THE YEAR IN REVIEW

Basic Chemistry Business

Our Basic Chemistry Business is modelled to the evolving needs of industrial customers around the globe. Our world-class manufacturing facilities, located strategically across four continents, enable us to provide high-quality products and services to our growing customer network through a large and well-entrenched distribution network. Apart from leading global and regional detergent and glass manufacturers, our customer base is spread over diverse industries like food, animal feed, power generation, pharmaceuticals and chemical manufacturing. We manufacture soda ash using both synthetic and natural trona mining processes resulting in lower carbon emission intensity.

Our leadership rankings

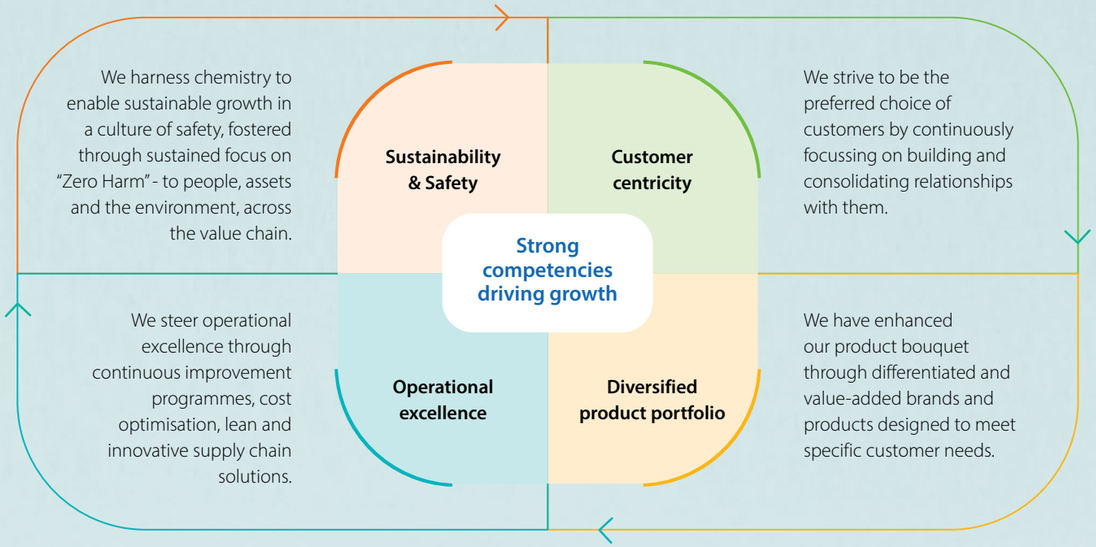
3rd largest
Soda Ash player in the world (total capacity of 4,361 KT of Soda Ash)

Largest
Producer of vacuum evaporated iodised salt in India

35,000 acres
of Solar salt works

Our global value chain in this business spans the following subsidiaries:

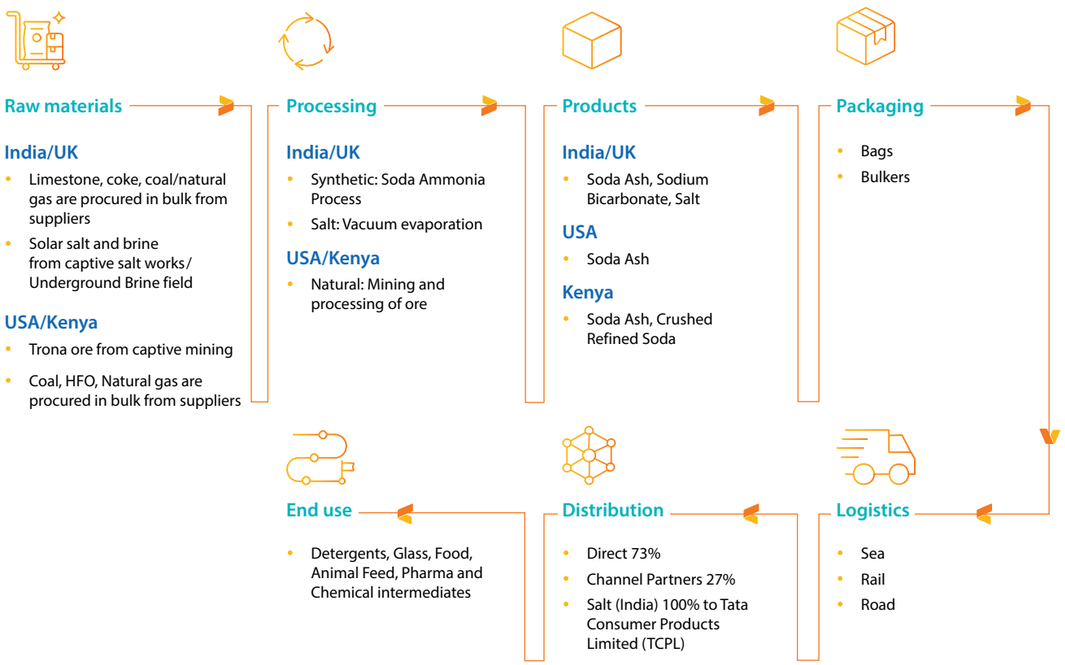
- Tata Chemicals **North America**
- Tata Chemicals **Europe**
- Tata Chemicals **Magadi (Kenya)**
- Tata Chemicals **South Africa**
- Tata Chemicals **International Pte Ltd. (Singapore)**



