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#Neogen Chemicals - Niche Bromine & Lithium Manufacturer ?

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CMP - ■1596

1. Introduction

Neogen chemicals ltd. was founded in 1991 by technocrat Harish Kanani. The company has expertise in bromine and lithium chemistries.

The products manufactured are served for pharmaceuticals, agrochemicals, engineering industries,

speciality chemicals companies in India, Europe, Usa, and Japan.

Increasing the revenue contribution from Custom Synthesis and Contract Manufacturing segments.



NEOGEN
CHEMICALS LTD.

2. Promoters

IIT graduate and technocrat promoter Mr Haridas Kanani had set up India's first bromine plant in 1968, but it failed as the plant was hit by floods caused by Morbi dam. Lack of knowledge in business kept him away from insuring the plants.

Later years he worked as an engineering consultant for manufacturers to set up the bromine plants for others.

In 1989 the technocrat decided to set up Neogen chemicals Pvt. Ltd. and started the manufacturing of bromine compounds.



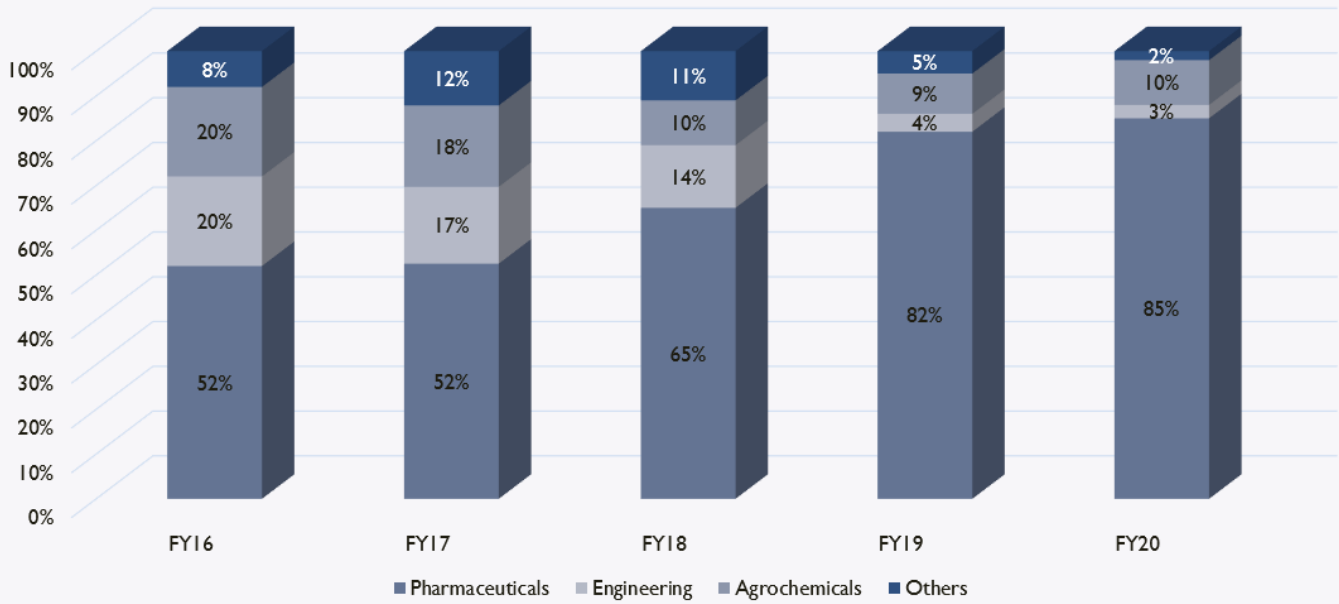
HARIDAS KANANI

Chairman & MD

3. Revenues from end industry

The products manufactured by Neogen find application in Pharmaceuticals, Engineering, and agrochemical business. More than 85% of revenues are driven from the pharmaceutical industry, thus the demand for products is expected to stay secular.

