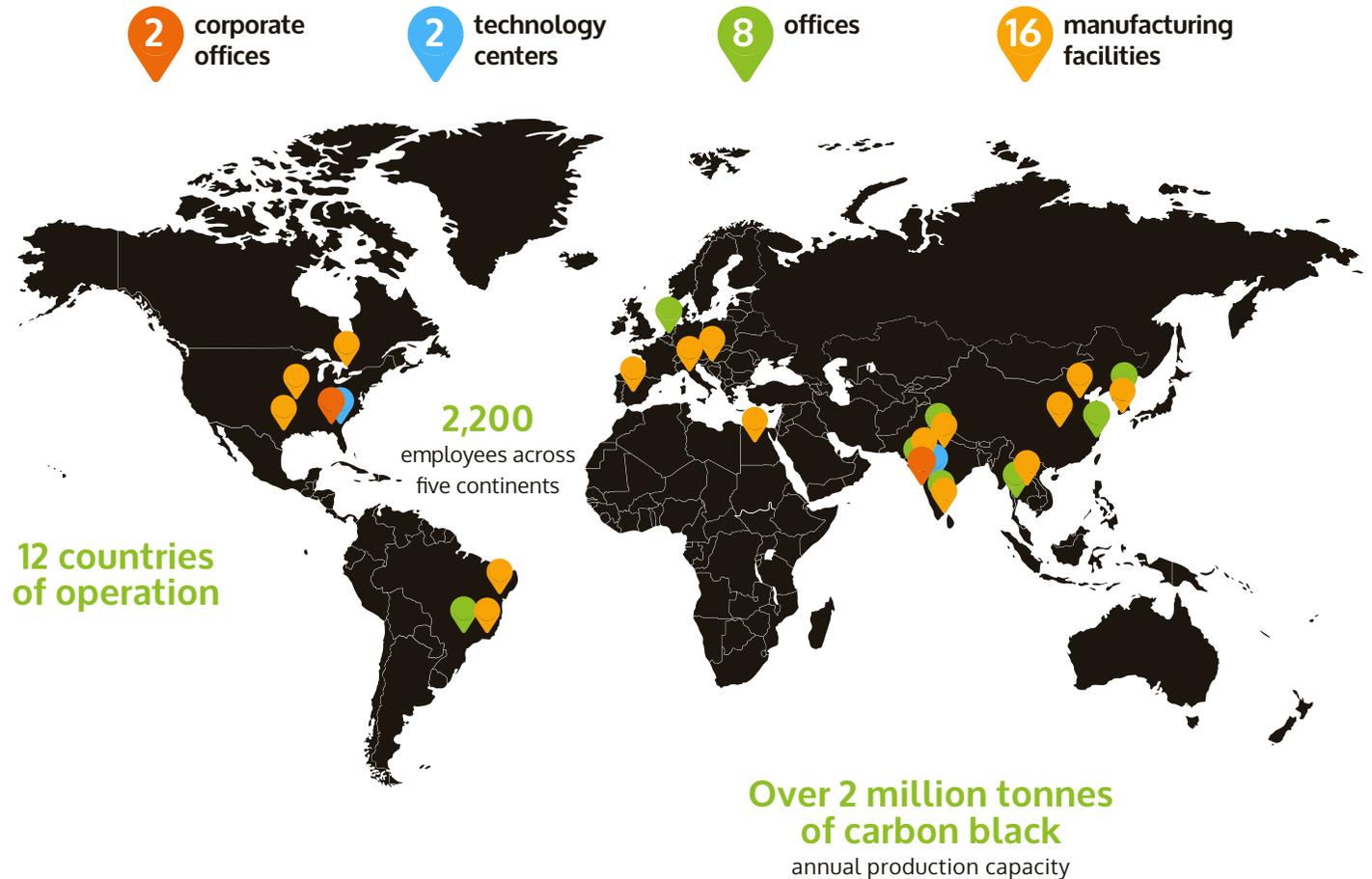
Did you know?

There are over one trillion aggregates in a single gram of carbon black.



Building a global legacy

As the world's largest carbon black producer and supplier, we serve customers from across the globe and have an operational footprint that is just as large.



Global recognition FY2022

We take pride in the recognition we receive for our achievements on our journey towards Sustainable Operational Excellence (SOE).

Global



We were awarded with:

- An EcoVadis Platinum rating for advanced sustainable practices in May 2022; and
- ICBA Gold awards for seven plants and two research and development laboratories for industry-leading safety levels.

Santander, Spain



We were awarded a “Cantabria Occupational Road Safety Distinction” by The Cantabrian Institute for Safety and Health at Work (ICASST) for involvement in the “CIRCULA” Project. This initiative was launched in collaboration with the General Road Traffic Office of Cantabria to reduce and control traffic accidents during working hours.

Weifang, China



We received the following recognition from the Dajia Wa subdistrict office in 2021, under the Binhai Economic Development Zone Governmental Office:

- Top 10 Tax Paying Enterprises
- Advanced Enterprises on Safety Production and Environmental Protection
- Advanced Enterprises on Epidemic Prevention

Jining, China



In 2021, we received an Annual Site Management Star Enterprise 4-star award from the Jining Bureau of Industry and Information Technology.

We received the Special Contribution Award for Independent Emission Reduction of Autumn and Winter Air Pollution Prevention and Control in Rencheng District, China in 2020–2021.

Angthong, Thailand



Our plant received the following recognition:

- The AMCHAM CSR Excellence Recognition Award for 2021 for CSR.

Our Vision

Our Vision is to be the most respected, sustainable and dynamic global carbon black business. As recent signatories to the United Nations Global Compact (UNGC), we aim to use both our scale and our diversity to fulfil this Vision.

Our Purpose: Share the Strength

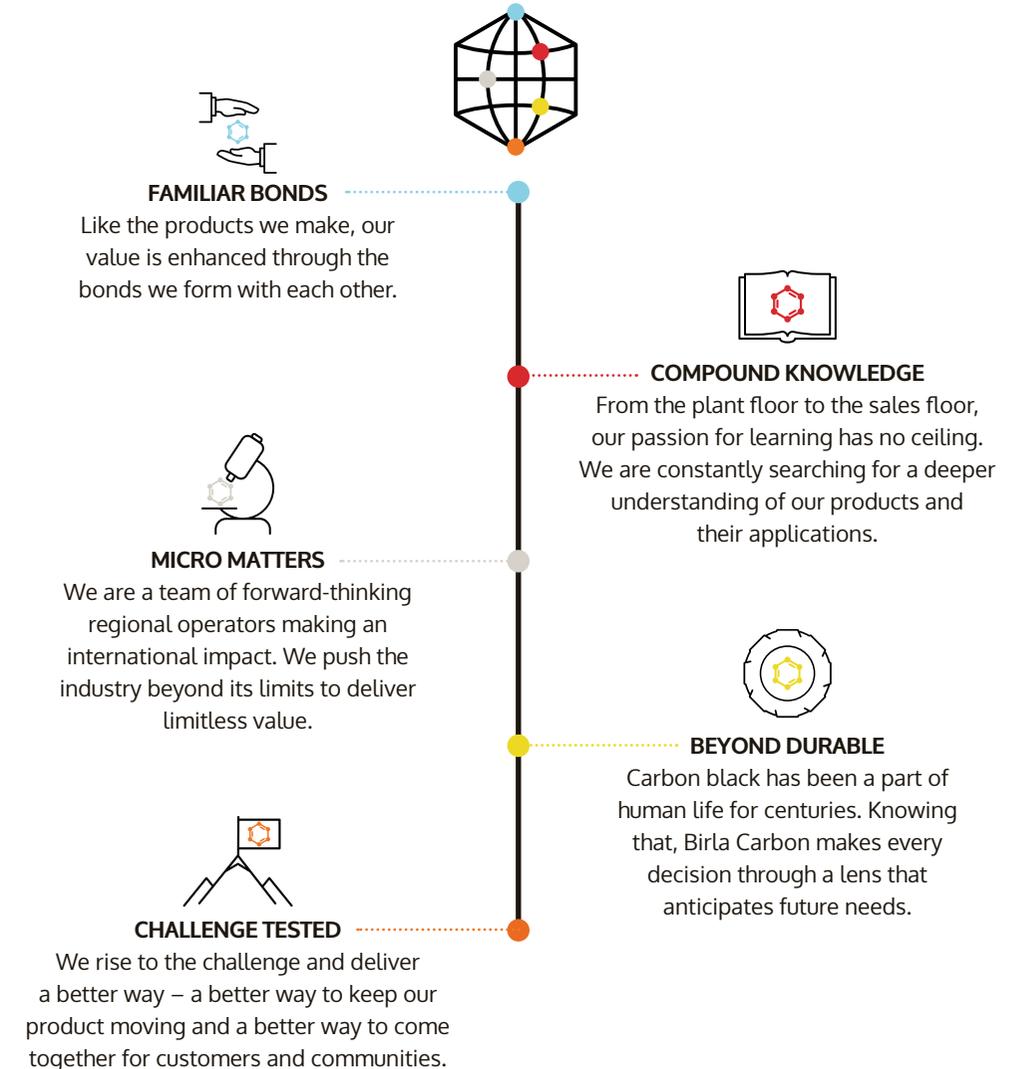
Our global collaborations focus on what we can do for all our stakeholders. We exchange ideas and aim to communicate with humility so that we continue to stand strong as industry leaders and responsible members of society.

Through our long history of balanced and shared leadership, we maximize the strength that carbon black brings to products and the dependability and stability we bring to employees, customers and communities.

Did you know?

Over 13.5 million tonnes of carbon black are produced worldwide annually.

Our five Purpose Principles



Our sustainability strategy

SOE is our sustainability strategy and influences every decision we make. From designing and operating our plants to interacting with our customers and communities, SOE guides our efforts to Share the Strength.

By embedding sustainable thinking at every level, we can ensure we meet the ever-changing needs of our stakeholders. Sustainability supports our business: regardless of economic volatility, increasing environmental and societal concerns or evolving customer expectations, we are ready to deliver while driving positive impacts.

[Read more about our approach in the Birla Carbon Sustainability Policy](#)



How we are adapting for the future

To continue to achieve SOE, Birla Carbon has aligned with the Aditya Birla Group's (ABG) three-step agenda:

- We have become **responsible stewards**
- We have begun greater **stakeholder engagement**
- We are **future-proofing** our business over the long term

The three pillars of our SOE strategy

People

We encourage a culture of responsibility that promotes the health, safety and wellbeing of our employees and the communities in which we operate.

[Our People](#)

Product

We are committed to producing a consistent supply of world-class carbon black for our customers while driving circularity to reduce environmental impact and generate greater social value.

[Our Product](#)

Process

We strive to be a responsible steward of the environment by optimizing the conversion of carbon to carbon black, minimizing our carbon dioxide emissions and maximizing the recovery of energy generated during our manufacturing process.

[Environment](#)

A message from our CEO

“Sustainability is here to stay, or we may not be.” Niall FitzGerald

This is a powerful quote. Today, as we sit within our working spaces and look out, the world has changed drastically. We have come out of the grips of the pandemic and life has returned to a different kind of normalcy. If you come to think of it, businesses large and small were perhaps able to weather the tough times because of their strong sustainable foundations. Countries globally have bravely taken the pandemic and its waves in stride as the population has learned to live with it by adapting appropriate preventative measures.

According to an [April 2022 report](#) by the International Monetary Fund, the invasion of Ukraine has set back the global recovery. It has triggered a costly humanitarian crisis along with economic damage that has contributed to a significant slowdown in global growth and fueled inflation. Fuel and food prices have increased rapidly, hitting vulnerable populations in low-income countries the hardest. Global growth is now projected to slow down from an estimated 6.1% in 2021 to 3.6% in 2022 and 2023. These figures are 0.8 and 0.2 percentage points lower than what was projected in January.

Beyond 2023, global growth is forecast to decline to about 3.3% over the medium term. These are some worrying numbers for the world. While the war has had its devastating effects on human life (and continues to do so), businesses like ours have done well. We have been able to assure our global and regional customers of our security of supply commitment even during difficult times. All of this was possible because of our unwavering focus on sustainability and our Purpose to Share the Strength. This places additional responsibility on us to drive a better future for all.

At Birla Carbon, sustainability is one of the key pillars for the business’s success. We leverage every aspect to ensure the future of our business, our customers, our communities and the world is long-lasting and sustainable. This has been recently reflected in our Platinum rating from EcoVadis for sustainable business practices. We are very proud of the Platinum rating, which puts us in the top 1% of businesses rated by EcoVadis and motivates us to work harder to maintain the momentum and only grow from here.

I am pleased to also confirm that Birla Carbon reaffirms its support of the Ten Principles of the United Nations Global Compact in the areas of Human Rights, Labour, Environment and Anti-Corruption. In this report, we describe our actions to integrate the Global Compact and its principles into our business strategy, culture and daily operations.

Despite all of these recognitions and support, I am deeply saddened to report the fatality of a contract workman at our facility in Egypt. This serves as a clear reminder that work in the future must stand on real-time operational excellence that ensures the safety of all. We are committed to applying the learning from this tragedy to provide an ever-safer environment for all of those at our facilities.



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As we celebrate 10 years of documenting sustainable practices, our decade of chronicling sustainability deserves a special mention in this tenth report – *On the road to net zero*. This year, we captured key highlights pertaining to sustainability across our locations, dedicating a special section to inspiring stories. I'd urge you to read those special stories and meet the people who were instrumental in making sustainable practices a success at Birla Carbon.

Our Purpose, to Share the Strength, and our never-dying focus on SOE have enabled us in 2021 to introduce to the world our Continua™ offering. In 2022, we made significant progress with our Continua™ brand of Sustainable Carbonaceous Materials (SCM), linking Birla Carbon to the long-term sustainability goals of our customers, bringing true circularity at scale to the value chains we serve. We also pledged to achieve net zero carbon emissions by 2050 (a first for the industry when we announced it in August 2021). While this is our goal, when working towards its achievement, we recognized the need for more near-term targets to guide us to net zero.

Net zero emissions is an ambitious target for us and we realize we cannot achieve it alone. Therefore, we have been engaging with our partners and evaluating various technologies to implement our net zero strategy. A key to our success will be the successful development of carbon capture and conversion processes. Historically, approximately 2.4 tonnes of carbon dioxide (CO₂) is generated for each tonne of carbon black produced, making this technology one of our top research and development (R&D) priorities. Along with evaluating other sustainable feedstocks and recovering valuable materials through circular value chains, we are committed to being at the forefront of delivering a net-zero future.

From a business standpoint, innovation is going to be the mainstay of everything we do at Birla Carbon. In early June this year, we concluded a global innovation summit where we recognized the risks and rewards of our innovative past; learned how to future-focus today's passions and perspectives towards a better tomorrow; and found inspiration to journey together into the unknown. Recognize. Learn. Inspire. All of this, while keeping a strong focus on our Purpose and our SOE.

This year, we have updated our materiality assessment following discussions with our stakeholders. We have introduced new key performance indicators (KPIs) that we feel, as an industry leader and preferred partner for our customers, matter in today's day and age, with a clear focus on the long-term sustainable horizon for the business.

With that, I invite you to read and enjoy our 2022 Sustainability Report, which provides a view into our journey over the past year, progress towards our objectives and goals for the future. The theme of circularity ties the report together as we move forward towards true circularity with the Continua™ family of products.

I thank you for being our partner and a constant source of support and inspiration for Birla Carbon. All the best for a brighter future!

John Loudermilk,
Chief Executive Officer,
Birla Carbon



We are working with partners to create Scope 1, 2 and 3 near-term targets to support our net zero pledge."



A message from our Chief Legal, Risk and Sustainability Officer

Sustainability for Birla Carbon began long before our first official sustainability report in 2013.

In the last 10 years, we have aligned our activities to our business vision to be the most respected, sustainable and dynamic global carbon black leader. We have made efforts and taken bold steps to cement our position in the market as a preferred sustainable partner for our customers. This, for us, is our real achievement.

We believe that being sustainable is imperative in today's changing world, and while the COVID-19 pandemic has brought with it some unique challenges, it has also provided a plethora of opportunities for businesses to run themselves in a more sustainable manner. Birla Carbon recently received a Platinum rating from EcoVadis – something we are very proud of. All our global efforts – manufacturing, supply chain, procurement and more – have had an underlying element of sustainability.

Our focus on staying close to our SOE philosophy and the extensive work we have done through the years in Business Continuity Planning have aided us in adapting well to a post-Covid world. We continue to live

our Purpose to Share the Strength with our colleagues, stakeholders and customers, as well as the communities in which we operate.

From a sustainable product perspective, last year we introduced our Continua™ brand of SCM, with the aim to co-create sustainable solutions at scale for the rubber and non-rubber segments of the market and make circularity a reality. Continua™ 8000 and 8510P SCM, two sustainable alternatives to traditional furnace carbon blacks, are now commercially available and have demonstrated the ability to contribute to a value chain with a net negative carbon footprint, capturing 0.73 tonnes of CO₂ for every tonne produced.

Along with sustainability, we have always upheld the importance of health and safety at all of our locations globally. Despite our successful record on this front, I am saddened to report that we had a contractor fatality in 2022 at our Alexandria, Egypt plant. While the incident has been thoroughly investigated and corrective actions have been taken, it reminds us all of the paramount importance of safety

in everything that we do. We must each ensure that we focus not only on our own safety but on the safety of those around us. While we know we haven't reached a zero number yet in this space, we are confident that we will get there soon, as zero is the only acceptable figure when it comes to hazards and risks.

We have developed methods to significantly reduce waste and implement technologies to optimize our production processes. We provide value to our customers primarily by developing innovative products that benefit our common value chains; constantly strive to make our operations more sustainable so that we minimize our environmental footprint; and ultimately, give back to the communities and the society in which we operate.

Consistent with these efforts, we announced our aspiration to achieve net zero carbon emissions by 2050. As the first carbon black company to state such a goal (in August 2021), Birla Carbon continues to focus on the four pillars of Research, Reduce, Replace and Repurpose (the 4Rs approach) in order to achieve it.

Our drive for innovation and sustainability will continue to take us in the right direction to achieve our ambitions. Our focus is on all three scopes of carbon emissions, but we anticipate the majority of our carbon footprint reduction to come from Scope 1 (direct) and 2 (electricity indirect) based on our direct and indirect emissions-reduction initiatives. A smaller portion of the reduction is estimated to come from emissions in Scope 3 (other indirect) based on the operations of upstream and downstream industries in our value chain.

By the nature of our business, we are always striving to be better carbon stewards. We are choosing to lead through bold commitments and industry-first initiatives for a more sustainable tomorrow. This is highlighted as we celebrate a decade of sustainability this year. The last 10 years have gone by swiftly, and we still feel we have just scratched the surface; there is a lot more that needs to be done. We know we will get there eventually.

As I end my note, in retrospect, the one thing that stands out is the importance of sustainability – it is non-negotiable today. What is more, when aligned with innovation, it makes for a dynamic and successful enterprise in the future. Innovating in this domain on a constant basis is the most effective way for a business to live long and survive in these constantly changing times. Share your ideas with each other and together, let's fuel our imagination to make Birla Carbon not just the leader in the carbon black industry, but a global leader in providing sustainable solutions.

I hope that you enjoy reading and learning from our 2022 Sustainability Report, and we look forward to your views and reflections.

Thank you.

Joe Gaynor,
Chief Legal, Risk and
Sustainability Officer,
Birla Carbon



Focusing on what matters

Our sustainability strategy guides us to work in ways that not only benefit our customers but also empower local communities and preserve our planet. This is built on the foundation of our company Purpose: Share the Strength.

Assessing sustainability

We have identified the areas where we can have the greatest positive impact, focusing our efforts on what matters most to our stakeholders.

To effectively consider internal and external impacts, we continually review the challenges that are most relevant to our business. Our Sustainability Steering Committee (SSC) uses quantitative analysis (such as employee surveys and Health, Safety and Environmental (HSE) metrics) and qualitative analysis (of customer feedback and community input) to determine the materiality of each issue. They consider the influence of stakeholder assessments and the significance of our economic, environmental and social impacts.

The issues shared are the outcome of our FY2022 materiality assessment. They have been ranked according to the level of interest to our major stakeholder groups and business impact for Birla Carbon.

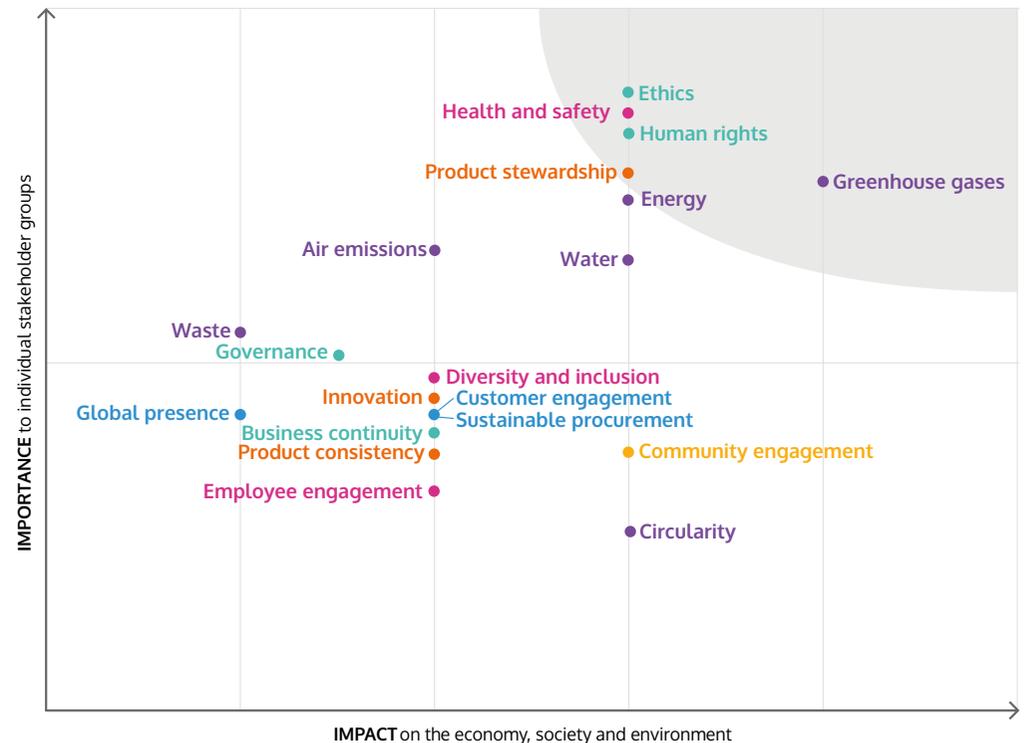
To validate our assessment and ensure our reporting achieves the Global Reporting Initiative (GRI) principle of completeness, we updated our materiality based on stakeholder engagements from the past two years. We held materiality review sessions with subject matter experts from various business functions to understand the nature and insights from stakeholder engagements, including customer meetings, conferences, employee satisfaction surveys, HSE perception surveys and customer queries.

As per the GRI Standards, the SSC attributed each issue to a material topic, whether internal or external, relevant to the organization. Results were subsequently approved by the Chief Legal, Sustainability and Risk Officer, on behalf of Birla Carbon’s Senior Management Team (SMT).

- Product consistency Business continuity
- Water Human rights Employee engagement
- Product stewardship Air emissions
- Diversity and inclusion Global presence
- Sustainable procurement Ethics Waste
- GHG Health and safety Circularity
- Community engagement Energy Innovation
- Governance Customer engagement

Our materiality matrix

As a result of a formal materiality assessment, we have identified the key issues for Birla Carbon, as defined by our major stakeholder groups.



Future issues and trends

Future-proofing is a key stage in our SOE journey, helping us to adapt to long-term global and social megatrends while building the resilience of our international business.

We use horizon scanning and scenario planning to identify external factors that could potentially impact our business, considering the risks and opportunities as we shape our future strategy. As part of this process, we also monitor how our business could impact them.

Over 170 years, we have cultivated an efficient and flexible future-proofing approach. As we look forward, we understand the value in applying an increasingly structured way of thinking about risks and opportunities.

In FY2017, we worked with international sustainability nonprofit Forum for the Future to identify trends and issues most relevant to Birla Carbon. In FY2022, we continued to apply Forum for the Future’s findings, and our Sustainability team regularly discussed issues with our Enterprise Risk Management (ERM) team. We then undertook long-term risk mapping, looking at these challenges beyond five years. Our Sustainability and ERM Committee will continue to monitor these issues on an annual basis.

 [Read more about our governance approach](#)

Megatrends

Here we present several external factors that may impact the global carbon black industry between now and 2030.

Disruptive innovation



Future of mobility

Three transformative mobility revolutions have kicked off: sharing, electrification and automation. Electric cars may have positive implications for our industry as they wear through tires more quickly and use carbon black in battery technology. The effect of driverless cars is more uncertain, especially as they may enable a transition to fleet models of shared mobility, replacing ownership and leading to fewer cars and thus reduced carbon black demand.

Smart cities and urban mobility

There is a growing demand for walkable and bikeable cities, with visible efforts worldwide to reduce car use and congestion. By 2030, fleets of on-demand, shareable electric driverless vehicles may also reduce traffic. The various stakeholders we engaged with on this topic are divided as to whether this will affect carbon black demand or not. Changes to urban planning will, however, undoubtedly generate challenges.

Climate change



In response to the Paris Agreement, climate change policy could profoundly shift transportation away from cars by 2030, resulting in a marked impact on our business. Potential carbon taxes could influence oil prices, affecting the availability of our feedstock. However, as a material impact there could be more demand for carbon black as tire components that improve efficiency are prioritized.

Demographic shifts



Growing middle class

The popular definition of a growing middle class implies more consumption in emerging economies. However, premature deindustrialization is already visible in some African and Asian countries, leading to a different, less affluent model of “middle class” that prioritizes access over possession. For Birla Carbon, the fact that a rising middle class may not mean a rise in consumption is a challenge.

Millennial consumption patterns

A new model of living that prioritizes access over ownership is emerging. This lifestyle is driven by millennials. A key indicator of this is changing car use – using car-sharing services in place of ownership. As millennials will be the dominant generation by 2030, this represents a significant challenge for Birla Carbon.

Resource scarcity



Oil and gas

Oil availability will inevitably have an impact on our business, as carbon black production requires feedstock that is a byproduct of oil. There is a need for Birla Carbon and others to consider alternative sources over the next decade, particularly in the face of other attractive materials, such as silica.

Energy

The global shift from fossil fuels to renewables may impact oil demand and pricing and affect electricity generation or transportation. Any change from traditional energy and transportation systems represents both challenges and opportunities for Birla Carbon in terms of resilience and adaptation.

Circular economy

Carbon black is a highly engineered material requiring carbon-rich feedstock. As such, using renewable or recycled sources, which contain elements besides carbon, in our production process presents significant emission and environmental challenges. Once incorporated into finished articles made out of rubber or plastics, carbon black is difficult to separate from other materials, making it impossible to recover at the end-of-life stage. However, through partnerships and by focusing on areas where we can be more flexible in our processes, Birla Carbon seeks to lead the industry in SCMs, curving the linear model of our value chain.

Our [Continua™ SCM](#) is our best-in-class example of driving circularity at large scale.

Water

This is a key area for all industries – nearly half the global population is expected to face shortages by 2030. Use reduction and recapture will become increasingly important for Birla Carbon in this timeframe.

Stakeholder engagement

We are stronger when we work together, sharing knowledge and innovative new solutions with our global customers. We engage with a variety of stakeholders from across the world, building on the knowledge of others and bringing together diverse ideas to progress our operations.

As a responsible leader, we work collaboratively with our stakeholders to align our sustainability strategy more closely with theirs. We have built strong relationships and improved our understanding of the future trends that could affect us by conducting product Life Cycle Assessments (LCAs) and sharing information with peers.

Our engagement with those that have the greatest impact on our business is important for our success, and we are shaping our strategy based on what is material to them.

Customers



How we engage

We aim to develop long-term relationships with customers and, based on our excellent service and high-quality product, become the carbon black provider of choice.

One way we achieve this is by engaging with customers on key sustainability issues and aligning our sustainability agenda with theirs.

Our Global Engagement Managers engage with customers regularly through our Key Account Management program.

Examples of engagement in FY2022

We perform satisfaction surveys using the Net Promoter Score® methodology, through which we compare our performance with that of our peers.

We hold periodic customer dialogue and training events to align sustainability strategies. We also train our customer-facing employees on sustainability issues, with increasing customer interest in circular products, greenhouse gas (GHG) emissions and sustainable supply chains.

Our Technical Services, Sales and Product Development teams participate in a range of technical conferences as an opportunity to interact with our customers. In FY2022, these included Paint India 2022, Tire Technology Expo 2022, American Coatings Show, PowderTECH 2022, Thermoplastic Concentrates 2022, International Exhibition on Rubber Technology, Battery Show Europe, Recovered Carbon Black Conference 2021, ChinaCOAT 2021, Electric Vehicles Battery Tech 2021, The Battery Show, Carbon Black World 2021, Coatings Trends & Technologies, and Tire Technology Virtual 'Live' 2021.

Employees



How we engage

We conduct biennial employee feedback surveys to encourage a continual dialogue between managers and employees.

We also provide a hotline for our people to anonymously report any concerns or grievances.

Examples of engagement in FY2022

We continue to issue an internal KPI report quarterly for discussion at board meetings. These are the same KPIs that we report publicly, except that within the internal report we provide detailed breakdowns by plant. This is to encourage sharing of best practice and stimulate further site engagement with regards to KPI performance. This process has initiated benchmarking and discussions between facilities on their performance, leading us to begin developing internal KPIs to drive further improvement.

We conducted training for individual business groups (i.e. Sales and Marketing and Finance) and globally on GHG emissions and our net zero strategy. We also introduced several more Hype innovation campaigns globally, inviting employees to put forward ideas for innovation in safety and net zero carbon.

Informed by global research and stakeholder interviews, we ran diversity and inclusion workshops to support our managers and SMT on their inclusive leadership journeys. To date over 300 managers have undertaken our two-day managerial workshop, with the SMT creating an action plan informed by their collective learnings.

[Learn more about our employee engagement](#)

Suppliers



How we engage

As our business depends on suppliers, we work closely with them to develop strong relationships.

Our suppliers' behavior reflects on us, so ensuring that they uphold our high ethical standards is vital.

Examples of engagement in FY2022

Our Code of Ethics includes contractual terms and conditions that we expect every supplier to uphold.

We review our global feedstock suppliers and encourage suppliers to audit their own operations.

