Market Intelligence
& Analytics

CRISIL
An S&P Global Company

Assessment of the specialty oil industry in India and Global

Gandhar Oil Refinery India Ltd

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Research

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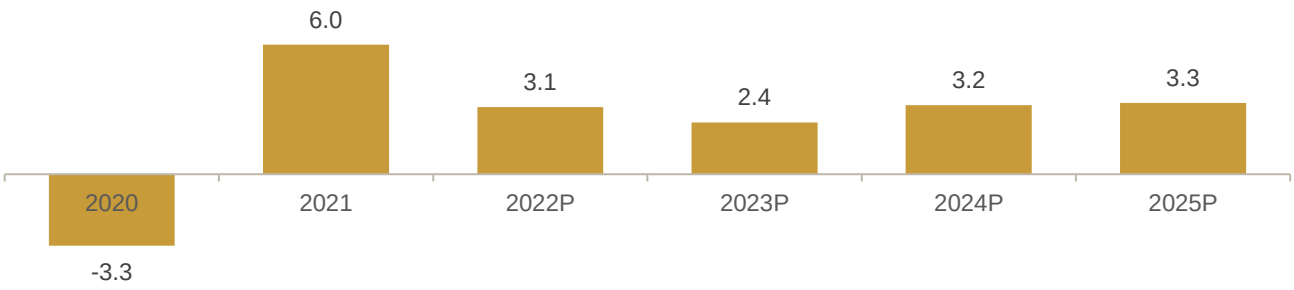
1 Global economic outlook

- S&P Global projects global gross domestic product (GDP) to grow at 3.1% in calendar year 2022 and 2.4% in calendar year 2023. In September 2022, it lowered its growth forecasts. Rising interest rates, the unprecedented European energy crisis, and the lingering effects of COVID-19 are battering growth across geographies, though Asia-Pacific remains a relative outperformer.
- S&P Global expect the Russia-Ukraine war's economic impact to peak in 2022, but drag on amid on-again, off-again fighting. Financial conditions are currently tightening as central banks raise rates quickly, foreshadowing slower growth. Most leading and sentiment indicators are pointing toward slower growth as well.
- Eurozone is forecast to take the biggest hit to growth from the war, given its proximity to the war zone and higher exposure to volatile global energy costs. S&P Global expects a sharp slowdown in eurozone growth in near-term. An unprecedented deterioration in the terms of trade has pushed inflation to record highs.
- Most Asia-Pacific countries have internalised Covid-19 and seem to be gaining pace in industrial activity. But they remain affected by volatile commodity prices. Core inflation has shot up in some Asia-Pacific economies, less so in others. It has soared in Australia, South Korea, and New Zealand and has remained high in India. On the other hand, it has stayed low in China and Japan and modest in Hong Kong, Indonesia, Malaysia, Taiwan, and Thailand

1.1 GDP outlook for 2022-2025

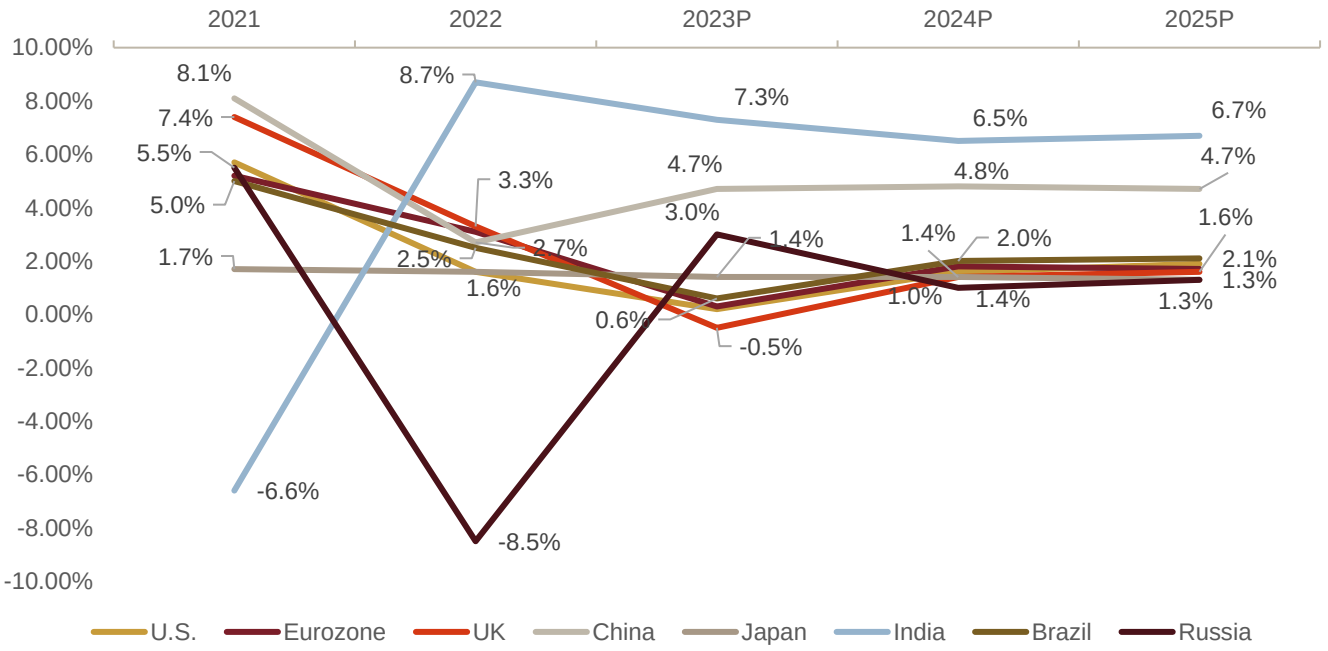
Figure 1: Expected global GDP growth rate (%)



Source: S&P Global, Oxford Economics

1.2 GDP growth trend across major economies

Figure 2: GDP growth projection



Note: India GDP growth outlook is for fiscal year, while for other countries, it is for calendar year

Source: S&P Global, CRISIL Research

Table 1: Growth outlook of major economies

Country	Growth outlook
US	S&P Global forecasts GDP growth at 1.6% for 2022 and 0.2% for 2023, as it expects the economy to fall into a shallow recession in the first half of 2023. Inflation likely peaked in third quarter of 2022 but will remain high on continued supply-chain disruptions. The US Federal Reserve (Fed) is expected to keep monetary policy tight until inflation begins to moderate in the second half of 2023.
Eurozone	The war between Russia and Ukraine is wreaking havoc on the global economy just as Covid-19 is winding down. S&P Global expects the eurozone to be hit hardest by the war, with higher energy prices as the key trigger of growth slowdown. We expect consumer price inflation to reach 8.2% this year and will be 5.2% in 2023 on the back of higher energy and food prices resulting from geopolitical tensions. Lower international demand, particularly from China, is also expected to dampen growth.
UK	Inflation reached a multi-decade high of 9.1% in May 2022. Inflation is likely to will top 10% late this year and remain high throughout most of next year, resulting in a significant loss of household purchasing power despite strong wage growth. The Bank of England is set to tighten policy further to prevent high inflation from becoming entrenched. We expect it to continue hiking rates till the policy rate reaches 2% early next year. In view of these recent developments and especially the outlook for inflation, S&P Global has lowered its outlook for the UK economy.
China	Momentum continues to be soft as new COVID outbreaks and the associated restrictions are hitting activity again, particularly in the services sector. Moreover, a weakening real estate sector and weakening sentiment constitute additional drags on growth. China's recovery should remain muted through the first quarter of 2023 amid a largely unchanged COVID-19 stance and weak property sector. The government has lowered its growth ambitions as it prioritizes its COVID-19 strategy for now, while policy support remains modest.

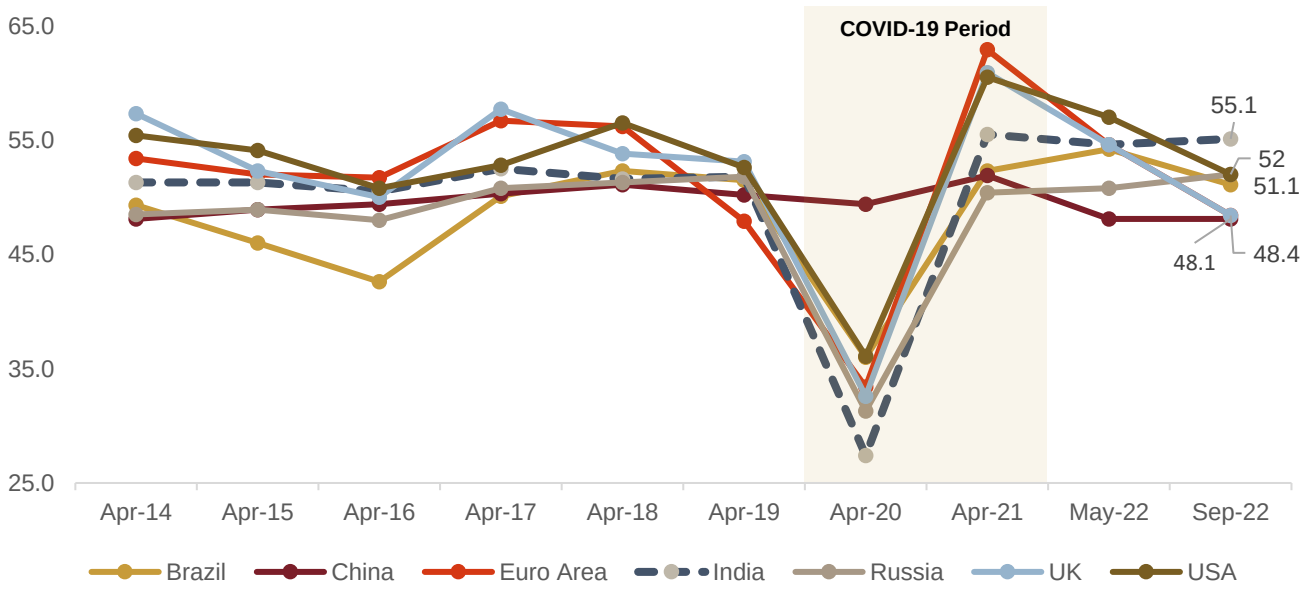
Country	Growth outlook
Japan	Japan's economy has picked up with the impact of COVID-19 waning, despite being affected by factors such as a rise in commodity prices. Private consumption has increased moderately, particularly for services consumption. S&P Global expect the economy to grow at 1.6% in 2022 and 1.4% in 2023
India	The economy is confronted with newer risks, past the impact of the pandemic. Like other countries, it faces high commodity prices fuelled by the Russia-Ukraine strife. Economic recovery is continuing in India with strong service sector activity. Consumer demand is recovering, and we expect a pickup in growth momentum from the third quarter, which will support growth through the rest of the year. Though investments have shown some pick up, it will remain tied to consumption momentum
Brazil	GDP projections have been lowered by S&P Global because of the impact of supply-chain disruptions on manufacturing, abrupt monetary policy tightening in the face of persistently high inflation, and a more challenging fiscal scenario. S&P global expect inflation to stay above the central bank's target through the rest of 2022 and in 2023 as well, which will prompt the central bank to keep real interest rates relatively high throughout that period.
Russia	Supply interruptions will affect the industry, while higher inflation will weigh on household real wages and consumer spending. Due to uncertainty about the scope of possible new sanctions and trade concerns, the degree of the harm the economy will face this year remains unknown.

Source: CRISIL Research

1.3 Impact of Covid-19 on the manufacturing sector

Manufacturing Purchasing Managers' Index (PMI) numbers across economies have followed roughly similar patterns in the past few years. The index plummeted in the wake of the initial lockdowns across the world, and rebounded sharply, even above pre-pandemic levels, as restrictions were relaxed and fiscal incentives to boost the economy became common across countries. PMI has since followed a pattern wherein the scare of each pandemic wave has impacted it severely, with the trend moderating in the later months of 2021 and continuing into 2022, even in the wake of the Russia-Ukraine conflict.

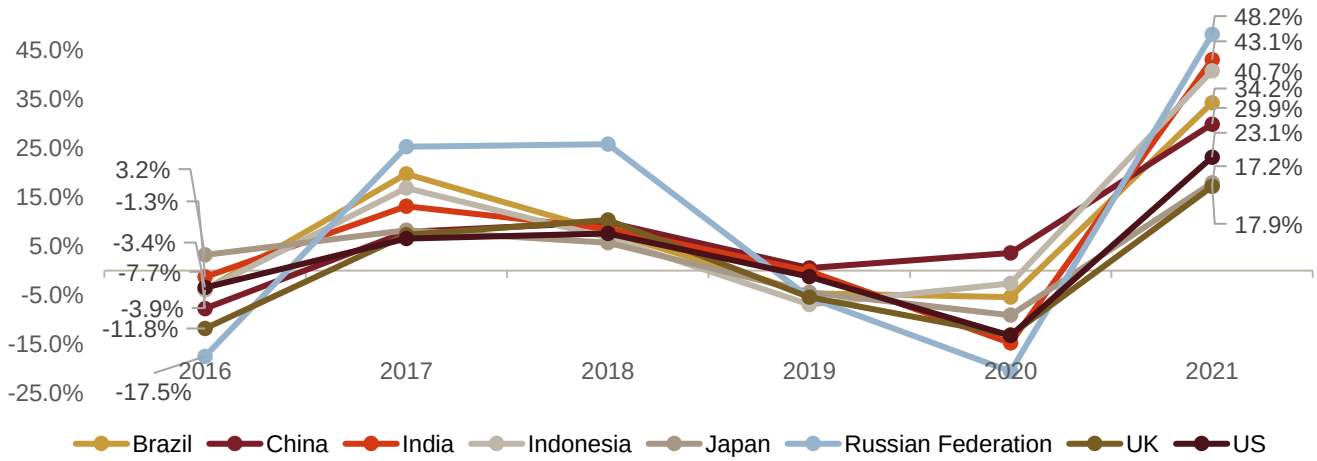
Figure 3: Manufacturing PMIs



Source: S&P Global

The Indian manufacturing industry had a strong start to fiscal 2023, with significant and accelerated increases in new orders and production. Following a decline in March, international sales increased steadily. India's PMI grew from 54.0 in March 2022 to 55.1 in September 2022. It marked the 15th straight month of expansion in the manufacturing sector due to growth in output and orders, on the back of continued easing of pandemic restrictions. Trade growth patterns for some key economies are represented below, highlighting very similar patterns for imports and exports.

Figure 4: Annual growth (%) in exports



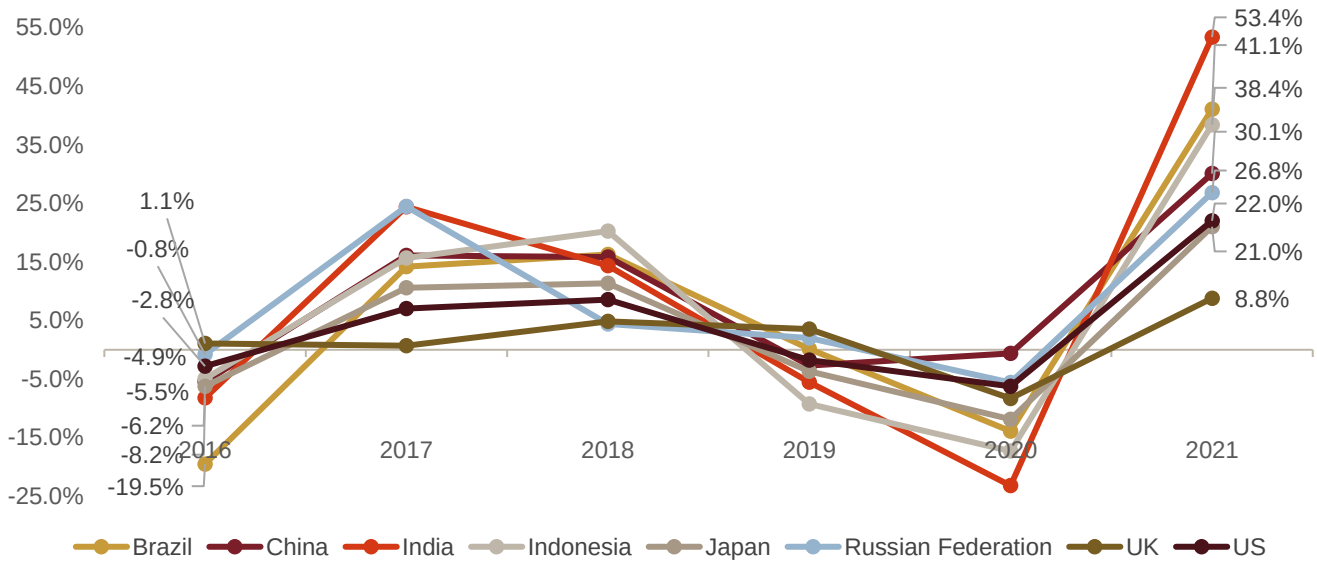
Note: Data for each calendar year

Source: UNCTAD

Global trade was set back significantly in early-2020 when economic activities came to a standstill because of Covid-19. Trade started recovering towards the latter part of the year and continued to grow strongly through 2021. The value of global trade reached a record $28.5 trillion in 2021, a roughly 25% on-year, and a 13% increase relative to the pre-pandemic level of 2019. Trade growth was especially strong in the last quarter of 2021, with both goods and services following similar patterns. This growth was largely a result of increasing commodity prices, relaxing pandemic restrictions and demand recovery due to economic stimulus packages, which often also infused a lot of liquidity in economies.

India's merchandise exports and imports had a significant turnaround and reached pre-Covid levels in 2021 because of the recovery in global demand and resurgence in domestic activity. The resurgence of exports was also aided by opportune government actions.

Figure 5: Annual growth (%) in imports



Note: Data for each calendar year

Source: UNCTAD

1.4 Global economy more fragile amid record inflation

The global economy is sputtering, and financial markets are flashing red due to surging inflation, a hawkish central banks' response, the impact of Russia's aggression in Ukraine, and anxious investors. Following Russia's invasion of Ukraine, global economic growth is slowing more than anticipated, and major economies are at risk of entering recession because of the energy and inflation crises. Global economic growth is forecast to be 3.1% in 2022 according to S&P Global, owing to rising stagflation risks worldwide. The global environment has become more fragile as record-high inflation continues to gain momentum and growth decelerates.

Sharp monetary tightening

Central banks are reversing their relaxed policy stance in response to continuing cost pressures in global supply chains, amplified after Russia's military actions in Ukraine destabilized energy, food, and other key commodity markets.

Inflation, energy security, and geopolitical uncertainty are the chief risks

Persistent supply-side price pressures in the food and energy markets may fuel broad-based inflation. Evolving repercussions of the Russia-Ukraine conflict could undermine global trade and economic growth. Other notable risks stem from governments prioritizing energy security and affordability over sustainability in the short term.

Table 2: CPI inflation projection (in annual % change)

Region	2022	2023P	2024P
US	8.3	3.7	1.6
Europe			
Eurozone	8.2	5.2	2.2
Germany	8.4	7.0	2.2
France	6.1	3.3	1.9
Italy	7.8	4.3	1.9

Region	2022	2023P	2024P
Spain	10.1	5.6	1.3
U.K.	9.5	5.8	1.6
Asia- Pacific			
China	2.2	2.4	2.2
India	6.8	5.0	4.5

P: Projected

Source: S&P Global, CRISIL Research

Major economies have unveiled economic packages to combat inflation

US: The US Congress passed the Inflation Reduction Act, 2022 committing $370 billion dedicated to curbing harmful emissions and promoting green technology. The Act also aims to help individuals who need better healthcare benefits and financial stability in times of inflation, in addition to reducing the effects of inflation.

France: France unveiled a €20 billion anti-inflation package to assist struggling people deal with rising energy and food prices. The package includes increasing certain welfare payments and pensions by 4%, raising civil servants' salaries by 3.5%, fuel rebates by €0.12 a litre from September-October 2022 and promoting private companies to provide employees with tax-free bonuses of up to €6,000.

Germany: Germany unveiled a fresh €65 billion inflation relief package to help households cope with the rising prices. The package includes cheaper public transportation, one-off payment of €300 to pensioners to help them cover rising energy bills, and reduction in the tax on petrol.

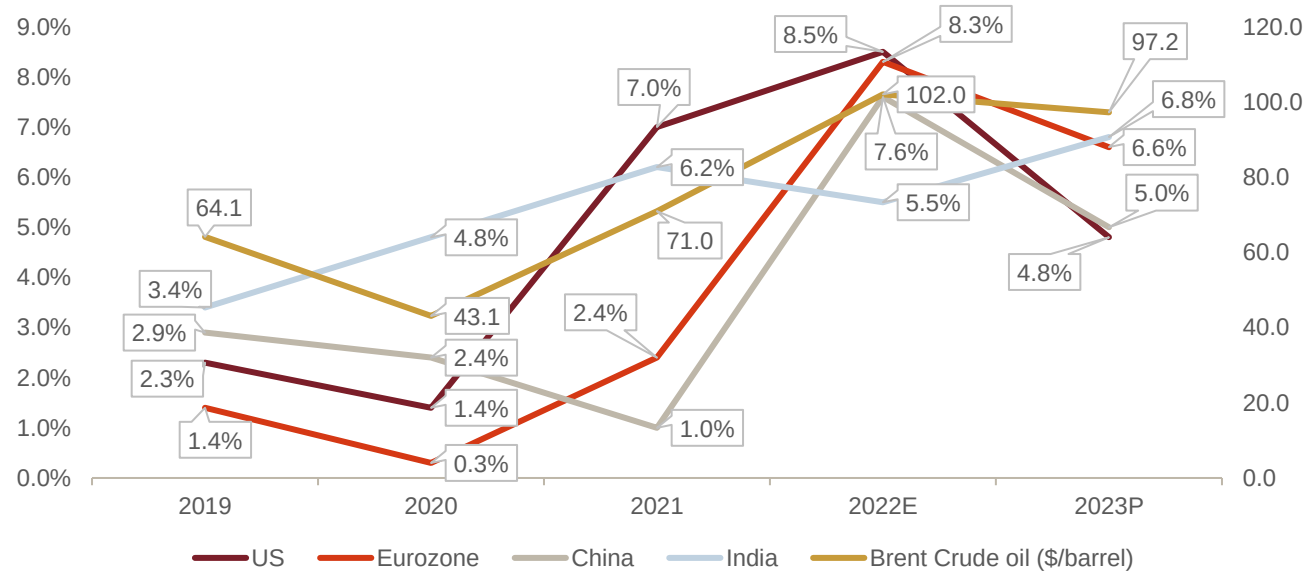
Italy: Italy approved a €17 billion package to tackle inflation arising from high energy cost and consumer prices. The package includes cutting electricity and gas bills for low-income families, tax cuts and re-evaluation of pensions. It also aims to support farmers against drought.

1.5 Rise in crude prices fuelled global inflation

Crude oil prices are set to increase in 2022 due to demand-supply tightness. Volatility in crude oil prices is attributable to uncertainty around the Russia-Ukraine conflict. A fall in Brent crude price to $90.32 per barrel in September from $97.74 per barrel in August was attributed to increasing recessionary fears putting downward pressure on the demand-side. Whereas the aggressive interest rate hikes by major central banks sparked fears of a global economic slowdown that is expected to impact overall demand. Indeed, on the supply front, failure to achieve a ceasefire in Ukraine along with resurgence in the conflict have heightened volatility in crude prices. In fact, the ban on Russian crude oil by end-2022 is expected to create a structural shift in the oil basket globally. Any such sanctions could have a wider impact on energy supply as well as prices of alternative fuels such as natural gas and coal. This has already increased the volatility in crude prices.

Further, the OPEC's decision to reduce crude oil production, the largest production cut since the pandemic, is expected to be the most influential factor supporting the rise in prices. CRISIL Research expects the Brent crude oil price to be at $95-105 per barrel in 2023, in line with the price rise globally owing to tighter oil supplies.

Figure 6: Inflation rate in different economies vis-à-vis crude oil price



Note: i) Forecast of Platt Analytics (Dated. Brent) for 2023: $89.83 per barrel ii) EIA's forecast of EIA for 2023: $97.24 per barrel iii) E: Estimated, P: Projected (data for calendar year)

Source: CRISIL Research

Central banks hike interest rate in sync to tackle inflation pressures

Since crude oil is a significant economic input, an increase in oil prices affects inflation, which measures the overall rate of price increase across the economy. Crude prices are expected to increase from $70.95 per barrel in 2021 to $107.37 per barrel in 2022. Increase in the crude prices is one of the main factors of inflation in US (8.3%), Eurozone (8.2%) and India (6.8%) in 2022. In a bid to contain inflation, central banks in both advanced and emerging market economies have resorted to large interest rate hikes, while governments have taken unprecedented measures to support economic recovery.