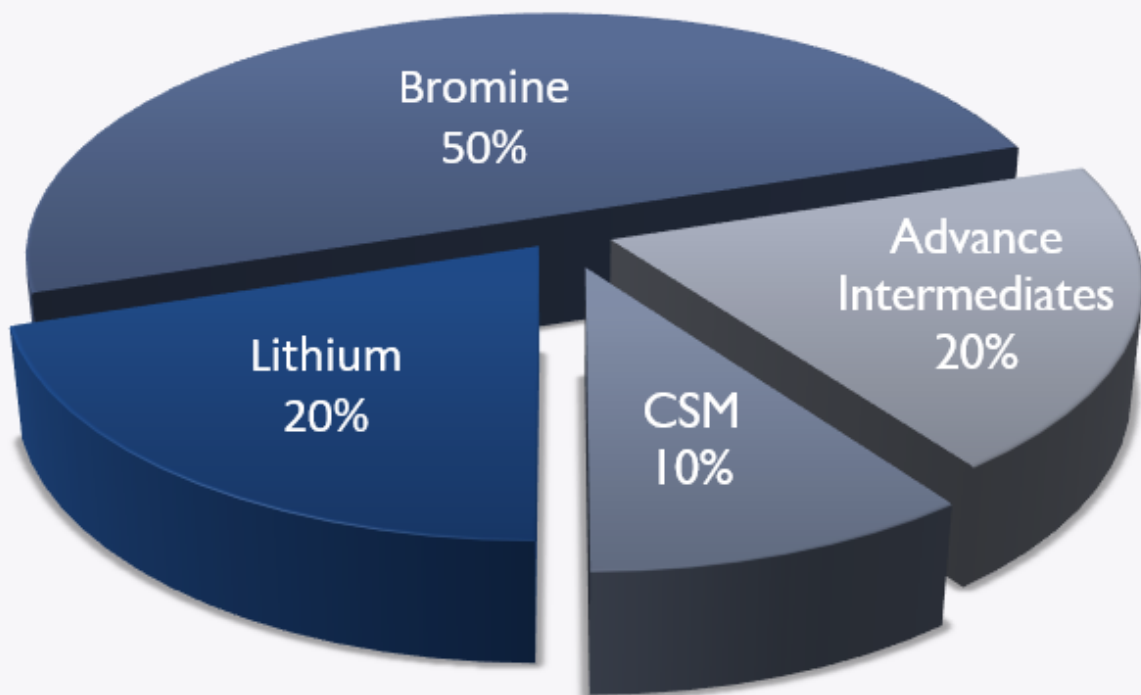
Segment-wise revenue



4. Business segment Contribution

The company has 4 major business segments of which bromine contributes the highest revenues followed by advanced intermediates, lithium and CSM business.

FY21



5. Bromine

History Bromine as a halogen

Bromine was discovered by two German scientists in 1825, since then bromine is widely used in pharmaceuticals, water treatment, fire safety and the rubber industry

Bromine is the third lightest halogen and is a fuming reddish-brown liquid at room temperature. It is the only nonmetallic element that is a liquid at room temperature.

It's position in the periodic table is right below Chlorine and right above iodine, thus it falls under halogen chemistry

Availability of bromine and global sourcing

Bromine is extracted from seawater, brine well, groundwater, salt lakes

Global reserves: Bromine is abundantly found in the dead sea. The high salt content of the sea makes it the most suitable feedstock for manufacturing of bromine.

Dead sea splits the two countries Jordan and Israel leaving them with high deposits of bromine

Leading Global manufacturers of bromine are:

Albemarle in USA in JV with Jordan bromine company

ICL (Israel)

Chemtura in USA which was acquired by Lanxess in 2017



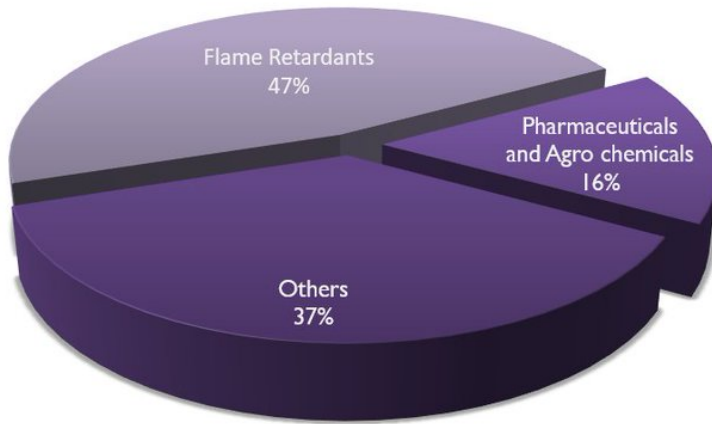
Domestic Reserves: Bromine deposits are in Rann of Kutch in Gujarat. In 2018 the government allowed manufacturers to extract bromine. Bromine in India was majorly manufactured by Solaris Chem tech. Neogen had acquired Solaris Chemtech in 2017

6. Industry Size and opportunity

The bromine is widely used in flame retardants, followed by pharmaceuticals and other products. Neogen does not have