In FY2022, we continued to implement our supplier compliance and sustainability screening and assessment systems through NAVEX Global's RiskRate® and EcoVadis.

Aditya Birla Group



How we engage

Our parent company, the ABG, follows a three-step sustainability agenda: responsible stewardship, stakeholder engagement and future-proofing.

Examples of engagement in FY2022

We have aligned our sustainability strategy with the Group's three-step agenda.

We participate in a Group-wide monthly sustainability webinar, during which businesses and outside experts present on current sustainability topics. We regularly communicate our progress through this channel.

We also participate in several working groups with other ABG businesses to facilitate sharing of best practices and problem solving. Working groups cover topics such as decarbonization, waste, health and safety, water, risk management, product stewardship and sustainable supply chains. We also participate in the annual ABG Sustainability Conference.

Communities



How we engage

We take a local approach to building community relationships to ensure we understand the unique priorities of our global communities. We focus on delivering long-term socioeconomic benefits through our engagement – namely health, education, social support and charitable giving.

Examples of engagement in FY2022

See our [Communities section](#), where we describe our community engagement in greater detail, including how we support local healthcare, education, livelihoods and infrastructure.

NGOs, civil society, academics



How we engage

We continue to interact with nongovernmental organizations (NGOs) and wider social institutions that are particularly relevant to our business.

This engagement takes the form of meetings and participation in events where we share knowledge with our peers.

Examples of engagement in FY2022

We participate in the Sustainability Leadership Forum, where business leaders from a range of industries collaborate to overcome sustainability challenges.

As part of the wider dialogue on how companies can help achieve global sustainability targets, we have aligned our SOE strategy with the UN Sustainable Development Goals (SDGs). In FY2022, we also became signatories of the UNGC.

Many of our facilities are involved in local chemical industry associations. For example, in Brazil we participate in several Brazilian Chemical Industry Association (ABIQUIM) committees, covering topics such as health and safety, sustainability and emergency response. Our Corporate Health and Safety Managers participate in the American Society of Safety Professionals, the largest professional safety society in the world.

We are engaged with both the World Business Council for Sustainable Development (WBCSD) and the Ellen MacArthur Foundation on measuring the circularity of our production processes.

Contributing to the Sustainable Development Goals

We first mapped our efforts to the UN SDGs in FY2016 and continue to align our progress to global development targets by becoming signatories of the UNGC. This ensures our sustainability progress is coordinated at a global level.



WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



SDG 9 Industry, innovation and infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

Our aim is to ensure sustainable and resilient infrastructure in developing countries and enhance local technology, research and innovation through the use of carbon black. Products like Continua™ SCM promote a circular carbon economy by enabling the extraction and repurposing of carbon black from end-of-life tires into new products, such as rubber compounds.

Sustainable development requires the adoption of clean and environmentally sound technologies. To ensure we are in line with the latest emissions-reduction targets, Birla Carbon has been engaging with the US Environmental Protection Agency. Informed by incoming requirements, we are investing in the seawater scrubbing facilities at our North Bend site.

As a product, carbon black connects and brings additional value to many key areas and industries within our lives. Found within everyday items, such as our clothes and the ink on bank notes, it is also a critical element of transportation sectors. Carbon black increases the durability and safety of tires on the road. It also prevents leaks and provides UV protection for water used to irrigate crops. An enabler, carbon black is a key component for its own development as it is found within electrical wires, computers and the technologies that make our lives easier.

In the interest of fostering innovation, our approach to research and development is to empower all our employees – building on our Share the Strength ethos. This open culture has allowed us to expand our product offerings and technologies within our research portfolio.

The social value of carbon black

Committed to protecting our planet



SDG 12
Responsible consumption and production

Ensure sustainable consumption and production patterns.

Efforts to address our resources' sustainability include developing their circularity, such as with Continua™ SCM, to reduce our reliance on virgin resources. While our feedstock is a byproduct of another industry, it is also a limited and non-renewable resource, which, in the long term, may have an impact on our consumption. Ensuring that our feedstock comes from suppliers close to our facilities reduces our production chain's associated emissions. These commitments to responsible procurement practices support our customers' ambitions to include more renewable or recycled materials in their own products.

Our approach to circularity is aligned with the Ellen MacArthur Foundation and their Circulytics tool. This method has three guiding principles that ensure Birla Carbon's efforts are holistic in their application along the chain of procurement, production, use and end-of-life, as well as research and development. Our strategy to reach net zero GHG emissions supports circularity: Research, Reduce, Replace and Repurpose.

Our process starts by giving someone else's waste a second life, and we continue this sustainable approach across resources during the production stage: utilizing energy recovery (70% of our plants are net energy

positive), harvesting water for reuse (100% of our sites used recycled process water and/or rainwater in their operations) and reducing and repurposing waste (we repurposed 67% of our material waste in FY2022).

We know our responsibility doesn't end at our facilities. That's why we conduct LCAs by evaluating all the environmental impacts in a product's life cycle, from raw material extraction through to end-of-life. To achieve a more circular economy, we collaborate with our entire value chain to understand our impacts and reduce waste in any form.

We also work closely with our suppliers to ensure the high ethical and sustainability standards within our Supply Chain and Procurement Policy are met. This policy guides our sites to ensure compliance with the relevant legislation and the Birla Carbon Code of Ethics as part of our worldwide approach to sustainable procurement.

 **How we are developing a sustainable supply chain**



SDG 13
Climate action

Take urgent action to combat climate change and its impacts.

Our approach to combating climate change and its impacts is to focus on carbon stewardship. This encompasses our emissions-reduction efforts and our aim of being net energy positive, which we have been achieving globally since at least FY2016.

Our operations continue to generate emissions. We are always working to reduce our emissions as a priority by continuing to focus on optimizing processes for converting carbon to carbon black.

Since establishing our energy conversion KPI, we now recover more energy from our own facilities and consume less energy per tonne of carbon black produced. Much of this energy is used in our manufacturing process, while any surplus is sold to neighboring facilities and local grids. Our Energy and Carbon Policy sets out our commitments to exceed regulations by reducing our energy intensity and carbon footprint.

As part of our commitment to take action on climate change, we annually report on these and our wider sustainability efforts.

 **The steps we are taking to reduce our CO₂ footprint**



Did you know?

More than 144 trees have been planted by visitors to our site in Patalganga, India, symbolizing the deep-rooted ties between Birla Carbon and our customers.

Our product

Evolving together – working with our customers to advance cutting-edge circular products.

In this section:

- 22 Evolving together
- 23 The circularity of carbon black
- 25 Product responsibility
- 30 Product quality
- 33 Research and development

Evolving together

Our century-long dedication to innovation continues as we develop products and processes with circularity in mind. This work is meeting our customers' evolving needs and leading the industry.

We collaborate with our customers to deliver products that meet or exceed their sustainability requirements, while sharing our expert knowledge of the various applications of carbon black.

We invest in robust health and safety measures to meet regulatory requirements, effectively communicating our efforts to our customers. This allows us to continue delivering high-quality carbon black with added social value. We are evolving our stewardship approach, developing our products to address evolving customer needs while raising the bar for the industry.

Did you know?

Over 13 million tonnes of carbon black are produced worldwide annually – some 70% of which goes into tires.



The social value of carbon black

Carbon black is a fine black powder composed of elemental carbon in the form of highly engineered microscopic particles. Part of human life for centuries, today it is found in hundreds of thousands of everyday products. The size of the particles and the way they are aggregated determine the specific properties of carbon black and how it can be used. Applications include helping us to use resources more efficiently, travel safely, communicate easily and access clean water for drinking and irrigation.

[Visit our website to find out more about the social value of carbon black](#)

WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



R&D is critical to deliver on our growth ambitions. Our focus on R&D ensures we continually deliver innovative, sustainable carbon black solutions that address customers' evolving needs, growth beyond carbon black and development of technologies to deliver on our 2050 net zero carbon emissions aspiration. From our team of expert scientists to cutting-edge facilities and technologies, we are investing to be a leader in our industry."

DR. ANN SCHOEB

Chief Research & Development Officer, Birla Carbon USA Inc.



The circularity of carbon black

Designing products with sustainability in mind is as important to us as it is to our customers. We remain dedicated to working with our customers to develop innovative ways to increase circularity throughout our value chain.

Our approach to circularity

Given the complex nature of finished articles containing carbon black, moving to a completely closed-loop system may not be realistic. However, everything we do considers the potential for a more circular approach across the life cycle of our products.

Within our manufacturing, guided by our Sustainable Operational Excellence (SOE) strategy, circularity is built in to processes from the recovery of energy to water harvesting and waste reduction.

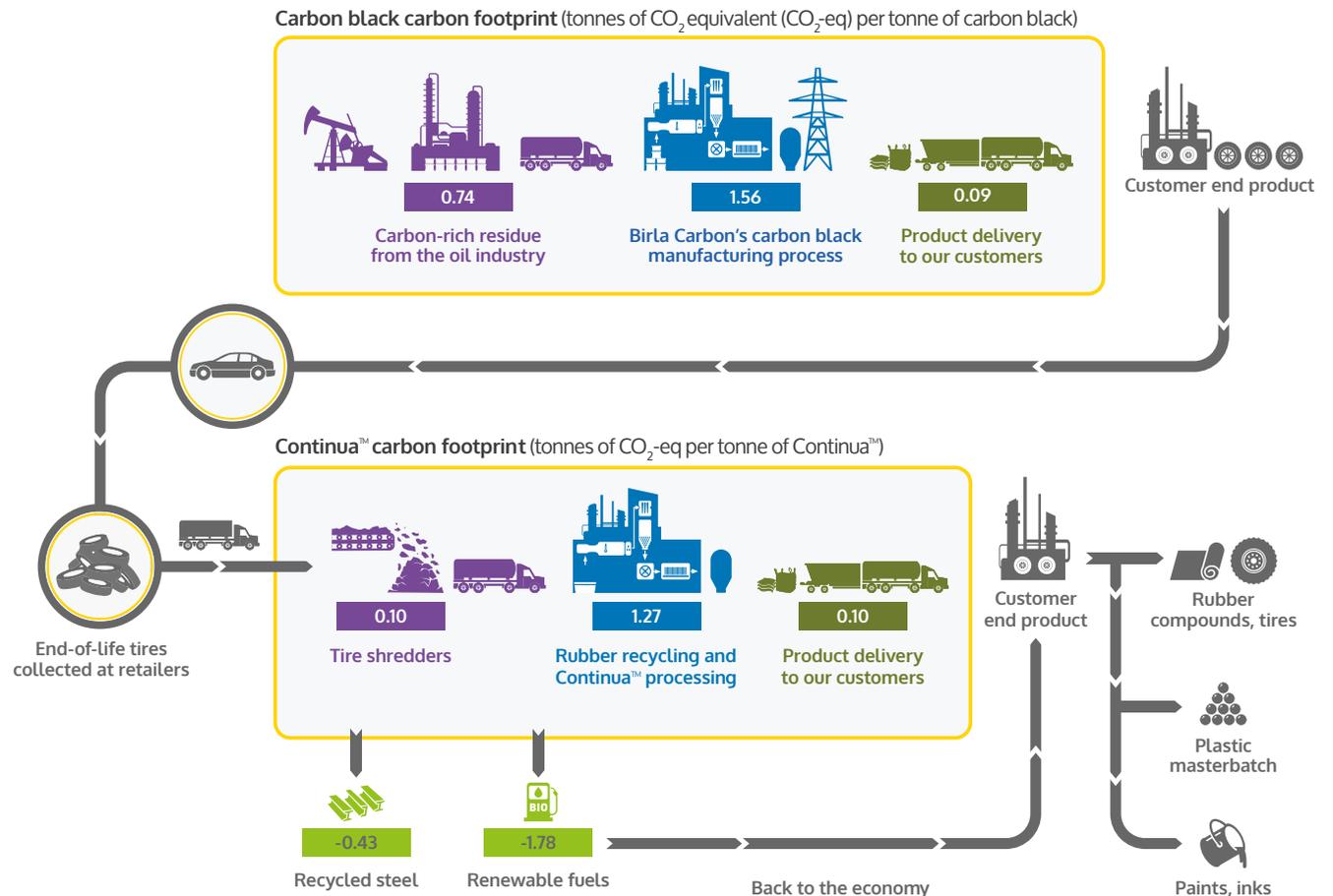
Utilizing the Ellen MacArthur Foundation's [Circulytics tool](#) we measure our efforts against three principles:

1. Design out waste and pollution
2. Keep products and material in use
3. Regenerate natural systems

From Creation to Continua™

Our Life Cycle Assessments (LCAs) of carbon black and Continua™ Sustainable Carbonaceous Material (SCM) provide the data in this infographic. For more information on this methodology and timeline see our publicly available Carbon Footprint Statements.

- [Our Carbon Footprint Statement](#)
- [Continua™ Carbon Footprint Statement](#)



Carbon black: How it's made

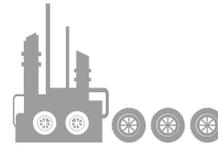
 Watch our video to learn more about how carbon black is made.



1 We produce carbon black in a reactor through a tightly controlled flame-synthesis process that uses carbon-rich oil residue, and sometimes natural gas, as feedstock. This process gives a waste product a valuable second life, as oil residues have limited usage and would otherwise be burnt as bunker fuel.



2 Water is then injected into the reactor, reducing the temperature of the smoke stream, which is routed to a baghouse that separates the light, powdered carbon black from the reactor. This powder is mixed with a binding agent and water to form pellets that allow for efficient transportation to our customers.



3 Carbon black, created by repurposing a carbon-rich byproduct, brings numerous benefits to finished articles, including strength, durability and the ability to lower tires' rolling resistance.



4 End-of-life tires are collected at retailers to be recycled by our partner Cirttec into Continua™ SCM. By using this material, the rubber, plastics and coatings industries reduce the carbon footprint of their common value chain.

Continua™ SCM: How carbon black is recycled

Continua™ SCM is an innovative and sustainable solution for the recovery of end-of-life tires at scale.



5 The overall recycling process begins by removing the majority of the steel content from end-of-life tires, which are then shredded. The tire shreds are then pyrolyzed.



6 The pyrolysis process involves feeding the shredded tires through a series of high-temperature reactors, which produces several valuable outputs, such as renewable fuels and SCM. The renewable fuels are refined on-site and transported to customers. The SCM is milled and beaded, ready for transportation to customers.



7 The use of SCM by the rubber, plastics and coatings industries increases the volume of sustainable materials used in products and reduces the overall carbon footprint of our common value chain.



Continua™ SCM requires collaboration and shared innovation with our customers to explore further application possibilities of this new family of carbonaceous material.

We are taking risks, embracing uncertainty and stepping out of our comfort zone through accelerating our commitments to make circularity a reality.

 [Read more about our circular economy partnership with Cirttec](#)

Product responsibility

Sustainability is at the core of our growth strategy. We design high-quality products while mitigating any potential effects on people and the environment. We recognize the responsibility we have to ensure our carbon black is safe for people and the planet.

Our approach to product responsibility is divided into two key areas: stewardship and safety.

Product stewardship is about ensuring our carbon black complies with applicable health and safety requirements and global regulations for end uses by customers.

Product stewardship

Product safety is how we help our customers handle and use carbon black effectively and safely. We also have specific safety and health programs to protect our employees.

Product safety

Changing how carbon black is perceived

We engage closely with Health, Safety and Environment (HSE) officials across the world to ensure that accurate, science-based information is utilized during regulatory processes through our work with the International Carbon Black Association (ICBA) – a scientific, industry-wide association designed to facilitate research into the impacts of carbon black. Several Birla Carbon professionals hold leadership positions on the ICBA Board of Directors and regional Product Safety and Regulatory Committees for North America, Europe and Asia.

The ICBA hosts regular meetings to address changing regulatory landscapes and sponsors an independent Scientific Advisory Group (SAG). The SAG conducts and participates in product and occupational health investigations, research and analysis.

The SAG also provides feedback and comments on other published material to clarify and/or correct perceptions of carbon black – for example confusion between black carbon (soot formed through the incomplete combustion of fossil fuels, biofuels or biomass) and our engineered carbon black.

We also help our customers conduct research into the safety and efficiency of their own products. Through regular engagement with our customers and our Sales, Marketing, and Research and Development teams, we keep our value chain up to date with the latest industry developments.

-  [Birla Carbon Safety Data Sheets](#)
-  [Carbon Black Product Safety Studies](#)
-  [International Carbon Black Association \(ICBA\) website](#)

As placed on the market, carbon black products are not nanoparticles. At Birla Carbon, the diameters of the primary particle (near-spherical building blocks of carbon black) are generally in a range of 10–100 nanometers. When our carbon black products are used in a final product, they are agglomerates, which are up to 1,000 nanometers (0.001mm) in diameter.

Did you know?

In terms of size ratio, the difference between a primary particle of carbon black and a soccer ball is about the same as between a soccer ball and the moon!



Product stewardship

Our approach

We continue to build a culture of product stewardship throughout our operations, creating an environment in which our people feel able to seek advice and support. We encourage employees to stop, think and ask about what they are doing at all stages of product development and production changes.

Our Product Stewardship Standard (the Standard) requires enhanced testing intervals for all products and provides a robust description of which actions will prompt product re-testing at a manufacturing site. Each site is required to send samples of the carbon black it is producing to our world-class laboratory in Marietta, USA, where they are logged in the laboratory information management system, ensuring full traceability.

The Standard is enforced on-site by our Product Stewards, who monitor progress and employee training through annual assessments. Our Management of Change Standard ensures we formally document any changes that could potentially impact our product. In 2020, we revised the Standard to further strengthen testing requirements for certified products. We set up a Product Review Committee to oversee these efforts; it meets at least quarterly to review the status of certified products based on commercial requirements.

Enhancing customer understanding

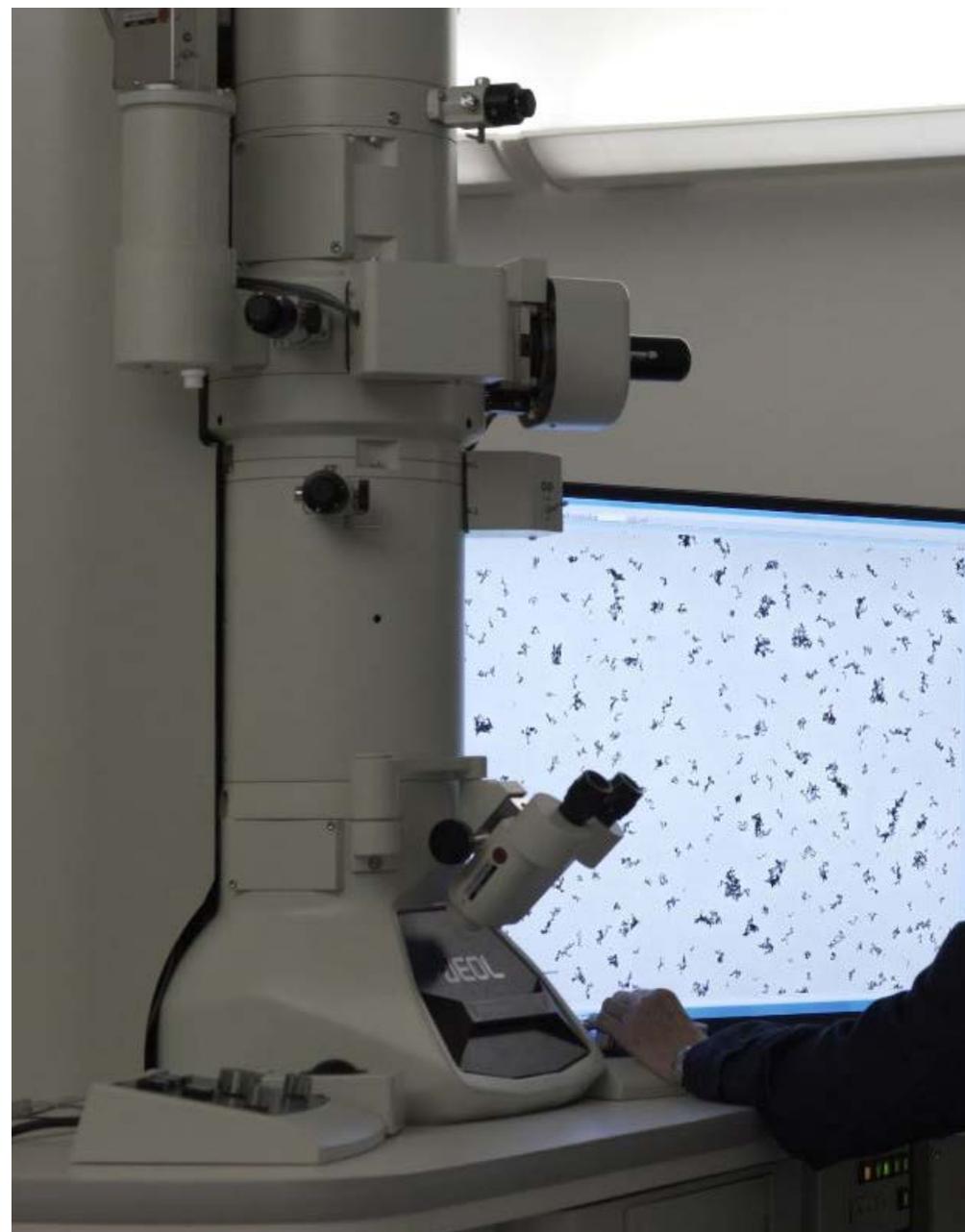
Customers and end consumers want to understand more about carbon black. Through our [product stewardship statements](#), customers can find up-to-date and accurate information, including Safety Data Sheets and labels.

We respond to direct queries from our stakeholders. In FY2022, Birla Carbon received over 1,100 queries related to product safety and compliance with specific environmental or food contact regulations. In all cases, we sent an initial response within one business day. We continually educate our sales and distribution network about carbon black product safety and its regulated applications.



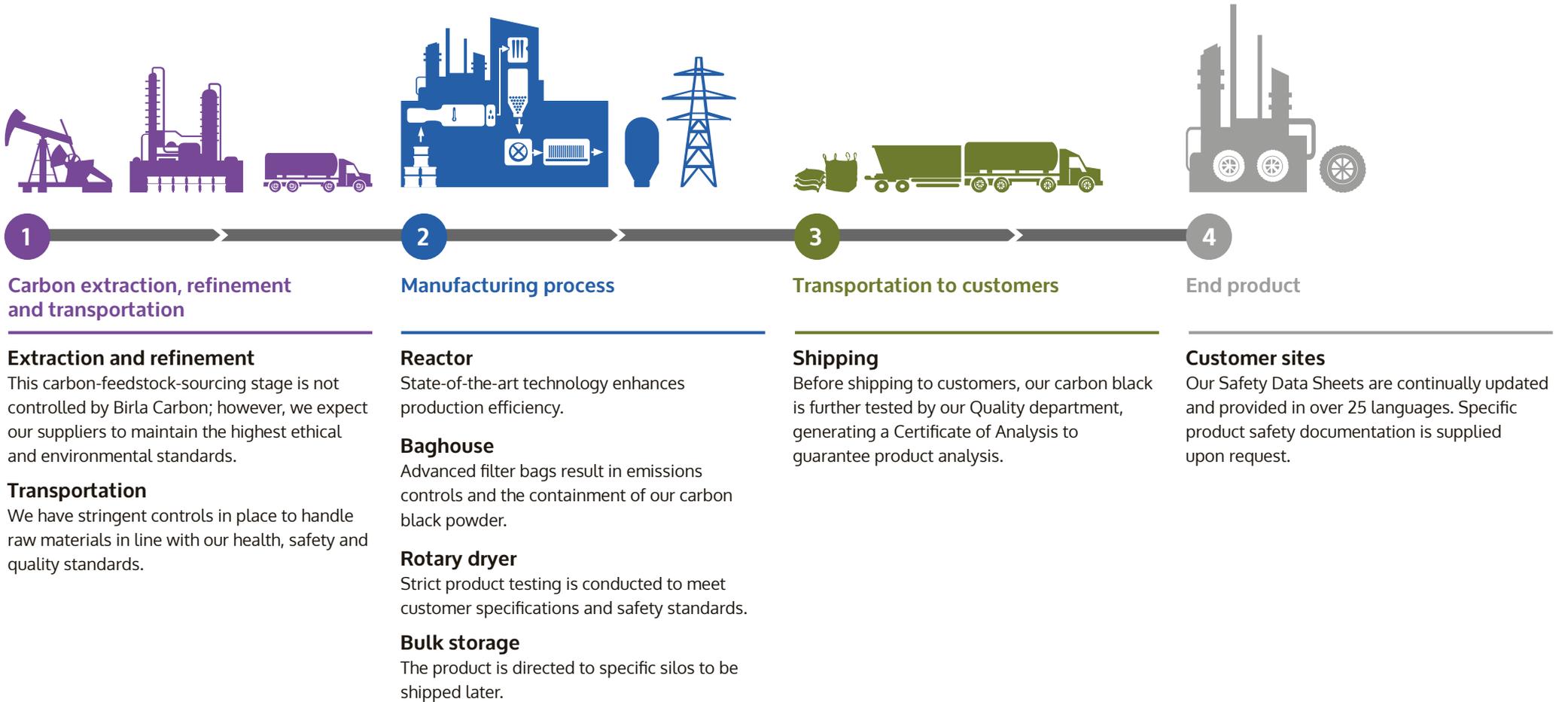
Over 3,400 tests

related to food contact and other regulatory requirements per year.



Product responsibility across the value chain

Across our value chain, preserving product quality is of the utmost importance. Our rigorous process of quality testing, emissions controls, storage and shipping serves to maintain our high standards. Our value chain is divided into four areas: Carbon extraction, refinement and transportation; Manufacturing process; Transportation to customers; and End product.



Product safety

Our approach to creating safe products

Our customers rely on us to develop safe carbon black for incorporation into their products. We remain well informed of any developments, enabling us to support our customers in meeting regulatory obligations while safeguarding an uninterrupted supply of carbon black.

We thoroughly test our carbon black so that it surpasses regulatory HSE requirements. This includes conducting and commissioning product safety studies with renowned third-party institutes through our industry association, the ICBA.

Our industry has invested in robust scientific studies to understand the potential HSE risks associated with our product. Carbon black does not pose any risk to humans, and there is no evidence to suggest that exposure to carbon black results in chronic adverse health effects.

We understand our responsibility to educate and guide customers on handling our carbon black safely and minimizing any potential environmental impacts. This includes having the correct infrastructure in place throughout the supply chain to prevent the release of carbon black dust into the air.

Leading on product safety through innovation and collaboration

Carbon black plays an important role in many food and human-contact applications, so product safety is a vital part of the manufacturing process. Key to this is providing robust scientific evidence that finished articles containing carbon black do not release carcinogenic compounds related to polycyclic aromatic hydrocarbons (PAH). We therefore conduct both PAH and metals testing to ensure these materials are certified as being below prescribed limits.

There are many methods for testing for impurities in carbon black, but only one approach for testing for PAH with the sensitivity and selectivity needed. Birla Carbon has led the way in advancing standards for PAH measurement.

Rafael Vargas is our expert in gas chromatography and mass spectrometry, the analytical techniques used in quantifying trace levels of PAH in carbon black. He heads ASTM Subcommittee D24.66, which deals with HSE aspects for Committee D24 on Carbon Black and holds jurisdiction for developing HSE standards for carbon black.

Through this open committee, we have established a series of internationally recognized test methods specific to carbon black and validated using scientific processes. This is how we Share the Strength, using our experts and research capabilities to support the industry in evolving better test standards and safer products to benefit society.

 **Contributing to the Sustainable Development Goals**



Investing in health and safety

We ensure all our internal and external customers are fully informed about the safety of our products, focusing on product characteristics, approved uses, and health and environmental risks. Any information gaps are proactively identified through our testing program. All business areas contribute to the consistency and compliance of our carbon black from a product stewardship perspective, offering input as to what can be improved.

Birla Carbon has been an active member of the CB4REACH consortium since its inception over 10 years ago. The consortium addresses the regulatory issues of our product related to the REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) regulations. For instance, we are diligently preparing for the substance-evaluation process due to be carried out in 2022 by the French Agency for Food, Environmental and Occupational Health & Safety (ANSES). This is part of the European Chemicals Agency's Community rolling action plan (CoRAP) to determine whether any health or safety risks exist with carbon black. Other countries, including Korea, Taiwan, Turkey, the UK and India, have also introduced regulations similar to REACH. While this presents a challenge in terms of complying with several regulatory frameworks, we are stepping up to meet the deadlines for aligning with all new standards.

[Visit the CB4REACH website](#)

Maintaining health and safety – how we handle carbon black

Peer-reviewed research has shown that carbon black is neither a toxin nor a carcinogen, and there is no evidence of any long-term adverse health effects on our employees.

Although carbon black is not defined as a respiratory irritant, carbon black dust is considered a combustible dust that is dispersed easily in the air and therefore should be handled carefully. It may cause drying of the skin with repeated and prolonged contact, but can be easily washed from the skin using mild soap and water, along with gentle scrubbing. If carbon black has been spilled or requires cleaning up, dry vacuuming is the preferred method. As the material is fully embedded in the polymeric matrices of rubber and plastic, consumers are not directly exposed to carbon black through products placed on the market.

[Birla Carbon Safety Data Sheets](#)

[International Carbon Black Association \(ICBA\) website](#)



Product quality

The quality of our carbon black has a direct impact on the performance and safety of our customers' own products. As a leading global carbon black business, we are in a strong position to supply innovative materials that are consistently of the very highest quality.

Our approach to quality assurance

All our manufacturing sites are International Organization for Standardization (ISO) 9001 and International Automotive Task Force (IATF) 16949 certified, providing a sound basis for our sustainable development initiative and helping us continually improve on our overall performance and customer focus.

Our Quality Management System (QMS) is integrated into every process within our manufacturing sites (operations, plant quality, maintenance and repair/instrumentation, and warehouse/shipping) and is regularly reviewed and audited internally. As part of the QMS, each production facility has a quality assurance (QA) laboratory, which uses state-of-the-art equipment to test our products against stringent shipping specifications. These QA laboratories, along with the other functions, ensure that the material sent to our customers complies exactly with their specific requirements.



Our integrated Quality Management Systems and laboratories ensure our materials meet our customers' quality parameters and other specific requirements. By implementing the newest and most important quality indicators and certificates throughout our value chain, as well as the appointment and training of Product Safety and Conformity Representatives, we are building on our foundation as a leading global carbon black business."