1.6 India economic outlook is relatively positive

The provisional estimate of GDP shows that the Indian economy has fully recovered to the pre-pandemic real GDP level of fiscal 2020. Real GDP growth was 8.7% for fiscal 2022 which reflect a faster growth momentum, which suggests higher economic demand. Future capital expenditures of the Indian government are anticipated to be supported by elements including tax buoyancy, a simplified tax system, rationalization of the tariff structure, and digitization of tax filing. Growth multipliers are expected to rise in the medium term as capital expenditures on infrastructure and asset-building projects rise. India's economy is predominantly driven by domestic demand, with consumption and investments accounting for 70% of all economic activity.

1.6.1 Government initiatives to drive growth

The Indian government have taken several initiatives over the years to boost the economy. Flagship programmes such as the Production-Linked Incentive (PLI) scheme along with corporate tax reduction are expected to create significant opportunities for manufacturers.

Lower corporate tax rates

India has reduced corporate tax rates to 22% from 30% for existing companies and to 15% from 25% for new manufacturing companies in 2019. The tax rate for new manufacturing companies is one of the lowest in the world.

The Budget of fiscal 2023 has proposed that the concessional 15% corporate tax rate would be available for one more year till March 2024 for newly incorporated manufacturing units. This corporate tax cut would improve profitability of companies and boost earnings growth. The companies could use the funds to reinvest in existing firms and provide India a more competitive advantage on the global stage.

PLI scheme

Following the pandemic, the government introduced the PLI scheme with incentives of Rs 1.97 lakh crore spread over five years for 14 important industries including pharma, chemicals, and food, with the goal of increasing output and exports. Between 2023 and 2027, the plan could significantly boost annual GDP growth by 0.3%. The PLI scheme aims to give incentives to companies on increased sales of products produced domestically. The PLI scheme is designed to attract foreign companies to establish operations in India and to encourage domestic companies to establish new manufacturing facilities or expand those that already exist, create more jobs, and lower India's dependency on imports.

Measures to curb rising inflation

The government took several measures to curb inflation in May 2022, which included lowering of excise duty on petrol, subsidies on fertilizers and gas cylinders, and reduction in import duty on critical raw materials. In the near future, the government is also planning to unveil a fiscal package to combat inflation, including another round of tax cut on fuel, lower import levies, subsidies on fertilizers, etc.

1.6.2 Supply chain diversification

The global derisking strategy

The pandemic highlighted the risk of high dominance of China in global supply chains and led to the derisking strategy of moving some of the business away from the country. More than 50% of American businesses either delayed or decreased their investments in China as per a survey conducted by the American Chamber of Commerce in April 2022. Similarly, as per a survey conducted by the European Chamber in the same month, up to 23% of European businesses were considering shifting investments out of China. This created an opportunity for Indian manufacturers, which have a cost advantage. The trend to derisk global supply chains is expected to support the growth momentum for key end-user industries in India and augurs well for the specialty oils market.

India positioned to reap benefits

Considering India’s competitive advantage in multiple industries, favourable production characteristics and business environment, government incentives, and an overall stable economy, India is widely seen as a suitable prospect in this changed scenario. India could also stand to gain from a better legislative framework for special economic zones with duty-free imports. Global macro tailwinds in some industries such as textiles, specialty chemicals, pharmaceuticals, metals, and electronic manufacturing, along with government reforms, are projected to set India on a sustainable economic path.

Table 3: Competitiveness of India vs China

Parameter	US/Europe	China	India
Labour cost			
Environmental compliance			

Parameter	US/Europe	China	India
Plant capex			
Government policy support			
Conduciveness of recent geopolitical landscape			

Note: Colour of the pie indicates relative advantage of a particular country/region vis-à-vis others in relation to a particular parameter. A fully coloured pie indicates maximum advantage compared with the other two regions.

Source: CRISIL Research

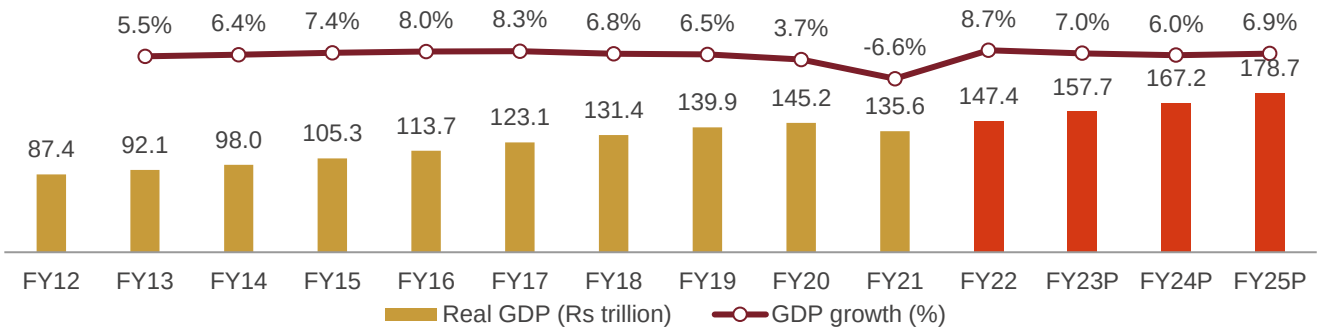
2 Indian macroeconomic overview

2.1 India to remain the fastest growing economy despite GDP growth slowing to 7% in fiscal 2023

The latest provisional estimates released by the National Statistical Office (NSO) in May 2022 pegged the country's real GDP growth at 8.7% in fiscal 2022. In absolute terms, real GDP for fiscal 2022 is now estimated at Rs 147.35 trillion. Though slower global growth and high commodity prices, especially of oil, could put downward pressure on economic growth, India remains relatively less impacted given strong internal consumption and continued commodity trade with Russia. Stronger domestic demand is expected to drive India's growth premium over peers in the medium run. Investment prospects are optimistic given the government's capex push, progress of Production-linked Incentive (PLI) scheme, healthier corporate balance sheets, and a well-capitalized banking sector with low non-performing assets (NPAs).

For now, CRISIL maintains its real GDP growth projection for fiscal 2023 at 7%, with downside risks of heightened geopolitical tensions. Even with this cut, India will remain the fastest-growing economy in fiscal 2023.

Figure 7: India GDP outlook



F: Forecasted

Source: CRISIL Research, Central Statistics Office (CSO), S&P Global Economics and Oxford Economics

Factors that will shape growth in fiscals 2023 and 2024

Three factors will play a prominent role:

- Global slowdown to impact domestic industrial activity via the exports channel
- The one-time lift to contact-based services from domestic demand will abate next fiscal, but government capex will stay supportive
- Tightening domestic financial conditions will hurt growth next fiscal

2.2 Macroeconomic indicators snapshot

Table 4: Key projections

	FY17	FY18	FY19	FY20	FY21	FY22	FY23P	FY24P
Real GDP growth (%)	**8.3**	**6.8**	**6.5**	**3.7**	**-6.6**	**8.7**	**7.0**	**6.0**
CPI[1] (%, average)	4.5	3.6	3.4	4.8	6.2	5.5	6.8	5.2
CAD[2]/GDP (%)	-0.7	-1.8	-2.1	-0.9	0.9	1.2	3.0	2.7
FAD[3]/GDP (%)	3.5	3.5	3.4	4.6	9.2	6.9	6.4	9.0

Exchange rate (Rs/$, March-end)	65.9	65.0	69.5	74.4	72.8	76.2	78.0	82.0
10-year G-sec yield (%, March-end)	6.8	7.6	7.5	6.2	6.2	6.8	7.5	7.4

E: Estimated; P: Projected

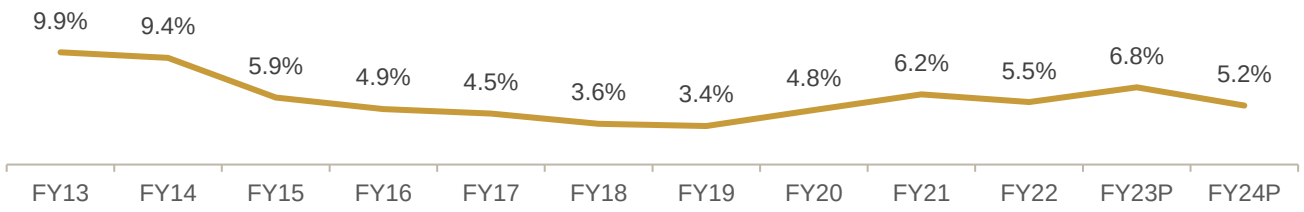
1) Consumer price index; 2) current account deficit; 3) fiscal deficit

Source: CSO, RBI, CRISIL Research

2.3 Inflationary pressures set to rise and broaden this fiscal

Headline CPI inflation moderated to 5.5% on-year in fiscal 2022 from 6.2% the previous year, largely driven by food, which fell sharply to 3.8% in fiscal 2022 from 7.7% the previous year. The other two components, namely fuel (11.3% in fiscal 2022 against 2.7% in the previous year), and core (6.0% compared with 5.5%) saw inflation rise. Fuel inflation will stay at high levels due to the sharp rise in crude oil prices. CRISIL Research expects CPI inflation to rise to 6.8% on average this fiscal. The Russia-Ukraine conflict has dealt a severe blow to energy and food supplies. Energy prices are projected to rise over 50% this year, and non-energy prices by 20% according to World Bank's latest commodity outlook. The average crude oil price in the first half of fiscal 2023 was $99.98 per barrel. CRISIL Research expects Brent crude to average $95-105/barrel in fiscal 2023 compared with $80 per barrel in fiscal 2022. However, there is an upside risk as crude oil prices hinge on the ongoing conflict between Russia and Ukraine and the OPEC supply scenario.

Figure 8: CPI inflation trend (%, y-o-y)



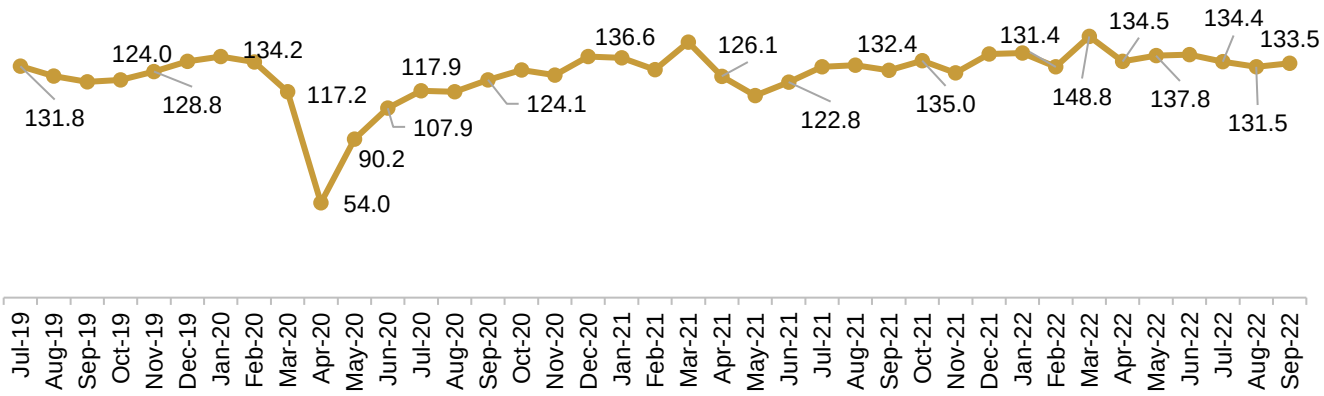
P: Projected

Source: CSO, CRISIL Research

2.4 Index of Industrial Production (IIP)

IIP exhibited recovery in September. The rebound was a result of favourable base effect (for mining and electricity) as well as a pick-up in sequential growth (in manufacturing). Infrastructure, construction, and capital goods drove the sequential improvement in manufacturing. Manufacturing activity is finding traction from the catch-up to pre-pandemic trend (particularly in the ongoing festive season), robust government capex, and relatively accommodative financial conditions.

Figure 9: Value of IIP



Note: Figures for September 2022 are quick estimates

Source: Ministry of Statistics & Programme Implementation

3 Overview of the global specialty oil industry

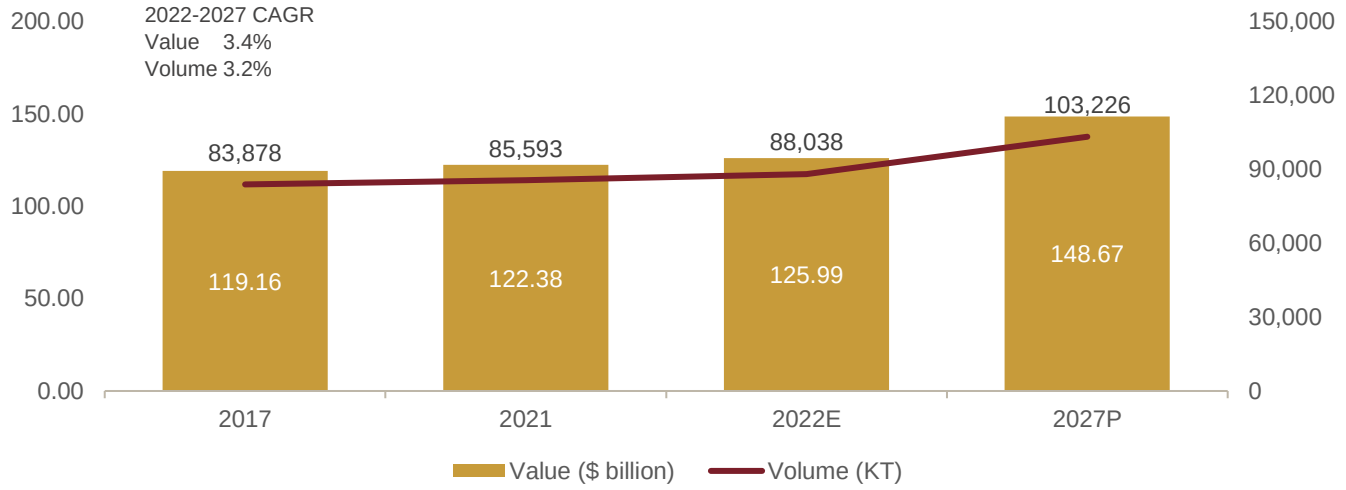
3.1 The global specialty oil industry

The global specialty oil market is characterized by a large product mix and a wide variety of applications across multiple end-user industries. Overall market growth is driven by increasing demand across multiple products that in turn is gaining from the positive outlook of end-user industries. For instance, white oil market demand benefits from growth in pharmaceuticals & personal care products, while transformer oil demand benefits from the transmission & distribution industry. Further, industrial oil demand is significantly driven by the rising focus on the domestic manufacturing sector. Also, automotive oil benefits from rising transport needs, improving income levels and improving road infrastructure. Overall, these industries mainly drive the sectoral demand of the specialty oil sector.

Global specialty oil to reach $149 billion by 2027

The global specialty oil market value, estimated at $125.99 billion in 2022, is expected to grow to $148.7 billion by 2027, at a CAGR of 3.4%. The specialty oil market is estimated to create an absolute incremental opportunity of ~$23 billion over the next five years driven by increasing consumption of specialty oils in different end-use industries such as consumer, pharmaceuticals, automotive, manufacturing, power generation, and others.

Figure 10: The global specialty oil industry size



E: estimated; P: projected | Data for each calendar year

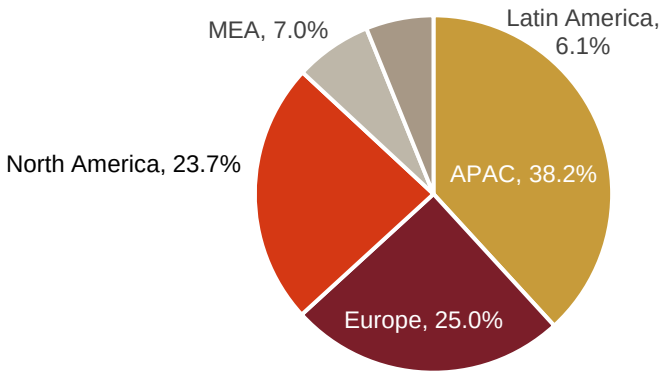
Source: CRISIL Research

The global specialty oil market size, pegged at 88,038 kilo tonne (KT) at the end of 2022, is anticipated to grow at a five-year CAGR of 3.2% to 103,226 KT by 2027.

3.2 The global specialty oil industry by region

Asia-Pacific (APAC) & Europe are dominating the specialty oil market owing to the presence of end use industries such as pharmaceuticals, consumer, and different consumer bases. North America & the Middle East and Africa (MEA) are also expected to witness increased demand for these oils from their end-use industries in the forecast period.

Figure 11: The global specialty oil market share of key regions by value in 2021



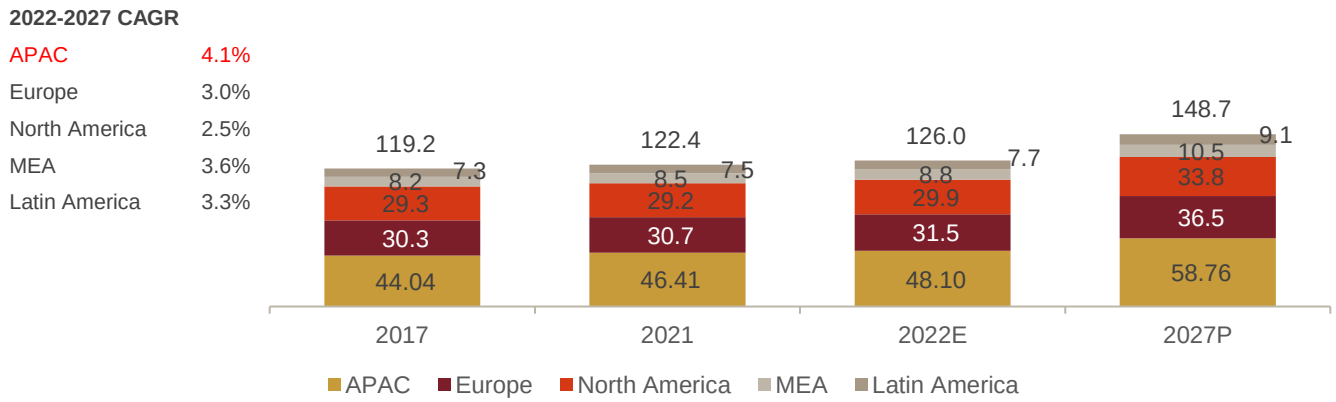
Source: CRISIL Research

APAC -dominated specialty oil industry with 38% market share by value in 2021

The region is the largest and the fastest growing market for specialty chemicals as it is home to two large consumers (China and India) which remain the centre of market activities. The region holds a 38.2% share by value and a 42.3% share by volume globally. APAC is expected to maintain its leading position with a rising population and increasing prosperity in the region. The specialty oil market in APAC is expected to grow from $48.1 billion in 2022 to $58.8 billion in 2027 at a CAGR of 4.1%.

Pharma and consumer represent emerging growth segments. Increasing insurance penetration, rising medical spending, and growing export opportunities bode well for pharma segment growth. Further, increasing awareness about personal looks, and availability of different cosmetic products is a key trend that favours the consumer segment. Additionally, the market is also driven by the size and growth of automobile and power sectors in the region

Figure 12: The global specialty oil market by region ($ billion)



E: estimated; P: projected / Data for each calendar year

Source: CRISIL Research

Europe is the second-largest contributor to industry value with a 25% market share

The region holds a 25% share by value and a 22% share by volume globally. The specialty oil market in Europe is expected to grow from $31.5 billion in 2022 to $36.5 billion in 2027 at a CAGR of 3.0%. New growth stems from the pharma and consumer segments which currently have a smaller share in the overall demand pie. The automotive sector accounts for most of the demand as it benefits from high vehicular density and a preference for driving,

resulting in demand for premium lubricants. Also, Europe's energy need is anticipated to rise led by Germany and Russia. This would require construction of new power plants and hence open attractive growth prospects for the transformer oil market.

North America remains the third-largest region with a 24% market share with demand led by the automotive industry

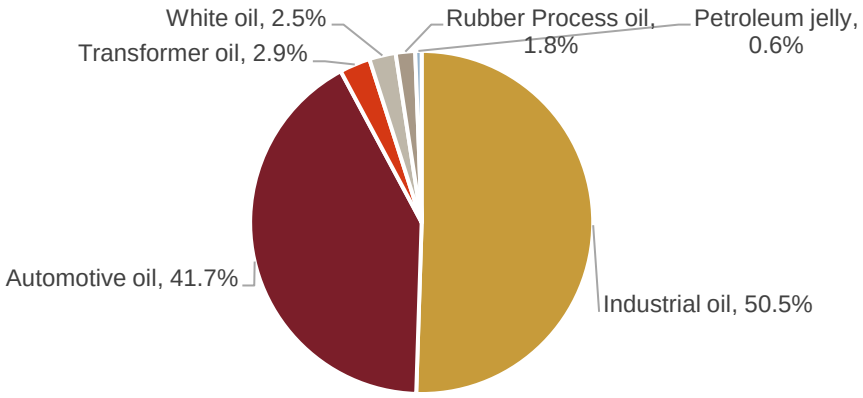
The specialty oil market in North America is expected to grow from $29.9 billion in 2022 to $33.8 billion in 2027 at a CAGR of 2.5%. Over the past few years, the key trends have been favourable for the region as the US pharmaceutical sector has seen consistent expansion on the back of increasing awareness about health and hygiene. Further, the region has been facing rising disease occurrence. Consequently, medical spending is on the rise, supporting future market growth. Further, there has been a significant increase in industrialization and manufacturing (particularly, electrical equipment and devices in countries such as the US. All these factors together support the demand outlook for specialty oil products.

Middle East & Africa and Latin America to exhibit gradual expansion led by Saudi Arabia

The Middle East, Africa and Latin America together hold a 13% market share by value of the specialty sector globally. The automotive sector accounts for ~47% to overall demand of the specialty oil market. Saudi Arabia is the key market in the region. The pharmaceutical and consumer segments are the key growth areas given the rising spend on medical infrastructure. Further, the consumer segment benefits from rising health awareness and expansion of product offerings.

3.3 The global specialty oil market by product type

Figure 13: The global specialty oil market share of products by value in 2021



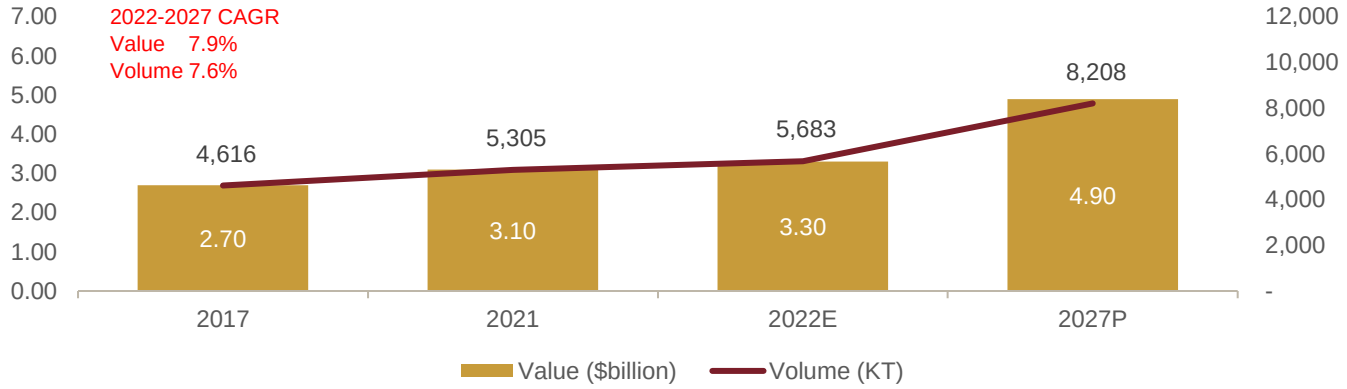
Source: CRISIL Research

White oil market is the fastest growing product type in the specialty oil market globally

Mineral oils that have been refined to make them pure, stable, colourless, odourless, and non-toxic are known as white oils and their demand is mainly driven by increasing usage of personal care products (such as creams, lotions, and laxatives) and pharmaceuticals. Both these industries are on an uptrend due to improving lifestyles, an increasing focus on self-care, and rising awareness about personal hygiene and health.