application in fire retardants and focuses more on pharmaceutical products

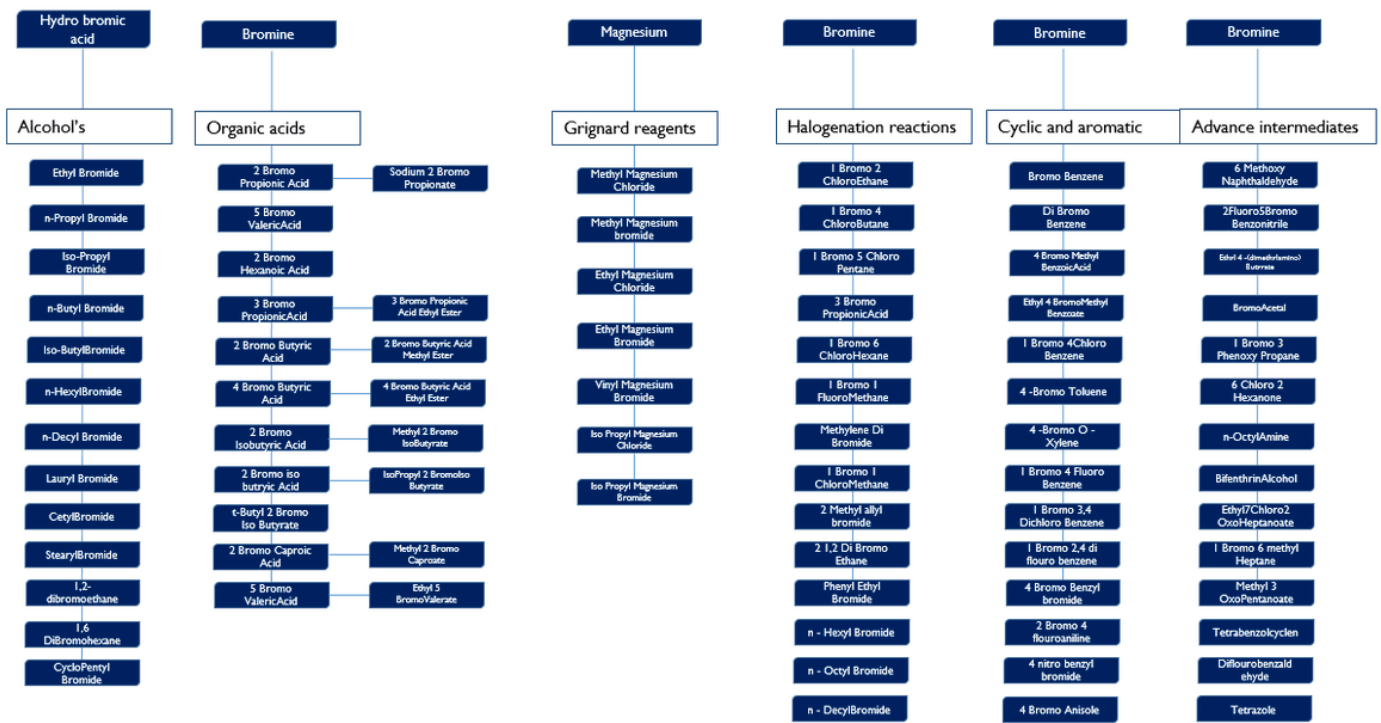
Global Sales of Bromine



Neogen has 8% market share in the Specialty chemicals segment of Bromine

7. Bromine Value Chain

Manufacturing downstream products of bromine results in value addition and high margin products.



8. China +1 strategy

Multiple blasts in chemical plants and shutting down of companies without notice is creating a global supply shortfall

China sources bromine from groundwater and there has been substantial decrease in ground water levels due to excessive extraction activities

China's blue sky policy and government restrictions are positively impacting the Indian chemical industry.

9. Lithium

Introduction and uses

Lithium is the third element of the periodic table and was discovered in 1817. Lithium has wide application in battery chemistry for electric vehicles, pharmaceuticals, polymers and fine chemicals and many others. Lithium is extracted in two forms

of minerals –Lithium carbonate sourced from concentrated salt water brines & Lithium Hydroxide which is sourced from hardrock spodumene

Lithium is scarce in India and hence dependent on imports for raw lithium

Application Lithium bromides in refrigeration

Lithium Bromide is widely used in compressor air-conditioning chillers

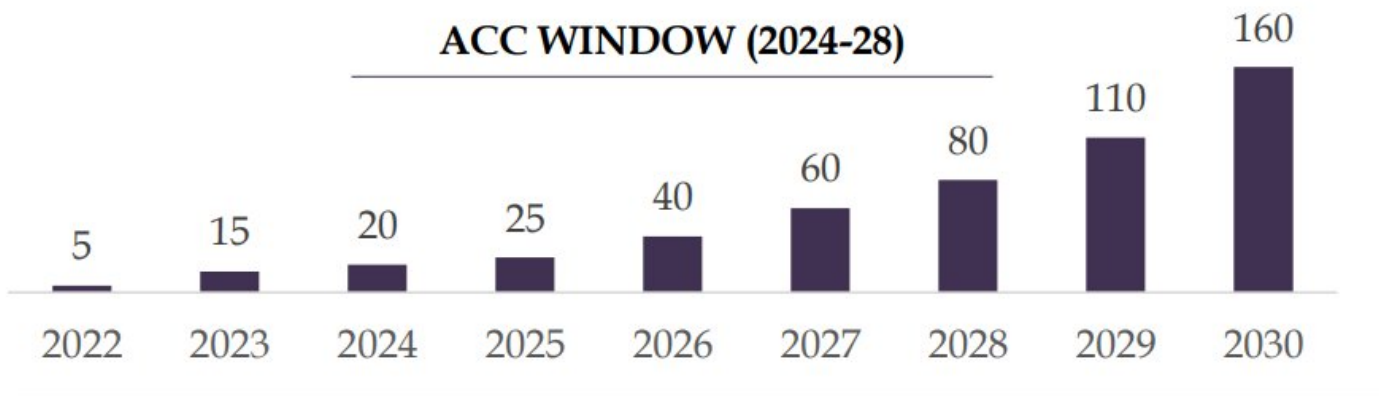
Absorption chillers are used mostly for large installations when electricity is limited and/or heat is abundant. Absorption chillers can be used for both

