



MC

Manufactured Capital

Grasim's integrated operations serve as a true *Force for Growth*, delivering scale with precision while adapting to an evolving industry landscape. Ongoing upgrades across facilities, streamlined workflows, and the efficient use of resources drive higher productivity and reduced downtime. From introducing high-performance products to adopting safer, cleaner manufacturing methods, our attempt is to ensure that all initiatives are aligned with the requisite quality and safety benchmarks. Our plants are designed for responsiveness and reliability, supported by a resilient supplier ecosystem and a skilled workforce equipped with the right tools and training. Collectively, these levers strengthen our ability to deliver consistent value, responsibly, efficiently, and at scale.

Alignment with SDGs



Stakeholders Impacted



Material Issues

- Resource Efficiency
- Responsible Supply Chain
- Occupational Health and Safety
- Business Ethics and Compliance
- Product Stewardship
- Energy Consumption and GHG Emissions
- Quality and Customer Satisfaction

Strategic Priorities



Supporting Policies

- Environmental
- Energy and Carbon
- Water Stewardship
- Quality
- Occupational Health Safety
- Suppliers Code of Conduct
- Responsible Supply Chain

Key Risks

- R1 Strategic
- R2 Operational
- R4 Compliance
- R6 Sustainability

FY 2024-25 Highlights

844 KT / 96%
Cellulosic Staple Fibre Production / Utilisation

1,159 KT / 77%
Caustic Soda Production / Utilisation

1,096 MLPA
Capacity Commenced of Paints Business

65%
Chlorine Integration

Our Approach

Across our manufacturing network, we continuously seek opportunities to enhance efficiency, elevate product quality, and manage resources with greater care. We make strategic investments in capacity expansion where the potential for impact is the highest, while also improving the productivity of existing assets. Our teams are empowered to take ownership, challenge inefficiencies, and implement enhancements that deliver tangible outcomes.

Focus Areas

- 1 Operational Efficiency
- 2 Capacity Expansion
- 3 Product Stewardship
- 4 Resource Management
- 5 Quality Improvement
- 6 Occupational Health and Safety
- 7 Supply Chain Management

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Focus Area 1

Operational Efficiency

Operational efficiency is a priority across our manufacturing units, where we aim to maximise the performance of every resource, process, and asset. We leverage automation, real-time monitoring, and advanced analytics to optimise throughput, reduce downtime, improve cycle times, and minimise waste. Cross-functional teams routinely review performance metrics to identify opportunities for improvement and implement lean practices that streamline workflows while maintaining quality. Targeted upgrades and smarter planning further support high productivity levels, helping us control costs and limit environmental impact.

100%
ISO 14001 certification
across our units*

*excluding Paints business



CASE STUDY

Electrolyser Power Optimisation at Caustic Soda Plants

Overview

Electrolysers account for a major share of AC power consumption in caustic soda production, making their efficient performance central to operational sustainability. To strengthen control and reduce energy loss, an optimisation initiative was launched, improving shift-wise monitoring, voltage management, and pressure drop analysis. System visibility has supported proactive maintenance and more efficient power use.

Solution

Two key digital enablers were introduced: the Central Manufacturing Cockpit (CMC) and the Electrolyser Commercial Operation Optimiser (ECOO). The CMC enabled real-time performance tracking, while ECOO provided deeper insights into voltage and pressure patterns. A customised dashboard helped detect abnormal pressure build-ups, which were resolved through targeted system modifications. These improvements enhanced visibility, reduced fluctuations, and supported timely interventions during critical operating phases.

Impact

- **Energy Efficiency:** Delivered meaningful energy and cost savings through targeted efficiency measures.
- **Operational Performance:** Improved responsiveness to voltage and pressure fluctuations, reducing risks and enhancing process stability.
- **Real-time Visibility:** Enabled continuous monitoring of electrolyser performance, supporting informed data-driven decision-making.
- **Sustainability Impact:** Reduced energy consumption contributes to both cost savings and environmental goals.