Additionally, the demand for white oil is also driven by food processing sector growth. All these factors together would propel white oil market growth in the forecast period. The market value of white oil is anticipated to grow from $3.33 billion in 2022 to $4.90 billion by 2027, at a CAGR of 7.9%. Further, the market size in terms of volume is expected to grow from 5,683 KT in 2022 to 8,208 KT in 2027, at a CAGR of 7.6%.

Figure 14: Global white oil market growth trajectory



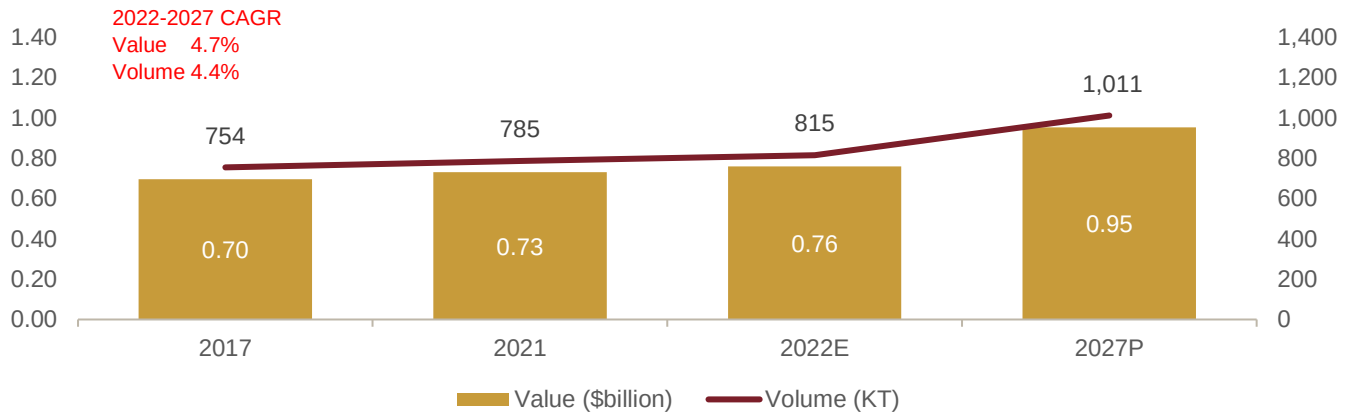
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Petroleum jelly demand to reach around $1 billion in the next five years

Petroleum jelly is available in pharmaceutical grade, industrial grade, and cosmetic grade. Prominent end users of petroleum jelly are food, pharmaceuticals, leather and shipping industries. The petroleum jelly market, estimated at $0.76 billion in 2022, will grow to $0.95 billion by 2027 at a CAGR of 4.7%. Additionally, the market volume is projected to increase from 815 KT in 2022 to 1,011 KT by 2027 at a CAGR of 4.4%.

Figure 15: Global petroleum jelly market growth trajectory



E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

The industrial oil market is projected to increase by $11.9 billion over 2022 to 2027

The industrial oil market is projected to be driven by rising industrial output in China, India, and Japan. Additionally, an increase in the production of food and drinks is leading to an increase in the use of industrial oils such as greases and hydraulic fluids. Consequently, industrial oil market volume is estimated to increase from 49,064 KT in 2022 to 56,854 KT in 2027. Also, the market value is forecast to grow to $75.60 billion in 2027 from $63.69 billion in 2022.

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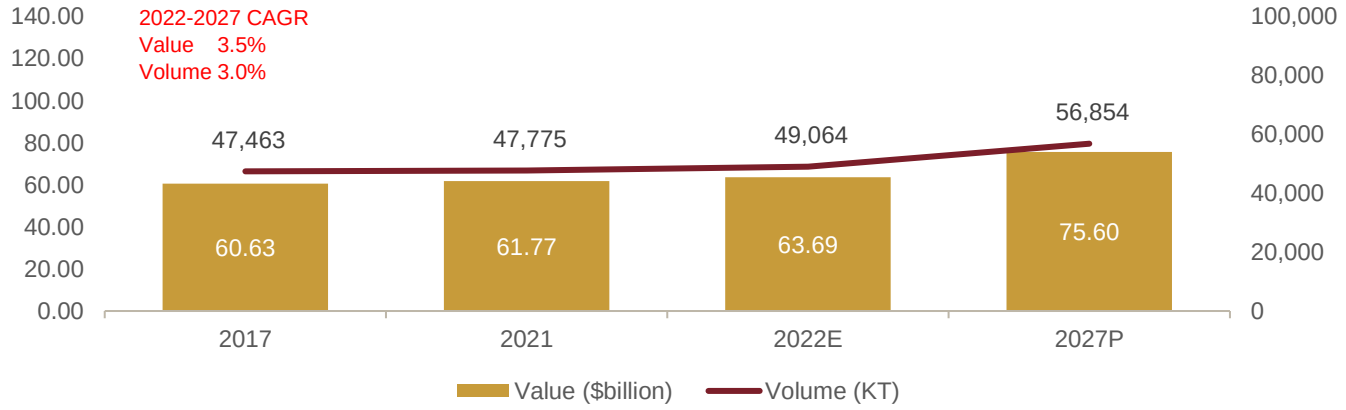
Figure 16: Global industrial oil market growth trajectory



E: estimated; P: projected | Data for each calendar year

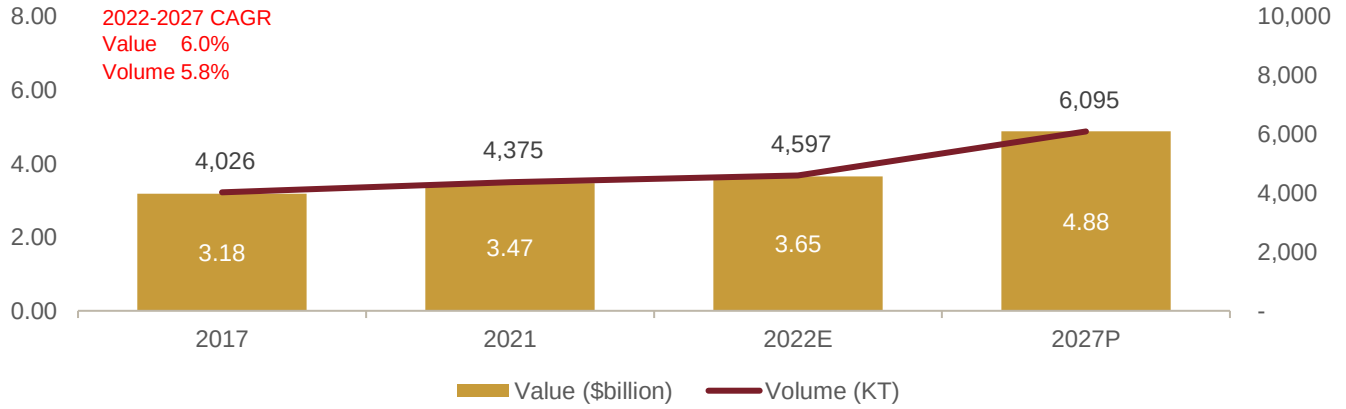
Source: CRISIL Research

Transformer oil market to benefit from the rising trend of electrification globally

In a transformer, transformer oil performs two crucial tasks: (1) it prevents arcing; and (2) dissipates the heat produced by the device. Transformer oil improves electrical insulation, is more stable at high temperatures, and inhibits oxidation. Mineral oil and synthetic oil are most widely utilised in transformer applications. Rising industrialisation and urbanisation are key growth drivers for electricity demand. Additionally, there has been an increasing focus on providing uniform access to electricity as part of the drive to boost basic amenities. Consequently, there are growing efforts globally to modernise and create/expand power grids, which augurs well for transformer oil demand.

Hence, the global transformer oil market is anticipated to grow at a CAGR of 6.0% from $3.65 billion in 2022 to $4.88 billion by 2027. In terms of volume, the market is projected to rise from 4,597 KT in 2022 to 6,095 KT in 2027

Figure 17: Global transformer oil market growth trajectory



E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

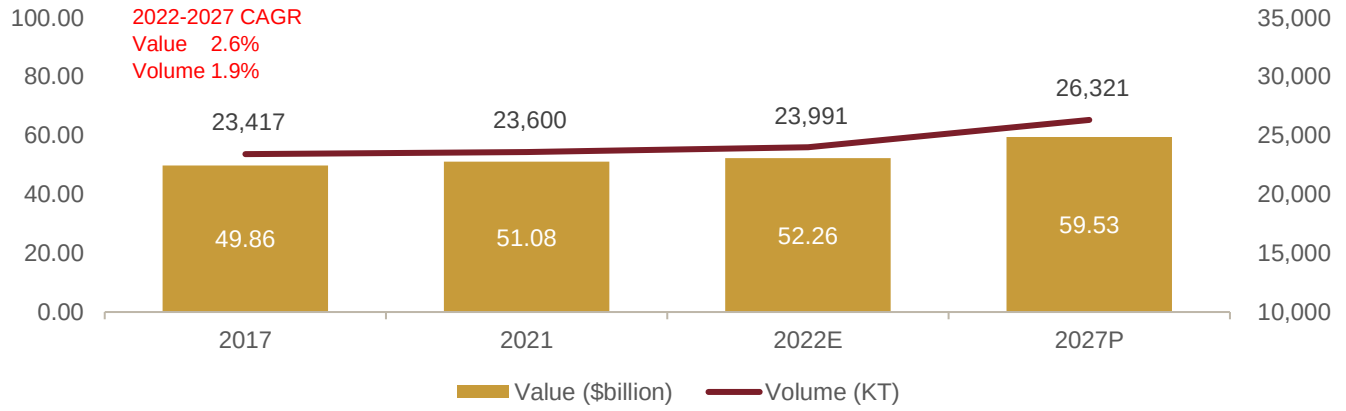
Automotive oil market uptick driven by the growing auto industry and rising disposable income

Automotive lubricants are chemicals used to lessen surface friction and stem the deterioration of car parts. Engine oils, transmission fluids, grease oils, process oils, and general industrial oils are often used as car lubricants. The use of automotive lubricants is also boosted by the huge potential of emerging economies. Additionally, the

segment demand benefits from the rising demand of environment-friendly lubricants. Automotive lubricating oils are predominantly marketed in collaboration with automotive manufacturers and petrol stations.

The global automotive lubricant market, valued at $52.26 billion in 2022, is expected to grow to $59.53 billion by 2027, at a CAGR of 2.6%. Additionally, the market size by volume, estimated at 23,991 KT in 2022, is projected to grow to 26,321 KT by 2027.

Figure 18: Global automotive oil market growth trajectory



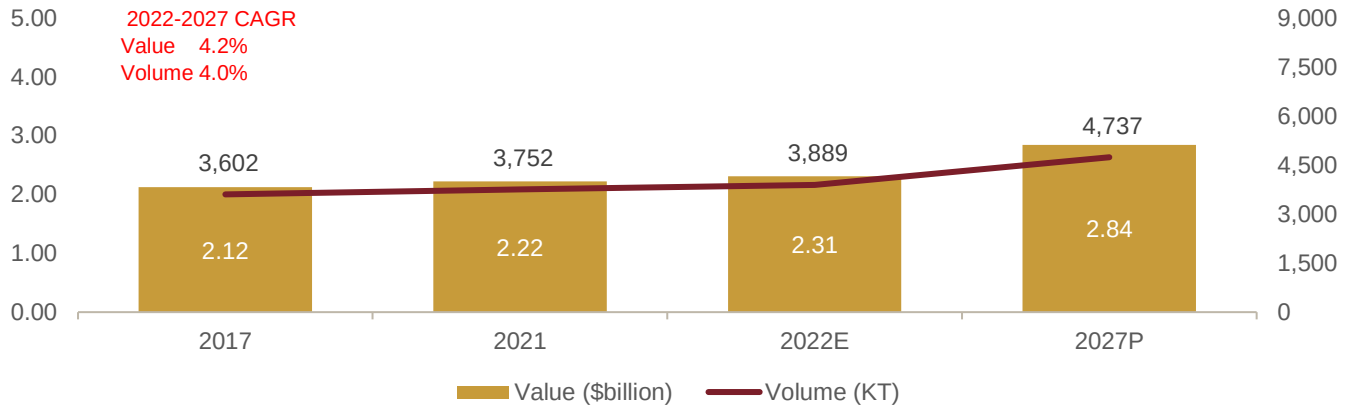
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

The rubber process oil market set to increase from $2.31 billion in 2022 to $2.84 billion by 2027

Rubber process oil is used in the production of goods ranging from small rubber bands to enormous aircraft tyres. This oil enhances the physical traits and qualities of the goods. Rubber process oils work well in a variety of applications. The rising number of automobiles globally has contributed to the demand for tyres and hence led to rising consumption of rubber process oil.

Figure 19: Global rubber process oil market growth trajectory



E: estimated; P: projected | Data for each calendar year

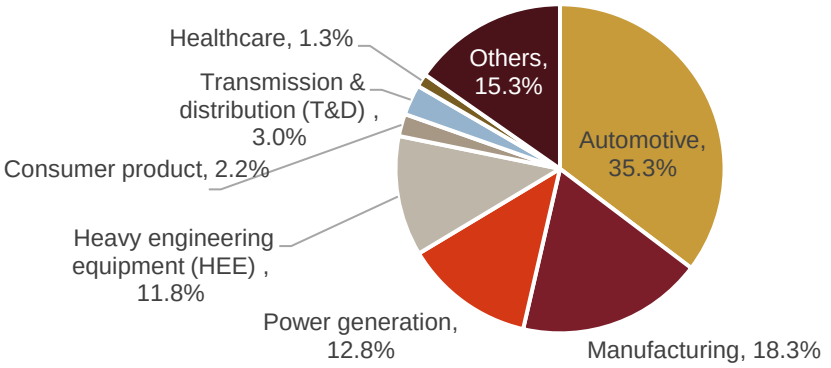
Source: CRISIL Research

3.4 Global specialty oil market by end-use segment

With rise in purchasing power, demand for enhanced products and increasing image and health consciousness driving demand for consumer product segment

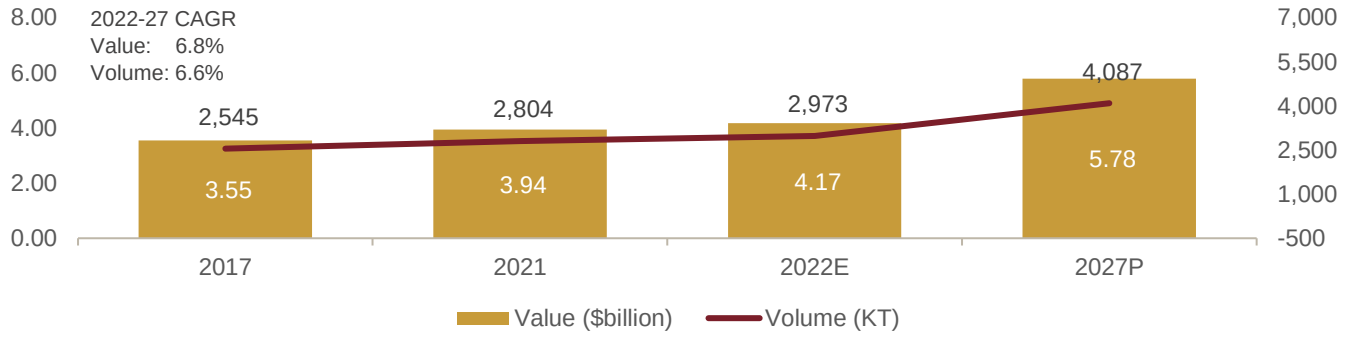
The consumer product segment encompass beauty & personal care (BPC) and consumer food. The consumer product segment is expected to represent a total incremental opportunity of $1.61 billion over the next five years. The segment is anticipated to reach $5.78 billion by 2027 from $4.17 billion in 2022, at a CAGR of 6.8%. There has been a rise in demand for personal care goods, driven by people's increased awareness of their appearance and growing disposable incomes. While creating various personal care products, white oil is used as a basic component and as an emollient. It is widely used in the production of a variety of personal care goods, including cosmetics, skincare products, moisturisers, baby items, body lotions, hair oils, shampoos, scents, and creams that are water-resistant. The fibrous and oily structure of petroleum jelly, along with mineral oils, aids in nourishing the skin. Rising spending on healthy and nutritious diet have fueled the demand of food & beverages globally.

Figure 20: Global specialty oil market share of end-use segments by value (2021)



Note: Consumer segment includes food & beverages (0.23%) and beauty & personal care (1.9%)
Source: CRISIL Research

Figure 21: Consumer product segment in the global specialty oil market



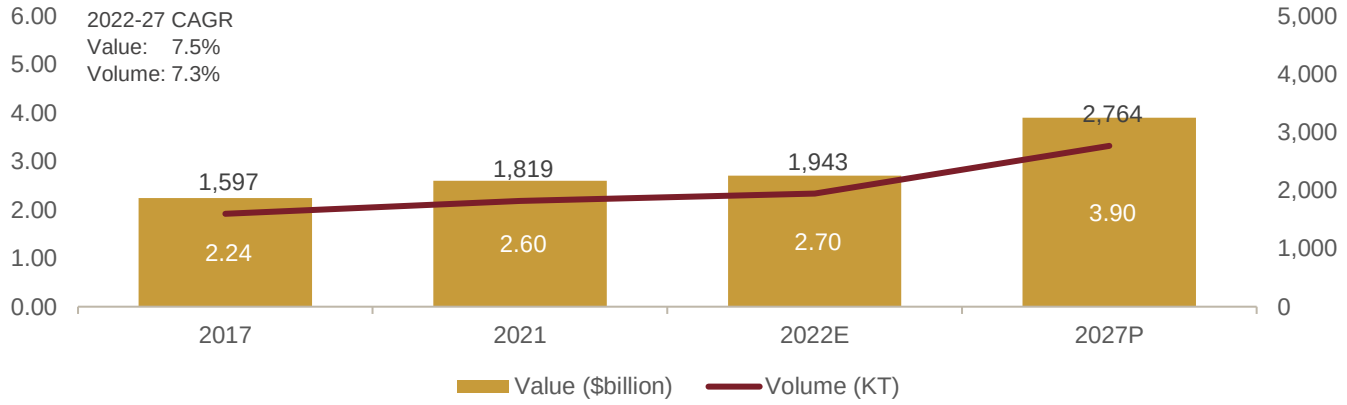
Note: Consumer product segment includes food & beverages and beauty & personal care
E: Estimated; P: Projected | Data for each calendar year
Source: CRISIL Research

Healthcare segment to see highest growth on the back of rising awareness about health and hygiene

The healthcare segment is expected to represent a total incremental opportunity of $1.2 billion over the next five years. The segment is anticipated to reach $3.9 billion by the end of 2027. The emergence of the covid-19

pandemic has focused global attention on the healthcare industry's complex issues ranging from workforce shortages to vaccine equity, government spending, and digital health. Despite its small market size, the healthcare is one of the most profitable industry in the world. In the coming years, increased interest in the sector since the pandemic began, higher quality general healthcare, and rising life expectancy are likely to boost spending and healthcare industry growth.

Figure 22: Healthcare segment in the global specialty oil market



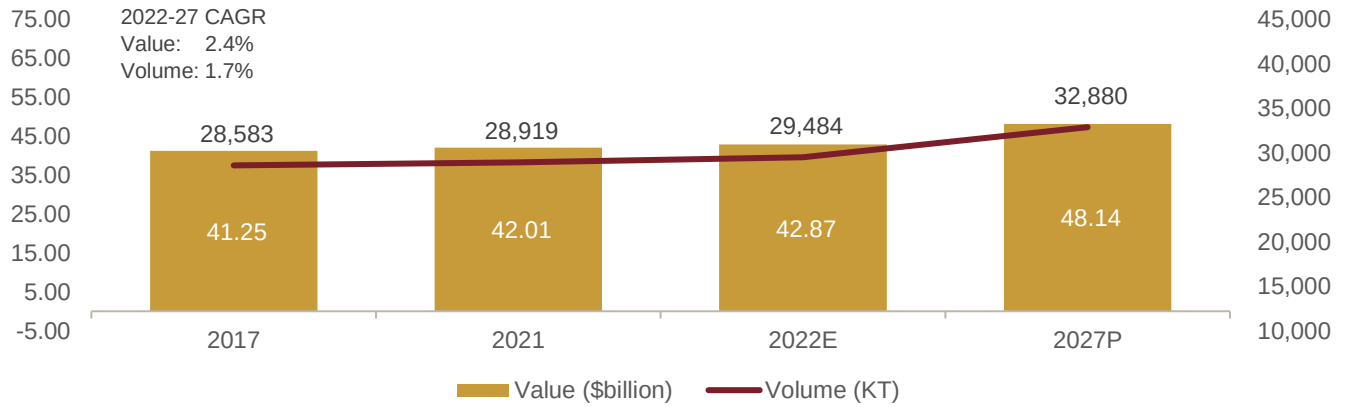
E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

Growth in automobile market to drive automotive specialty oil market growth

The automotive segment is expected to represent a total incremental opportunity of $5.3 billion during 2022-27. The segment is anticipated to reach $48.1 billion by 2027 from $42.9 billion in 2022, at a CAGR of 2.4%. The growth would be primarily supported by rising commercial vehicle sales.

Figure 23: Automotive segment in the global specialty oil market



E: Estimated; P: Projected | Data for each calendar year

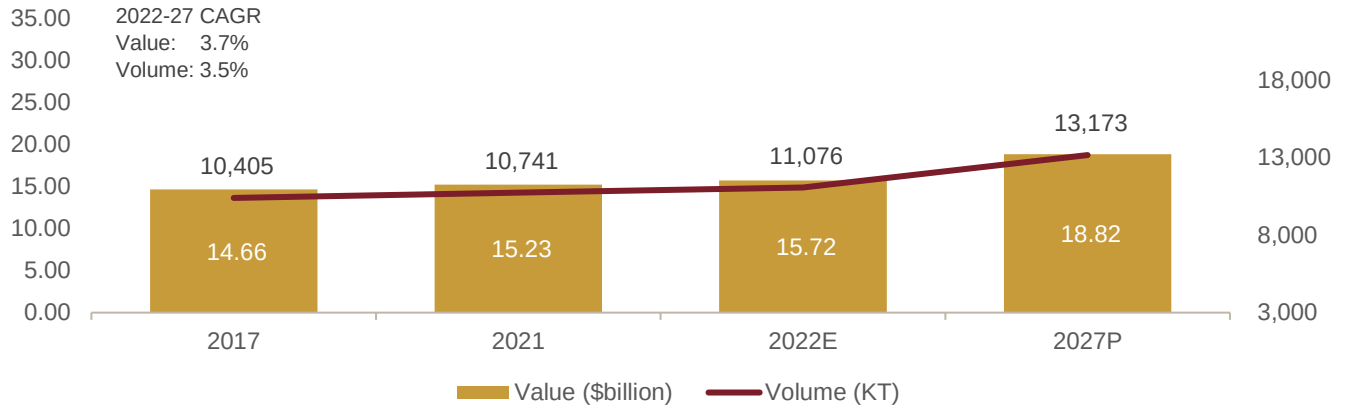
Source: CRISIL Research

Rapid industrialisation and electricity demand to boost demand from power generation segment

The power generation segment is expected to represent a total incremental opportunity of $3.1 billion over the next five years. The segment is estimated at $15.7 billion in 2022 and is projected to reach $18.8 billion by 2027, exhibiting a CAGR of 3.7%. Increasing demand for electricity and reliable supply has led to the increase in installation of standalone power production systems to counter the impact of fluctuating loads and meet increasing

power demand in industrial applications. This trend bodes well for transformer oil demand from the power generation segment.

Figure 24: Power generation segment in the global specialty oil market



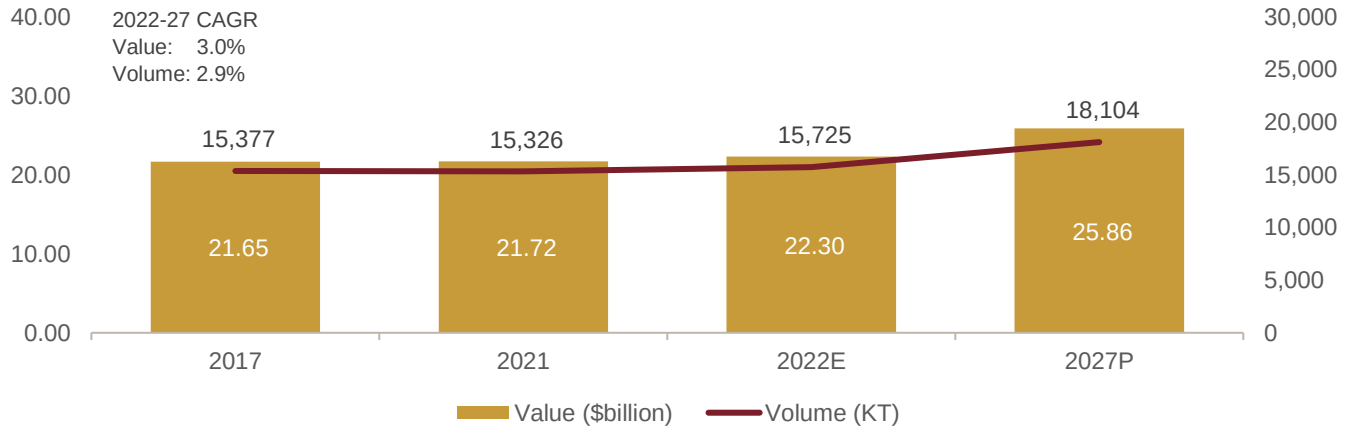
E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

Demand from manufacturing to reach $25.86 billion by 2027

The manufacturing segment is expected to represent a total incremental opportunity of $3.56 billion over the next five years. The segment is anticipated to grow from $22.30 billion in 2022 to $25.86 billion by 2027. The use of lubricants in the manufacturing sector increases the life of machines and bearings.