heating and cooling purposes

The LiBr solution is used in HVAC systems due to its strong affinity for water vapour because of its very low vapour pressure. With upcoming capacities in electrolyte chemistry will be driver for demand.

Lithium Cells (GWh)

ACC WINDOW (2024-28)



Global manufacturers and deposits and Lithium production

Lithium deposits are largely found in south American region of Argentina, Chile, Bolivia contributing 45% to global markets Australia also has large deposits of lithium - about 40% of global market Some of the leading

global lithium manufacturer are:

Albemarle (USA)

Tianqi Lithium (china)

Sociedad Química y Minera de Chile (chile)

Pilbara Minerals

Jiangxi Ganfeng Lithium Co. Ltd. (china)

10. Global production and lithium prices

Exhibit 37: Lithium world mine production by country (in MT)

	2016	2017	2018	2019
Argentina	5,800	5,700	6,400	6,400
Australia	14,000	40,000	58,800	42,000
Brazil	200	200	300	300
Canada	-	-	2,400	200
Chile	14,300	14,200	17,000	18,000
China	2,300	6,800	7,100	7,500
Portugal	400	800	800	1,200
Zimbabwe	1,000	800	1,600	1,600

Exhibit 36: Lithium world reserves (in MT)

Country	Reserves
Australia	6,28,00,000
Chile	86,00,000
Argentina	17,00,000
Other	11,00,000
China	10,00,000
United States	6,30,000
Canada	3,70,000
Zimbabwe	2,30,000
Brazil	95,000
Portugal	60,000
World	1,70,00,000

11. Custom Synthesis manufacturing CSM

Custom synthesis the innovator outsources the basic chemistry of the molecule to the manufacturer and he is responsible for large scale production of that molecule.

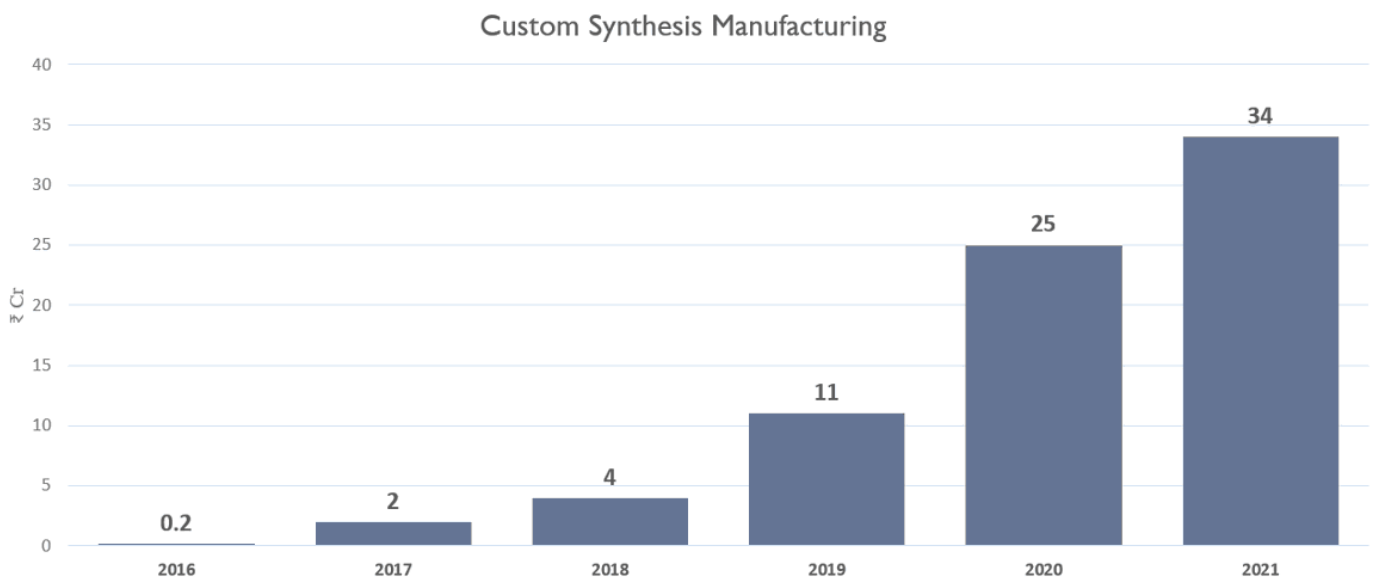
In some cases Neogen may not be directly associated with the final innovator

Neogen develops the molecule for the companies like Divis and Hikal and these companies have contacts with global innovators

Value addition

Due to This value addition final molecule prices can go up to \$100-200\$ as complexity of chemistry increases as these molecules

are produced according to customer requirements and hence margins for Neogen also increases



12. Advance intermediates

Advanced intermediates make up 20% of revenue for Neogen and this segment has high margins. This is achieved because of strong R&D and manufacturing of complex molecules.