For our product portfolio and end applications, please visit our website at https://www.tatachemicals.com/products

Location: ***Dredge at Magadi Plant***

Value Chain



Operational and strategic developments – India

Strengthening business foundations

Despite multifarious challenges faced by the business, we continued to stay on course with our strategic plans through agile and timely interventions to boost operational and cost efficiencies and strengthen the foundations.

During FY 2022-23

- Soda ash markets remained balanced, with all end user segments reporting growth. Improvement in import volumes and normalcy in domestic availability kept the supplies adequate, except for slight tightness in first half of the fiscal
- Market demand for bicarbonate, cement and other halogen products remained healthy. Salt demand also remained consistent
- Elevated energy prices escalated the cost of production. Coal prices remained volatile and surged after the Russia-Ukraine war broke out in February 2022. Product prices were realigned to offset the cost escalations
- Lower availability of raw salt due to bittern dilution required securitisation of salt from external sources, which further increased the production cost
- Supply chain was strengthened through increase in container rake movements and other multi-modal methods for quick market deliveries
- We remained focussed on operational excellence, automation and digitalisation projects for improvements and efficiency enhancement

Way forward

- Focus on safety, process safety, risk management and sustainable operations
- On time execution of capex projects
- Maximising capacity utilisation of all products
- Enhancing market leadership and value addition in sodium bicarbonate
- Market expansion of sodium bicarbonate in newer segments and geographies
- Optimising outbound logistics and modes to enhance customer service and reduce freight cost
- Improving realisation by optimising product portfolio and market mix
- Intensifying R&D to develop new products, new applications and process improvements
- Increasing the use of IIoT (Industrial Internet of Things), AI (Artificial Intelligence), data analytics and technology to improve manufacturing practices and business processes
- Implementing key projects to achieve SBTi targets and moving towards the goal of carbon neutrality
- Sustainable operations with augmentation of power through renewables – establishing biomass usage and alternate fuel, installation of solar and wind resources

Simplifying transportation processes

Cognisant of the increasing complexities of Global supply chain and logistics, we have rolled out a Transport Management System to effectively visualise, track, and manage all inbound and outbound despatches from a centralised platform. Our new platform helps customers stay informed on the progress of their orders, and make necessary adjustments for their cargo arrival, inventory management and production planning. The transport management system also offers mobile and web portals, allowing customers to track and manage their shipments from anywhere. The system also offers real-time tracking so that customers have visibility on the status of their shipment at any given moment. The customer-centric system is equipped with features like notifications and alerts, which provide customer convenience and peace of mind when it comes to shipping goods.

Benefits

- Enables automatic allocation of orders to transporters as per contracts
- Standardisation of documents like Lorry Receipts, visibility and complete tracking of billing cycle for TCL and transporters, ensuring faster and error-free commercial processes
- Provides dashboards for analytics and decision-making

Recycling waste heat

We have initiated the installation of a Steam Rankine Cycle System (SRC) for trapping waste and reusing it in the manufacturing process. The production of cement is an energy-intensive process that requires high fuel consumption in the kilns. Nearly 40-50% of total thermal energy is ideally required for the clinker manufacturing process. Flue gases of preheater and cooler being vented contain 30-35% thermal energy. In SRC, the exhaust gases released from the rotary kiln pass through preheaters (PH) and reach the preheater boiler.

Benefits

- The new system will reduce specific energy consumption by 18%, thus reinforcing our theme of "Sustainable Chemistry".

Location: ***Mithapur Saltworks***

Operational and strategic developments – UK

Working closely with customers, the UK operations was able to weather the challenges of high energy cost by modifying its contracting strategy. This led to all plants operating at full capacity.