Figure 25: Manufacturing segment in the global specialty oil market



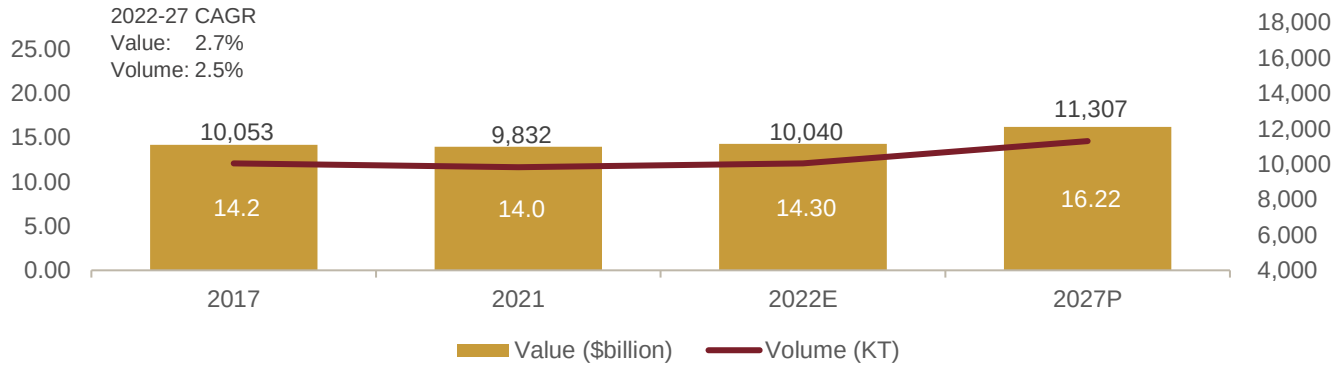
E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

Use of heavy equipment globally has expanded due to the growing construction and mining industries

The heavy engineering equipment segment is expected to represent a total incremental opportunity of $1.92 billion over the next five years. The segment is anticipated to reach $16.2 billion by 2027 from $14.3 billion in 2022, at a CAGR of 2.7%. The need for industrial lubricants is rising as a result of increasing industrialisation and increased use of machinery.

Figure 26: Heavy engineering equipment segment in the global specialty oil market



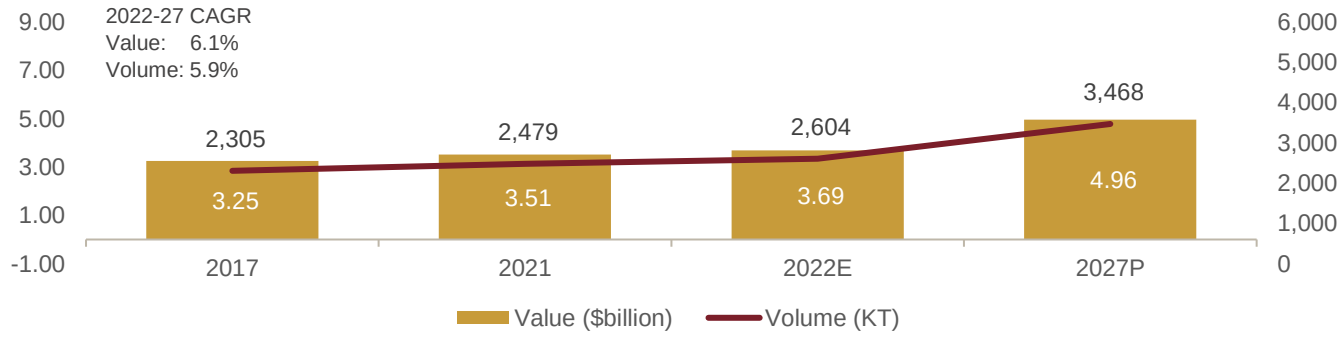
E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

Rising power demand owing to growing population, industrialisation and urbanisation boosts T&D segment

The transmission & distribution segment is expected to represent a total incremental opportunity of $1.27 billion over the next five years. The segment is anticipated to reach $4.96 billion by 2027 from $3.69 billion in 2022, at a CAGR of 6.1%. By end-user, the transformer oil market is expected to be dominated by the T&D segment over the forecast period. It is anticipated that the T&D line extension will increase demand for electrical equipment and thus raise the need for transformer oil.

Figure 27: Transmission & distribution segment in the global specialty oil market



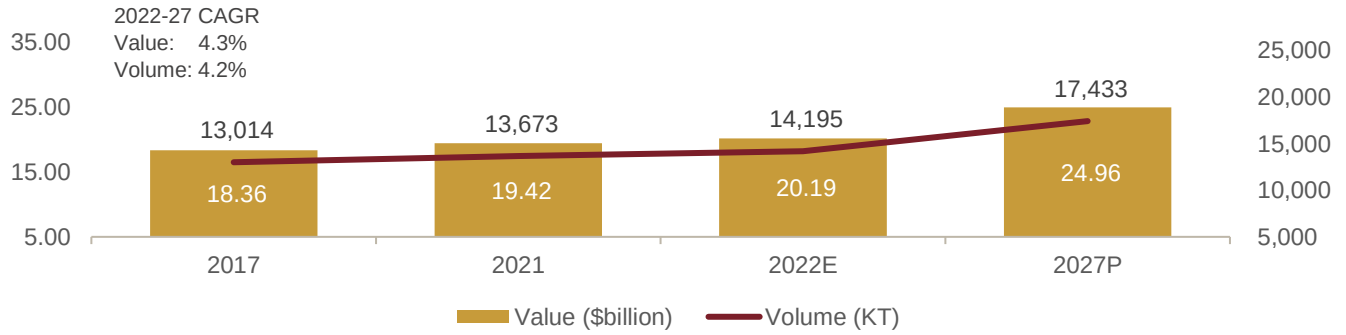
E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

Others segment is expected to grow ~$4.77 billion during the projection period

This segment includes polymers, textile, adhesives, rubber processing and lubricants that use specialty oils to perform different functions at different stages. The segment is anticipated to expand at a CAGR of 4.3% to $24.96 billion by 2027 from $20.19 billon in 2022.

Figure 28: Others segment in the global specialty oil market



E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

3.5 Major global players

Market structure analysis

Global white oil market value share analysis by key companies, 2021

The global white oil market is oligopolistic with a few players highly active in the market. The top 10 players account for 40-45% of the global white oil market. Key market players are Calumet Specialty Products Partners, HollyFrontier, ExxonMobil, Shell, Chevron Corporation and TotalEnergies. Major Indian players in the global white oil market are Gandhar Oil, Raj Petro, Apar Industries and Savita Oil, where Gandhar is amongst top 2 white oil players and the only Indian player to rank among the top 5 players globally by revenue. The market also has several small and midsize players that give competition to Tier 1 players. Key market participants are strategically focusing on acquisitions and collaborations to widen their market presence and attain higher market shares. Small and midsize manufacturers are focusing on providing cost-effective and value-for-money products to improve their market penetration. With growing consumer awareness, demand for high purity ingredients in consumer products is rising at rapid rate and smaller players find it difficult to provide such quality.

Global automotive oil market value share analysis by key companies, 2021

The global automotive oil market is consolidated, with a few large players holding a majority of the share. Key players are Shell, Valvoline, BP, ExxonMobil, and Total Energies. The top 10 players account for 65-70% of the market. Driven by stringent vehicle emission norms, demand for high-purity automotive oils is rising rapidly. This hinders the entry of small-scale manufacturers into the market. Key manufacturers are all set to relish this opportunity. Manufacturers are expanding their geographic presence, product portfolio and production capacity to cater to the growing demand.

Global transformer oil market value share analysis by key companies, 2021

The global transformer oil market is consolidated, with a few players highly active in the market. Major players are ExxonMobil, Nynas AB, Apar Industries, Phillips 66 and Chevron Corporation. The top 10 players account for 40-45% of the global transformer oil market.

Global industrial oil market value share analysis by key companies, 2021

The global industrial oil market is consolidated, with a few companies highly active in the market. ExxonMobil, Shell, Phillips 66, TotalEnergies and Chevron Corporation are the major players. The top 10 players account for 42-46% of the global industrial oil market.

3.6 Global market trends

Market gradually moving towards consolidation

Leading multinational corporations predominate the market. A barrier to entrance is a high capital requirement. The market, which is tough for small firms to enter, is headed toward consolidation as existing players grow larger.

Volume-driven business

Suppliers need to achieve scale to remain competitive as volume drives margin. Manufacturers from end-use industries such as pharma, personal care, food processing, automotive and power depend on procurement of large volumes.

Focus on adherence to quality norms

The global lubricant market is undergoing a structural change due to increasing regulations on emissions and quality standards in several segments, including marine, industrial, and automotive. The white oil market, especially for pharma, food, and consumer applications, is highly regulated, and suppliers are required to comply with the globally accepted standards. As a result, manufacturers are switching from Group I lubricants, the least expensive but lowest-quality base oil grade, to Group II and Group III grades.

Growing demand for index-based pricing

Growing number of customers are demanding index-based pricing. Leading companies are increasingly adopting index-linked pricing and therefore can offer their customers competitive pricing contracts. Several smaller companies do not have adequate transparency in their pricing policies, and the changes are either arbitrary or purely based on historical price trend.

Partnerships, mergers and acquisitions, and new activities related to product launches

To remain competitive and fortify their positions on the global stage, key firms are concentrating more on partnerships, mergers, organic growth, and other operations. Key market participants are also introducing new products to compete with their counterparts.

3.7 Global market growth drivers

Robust growth in end-user industries and increase in R&D to drive market growth

Over the past few years, there has been immense focus on R&D, innovation, and product development across all major end-user industries, particularly those linked to lifestyle products. Additionally, businesses are concentrating on creating items with greater efficacy due to the modern R&D infrastructure. The expansion of government funding and R&D infrastructure opens doors for creation of innovative, cost-effective white oil-based goods.

There is rising demand for premium products based on user awareness, social status and lifestyle upgrade, particularly personal care, and beauty products. This is expected to propel demand for white oils, which are used in hair care products, lotions, creams, etc.

Growing consumerism

The global middle class is expected to reach 5.5 billion by 2030. While developed countries are mostly replacement economies, developing countries have both a growing consuming population and a growing economy. Middle class spending is expected to reach $64 trillion by 2030, driven by growing consuming classes in emerging economies.

Focus on health and hygiene consciousness

The Covid-19 epidemic has accelerated the worldwide trend of rising hygiene and health consciousness. To prevent the spread of illnesses in professional settings, there is a higher understanding of the value of preventative measures, proper hand hygiene, cleaning procedures, and hygiene solutions. The demand for white oil is

anticipated to rise as a result. The decline in global poverty, rise in disposable incomes and living standards, and improvement in healthcare access have a beneficial effect on demand.

Uninterrupted power supply vital for end-use industries

The power generation sector is poised to grow on the back of rising demand for reliable power supply. In industries that rely heavily on power, even a brief power outage can cause equipment damage as well as decreased productivity, resulting in customer and revenue loss. Power outages can be caused by inefficient heavy machinery operation as well as unanticipated equipment downtime. As a result, reducing unscheduled downtime is a top concern in the power generation business, to maximize production and profitability. Proper lubrication ensures the operational effectiveness of numerous machines in the power generation business, resulting in highly reliable equipment. Since industrial oils are required to keep operations running smoothly, the demand for these oils will rise in tandem with the expansion of the power generation industry, which is predicted to multiply in the years to come.

Expansion of electrical grids to drive power sector and thereby transformer oil demand

With increasing economic development, access to electricity and development of related infra are among the topmost priorities of nations. In line with this, there is a strong trend of expansion and development of electrical grids in developing nations, and upgradation of these grids in developed economies. Apart from social development, the above trend is also fuelled by increasing urbanization and growing penetration of electric appliances in the market with rising disposable incomes.

Growing automotive industry to boost demand for automotive oils

The global automotive industry has shown moderate growth. During the projected period, rising automobile production and sales are anticipated to be some of the key drivers boosting the market for automotive oil. Emerging economies are expected to have higher levels of automotive production than industrialized nations, because of rising urbanization and steady economic conditions.

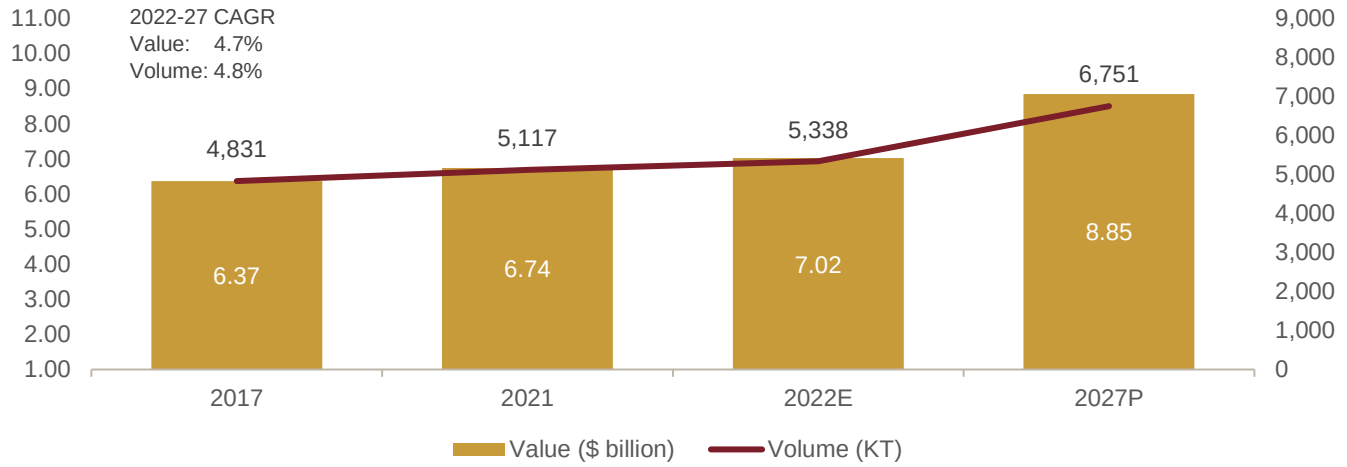
Increasing demand and usage of heavy equipment in construction, mining, and agriculture industries to aid market

Increased private sector investment, real estate sector growth, residential and commercial infrastructure development in emerging countries is driving the heavy engineering equipment market. Furthermore, the expansion of government infrastructure development projects and public-private partnerships for public infrastructure system construction in countries such as the United States, India, and China has aided market growth.

4 Overview of the Indian specialty oil industry

The Indian specialty oil market is estimated to be $7.0 billion in 2022 and reach $8.85 billion by 2027, at a CAGR of 4.7%. In terms of volume, the market is estimated to be 5,338 kilo tonne (KT) in 2022 and reach 6,751 KT by 2027, at a CAGR of 4.8%.

Figure 29: Indian specialty oil industry's trajectory



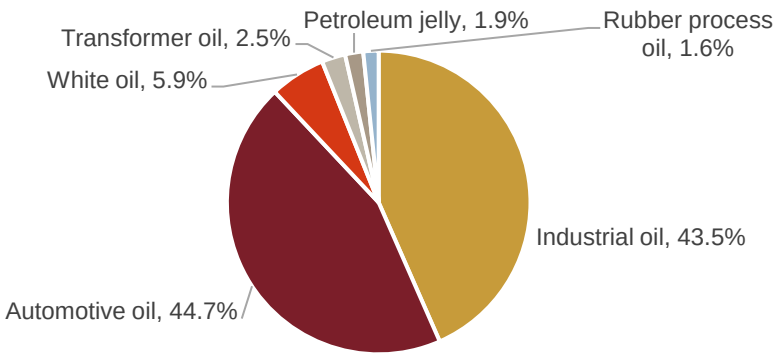
E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

4.1 Indian specialty oil industry by product type

White oil is expected to be the fastest-growing segment over the forecast period, given the favourable outlook for end-user industries amid rising focus on product safety and awareness about health and hygiene. In terms of market share, automotive oil holds the largest share, although the market is expected to provide relatively slow and sustained growth rate. Industrial oil represents the second-largest product category by market size.

Figure 30: Indian specialty oil market share by product type (2021)



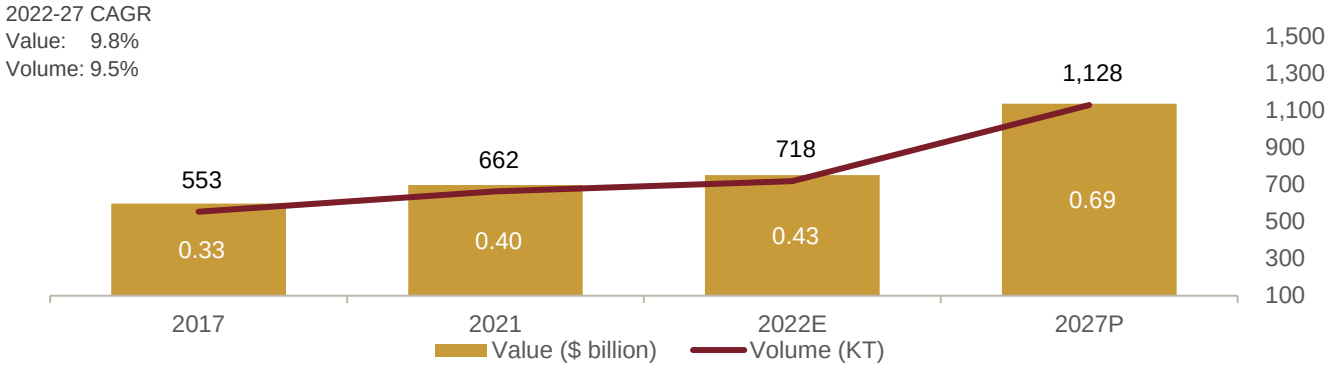
Source: CRISIL Research

Pharmaceuticals and consumer to drive the Indian white oil market

White oil, the fastest-growing segment of the Indian specialty oil market, is estimated to be worth $0.43 billion in 2022 and reach $0.69 billion by 2027, at a CAGR of 9.8%. In terms of volume, it is expected to reach 1,128 KT by 2027 from 718 KT in 2022, at a CAGR of 9.5%. One of the categories in this area that is growing particularly

quickly is personal care and cosmetics. The market is anticipated to be driven by improving standard of living and rising demand for cosmetics. The other growing category is pharmaceuticals. Government initiatives such as the PLI scheme, expertise in low-cost generic patented drugs, quality service at a low cost compared with the US, Europe, etc., and strong domestic demand are the key drivers of the Indian pharmaceutical market.

Figure 31: Indian white oil market



E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

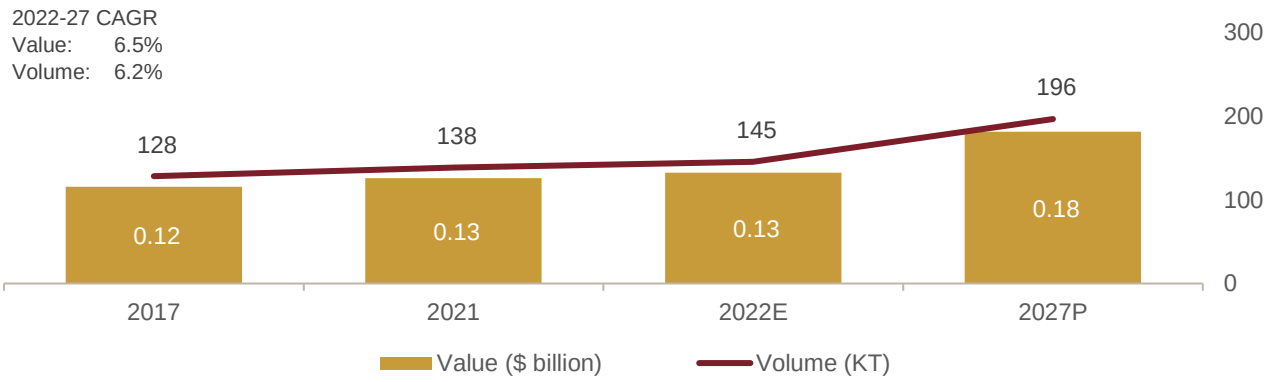
Indian manufacturers export white oil across APAC, Europe, and MEA

Key Indian white oil manufacturers, such as Gandhar Oil, Raj Petro, Apar Industries and Savita Oil, export their products to customers located across APAC, Europe, MEA and America. Key importing countries in APAC include Indonesia, Vietnam, Bangladesh, Sri Lanka, and Australia. In Europe, companies are exporting to countries such as Italy, Spain, Georgia, and Poland while in MEA (Middle East & Africa), Tanzania, Kenya, Nigeria, South Africa, Ghana are the top export destinations. Canada and US are the major importing countries in America. African and Asian countries will continue to rely on imports because of the growing end-use applications and the limited or non-existence of domestic manufacturers of white oils.

Use of petroleum jelly is anticipated to drive rising demand because of changing living standards and growing economy

The petroleum jelly market is expected to expand at a CAGR of 6.5% to $0.18 billion by 2027 from $0.13 billion in 2022. The expansion of end-use sectors such as pharmaceuticals, cosmetics and personal care, and food is likely to have a positive impact on petroleum jelly sales revenue in the future.

Figure 32: Indian petroleum jelly market



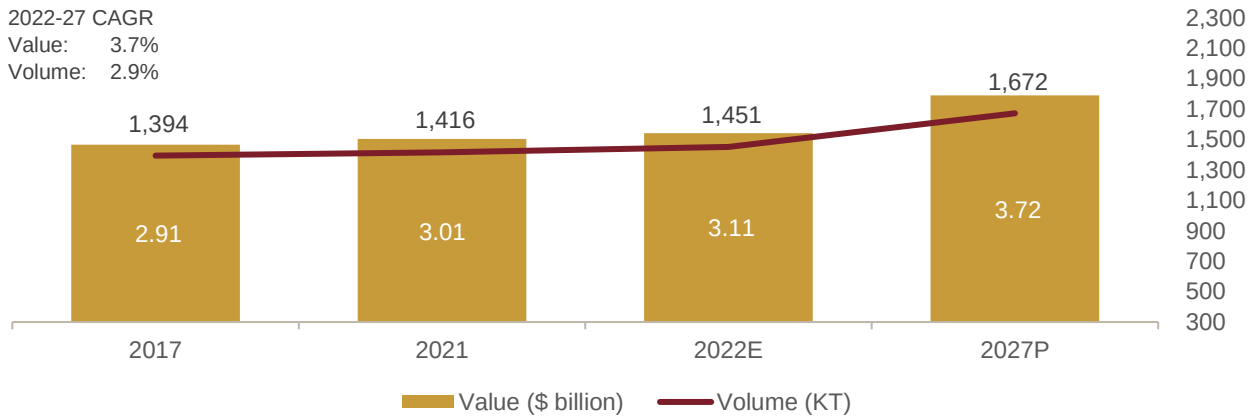
E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

Rebound in vehicle sales to support automotive oil market growth

The Indian automotive oil market is estimated to be worth $3.11 billion in 2022 and reach $3.72 billion by 2027, at a CAGR of 3.7%. Further, in terms of volume, the market is estimated to be 1,451 KT in 2022 and reach 1,672 KT by 2027, at a CAGR of 2.9%. High performance requirements in the vehicles and extended lifetime and protection of the automotive systems are leading the automotive oil market demand.