Prices of products

Product	Size of molecule	Gross margins
Bromine	\$7 to \$14	30% to 45%
Advance Intermediates	\$100 to \$200	40% to 50%

Dr. Harin Kanani on higher margins in advance intermediates

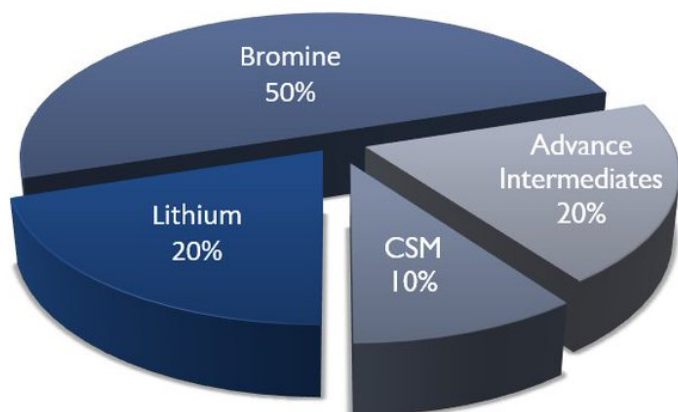
Extract from Q4 21 concall

Dr. Harin Kanani: Again, at EBITDA level they are similar. Now, within advanced intermediate, some of them use higher raw materials. So, again, the range is, as an average a bit lower, so I think I mentioned the gross margin range from 40% to 50% when it comes to advanced intermediates, as opposed to 30% to 45% in our normal bromine derivatives.

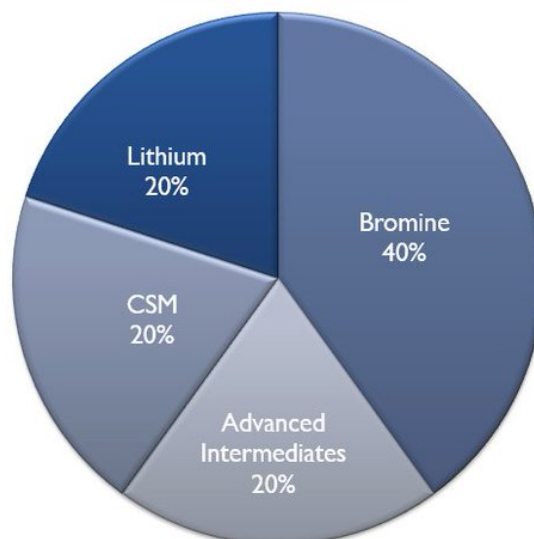
13. Changes in revenue mix

The company is focusing on increasing the revenue contribution from CSM and Advance intermediate business. The revenue contribution from CSM is expected to rise from 10% to 20%

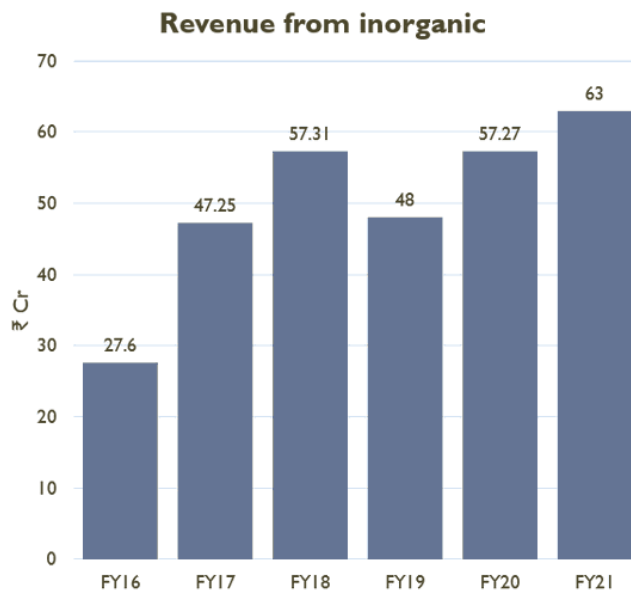
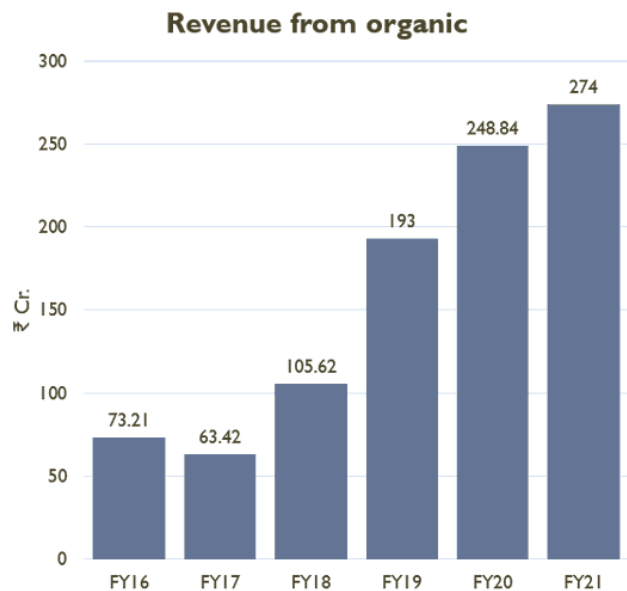
Current Sales