DR. SABYASACHI GANGULY
 Director, Global Quality
 Birla Carbon



100% alignment
 with the ASTM Laboratory
 Proficiency Rating System



Receiving industry-first certification

In May 2020, Birla Carbon became the first and only global-scale carbon black manufacturer that, in addition to ISO 9001, achieved IATF 16949 certification for all 16 manufacturing sites. This achievement demonstrates our commitment to the highest standards and product quality, and confirms we meet all the requirements of the global QMS standard.

Determined to continue building on this accomplishment, we are now working towards implementing the newest and most important quality indicators and certificates throughout our value chain. For example, in FY2021 we started the process of appointing and training Product Safety and Conformity Representatives (PSCRs) at each of our manufacturing sites in Europe and some in Asia, in order to support our customers in meeting German automotive industry requirements. We've completed PSCR training at 80% of our sites.

We also began training in VDA (Verband der Automobilindustrie) 6.3, a German automotive industry process-based auditing standard, to understand how customers in that supply chain audit and to improve our own auditing systems. We underwent 10 VDA audits by our customers in the past year.

Operational excellence: Building quality mind-sets and quality processes

Our sites continually work towards building operational excellence and world-class manufacturing practices into day-to-day activities through regular external and self-assessments. Tools such as 5S, a lean manufacturing management system for better workplace management, and Kaizen projects by employees and small groups result in ownership of areas, equipment and processes. This ultimately improves the quality of products and services that we deliver.

Our Operational Excellence program focuses on key areas such as HSE, process efficiency, energy efficiency and quality. We maintain internal metrics for tracking and reporting on performance on a monthly basis. We have also created new multi-regional, multi-disciplinary support teams to help guide the sites we have identified as having the most room for improvement.

Progress towards implementation of best practice is monitored via semi-annual assessments and scorecards detailing the status of each manufacturing facility. Biennial on-site assessments are also conducted to ensure that local management teams fully understand best practice.

Improving our processes

We continually seek to make our manufacturing processes better. Following requirements set by the IATF 16949, we are developing a system through which we can identify costs caused by poor quality. The system tracks these costs through several elements:

- Customer claims
- Complaint-handling costs
- Returned material and associated freight due to complaints
- Nonstandard production

Information on each of these is gathered from the relevant internal functions, including Accounting, Customer Service, Supply Chain and Operations. It is then tracked and analyzed by our Quality Management team. This data supports our management review process to monitor trends and develop actions for reducing costs, as well as improving customer focus and satisfaction.

Focus on product consistency

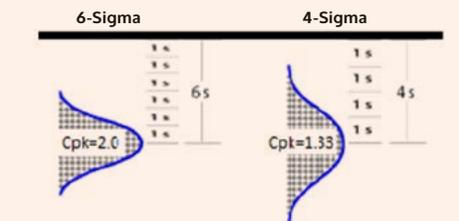
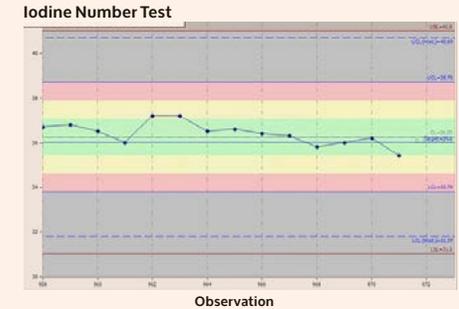
Birla Carbon customers expect a product that consistently meets the highest quality standards. For carbon black, these standards focus on three key areas:

- **Colloidal properties** – or those related to the carbon black’s morphology (microscopic physical characteristics);
- **Physical form** – referring to the bead quality (size and hardness) of carbon black; and
- **Cleanliness** – the purity of our product.

At Birla Carbon, we rigorously test our carbon black through internationally recognized test procedures and participate in the development of testing standards. All Birla Carbon laboratories undertake industry-wide proficiency testing to ensure daily performance checks against the reliability of measurements, and testing facilities are regularly monitored for compliance.

Based on customer requirements, we define upper specification limits and lower specification limits for each test. Our products only leave our factories when all the required parameters have been tested and the products are certified within the customer’s limits.

Our manufacturing processes utilize statistical process control to help produce the highest-quality products. Important properties are analyzed using a process capability index (Cpk), a statistical measure of a process’s reliability. A Cpk level of 1.33 or greater indicates that a process will meet customer requirements.



Sharing best practice on product convergence efforts

In FY2020, we established several quality-related key performance indicators (KPIs) that are communicated internally through regional and global quarterly reports: Net Promoter Score (NPS), complaints and process reliability. These KPIs will help us continue to improve QA Processes, our information-sharing program for quality issues and for devising solutions.

The aim of this approach is to prevent reoccurrence of quality issues at the same, or other, manufacturing facilities. It will also help to improve communication and awareness of quality initiatives to the benefit of all manufacturing sites.

Our Global Quality group, in collaboration with Plant Quality Managers, determines what information should be shared and how best to distribute it. All information is shared throughout our facilities in the form of a quality bulletin, which is maintained for employee reference on our SharePoint.



100% of our manufacturing sites are now IATF 16949 certified

Working with ASTM

Our plant laboratories are regularly audited by our Quality Technology group and assessed twice a year through an international proficiency testing program, the Laboratory Proficiency Rating System (LPRS). This program, organized by ASTM International, provides us with an opportunity to internally compare our laboratories with nearly 100 industry laboratories worldwide. If LPRS

identifies any anomalies or deviations, we conduct internal investigations, with support from our two world-class central laboratories located in Marietta, USA and Taloja, India. This commitment to upholding best practice ensures our laboratories meet the very highest global standards.

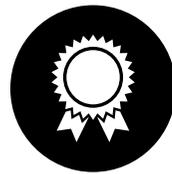
Birla Carbon actively participates in the ASTM Committee D24 on Carbon Black, which develops internationally recognized and

accepted test standards applicable to carbon black. The ASTM standards play a key role for our products in areas such as composition, properties, classification, nomenclature, analysis and QA.

[Research and development](#)

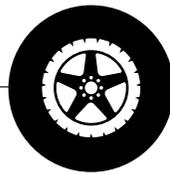
[ASTM website: Committee D24 on Carbon Black](#)

Our global quality management approach



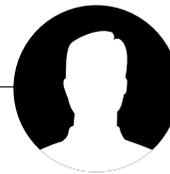
Certificate of Analysis (CoA)

A CoA contains the required product quality information for our customers, along with contact details.



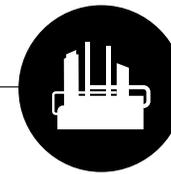
Guaranteed consistency

We work with our customers to establish rigorous consistency tests to guarantee that the characteristics of our carbon black lie well within the specification limits.



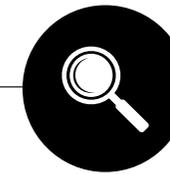
Customer tests

Our customers often conduct further stringent and thorough quality tests to confirm our product's performance.



World-Class Manufacturing (WCM)

Our WCM approach helps us continually improve the quality of our product through adapting the best available practices and technologies across Birla Carbon.



Measurement systems analysis (MSA)

We conduct MSAs to closely examine the performance of our testing equipment.



Quality organization

Regular meetings are held between quality leadership, plant-specific Quality Managers and Technical Service Managers to discuss and implement best practices in the area of quality.

Research and development

Our approach to R&D inspires us to look beyond carbon black, empowering our employees, and takes advantage of the knowledge available in the world today. Focusing on manufacturing technology, analytical services and quality, product development, process innovation and material innovation, we're expanding beyond carbon black to encompass new materials and technologies.

We encourage an open culture of innovation, looking for ideas beyond our principal and supporting R&D centers, via open innovation from any area of our organization as we prepare our business to lead the path to a sustainable future.

Promoting our culture of innovation – spearheading new technologies

To lead the sustainable transformation of our industry, we depend on leading scientists, dedicated to advancing our industry. It has been over 75 years since our historic installation of one of the world's first industrial electron microscopes. Decades later, our laboratories and product-development

scientists continue to exploit this tool to gain insight into current and future carbon blacks.

Birla Carbon's open culture of innovation encourages ideas from any area of our organization – not just R&D. Building on our Share the Strength ethos, we work to spread this message across our varied departments.

To facilitate this process, we provide our scientists with state-of-the-art research facilities, bringing together our R&D and Manufacturing teams from around the world. Our two principal R&D Centers, in Taloja (Maharashtra, India) and Marietta (Georgia, USA), are supported by a regional satellite laboratory in South Korea where our scientists are developing solutions for our products and processes.

Our R&D Centers are dedicated to five areas of expertise:

- Manufacturing technology
- Analytical services and quality
- Product development
- Process innovation
- Material innovation

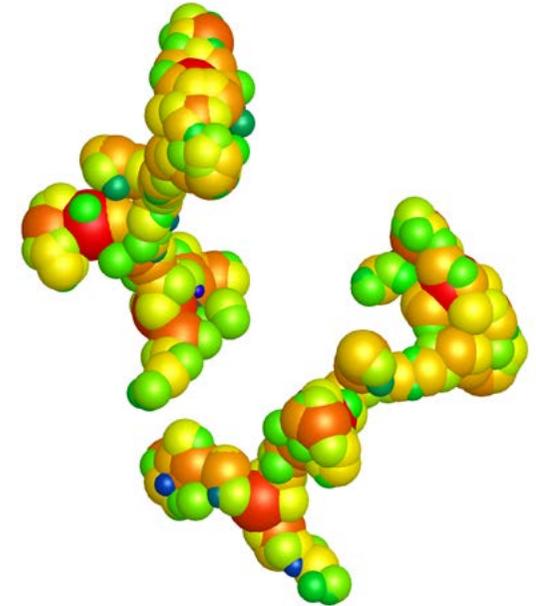
Our R&D Centers employ around 80 leading scientists and technological experts in materials science, analytical chemistry, nanocomposites, physics and process engineering. They utilize computational fluid dynamics for engineering and product design and development.

Our technology is at the forefront of performing tomographic and three-dimensional reconstruction of carbon black aggregates via electron tomography. This is yielding deep insight into carbon black morphology, which we are implementing into the design and development of new reactor technology and products. Our engineers continually investigate and develop new approaches to carbon black production and improved efficiency, while minimizing its impact on the environment.

Our laboratories include a range of sophisticated instrumentation, including electron microscopes, along with advancements in automation and robotics.

For instance, robotics have been used in our rubber labs for testing purposes in dynamic mechanical analysis, stress-strain testing and cure rate analyses. The automation of laboratory testing improves throughput, consistency and repeatability of tests. All of these facets of our R&D team, overlaid by an inspiring culture of innovation that extends beyond our core, provide a strong foundation for discovery and practical development to meet the megatrends and ongoing challenges of the 21st century.

How we are promoting a culture of innovation across Birla Carbon



3D restructuring of carbon black aggregate

Exploring opportunities beyond carbon black

Over the years, our research into improving carbon black for our existing customers has remained a priority. However, we are also dedicated to exploring novel areas of products. Areas adjacent to where we currently work, such as tire materials, coatings, inks and plastics, all hold potential for increasing value for our business and our customers.

Thanks to our R&D efforts, we have expanded beyond carbon black, discovering new sustainable solutions for reinforcing, conductive and colorant agents in the form of materials and technologies. This is an expanding field for us as we work to bring new technologies to the market.



4% of profit

reinvested in R&D in FY2022



Forging circularity with Continua™ SCM

Launched in 2021, our Continua™ SCM is our best-in-class example of driving circularity at scale. Formed in partnership with Cirttec, we developed this SCM product to allow for greater recyclability of our original carbon black products from tires. The unique characteristics of SCM required a collaborative market approach, and we invite our customers to work with us to identify potential improvements for future generations of this new material.

We invested in developing Continua™ SCM to enable quantifiable carbon footprint reductions, paving the way for more sustainable industry value chains. The LCA of this SCM shows a significantly reduced carbon footprint when compared to our traditional furnace carbon black products. It will also contribute to a value chain with a net negative carbon footprint, as it captures 0.73 tonnes of CO₂ for every tonne produced.

[Continua™ Carbon Footprint Statement](#)

[The circularity of Continua™](#)



By working with our partner Cirttec, we have been able to deliver circularity at scale to our customers through the launch of Continua™ SCM. I believe that together we are uniquely positioned to help create a more sustainable future for our industry."

DR. JOSEPH HALLETT

Technical Lead Continua™,
Birla Carbon



Expanding nanomaterials with CHASM

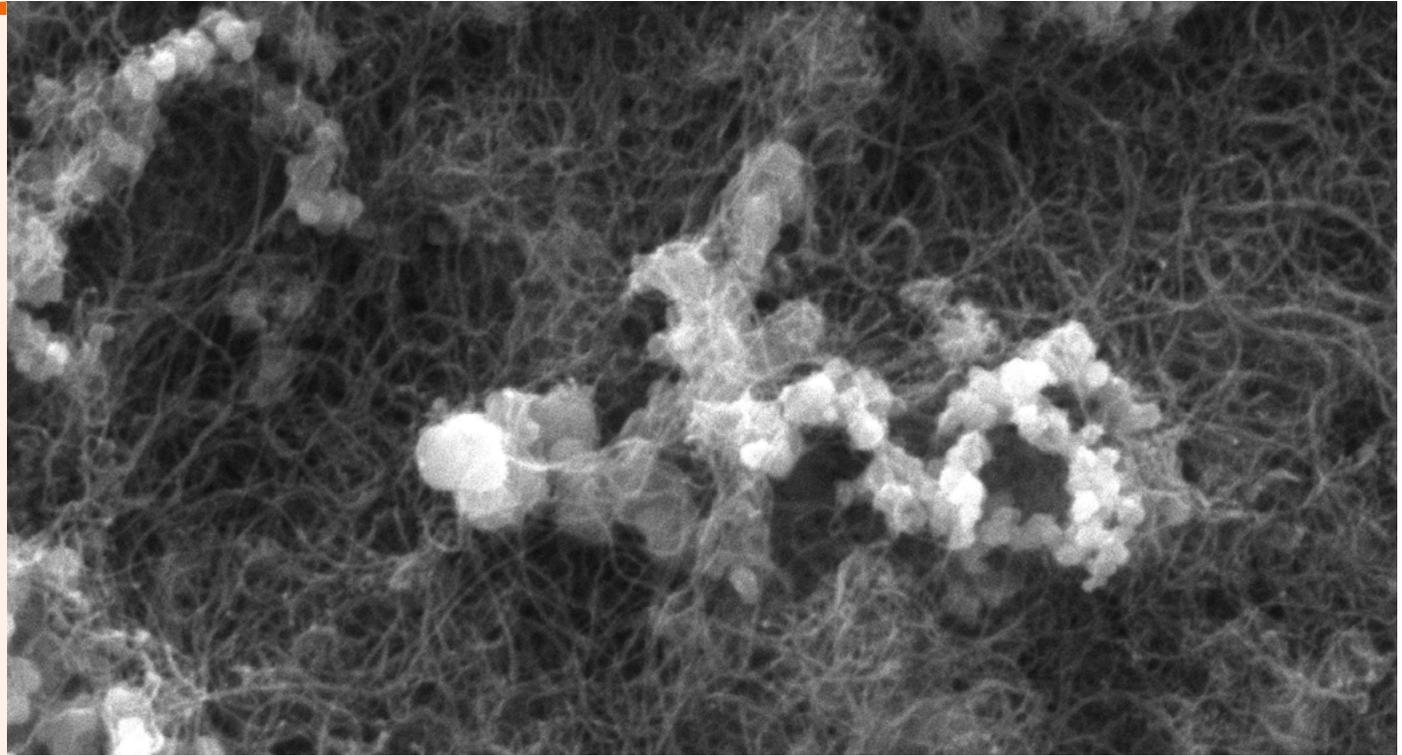
In FY2020, we entered into a joint development agreement with CHASM Advanced Materials to expand the application of nanomaterials for a variety of uses, including high-performance tires and next-generation batteries. The hybrid nanomaterials bring together carbon black substrates and carbon nanotubes to produce a stronger, more sustainable material for customers.

We transitioned to an exclusive license agreement in FY2022 to support the manufacture, distribution and sale of these hybrid nanomaterials. This strengthened collaboration is aimed at driving sustainable solutions to address increasing customer and industry needs.

[!\[\]\(b246cff486eb7c4dec085261afe05404_img.jpg\) **Birla Carbon and CHASM Advanced Materials partnership announcement**](#)

[!\[\]\(89b88375a21fd57206ff9ec1ea24d933_img.jpg\) **CHASM**](#)

[!\[\]\(acbcc819a2c48b9c57ab40b0f53f2137_img.jpg\) **Carbon black/CNT hybrid**](#)



Supporting sustainability in the tire and rubber goods markets

Currently preparing to launch to market, our breakthrough Nanocellulose Dispersion Composite (NDC™) rubber masterbatch is the result of a four-year joint development program between Birla Carbon and GranBio. We invested in this development because this innovative material not only enhances the in-service performance of tires, but also improves environmental performance, as nanocellulose is derived from renewable biomass resources. This allows our customers to achieve their sustainability goals and Birla Carbon to further drive our commitment to SOE.

This partnership has been awarded \$730,000 in grants to advance the scale-up for anticipated full-scale factory and on-road tire trials by global partners within the tire and mechanical rubber goods industries. The funding also supports the commercial introduction of NDC™, as the companies will prepare an engineering package, market analysis and financial modeling for the first NDC™ commercial plant.

[!\[\]\(e714407f005ef639683f169712230fc0_img.jpg\) **GranBio Technologies in Partnership with Birla Carbon announcement**](#)

[!\[\]\(ae5b1580633f7647fa4b992abcd640ba_img.jpg\) **GranBio**](#)



Developing carbon black for a sustainable future

The Product Technology group works with our customers and global Technical Service teams to ensure customer needs are understood and addressed. Part of their work is to develop new grades of carbon black to improve the performance and sustainability of our customers' products. For instance, we propose new carbon black products that are less energy demanding during the incorporation phase in rubber, plastic, ink or paint formulations. We have also developed new grades of carbon black that are helping our coatings customers create safer products with water-based coatings rather than traditional, solvent-based products. This new carbon black will also achieve unseen levels of quality, superior performance and improved formulation costs.

Rolling resistance is a key focus for our tire customers, who are concerned with the environmental credentials of their products. Our objective is to develop new carbon black grades and sustainable materials to further lower the rolling resistance for the next generation of tires. By enhancing the durability of tires we are reducing the consumption of raw materials and further improving the environmental credentials of products.



Innovating with circularity in mind

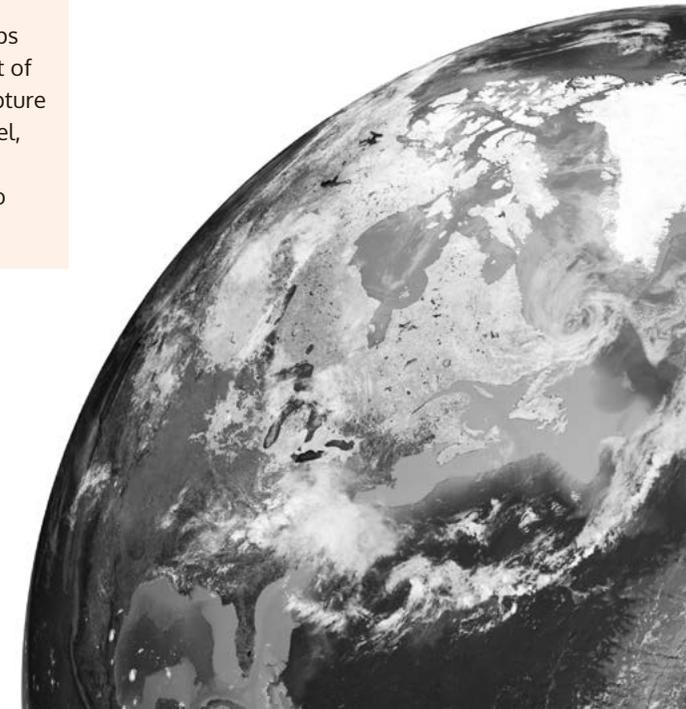
As we continue to explore new product possibilities, circularity is not just something we aspire to, but a key R&D consideration.

We conducted open innovation campaigns on seeking sustainable feedstocks for carbon black, inviting ideas from inside and outside the company. We are pursuing new processes and products that these new feedstocks enable.

As well as designing for circularity, we are always on the lookout for other ways we can reduce our environmental footprint. We are currently partnering with start-ups in this domain, including US Department of Energy grant winners, allowing us to capture and convert our CO₂ emissions into novel, solid-carbon products, including carbon nanomaterials, that we could then use to replace or improve existing products.

Did you know?

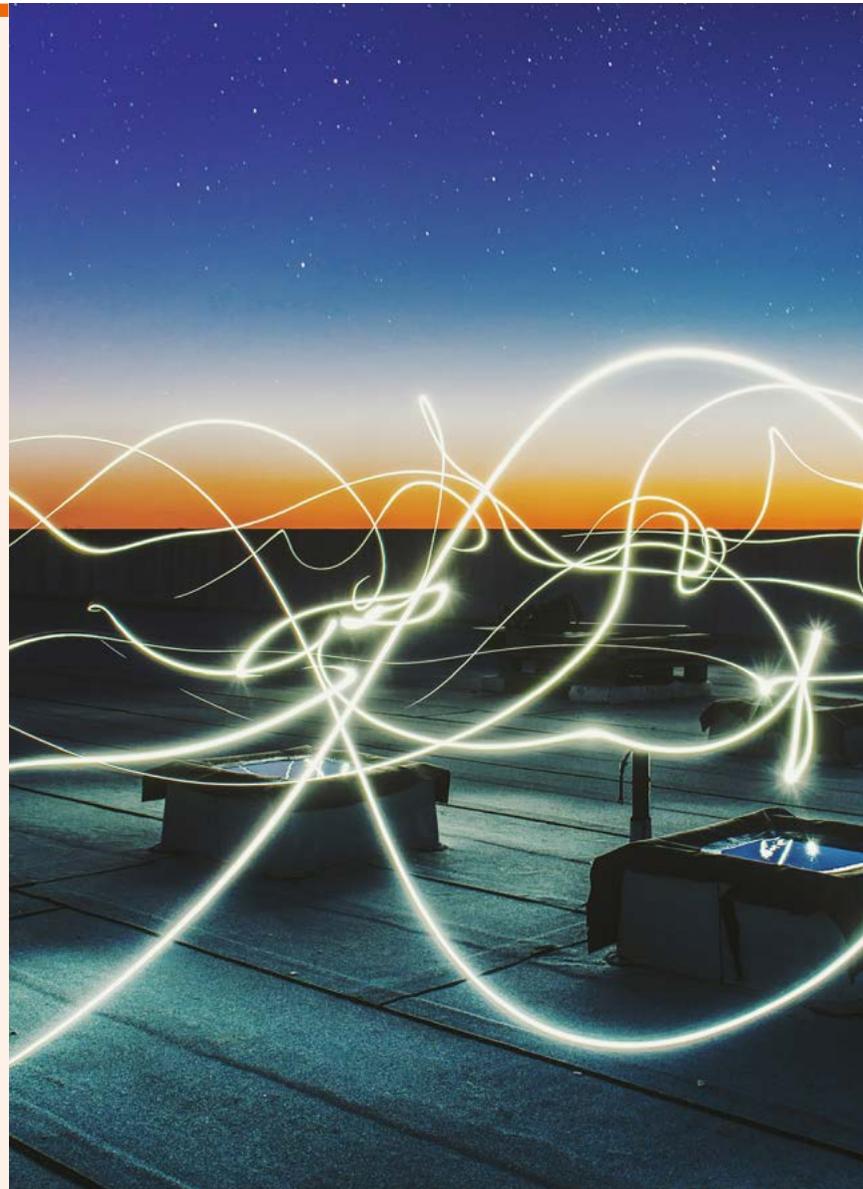
If laid out end to end along their longest dimensions, the aggregates in one gram of carbon black would more than encircle the Earth at its equator!



Emerging energy systems

We have a team of dedicated scientists researching new, highly conductive carbon blacks for use in lithium batteries to improve energy efficiency, power density and charging speed. These batteries could then be used in the next generation of electric vehicles, in grid storage systems to improve the efficiency of wind farms or for home energy storage. We are also investing to expand our battery material portfolio to include advanced graphite anode active materials.

Over the last year, Birla Carbon has participated in several battery-focused trade shows, including most recently at the Advanced Automotive Battery Conference (AABC) and The Battery Show Europe. We presented a portfolio of conductive carbon solutions: the Conductex i™ and Conductex e™ series of carbon blacks for lithium ion and lead acid battery applications, respectively, as well as graphite anode active materials. These products enable formulation and performance customization in a variety of sectors, including automotive, telecom, motive power and e-bikes. The Conductex i™ and Conductex e™ conductive additives leverage Birla Carbon's unique Ultra process to ensure the highest levels of purity and conductivity, resulting in improved battery capacity, cycle life and power performance. These high-performance batteries can unlock 5–15% energy savings, enabled by highly engineered conductive carbon black. Additionally, Birla Carbon has developed new-to-the-world, patent-pending technology that incorporates high-efficiency processes, energy recovery and a zero-waste target, and can accommodate several different feedstock materials to produce battery-grade synthetic graphite. Expanding our range of carbon solutions for the battery industry signifies the increasingly important role of carbon in these applications.



Next-generation battery applications offer an exciting new horizon for advanced carbon products that will impact our daily lives. Birla Carbon has made a commitment to provide our customers with high-performance solutions towards a greener, electrified future."

DR. ZACHARY COMBS
R&D Director,
Energy Systems



Environment

Striving to reduce our footprint

In this section:

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- 43 Measuring our carbon footprint
- 45 Reducing our GHG emissions
- 50 Water
- 52 Waste
- 54 Air emissions

Committed to protecting our planet

As an international business, with customers and operations in countries all over the world, we recognize our responsibility to safeguard the environment. This means taking a long-term view and continually adapting and investing in our environmental stewardship to use resources more efficiently and minimize our adverse impacts.



BEYOND DURABLE
Carbon black has been a part of human life for centuries and will continue to be integral to our lives in the future. This is why we are taking a long-term view of innovation, and why sustainability must be central to our growth strategy.

[Find out more about our five Purpose Principles](#)

WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



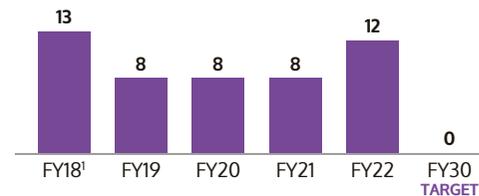
Progress towards our target



TARGET:
Record zero environmental releases year on year



STATUS: BEHIND SCHEDULE
Birla Carbon strives for continual improvement for all Health, Safety and Environmental (HSE) efforts. In line with this, we have continued to focus on reducing and eliminating carbon black releases, which have been the cause of the majority of our environmental releases globally. For several of our facilities, which are located close to populated areas, Birla Carbon has proactively taken the approach to notify the authorities any time there is a visible release of carbon black, regardless of how small it may be. This increased reporting rigor has helped sites in these situations focus on operator training and operational controls that can help to eliminate the visible emissions. However, there are times when equipment malfunctions cannot be predicted, and thus result in a minor release.



Sustainability Linked Loan

In 2021, we secured a \$750 million sustainability-linked loan (SLL) with a syndicate of more than 15 banks. Following the launch of our Continua™ Sustainable Carbonaceous Material (SCM), the SLL challenges us to further explore sustainable and innovative solutions that will support our 2050 net zero carbon emissions goal and those of our customers.

Linking our borrowing programs to Sustainability and Innovation – two of Birla Carbon’s key pillars responsible for our leadership in the industry – has brought immense synergies of shared aspirations with all our business partners and stakeholders to give us a real competitive advantage in the years to come.

Main key performance indicators (KPIs) for the facility include direct CO₂ intensity, bringing circular products to market and an external sustainability rating.

¹ In FY2018, we had two releases of carbon black/feedstock exceeding regulatory reporting limits to soil and one to air. The remaining releases were reported on a voluntary basis to regulatory authorities.

Our approach to considering the environment at every step of our process

Leading the way for the industry, Life Cycle Assessments (LCAs) cement our sustainability approach by evaluating all environmental impacts in a product life cycle, from raw material extraction through to end-of-life. We know our responsibility doesn't end at our facilities. To achieve a more circular economy, we collaborate with our entire value chain to understand and reduce our impacts.

Aligning our projects with sustainability

We have an internal process for evaluating the sustainability impacts associated with projects throughout the planning, development and financing stages.

Stage-gate evaluation

At early phases of a project, the stage-gate process begins, with the Corporate Health, Safety and Environment (HSE) team providing an evaluation of the proposed project. The team reviews against regulatory requirements for safety, environmental and product stewardship issues and against existing Birla Carbon HSE standards.

Project development

Once a project receives stage-gate approval the Corporate HSE team continues to work with the appropriate subject matter expert depending on the topical area. During this phase, concerns around health, safety, environmental or product stewardship are evaluated with a focus on minimizing impact on the environment, the community, employees and customers.

Appropriations request review

All HSE, product stewardship, sustainability and expansion projects are reviewed by the Global Director HSE. This review includes evaluation of the legal, regulatory and internal standard requirements.

Understanding our impact from cradle to gate

We measure the impacts of every step of our production process. Our "cradle to gate" LCAs follow International Organization for Standardization (ISO) 14040 guidelines: from the moment the raw materials are extracted to the moment the product is delivered to our customers. Through regular LCAs we can better understand our environmental impact, including a range of emissions, land use, and mineral, fossil and renewable resource depletion. LCAs also highlight human risks such as toxicity. This process helps us to identify opportunities to improve our environmental performance and quantify our ongoing contribution to circularity.

[Learn about the variety of environmental impact categories we assessed through our LCA in our GRI Index.](#)

Promising results – lower than average impact

We have compared our LCA results with those of the general carbon black industry, which are recorded by ecoinvent. While their process is not fully representative of our manufacturing process, it does represent impacts for carbon black production globally. The results show that our production impacts are lower than industry averages.

Our emission-, water- and waste-reduction methods

We are responsible for ensuring we monitor and minimize the emissions our processes produce. Our methods include: investing in pioneering air-emission-control technologies, increasing energy efficiency at our plants, sourcing local feedstock oil and recovering energy to be recycled back into our operations or sold on to neighboring facilities. We monitor our emissions and continue to invest in new technologies to guarantee compliance with local regulations in the areas where we operate. We are committed to ensuring our production facilities do everything possible to prevent the release of carbon black dust into the atmosphere.