Figure 33: Indian automotive oil market



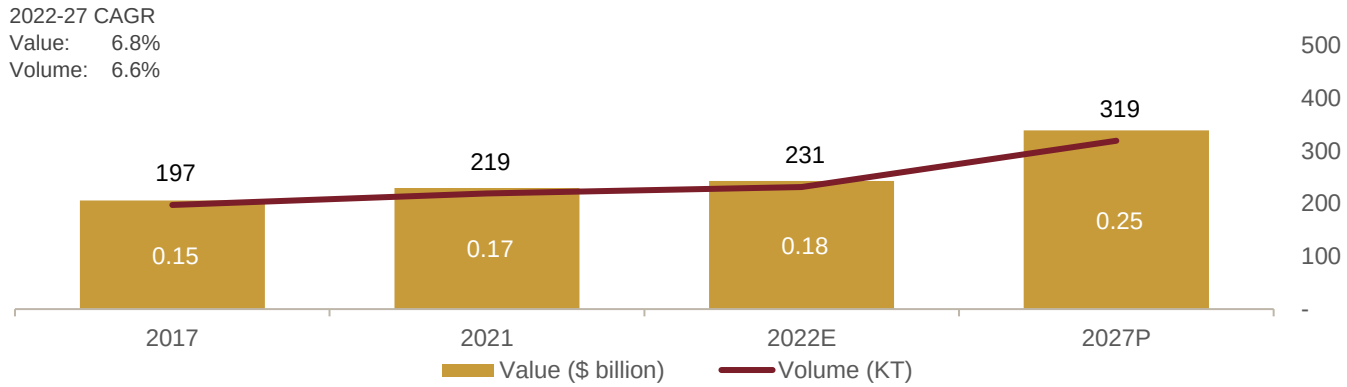
E: Estimated; P: Projected | Data for each calendar year

Source: CRISIL Research

New transformers and switchgears because of the grid network and T&D system growth will drive demand for transformer oil

The Indian transformer oil market is estimated to be worth $0.18 billion in 2022 and reach $0.25 billion by 2027, at a CAGR of 6.8%. This growth will be driven by the expansion of the T&D system and grid network to meet the expected rise in power consumption brought on by rapid industrialization and urbanization.

Figure 34: Indian transformer oil market



E: Estimated; P: Projected | Data for each calendar year

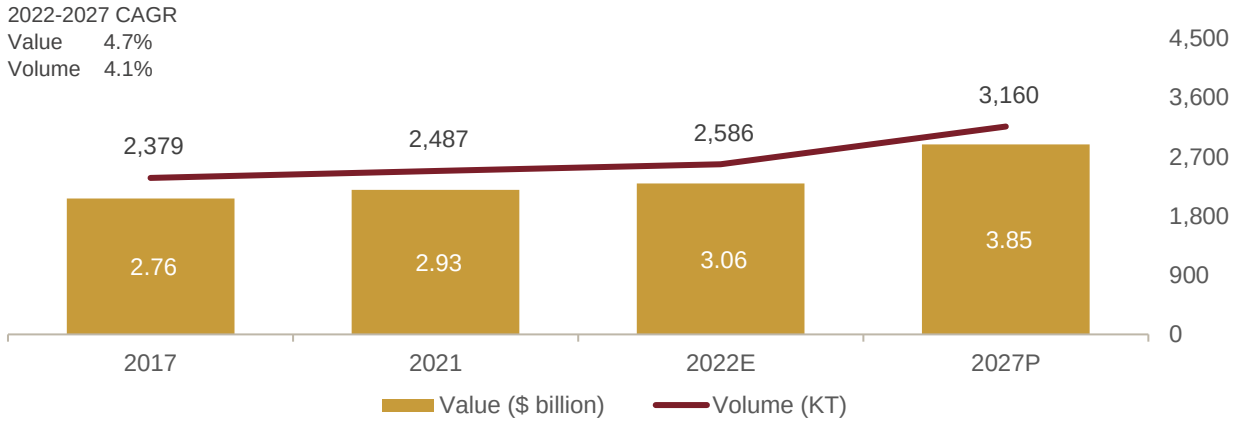
Source: CRISIL Research

Industrial oil market in India is expected to grow by $790 million in the next 5 years

Industrial oil market in India is estimated to be worth $3.06 billion by 2022-end and is expected to further grow to $3.85 billion in 2027 at 4.7% CAGR. On volumetric basis, it is expected to expand to 3,160 KT by 2027 from 2,586 KT in 2022, increasing at 4.1% CAGR. The substantial use of industrial oil in the power generation industry to

increase power plant productivity boosted its demand. Further, increase in demand of heavy engineering equipment in construction, mining, and agriculture industries will boost the market of Industrial oil in India.

Figure 35: Indian industrial oil market



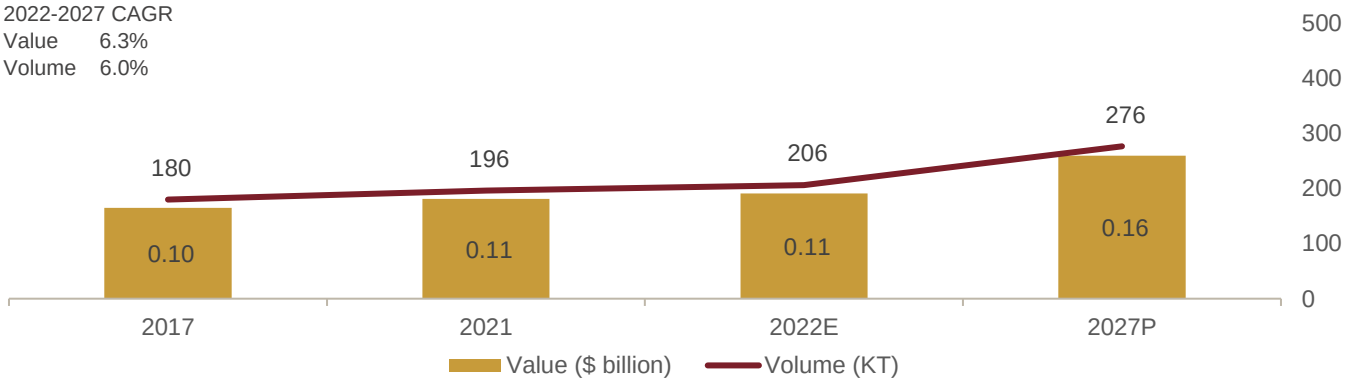
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Increasing demand from tyre industry and footwear segment to boost rubber process oil market

The rubber process oil market is expected to grow with a 5-yr CAGR of 6.3% to reach $0.16 billion in 2027 from $0.11 billion in 2022. Based on volume, the market is estimated at 206 KT in 2022 and projected to reach 276 KT by 2027, growing at 6.0% CAGR. The demand for rubber process oil in rubber processing is projected to increase as more industrial and automotive items, including tyre and other products, and footwear made with rubber, are used in India.

Figure 36: Indian rubber process oil market

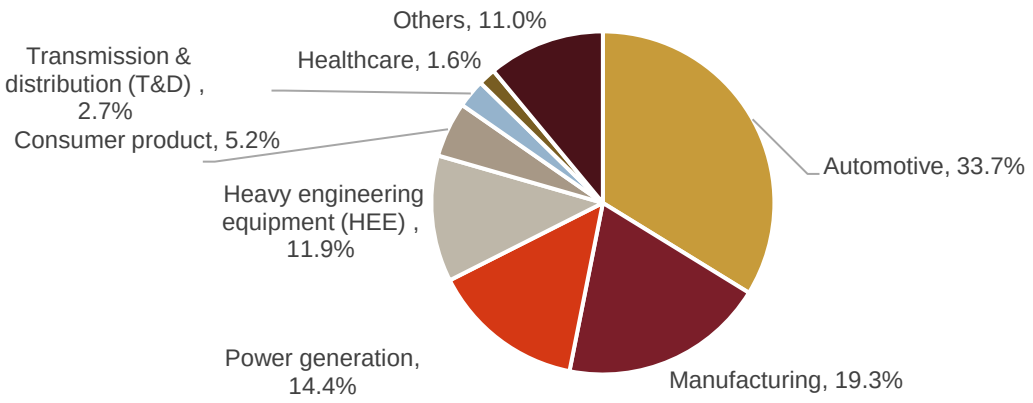


E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

4.2 Indian specialty oil industry by end-use segment

Figure 37: Indian specialty oil market share by end-use segment in 2021



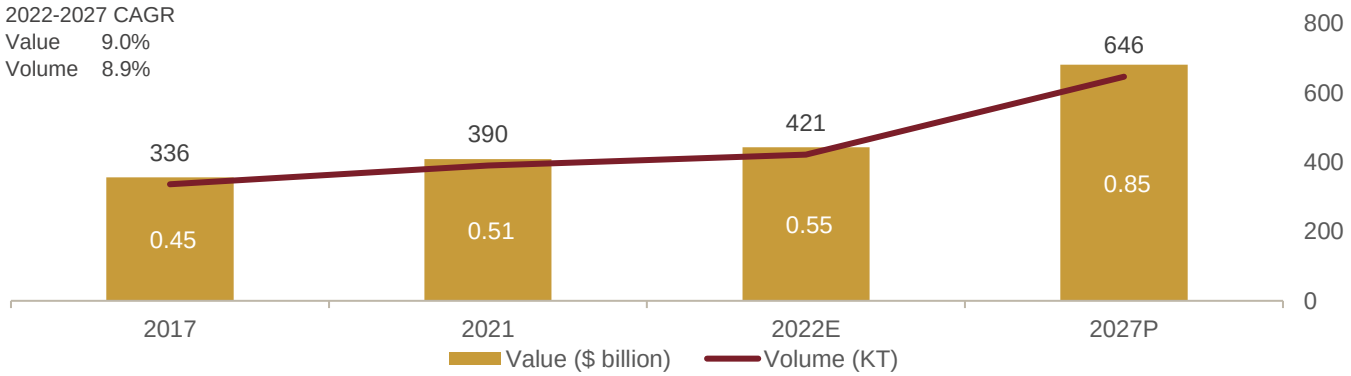
Consumer segment includes food & beverages (0.7%) and beauty & personal care (4.5%)

Source: CRISIL Research

Consumer product segment to benefit from upgrading lifestyle, growing awareness, and easier access

The consumer product segment is expected to grow at 8.6% CAGR, reaching $0.85 billion by 2027 from $0.55 billion in 2022. The market volume is estimated to be 421 KT in 2022. This is expected to grow by 8.9% CAGR over the next 5 years, reaching 646 KT by 2027. One of the key elements affecting the market for beauty and personal care goods in India is the growing emphasis on personal looks, social status, personal hygiene, and wellness supported by the rising income levels. Increasing gourmet brands, growth in the dairy and bakery products, demand for packaged food and healthy alternatives, and growth in the nutraceutical market are some of the key market drivers of the food & beverages segment in India.

Figure 38: Consumer segment in Indian specialty oil market



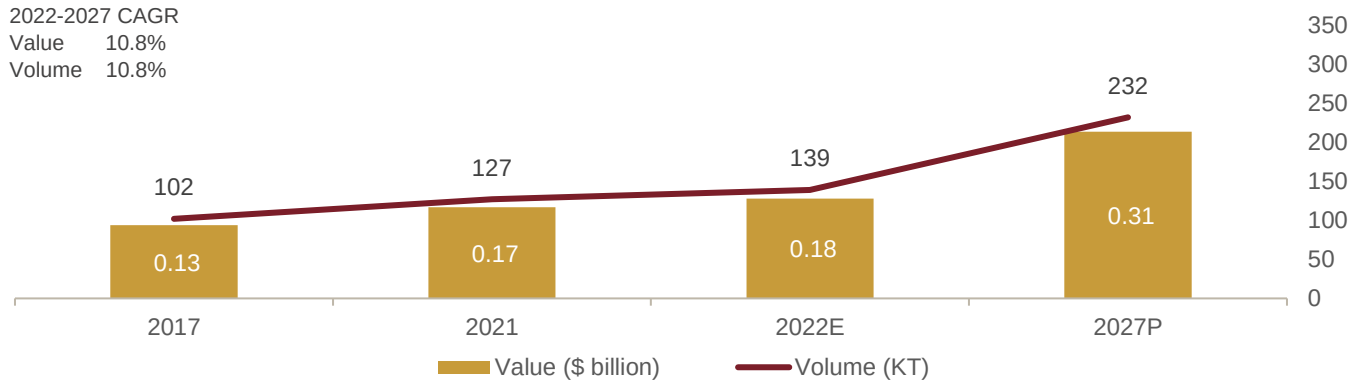
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Indian healthcare segment to reach $310 million during 2022 to 2027

Total demand from the healthcare sector is expected to be $0.31 billion in 2027, ~70% higher than $0.18 billion in 2022. This growth represents 10.8% CAGR over the next five years. Further, specialty oil demand from the healthcare sector is expected to rise to 232 KT by 2027 from 139 KT in 2022, exhibiting 10.8% CAGR. The pharma industry holds a strong growth outlook on the back of increased awareness for health, hygiene and vaccination. Demand gets a boost from the increasing insurance penetration and medical spending.

Figure 39: Healthcare segment in Indian specialty oil market



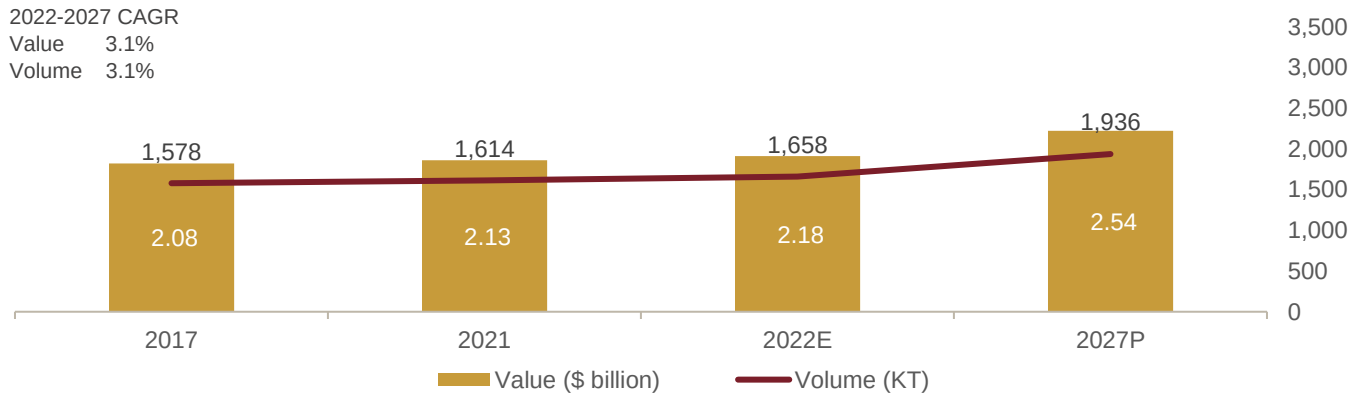
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Automotive segment in India is expected to grow by $360 million in the next five years

India's automotive segment is expected to grow at 3.1% CAGR, reaching $2.54 billion in 2027 from $2.18 billion in 2022. On a volumetric basis, we forecast it to reach 1,936 KT in 2027, expanding at 3.1% CAGR. Overall demand of the automotive oil market in India is driven by commercial vehicles. The sector outlook remains positive on the back of the improving economic outlook in the long run. Further, India is also in focus as ab investment destination for lubricant projects by several international players, which supports the sector's export outlook.

Figure 40: Automotive segment in Indian specialty oil market



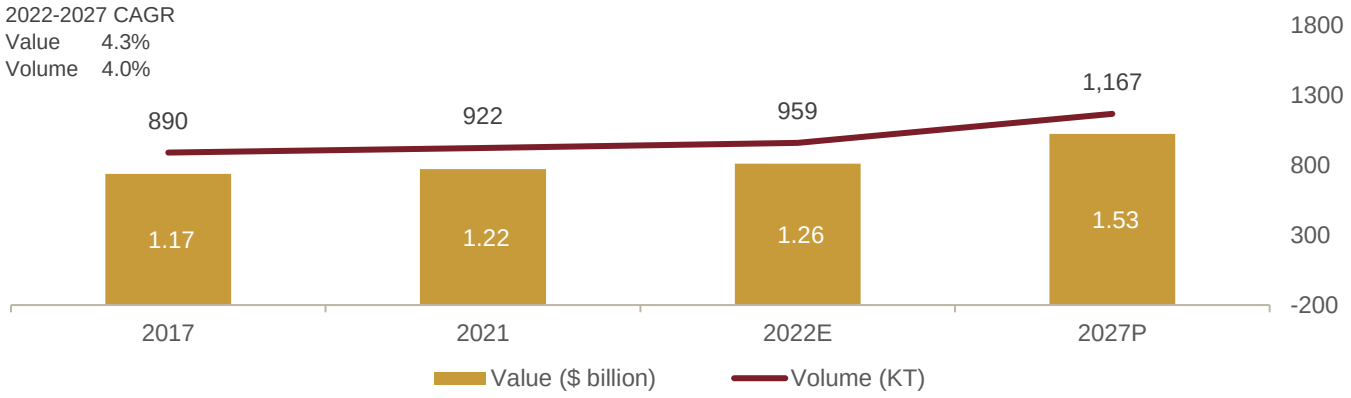
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Manufacturing sector demand foreseen at 1,167 KT volume by 2027, valued at $1.53 billion

The manufacturing sector had the second largest market share in the Indian specialty oil market in 2022, with a value of $1.26 billion. In India, the manufacturing industry is experiencing rapid expansion via government support as well as increasing investment from foreign manufacturing ventures.

Figure 41: Manufacturing segment in Indian specialty oil market



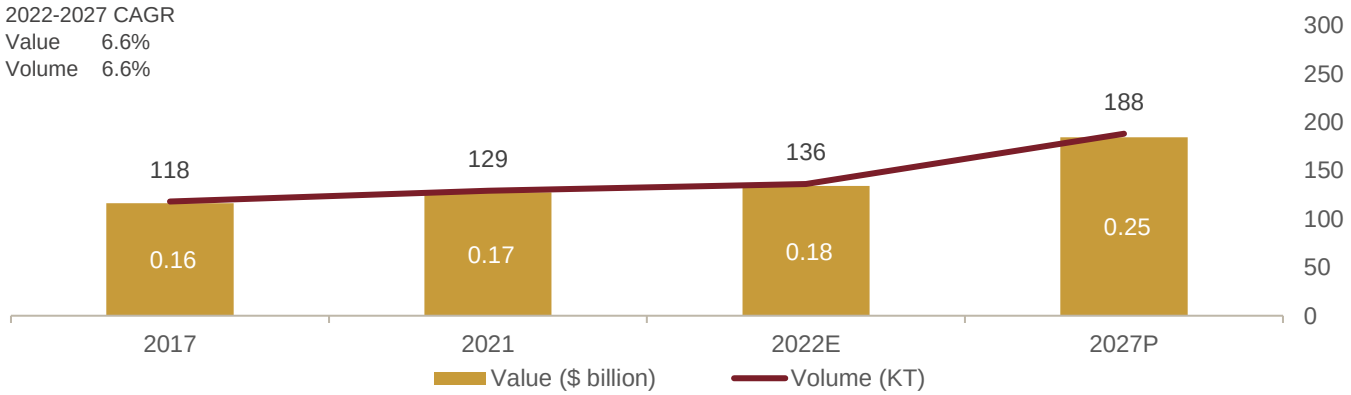
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Demand from T&D sector to increase by $70 million due to rising power demand and electricity access

The T&D segment in India is estimated at $0.18 billion in 2022 and is expected to grow at 6.6% CAGR, reaching $0.25 billion by 2027. India is investing in expanding the T&D system and grid network to meet the expected rise in power consumption brought on by quick industrialization and urbanization.

Figure 42: Transmission & distribution segment in Indian specialty oil market



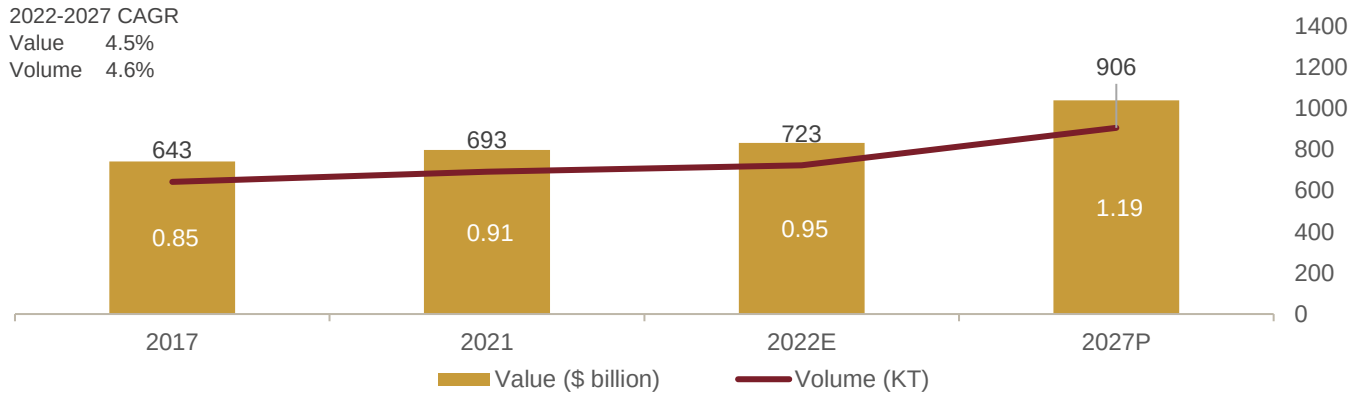
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Power generation sector estimated to reach $1.19 billion and 906 KT by volume in 2027

Power generation segment will grow from an estimated at $0.95 billion in 2022 to reach $1.19 billion in 2027, expanding at 4.5% CAGR. From reliable non-conventional sources such as wind, solar, and household and agricultural waste to conventional sources such as coal, lignite, natural gas, oil, hydropower, and nuclear power, the demand for power in India has risen quickly and is anticipated continue growing in the years to come.

Figure 43: Power generation segment in Indian specialty oil market



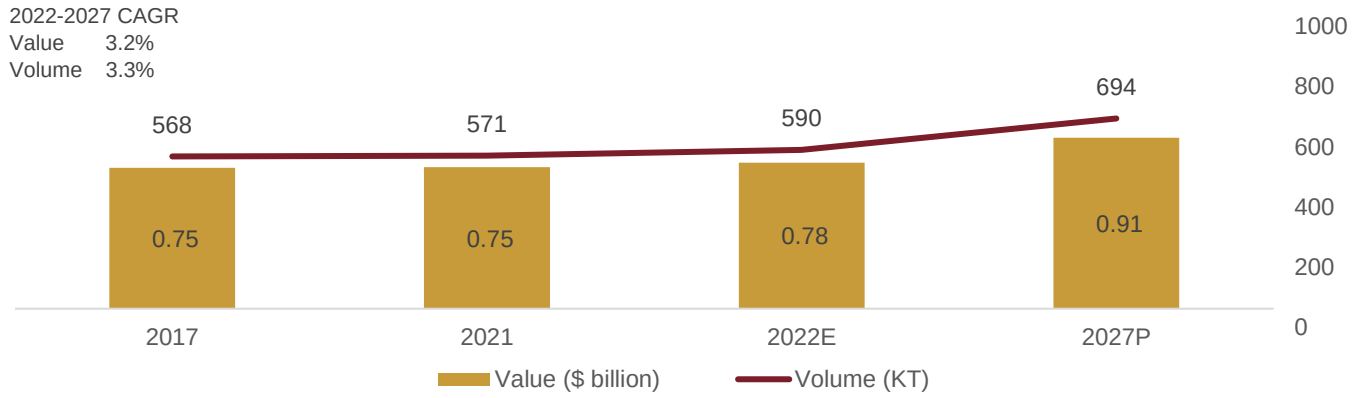
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Growing industrialization and infrastructure to boost heavy engineering equipment

The heavy engineering equipment sector in India was valued at $0.78 billion in 2022 and is expected to reach $0.91 billion by 2027, increasing at 3.2% CAGR. A considerable increase in industrial activity will enhance the usage of machinery in the sector.