Estimated sales

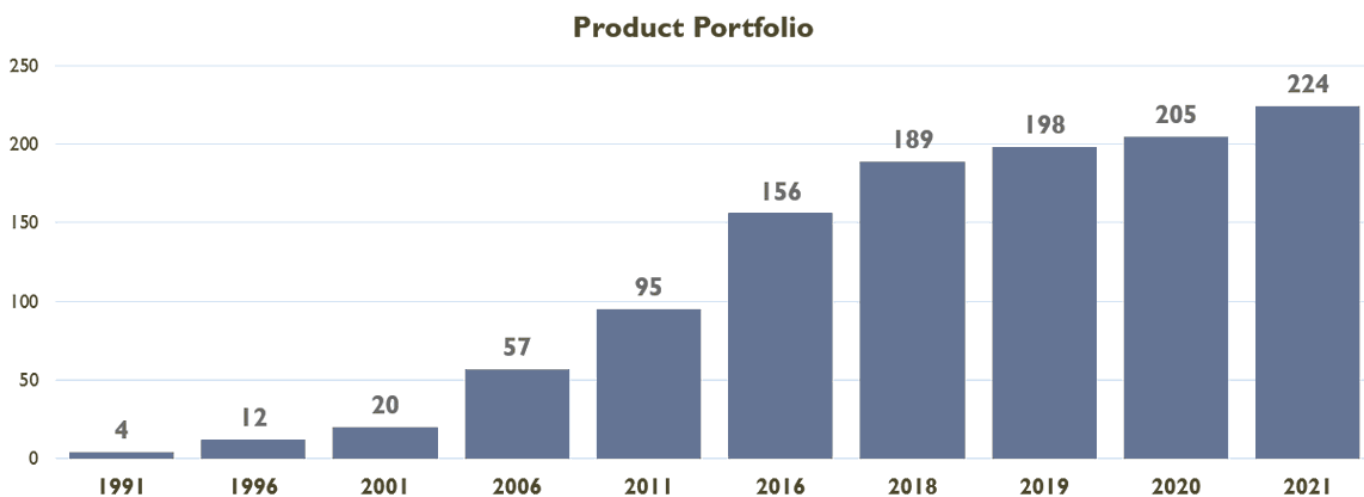


The company classifies the business as organic and inorganic where organic business is from Bromine products and inorganic business is from Lithium products.



14. Product diversification in the business

Neogen started with a mere 10 Products. Today, they have a diversified portfolio of more than 200 products



15. Manufacturing process



16. Competitive advantage

Neogen makes small molecules in which they have 85% market share. Sometimes even 100%. But those molecules have only that much demand.

Initially the orders from the clients for molecules were ranging from 7\$ to 25\$, now the range stands at 100\$ - \$200.

Molecules are sent from the trial phase for quality assurance, these approvals may sometimes take as long as a year. For small scale manufacturers, procurement of bromine is difficult. Neogen has long term contracts with suppliers of bromine.

Bromine is highly unstable and so it needs expertise to handle.