During FY 2022-23

- UK commissioned and fully operationalised a 40 KT carbon capture unit, producing CO_2 to EIGA (European Industrial Gases Association) standard, for manufacturing of sodium bicarbonate
- Started construction of a new pharmaceutical grade salt manufacturing facility and associated warehousing
- UK signed an MoU for potential hydrogen supply to the Northwich operations

Way forward

- Strengthening UK's edge in terms of one of the lowest carbon footprints in soda ash manufacturing in the EU, Tata Chemicals Europe (TCE) UK has developed the first major CCU in the country, a new power plant for salt operation, and an energy-from-waste plant which is expected to be completed by 2026 at the Lostock site
- Enhancing manufacturing capabilities with new investments and continuous improvement in cost efficiencies
- Generating electrical energy at high efficiency from the CHP plant as part of the minimisation of the carbon footprint
- Developing strong export capability in high grade and high end applications

Enabling 10% carbon footprint reduction

In 2020-21, TCE constructed the Carbon Capture and Utilisation plant (CCU) for capturing CO_2 from its gas-fired Combined Heat and Power plant (CHP) at Winnington, Northwich. The plant was commissioned in August 2021 and the first CO_2 was captured in September 2021. EIGA quality approvals were obtained the same month, after which all of the CO_2 needs of the TCE Sodium Bicarbonate (SB) plant at Winnington have been fulfilled from the new CCU plant. Initiated in 2018, the project is the first industrial scale CCU plant in the UK.

The CO_2 is liquefied and purified at the CCU to EIGA Food and Beverages Grade standards. It is used as a key raw material for the manufacturing of high purity SB at the Winnington plant.

Benefits

The project has yielded excellent outcomes. Commissioned in an exceptionally short period, the CCU has been reducing CO_2 emissions from the CHP by 40,000 tonnes per annum, which is equivalent to 11% of its total emissions.

We are certain that the project's success will act as a pathfinder for other CCU projects in the UK, as was intended by BEIS (Business, Energy and Industrial Strategy).

Operational and Strategic Developments – Kenya

Staying on course

Kenya business performance during the year remained healthy both on volumes and realisations. Fulfilling customer demand across markets was an area of focus given supply chain challenges during the year. Strong cash flows enabled prepayment of all debt.

Way forward

- Improving on Mean Time between Failure (MTBF) and plant availability by 10%
- Generating cash from operations to support expansion capex
- Production of Pure Ash through solar ponds project in Q3 FY 2023-24
- Installation and commissioning of 10 MW solar plant

Location: ***Magadi Plant***

Operational and strategic developments – USA

Leveraging export opportunity

TCL's presence across four continents gives us a unique position, and equips us to synergise and deliver superior value to our global and regional customers. We are committed to investing in increasing our capacities to service the growing global demand of soda ash, while focussing on increasing our productivity, cost competitiveness and sustainability metrics.

The Soda Ash outlook in North America remains positive, with stable local demand and continued ongoing recovery in export markets. Compared to the synthetic production process Natural soda ash, process used in the USA, requires lower amounts of energy and emits lower volumes of carbon dioxide. Energy costs in the USA are expected to remain lower compared to other regions. Both coal and natural gas prices are expected to reduce over the course of 2023, making exports from the USA competitive in Latin America, Australia and South East Asia.

Tata Chemicals North America is one of the leading soda ash manufacturers in the country, with ~20% capacity share of the US domestic market. With our recent exit from ANSAC, our direct connect with global customers has now increased allowing us to focus on growing export opportunities.

Way forward

- Debottlenecking existing processes and adding more energy efficient capacity
- Building on newly established overseas distribution networks in Latin American and South East Asia; Onboarding distributors and resources to manage direct sales
- Targeting supply opportunities in emerging green technology: Lithium carbonate for EVs and solar glass manufacture
- Identifying incremental opportunities for efficiency improvement; Deploy technology to reduce fixed costs
- Implementing energy efficiency and fuels switch from coal to natural gas to reduce carbon footprint and sequestration of carbon through CCS and CCU
- Focus on generating cash to continue to prepay debt and fund capex

TCL exit from ANSAC

Since its inception in 1984, ANSAC has marketed and supplied soda ash to export markets. Tata Chemicals started exit from ANSAC on December 31, 2022. As part of the exit agreement, ANSAC will continue to provide logistics services for USA exports in the medium term.

Benefits

- It will help us establish a direct relationship with our export customers, who represent approx. 50% of our business
- With expansion of our facility in USA, the export sector will become a more significant portion of our business
- A direct relationship with our export customers allows us to better partner with them on various initiatives

TCNA Employees