Figure 44: Heavy engineering equipment segment in Indian specialty oil market



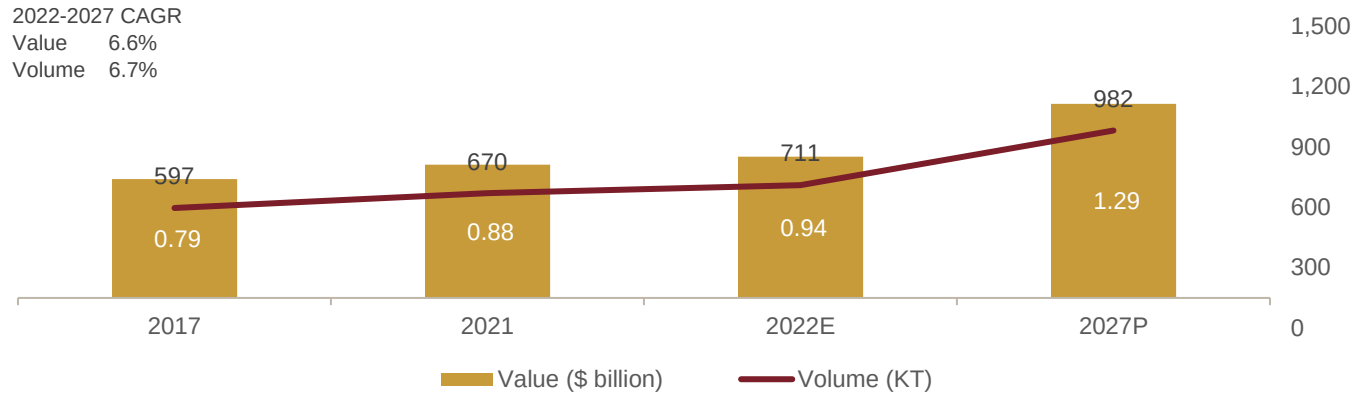
E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Use for specialty oils to grow at healthy pace in other segments

Other segments include polymers, textile, adhesives, rubber processing lubrications and others, which utilize these oils to perform different functions at different stages. It is expected to reach $1.29 billion by 2027, growing at 6.6% CAGR. In 2022, its value was USD 0.94 billion, and volume was 711 KT.

Figure 45: Other segment in Indian specialty oil market



E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

4.3 Key growth drivers for Indian specialty oil industry

The Indian specialty oil industry is expected to reach $8.85 billion in 2027 from $7.02 billion in 2022, exhibiting a 5-year CAGR of 4.7%. The market expansion is being driven by the encouraging growth demonstrated by a broad range of end-use sectors, the steady increase in foreign direct investment, as well as growing government initiatives to support the country's economy.

Favourable demographics

India is one of the fastest-growing energy-consuming countries in the world. The country has a population of over 1.3 billion, which is to reach 1.5 billion by 2030 with number of households reaching ~376 million. Rising urbanisation is one of India's most important economic growth drivers since it will drive substantial investments in infrastructure development and support job creation, boost consumer spending and aid economic growth.

The country's urban population was 34% of total population as per the 2018 revision of World Urbanization prospects. The statistic is expected to reach 37% by 2025. This supports the country's strong consumption profile.

Rising disposable income

India's per capita income, a broad indicator of living standards, clocked ~5.4% CAGR between fiscals 2013 and 2020, rising from Rs 65,538 to Rs 94,566. While the number dipped in fiscal 2021 because of the pandemic, it bounced right back in fiscal 2022 to reach pre-pandemic levels. Per capita income increased 8.4% over fiscal 2021 to reach Rs 93,973 in fiscal 2022. Rising disposable incomes can lead to increased consumption and spending on personal care and wellness.

Government initiatives

The Government of India has launched PLI schemes for 14 sectors, which includes pharmaceuticals, food products, auto (automobile and auto components), and textiles. The scheme is expected to attract investment, enhancing core competency, and bringing cutting-edge technology, ensuring efficiencies, creating economies of scale, enhancing exports, and making India an integral part of the global supply chain. Government initiatives for infrastructure development and manufacturers extending their production capacities are projected to propel India's lubricant market in the near future.

Adoption of supply-chain derisking strategy

China currently controls a significant portion of the global supply of lubricants. However, the Indian lubricant industry is anticipated to have a swift increase in foreign investment because of the strategy of companies across the world, and particularly in Europe, to derisk the supply chain.

Growing end-use applications

Pharma and consumer sectors poised for high growth

Factors such as government initiatives for development of local manufacturing infrastructure and reducing dependency on imports, growing penetration of sales channel in tier 3 and 4 cities, rising living standards, and growing awareness about hygiene would drive growth across sectors such as pharma, personal care, and food and beverages.

Increasing demand for two-wheelers, passenger, and commercial vehicles to aid automotive segment

By 2030, India is expected to be the third-largest automobile market globally in terms of volume. The Indian automotive market will be driven by rising income, a younger population, increasing vehicle penetration, growing R&D hubs, and government initiatives in the automotive sector. The latter includes Amtanirbhar Bharat Abhiyaan and PLI scheme to boost manufacturing of advanced automotive technology products and attract investments in the automotive manufacturing value chain. Other significant growth drivers of the Indian automotive business include easy access to credit and financing, low-cost steel manufacturing, flourishing logistics and passenger transport sector, and the availability of cheap labour.

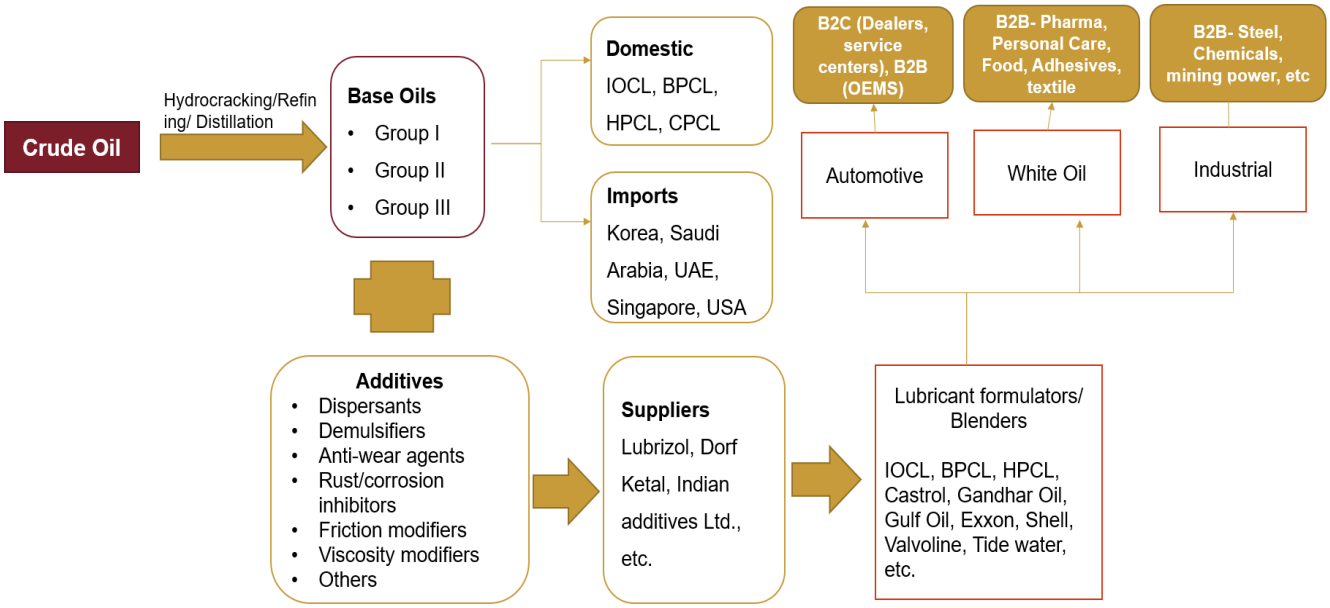
PLI scheme to provide boost to industrial investments in the short to medium term

Construction spends across industrial investments in fiscal 2023 are seen rising 6-10% due to a high base in fiscal 2022 where the sector grew due to deferred investments from fiscal 2021 and capex investments from the PLI scheme coming online. Based on an analysis of eight key sectors, CRISIL Research estimates construction investment in the industrial segment at Rs 3,200 billion between fiscals 2023 and 2027, rising 1.2 times over spends seen in fiscals 2018 to 2022. The rise in investments is projected due to inclusion of PLI scheme in the capex investments of industrial sector.

5 Supplier of raw materials

5.1 Supply chain flow chart for oil

Figure 46: Typical supply chain in Indian market



Source: CRISIL Research

Assessment of base oil supply

Group I base oils have higher sulphur content (>0.03%) and less than 90% saturates which makes them less preferred compared to Group II and Group III base oils. Prior to being used to create white oils, Group I base oils must undergo a lengthy purifying procedure. As a result, it is more expensive to produce white oils from Group I base oils. In addition, the supply of Group II and Group III base oils have grown while that of Group I base oils has shrunk. Since Group I base oils have a greater processing cost, white oil providers favour the Group II over the former. Additionally, Group II base oils are usually chosen over Group III base oils due to the latter's higher price. The selection of base oils to produce white oils also depends on the grade of base oil's availability and intended end use.

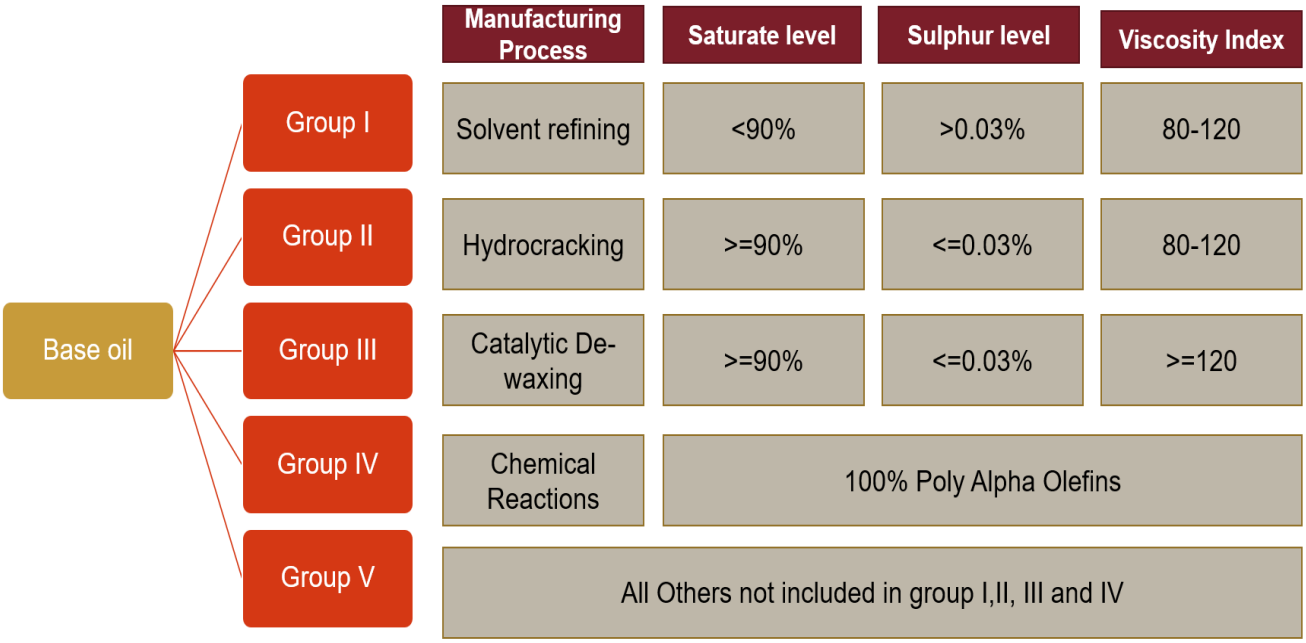
The Asia-Pacific region account for ~48% of the global base oil supply. China presently has the largest capacity in the Asia-Pacific, accounting for nearly 21% of total global production. South Korea is the second-largest producer of base oil in Asia, contributing almost 12% of global output. Together, Japan, South Asia, Australia, and other Pacific nations make up more than 15% of the global capacity. India is primarily import-dependent for base oil since domestic production accounts for 26-30% of the total requirement. Leading specialty oil manufacturers in India import base oil due to host of factors such as volume assurance, unavailability of specific grades, flexibility in credit period.

Import of key base oil grades

Key lubricant manufacturing companies in India directly import base oil stocks from refiners since they require significant volumes annually. However, other companies, which have relatively smaller requirements, procure base oil via traders. Majority of base oil imports to India are sourced from the Middle East and South Korea, which account for 65-70% of total imports. Some of the key base oil grades being imported to India across Group-I base oils are SN-150, SN 300, SN 500; Group-II grades such as N-150, N-500, Aramco Prima; and Group-III grades

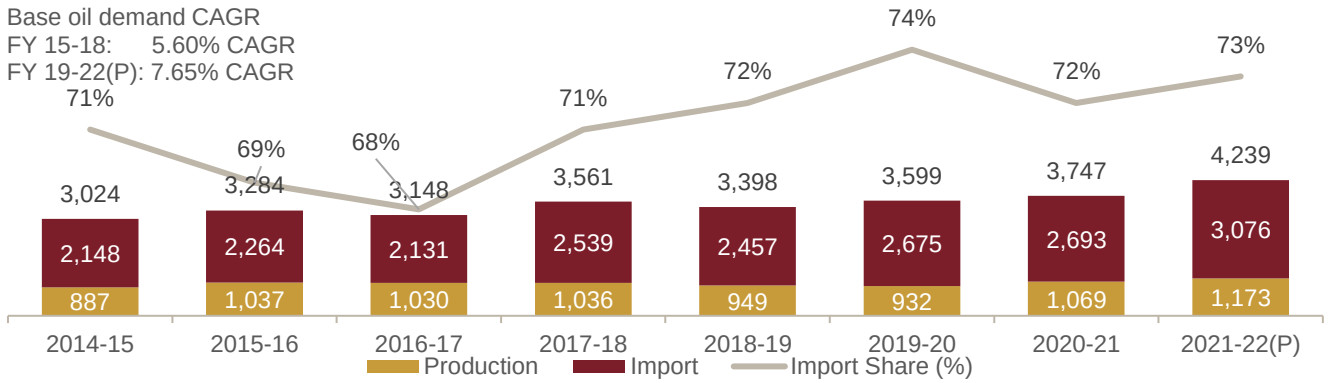
such as Aramco Ultra 2,3 and 8. These grades find applications in formulation of white oil, automotive and transformer specialty oil.

Figure 47: Base oil classification



Source: CRISIL Research

Figure 48: Base oil demand in India by source of supply (thousand metric ton)



Source: PPAC, CRISIL Research

The average share of imports in the base oil market remained at 72-74% over the past eight fiscal years. Base oil demand has seen a significant boost since India's adoption of Bharat Stage VI (BS-VI) norms in April 2020. Demand increased 4% in fiscal 2021. To meet the new emission standards, original equipment manufacturers (OEMs) will need to incorporate several hardware changes. Therefore, demand for base oil is likely to rise in India as more people drive vehicles that adhere to BS-IV emission standards.

India still lags other countries in terms of its industrial facilities and more than 70% of India's base oil needs are met by imports from the UAE, Saudi Arabia, South Korea, United States, and Singapore. Also, major international companies such as Repsol, Shell and Exxon are expressing greater interest to invest in the domestic market. India's base oil demand is anticipated to increase significantly over the next five years because of trade, Group I

base oil plant closures, a switch to better-performing heavy group base oils, the addition of new plant capacities, and technological advancements in MEA manufacturing facilities. The pandemic severely affected the market as a whole and the Indian economy. With a consistent CAGR expected in the projected years, the expansion of the market may provide a new player an investment avenue.

5.2 Key base oil manufacturers

Table 5: Base oil manufacturers

S. No	Key base oil manufacturers	Country
1	**Chevron corporation**	U.S
2	**Exxon Mobil Corporation**	U.S
3	**Shell Plc**	U.K
4	**Saudi Aramco**	Saudi Arabia
5	**Sinopec Limited**	China
6	**S-Oil Corporation**	South Korea
7	**SK Lubricants**	South Korea
8	**Ergon Inc**	U.S
9	**Repsol S.A.**	Spain
10	**Avista Oil**	Germany

Source: CRISIL Research

The Asia-Pacific is the dominant region in the global base oil market

The Asia-Pacific is the largest base oil market over the predicted period. Base oil consumption is developing in the region because of rapid urbanisation, rising disposable income, and increased industrialisation in the automotive, food processing, cosmetics, textile, and other manufacturing sectors. APAC's largest base oil market throughout the predicted period will be China. This can be ascribed to rising demand from the automotive and transportation industries. Rising mining activity, as well as manufacturing and machinery industries, are supporting the country's base oil market's rapid expansion. The market is also being fuelled by the availability of cheap labour and raw materials.

5.3 Importance of suppliers in the supply chain

The selection process for a specialty oil supplier is an important consideration for end users. Identifying strengths and weaknesses is crucial to the success of participants across the value chain such as OEMs, distribution channel partners and end users. Performance and quality of the completed product are largely determined by the component of finished lubricants or specialty oils.

Supply of relevant grades

Some applications involve specific attributes such as thermal stability, viscosity, purity levels, volatility, and capacity to dissolve additives and impurities. These are just a few of the performance characteristics that significantly impact the finished product. Given the specifications involved, there are limited suppliers with requisite competency to meet the requirements as Indian suppliers do not supply high quality base oil grades. Therefore, partnering with the most competent specialty oil supplier in these situations can aid in ensuring the best supply. Suppliers' understanding of the importance of quality can help the specialty oil manufacturers continually maintain reputable quality, despite market trends. Procurement of relevant grades of specialty oil is critical for manufacturers of end-use products or OEMs.

Quality assurance

Many businesses need a variety of specialty oil recommendations for various applications and procedures that may be spread out over several different locations or even be centralised at a single huge industrial facility. They require a specialty oil supplier with a track record of success in a variety of markets and industries. Utilising specialty oils that have been produced in facilities adhering to international industry standards and have passed quality tests, is crucial for risk reduction (subject to third-party audits). At the same time, it becomes essential for suppliers to adhere to a variety of regulations, registrations, and standards. Quality assurance is very important for white oils used in industries such as personal care, pharmaceuticals, and food, as the end products are either ingested or meet human skin.

Supply guarantee

A supplier's competitive advantages help manage the supply chain effectively. Also, the complexity and cost of the supply chain can be decreased by carefully choosing base oil providers. Therefore, evaluation of a supplier's capacity to deliver goods and services is a crucial part of the selection process. Suppliers' product mix, capacity and geographic diversification are some of the key criteria. Suppliers with large quantities and multiple plants reduce the necessity of expensive requalification testing. Partnering with a specialty oil supplier having large capacity and operations footprint enables customers to receive products in different regions in a timely manner.

Pricing transparency

It is important for the manufacturer to procure specialty oil at fair price as this impacts the competitive positioning of the manufacturer in the market. Good oil and lubricant manufacturing companies do not compromise on the quality and pricing of their products. Their prices are neither unreasonably raised nor lowered. Leading manufacturers of specialty oils consider index-linked pricing, which is based on a recent historical trade price level for base oil and additive rates as this enables them in the formulation of a transparent pricing policy.

5.4 Overall pricing methodology

Cost structure breakdown for specialty oils

Prices for specialty oils that are included in this research are extremely susceptible to changes in the cost of raw materials. Most of the expense in the cost structure is made up of raw materials like base oils and additives.

- **Base oils**: Base oils are made from crude oil directly. The production, availability and pricing of base oils are all directly impacted by changes in the price of crude oil. More than half of the base oil cost structure is made up of crude oil because the price of crude oil plays a considerable role in determining how much basic oils cost.
- **Additives**: The type of additives used depends on the application and oils used. The proportion of additives changes depending on how many are utilised in the final product.
- **Others**: Remaining costs are split between shipping, packing, storage, blending and filling, as well as several other crucial components.

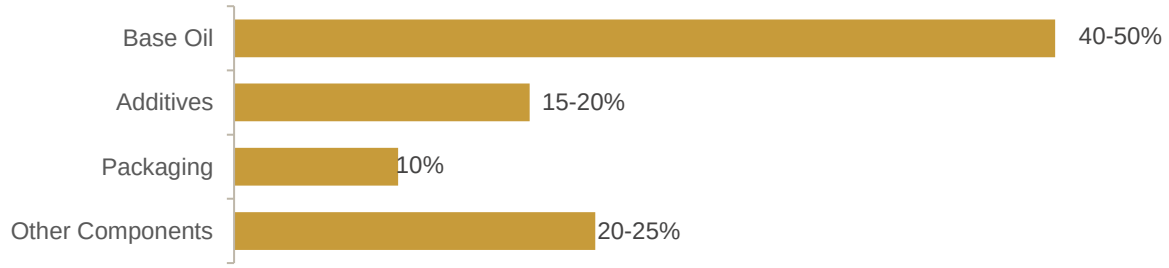
Specialty oil pricing approach

Index-based pricing: The use of a market or raw material index (or group of indices) to calculate and regularly refresh prices is known as index-based pricing. It is usually dependent in situations where the final product is heavily dependent on one primary commodity raw material or made up of multiple volatile additives.

Index-based pricing is the process of calculating and periodically updating prices using a market or raw material index. Index-based pricing emerges to facilitate customer contract negotiations and make it easier for buyers and sellers to sign longer term contracts. It results in a transparent pricing method and fewer hassle of negotiations and assists suppliers in protecting their profits in volatile markets.

Other approach: The other approach involves price formulation by suppliers based on previous raw material price fluctuations and end-use demand growth. Non-index-linked approaches don't consider the present demand and supply conditions of raw materials and offer no insight into future price trends, leading to unfair price formulations that may negatively affect supplier margins.

Figure 49: Specialty oil cost structure breakdown by value



Note: Other components include import duties, manufacturing costs and freight costs
Source: CRISIL Research

Gross margin trend in speciality oil industry

Gross margin spread of the Indian specialty oil market ranges from 13% to 23%. Gross margin of manufacturers is impacted by the volatility of raw material prices, which is further influenced by a host of factors such as global supply and demand scenarios, geopolitical issues, foreign exchange movements, and overall market sentiments. However, leading companies have better risk management practices including index-based pricing, strict inventory control, pass-through contracts to minimise risk in case of supply orders, and financial hedging to minimise the impact of exchange rate volatility.

Key pricing impact factors

Fluctuation in base oil prices

In the specialty oil market, a major component of raw materials is the base oil that is derived from vacuum gas oil, which is by-product of crude oil. Base oil constitutes 40-50% of the price of finished specialty oil products. Since the base oil is derived from crude oil, any increase in crude oil prices would affect the production cost. Increases in production costs as a result could have a detrimental impact on sales volume, in turn, on the financial situation and operational results. Any such increase in raw material costs in the future could have a negative impact on the ability to set competitive prices for products.

Additives

Additives constitute 15-20% of the price of finished specialty oil products. Additives like rust inhibitors, dispersants, anti-wear agents, viscosity index improvers, detergents and demulsifying agents are added improve the performance of products.

Packaging

Packaging cost, which accounts for 10% of the cost of lubricants, is crucial for their safe handling. Packaging cost have continued to rise after Covid-19 due to increase in plastics and steel prices. As these products are being used in the containing and transportation of specialty oil, it has had an adverse effect on the pricing of the products.

Other components

20–25% of the cost of finished specialty oil is made up of import taxes, manufacturing expenses and freight charges. Increasing imports of products has had a negative impact on specialty oil pricing. A significant contributor to this is the cost of shipping, which will inevitably increase as oil prices rise. Cost of manufacturing will continue to rise because of the hike in import tax rate and freight charges.

Economic scenario

Economic elements that can have both a positive and negative impact on a product's pricing include labour costs, changes in currency exchange rates, government fiscal and monetary policies, inflation rates, etc. Deterioration of the economic condition of any region negatively impacts the pricing trends of products, resulting in lower margins and reduced returns. Further, supply chains and production capacities of several sectors have been impacted by the pandemic.

6 Outlook on the specialty oil industry in India

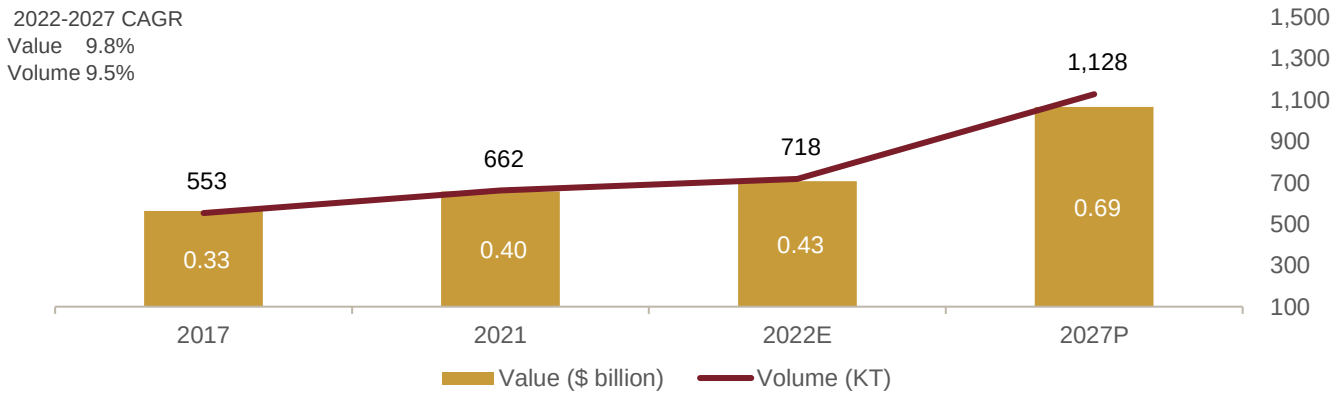
6.1 White oil

Industry size

The Indian white oil market is estimated to be 718 KT at the end of 2022. Market volume is expected to grow to 1,128 KT by 2027, at a CAGR of 9.5% during 2022-2027. Further, the market is valued at $0.43 billion by 2022-end. It is anticipated to grow to $0.69 billion by 2027 at a CAGR of 9.8% over the next five years. Since the consumer segment accounts for 40.4% of the entire Indian white oil market in 2021, growth of this segment and the white oil market are directly correlated. Additionally, from 2022 to 2027, the CAGR of the consumer segment will be consistent with that of the white oil market in India.