17. Future Capex

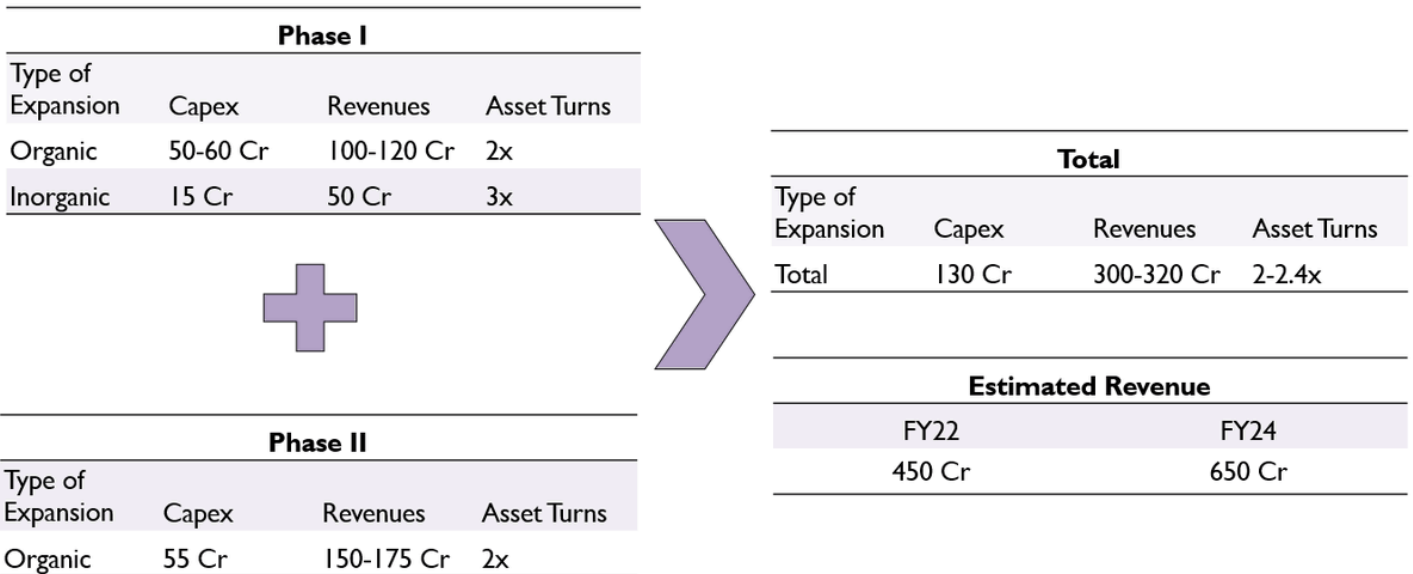
New CAPEX of Rs. 35 crore that was announced in Q2 FY22 is progressing well. This is being entailed at the Vadodara facility to Manufacture 250 MT of Electrolyte for lithium-Ion batteries

Total Capacities			
	Glass lined	Non Glass	Cost
Capacity till now	1,30,000 Litres	24,000 Litres	
Capacity Addition in Phase I	1,26,000 Litres	0 Litres	₹50-60 Cr – Organic ₹15 Cr - Inorganic
After Phase I	2,56,000 Litres	24,000 Litres	
Capacity Addition in Phase 2	78,000 Litres	32,000 Litres	₹55 Cr – Organic
After Phase 2	3,34,000 Litres	56,000 Litres	

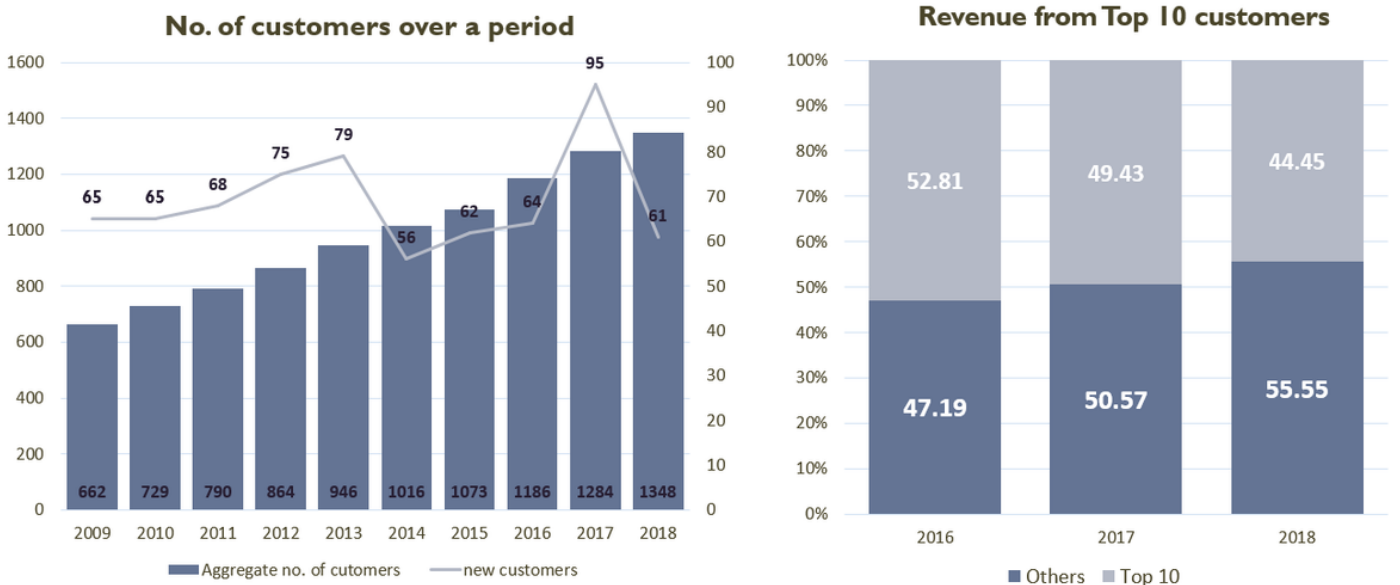
advanced chemistry cell

Phase I expansion completed in Sept 2021 and Phase II expansion completed in Oct 2021 for organic facility