Future Outlook

This success sets the foundation for extending similar solutions across other electrochemical systems. Integration of predictive analytics and condition-based monitoring can further advance operational excellence. With digital systems firmly in place, the plant is well-positioned to continue improving efficiency and sustainability in line with long-term business and environmental objectives.



Focus Area 2

Capacity Expansion

We take a structured, impact-driven approach to capacity expansion, aligning new investments with our long-term business vision and evolving customer needs. Our initiatives are designed to scale operations intelligently, through the addition of production lines and the adoption of advanced technologies that enhance output. Each project is carefully assessed for its ability to strengthen productivity, improve product availability, and build more resilient, future-ready operations. We also invest in upskilling our teams to ensure that expanding capacities are managed with efficiency and precision.

4%
Cellulosic
Fibres capacity
addition through
de-bottlenecking

11%
Caustic soda capacity
addition through
brown-field expansion

5 out of 6 plants
Of Paints business
commenced
commercial production

110 KTPA
Specialty Fibre Lyocell
Project announced



Focus Area 3

Product Stewardship

We engage across the value chain to design and deliver products that are safe, sustainable, and aligned with evolving customer expectations. Our teams collaborate closely with suppliers, customers, and industry partners to enhance product offerings and contribute to broader sustainability goals. We invest in innovative technologies and explore alternative materials to address emerging needs. Open dialogue and active knowledge-sharing with stakeholders guide our product development, ensuring it reflects shared environmental and social priorities.

Birla EcoSodium: A Sustainable Sodium Sulphate

Birla EcoSodium, developed by Grasim in collaboration with BluWin Ltd. (UK), marks a significant step forward in sustainable sodium sulphate production. This innovative product integrates environmentally responsible technologies and has been assessed against global benchmarks for safety and sustainability. With complete traceability of raw materials, EcoSodium supports responsible sourcing practices.

Its manufacturing process is fully compliant with the latest Substances of Very High Concern (SVHC), Zero Discharge of Hazardous Chemicals (ZDHC), and Manufacturing Restricted Substances List (MRSL) standards. Recovered from the viscose manufacturing process, EcoSodium also reduces total dissolved solids (TDS) and salinity in treated wastewater, contributing to circularity and effective water management.



LCA-mapped Products

We have conducted Life Cycle Assessments (LCA) for several key products to better understand their environmental impact across the value chain. These assessments help us identify opportunities for improvement, enhance resource efficiency at each stage of production, and reinforce our commitment to product responsibility. LCA-mapping also supports more informed decision-making for customers seeking lower-impact alternatives, allowing us to offer products backed by credible environmental data.

Product Portfolio with LCA Insights



Cellulosic Staple Fibre
(Cradle-to-gate)



Chlor-Alkali Product
(Cradle-to-gate)



Linen Fabric
(Cradle-to-gate)



Epoxy
(Cradle-to-gate)



Insulators
(Cradle-to-gate)



Focus Area 4

Resource Management

We follow a structured approach to managing materials, energy, and water across our operations. Each facility closely monitors consumption patterns, using these insights to optimise processes, reduce inefficiencies, and minimise avoidable waste. Investments in advanced technologies and smarter systems have improved yield over time. Initiatives are in place to source key materials sustainably and embed circularity into both product and process design. Regular assessments enable timely upgrades and better planning, enabling responsible resource use while maintaining cost-effectiveness and operational efficiency.



CASE STUDY

Value Creation and Protection through Water and Solvent Management

Overview

Water and solvent are essential inputs in paint manufacturing, particularly during cleaning operations between production cycles. Their extensive use results in significant freshwater withdrawal and increased operational costs. Birla Opus has addressed these challenges through effective recovery and reuse systems that enhance resource efficiency and reduce environmental impact. Our approach to circularity in resource management is strengthened by water replenishment initiatives across our operating regions, alongside advanced wash water and solvent reuse systems within our manufacturing facilities.