Market growth is anticipated to be driven by an improving standard of living and rising demand for cosmetics. White oil also finds significant use in the pharmaceuticals sector. Positive outlook for the pharmaceuticals is one of the key growth drivers.

Figure 50: Indian white oil market size



E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Production process

White oil is an excessively refined mineral oil that is extremely pure, stable, colourless, odourless and non-toxic. Due to these characteristics, it is ideal for pharmaceuticals, cosmetics, and chemical processing. It is not white, but rather crystal clear. Depending on the process, white oils can be made with a variety of feedstocks.

Typical paraffinic basic feedstocks used to produce white oils, are specially purified before use. These base materials range from conventional base stocks for the more ancient acid treatment method, to vacuum gas oils for the more widely utilised two-stage hydro treating technique. Both techniques provide colourless, odourless and flavourless oils that are thermally stable and free of any contaminants that might affect how they are used in future, such as aromatics, sulphur or other pollutants. Purity, lack of colour, odour and taste are just a few of the distinctive qualities that this method yields.

End-use segments

White mineral oil is used in various industries such as cosmetics, pharmaceutical, food and plastics. White mineral oil is used to manufacture products where the safety requirements are high. For instance, white oil used in the

cosmetics and pharmaceuticals industries must be of pharmaceutical quality and cannot include any compounds that are harmful to human health.

In the cosmetics industry, this is typically used as a principal or auxiliary ingredient in the manufacture of various products such as cream and lotion formulations, baby oil, suntanning products, sun blocks, cosmetics, makeup removers, depilatories, and bath oils. In the pharmaceuticals industry, it is used to make laxatives, formulations for ointments/ pomades, and gelatine capsules. It is also used in the veterinary drug sector to create animal vaccines.

White mineral oil is widely used in the food industry as lubricating oils used in the industry must be safe for contact with food and free of potentially harmful ingredients for human health. Products used for this purpose must adhere to tight regulations, satisfy applicable requirements, and get all appropriate certifications. Consequently, white mineral oil is favoured in a variety of food processing steps, especially for producing lubricating oils for use by food and beverage manufacturers. In food processing plants, grease, hydraulic system oils, gear oils, and compressor oils made from white mineral oil are preferred due to their likelihood to come into contact with food products. Another industry that regularly uses white mineral oil is plastics and elastomer. It is employed in the manufacture of polystyrene, PVC, and thermoplastic rubber. White mineral oil may also be found in common household items including glues, toys, wood products, cleaning supplies, lamp oil and glossing and polishing products.

Table 6: White oil application overview in 2021

Key applications	Application usage areas	% Share (by value)
Consumer products	Beauty & Personal Care (BPC): Used as emollients and moisturisers in skin care creams, hair products as hair oils and styling gels, shaving creams, and lotions Consumer food: Food grade white oils are commonly used as a lubricating agent in food processing, releasing agent, and a de-foaming agent	40.4%
Pharmaceuticals	Bases for tropical formulations such pomades, balms, creams, and lotions; a delivery system for injectables, pharmaceutical active components, vaccinations, and laxatives	13.6%
Plastics/Polymers	Extensors, dyes, lubricants, plasticisers, softeners and plasticisers for polythene, rubber and utilised as a catalyst vehicle	17.0%
Adhesives and sealants	Applied in adhesive and hotmelt compositions	8.8%
Textiles	Employed in the production of wool, pulverisation of cotton bales and production of specialised lubricants for textile machinery	13.5%
Others	Includes agrochemicals, paints, and papers. Used as a solvent or ingredient in oil paint, high molecular weight polyethylene, rubber, and leather manufacturing	6.7%

Source: CRISIL Research

Indian consumer products industry

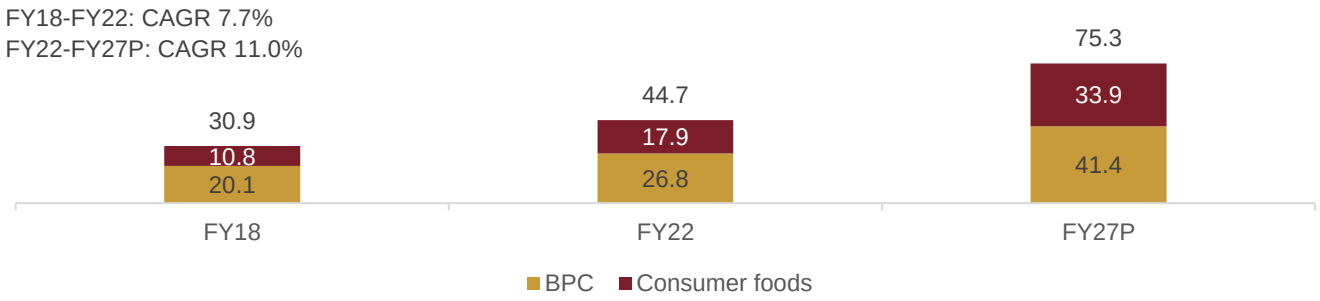
The Indian consumer product industry size encompassing BPC and F&B segments was $44.7 billion in fiscal 2022 and is anticipated to grow to $75.3 billion by fiscal 2027 at a CAGR of 11.0%. It has recently been growing steadily in India.

Beauty & personal care segment (BPC)

The Indian BPC market is valued an estimated $10 billion in 2021 and anticipated to grow to $15 billion by 2023. Key growth drivers for this segment are rise in purchasing power, improving standard of living, growing awareness

among youth about personal hygiene and wellness, image consciousness and shift in preference among customers from basic nourishment-based products to premium/ specialty problem-solving products.

Figure 51: Indian consumer product industry ($ billion)



P: Projected

Note: consumer food sub segments include bakery products, chocolates & confectioneries, snacks, ready to eat products
Source: CRISIL Research

Consumer food segment

Within consumer food segment, bakery products have shown stable growth in fiscal 2022, on account of better volume growth in premium and healthy categories biscuits. With the easing of mobility restrictions, the out-of-home consumption of snacks has increased, resulting in strong revenue growth in fiscal 2022. Improved penetration of the organized sector amid the pandemic and new product offerings in regional flavours will drive growth of the industry in fiscals 2023 and 2024. There is a strong demand from B2C channel due to convenience and increase in demand from key sectors such as hotels, restaurant and catering, railways, and airlines.

Further, the industry benefits from the strong government support, particularly the PLI scheme. The Ministry of Food Processing Industries (MoFPI) unveiled the PLI scheme in May 2021. The MoFPI has formulated the PLI scheme for the food processing industry with an outlay of Rs 10,900 crore. The scheme will be implemented over a six-year period from fiscals 2022 to 2027.

Competitive landscape

There are limited number of players involved in the manufacturing of white oil in India. Key players include Gandhar Oil, Raj Petro, Apar Industries and Savita Oil, accounting together for 70-75% of the domestic market by value. Gandhar Oil is amongst top 2 players in Indian white oil market and accounts for ~28% of market share.

These top companies have the infrastructure and manufacturing scale and exhibit high level of integration across the value chain. These businesses have made a name for themselves as leading producers, and they concentrate on product development and research.

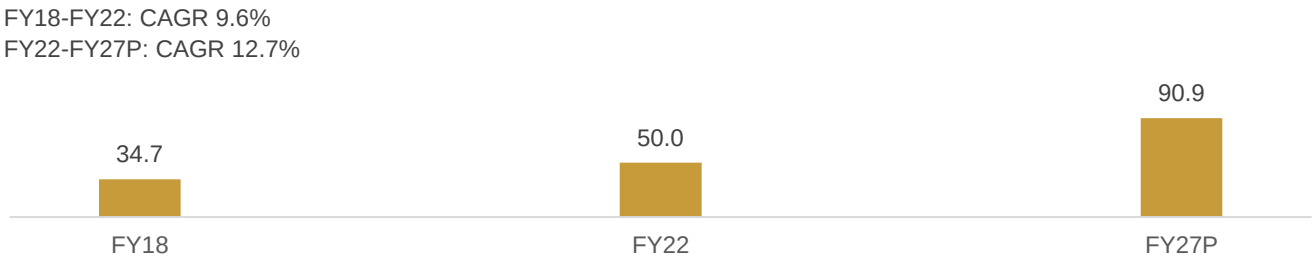
Indian pharmaceuticals industry

Indian pharmaceuticals industry is estimated to be ~$50 billion in 2022, ranking third in terms of volume and 14th in terms of value. 65-70% of the WHO's vaccine requirements are sourced from India. India has over 80 pharma clusters, 10,500 manufacturing facilities, and 500 API manufacturers with ~8% share of the global API industry. Also, India is the largest supplier of generic medicines and holds ~20% share of global supply. The country manufactures 60,000 different generic brands across 60 therapeutic categories, and exports these to over 200 countries. Thus, the Indian pharmaceuticals industry plays a significant role globally.

Further, the industry holds strong potential on the back of multiple drivers such as rising demand for vaccine manufacturing, growing opportunities in API manufacturing, and rising demand in the Indian market owing to an

ageing population, improving insurance penetration, booming medical tourism, and rising per capita income. All these factors are expected to drive the industry growth of 12.7% over the next decade.

Figure 52: India pharmaceuticals industry development ($ billion)



P: Projected

Source: CRISIL Research

Further, the industry benefits from the strong government support, particularly the PLI (production linked incentive) scheme.

The Union Cabinet, on March 21, 2020, approved the following schemes for the development of the Indian bulk drugs sector.

PLI

- **Tenure of scheme:** FY21-FY30
- **Financial outlay:** $890 million
- Scheme applicable for **greenfield projects**
- Financial incentive to be provided **for 41 identified key products**, which cover all 53 identified APIs
- Net worth of the applicant (including that of group companies) as on the date of application, will not be less than 30% of the proposed investment
- Maximum number of selected applicants: **136**
- Incentives will shall be **applicable only** on the **sales** of eligible products to **domestic manufactureres**

Creation of bulk drug parks

- **Tenure of scheme:** FY21-FY25
- **Financial outlay:** $390 million
- Three bulk drug parks will be supported under the scheme
- Maximum grant-in-aid for **one bulk drug park** will be limited to **Rs 10 billion**
- Minimum 50% of land area for bulk drug manufacturing units
- **3 states** to be selected through challenge method

Source: Government documents

The above-mentioned schemes are aimed at providing a regulatory boost to the sector by reducing the manufacturing cost of bulk drugs. One of the major factors for China's dominance in bulk drugs is the regulatory support it gets from its government, with common facilities across plants and various subsidies being provided, which helps them bring down the cost considerably. However, Indian government is also looking at creating common infrastructure facilities and reduce dependence on some critical drugs.

In addition, the ongoing supply-chain de-risking strategy of global companies, resulting in several multinationals undertaking proactive steps to reduce dependence on China for their manufacturing operations and looking at India as an alternative option, provides the opportunity for manufacturers in India. This includes domestic formulations-focused contract development and manufacturing companies to capture a larger market share. Accordingly, the Government of India has approved the PLI scheme for pharmaceuticals for fiscals 2021 to 2029. This is expected to promote innovation for the development of complex and high-tech products, including products of emerging therapies, as well as improve accessibility and affordability of medical products.

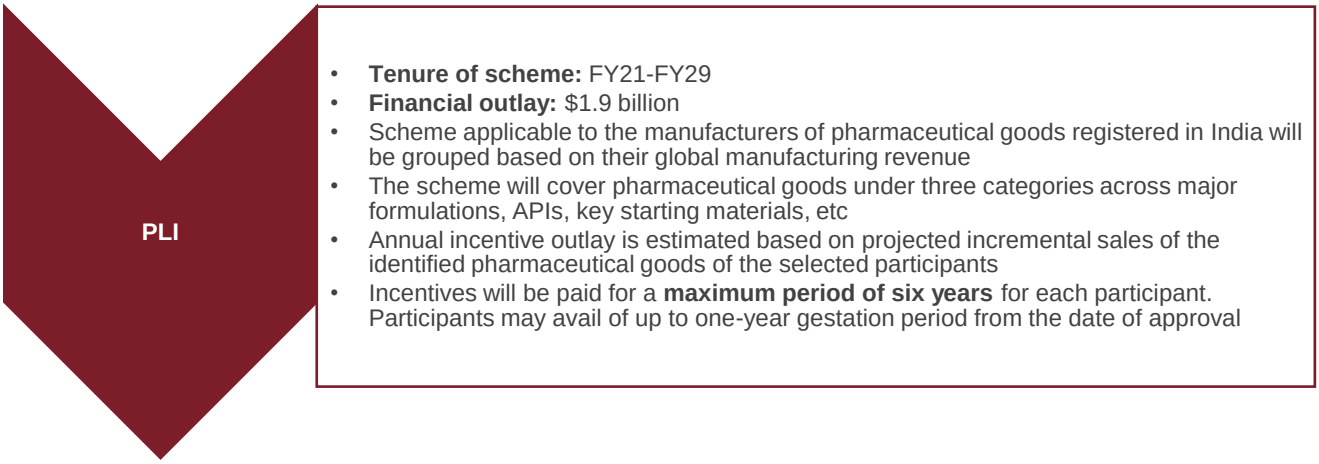
The PLI scheme aims at enhancing India's manufacturing capabilities by increasing investment and production capabilities. Also, Indian players plan to upgrade their offerings and move towards higher value products (e.g., API products) in the pharmaceuticals sector. The government expects the PLI scheme to bring in investment of ~$1.93 billion in the pharmaceuticals sector. The PLI scheme also specifically covers complex generic drugs and patented drugs or drugs nearing patent expiry.

Scheme to reduce Chinese dependence in medium term

Further, eligibility criteria for the scheme works to the advantage of a few select players since for each product under the fermentation-based and chemically synthesized categories, the number of manufacturers has been capped at two and four, respectively. The scheme does provide an impetus to industry growth as more and more capacities come in.

PLI 2

The Government of India, in its notification in March 2021, extended the PLI to formulations as well as API, key starting materials not covered under previous notification of PLI scheme.



Source: CRISIL Research

The objective of the scheme is to enhance India's manufacturing capabilities by increasing investment and production in the sector and contributing to product diversification to high value goods in the pharmaceutical sector. One of the key objectives of the scheme is to create global champions out of India who have the potential to grow, and scale using cutting-edge technology and thereby penetrate the global value chains.

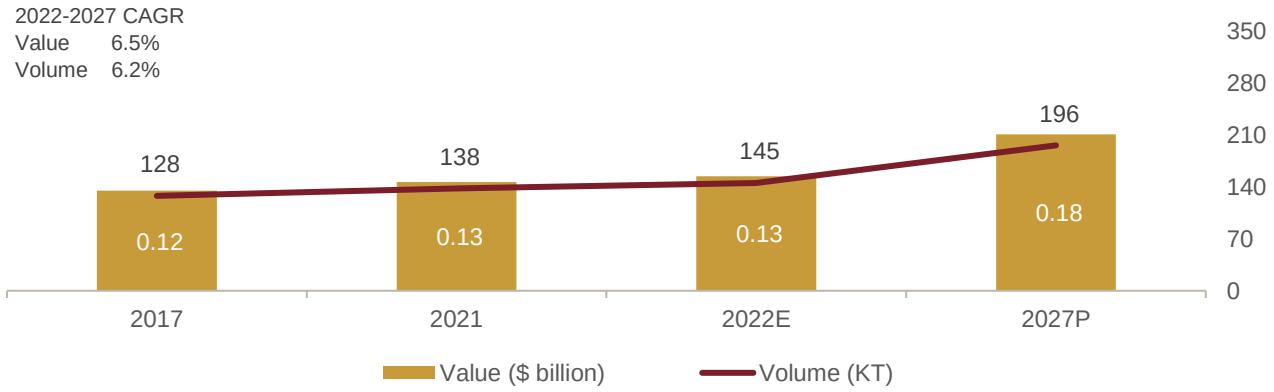
6.2 Petroleum jelly

Industry size

The volume of the Indian petroleum jelly market is 145 KT as of 2022 and is anticipated to increase at a CAGR of 6.4% to 271 KT over the next decade. The market value is estimated at $0.13 billion and is expected to reach

$0.18 billion by 2027, at a CAGR of 6.5% over the forecast period. Petroleum jelly is a blend of microcrystalline wax, paraffin wax and Grade 2 base oil. It is used in a variety of industrial lubricating and finishing processes as well as in pharmaceutical compositions.

Figure 53: Indian petroleum jelly market



E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Production process

Petroleum jelly is a refined mixture manufactured from petroleum, particularly the paraffinic form, and semi-solid/ saturated hydrocarbons. It is mostly used in emulsion form in cosmetics and pharmaceutical industries to make a variety of creams, ointments, lotions, and other goods. Commercial petroleum jelly is used to make lubricants and grease. Hydrocarbon feedstock is converted into synthesis gas. At least two streams of heavy and light hydrocarbons, each including several olefins and paraffins, are created from the synthesis gas. A dialkyl peroxide initiator is mixed with a variety of paraffins and olefins to produce petroleum jelly.

End-use segments

The end-use segments of petroleum jelly include pharmaceutical, cosmetics, personal care, food, textile, and others. The pharmaceutical and medical segments are anticipated to experience extremely rapid revenue growth during the projection period, thanks to the increased use of petroleum jelly as a maintenance therapy for atopic dermatitis, a powerful occlusive moisturizer, and for prevention of skin infections following ambulatory procedures. Petroleum jelly helps reduce the amount of air loss to the front of the masks and offers an additional barrier against skin irritation triggered by surgical spectacles. Petroleum jelly is generally accessible in all healthcare settings and provides a practical and affordable method for dermatitis treatment and prevention.

Competitive landscape

The Indian petroleum jelly market is dominated by Gandhar Oil, Raj Petro, Apar Industries, Savita Oil, and Columbia Petrochem.

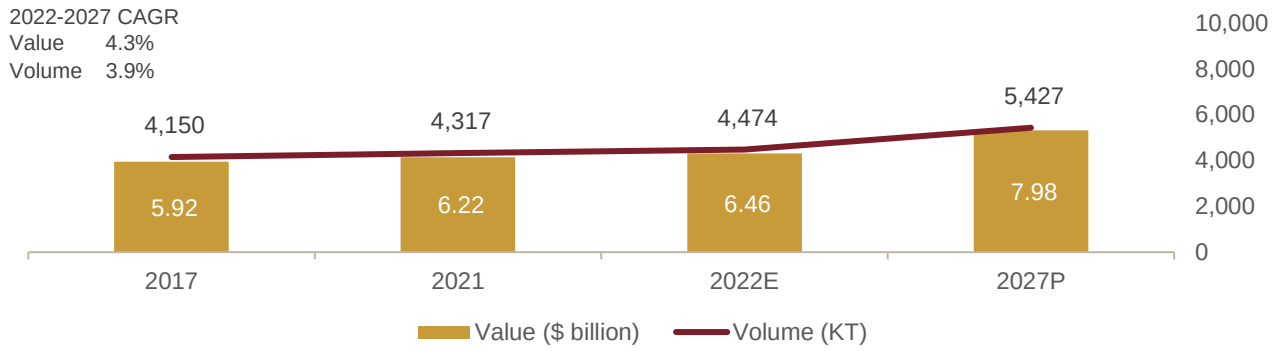
6.3 Other specialty oils

Industry size

The volume of the Indian other specialty oil market is estimated at 4,474 KT and valued at $6.46 billion as of 2022. The market is anticipated to clock a five-year CAGR of 4.3% (by value) to reach $7.98 billion by 2027. Further, the volumetric size of the market is foreseen at 5,427 KT by 2027, at a five-year CAGR of 3.9%.

The demand for other specialty oils market in India is driven by growth in sales of passenger cars and two-wheelers, increase in power demand, and the government's emphasis on improving the infra for power transmission and distribution, rising industrialisation and domestic manufacturing, placing rising number of machines in use, and increasing tyre demand from growing automotive sectors.

Figure 54: Indian other specialty oils market growth trajectory



E: estimated; P: projected | Data for each calendar year

Source: CRISIL Research

Production process

Table 7: Production process of other specialty oils

Product type	Production process
Automotive oil	Automotive oil is refined from crude oil, which is heated in enormous fractionating towers after passing through a purification procedure called sedimentation. Vapours, which can be utilised to produce gasoline, wax, or propane, are gathered at various locations throughout the tower. After being filtered, the recovered automobile oil is combined with additives. The engine oil is made up of base oil and additives, with the base oil consisting of mineral base oil and synthetic base oil. The base oil and additives are combined in a specific proportion subject to use.
Transformer oil	Transformer oil, often known as insulating oil, has excellent electrical insulating properties. While mineral oil continues to be the most used base for transformer oil, new formulations with superior engineering or environmental qualities are becoming popular. The current invention relates to the creation of a formulated transformer oil by fractionating a hydrocracker product to produce a distillate boiling in the range of transformer oils, dewaxing the fraction, optionally hydro finishing the fraction, and adding an adequate amount of an antioxidant and/or a pour point depressant to a said fraction. This method produces formulated transformer oil with properties such as formed naphthenic transformer oil. It is mostly made up of Group II + base oils, or their substitutes, and special additions.
Rubber process oil	Rubber process oil is produced when crude oil passes through the distillation process and is obtained during the composition, the chemical reactions, and the isolating materials that are extracted. It is known as raffinate and is compatible with rubber polymers. The primary characteristic is the presence of the double-bonded mix ring carbon structure. Rubber process oils are utilised in a wide range of industries and are offered in several grades and viscosities to suit a range of applications.

Source: CRISIL Research

End-use segments

Automotive lubricants minimize friction, boost engine longevity, and enhance vehicle performance. Performance improvement is a crucial factor for major automakers as they are required to guarantee seamless manufacturing

quality. Transformer oil is utilised to maintain the transformer's smooth performance by reducing heat damage. Additionally, high-voltage circuit breakers and switches also use transformer oil. Industrial lubricants help industrial machinery and equipment to operate more effectively and efficiently. These are used across a wide range of industries including power generation, metal and mining, food and beverage, and turbine machineries. Rubber process oil is one of the key ingredients in production of various types of rubber. Commercially, rubber is utilised in the production of tyre and many different products, and in a variety of applications. Additionally, it is utilised in polishes, industrial hoses, shoes, and carbon black.