Although the quantity is relatively small, we generate waste at all stages of our industrial process, from manufacturing to packaging, and we are implementing strategies to reduce, reuse and recycle this waste. We work in areas where water scarcity is an issue, so we have developed a strategy that identifies where we can improve usage and where we can reduce the strain on potable water sources.

[Reducing our GHG emissions](#)

Our Environmental Policy, published in FY2018, outlines our commitment to continually improving the performance of our sites and products through compliance, transparent engagement and innovation.

[Our Environmental Policy](#)

Green Finance Framework

We have developed a Green Finance Framework to outline criteria and provide guidelines for Birla Carbon to enter, identify eligible assets for, manage the proceeds of and report on green finance transactions (GFTs).

GFTs include debt-financing instruments whose proceeds are applied towards eligible green projects or assets including green loans and bonds. Ultimately the Framework demonstrates best market practices and requirement management under GFTs in relation to international principles and our approach to sustainability.

We successfully concluded the first GFT under this framework, in the form of a green loan of \$50 million. This loan will refinance a part of the capital expenditure for installing state-of-the-art air-emissions-control technology at our plant in North Bend, Louisiana.

Promoting transparency and collaboration

From the results of our most recent carbon black and Continua™ LCAs, we developed Carbon Footprint Statements. These statements are publicly available as a tool to help our customers determine the complete carbon footprint of their own products. They also ensure we are communicating transparently on our impacts.

[Our Carbon Footprint Statement](#)

[Continua™ Carbon Footprint Statement](#)

In FY2015, we began to disclose our performance through CDP, which we continue to do annually through its online platform. CDP is a nonprofit organization that works with companies and shareholders to disclose carbon emissions and the use of natural resources. In FY2022, we voluntarily responded to its Climate Change questionnaire, receiving a B rating, and replied to specific customer requests for information on our carbon footprint through our Supply Chain response.



Seawater scrubbing innovation – North Bend, USA

In 2012, we began to engage with the US Environmental Protection Agency (EPA), Department of Justice and various state agencies to understand anticipated emissions-reduction targets. Internally, we started evaluating technologies that would reduce our nitrogen oxide (NO_x) and sulfur dioxide (SO₂) emission levels.

As part of this evaluation process, we considered other environmental impacts beyond just air emissions and how we could reduce these as much as possible through our technology selection, design and construction. For instance, if we were to utilize the wet flue gas desulfurization process, the site would have to dispose of approximately 1.44 million lbs each week forever. We estimate that this extra generation of gypsum solid waste in the area would have reduced the life of the local landfill from over 30 years to less than 12 years.

We therefore explored a novel technology that was not being used anywhere in the US to remove SO_x using seawater. We engaged consulting firms to research regulatory permits and water sources for seawater scrubbing at our North Bend site. Its proximity to the Gulf of Mexico and the Gulf Intracoastal Waterway and the absence of any threatened or endangered species in the area made it a viable water source.

Following the required public notice, we began our engineering and construction efforts. Where safe to do so, we continued to work on the development during the pandemic. The scrubbing facilities commenced operation in FY2022. Through use of the innovative seawater SO_x scrubbing system at North Bend, they are avoiding millions of pounds of gypsum going to landfill per year and reducing SO₂ and NO_x emissions by over 95% per year.



Our investment in seawater scrubbing facilities is representative of our commitment to innovative technologies on our drive towards circularity as we strive to not only meet compliance requirements but exceed them.”

DALE CLARK

Chief Manufacturing Officer,
Americas, Europe & Africa Birla Carbon





Our presentation and Purpose video were well received by the audience, and we hope to continue to live our Purpose and Share the Strength for a better tomorrow."

SAMAH SHAWKY
Plant Head
Birla Carbon Egypt

Birla Carbon Egypt – part of the global climate change conversation at COP26

In November 2021, Birla Carbon Egypt contributed to the COP26 Climate Change Summit, hosted in Glasgow, United Kingdom. Via video screening, Samah Shawky, Plant Head at Birla Carbon Egypt, was part of a panel which showcased energy transition, water conservation and climate change mitigation success stories. She presented on the facility’s progress towards carbon neutrality and discussed its energy-reduction goals.

For example, since 2015 the facility has achieved a 50% reduction in NO_x emissions, and since 2016 a 50% reduction in SO_x emissions. The plant has also decreased its CO₂ emissions by over 90%. Relating to water conservation, better recycling of waste water and increased retention of captive water resulted in a 60% reduction in the plant’s municipal water withdrawal. This demonstrable progress solidified Birla Carbon Egypt as a valued part of the global climate change conversation.



Measuring our carbon footprint

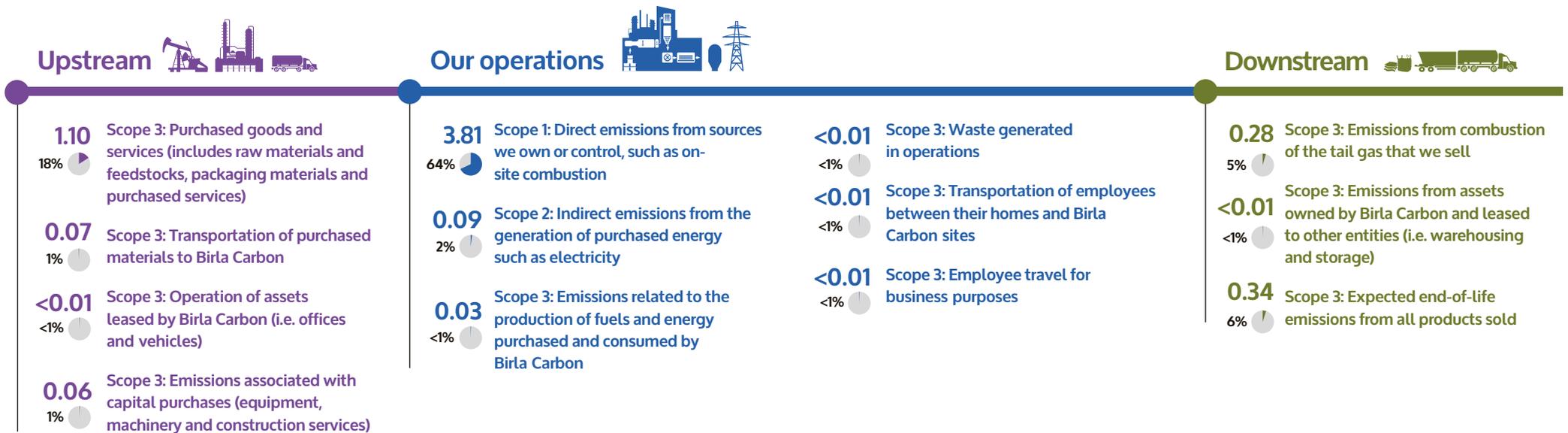
Our approach to carbon stewardship extends throughout our entire value chain, from raw material extraction to manufacturing, product delivery and product end-of-life. Across each of the following points we look to monitor and reduce our carbon footprint.



Our GHG emissions across our value chain

Million tonnes of carbon dioxide equivalent (CO₂-eq), in FY2022

Progress towards our net zero commitment (see page 45) is measured against our 2022 greenhouse gas (GHG) emissions (developed in accordance with global standards).



Figures have been rounded

Our emission scopes

Our Scope 1 and 2 emissions have been prepared in accordance with the GHG Protocol Corporate Standard and third-party validated. In FY22, all Scope 3 category emissions were calculated following the [Corporate Value Chain Scope 3 Accounting and Reporting Standard](#) and utilizing the Quantis tool.

Based on the results of the Scope 3 accounting we determined that Purchased goods and services; Fuel- and energy-related activities; and End-of-life treatment of sold products were our highest-contributing Scope 3 categories and would be subject to a more detailed assessment. We created an environmental impact inventory for these categories using a combination of spend- and unit-based primary data.

We excluded Processing of sold products, Use of sold products, Downstream transportation and distribution, and Franchises emissions from our final inventory. Downstream transportation and distribution emissions are captured under other Scope 3 categories, and Birla Carbon does not own any franchises.

Emissions associated with the use of sold tailgas will be included, but emissions from the use of carbon black will not. This is allowed per the GHG protocol, and we are choosing to exclude processing of sold product and use of carbon black emissions due to the diversity of end products that carbon black goes into and the lack of information regarding their processing.



Did you know?

The largest primary particles of carbon black are 1,000 times thinner than a human hair.

Reducing our GHG emissions

We aim to reach net zero GHG emissions by 2050

Following a natural progression in our circularity and LCA approach, we are pledging to lower our carbon emissions to net zero by 2050. This is a first for the industry, as we work to fulfil our vision of becoming the most respected, sustainable and dynamic global carbon black business.

Developing emissions-reduction targets

In FY2022, we developed a comprehensive Scope 3 GHG inventory and underwent third-party validation of our Scope 1 and 2 GHG emissions. It is our intention that these inventories represent the baseline for new near-term targets as we progress to net zero by 2050.

We are working with partners to model these Scope 1, 2 and 3 targets in alignment with Science Based Targets initiative (SBTi) guidelines. These goals will be informed by upcoming decarbonization target guidance for chemical companies published by the SBTi.

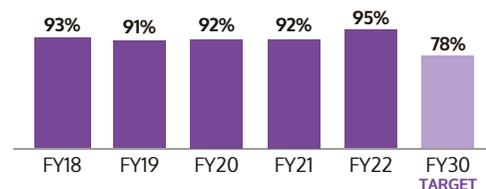
Our 4Rs roadmap (see graphic on next page) has been developed to support our emissions reduction. In an unusual challenge, Scope 1 is

our largest source of emissions; this is reflected in the non-linear decrease projected by our roadmap. Reducing these emissions will take time as we invest and innovate to overcome the challenges of our industry.

Our target

TARGET: Reduce our direct CO₂ emissions intensity by more than 22% against the 2005 baseline.

STATUS: BEHIND SCHEDULE This year we saw an increase in our absolute emissions due to increased production as we recovered from the pandemic. Our CO₂ emissions were also negatively impacted by limited access to higher-quality oils.



Our direct emissions

Direct CO₂ emissions from our carbon black manufacturing account for the majority of our emissions. That is because we primarily use fossil-fuel-based feedstocks that are transformed into carbon black. The more carbon we capture out of the feedstock, the more we can put into carbon black, and the less we emit as CO₂. While it is impossible to convert all the carbon in our feedstock to carbon black, we focus on optimizing efficiency, grade mix and feedstock quality to improve our direct emissions.

- [Our Carbon Footprint Statement](#)
- [Continua™ Carbon Footprint Statement](#)

Taking steps to reduce our CO₂ emissions at Patalganga

Each of our sites is on its own path to sustainability. To help them along, we are establishing teams through our Sustainable Operational Excellence (SOE) program, focusing efforts on our sites which have the most room for improvement.

One site identified as such was our factory in Patalganga, India, where several opportunities were noted for improving CO₂ emissions performance. To address this, a cross-functional, global team consisting of employees from Engineering, IT, Plant Operations and the Regional Technology Manager group was created. Performing gap analysis, data collection, evaluation and testing, the team produced an action plan for the site with 16 areas for improvement and 55 actions.

The team remained on-site for the first two weeks, following which they performed weekly calls and week-long visits on a monthly basis. Through a range of actions such as faster data analytics and equipment upgrades, the site achieved a 6% reduction in CO₂ emission intensity in the past three years.

How we will achieve net zero GHG emissions

Achieving net zero GHG emissions requires industry collaboration, so we are engaging experts and creating long-term partnerships to reach our goal. We understand that our customers value sustainability, therefore we are pledging to bring down our emissions alongside many of our suppliers.

Our net zero GHG emissions strategy

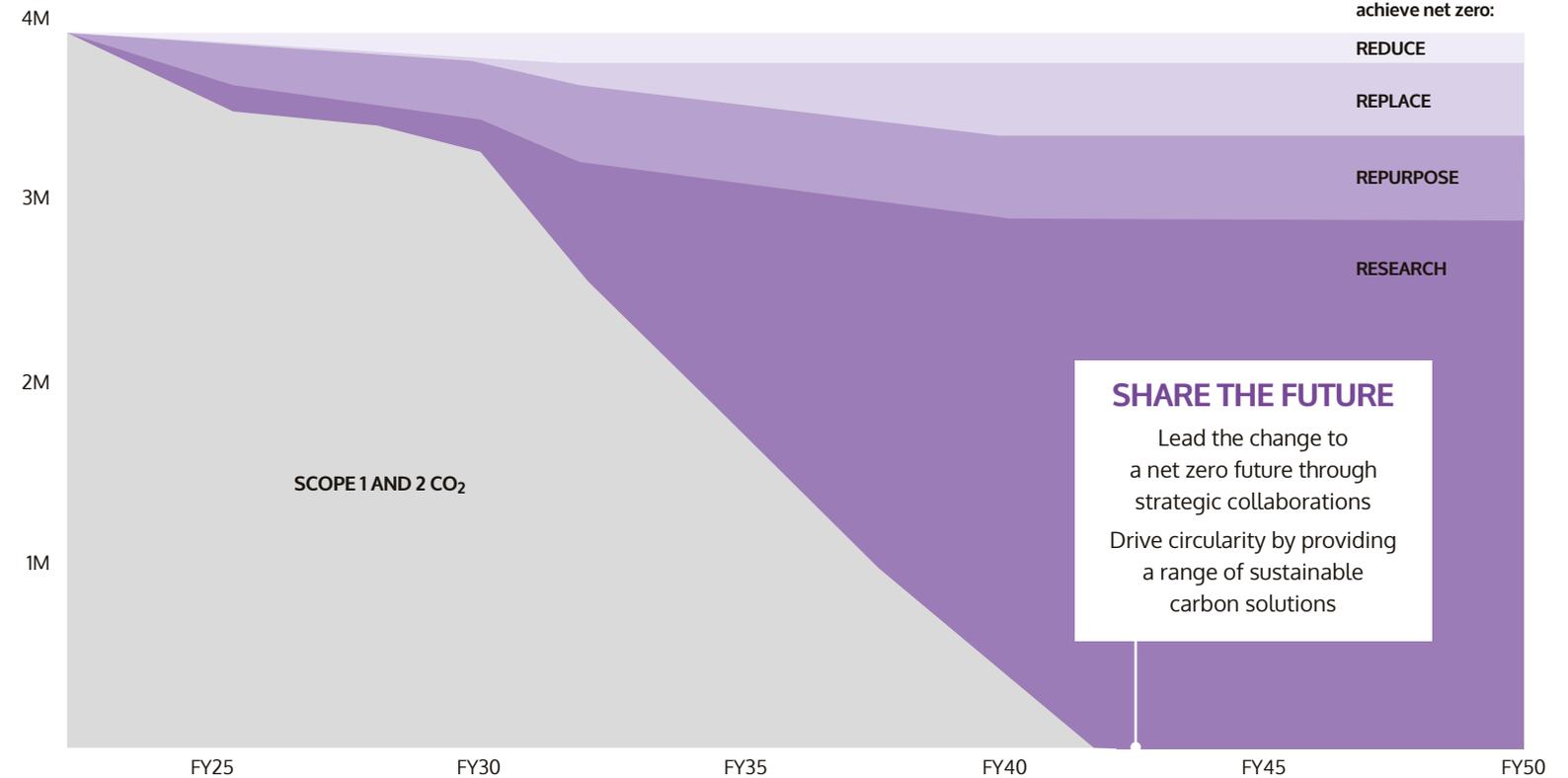
Our strategy for reducing our GHG emissions to achieve net zero remains anchored by the 4Rs: Research, Reduce, Replace and Repurpose. Targeting a reduction in emissions over the coming decades, we will be decarbonizing our business and decoupling our emissions from our production levels.

Most of our carbon footprint reductions will come from our investments in advanced technologies to upgrade our sites. These will target carbon capture and conversion, increasing use of bio-based feedstocks and advancing the production of more circular products. We'll maintain our focus on lowering the direct and indirect emissions linked to our carbon conversion from feedstock and energy-procurement processes.

A smaller portion will come from the indirect impacts of our entire supply chain (Scope 3), which will require working with external partners – for example our suppliers – to reduce their emissions.

Our net zero roadmap

Tonnes of CO₂



PURPOSE

Share the Strength

VISION

To be the most respected, sustainable and dynamic carbon black business



RESEARCH

to discover new ways for the capture and conversion of carbon



REPURPOSE

materials for increased value by circularity



REPLACE

with alternative energy and feedstock



REDUCE

dependence on traditional manufacturing processes

Research – capturing and converting carbons

Carbon dioxide capture and conversion will be the primary lever we will utilize to achieve net zero. This is suited to our existing strengths in creating carbonaceous materials and the challenges that hard-to-abate industries like ours face. Challenges for decarbonizing our business include thermodynamic and chemical limits to efficiency improvements and the limited reduction potential that low-carbon energy inputs (i.e. renewables) have for our business. Scope 2 emissions from purchased energy only account for 2% of our overall emissions.

In FY2022, we started mapping and evaluating technologies and partners within the carbon capture and conversion space and assessed the technological and commercial viability of the partnerships for our business. We are in the process of establishing some formal partnerships both within Aditya Birla Group (ABG) and external to Birla Carbon to further our investigation and testing of some of the carbon capture and conversion technologies, while exploring new and emerging technologies in this area.



2 FY2021 results were impacted significantly by the COVID-19 pandemic.

Reduce – traditional processes

We will continue to focus on optimizing processes for converting carbon to carbon black, and to prioritize energy efficiencies throughout our operations.

Net energy positive

Efficient energy use and recovery is critical to our business. We have been tracking energy conversion efficiency since FY2015, with the aim of increasing absolute efficiency to 80% by FY2030. This means that for every 100 carbon units introduced to our facilities, a minimum of 80 would be converted either to carbon black or to a useful form of energy.

Since establishing our energy conversion KPI, we now recover more energy from our own facilities and consume less energy per tonne of carbon black produced. Much of this energy is used in our manufacturing process, while any surplus is sold to neighboring facilities and local grids.

Regional Energy Managers lead these efforts and share their knowledge across the rest of the business through our World-Class Manufacturing group. Our Energy and Carbon Policy sets out our commitments to outperform regulations by reducing our energy intensity and carbon footprint.

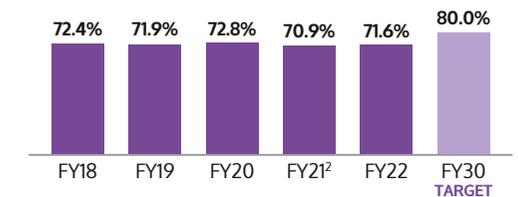
 [Energy and Carbon Policy](#)

 [World-Class Manufacturing Group](#)

Progress towards our target

 **TARGET:** Increase our absolute energy-conversion efficiency to 80% (total output energy (CO₂-eq)/total input energy (CO₂-eq))

 **STATUS: ON TRACK** We improved our energy conversion efficiency in FY2022 as compared to FY2021 as a result of our focus on operational excellence and equipment upgrades. Much of the efficiency losses since FY2020 can be attributed to the addition of high-energy-consuming equipment for air emission controls.





Harnessing natural resources at Birla Carbon Hungary

Manufacturing carbon black involves intensively heating hydrocarbon fuels and collecting unburned carbon. In the process high-temperature smoke is emitted, which needs to be cooled down before it enters the bag collector.

Birla Carbon Hungary installed a heat-recovery system, which replaces the conventional method where the smoke would be cooled

down by spraying water in the smoke stream. Aiming to reduce environmental impact, in 2021 Birla Carbon Hungary installed a heat-recovery boiler in two of their production lines. This system produces 70,000 MT/year of extra steam, which can be used for electricity production, generating 9,500 MWh/year. The heat-recovery method also reduces water requirements by 26,000 m³/year.



Co-generation at Birla Carbon Italy

We commissioned a new electricity turbine at our Birla Carbon Italy (BCI) plant in Trecate at the end of FY2021, aimed at reducing fossil fuel consumption. The production unit is now able to use steam emitted from the boiler more efficiently: turbine efficiency has improved, increasing electricity production from 360 to 650 kWh/tonne of carbon black. This is a huge step forward, demonstrating how BCI is progressing with sustainability in mind.

Installation of new, more efficient technologies means that BCI is now net energy positive, producing additional electricity which it can export to the national grid. As well as offsetting Italy's national grid demand, BCI upgrades will have national benefits in the form of reduced overall CO₂ emissions.

Designing for sustainability at Gummidipoondi

At our Gummidipoondi site in India, we have incorporated a range of energy-efficiency and water-conservation measures into the design of a new production line. To reduce energy consumption, we adopted a regenerative design approach, using low-grade extraction for feed water heating and reducing steam consumption in the deaerator. By upgrading the co-generation system, we produce an additional 1.7 MW of electricity from our process tail gas, displacing the electricity coming from the public grid.

As Gummidipoondi is located in an area of water stress, we use an air-cooled condenser, reducing the amount of water needed to convert steam to condensate. The system was also designed to enable zero liquid discharge.

Replace – energy and feedstock

We will replace our current energy and feedstock with low-carbon solutions.

We will focus on adding more renewable energy solutions and shifting a portion of our production to alternative feedstocks derived from biomass. We are constantly seeking and evaluating alternative fuels for heating our reactors and to serve as feedstock for producing carbon black or other carbonaceous materials.

Crowdsourcing net zero innovation ideas

We have been using our Hype platform to source innovative ideas for our net zero roadmap from our employees. The platform has proved a successful engagement tool, having received over 40 decarbonization ideas, many of which are now in the project development or implementation phase. These ideas ranged from creative ways to install renewable energy sources at our sites through building partnerships for CO₂ utilization to the role of diversity and inclusion in decarbonization efforts.

Repurpose – materials

We will repurpose materials through a circular approach.

The circularity of Continua™ SCM

Our product-based research is focused on end-of-life innovation, striving to increase longevity and to understand how we can better support customers to repurpose carbon black.

According to ISO 14040 and ISO 14044, the LCA of our Continua™ SCM shows a significantly reduced carbon footprint when compared to our traditional furnace carbon black products. It will also contribute to a value chain with a net negative carbon footprint, as it captures 0.73 tonnes of CO₂ for every tonne produced.

Once Cirtec’s new plant is at full capacity, over 228,000 tonnes of direct and indirect CO₂ emissions will be eliminated annually when compared to our conventional carbon black process. Over the next five years, by putting millions of tires through the pyrolysis recycling process, we will introduce over 70,000 tonnes of SCMs to the market annually.

Through creating more circular products that align technological expertise and customized solutions, like Continua™ SCM, we enable our customers to develop the next generation of sustainable products.

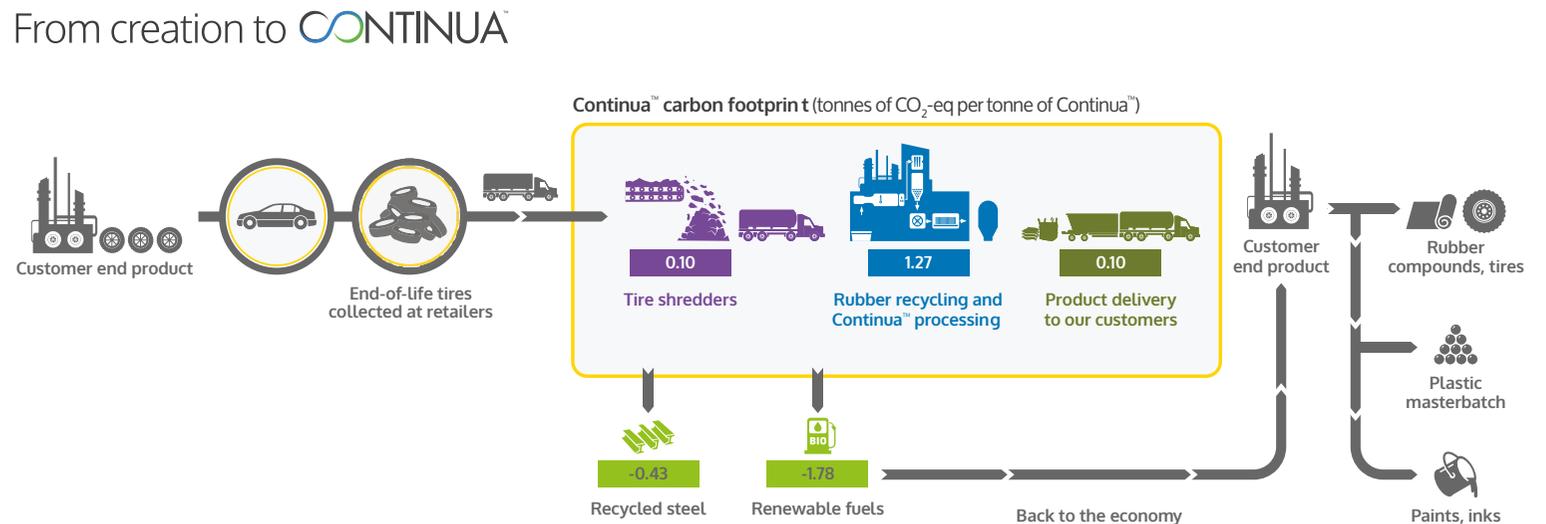
The circularity of carbon black

Polymer-based packaging

This may appear to be counterintuitive, but a large proportion of our European customers can feed polymer-based packaging directly into their products, therefore reducing the overall amount of waste generated. Adopting this collaborative approach aims to change traditional approaches to the carbon black life cycle by improving product recyclability.

Did you know?

We are reducing our environmental impact by capturing 0.73 tonnes of CO₂ for every tonne of Continua™ SCM produced.



Water

Effective water stewardship is a key priority, especially in locations where this vital resource is scarce or where it is predicted to become scarce.

Assessing our water vulnerability

We partnered with the [World Business Council for Sustainable Development](#) and the [World Resources Institute \(WRI\)](#) in 2016 to assess the water stress level at each of our manufacturing sites using the WRI's [Aqueduct tool](#). For our plants based in India, we complemented the assessment using the [India Water Tool](#). This approach provided us with an informative, high-level and generic assessment for all our sites.

Using the results of our assessments, we have determined which sites are at a medium or high risk for water availability to include in our Water Withdrawal KPI.³

[Governance](#)

Our water risk management approach

Our Strategy considers short-, medium- and long-term scenarios to identify areas of improvement within our water cycle. We want to develop a more circular approach in this area and are constantly looking for ways we can reuse the water we withdraw.

Our [Water Stewardship Policy](#) sets out our commitments to protect and conserve water resources through management practices and governance systems.

Our water risk management approach is inspired by a six-step methodology detailed in our Water Stewardship Policy and advocated by the [European Water Stewardship Standard](#), the [Alliance for Water Stewardship Standard](#) and the ABG Technical Standard (Water Management).

We have recently integrated our water risk management approach into our wider [Enterprise Risk Management \(ERM\)](#) strategy, while high-risk sites are now incorporating Water Risk Mitigation Plans into their existing Business Continuity Plans. These mitigation plans identify both existing and additional strategies for managing critical water risks. New mitigation measures are actioned with deadlines set for completion, while existing mitigation strategies are reviewed at least annually through our ERM process.



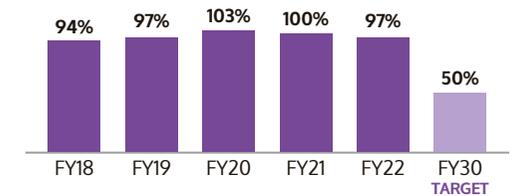
100%

of our manufacturing locations use recycled process water and/or rainwater in their operations

Progress towards our target

 **TARGET:**
Reduce our water withdrawal intensity (m³/t_{carbon black}) by 50% versus FY2013 baseline at our high- and medium-risk sites (water withdrawal intensity by year).

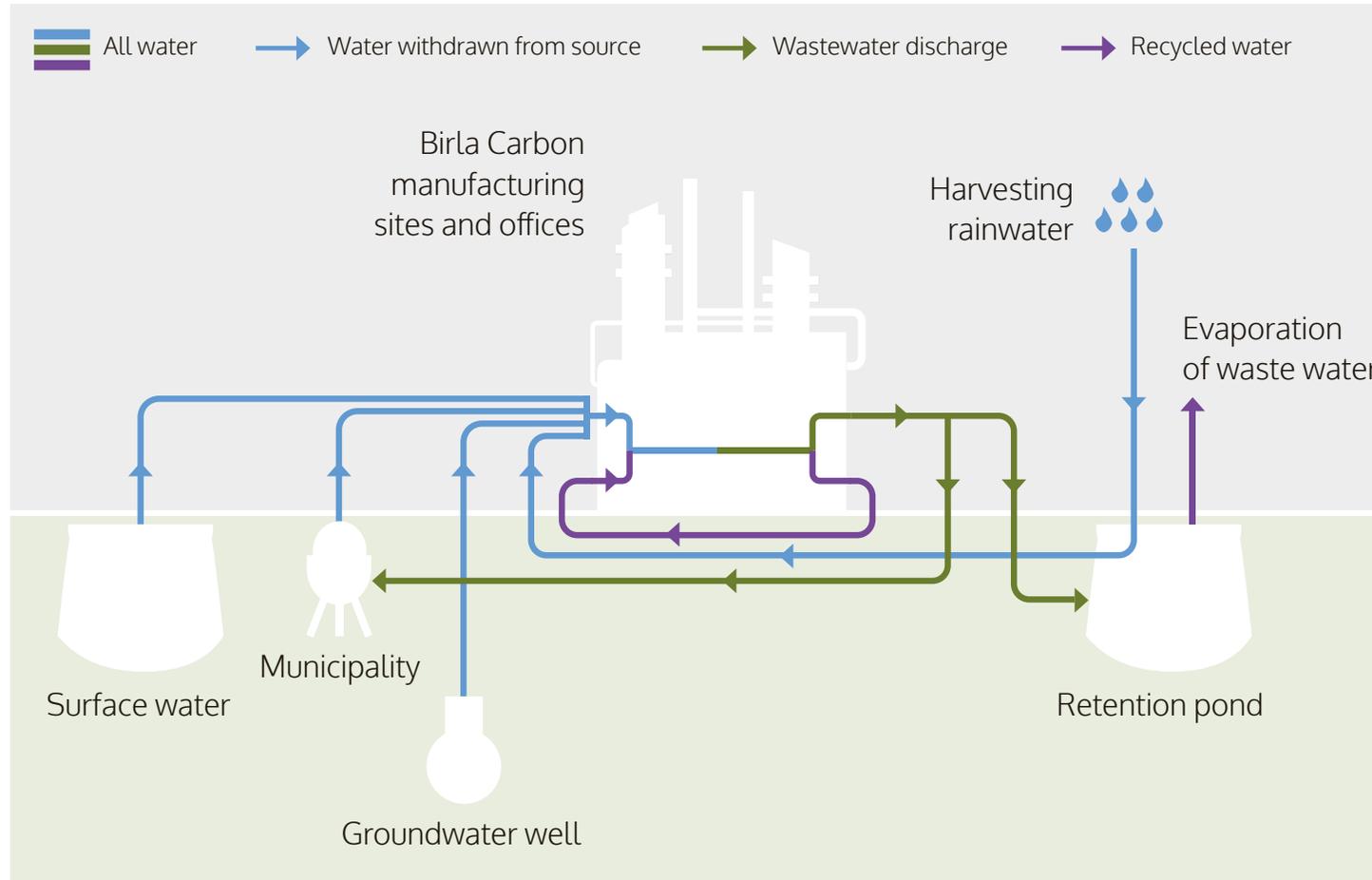
 **STATUS: BEHIND SCHEDULE**
While we reduced our water withdrawal intensity in FY2022, we recognize we are still behind schedule. Much of the air-pollution-control equipment installed in recent years at several of our sites has high water demands. We consider the balance of these various environmental impacts as we design solutions for our sites.