Solution

Wash Water Management

Water is a shared natural resource, and we manage it responsibly through advanced solutions such as self-cleaning filters, ZLD systems, closed-loop cleaning, and wash water reuse. In paint manufacturing, wash water is generated during equipment cleaning. To address this, we have implemented reuse technologies aligned with circular economy principles.

Wash Solvent Management

Our solvent management strategy ensures the responsible use of solvents across our operations. In paint manufacturing, significant volumes of wash solvent are generated during equipment cleaning. To enable reuse, we have developed dedicated wash

solvent reuse infrastructure. Advanced solutions such as self-cleaning filters, automatic nozzles, and wash solvent reuse systems have been implemented to minimise waste, improve efficiency, and reduce environmental impact.

Guidelines and Governance for Reuse

To ensure the effective reuse of both wash water and wash solvent, we have established comprehensive guidelines covering product-specific reuse eligibility, storage conditions, testing frequencies, and hygiene protocols. Reuse is permitted only when stringent quality standards are consistently met, safeguarding product integrity and safety.

Impact

In the first year of commercial operations, substantial volumes of wash water and wash solvent were successfully reused. This reduced the reliance on fresh inputs and promoted more efficient resource utilisation. These initiatives have enhanced waste management and delivered measurable cost savings.

Future Outlook

Looking ahead, we would continue to upgrade our storage, testing, and automation systems to improve segregation and enable greater reuse across additional product lines. Our continued focus on resource reuse supports our sustainability goals and reinforces our position as an industry leader in responsible resource management.

Focus Area 5

Quality Improvement

Our quality improvement practices are built on systematic reviews, data-driven decisions, and a strong emphasis on consistency. Processes are closely monitored to ensure outputs meet defined standards, with any deviations addressed promptly and effectively. Advanced technologies enhance precision across operations, while regular training keeps teams aligned with evolving requirements and quality expectations. Insights from internal reviews and customer feedback are used to refine systems and strengthen overall performance. Delivering quality, reliability, and consistency to customers remains a core objective, guided by the principles outlined in our Quality Policy.



CASE STUDY

Perfecting Modal Fabric Printing for Enhanced Quality and Sustainability

Overview

Birla Cellulose, the Cellulosic Fibres division of Grasim Industries, collaborated with Mafatlal Industries to advance sustainable textile manufacturing and achieve superior quality in 100% Modal fabric printing. Their collaboration focused on delivering excellent colour solidity, durability, and aesthetic appeal in line with customer expectations.

Solution

Leveraging strengths and capabilities of Grasim and Mafatlal Industries, we introduced a refined method using jigger technology. Key enhancements included cold causticisation and urea padding steps, which improved print retention and improved fabric quality. This carefully tailored process optimised each stage of production, ensuring vibrant colour solidity and long-lasting durability. This collaboration brought greater efficiency to the production cycle and supported more sustainable textile processing.

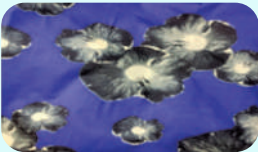
Impact

The revised process delivered high-quality output, characterised by rich depth and strong colour retention. It established quality benchmarks and ensured the long-term performance of the final fabric.

Existing Result



Trial Result



Future Outlook

The collaboration resulted in a well-defined standard operating procedure for printing 100% Modal fabric, ensuring consistency and reliability in future production. Positive customer feedback has reinforced the process’s potential to support larger volumes while maintaining high quality. It also strengthens the ability of both partners to deliver sustainable, performance-driven textile solutions at scale.



Focus Area 6

Occupational Health and Safety

We manage occupational health and safety through a structured framework aligned with the ISO 45001. Our policies and standard operating procedures are designed to address risks and are supported by comprehensive hazard identification and risk assessment processes across all sites. To ensure safety protocols are clearly understood and consistently followed, we conduct regular training programmes for employees. In addition, periodic internal audits, inspections, and safety drills help evaluate compliance and strengthen preventive measures. Together, these efforts contribute to a strong safety culture and support ongoing improvement in managing workplace risks.