18. Asset turnover



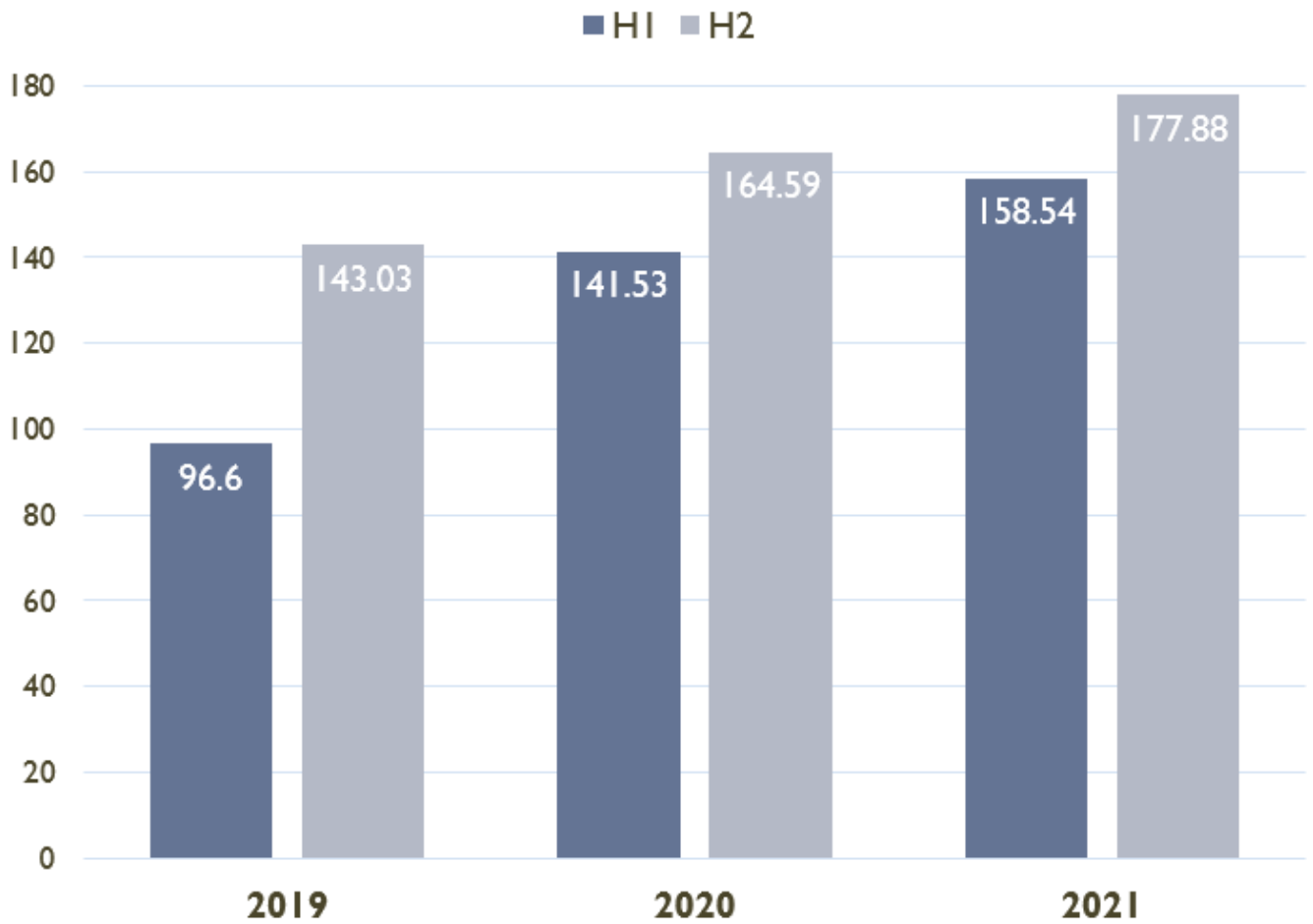
19. Customer concentration



20. Research & development

The R&D team began with 10 people and 1 PhD scientist, now it is 37 with 5-6 PhD scientists. It has two R&D facilities at Mahape and Vadodara. 3 Crores in expenditure in FY2020 for research and development.

Revenue in H1 v/s H2



Around 60% of R&D capacity is contributed to CSM products. 1% of total revenue dedicated for R&D purpose

21. Revenue realisation

Revenue in the second half is generally higher than the first, i.e. $H2 > H1$. As summer break hits Europe, many pharmaceutical industries pile up their inventory, thus creating a rise in demand.

Also, the HVAC machines are usually depreciated in the last months of the year, this drives the demand for the inorganic segment.

Revenue in H1 v/s H2

■ H1 ■ H2