³ Sites included in KPI: Hickok, Cubatão, Gummidipoondi, Alexandria, Weifang and Bahia.

The water cycle at Birla Carbon sites

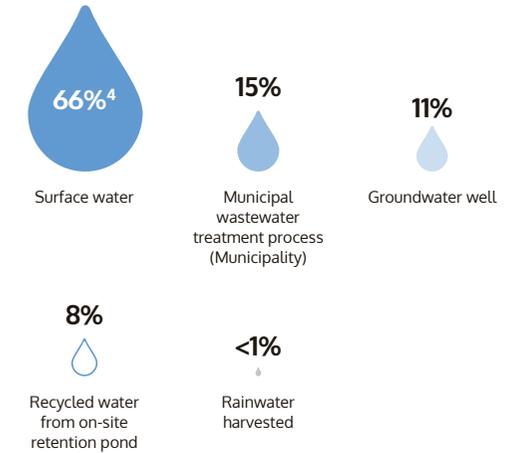
We try to limit our use of potable water, looking for ways to increase circularity by recycling and reusing it where feasible. Once water has been used in the manufacturing process, it is directed into retention ponds, from where it will be redirected back into other processes. Our water-conservation best practices are shared across all our locations as part of our SOE strategy.



Water withdrawal by source

FY2022

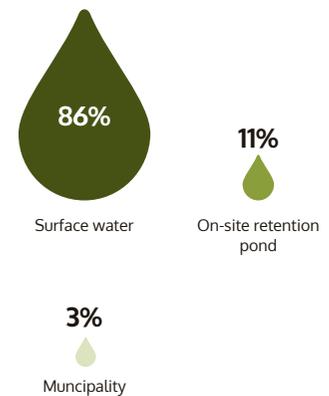
39,252 megaliters



Water discharge by destination

FY2022

24,765 megaliters



⁴ The increase in surface water withdrawal is due to the demand from the new flue gas desulfurization system at North Bend. The entire volume of water passes through the treatment system and is returned to the Gulf Intracoastal Waterway with the exception of any minor evaporation losses.

Waste

In any industry, effective waste management and minimization should be a priority; carbon black is no exception. Although the quantity is relatively small, we generate waste at all stages of our industrial process, and we are implementing strategies to increase the circularity of our operations.

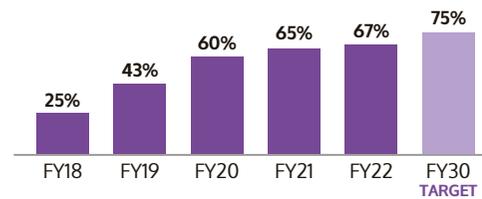
Our approach to managing our waste

Our strategy aims to reduce the amount of waste we generate and ensure that what we do produce is reused or recycled – whether for the same purpose or for a secondary use. Our sites comply with all applicable HSE requirements, and we ensure waste materials are sent for disposal in the most sustainable manner.

We have fully implemented our Waste Management Standard (the Standard), which outlines internal requirements for the proper accounting, handling, transfer, storage, transportation and disposal of solid and hazardous wastes generated during construction of and operation at our facilities.

Progress towards our target

- 
TARGET: 75% waste repurposed, including recycling, reuse and recovery, by 2030
- 
STATUS: ON TRACK Recent stronger focus on waste management in our facilities globally, including composting of gypsum at our plant in Thailand and recycling of scrap material in all our plants, accounts for the marked increase in progress seen since FY20.



The Standard specifies roles and responsibilities for the management of solid and hazardous waste at our facilities to protect both people and the environment. It also encourages sites to consider new and updated waste-minimization options on an annual basis. Our waste management approach continues to evolve as we improve identification and accounting of our waste.

Achieving this waste-reduction target presents a significant challenge. We expect the repurposing of gypsum to make a significant contribution to our performance, but there are currently limited outlets available for doing so in some locations. We are exploring solutions to this challenge with our ABG peers.

Reprocessing off-grade and unused carbon black

When we produce off-grade carbon black, rather than disposing of it, we segregate it and put it through the manufacturing process again until we have a product that meets our stringent quality standards. As carbon black has a long shelf life, customers are also able to return unused carbon black to us so it can be reprocessed. This way, not only are we reducing the waste that we generate but we are also taking steps to close the loop on our production.



75% waste repurposed, including recycling, reuse and recovery, by 2030

Did you know?

Our new waste Standard was implemented in 2018 to drive best practice across our manufacturing sites.



Our bulk transportation system in Gummidipoondi, India

In July 2021, we expanded upon our bulk transportation system in Gummidipoondi, India. Dependent on grade, we can save 16–17 plastic jumbo bags (containing 18–20MT of carbon black) per bulker truck dispatch. In FY2022, we exclusively dispatched 394 trucks using the bulker to Apollo Tyres. This equates to a total plastic saving of 26.8 MT.

Apollo Tyres has agreed to work together on bulk transportation for the greenfield project at its Andhra Pradesh plant. We are also promoting this transportation system with other customers buying from Gummidipoondi to reduce plastic packaging. This is the first successful implementation of our bulk transportation system in India, and it's thanks to the sharing of the concept from our plant in Hungary.



Reduce waste in our facilities

The canteen in our Trecate, Italy facility is taking a range of steps to drive progress towards sending zero waste to landfill. In a bid to reduce food waste, team members collect leftover bread from the facility and deliver it to a local kitchen, where it is used to make free meals for people in need.

The efforts of the Italian facility do not stop at reducing food waste. Converting from single-use plastics, all plates in the canteen are now made from cellulose pulp and are fully compostable at end of use. Single-use cups are also made from compostable materials. The polylactic acid polymer used is derived from plants such as corn, wheat or beets and can be broken down in industrial composting facilities once it has been used. To encourage employees to participate in these efforts and

to take responsibility for their own plastic consumption, more bins have been placed in office areas to separate plastic from other waste so it can be recycled.

In our Gummidipoondi, India plant, composting of canteen food waste has been standard practice since 2016. This compost is then used in the plant's organic vegetable garden. Each month approximately 25 kg of food waste is composted through this initiative. In Patalganga, India, employees are made aware of the amount of food they are disposing of with signs, updated on a daily basis with the quantity of waste thrown away that day. Any food waste is converted into composite fertilizer – currently around one tonne every year.

 [Sustainable Development Goals](#)



Air emissions

Our manufacturing processes generate air emissions, and it is our responsibility to ensure these emissions are as low as they can be. Our commitment to SOE guides our approach to emissions reductions, encouraging us to continually search for the best possible processes and technologies.

We monitor our air emissions to ensure compliance with local regulations wherever we operate. We have policies and procedures in place that enable us to notify the local authorities and, when required, to act as soon as possible should specific limits be exceeded.

Investing in technology

We continue to invest in and promote technological improvements, such as state-of-the-art filter materials, which ensure maximum containment and recovery of carbon black dust. In addition, we're evaluating the technologies and assessing how they can be implemented across our operations. A balanced approach is key: technologies for air emission control can have high water and energy requirements, so implementation must be considered in a holistic way and on a case-by-case basis.

In December 2017, we entered into a consent decree with the US EPA to further reduce emissions of NO_x, SO₂ and particulate matter (PM) from our plants in Franklin, Louisiana and Hickok, Kansas.

At our Kansas facility, we commissioned a control system, which has been running since June 2021. The system uses staged combustion technology alongside strict feedstock controls to ensure the site continues to sustainably provide high-quality carbon black products. Initial testing of the installation indicates that we have effectively reduced our NO_x emissions by our goal of 30% versus the baseline. A boiler was also installed to utilize the combustion heat from this new technology, providing the plant's steam requirements without the need for any supplemental fuel.

The Louisiana facility has state-of-the-art control systems installed and operational as of December 2021. This technology is the first of its kind, to the best of our knowledge, in the United States. It combines low-NO_x combustion technology, selective catalytic reduction technology and a seawater scrubbing system that will minimize the environmental impact of the control systems.

The technology utilizes the brackish water in the Gulf Intracoastal Waterway to reduce sulfur components to salts that are naturally found in oceans. Through this technology, Birla Carbon has eliminated the transportation and disposal issues associated with traditional wet limestone scrubber systems, which generate a gypsum-like waste.

De-NO_x system at Birla Carbon Korea

Our sites continue to invest in new equipment to reduce their emissions. In FY2022, Birla Carbon Korea (BCK) installed a de-NO_x system to reduce the NO_x levels in the flue gas coming from their dryers. A selective catalytic reduction (SCR) system was selected for installation with the ability to reduce NO_x levels to less than 90 parts per million. Following installation of the SCR, BCK demonstrated an 80% reduction in NO_x levels.

The site also installed a telemonitoring system (TMS) to drive further reductions in NO_x and SO_x. The TMS helped BCK optimize processes that can influence NO_x and SO_x concentrations such as feedstock feed rate and spray; water levels; valve opening/closing; and system-purge techniques.



Customers and suppliers

Engaging with everyone to improve our business

In this section:

- 56 Developing close bonds
- 57 Customer engagement
- 59 Supplier management

Developing close bonds

Focusing on the present while imagining what is next fuels our motivation and ignites our inspiration to Share the Strength. We yield our best results when we are open to other perspectives and work together to make a difference. That is why we aim to develop relationships with our customers and suppliers, ensuring that we all meet our high ethical standards and align our sustainability strategies to take us Beyond Durable for the long term.



MICRO MATTERS

We believe that by encouraging forward-thinking operations on a regional level, we can create value at an international level. By working with local customers and suppliers in the countries where we operate, we can communicate local learning throughout a worldwide network, creating innovative and industry-leading solutions.

[Find out more about our five Purpose Principles](#)

Did you know?

A typical passenger tire tread contains a surface area of carbon black of more than 65,000 m².

Working to create value for our customers and suppliers

In an ever-changing business landscape, we must learn to adapt as the needs of our customers evolve. This includes not only asking for and acting on the feedback of our customers to improve the products we offer but also ensuring we are transparent about our ongoing sustainability efforts. Through our Continua™ offering we are reaching collective circularity goals with our customers, collaborating throughout the value chain to close the loop on tire production.

We strive to ensure we act ethically and responsibly throughout our operations. This involves working with our complex supply base to make sure they adhere to our strict Code of Global Business Ethics and Compliance Standards (Code of Ethics). In FY2022, we were awarded a Platinum rating by EcoVadis following four consecutive years of Gold awards for our advanced sustainable practices.



At Birla Carbon, sustainability is a practice that extends beyond our plants. It is a key differentiator that helps us to engage with our customers and create shared value for a more sustainable future. Innovating together on ideas such as circularity helps us develop even closer bonds as we collaborate on reaching sustainability goals."

JAYANT GEHLOT

Senior Area Marketing Manager, Asia

WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



Customer engagement

We stand strong with our customers; our unique and effective global collaboration is what enables us to achieve our Purpose: to Share the Strength with the world. We seek to nurture open, trusting relationships with all stakeholders and to maintain these relationships by offering our customers a consistently high-quality product, excellent service and global supply security. By aligning our sustainability strategy with those of our customers, we are growing together with them to be a company they know they can trust.

Progress towards our target

TARGET: Remain above the NPS threshold of 35¹

STATUS: ON TRACK
Our NPS score remains well above our benchmark; however, an increased demand for carbon black in FY2022, paired with a tight supply, led to increased Detractor ratings related to supply.



How we engage with our customers

We aim to develop long-term relationships with our customers so that their businesses, and ours, can succeed. Our cross-functional engagement model is spearheaded by our Global Engagement Management (GEM) program. GEM is designed to increase points of contact across customer organizations to establish valuable and lasting partnerships. We track the success of this by measuring customer loyalty and how attractive our products are to our customers. These engagements also enable us to continue developing new products to meet customer needs.

Measuring our customer loyalty

Introduced in FY2017, our customer satisfaction key performance indicator is based on the well-established Net Promoter Score (NPS), which asks our customers around the world to rank Birla Carbon’s performance against that of our peers.

NPS is calculated based on how customers respond to a single question: “On a scale of 1 to 10, how likely are you to recommend Birla Carbon to a business partner or a friend?”

Through the NPS process, our sales teams contact a minimum of five customers per month, and those that respond are divided into three groups: Promoters, Passives and Detractors.

- **Promoters (score of 9 or 10)** – loyal and continuing purchasers.
- **Passives (score of 7 or 8)** – customers who are satisfied yet vulnerable to competitive offerings.
- **Detractors (score of 0 to 6)** – customers whose unhappiness can damage our reputation and impede growth.

Our NPS score is considered excellent for a business-to-business company such as ours, and we aim to keep our score above 35. Although this is still considered to be a “good” score, dropping to this value would alert us to the need to improve our performance; our historical results suggest that this threshold would correspond to a 10-point drop from our quarterly low.



Our Net Promoter Score in FY2022 is 62

¹ Net Promoter Scores range from -100 to +100. NPS is calculated by subtracting the percentage score of Detractors from the percentage score of Promoters.

Turning feedback into action

We use customer feedback to drive continual improvements. For customers providing us with high NPS scores, we work to maintain, and ultimately improve, our score. To those who rate us lower, we respond through the appropriate department (Sales, Marketing or Functional Presidents).

It is important for our customers to know that we respond quickly to their feedback through a range of strict processes and procedures. If a product-related issue is brought to our attention, scientists from our technology centers assess the problem before producing a detailed report. We thoroughly review all customer dissatisfaction, whether it relates to products, sales or the supply chain, before responding to the customer. We respond quickly, acknowledging receipt of customers' concern, but review thoroughly before providing a final response.

Developing our customer complaint resolution methodology

To strengthen our customer complaint process, we recently added the "5 Whys" methodology, which is now built into our Salesforce Case Management system. We also developed Case Prevention Training to add to this process. During this training, past cases from all 16 plants are reviewed and sorted into major categories to help us analyze the root causes and determine prevention methods for the future.

To ensure we address customer concerns in the most efficient manner, we have developed a new resolution methodology based on eight disciplines (8D):

1. Establish a team
2. Describe the problem
3. Immediate measures
4. Determine root causes
5. Choose corrective actions
6. Implement and validate corrective actions
7. Take preventative measures
8. Congratulate your team

The 8D process is a collaborative effort that brings together employees from our customer services teams, plants, lab services, and global Quality and Technical Services teams. Through following these eight steps for each customer complaint we receive, we endeavor to respond in a targeted and timely manner every time.

Sharing sustainability strategies with stakeholders

Transparency is key to building joint strategic approaches with our customers and other stakeholders, advancing sustainability performance across our supply chains.

We invite our customers to visit our plants and offices to carry out their own audits and process reviews. They place a high level of value on having a secure supply – a requirement that we meet through our business continuity strategy and enterprise risk management approach.

Our customers constantly work to assess and improve the sustainability of their own products. We engage with their sustainability teams to share our carbon black Life Cycle Assessment (LCA) approach, and in FY2020 developed a [Carbon Footprint Statement](#) for our customers to easily reference and incorporate into their own analyses. When designing new products, we meet with partners to better understand their expectations and sustainability goals related to their growing use of renewable and recycled materials. We can then use this feedback to inform the sustainability attributes we prioritize in our carbon black as we help our customers meet their goals.

Our Continua™ offering represents an exciting opportunity to work closely with customers, developing sustainable products that advance industry-wide sustainability.

[Our Carbon Footprint Statement](#)

[Continua™ Carbon Footprint Statement](#)

Entering the energy systems market

In 2021, we entered the energy systems market with our *Conductex I* and *Conductex e* conductive carbon solution series. This new portfolio is possible due to our focus on understanding the needs of our customers.

As auto manufacturers strive to meet more stringent CO₂ emission requirements, the demand for higher performance lead acid batteries is growing – and our carbon black can further the energy savings of these batteries by 5–15%.

As we continue to sharpen our focus on innovation we expect these products to signify the first of many developments in the battery application segment as we continue the journey towards cleaner energy.

Did you know?

There are several manufacturing processes to make carbon black. All of our carbon black is made using the furnace process.



Supplier management

With operations in 12 countries on five continents, we have a highly complex supply chain. Maintaining close ties with local, regional and global suppliers is crucial for managing risks throughout our network; our suppliers' behavior reflects on our own reputation and on that of our customers. We work together with our suppliers to ensure they meet our high ethical standards and to drive improvements in our supply chain.

Our approach to ensuring a responsible and ethical supply chain

The most basic requirement of our supply chain is that it be reliable and ethical. We have established robust internal standards and principles to guide our employees, business partners and suppliers to meet our expectations. Our diverse business partners include vendors, service providers, consultants, contractors, distributors and agents.

We share our Code of Ethics with all our suppliers and ensure they adhere to it through our Terms and Conditions. This includes a clause establishing the ethical principles with which we expect our business partners to comply.

[Code of Ethics](#)

Our Supply Chain and Procurement Policy guides our sites to ensure compliance with the relevant legislation and the Birla Carbon Code of Ethics. Standards we expect include promotion of resource conservation, use of renewable energy, water stewardship, employee safety, respect for human rights and elimination of child and forced labor across the supply chain. This is part of our wider sustainable procurement approach, which is deployed across all our buyers and supplier base worldwide. Our internal Procurement Policies were updated in FY2020 to require due diligence screening of all suppliers and use of our Terms and Conditions of Purchase.

[Supply Chain and Procurement Policy](#)

Performing due diligence

We see procurement as being central to business, legal and regulatory risks and sustainability considerations. We began reviewing and analyzing our key distributors and agents through NAVEX Global's RiskRate® in FY2015 to identify any potential risks posed, reaching our entire supplier base in FY2019. The process is now well established and runs automatically for all suppliers.



All 12,000+ Birla Carbon vendors and suppliers have been screened

using NAVEX Global's RiskRate® due diligence system, with over 94% receiving green ratings

Ensuring continual improvement

RiskRate® is an automated and continuous screening program, which performs efficient and reliable due diligence checks on companies. The process identifies histories of working in areas with trade sanctions and government watch lists, instances of fraud, bribery or corrupt dealings, cases of government investigations or convictions, and adverse media attention.

In FY2021, over 94% of our 12,000 suppliers were highlighted by RiskRate® as being green. It marked about 5% as yellow suppliers, while less than 1% were flagged as red. We are now working with those marked as yellow and red (medium- to high-risk) suppliers to improve their compliance

measures, with our Legal department running enhanced due diligence for this group.

We have terminated 18 red-flagged vendors since September 2019 and cleared an additional seven red-flagged vendors after conducting additional due diligence. Going forward, any vendor wanting to work with Birla Carbon must be flagged as green through the program or be approved by our Legal department before they enter our system.

Ensuring a sustainable supply chain

As we have developed our sustainability integration and reporting, we have continued to explore further ways to encourage best practices throughout our supply chain. Birla Carbon's procurement process is generally decentralized and is managed at the local and regional levels. This promotes local sourcing of materials and services to meet our business needs, but it can also present a challenge in terms of risk management.

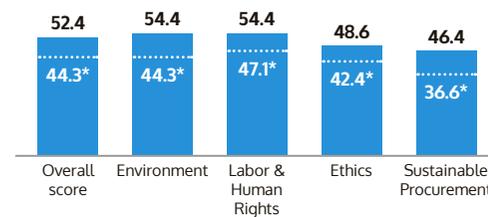
Developing a robust global approach to procurement is key. That is why we elected to increasingly engage with key suppliers (based on spend, criticality as per our International Automotive Task Force (IATF) 16949 certification, reputational risk and other considerations) and encourage them to improve on their own environmental and societal impacts. We have partnered with EcoVadis to facilitate sharing of sustainability best practices and to assess the sustainability profile of our key suppliers as part of our Sustainable Procurement program.

EcoVadis screening is a voluntary program for our suppliers, and many have already shared their scores, which are split into four categories (Environment, Labor & Human Rights, Ethics and Sustainable Procurement).

Our average supplier sustainability score is 52.4, significantly higher than the global average of 44.3 (from more than 55,000 companies worldwide). This suggests that, globally, our key suppliers are already performing above average in the four criteria. For instance, over 65% of our critical suppliers report on energy consumption or greenhouse gases and have a policy on corruption; over 55% report on health and safety issues and are International Organization for Standardization 14001 certified.

However, fewer than half disclose their carbon footprints through the CDP platform or have a certified safety management program. We expect these figures to improve over the coming years through best practice sharing. By continuing to roll this process out to more of our suppliers, we will be able to better recognize, and better select, sustainable and ethical suppliers to work with.

Average EcoVadis scores of Birla Carbon's suppliers in FY2022²



* Dotted line shows EcoVadis database average

² Results based on the limited but statistically significant number of assessed suppliers.

Sustainable procurement progress

Since launching our Global Purchasing Symposium to adopt sustainable procurement practices throughout Birla Carbon we have made progress in a number of areas. The event established three main elements: terms and conditions, NAVEX Global's RiskRate[®] and EcoVadis.

We are continuing to drive sustainable procurement throughout our business in FY2021 through our well-established due diligence process, which includes screening for new vendors. Red-flagged vendors cannot be brought in as new vendors, and existing red-flagged vendors must be investigated and cleared by our Legal team for us to continue working with them.

New critical suppliers are invited to complete virtual training sessions where Birla Carbon Sustainability collaborates with EcoVadis and buyers to ensure a smooth launch of the EcoVadis campaign.

As pioneers in sustainable procurement practices at Aditya Birla Group (ABG), Birla Carbon has shared our learnings with other businesses throughout ABG's Global Expert Conversation Series platform, as well as through working groups and one-on-one information sessions with Group companies.



To create a more responsible business, we are working to create a more responsible supply chain. With a procurement network as complex as ours, strategic partnerships and well-defined processes are how we are realizing this. By harnessing the capabilities of NAVEX Global's RiskRate[®] system, we can monitor our suppliers, proactively identifying issues so that – together – we can achieve an increasingly ethical, transparent supply chain."

DÉNES LENKE

Director, Supply Chain & Procurement, Birla Carbon Americas & EMEA



Response planning and preparedness

We strive to ensure that our sites and suppliers have up-to-date inventories available at all times. Challenging and unexpected global circumstances can impact inventory approaches for both ourselves and our suppliers. Our Business Continuity Plans and Crisis Management Response Guidelines provide solutions for sourcing raw materials and critical spare parts with minimal risk through our contract supplier agreements. We maintain an updated list of approved, assured and certified alternative suppliers for emergencies.

All our sites have current Business Continuity Plans. These are designed to assist in recovering the business should an adverse event occur at a site. In accordance with IATF 16949 requirements the plans are reviewed at least annually. In FY2022, Birla Carbon partnered with one of our major property insurers to complete a resilience and exposure analysis. This exercise included in-depth reviews to identify potential vulnerabilities and quantify the potential impact of an event at individual sites. These findings are being used to improve our Business Continuity Planning process, with the second phase of the project due for completion in FY2023.

[Birla Carbon Business Continuity Planning Statement](#)



Our people

Bringing out the best in our people
and the best in our business

In this section:

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- 64 Health and safety
- 68 Attracting and retaining talent
- 70 Recognizing our people
- 71 Employee engagement

A family of choice

We believe that our value is increased not only by creating industry-leading products, but also by creating a supportive workplace where employees feel encouraged to develop and be their best. We are committed to providing learning opportunities for our employees across the globe as well as ensuring their safety and wellbeing, so they feel inspired to continue making great products.



THE BIRLA CARBON FAMILY
The bonds we form with each other are as important to our business as the product we make. This means putting our employees first to ensure they feel safe and supported in a workplace that promotes shared growth.

[Find out more about our five Purpose Principles](#)

Did you know?
Our Commitment Based Safety approach encourages employees to make commitments to their own health and wellbeing.



Becoming an employer of choice

By supporting the creation of a workplace where we encourage employee development, we are increasing our shared value. We seek to attract the best people to Birla Carbon and provide a range of learning opportunities for our global employees to thrive. The health and safety of our employees is paramount at Birla Carbon, and we encourage our people to take responsibility for their own safety and that of their colleagues through our Commitment Based Safety (CBS) approach.

Keeping our global workforce motivated and working together to achieve our goals is fundamental to our success as a business. To ensure our diverse employees are engaged, and to determine areas where we could be doing more, we conduct regular employee surveys.

WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



We know that great ideas can come from anywhere and that developing a diverse and inclusive workforce is key to Birla Carbon's success. Through our Diversity & Inclusion Strategy, we strive to create more equitable opportunities – particularly across genders and generations – and to nurture environments where varied perspectives are welcomed."

ANDREA TIEDEMANN
Director, Human Resources
Birla Carbon EMEA



Health and safety

In FY2022, we have continued to establish a culture of safety excellence within Birla Carbon – steered by strong leadership and driven by the commitment of our own people to prioritizing their own safety and the safety of others. In light of the global spread of COVID-19, we acted quickly to ensure each of our employees was kept safe and healthy, regardless of where they were.

Progress towards our target

TARGET: Achieve zero recordable injuries year on year (employee and contractor Total Recordable Incident Rate (TRIR)).

STATUS: BEHIND SCHEDULE While our safety results in FY2022 were disappointing, we are pleased to report that a total of nine sites reported no recordable injuries (employees or contractors). Additionally, several sites extended extraordinary safety records, some of these going several years without a recordable incident. These included the Camaçari (Brazil), Yeosu (Korea), Weifang (China), and Marietta (Georgia) facilities.



Building a strong safety culture takes time; we do not pretend to be at the end of our journey. There is always room for progress at every level, as we develop a workspace in which we take responsibility for the safety of every one of our employees.

Reducing workplace injuries

In FY2022, the number of recordable and lost workday cases for employees and contractors increased globally. Birla Carbon completed FY2022 with a Total Recordable Incident Rate (TRIR) of 0.52 and a Lost Workday Case Rate (LWCR) of 0.40 – increases of 64% and 154% respectively. To address these increases, Birla Carbon is initiating several actions for FY2023. These include:

- Launching a year-long safety communications effort to increase safety awareness, starting with Global Safety Week April 25–29, 2022.

- Focusing efforts on sites with weak safety performance to identify any unique issues impacting safety.
- Increased focus on contractor safety.
- Resuming in-person global Health, Safety and Environmental (HSE) audits beginning in the first fiscal quarter to evaluate regulatory and standards compliance as well as plant culture and management systems.
- Increasing focus on our Safe Six, which represent the highest-risk activities in our sites.
- Engaging employees on increasing hazard and near-miss reporting.

Our performance

We have identified indicators designed to proactively prevent incidents and injuries before they occur. These indicators focus on:

- HSE training and qualification.
- Responding to hazard reports or employee concerns within 48 hours.
- Investigating near misses within two business days; and
- HSE self-assessments and the completion of action plans to address findings.



Nine sites reported zero recordable injuries

(employees and contractors) in FY22.

Focusing on these key indicators, we continue to see positive results. Our facilities reported 100% completion of all required HSE training. Approximately 84 near misses were reported in FY2022, with 93% of investigations of these events completed within two business days – an achievement which is considered world class. Birla Carbon also completed a third round of Safety Perception Surveys in FY2022 intended to gauge employees’ perceptions about safety programs. Results of the surveys are reviewed with site management teams, and action plans are developed to address any significant findings. One of the global outcomes from this round of surveys was the improvement in safety communications, initiated with Global Safety Week. We expect these indicators to continue to drive improvements over the coming years and as our HSE programs mature.

Our health and safety programs

We prepare our people as much as possible to identify and manage the potential safety risks they might face while working in our facilities. This preparation includes adherence to clear standards, processes for issuing of work permits, education, training, auditing and follow-ups to reinforce safety accountability.



Safety management

Our approach to safety and health management involves a methodical, five-step process to ensure that each standard is entirely applicable to our operations.



1 Developing a standard

In addition to regulatory requirements and recognized industry best practices, we conduct our own retrospective review of incidents and near misses at our sites to develop appropriate standards and expectations. All standards are reviewed and revised every two years.



2 Training and implementation

Once developed, each plant is responsible for training in and implementing these standards. Our safety leadership training focuses on the roles and responsibilities of leaders in instilling a culture of safety excellence for both our employees and the contracted workforce.



3 Executing an action plan

Each safety standard is internally and externally validated. An action plan is executed to track its successful implementation, monitor progress and reinforce accountability.



4 Conducting audits

Each location is audited at two-year intervals by an external body to review the compliance of the safety standards with regulatory requirements and company standards. Safety Managers from our other sites also participate in the review process, sharing best practices.



5 Refining action plans

Specific tasks or activities identified during the audits are addressed by adjusting the action plan, reinforcing our drive for continual improvement and safety excellence.



Celebrating World Day for Safety and Health at Work

This year, in celebration of World Day for Safety and Health at Work, we ran a week-long Global Safety Week initiative across our plant locations.

A core focus of our messaging during this time was the Safe Six, an ongoing initiative for Birla Carbon. The event engaged

employees at all sites with video messages delivered by key leaders and recognition given to safety stars at respective sites. Another key topic for the initiative was hazard identification; during this time we received more than 300 hazard reports from employees.

Serious Injury and Fatality initiative

In FY2019, we rolled out our Serious Injury and Fatality (SIF) initiative. This program focuses on higher-risk tasks and situations.

A critical element of this initiative is the emphasis on near-miss reporting, which we aim to improve. According to the Campbell Institute at the National Safety Council, 85% of all serious injuries and fatalities are preceded by near-miss events.

In 2022, we updated our internal standard on serious injury and fatality prevention in line with learnings from Birla Carbon's participation in the development of an SIF standard for the Aditya Birla Group (ABG).