100%*
Workers trained on Health & Safety

*Indicator covered under assurance scope



CASE STUDY

SPARSH – Enhancing Safety through AI-driven Video Analytics

Overview

Our Chemicals business plant at Vilayat has introduced SPARSH (Safety and Operational Video Analytics Review and Showcasing Hotspots) that offers a forward-looking solution to enhance safety compliance across high-risk operational zones such as electrical rooms, elevated work areas, and vehicle movement corridors. Traditional monitoring systems often lack real-time responsiveness. SPARSH bridges this gap by leveraging Artificial Intelligence, in line with Industry 4.0 trends, to enable proactive detection and timely alerts. It supports safer operations, aligns with digital transformation across industries, and reinforces safety as an integral part of daily work.

Solution

SPARSH combines advanced AI and video analytics with machine learning algorithms to detect unsafe behaviours, PPE non-compliance, electrical hazards, over speeding, and unauthorised access. By continuously monitoring live video feeds across identified safety hotspots, it transforms passive surveillance into an intelligent safety management

tool. In addition to safety, its insights contribute to improved operational efficiency, enhanced security, and informed maintenance planning across departments. Integrated with existing systems, SPARSH strengthens comprehensive risk management across sectors such as manufacturing, logistics, and infrastructure.

Impact

The deployment of SPARSH has contributed significantly to maintaining a strong safety record at the site. It has driven a substantial reduction in incidents related to PPE violations and unsafe behaviours. Safety breaches previously identified through manual audits have dropped considerably, while employee awareness and responsiveness to safety procedures have improved. This initiative has strengthened early detection of non-compliance in critical operations, supporting a safer and more efficient working environment.

Future Outlook

The system will continue to evolve, with plans to expand its coverage across additional operational areas and new use cases. Future enhancements include the integration of predictive analytics, multilingual alerts, and mobile-based notifications to improve responsiveness and support real-time decision-making.



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Focus Area 7

Supply Chain Management

Supply chain management is governed by defined policies outlining environmental and social compliance requirements. We engage suppliers who align with these expectations and support them in adhering to relevant regulations and our internal standards. Procurement and sustainability teams assess supplier practices through audits, documentation reviews, and targeted interactions where required. Traceability systems help monitor the flow of key materials, providing visibility into sourcing locations and supplier tiers. We collaborate with suppliers to enhance their performance, share best practices, and foster alignment with evolving standards for responsible sourcing.

37%
Of procurement spend covered by suppliers assessed on environmental and social criteria

ZERO
Complaints and grievances from suppliers

CASE STUDY

Project Synergy – Advancing Supplier Sustainability at Cellulosic Fibres Units under Birla Cellulose

Overview

Project Synergy was launched to strengthen supplier sustainability across Cellulosic Fibres units under Birla Cellulose’s value chain. The initiative seeks to align supplier practices with the Supplier Code of Conduct, the BRSR Core Framework and other global ESG standards. It focuses on assessing suppliers’ current sustainability practices and establishing clear improvement pathways, enabling both environmental progress and stronger business partnerships.

Solution

The process began with a comprehensive kick-off meeting to onboard suppliers and walk them through the process. They were introduced to the assessment methodology, timelines, and the Sustainability Self-assessment Questionnaire (SAQ), which captured information across four areas: General, Environmental, Social, and Governance. A third-party assessor was engaged to ensure consistency and transparency throughout the exercise.

Virtual audits followed, reviewing SAQ responses and supporting documents. Each supplier received a detailed report highlighting strengths, gaps, and recommended actions. Policy templates were shared where required to support alignment, and a tailored Supplier Code of Conduct was introduced to promote more sustainable sourcing practices across the network.

Impact

Project Synergy established a clear ESG performance baseline across the supplier network.

- A majority of assessments were successfully completed, covering various supplier types including raw material suppliers, service providers, and OEMs.
- Key gaps were identified in areas such as emissions monitoring, renewable energy adoption and occupational health and safety.
- The process improved supplier awareness of their ESG performance and set measurable improvement targets.
- Action plans are now helping suppliers make tangible progress towards better environmental and social outcomes, while reinforcing alignment with Birla Cellulose’s sustainability vision.