We continue to track and thoroughly investigate events with SIF potential. In addition, we share these results with all sites through safety alerts, and where necessary, global corrective actions are implemented and tracked to completion.

The Safe Six: Key health and safety risks

A central component of the SIF initiative, the Safe Six represent key areas where high precision is essential to prevent a serious injury or fatality. These are working at height, hot work, lockout/tagout (LOTO), mobile equipment, confined space and electrical.

We encourage individuals to make a personal safety commitment to change the overall safety culture. Among the factors that we ask our employees to consider are these six occupational health risks, which every person working at our sites must be aware of.



Working at height

Use all prescribed personal protective equipment (PPE) for the task, including fall protection when work is performed at heights of above two meters.



Hot work

Secure a hot work permit and follow permit precautions when performing any spark-producing work, such as grinding or welding.



Lockout/tagout (LOTO)

Isolate and verify all types of energy, including electrical, hydraulic, pneumatic and stored, when performing maintenance on equipment. Follow line-breaking procedures when opening equipment that may contain hazardous materials.



Mobile equipment

Be aware of limitations and safety requirements, including the one-meter rule, for operating or working around mobile equipment such as forklift trucks.



Confined space

Follow procedures for identifying and controlling risks prior to and during an entry into a confined space to ensure it is safe to enter.



Electrical

Enable all employees to recognize potential electrical hazards and risks; develop systems and procedures, including the use of specialized protective equipment, to reduce the potential risks of arc flash and electrical shock for persons qualified to service and maintain plant electrical systems.

While all our employees receive regular training related to the Safe Six critical areas, we believe that increasing awareness and reinforcing requirements will help us achieve flawless execution of these principles on a daily basis. In late FY2020, the HSE team began developing micro-learning modules focused on our Safe Six standards. These modules present a full training program for employees in short, easy-to-understand segments that can be viewed over a cellphone or other portable device.

We developed a range of online resources on the Safe Six for our employees, from a designated intranet page with links to our Gyanodaya Virtual Campus Learning App COVID-19 Channel. The channel provides employees with information on safety, resilience, managing teams, maintaining a positive and productive mind-set and returning to work.

Changing our HSE culture

At Birla Carbon, we believe a culture of safety is created by engaged individuals who actively manage their risks every day. We are continuing to deploy the CBS process, where specific risks and the behaviors required to manage them are identified at a site level. Employees create safe habits by providing daily reports on their progress. The understanding is that full compliance is not automatic but improvements can be made each day.

Through CBS our aim is to create a culture where all employees are aware of the risks they face and take active care of others: when someone observes someone at risk, we want them to stop and take action to help avert accidents.

Protecting our contractors

Improving our HSE performance demands that we work closely with contractors, who may not work to the same standards that we expect from our employees. Contractor safety will be a focus for audits as they resume in FY2023 due to the increase in incidents in FY2022. In FY2022, we maintained focus on the importance of contractor management. Our contractor TRIR was 0.37 and the LWCR was 0.30.

In FY2022, our sites in North America renewed our contract with Avetta, a third-party risk management provider, to improve the qualification process. Avetta collects information from contractors, including safety incidence rates, insurance coverage and HSE programs, based on Birla Carbon specifications. The information is evaluated and scored, with each contractor assigned a rating. Only those

that meet Birla Carbon requirements qualify to work in the plants. The process has saved the sites time in qualifying and selecting contractors. In FY2023, we will evaluate the feasibility of expanding this service to our facilities in other regions.

Auditing our performance

Due to COVID-19 travel restrictions, our Global HSE group was unable to conduct audits in FY2022. We used this as an opportunity to strengthen our audit process using a more comprehensive self-assessment process connected to our HSE information system (Enablon).

In FY2022, we completed our second interval of self-assessments, encompassing compliance with HSE regulatory requirements, for all operating facilities. This self-assessment

process enables us to identify common strengths and opportunities for improvement across the organization.

The entire audit process is now available to the sites as a self-assessment and will be used in preparation for in-person audits as they resume this year. In addition to the audit subject areas, we believe the audits also provide an opportunity to engage with the site leadership team in-person, drive discussions and questions outside the audit and partner with the plants for HSE process improvement.

Results from audits will continue to be reported monthly and tracked using our global HSE information system. We are also using data from self-assessments to identify and correct common gaps across the organization.



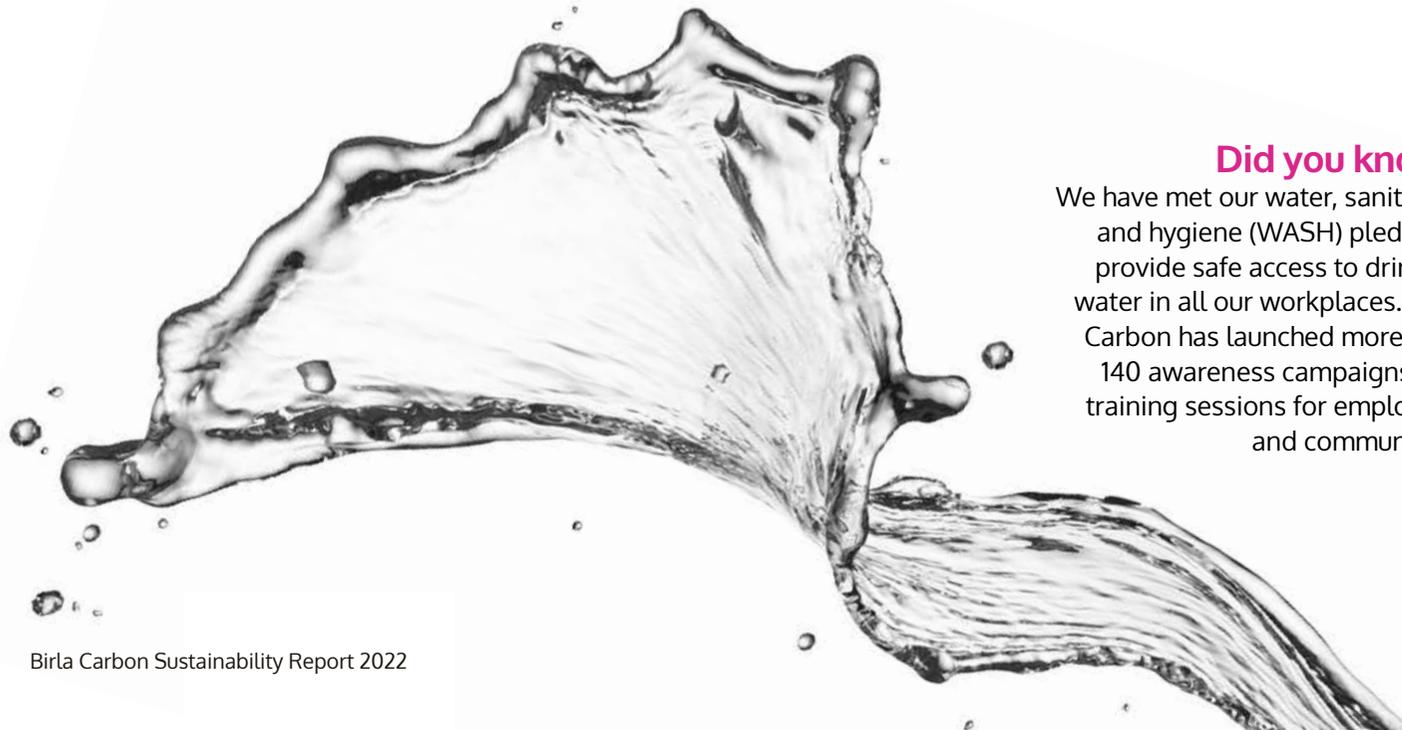
Our award-winning safety culture

We have always placed a strong focus on the health and safety of everyone who steps into our facilities. Nine Birla Carbon sites have been recognized by the International Carbon Black Association (ICBA) for their employee safety efforts, receiving the Gold award, and one receiving the Bronze award.

The ICBA acknowledges outstanding safety records, educating policy makers and the general public about the carbon black industry. It aims to raise awareness about the industry's genuine regard for employee safety. The ICBA's Safety Recognition Program identifies facilities that have excelled in protecting the industry's workforce, promoting safety 24 hours a day.

Did you know?

We have met our water, sanitation and hygiene (WASH) pledge to provide safe access to drinking water in all our workplaces. Birla Carbon has launched more than 140 awareness campaigns and training sessions for employees and communities.



Attracting and retaining talent

We believe that we achieve the best results when we are open to other perspectives and work together to make a difference. To maintain our industry-leading position, we seek to engage and attract bright minds in the countries where we operate.

Progress towards our target

TARGET: 100% of Birla Carbon managers to have stated and measured goals set annually (percent of managers by year)

STATUS: ON TRACK To maintain our progress, all management-level employees continued to set performance goals in FY22



We enable our employees to develop their skills and potential, offering exciting opportunities for career development, learning, recognition and wellbeing, in alignment with A World of Opportunities, the ABG's Employee Value Proposition.

[Our Group Employee Value Proposition](#)

Our HR vision and strategy

Our HR team created a new strategy which will be valid until FY2024, aiming to make Birla Carbon an aspirational workplace for diverse groups of people. It focuses on five key pillars:

Five pillars of our strategy



Employer of Choice
Recognized for diversity and inclusion practices and a great place to work for diverse workers in the industry.



Culture and Engagement
Enabling a culture for empowered and engaged employees.



Career and Talent
Providing avenues for career velocity and building a talent pipeline to support business growth.



Capability Building
Business-critical capability for a future-ready organization.



Consumer Grade Experience
Differentiated and personalized employee experience built through digital enablement of HR processes.

These pillars are supported by action plans that are equipped to achieve our HR goals for the year.

Our approach to attracting and retaining talent

We seek to be an employer of choice in every geography where we operate. We place emphasis on talent development, targeted internal movement, and continual engagement with our employees.

Our progress as a company is driven by both the expertise of our seasoned carbon black professionals and the continual exchange of ideas with the next generation of engineers and scientists. For this purpose, we continue building partnerships with local colleges and universities and invite interns to gain realistic work experience with us.

We build effective partnerships with colleges and universities through our participants in the ABG Leadership Program (ABGLP). The cohort is offered global project opportunities in varied business functions, such as Operations, Marketing, Finance and HR. In FY2022, four participants from leading schools and universities in India and across Asia completed projects with Birla Carbon through this program. We have also hired four ABGLP participants at Birla Carbon and have given two internship projects to participants of the Group Internship project.

Identifying leaders through our talent management system

Our talent management process aims to build a community of competent and highly engaged global leaders. Our approach includes:

- Assessment of potential – evaluating behavioral competencies for success in future roles;
- Talent councils – bringing leadership teams together for collective and in-depth discussion on high-potential individuals and their career progression; and
- Development centers – applying a rigorous process to assessing and creating a clear plan for each individual based on their strengths and opportunities.

Cyclic assessment of individual potential is a fundamental part of our talent management and leadership-development process.

Developing our people at all levels

From the plant floor to the sales floor, our passion for learning has no ceiling. We encourage our people to continue to learn throughout their careers by providing multiple opportunities and platforms to fit their needs, enabling them to meet career aspirations and perform successfully.

By combining the best of local learning with our worldwide network, we can take our expertise to global levels. Our enterprise learning management system is designed to enhance employee skill levels, encourage employees to apply the knowledge gained to

real-world situations and conduct all training from a centralized source. The platform records all learning activities, and an online library of over 1,000 courses is available to all employees at no cost. Courses are provided in multiple languages, covering a range of topics, both functional and behavioral:

- Coaching and counseling
- Performance management
- Conflict management
- Customer focus
- Developing employees
- Collaboration and teamwork
- Finance essentials
- HSE
- Wellbeing
- Communication to influence and engage

In the past, we focused on our GVC Learning App, a mobile application powered by artificial intelligence. The app is learner-centric, providing a personalized experience for each user. With easy access to information, employees can learn while on the go. We created business-specific content in the areas of safety and sustainability, hosted on this app for all employees to view. We also curated curriculums on 10 behavioral topics, which are accessible for all employees.

In FY2022, continuing with our endeavor to further promote and build a culture of learning, we launched a Learning Recognition Program, “RALLY – Recognition & Learning ALLY” on July 1, 2021. The program intends to recognize employees in two award categories (Fastest Learner and Top Learner) for their commitment

towards learning, self-development and participation in various virtual learning events. As part of this program, a new learning theme is launched every other month starting July 2021 and employees are encouraged to consume learning specific to the theme including a quiz and interactive learning opportunities. The themes are identified considering the learning needs of employees while the learning content is curated and made available on the GVC app. Through this program, we intend to make learning more engaging and fun.

Growing employee knowledge with eAcademy

The Birla Carbon eAcademy, established in FY2017, aims to share the experience and knowledge of our business leaders and subject matter experts (SMEs) with employees and to simplify key aspects of the business.

We have developed e-learning modules specific to Birla Carbon to institutionalize the knowledge accumulated by our SMEs through our long history. Modules developed to date include Carbon Black 101, Reactor Technology and CBS. A 30-minute e-learning focusing on sustainability was developed during FY2021 in partnership with the Business Sustainability team. This e-learning covers what sustainability is, the United Nations Sustainable Development Goals and how they tie back to Birla Carbon’s Purpose, Vision and Strategy.

Sharing knowledge through our mentorship program

Birla Carbon rolled out its mentorship program in FY2019. The first cohort successfully

completed its mentorship program in December 2019 and the second cohort successfully completed its mentorship program in December 2021. The mentees were mentored by Senior Management Team (SMT) mentors.

Providing learning experience through our Global Rotation Program

With the goal of providing employees with a range of functional and management experiences, a short-term Global Rotation Program was launched in April 2019. Through the program, we provided nine high-performing employees with exposure to diverse technologies and practices, enhancing their functional competence and growth.

We leveraged our global presence to tap into a wide network of knowledge and resources, giving participants the opportunity to work across diverse cultures and geographies. A second batch of participants in the Global Rotation Program has been identified. This will be rolled out in the next year.

Using Core Conclave to build future leaders

The Aditya Birla Core Conclave is an annual event for middle and senior management – including our future leaders – that aims to build depth, broaden perspectives and foster interaction across the ABG. Over 140 Birla Carbon employees have participated in the first four Core Conclaves.

Recognizing our people

Our employees are recognized and rewarded for their contribution to our success. Besides performance-based rewards, exceptional performance is also recognized through regional, business and group-level awards.

Total Reward Philosophy

Our Total Reward Philosophy is to:

- Strive to pay fair and competitive compensation, valuing skills and credentials;
- Promote a culture of wellbeing by offering competitive benefits according to living standards; and
- Maintain a rewarding working environment, providing global exposure and offering flexible work options where possible.

- Manager-driven pay for performance offers aggressive performance differentiation, thereby rewarding the exceptional performances and contributions of our employees.
- Total rewards for executives are benchmarked with competitors each year to enhance performance and award opportunities.

Fair and competitive total rewards

Birla Carbon continually assesses local and global standards of pay and benefits to ensure we remain competitive and compatible within and outside the ABG.

- Rigorous market benchmarking exercises are implemented each year with major stakeholders across regions to ensure that our salaries reflect the market realities at any given point in time. While nationwide references are used for market comparison, local geographic differences are considered where relevant.

Global and local recognition

There are several programs across units, regions and the business through which we recognize individuals and teams who go above and beyond their defined roles. The APPLAUSE platform, our first real-time online global recognition program, was launched in FY2020.

- APPLAUSE offers a common platform where any employee can recognize their colleagues across the organization, irrespective of location, function and level.
- The categories of recognition are tied to our Purpose and Values, which all employees across the globe can relate to.
- A wide range of redeemable online gift options are available, sourced from local vendors, which makes the platform eco-friendly and diverse.

Exceptional individual and team performance are recognized through our Performance Recognition in Delivering Excellence (PRIDE) program, which includes monetary rewards for outstanding contributions to the business.

Receiving Group recognition

Employees are also recognized through the ABG Awards for Outstanding Achievement. Exceptional performers are nominated for individual awards, including the Emerging Professional, Distinguished Achiever, Exceptional Contributor, Accomplished Leader, Outstanding Leader, ABG Outstanding Woman and Fast Starter Awards. This year we had 10 employees that were recognized out of the 15 nominated.

Career movements with Birla Carbon

We have continued to make internal career paths clearer through a streamlined framework for the Technology, Engineering and Operations areas. We encourage intra- and inter-regional movements of qualified employees, as well as transfers from other businesses within the ABG. We engage with employees and their spouses prior to a potential relocation, ensuring they are comfortable with the move and their new role. We offer comprehensive support to employees and their families who are relocating, including assistance with school admissions and employment assistance for spouses.



Employee engagement

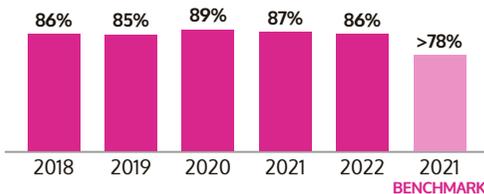
We share an unbreakable bond throughout our company; because we share the same goals, we support each other to achieve them.

Maintaining a motivated and inspired global workforce is instrumental to our success and learning how our employees feel is crucial for developing as an organization. We have a diverse workforce with a broad geographical spread, and we seek to engage all our people as we support them and their lifestyles.

Progress towards our target

TARGET: Remain above the chemical industry annual benchmark for employee engagement¹ (%)

STATUS: ON TRACK Our employee engagement key performance indicator (KPI) remains above the chemical industry benchmark in 2021



Our approach to employee engagement

Every two years, we conduct our employee engagement surveys: One Voice (for staff and hourly workers) and Vibes (for management).

Engaging staff and hourly workers

Our One Voice survey is for non-management employees. Our latest survey achieved an outstanding response rate, with 94% of these employees participating. The results showed an improvement in employee experience across topics such as development, fairness and ethics, values, and safety, and declines in some areas, including work processes, employee innovations and improving overall communications. Using these results, we have created action plans to address lower-scoring areas in FY2021.

Engaging management

The Vibes survey provides valuable feedback from management, which helps us develop and execute action plans in specific areas that are tracked at local, regional and global levels.

We conducted our most recent Vibes survey in FY2022, with a 97% response rate. The survey shows that we are now achieving, or scoring higher than, the industry benchmark for employee engagement, highlighting that employees are proud to work for Birla Carbon. The results have been distilled into action plans in each region and unit. We continue to track progress through scorecards during FY2023.

Employee wellbeing

We want our employees to feel that we create a positive working environment. Their wellbeing, and our care for it, is an integral part of our relationship with our people. We continually look for ways in which we can encourage them to lead healthy lifestyles. All regions have their own employee wellness initiatives, tailored to match local health and wellness interests.



¹ This KPI was amended in FY2020 to exclude the results of the Team Vibes survey. It has also been modified to show results for calendar year rather than financial year, in line with Vibes survey timings. The industry benchmark was set by our survey partners, Willis Towers Watson.

Supporting diversity in the workplace

We published our Diversity & Inclusion Strategy in FY2019 to support the criticality of building an aspirational and inclusive workplace for a diverse workforce at Birla Carbon. The strategy lays the roadmap to Share our Strength by strengthening inclusion for everyone with a focus on gender and generational diversity. Ownership of the strategy sits with the business-level Diversity Council, which is subsequently responsible for sponsoring Diversity and Inclusion (D&I) initiatives at the global level, monitoring implementation of the D&I roadmap and reviewing D&I metrics.

The strategy is founded on five key pillars:

1. Providing employees with a smart and connected workplace
2. Tapping into diverse resource pool hiring
3. Facilitating varied platforms and opportunities to strengthen engagement
4. Focusing on capability building of managers and the organization at large
5. Offering flexible rewards in line with life stage requirements.

Shadow Board

To support the integration of the younger generation into strategic business priorities, we launched our Shadow Board. The Board offers engagement opportunities with business leadership and the opportunity to attend Executive Council meetings.

Members of the Board receive leadership coaching support from Group Strategy Head Mr. Shivakumar, as they work on a CEO-

sponsored project to develop a long-term strategy to drive business growth.

Introspecting inclusion

Building and strengthening an inclusive and psychologically safe culture is a vital aspect of ensuring that our D&I Strategy is delivered. Crucial to its delivery is building the capacity of our managers to act as active allies.

We partnered with a renowned faculty to design and run D&I workshops to support our managers and SMT on their inclusive leadership journeys. The training was informed by global research, including stakeholder interviews to ensure that we understood the challenges, concerns and opportunity areas in the D&I space to deliver the best workshop possible.

To date over 300 managers have undertaken our two-day managerial workshop, with the SMT creating an action plan informed by their collective learnings. To ensure this training is cascaded we have created an e-learning D&I course that is available in nine languages on our employee app. In addition to our training efforts, we are piloting an Employee Resource Group in North America.

Gender diversity

Our gender diversity numbers are published every quarter through the HR dashboard. The data includes representation of women within leadership roles, talent pools, those undergoing the Accelerated Leadership Program (ALP), number of career moves, attrition and engagement initiatives for women. Publishing these numbers since 2019 has helped us to promote a positive mind-set towards diversity,

with managers actively making efforts to ensure they have diverse teams.

International Women's Day

We celebrate International Women's Day with business-wide initiatives such as a CEO and SMT message and social media campaigns, as well as at local level with initiatives such as gift cards and celebratory lunches.



The strength of our organization comes from our diversity. Leveraging diverse perspectives, backgrounds and expertise drives innovation by unlocking creativity and empowering employees to be active participants in the innovation process. Everyone has the power to be an innovator! The smallest idea can have the largest impact."

CAITLIN LAWRENCE
Innovation Action Team,
Birla Carbon USA Inc.



Inviting innovation from everyone

We want employees to be engaged in every aspect of the business, including innovation. To support our SMT in achieving this goal, the Innovation Action Team (IAT) was formed in 2019. The IAT has run seven targeted innovation campaigns and captured over 400 ideas.

In 2022, a new Project Management tool was launched via the Hype platform to move ideas towards implementation. This was complemented by the release of an Idea Marketplace where employees can show interest in taking part in projects or leading teams.

In addition to idea capture, the Innovation Ambassador network is a key driver of innovation culture across the organization. Formed in 2020, the group includes 21 individuals from diverse functional areas, locations and genders.

A continuation of our innovation journey, the Birla International Innovation Gathering (BiiG) concept emerged from the call to "Share the Idea." This event will recognize innovators across the organization, help us future-focus today's perspectives and inspire us to strive for continual growth. The ideas of today will shape the business of tomorrow.

Communities

Collaborating with our communities
to grow stronger together

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Delivering positive change

We engage with local groups and associations to provide targeted programs, focusing on good health, quality education, sustainable livelihoods and community infrastructure, in alignment with the United Nations Sustainable Development Goals (SDGs). Through addressing our communities' most pressing challenges, we are helping to make local people, and Birla Carbon, more resilient.



CHALLENGE TESTED
As a global company with local connections, we see community growth and improvement as an opportunity for Birla Carbon to grow too. Every day we rise to the challenge of delivering positive change for our local communities through a range of initiatives and development programs.

[Find out more about our five Purpose Principles](#)

Following the global outbreak of COVID-19, we have increased our efforts to ensure those in our local communities have access to the resources and support they need to stay safe and healthy during this difficult time.

Delivering benefits to communities

As a global company, we recognize that we are well positioned to create long-term benefits for the communities around us, such as enabling access to healthcare. Through a variety of initiatives, we promote immunization programs and invest in medical infrastructure.

We can also enable communities to grow, by empowering people in our communities to take ownership of their own advancement. Through giving people the tools they need to progress and learn valuable vocational skills, we help equip them to find fulfilling employment and improve their livelihoods.

Young people are the future of Birla Carbon, and we depend on our communities as a source of emerging talent. Working with local schools and educational institutions, we promote quality education through financial support, training opportunities, help with building schools and provision of learning resources.

In order to deliver the best results for our local communities, we have focused on four key areas where we believe we can support the biggest growth: healthcare, education, livelihoods and infrastructure.

WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



As a globally present company, we want Birla Carbon to leave a positive impact anywhere we operate. We look to support the development of our communities, contributing to social and economic progress by investing in sustainable, responsible and locally relevant solutions."

MRS. RAJASHREE BIRLA

Chairperson, Aditya Birla Centre for Community Initiatives and Rural Development

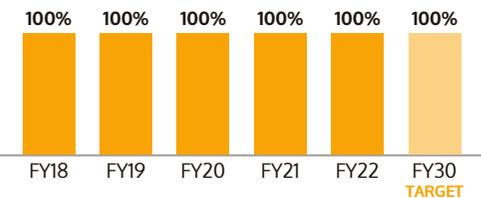


Community engagement

As a member of the Aditya Birla Group (ABG), our commitment to social good is far reaching. We believe in using our resources to provide communities with support and to enable people to improve their own lives. At the same time as supporting charitable activities, we aim to help the communities where we operate achieve real and lasting social development.

Progress towards our target

-  **TARGET:**
100% of our facilities participate in community engagement
-  **STATUS: ON TRACK**
We maintain our community engagement efforts at all sites



Our approach to assessing community needs

Guided by the work of the ABG Foundation, we support the sustainable development of communities close to our plants, tailoring how we can help with their specific social issues and priorities. We want to actively participate with our communities, engaging with people to better understand the issues that concern them so we can target our interventions accordingly.

Our community engagement activities focus on four key areas, each of which is aligned to the SDGs:

- [Access to healthcare](#)
- [Quality education](#)
- [Sustainable livelihoods](#)
- [Community infrastructure](#)

In FY2018, we published the Birla Carbon Stakeholder Engagement Policy, which includes clear standards for our sites to aim for when it comes to engaging with their local stakeholders, including embedding the principles of inclusiveness, transparency, materiality, completeness and cultural appropriateness in all engagement activities.

[Stakeholder Engagement Policy](#)



Did you know?

100% of our facilities participate in community engagement activities.



Identifying the right community projects

Our approach to engaging with communities includes building lasting, mutually beneficial partnerships with the people impacted by our operations.



Our community strategy



Global commitment
To engage and support communities around our sites.



Regional approach
Varies from site to site depending on the region's development goals.

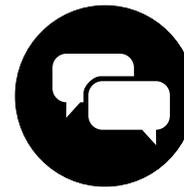
How we do this



We identify short- and long-term community risks



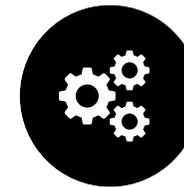
We assess local impact and priorities in the region



We engage with communities to identify views and needs



We devise a relevant regional community engagement strategy and focus areas



We implement activities and investment

Access to healthcare

In some of the areas where we work, local and regional health infrastructure faces pressure due to population growth and a lack of resources.

Birla Carbon is well positioned in these regions to have a long-term positive impact: we facilitate access to doctors and medicine, promote immunization programs and invest in medical infrastructure for the people who live near our facilities.



We organized a collection of essential items such as bandages, patches, cotton and disposable gloves that were delivered to hospitals in Ukraine in March 2022.

Investing in good health

Healthcare is an area where our community engagement work has the potential to have an immediate and visible impact. We add real value to our communities by supporting strained healthcare providers and bringing important medical services closer to those who really need them.

We invest in access to healthcare through:

- Vaccination programs
- Building health centers and hospitals
- Mobile clinics and doctors' visits
- Medical camps
- Infant and women's health projects
- Safe drinking water and sanitation
- Illness prevention and awareness
- Blood donation
- Encouraging responsible childcare
- Biometrics screening

Promoting healthy communities

The people at our facilities have a direct, hands-on role in the communities that they impact:

Trecate, Italy

We donated 150 USB pen drives, 130 multicolored pens and rubber bracelets to provide comfort to children who were getting vaccinated in the local communities and villages close to the plant in Trecate, Italy.

Weifang, China

Donated 5,000 masks to the local government office.

Did you know?

The team in India supported the launch of a new health center at the Government Taluk Hospital in Gummidipoondi, providing access to free medicines for 12 local villages.

WE SUPPORT THE FOLLOWING SDG THROUGH OUR WORK



Alexandria, Egypt

Birla Carbon Egypt provides funding for medical support to nearby villages. This includes weekly visits by pediatricians and gynecologists, medical convoys and eye health campaigns in local schools.

Gummidipoondi, India

In association with the Public Health Department National Health Mission, our Gummidipoondi site helped to establish a dialysis center in the Government Taluk Hospital. The site also established a Mobile Clinic Project along with the Wockhardt Foundation, which provides general health check-ups with free medicines in twelve villages. They supported COVID-19 vaccination camps and the development of a temporary hospital for COVID-19-positive inpatients during their quarantine period, providing the necessary medical equipment. A Pulse Polio campaign was launched from the site and they organized dengue fever and COVID-19 awareness programs for locals. The site also distributed newborn kits in association with the Rotary Club and offers a free eye-screening camp for villagers.

Patalganga, India

Birla Carbon's Patalganga facility acted as a free vaccination center for Talavali village, where most women had not received their dose of the vaccine. 1,000 villagers benefited from the first and second COVID-19 vaccination doses in FY2022.

Following government guidelines under the Indian government's "My family, my responsibility" and "My students, my responsibility" campaigns, we provided 1,200 health kits to village communities. The kits included hand sanitizer, masks, Dettol soap and a dental hygiene kit.

Birla Carbon Patalganga also supported Pulse Polio, helping them cover 5,670 children with their campaign. The team also organized a blood-donation camp for community members with support of the MGM Hospital Navi Mumbai, where 101 donors donated their blood.

Renukoot, India

Birla Carbon's plant in Renukoot, India supported a range of health initiatives, including organizing mobile medical camps in 23 villages. The camps hosted immunization programs, health awareness sessions and malaria education, and provided COVID-19 vaccinations for our employees and local community members. During times of peak COVID-19 infection a 24-hour ambulance service was available, as well as masks and hand sanitizers.



Meeting our neighbors' needs

Wherever Birla Carbon operates, we aim to engage with the local community to understand what is of concern to them.

Alexandria, Egypt

We celebrated International Day of Persons with Disabilities with multiple local community events as part of our corporate social responsibility activities. These workshops built awareness and understanding to promote the rights and wellbeing of persons with disabilities in all spheres of society to form an inclusive world. These events allow us to give back to the communities in which we operate and allow us to live our Purpose and Share the Strength.

Santander, Spain

We continued our longstanding collaboration with Bahía de Santander Ecotourism and Environmental Education this year by supporting the Learning and Service Project "Knowing and Caring for Marina de Cudeyo."

The program provides informative content and consists of workshops and excursions for first year high school students in La Granja school in Heras. The objective of this program is to raise awareness among young people about the importance of caring for and conserving the environment, promoting responsible behavior towards the natural environment and becoming aware of the consumption and over-exploitation caused by human activity.

At Birla Carbon Spain, we are committed to respecting the environment. Hence, we encourage and participate in initiatives that seek to raise awareness about taking care of our ecosystem.

We distributed school supplies to 40 children who were at risk of social exclusion due to the ongoing COVID-19 pandemic. The donation supported the #NoNiñoSinMaterial initiative arranged by the Dyslexia Association of Cantabria (ASDICAN). Our donation helps these children to begin their academic year on an equal footing with their peers.



Quality education

We believe that young people are the future, and we depend on local communities as a source of talent for our business. We are targeting our efforts to support local young people in reaching their full potential.

Providing educational support

Effective, high-quality education provides opportunities for young people, but school systems do not always receive the support they need. We engage with local teenagers as the leaders of tomorrow, introducing them to what our industry has to offer. In some regions, we provide financial support and internships. In others, we help build schools and provide practical training in specific areas for adults.

Our educational support spans:

- Open days for students
- Scholarship programs and internships
- Funding for new school buildings
- Community awareness training
- Immersive English language camps
- Safety awareness and training

Supporting the next generation

The educational support we offer varies from region to region, as we tailor our local community engagement approach to ensure we meet local needs.

Trecate, Italy

We donated our small on-site library to Assopace Novara, a nonprofit that works to promote fundamental human rights like education. Following their circulation among colleagues the team decided the books would create more value and meaning if they were donated to enhance the lives of young students.

Assopace sold the books to raise funds for an intermediate school in Novara, within the multicultural district. The proceeds were also used to sponsor inter-cultural mediation programs for young students to facilitate their education and integration.

We organized a virtual tour for local students at our Trecate plant. Two technical schools joined, with nine classes, 177 students and seven teachers. The tour provides students with an insight into working opportunities within the local region and strengthens our connections with young, talented students in the chemical and mechanical fields – establishing a channel for their future enrollment and talent acquisition within our company.

This tour is part of the initiative by Novara’s industrial association, which organizes a PMI Day involving more than 1,000 students in Novara, Vercelli and Valsesia (PMI stands for small and medium-sized companies, below 250 employees).

In September 2018, we began sponsorship of the Rodari Primary School in Trecate. In September 2019, phase two of this sponsorship was completed with the inauguration of the “ArchiLab.” This space, which is located within the school’s premises, is an architecture and photography center for the whole city. Included in the space are architecture and design projects produced by students over the year.

Camaçari, Brazil

We donated 15 refurbished chairs and a table to the Parque Florestal community high school, Camaçari, Brazil, in partnership with the Camaçari Industrial Development Committee. The donated furniture will help to improve the structure of the school, benefiting the students.

Marietta, USA

We have continued our partnership with Kennesaw State University in Georgia, now in its eighth year, pledging \$55,000 to offer scholarships to students. This year we are hosting a major introduction, tour and planning session for 12 university guests with the Dean of the College of Science and Mathematics and his team. As part of our partnership, we also provide internships and employment opportunities at Birla Carbon. Since 2014, 91 scholars have participated in the summer research opportunity. This year’s cohort was recognized by the university at a symposium where scholars presented their work.

WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



Angthong, Thailand

We awarded 92 scholarships to children from local communities at our Angthong, Thailand plant. The scholarships cover some students from grade 1 at primary school through university and offer the option to become employees of Birla Carbon Thailand.

Birla Carbon has been awarding these scholarships since 1985 and has supported around 2,800 children so far.

Alexandria, Egypt

We established and inaugurated three classes in an orphanage for people with intellectual disabilities. These classes provide distinguished healthcare facilities to 20 people who reside in the orphanage. Additionally, 16 women received training to prepare them to teach people with disabilities.

To the orphanage we provided the following:

- Psychometric assessment and measurement tool: Birla Carbon Egypt provided the orphanage with some tools for testing various disabilities, which help in assessing and measuring the different abilities in children – cognitive, social and academic. These tools also assist in designing various intervention and rehabilitation programs.
- Psychomotor therapy class: This class is in a room where children’s movement and play activities are observed, which helps children with certain disabilities acquire a set of skills and cognitive abilities specific to their needs.

- Sensory room for autism: A room equipped with special tools to alert, arouse and stimulate all the senses of children who have autism and other related delays in the development of cognitive and sensory aspects in the interaction with their surrounding environment.
- Skills development and crafts class: In this class, persons with disabilities learn simple, easy and safe professional and vocational skills. They are then classified according to their respective abilities.

We inaugurated two tailoring workshops, equipped with 14 sewing machines – primary, semi-automatic and completely automatic – in a school for hearing-impaired children. These workshops helped students acquire new skills in addition to their academic studies, which will assist them in securing employment opportunities in the future.

Did you know?

We awarded 92 educational scholarships to children from local communities at our Angthong plant, Thailand.



Sustainable livelihoods

We depend on thriving local communities to support our workforce and our supply chain. Rural societies in particular can suffer from a lack of resources and assistance; empowering these people to take ownership of their own advancement is key to our engagement activities.

It is important that young people are educated, but it is equally important that adults are given the tools they need to progress.

Empowering local communities

Support is crucial, and our help comes in many forms, but our goal is that local residents take the opportunities we offer to improve their lives for themselves. We want to enable residents to become self-reliant and empowered with our support.

We support sustainable livelihoods through:

- Women’s empowerment
- Self-help through microfinancing (women and farmers)
- Agricultural development
- Livestock development (including husbandry)
- Micro-enterprise development
- Skills development/vocational training

Supporting local people

We provide targeted training to support independent and empowered workers in our local areas.

Angthong, Thailand

We supported flood victims in Angthong province by providing dried food and necessary items to 300 families. The distribution was held in our plant premises and was supplemented by home visits for those who could not reach the facility.

Marietta, USA

We supported the Salvation Army Angel Tree program, providing holiday gifts to children for the tenth consecutive year. Around 50 employees participated in this program by way of monetary donation and shopping for the children as well decorating the holiday tree together.

Over the last 10 years, Birla Carbon has strengthened its partnership with the Salvation Army by donating backpacks and school supplies for their summer camps. Recently, it has donated a sum of \$7,500 to their Red Kettle Kickoff. The Salvation Army provides a wish list from various children.

Spain

Our Christmas party for employees’ children is a longstanding tradition at Birla Carbon Spain. Organized by employees with an appearance from elves and Santa Claus himself, the in-person event has not taken place in the last two years due to the pandemic. We recognize that children have been most affected and so a group of employees came together to record a Christmas video and deliver a gift from Santa Claus this year to end the year on a high.

We delivered 25 gift cards to help families in the municipality of Marina de Cudeyo who are on the brink of social exclusion. The result of a donation drive, the gift cards will be used to purchase sports equipment for academic and extracurricular sports activities.

In this endeavor, we confirmed the continuity of our contribution with weekly fresh food baskets for another year. We have been collaborating closely with the social affairs wing of the Marina de Cudeyo city council for more than ten years now for social inclusion projects.

Did you know?

In Huapai, Thailand, we helped villagers establish model chicken farms to produce organic food.



Camaçari & Cubatão, Brazil

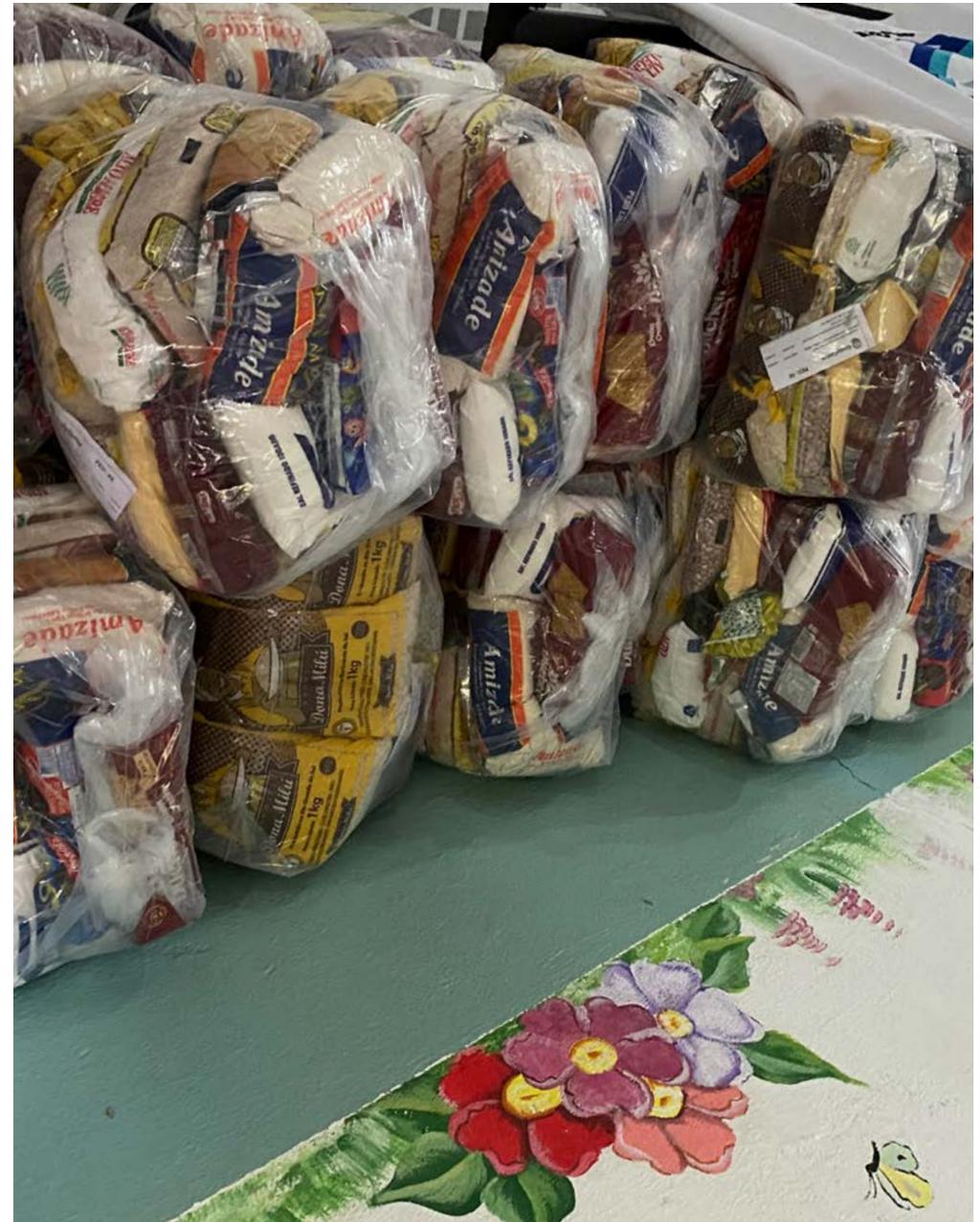
Birla Carbon's plants in South America have always gone beyond to help the local communities in which we operate, strengthening our community bonds to best understand how our company can contribute and enhance their lives with our presence.

Efforts from our Camaçari plant include supporting 100 local families with the distribution of food baskets. Fellow Brazilian plant Cubatão also supported its local community during FY2022 with the distribution of 300 food baskets. Additionally, groups of volunteers from both plants also organized a social care action for Christmas 2021 with members of the local community.

Did you know?

In India, we train local women on practical skills like tailoring, embroidery, gardening and liquid soap making through the Women's Economic Empowerment Initiative (ANYA).

WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



Community infrastructure

Many of the communities where we operate are severely underequipped in terms of basic infrastructure such as buildings, roads and public facilities. We believe that we have a responsibility to partner with local people to provide practical and sustainable infrastructure solutions.

Structural support where needed

We identify opportunities to improve local buildings and infrastructure through our ongoing engagement with local people, focusing on the most critical requirements.

Examples of areas where we contribute include:

- Community centers
- Schools
- Roads
- Homes
- Rural power supplies
- Sanitation
- Irrigation and water-storage facilities

WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



Building resilient communities

We believe that access to basic infrastructure is a non-negotiable right for everyone, and some of those nearest to us need practical support to achieve it.

Santander, Spain

Our collaboration, offering specialized safety training to our employees and an endowment to Santander's firefighters, dates back to 2016. This year we delivered several materials to the firefighters, to be used in the event of an accident at the factory. Our continued partnership means that the firefighters know our facilities in depth so that in the event of an intervention, they can carry out the procedure in an agile and safe way. Our employees have also established a qualified first-response team to work with their troops.

Gummidipoondi, India

To support the development of local communities, we helped to install CCTV and automatic number plate recognition cameras in villages as well as helping to install high-mast lights and to build fitness centers to engage rural youth in sport. In collaboration with the State Industries Promotion Corporation of Tamil Nadu, Birla Carbon also helped to build a cremation center, and through a partnership program we helped to install two reverse osmosis plants for locals to access safe drinking water.

Patalganga, India

At Patalganga, we supported the construction of roads in local villages as well as safe drinking water supplies for Dandwadi village.

Renukoot, India

To support local communities surrounding our Renukoot facility we helped in the installation of a new water pipeline and painted an existing water tank and fences to renovate the area. We also supported school renovations, painting walls, providing furniture and installing solar panels at a school in Kodri village. A water cooler was installed in Murdha village and we invested in the maintenance of public toilets. We supported a digitalization project to provide computer systems with a printer at Awadoot Bhagwan school.



Birla Carbon Spain provided the firefighters with an electric submersible bilge pump and three multi-gas meters.

Governance and ethics

Building an ethical company
that customers can trust

In this section:

- 85 Responsible Stewardship
- 86 Governance
- 93 Ethics
- 94 Human Rights
- 96 Compliance

Responsible stewardship

It is easy to get things done and hard to let each other down when everyone is truthful and transparent. At Birla Carbon, we focus on knowledge as our strength to deliver solutions around the world.

As we look to go Beyond Durable, we uphold the highest ethical standards across all our business activities, and we expect our stakeholders to do the same. We can only continue to innovate our products if we comply with international laws and codes of conduct, and we aim to be an industry leader in best practice.

We are focused on building the strongest governance teams to ensure that we are performing to the highest standards and that our employees feel supported in their work development. We have modeled our governance on the Aditya Birla Group's (ABG) Responsible Stewardship Framework, through which we are aligned with the United Nations Global Compact (UNGC).



WE SUPPORT THE FOLLOWING SDGS THROUGH OUR WORK



Did you know?
All of our employees are trained on our Code of Global Business Ethics and Compliance Standards every year.



At Birla Carbon, keeping our information systems and digital technology secure and operationally available with optimal performance is of extreme importance. Security is integral to our digital journey and while we are continuously focused on preventative mechanisms, we have also built mechanisms in our new technology introduction process for proactive mitigation. These strategies help us provide uninterrupted and reliable services to our customers."

MADHAVI KANUMOORY
Chief Digital and Information Officer,
Birla Carbon



CHALLENGE TESTED

Our Challenge Tested Purpose Principle highlights our commitment to seeing every obstacle as an opportunity for growth. We view a growing customer focus on sustainability and transparency as a chance to develop our governance structure and ethical standards to ensure we are protecting the environment, human rights and the interests of our customers.

[Find out more about our five Purpose Principles](#)



Governance

Our success depends on the strong, effective and responsive management of all our global operations. We are developing our organization to place a stronger focus on cross-team functionality. While we continue to support efficient decision making that is supportive of local needs, we are also promoting more active communication between functional leaders.

Our new organizational structure will help share and implement best practices and take us to the next level of Sustainable Operational Excellence throughout Birla Carbon.

How is our governance organized?

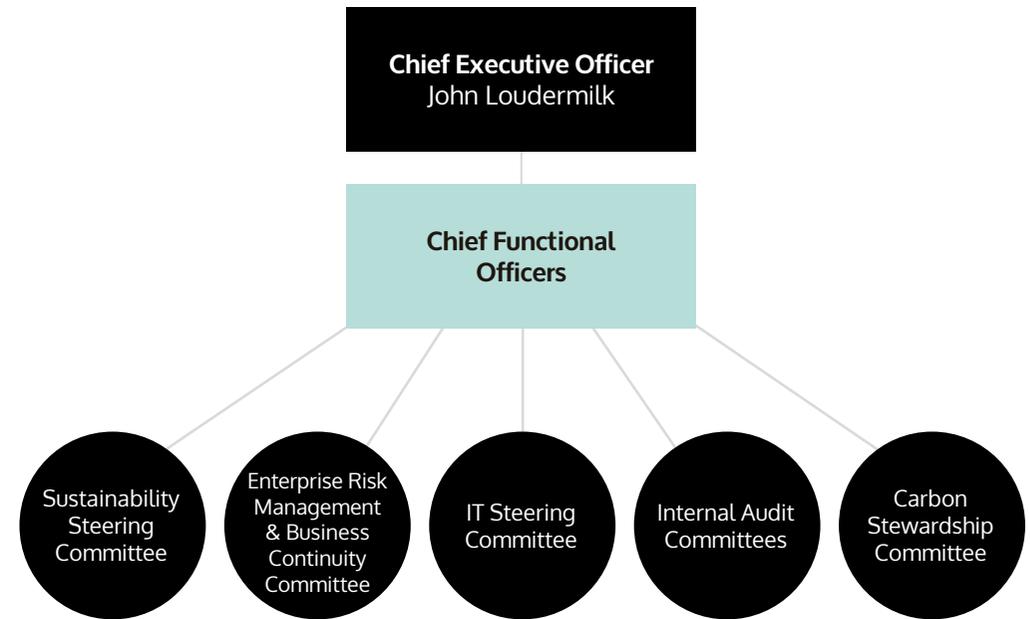
We restructured our governance system in 2020 to increase focus on customers, markets and operational excellence while driving our culture of innovation. Consistent with our Purpose to Share the Strength, these changes will build on our spirit of collaboration to drive global consistency and rapid adoption of best practices across all aspects of our business.

Recognizing the benefits of refining our governance approach, we transitioned to a global functional organization, from one that previously delegated responsibility for all business operations to five geographic regions. The legal entities that comprise Birla Carbon are governed by a Board of Directors led by our Senior Management Team (SMT). The SMT is made up of John Loudermilk, Chief Executive Officer, and eight Chief Functional Officers (Sales & Marketing; Asia Manufacturing; Americas, Europe & Africa Manufacturing; Finance; IT; HR; Legal/Sustainability/Health, Safety and Environmental (HSE), and Research & Development).

The diagram to the right illustrates how we organize our governance.

Our governance structure

The Chief Sustainability Officer has two roles: firstly, communicating the work of the Sustainability Steering Committee (SSC) to the SMT; and secondly, acting as the guardian of sustainability principles and best practices and supporting the SMT in their adoption.



Our business committees ensure we uphold world-class standards

Sustainability Steering Committee

Our sustainability strategy is directed by the SSC, which ensures it is aligned with the sustainability vision and approach of our parent company, the ABG.

The SSC is responsible for reporting on its activities through our annual Sustainability Report, quarterly meetings with the SMT and ad hoc communications with Birla Carbon employees. Another role of the SSC is to influence the integration of sustainability concepts into the company's strategic business decisions.

The SSC tackles specific issues through dedicated working groups, each composed of the Global Sustainability Director, the Sustainability Manager, subject matter experts (SMEs), employees with relevant expertise and occasional third-party advisors.

These teams identify areas of opportunity for integrating sustainability further into the business, for which action plans can be developed. Their ideas and plans are ultimately presented to and evaluated by the entire SSC, with final approval or rejection of projects lying with the SMT.

 [Sustainability Policy](#)

 [Focusing on what matters](#)

Enterprise risk management and Business Continuity Planning

Our response to COVID-19

The global spread of COVID-19 has impacted people around the world, from businesses to communities and individuals. At Birla Carbon, we acted quickly to implement protective measures for our employees and communities while ensuring business continuity for our customers.

We are responsible for ensuring that everyone at our facilities is safe, from when they arrive to the moment they leave. We continued our COVID-19 precautions as the second and third waves of COVID-19 impacted our sites. To keep these precautions up to date, the COVID-19 Task Force meet weekly, monitoring developments and providing guidance to sites based on direction from recognized health organizations such as the World Health Organization (WHO) and the US Centers for Disease Control and Prevention (CDC).

Over the course of two years, Birla Carbon reported over 500 COVID-19 employee infections or exposures warranting quarantine. All but two of these cases were related to exposures outside the work environment.

This dedicated task force coordinated efforts to:

- Keep facilities open, including establishing social distancing and sanitation and recognizing symptoms;
- Review changing guidance from the CDC, WHO and regional organizations;
- Review governmental guidance, including specific community/state requirements;
- Benchmark progress with peers;

- Track global cases, from suspected symptoms through diagnosed cases to hospitalization;
- Maintain communication with the SMT; and
- Facilitate the procurement of personal protective equipment (PPE) supplies for all sites.

We saw a range of localized actions in all our plants, all led by the overarching work of our task force.

Examples of global teamwork include:

- In **Egypt**, we enabled a work-from-home system for all administrative employees so that work could be delivered to schedule. The IT department provided laptops and computers to employees and configured software updates on old laptops where necessary;
- In Cubatão and Bahia, **Brazil**, the leadership team met with contracted doctors to provide guidance on health and safety during the pandemic;
- When our facility in **China** faced a shortage of masks, the team in Korea sent thousands to them. In turn, when masks could not be found locally in **Korea**, we shipped them from our team in **Brazil**, who also sent PPE to **Italy**.
- Local vendor relationships in the **USA** helped us acquire masks to ship to **Spain**. We readily adopted exhaustive protocols, and the ability of our plants to remain flexible shone through; and
- In facilities globally, we launched the "New Normal" initiative to engage employees as they worked from home. The initiative offers a platform for colleagues to share how they have adapted to a new way of working.

Our task force continued to monitor the CDC and health regulation requirements through the second and third waves of COVID-19 as we guided our plants through our framework.

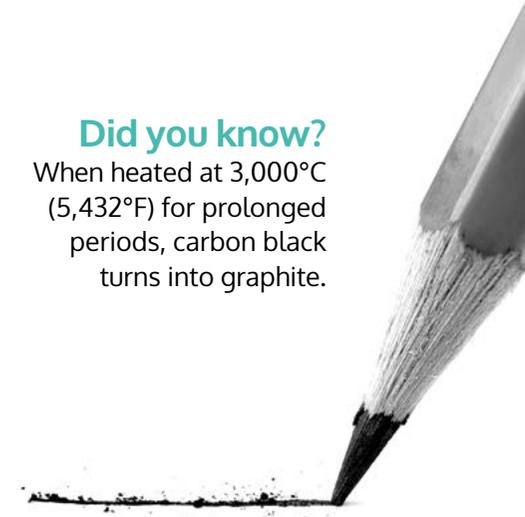
- Phase 1: Only essential people allowed on-site
- Phase 2: Site access
- Phase 3: Return to work

During this time many of our plants facilitated vaccination clinics and remained active in the support of our employees and families.

We are deeply saddened by the loss of four of our employees due to COVID-19 exposures outside of Birla Carbon workplaces, and extend our deepest sympathies to their families and colleagues.

[Employee engagement](#)

Did you know?
When heated at 3,000°C (5,432°F) for prolonged periods, carbon black turns into graphite.



Key topics discussed in FY2022

Governance and ethics

Key topics	Decisions made	Impact on business
Carbon Stewardship Committee	Incorporate long-term sustainability risks into our formal Enterprise Risk Management (ERM) program.	Evaluation and monitoring of long-term sustainability risks ensures we maintain the resiliency and sustainability of our business.

Customers and suppliers

Key topics	Decisions made	Impact on business
Customer engagement	<p>Increase direct engagement with customers on sustainability.</p> <p>Develop a better understanding of the recent circularity and greenhouse gas pledges made by select customers to enable us to better align efforts.</p>	Align our sustainability initiatives and goals with our customers' to remain a strategic partner.
Supplier risk assessment	<p>Roll out second EcoVadis campaign to new critical suppliers and those that did not respond to 2019 campaign.</p> <p>Embed screening by NAVEX Global's RiskRate® in our procurement policies.</p>	A more resilient and ethical supply chain will enable us to ensure business continuity.

Environment

Key topics	Decisions made	Impact on business
Solid waste management	Continued focus on reducing and repurposing waste to achieve key performance indicator (KPI) objective. Focus on partnerships to achieve goals.	We seek to drive improvements around key stakeholder concerns.
Water risk assessment	Performed ERM review and updated processes taking into consideration the challenges posed by COVID-19.	
Energy and emissions KPIs	<p>Evaluate science-based targets and roadmap to net zero.</p> <p>Evaluate technologies for decarbonization.</p>	
Circularity	Investigate and quantify the level of circularity in our production processes, including implementing tools developed by the World Business Council for Sustainable Development and the Ellen MacArthur Foundation's Circulytics tool.	

Key topics discussed in FY2022

Our product

Key topics	Decisions made	Impact on business
Product stewardship	Approved the roll-out of internal and external training on carbon black product safety and its regulated applications.	We aim to ensure people understand how our carbon black is made and their role in its safe manufacture, as well as helping our customers handle and use carbon black effectively and safely.

Our people

Key topics	Decisions made	Impact on business
Engaging our employees	Continue to ensure all sites have safe access to water, sanitation and hygiene.	A motivated workforce is instrumental to business success. We seek to engage our people and support them and their lifestyles.

Community

Key topics	Decisions made	Impact on business
Global program	Benchmark our global Community Service program and identify opportunities for providing more global support to our regional programs.	Improving our contribution to the social and economic development of the communities in which we operate.

Did you know?

We have mapped the 17 UN Sustainable Development Goals against our business since 2016.



Internal audit committees

Our Internal Audit Department runs regular audits and investigations across the business, covering financial, compliance and operational reviews. In FY2022, 14 audits were conducted focusing on areas such as ERM, procurement of spares and services, and bank operations. The outcomes of these audits were shared with the SMT. The Risk Committee is also updated on the status of the reported findings annually.

Mitigating sustainable risk

Serving our customers is the top priority for Birla Carbon. Our robust ERM program helps identify and mitigate potential risks to our business, fully engaging our regions and individual sites. We continue to develop and review site Business Continuity Plans (BCP), expanding this process in 2022, to assure customers they have a reliable supply chain.

Our structure

Our Enterprise Risk Management Committee (ERMC) consists of Birla Carbon's leadership team and ERM functional heads. The implementation of risk management measures is overseen by Regional Risk Officers, while site-based SMEs identify and manage risks as they arise. We also engage with members from our Finance, Legal, IT, HR and other business areas to identify and mitigate departmental risks. The ERMC assists plants in prioritizing physical improvements and preparing capital requests where required. It also assists sites with non-capital recommendations related to inspections, testing and maintenance of critical assets, protective devices and safety systems. Alongside these two groups, employees are encouraged to report any risks they identify. This includes reporting any near-miss safety incidents, unethical activities or other risky behavior they observe.

Any risks identified are captured and prioritized through a Risk Register, based on potential financial impacts, probability of occurrence and volatility. Risk Registers are managed by Regional Risk Officers, with information displayed in heat maps and dashboards for ease of access.

Risk mitigation and business continuity

A culture of business continuity is well established at Birla Carbon – we have the mind-set needed to act quickly and effectively. Our detailed approach to risk mitigation differentiates Birla Carbon from our competitors. We utilize the finest loss-protection engineers to help us identify and minimize risks at our facilities. A network of worldwide brokers helps us to identify emerging risks and provide insurance, while ensuring we are compliant in the countries where we operate. Our BCP is central to our ERM program, preparing us for issues and providing solutions, protecting our operations and helping prevent unforeseen events. Our objective this year is to do refresher training on our BCP and maintain awareness of the BCP management process. COVID-19 also drove new approaches to ensuring business continuity, and we took additional steps to guarantee a constant supply of carbon black for our customers.

Individual site risks have been identified and are actively managed through Origami, our risk management information system. We also use this system to manage our Risk Registers, BCPs, reviews, schedules and ownership of risks.

Each of Birla Carbon's locations has a comprehensive Disaster Recovery Plan and BCP based on 12–15 specific risks, to ensure it is prepared for interruptions due to natural disasters or disruptions. Our Business Continuity Management System (BCMS) is based on the International Organization for Standardization (ISO) 22301 standard and reviewed and tested annually. A BCP is also a requirement for International Automotive Task Force 16949 – all BCPs are structured to comply with this standard and are certified and audited annually. The BCMS guides recovery strategies for our most crucial processes and activities to ensure the continual supply of carbon black to our customers.

To help site leadership teams respond appropriately during crises, we developed our "In Case of Crisis" application. The app, designed to improve emergency response, provides access to important information such as local numbers, contacts and procedures on users' smartphones.

[BCP statement](#)

Recognizing employee commitment during COVID-19

In December 2021, when Spain was hit by the COVID-19 omicron variant, Birla Carbon Spain (BCS) responded quickly to ensure the facility remained operational. As employee infections peaked across all departments, protocols such as isolation periods for people testing positive and conducting PCR tests among those who had been in contact helped reduce the spread.

Where possible, BCS ensured that employees who could work from home did so. However, for those in production roles remote working was not an option. To prevent manufacturing delays, many uninfected employees who had booked vacation days reorganized their plans and stepped in to fill open production shifts. As a result, the plant could continue normal operation and all customer demands were met.

This business continuity was only possible thanks to the commitment and engagement of our employees who canceled leave and remained flexible in the face of changing circumstances. We were humbled by their passion and took steps to recognize and thank those who stepped up for BCS during a difficult time.



Digital & IT Council

The Digital & IT (D&IT) Council ensures we leverage the latest innovative technology and provides governance and oversight to make sure our D&IT strategy and integration is aligned with business and sustainability goals. The D&IT Council, which feeds directly into the SMT, is made up of representative leaders from business functions.

Committing to online security

Birla Carbon is committed to continually improving its security posture and is focused on a “Security First” culture in our organization.

The continually evolving threat landscape makes it critical for us to make the right investment in people and technologies to safeguard our organization’s critical assets. Our core initiatives are strengthening the security of manufacturing systems, end user awareness, being brilliant at the basics and data leakage prevention. In the domain of governance, Birla Carbon intends to implement industry-relevant security standards, policies and procedures, and adopt standardized tools with multiple capabilities to reduce complexity, increase effectiveness and support our organization’s digital journey.

Striving for world-class standards in information technology

We strive to provide world-class IT standards and infrastructure, offering consistent support across our entire business. This gives us confidence in the information we base our decisions on, and that we share with our customers.