Future Outlook

Project Synergy provides a strong starting point for deeper supplier engagement on sustainability. Insights gathered will inform future audits, support supplier capacity-building, and strengthen long-term ESG integration across the value chain. Ongoing assessment rounds and progress tracking are expected to drive measurable improvements in responsible sourcing and supply chain transparency.

Birla Opus Sets New Standard in Paint Manufacturing

Birla Opus plants have been built with latest manufacturing equipment, pigging technology, interconnection through Industry 4.0 and automated operations ensuring highest efficiency and consistent quality of paints.

Birla Opus has installed uniformly in all its plants large-scale manufacturing process equipment including multi-line twin shaft dispersers (TSDs) and high-capacity mixers, high speed filling machines with packaging using Robotics, transfer to warehouse via Storage Transfer Vehicles (STVs) and integrated and automated plant material handling system - the automated storage retrieval system (ASRS) using stacker cranes to handle can pallets.

The sophisticated pigging network allows manufacturing of 1,000+ SKUs with seamless changeover using hundreds of raw materials without any cross contamination. The order handling system in silos are being pneumatically conveyed in closed loop pipes spread to various equipment in the manufacturing setup.

Birla Opus has installed Industry 4.0 generation manufacturing technology. It allows interplay between sophisticated software such as Manufacturing Execution System (MES), Product Vision (PV), Distributed Control System (DCS) and SAP, integrating with an advanced Warehouse Management System (WMS) managing the entire plant’s supply process automatically at supersonic

speed with zero defects. Built from the ground up using sophisticated tools, this system helps meet market demand with agility, supporting nationwide supply across 6,600+ towns for 1,200+ SKUs.

Birla Opus has adopted advanced Industry 4.0 technologies to bring end-to-end automation in its manufacturing plants. The entire process, from raw material handling to final product dispatch is fully automated for speed, accuracy, and efficiency. Packing materials are stored and retrieved automatically, then transferred to high-speed, fully automated packing lines using smart systems like electro monorails and automated guided vehicles. Robots handle tasks like de-nesting, de-palletising, and final palletisation of finished goods. These are then transferred to storage and dispatched based on real-time delivery needs, using intelligent sorting systems. All operations are centrally managed and monitored through advanced digital systems like Manufacturing Execution System (MES) and Extended Warehouse Management (EWM), ensuring smooth coordination and high-quality output.

These plants fully take care of the environment and are designed for zero liquid discharge (ZLD) with full-fledged Sewage Treatment Plant (STP), Effluent Treatment Plant (ETP), Multi Effect Evaporator (MEE), Reverse Osmosis (RO) and rain harvesting facility.

Birla Opus Launch Events



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Birla Opus Plants and their Manufacturing Capacities



Ludhiana, Punjab
200 MLPA
Water-based Paint &
Distemper Emulsions



Panipat, Haryana
230 MLPA
Water-based Paint, Distemper,
Solvent-based Enamel,
Solvent-based Wood Finish,
Emulsions & Resins



Cheyyar, Tamil Nadu
206 MLPA
Water-based Paint, Distemper &
Colourants, Emulsions & Resins



The plants are equipped with Robotic palletisation of paint cans and Storage Transfer Vehicle (STV) for finished goods movement



Chamarajanagar, Karnataka
230 MLPA
Water-based Paints, Distemper,
Solvent-based Enamels,
Solvent-based Wood Finish,
Emulsions & Resins



Mahad, Maharashtra
230 MLPA
Water-based Paints, Distemper,
Solvent-based Enamels,
Solvent-based Wood Finish,
Emulsions & Resins



Kharagpur, West Bengal
236 MLPA
Water-based Paints, Distemper,
Solvent-based Enamels,
Solvent-based Wood Finish,
Colourants, Emulsions & Resins