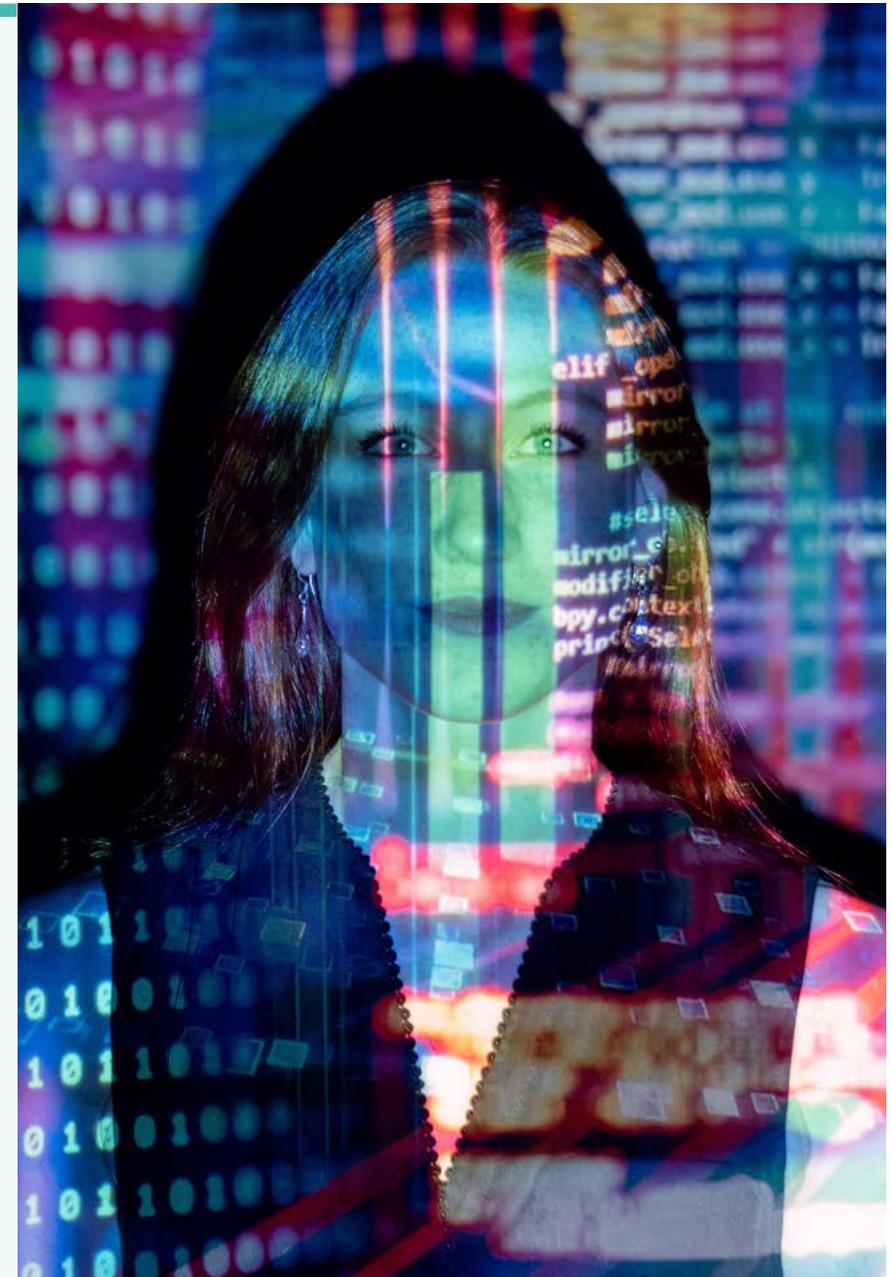
Our IT organization focuses on driving technology optimization across our processes, from procurement and manufacturing to logistics and customer invoicing.

Three pillars were established – Enterprise Systems, Information Security, and Infrastructure Services and Operations – to help us utilize technological innovation, seize opportunities quickly and implement business strategies successfully.

The IT team created a single enterprise resource planning system through which all processes and functions are now managed globally. This plays a key role in ensuring business continuity and provides a robust foundation upon which we can build.

We are also working to present quality, real-time information to manufacturing facilities so that they can make effective interventions, enabling us to provide the information our customers require.

While building robust infrastructure we will implement adequate governance practices to ensure we remain agile, responsive and responsible in the industry.



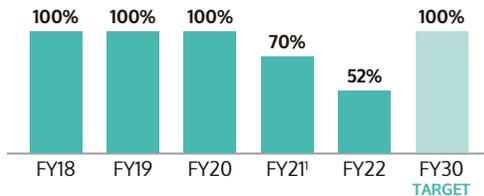
Ethics

Achieving our goals depends on operational integrity and how our people behave. We expect all our employees to align with our values: Integrity, Commitment, Passion, Seamlessness and Speed. It is fundamental that we uphold these values at all levels and that we adopt the fair business and labor practices our stakeholders expect.

Progress towards our target

TARGET:
100% of active employees to receive Code of Ethics training

STATUS: BEHIND SCHEDULE
COVID-19 limited classroom training for employees that do not have access to a computer at home. We plan to resume in-person Code of Ethics training in FY2023 so that all employees can participate.



Conducting business with ethics

Our ethics approach includes aspects that influence our business activities: human rights, antitrust and anti-corruption, grievance measures and collective bargaining. We ensure that ethical conduct is embedded across our operations, and we expect all our employees, contracted workers and external partners to do the same.

To embed high ethical standards across our entire operation, we formally train every employee, who must then sign a document confirming their compliance with our Code of Global Business Ethics and Compliance Standards (Code of Ethics). The Code of Ethics covers our policies on fair competition, antitrust, freedom from discrimination and harassment or other abusive situations, and anti-money laundering.



Our compliance program was developed back in 2011, following the acquisition of Columbian Chemicals and the need for a more coordinated approach to ethics and compliance. Having re-evaluated our Code of Ethics, in 2014 we rolled out a new Code, which is effective in every region we work in, as well as an online training program that reintroduces our employees to the Code of Ethics on an annual basis.

¹ FY2021 saw a drop in the percentage of our employees receiving Code of Ethics training due to the COVID-19 pandemic. We were unable to roll out the training to employees with no access to a computer.

Human rights

For us, respecting human rights is non-negotiable, and we recognize the valuable role we can play in the protection of these rights. It is crucial to our reputation and license to operate that this approach is embedded across all our activities and relationships. This includes our extended supply chain. We are committed to respecting the human rights of our workforce, communities, contractors, suppliers and those affected by our operations, in line with internationally recognized frameworks.

We engage with employees at every level of our operations to ensure our commitments in this area are applied to all our business activities. We strive to comply with, and exceed, laws and regulations wherever we operate, as well as adhering to international standards and those of our own Group. We seek to proactively prevent and address any negative impacts we may have on the people we employ, do business with or interact with.

Our Human Rights Policy sets out our commitments in line with the UNGC principles, of which we are a signatory. It covers key issues such as due diligence, employee and stakeholder engagement, diversity and equal opportunities, and forced and child labor.

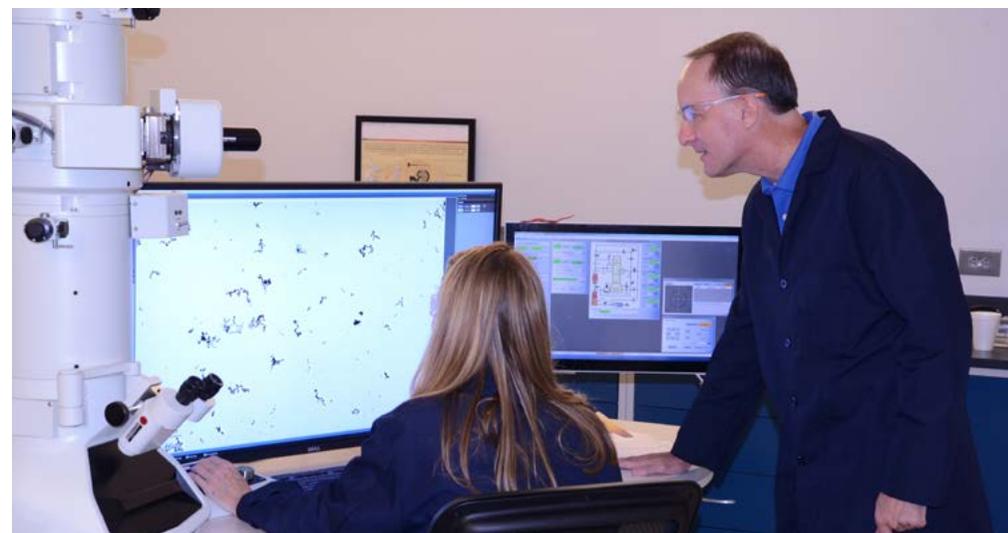
-  [Supplier Management](#)
-  [Birla Carbon Human Rights Policy](#)

Antitrust and anti-corruption

We are committed to complying with antitrust and anti-corruption laws in all locations where we conduct business, and we intend to uphold competitive free enterprise while prohibiting payments or promises to pay anything of value to obtain or retain business. In FY2022, two claims were investigated, and the employees involved were terminated.

Grievance measures

We request that our employees voice any concerns or grievances they have about our operations, other employees or our products, and we expect our contractors and suppliers to do the same. To this end, we provide reporting channels enabling them to do so.



Our hotline is available for employees to anonymously report, via telephone, text message or email, any illegal or non-compliant behavior they observe. The hotline is run by an independent third party, 24 hours a day, 365 days a year, and escalates issues to our Internal Audit Department and Chief Legal Officer.

Employees may ask questions concerning actual or potential situations, and calls made to the hotline are handled in full compliance with local law. Depending upon the issues, these are then investigated by a team of auditors and/or HR professionals. The hotline is available at all our plants and offices.

Collective bargaining agreements

We are committed to absolute fairness when it comes to employee concerns such as wages, working hours, benefits and conflict-resolution processes. As such, we sign legally binding collective bargaining agreements to ensure we operate fairly and consistently with all our staff. In FY2022, 70% of Birla Carbon sites were unionized. If conflicts occur, we have communications and conflict-resolution measures in place for our employees to make their concerns known.

Grievances received	FY19	FY20	FY21	FY22
Hotline calls (total)	10	17	24	22
Calls investigated	10	16	24	17
No further action needed	3	6	13	9
Resolved through collective bargaining	0	5	4	0
Disciplinary actions	7	5	2	7
Formal community grievances	0	0	0	0

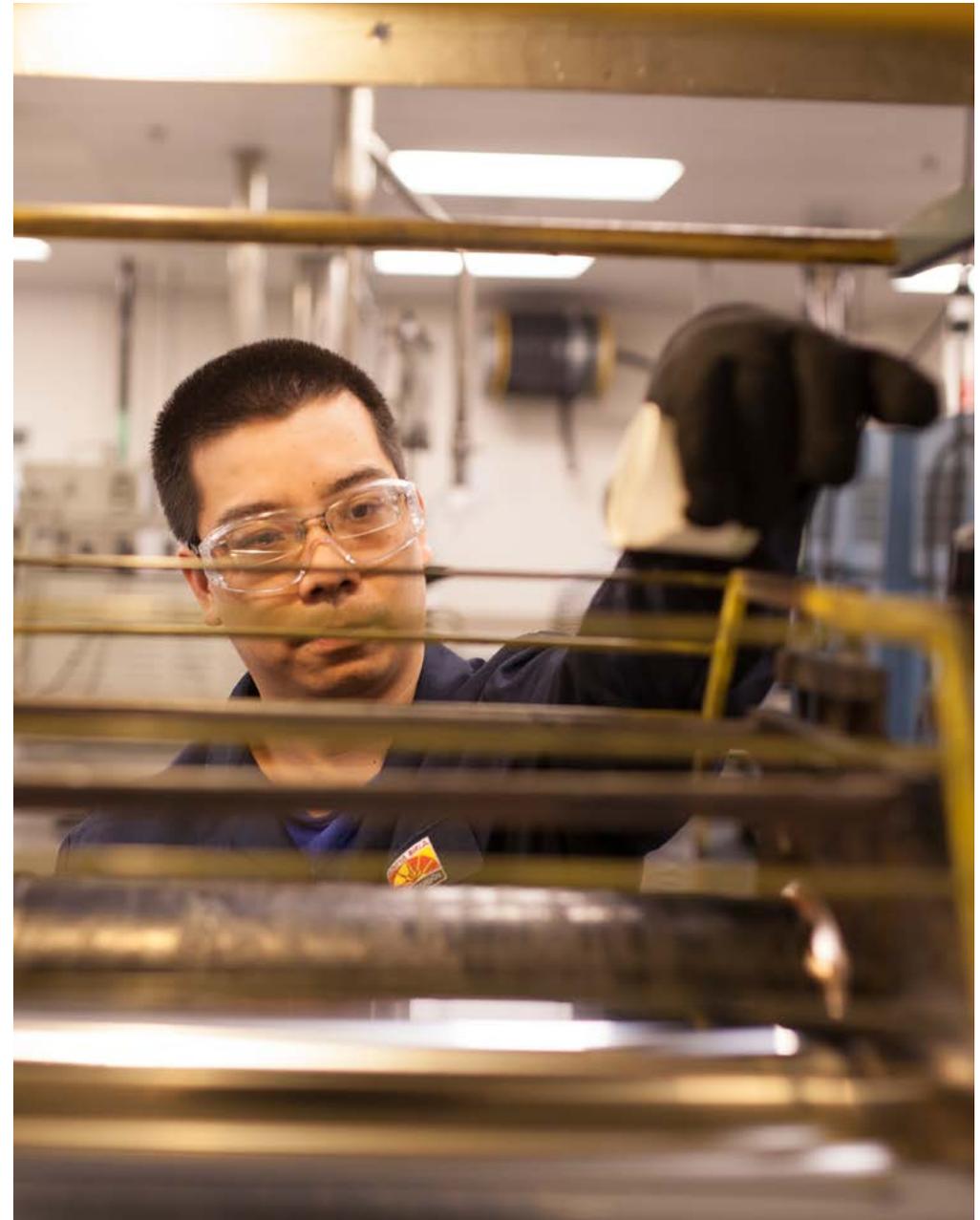
Human rights due diligence in our supply chain

We understand the importance of building a sustainable supply chain, and we expect our external partners to adhere to the same standards and principles of ethics and integrity as we do. It is vital that every member of our supply chain demonstrates responsibility and transparency. All major suppliers receive a copy of our Code of Ethics in their own language, which they must review prior to the request-for-proposal stage. We require all our suppliers to sign Birla Carbon’s Terms and Conditions (T&Cs) of Purchase.

In FY2020, we updated our Purchasing Policies to require use of these standard T&Cs. We also ensure that all new vendors are vetted via NAVEX Global’s Risk Rate® system. Birla Carbon will not engage with any new vendor with a RiskRate® red flag.

We also work with EcoVadis to screen our key suppliers and rate them based on sustainability performance to ensure alignment with our own sustainability goals.

- [Terms and Conditions](#)
- [Supplier Management](#)



Compliance

Our license to operate is predicated on our compliance with international laws, standards, codes of conduct and our own strict business principles. Compliance is also a basic customer and stakeholder expectation. As responsible stewards of the world around us, we not only comply with but also adopt best practices and internationally recognized standards that guide our work and allow us to take greater industry leadership.

Management systems

All our operating manufacturing plants are certified to the ISO 14001 environmental management standard. Six plants (38%) have received certification in the ISO 50001 standard. ISO 50001 requires organizations to establish systems and procedures necessary to improve their energy efficiency, use and consumption.

In FY2020, we finished certifying all our sites to the IATF 16949 standard, which is an automotive quality management system certification with a quality management standard above the requirements of ISO 9001.

Our Environmental Audit Program not only reviews the compliance and implementation of our standards but also includes biennial safety and compliance audits. These audits, conducted by HSE corporate staff and outside auditors, include inspections, employee interviews and detailed reviews of regulatory issues at each plant to ensure 100% compliance with national, regional and local regulations.

Any issue identified is prioritized and tracked monthly by our Corporate HSE Managers through [Enablon](#), our integrated sustainability management tool. In FY2022, we were unable to conduct on-site audits due to COVID-19. As an alternative, we worked on completing all outstanding findings and continued to track these to completion. In FY2023, we will resume on-site [auditing](#).

Ensuring high standards of data privacy globally

On May 25, 2018, the European Union enacted the General Data Protection Regulation (GDPR) to harmonize data privacy laws across Europe and reshape the way organizations approach data privacy. Since then, GDPR has become the global gold standard regarding data privacy.

Birla Carbon is committed to preserving the privacy rights of all individuals whose personal data we process, not just in Europe but globally. We have put in place a new set of data-processing policies and procedures that ensure compliance with GDPR's privacy protections.

Consistent with our compliance philosophy that the highest standard anywhere is the minimum requirement everywhere, these policies and procedures establish the baseline rules and procedures for all processing activities involving personal

data within Birla Carbon – in Europe and throughout the world. We have rolled out our training to all our active employees in many countries all over the world. A specially curated data privacy course has been designed and will be rolled out in 13 different regional languages to increase effectiveness from this year onwards.

We keep up to date regarding new data privacy trends and the latest legislation, which we apply thoroughly. We check our standards and policies frequently – data privacy is no challenge for us, but rather a commitment that comes with our high ethical standards. We have a Data Protection Steering Committee comprising the Data Privacy Officer, Deputy General Counsel and Head of Governance and Risk; it meets every two weeks to discuss ongoing requirements and ways ahead for businesses in this area.

Investing in world-class facilities

To improve efficiency, we continually invest in and enhance our older plants while also developing a new generation of facilities to support future sustainable business growth. In FY2022, we invested over \$49 million in state-of-the-art technology to help us maximize the efficiency of our manufacturing processes and enhance our environmental performance.

These investments include:

- Making our sites safer for workers;
- Minimizing our environmental impact through better air emission control and more efficient water management;
- Improving our carbon and energy cycles; and
- Enhancing our plants' appearance for the wellbeing of employees and communities.

Appendix

In this section:

98 Our key sustainability issues

101 Targets and progress

Our key sustainability issues

Our main sustainability issues are grouped into six overarching focus areas: Governance and Ethics, Our Product, Environment, Customers and Suppliers, Our People and Communities.

Boundaries

We have attributed each of our material issues to a relevant topic outlined in the Global Reporting Initiative (GRI) 2016 Standards. Where the topic has been identified as relevant within the organization, it applies across all entities of the Birla Carbon business. To tailor this list to our stakeholders, we have used Birla Carbon terminology to describe each of the aspects. Below we have outlined the boundaries for each of our topics.

Governance and Ethics

Our material aspects and sustainability issues

Our material aspects and sustainability issues	Material to stakeholders		Relevance outside the organization
	Internal	External	
Business continuity Ensuring a constant supply of carbon black for our customers through our enterprise risk management approach.	✓	✓	Business continuity is important to our customers, as they require a secure supply of carbon black. Our suppliers and the communities around our sites also have a vested interest in our business.
Ethics Ensuring fair labor and business practices, including anti-corruption, antitrust and collective bargaining, and discouraging anti-competitive behavior.	✓	✓	Ethical issues can occur along the supply chain and in the communities around our operations.
Governance Upholding through our management structure our policies, standards, compliance mechanisms and World-Class Manufacturing processes.	✓	✗	Not applicable.
Human rights Maintaining full respect for economic, social and cultural rights, including no child labor, fair wages and decent working conditions.	✓	✓	Human rights issues can occur along the supply chain, especially in countries identified as high risk.

Our Product

Our material aspects and sustainability issues

Our material aspects and sustainability issues	Material to stakeholders		Relevance outside the organization
	Internal	External	
Innovation Developing our processes, technology and products to meet an evolving market and regulatory and societal demands.	✓	✓	Innovating processes, technology and products to meet evolving market, regulatory and societal demands.
Product stewardship Taking proactive care to ensure our products reach high standards, incorporating health, safety, environmental and regulatory considerations into our product development and maintenance.	✓	✓	Product stewardship ensures we provide customers with products that are safer, more efficient and specific to their needs. This also has an impact on end consumers who look for greater value from products.
Product consistency Making efforts to guarantee that our product continues to meet high quality standards while meeting market demands.	✓	✓	Our customers require consistent quality from our products, as this has an impact on their own operations and end products.

 **Environment**

Our material aspects and sustainability issues	Material to stakeholders		Relevance outside the organization
	Internal	External	
Air emissions Non-greenhouse gas (GHG) emissions from our operations, including sulfur oxides (SO _x), nitrogen oxides (NO _x) and particulate matter.	✓	✓	Air emissions can be produced during extraction and transportation of raw materials from our suppliers and during distribution to customers.
Energy The efficient use of energy resources, including consumption, recovery and generation.	✓	✓	We strive to develop more efficient grades of carbon black to support customer sustainability objectives. Our Strategy to remain energy positive means we also provide low-carbon energy for local energy grids.
Greenhouse gases Direct and indirect GHG emissions – focusing on carbon dioxide (CO ₂), as other GHGs emitted by our operations are negligible.	✓	✓	GHG emissions can be produced during extraction and transportation of raw materials and during distribution to customers.
Water Our water supply, water collection and waste water management practices and governance systems.	✓	✓	Water use and discharge has the potential to impact communities around our operations. This is particularly material in areas where water scarcity is a potential risk.
Waste The minimizing of solid waste generation, both hazardous and non-hazardous, and the optimization of our management processes, including recycling, reuse and reduction of waste to landfill.	✓	✓	Waste from our operations has the potential to impact the communities and environment around our operations if not managed appropriately.
Circularity Actively expanding our research and development to improve the circularity of our products. Applying a circular approach to our waste management system.	✓	✓	Engagement and collaboration with our upstream and downstream value chains will be necessary to drive circularity in our industry.

 **Customers and Suppliers**

Our material aspects and sustainability issues	Material to stakeholders		Relevance outside the organization
	Internal	External	
Customer engagement How we build, nurture and manage relationships with customers, including aligning our sustainability agenda with theirs.	✓	✓	We aim to align with our customers' sustainability initiatives and goals.
Global presence Our manufacturing and distribution footprint, relative to customer locations, resources and suppliers.	✓	✓	Manufacturing and distribution footprint relative to customer locations, resources, suppliers, etc.
Sustainable procurement Maintaining a supply chain that is ethical, resilient and viable in the context of risks and opportunities that may arise from external legal, technical, environmental and social megatrends.	✓	✓	It is important to engage with each of our suppliers to ensure they uphold our environmental and ethical standards. This applies to both global and regional suppliers.

 **Our People**

Our material aspects and sustainability issues

Material to stakeholders
Internal External **Relevance outside the organization**

Employee engagement	✓	✗	Not applicable.
How we build, nurture and manage relationships with our people through training and development, recognition and feedback mechanisms.			
Health and safety	✓	✓	The safety of all people visiting our sites is of high priority. This includes guests such as customers, contractors and third-party partners.
The health and safety of our employees, from the moment they arrive at work each day to the moment they leave.			
Diversity and inclusion	✓	✓	Having a diverse and inclusive workforce helps us maintain and attract Birla Carbon employees. It also supports the communities in the areas where we operate.
How we further strengthen inclusion for everyone while at the same time focusing on gender and generational diversity.			

 **Communities**

Our material aspects and sustainability issues

Material to stakeholders
Internal External **Relevance outside the organization**

Community engagement	✓	✓	Building and maintaining strong relationships with the communities around our sites is very important to our business and to local people. Our engagement covers local community and charitable organizations, residents, education systems and local governments.
Building, nurturing and managing relationships with the communities where we have a presence by understanding and responding to their expectations.			

Targets and progress

To meet our Vision to be the most respected, sustainable and dynamic global carbon black business, we have set key performance indicators (KPIs) to track our progress towards FY2030.

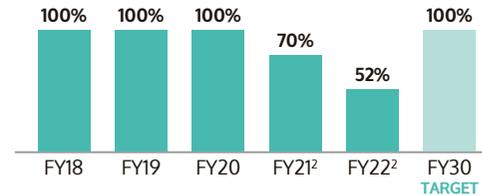
Business continuity/reputation

- TARGET:** Improve our leadership position in terms of carbon black production capacity
- STATUS:** On track to meet target



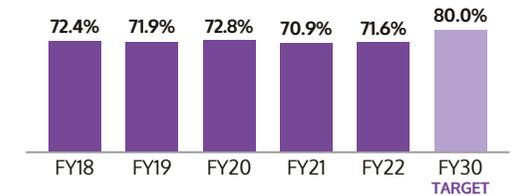
Ethics

- TARGET:** 100% of active employees to receive Code of Ethics training
- STATUS:** Behind schedule



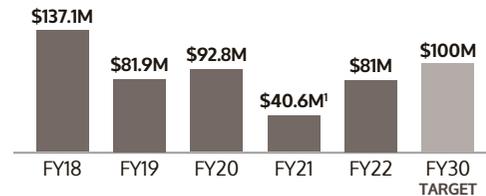
Energy

- TARGET:** Increase our absolute energy-conversion efficiency to 80% (total output energy (CO₂-eq)/total input energy (CO₂-eq))
- STATUS:** On track to meet target



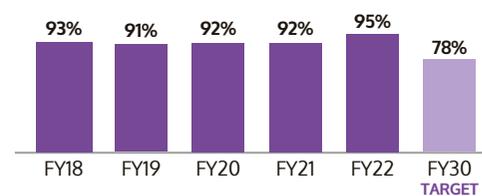
Business continuity

- TARGET:** Approximately double our annual capital spending against FY2012 baseline to reach \$100M
- STATUS:** On track to meet target



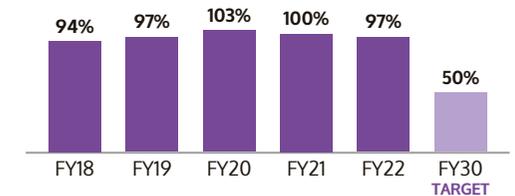
Direct CO₂ emissions

- TARGET:** Reduce our direct CO₂ emission intensity (tCO₂/t_{carbon black}) by over 22% against 2005 baseline
- STATUS:** Behind schedule



Water

- TARGET:** Reduce our water withdrawal intensity (m³/t_{carbon black}) by 50% versus FY2013 baseline at our high- and medium-risk sites³ (water withdrawal intensity by year)
- STATUS:** Behind schedule



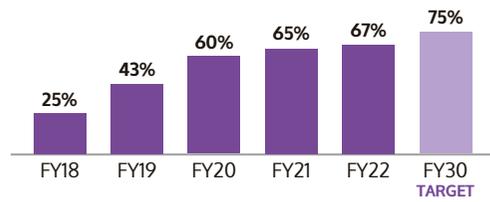
¹ FY2021 capital spending was lower than normal due to the COVID-19 pandemic.

² FY2021 and FY2022 saw a drop in the percentage of our employees receiving Code of Ethics training due to the COVID-19 pandemic. We were unable to roll out the training to employees with no access to a computer.

³ KPI includes Hickok, Cubatão, Gummidipoondi, Alexandria, Weifang and Bahia.

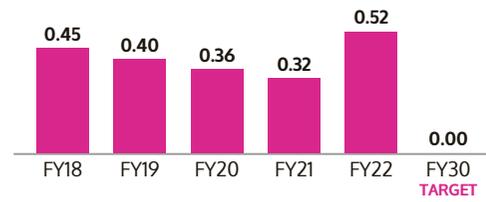
Waste

- TARGET:** 75% waste repurposed, including recycling, reuse and recovery, by 2030
- STATUS:** On track



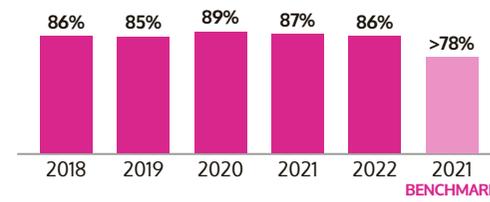
Safety

- TARGET:** Achieve zero recordable injuries year on year (employee and contractor Total Recordable Incident Rate (TRIR))
- STATUS:** Behind schedule



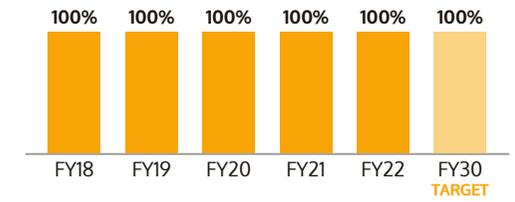
Employee engagement

- TARGET:** Remain above the chemical industry annual benchmark for employee engagement⁵ (%)
- STATUS:** On track



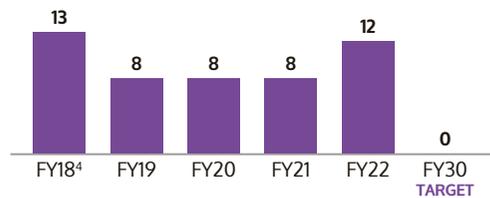
Community engagement

- TARGET:** 100% of our facilities participate in community engagement
- STATUS:** On track



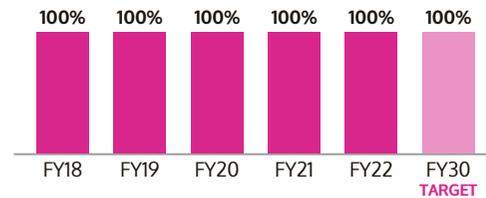
Environment

- TARGET:** Record zero environmental releases year on year
- STATUS:** Behind schedule



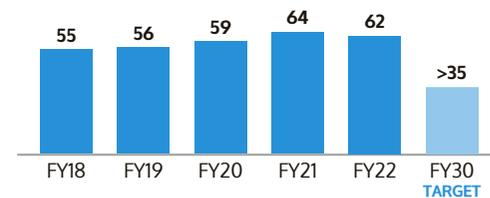
Talent development

- TARGET:** 100% of Birla Carbon managers to have stated and measured goals set annually (percentage of managers by year)
- STATUS:** On track



Customer loyalty

- TARGET:** Remain above the Net Promoter Score threshold of 35⁶
- STATUS:** On track



⁴ In FY2018, we had two releases of carbon black/feedstock exceeding regulatory reporting limits to soil and one to air. The remaining releases were reported on a voluntary basis to regulatory authorities.
⁵ This KPI was amended in FY2020 to exclude the results of the Team Vibes survey. It has also been modified to show results for calendar year rather than financial year, in line with Vibes survey timings.
⁶ Net Promoter Scores range from -100 to +100.

Feedback

Feedback on our report is an essential component of our commitment to Sustainable Operational Excellence. Comments are reviewed by our Sustainability Steering Committee and will, in many cases, be incorporated into future reports.

Please send your feedback to:

Amy Hickman

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Birla Carbon

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