Table 8: End-use segments of other specialty oils

Specialty oil	Applications	Forecast
Automotive oil	HCV*	Heavy commercial vehicle (HCV) sales are projected to rise at 12-14% CAGR between fiscals 2022 and 2027 vs ~2% CAGR between fiscals 2017 and 2022. Growth drivers are improving industrial activity, steady agricultural output, and the government's focus on infrastructure.
	LCV*	Light commercial vehicle (LCV) demand is expected to rise 8-10% CAGR between fiscals 2022 and 2027, due to higher private consumption, greater availability of redistribution freight and improved finance.
	Passenger vehicles	Passenger vehicle demand is expected to increase at 8-10% CAGR between fiscals 2022 and 2027, due to improvement in supply because of easing semiconductor shortages. Further, there has been traction in the UV segment due to higher demand, supported by better launches from OEMs.
	Two wheelers	CRISIL Research expects domestic two-wheeler sales to record a CAGR of 4-6% between fiscals 2022 and 2027.
Transformer oil	Power transformer	The transformer industry is expected to log 8-9% CAGR between fiscals 2022 and 2025 on a low base to reach $2.9-3 billion, as against 0.2% CAGR between fiscals 2016 and 2020.
	Transmission & distribution	CRISIL Research expects the transmission tower market to grow at a CAGR of 7-8% from Rs 166 billion in fiscal 2021 to $2.8-3.0 billion in fiscal 2025.
	Power	Power demand grew 8.2% in fiscal 2022 and is likely to post healthy 6-6.5% growth in fiscal 2023. Power demand is projected to clock a CAGR of 5-5.5% between fiscals 2022 and 2027, supported by economic growth recovery and improved reach and reliability of power supply.
	Railway	The National Rail Plan has laid out a roadmap for the railway network's capacity development by 2030 to accommodate growth until 2050. It calls for the development of a railway network that is prepared for the future and capable of meeting both passenger demand and increasing the modal share of railroads in freight from 26-27% to 40-45%.
Industrial oil	Heavy construction equipment	The construction equipment sector is projected to grow 10-15% in fiscal 2023, driven by growth in end-user industries.
	Manufacturing	By 2030, India is likely to contribute more than $500 billion yearly to the global economy and become a major centre for manufacturing.
	Oil & gas	Between fiscals 2022 and 2027, domestic natural gas production is projected to rise at 8-9% CAGR to 117-122 mmscmd. The government's steps to attract investments and raise production are expected to expedite the development of fields.
Rubber process oil	Tyre	Tyre demand is projected to increase at 4-8% CAGR between fiscals 2022 and 2027. CRISIL Research expects tyre demand from OEMs to grow 13-17% on-year (tonnage terms) in fiscal 2022, led by the CV segment. Demand from the replacement market is

Specialty oil	Applications	Forecast
		expected to grow 7-11% yoy (tonnage) in fiscal 2022, owing to the economic revival, improving industrial activity, steady agricultural output, and the government's focus on infrastructure, mining, and road construction.
	Footwear	CRISIL Research had estimated the market volume of the Indian footwear industry at 1.7 billion pairs in fiscal 2021. It is projected to increase at a CAGR of 9-10%, from 2.2 billion in fiscal 2022 to 2.9 billion in fiscal 2025, due to changing lifestyles and rising disposable income.

**HCV: Heavy Commercial Vehicles*

LCV: Light Commercial Vehicles

Source: CRISIL Research

Competitive landscape

There are many players in this segment. The segment is characterized by the presence of public sector oil marketing companies (OMCs) such as Indian Oil, Hindustan Petroleum and Bharat Petroleum. Key multinational companies include Castrol India, Shell, Total Energies, and Valvoline; while the prominent Indian companies are Gandhar Oil, Raj Petro, Apar Industries, Savita Oil, and Gulf Oil.

7 Pricing analysis for Base Oil

Prices of base oil are index-linked and move with a time lag of 30-45 days

Crude oil pricing is one of the primary factors that drive base oil pricing, but prices of base oil (a key raw material for lubricant makers) reflect crude oil prices with a lag of one to two months.

Base oil constitutes 60-90% of specialty oil formulation by volume, and hence plays a critical role in its pricing

Base oil, commonly used as specialty oil base stock, is the refined petroleum mineral or synthetic material created by a refinery to a particular set of requirements. High-viscosity material from vacuum gasoil or vacuum reside distillation cuttings is extracted and processed to create base oils. As base oil typically constitutes 60-90% of specialty oil formulations by volume, it defines the grade of formulations. The kind of base oil used for refining and/or the process of base oil manufacture might affect the quality of specialty oil products.

Base oil prices are influenced by supply-demand imbalance at the global level

Pandemic-driven lockdown led to sharp drop in prices in 2020

The Covid-19 pandemic-induced lockdowns triggered a sudden and widespread slump in base oil demand. This put more pressure on Group II producers because of the large volumes of supply that usually move to base oil import giants India and China.

Gradual recovery in prices in 2021, with relaxation of lockdown and end-use demand recovery

Prices spiked in the first half of 2021, as the industry began trade and supply could not keep up with demand due to price instability brought on by the pandemic's second wave. Due to a regional supply constraint, the market saw strong demand for base oil from downstream firms. Due to the exceptional demand in the Chinese market, there was a shortage of base oil, which drove up the price of base oil there. Sinopec intended for its Base Oil Group II plant in Beijing to begin operations in July 2021 to address the protracted supply constraint in China. Amid limited supply and high demand, the base oil market reported a solid price increase in the first quarter of 2021; Grade I and II prices rose to $1,423 per tonne and $1,327 per tonne, respectively, in June 2021.

Russia-Ukraine conflict led to price surge in 2022

The Russian-Ukraine war led to increase in crude price to $112/ barrel in March 2022 from $74 /barrel in December 2021. Prices increased further to $111/ barrel in May 2022, due to the deterioration of the geopolitical situation in Europe. Base oil prices exhibited a similar trend, and Grade I and II prices rose to $1,837 per tonne and $1,762 per tonne, respectively.

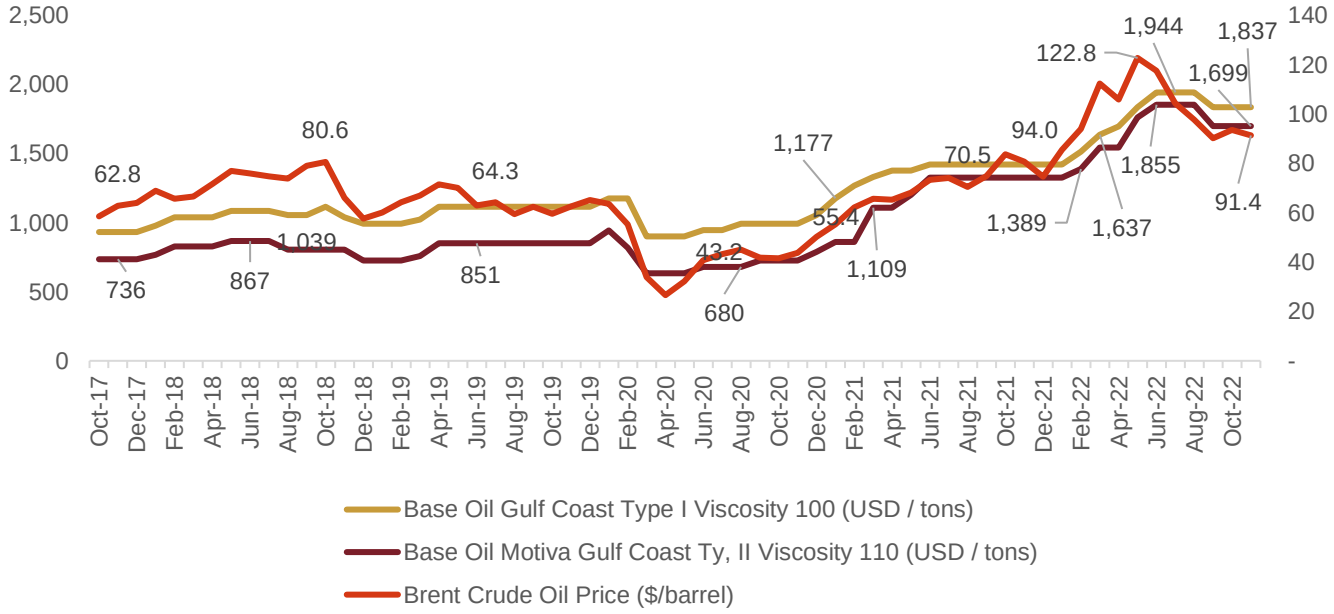
Base oil prices are expected to remain high in the short term driven by geopolitical uncertainties

Russia is already under sanctions and possibly staring at further sanctions as the US and Europe discuss ban on Russian imports. It also put upward pressure on base oil quotations throughout northeast Asia-Pacific. However, such sanctions could have a wider impact on energy supply as well as prices of alternates such as gas and coal. This has already increased the volatility in oil prices. Concerns have also been raised about the widening gap between supply and demand after the world economy opened and began to normalize after the omicron wave.

The annual average price of crude oil is expected to increase 33-38% on-year to $108-113 per barrel in 2022 from $70.95 per barrel in 2021. Even after declining from highs of $100 per barrel in March 2022, oil prices averaged $106 per barrel in April 2022. Volatility in prices is attributable to the uncertainty around the geopolitical tensions between Russia and Ukraine. While we expect prices to correct in the second half of 2022, oil prices could likely shoot up if the current tensions worsen. The market has been buoyed by the relaxation of pandemic-related lockdowns and limitations throughout China, and the price of crude oil has increased in tandem with the rise in

consumption. The prices of base oil Group I and II were $1,837 per tonne and $1,699 per tonne, respectively, in November 2022. The base oil price is expected to remain high in the short term driven by the geopolitical uncertainties.

Figure 55: Base oil prices vs crude oil price movement



Source: CRISIL Research

8 Barriers to entry

The specialty oil business is capital intensive in nature, and involves inherent complexities in terms of technology, hazards management and regulations. Technical expertise and operational track record also matter. Such barriers are particularly important for white oil as the end-products are mostly used for human consumption. The types of entry barriers are detailed below.

Empanelment with consumer and pharma manufacturers

Large, marquee global manufacturers across applications such as pharma, food and beverage, and cosmetics have extensive supplier accreditation and internal approval processes that need to be followed by manufacturers of specialty oils. These include provision of service, safety and performance histories, product trials, plant audits, financial capability, experience, and certifications to be registered, eligible, and approved to conduct business and provide services. The overall time for empanelment of suppliers with marquee manufacturers can take up to 4–5 years. Further, the costs associated with changing suppliers of such products are relatively high, consequently disincentivizing any such change. Customers typically select suppliers after a process of acute review and tend to develop long-term relationships with a limited number of suppliers.

High quality requirements

Specialty oil manufacturers need to adhere to the highest standards of quality. They need to exercise prevention-based quality control checks and undertake checks at multiple stages, including on receipt of raw material, work in progress products and on finished products, at their laboratories and in certain cases at recognized third party laboratories, prior to it being packed to ensure that no defective products are delivered to customers. Defective products, if any, are reprocessed to comply with customer requirements. Internal systems need to be established to take corrective and preventive actions in case of non-adherence to the set quality standards.

Strong brand presence

Suppliers having a strong brand presence enjoy brand loyalty, which attracts customers back to the company. New entrants need to invest heavily to match years of advertising and user experience. Marquee manufacturers across consumer and pharma prefer to procure products from reputed specialty oil manufacturers.

Supply assurance

The end use market is volume-driven since users in industries such as food and beverage, pharmaceuticals, and beauty and personal care are all consumption-driven. In the medium to long term, leading end-user businesses need to be assured of an uninterrupted supply. Hence, there is preference for manufacturers with large and multiple facilities to reduce the threat of supply disruption.

Long-term relationship

Leading consumer and pharma manufacturers prefer long-term relationship with established suppliers of specialty oils as spot purchases from distributors are cost inefficient and lead to erosion in margins. Relationship with established suppliers ensure an assured supply with favourable prices, which is critical for long-term viability of the business.

Strong supply chain

Specialty oil manufacturers need to have either their own extensive distribution network or access to existing distribution channels for supply of products to customers in an efficient manner. The company's geographic reach and lead time depend on the strength of its supply chain network.

Regulatory requirements

White mineral oils should be highly refined, of the highest quality and ultra-pure before they can be utilized in the production of personal and healthcare products. Given that white oil is applied directly or indirectly to the body, the raw materials used for such products should comply with all applicable national and international standards. Non-compliance could harm the end-user. This may result in deterioration of brand image and legal complications including monetary/ non-monetary penalty. Specialty oil manufacturers of white oil need to comply with standards such as India FDA, ISO certifications, kosher, and halal. The kosher and halal certifications ensure that white oils are safe for use in foods and dietary supplements.

9 Customer contracts

Specialty oil manufacturers typically have short-term contracts with customers

In specialty oil contracts, the pricing mechanism depends on various factors such as raw material price (base oil and additive price), duration of the contract, market conditions, and commodity price outlook. An increase in the price of raw materials raises the final selling price in the contract and vice versa.

Prices vary among manufacturers depending on the product type and final application. In a customer contract, both manufacturer and customer set a formula based on pricing data for base oil and additive rates that are monitored on a quarterly basis, and any price increase is passed on to the customer accordingly. Specialty oil manufacturers have pass-through contracts in place for minimizing risk in case of certain supply orders.

Manufacturers usually focus on short-term customer contracts that can range 1-2 years. Long-term contracts form a small portion of the order book. Since formula prices are always backward-looking, the prices of long-term buy contracts require time to adjust if crude price variations occur. Specialty oil manufacturers are vulnerable to fluctuations in raw material costs and currency exchange rates. To mitigate risks from fluctuations of raw material prices, manufacturers adopt prudent inventory control and hedging techniques to reduce risks. Other measures include rigorous credit restrictions to reduce exposure to clients who have cash flow problems.

Customers have the right to end a contract with a manufacturer owing to a change in preference or for any other reason with only a short notice because manufacturers typically have short-term contracts, which could materially impact business operations. As a result, manufacturers’ revenues may be affected due to changes in the market for the products. Several factors such as the ability to price the products competitively, customer happiness, shift in demand, and customers' inventory management have an impact on client orders. Although manufacturers place great value on product quality, fast delivery and close customer contact, any change in consumers' purchasing habits can adversely impact the business.

10 Gandhar Oil Refinery India Ltd.'s positioning

Gandhar Oil Refinery India Ltd is one of the leaders in the domestic specialty oils space, and a well-known company in white oil, which is the fastest growing segment in specialty oils. The company has gradually built competency via expansion of its capacity and establishing a presence across the value chain, and diversifying its product portfolio, customer, and supplier base, as well as geographical footprint. Gandhar has a diversified business portfolio with Personal Care, Health Care and Performance Oils (PHPO) as the primary business segment.

Currently, it supplies 350+ specialty oil products, has geographically diversified manufacturing facilities in three locations (i) Taloja, Maharashtra, (ii) the Union Territory of Silvassa, Dadra and Nagar Haveli and Daman and Diu and (iii) Sharjah, United Arab Emirates. Gandhar Oil is an accredited supplier and has strong customer relationships and serves prominent customers such as Hindustan Unilever (HUL), Procter & Gamble (P&G) and Emami in the domestic and international markets across key industries, and sources raw materials from global suppliers such as SK Lubricants, S-Oil Corporation, GS Caltex, and Indian OMC's. It has also established credibility in terms of efficient operational, stakeholder and supply chain risk management.

The company is the leading manufacturer of white oil by revenue, with a growing focus on the consumer and healthcare end-user industries. Below is a summary of the business segments and end-industries served by the company:

Table 9: Gandhar Oil's business segment

Business segment	End industries
Personal Care, Health Care and Performance Oils (PHPO)	Consumer, healthcare, plastics, chemical, textile and fragrance industries
Lubricants	Automobile service stations, industrial machines, and equipment
Process and Insulating Oils (PIO)	Transformer manufacturers, power generation and distribution industry, and tyre and rubber product manufacturers

Source: Company annual reports

10.1 Gandhar Oil's market position

Gandhar Oil's comprehensive and diversified product portfolio and service offerings enable the company to insulate its revenue growth from risks associated with product or customer concentration.

In fiscal 2022, the revenue of Gandhar from the white oil product accounted 64.7% of consolidated manufacturing sales. Gandhar Oil is among the top 2 manufacturers in the Indian white oil market; considering only domestic sales, the company has a market share of 28% in India. The company is also India's largest manufacturer of white oil by revenue, including both domestic and overseas sales. Globally as well, Gandhar Oil is one of the top five players, with ~7.6% market share in white oil in 2021. Due to diverse portfolio, Gandhar has a diversified clientele and therefore are not significantly dependent on a few customers for the success of the business. In the past two years, Gandhar has grown significantly higher than the growth rate of specialty oil industry. Gandhar also sources from best in-class suppliers to ensure high-quality product.

Table 10: Gandhar Oil's market positioning in India and globally (fiscal 2022)

S. no	Products	Consolidated manufacturing sales (Rs cr) (A)	Domestic sales (Rs cr) (B)	India market size (Rs cr) (C)	Company's market share – India (B/C)	Global market size (Rs cr) (D)	Company's market share globally (2021) (A/D)

1	White oil/ paraffin/ mineral oil	1,790	854	3,036	28.1%	23,606	7.6%
2	Petroleum jelly/wax	177	39	957	4.0%	5,563	3.2%
3	Automotive oil	156	63	22,948	0.3%	389,263	0.04%
4	Industrial oil	299	237	22,315	1.1%	470,711	0.1%
5	Transformer oil	201	185	1,272	14.5%	26,474	0.8%
6	Rubber processing oil	143	136	827	16.5%	16,938	0.8%
	Total sales	**2,766**	**1,514**	**51,355**	**2.94%**	**932,555**	**0.30%**

Exchange rate: $1 = Rs 76.2

Note: Gandhar Oil's market share has been calculated based on market size in 2021.

Source: CRISIL Research

10.2 Gandhar's positioning in consumer and pharma end-use industries

Gandhar Oil caters to end-use applications such as pharmaceuticals and consumer products, which are also catered to by marquee Indian specialty chemical companies such as Rossari Biotech, Privi Specialty, Fairchem Organics, and Galaxy Surfactants.

Gandhar Oil enjoys relatively higher gross profit margins with the pharma and consumer end customers as compared to customers from other industries such as industrial goods, auto, power, rubber, and textiles. End-user customers in the pharma and consumer industries enjoy relatively higher average profit margins as compared to other industries such as industrial goods, auto, power, rubber, and textiles. The end use - industries such as pharmaceuticals and consumer products are expected to grow strongly going forward driven by strong domestic consumption, favorable demographics, and government initiatives.

Similar to the aforementioned specialty chemical companies, Gandhar is strongly positioned in the consumer and pharmaceutical industries, with its marquee consumer and pharmaceutical clientele including Unilever, Procter & Gamble ("P&G"), Marico, Emami, Dabur, and Bajaj Consumer Care. Also, since the underlying growth drivers of end-use industries remain the same, Gandhar can be compared with these specialty chemical companies given its focus on the same end industries and its access to marquee customers.

Table 11: India's consumer products and pharmaceutical industries are expected to grow.

Application segments	Growth (FY22-FY27)	Key growth drivers
Consumer products (Food & personal care)	11%	▪ Consumer food segment to be driven by strong rural demand, favorable population demographics, rising incomes and rapid urbanization, the transition to premium, nutritious and healthy foods ▪ Changing lifestyle, increased personal grooming, personal hygiene and care are key customer trends driving growth of cosmetic and personal care industry ▪ Rising income would result in around 73 million households moving into the middle-class category in India over the next 10 years, thereby enhancing their purchasing power ▪ Enhanced distribution reach through changing retail landscape with rapidly growing modern retail shops (supermarkets and hypermarkets) in urban areas, owing to consumers increasingly preferring to buy 'all under one roof', are expected to drive demand.

		▪ Government has rolled out PLI scheme for food processing in 2021 with an outlay of INR 10,900 crores to boost exports and ensure availability of wider range of value-added products for consumers
Pharmaceuticals	12.7%	▪ Government initiatives such as Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of identified critical KSMs/Drug Intermediates and API and scheme for promotion of bulk drug pharma parks would aid investment in the sector ▪ Launch of National Digital Health Mission in 2020 - to increase access to digital healthcare and ensure accountability via health ID card - health ID, telemedicine, ePharmacy, healthcare registry and personal digital health record ▪ Patient pool expected to increase over 20% in the next 10 years, given population growth and lifestyle changes and the share of senior citizens in India's population will double from 8.6% in 2011 to 16% by 2041 ▪ In the hospital segment, the expansion of private healthcare players to Tier 2 and Tier 3 locations, beyond metropolitan cities to drive growth ▪ Indian companies are expected to continue investing in R&D as they focus on developing niche and complex products. Transition to customized synthesis to support growth over medium term ▪ New product launches, complex generics, specialty drugs to drive formulation exports growth over next five years (FY22-FY27) ▪ India's pharma exports to semi-regulated markets (Asia pacific, Latin America, Eastern Europe, Africa, and Gulf countries) to demonstrate strong growth over the next five years, as players eye growth opportunities in newer markets with low generic penetration and newer launches in the existing markets ▪ Recurring quality and supply disruptions from China, India will have the opportunity to establish and strengthen its strong footing on the global market as global customers (following Covid pandemic) adopting China+1 sourcing policy to secure their supply chains and reduce dependence on China

Source: CRISIL Research

11 Peer comparison

CRISIL Research has compiled profiles of key players in the specialty oil and specialty chemicals industry in India. Information in this section is sourced from company websites, including annual reports and investor presentations, regulatory filings, rating rationales, and/or product brochures. The competitive landscape has been established based on player operations in India, comparable operating revenue, and financial data availability for players.

11.1 Operational benchmarking

Table 12: Operational comparison with peers

Company	Established	Products	End Industries	Select key clients	% Exports (by value)
Gandhar Oil Refinery India Ltd.	1992	White oils, Petroleum jelly, Transformer oil, rubber process oil, Industrial oil, and Automotive oil	Consumer, healthcare, pharma, industrial machines and equipment, automobile	Unilever, P&G, Marico, Emami, Dabur, Bajaj Consumer Care, Amrutanjan	40% (FY2022)
A. Consumer & pharma focused specialty chemical peers					
Galaxy Surfactants Ltd.	1986	Surfactants	Personal and home care	Includes marquee FMCG companies (L'OREAL, Procter & Gamble, Reckitt Benckiser & others)	50% (FY 2022)
Rossari Biotech Ltd.	2003	Textile chemicals, home & personal care, and performance chemicals, animal feed	Soaps, detergents, paints, coatings, textile, personal care, poultry, pet care	HUL, Panasonic India, RSPL Ltd, IFB Industries Ltd. and Millennium Papers.	10% (FY2022)
Privi Specialty Chemicals Ltd.	1985	Aroma chemicals	Pharma, Cosmetics, Food, FMCG, Fragrance	FMCG companies (Unilever, P&G, Henkel, Reckitt Benckiser & others)	75% (FY2022)
Fairchem Organics Ltd.	2019	Oleo chemicals and nutraceuticals	Paints & Inks, soaps, animal feed, polyamides, cosmetics, textiles, heating fuel, FMCG, pharma	Asian Paints, Uniform Synthesis, Resins & Plastics Ltd., Resinova Chemie Ltd., & others	~2% (FY2022)
B. Specialty oil peers					
Savita Oil Technologies Ltd.	1961	Transformer oils, white oils & liquid paraffins, cable filling & optic fibre compounds, oxidized waxes & wax emulsions, auto and industrial lubricants	Power, auto, FMCG, polymers, plastics, industrial, pharmaceutical, refrigeration, agriculture, thermoplastic rubbers	Leading auto OEMs (Mahindra & Mahindra, Swaraj Tractors, Tata Motors, and others)	~20% (FY2022)
Apar Industries Ltd.	1958	Cable compounds, transformer oils, white oils, petroleum jelly, auto and industrial lubricants	Power, FMCG, auto, industrial pharmaceutical, solar, wind	PGCIL, KEC International Limited, Larsen & Toubro Limited, and Kalpataru Power Transmission Limited.	38% (FY2022)

Panama Petrochem Ltd.	1982	Transformer oils, white oils, petroleum jelly, waxes, auto and industrial lubricants, rubber process oil, drilling fluids and greases	Power, FMCG, auto, pharmaceutical, industrial	Hubergroup India Pvt. Ltd (for Inks), Reliance Industries Ltd., Dabur (for cosmetics) and ATC Tyre (for rubber oils)	40% (FY2022)

Source: Company annual reports, CRISIL Research

Gandhar Oil's positioning

Gandhar Oil is well positioned compared to specialty oil players due to its higher exposure to the high-growth white oil market, its focus on the high-margin consumer and healthcare end-use segments, and its robust export profile amongst specialty oil peers.

Gandhar is well positioned to compete with specialty chemical players operating in the same end industry of consumer and healthcare with well-established long-standing relationship with marquee clientele.

11.2 Financial benchmarking

Table 13: Financials for fiscal 2022 (Specialty oil companies)

Metric/company	Units	Gandhar Oil	Savita Oil	Apar Industries	Panama Petrochem
Revenue from operations	Rs million	33,890.7	29,382.2	93,199.9	21,323.5
Revenue CAGR (FY20-FY22)	%	49.7	19.8	12.0	45.8
EBITDA	Rs million	2,674.3	3,580.5	5,479.7	2,960.0
EBITDA CAGR (FY20-FY22)	%	70.1	51.8	8.4	135.8
EBITDA margin	%	7.9	12.2	5.9	13.9
PAT	Rs million	1,841.5	2,604.9	2,567.3	2,303.4
PAT CAGR (FY20-FY22)	%	97.4	65.0	37.8	182.9
PAT margin	%	5.4	8.8	2.7	10.8
Gross margin	%	13.5	22.7	22.7	22.2
ROE	%	39.4	22.5	16.5	34.7
ROCE	%	47.0	28.7	24.2	42.6
Working capital cycle	No. of days	22.4	72.3	18.3	63.4
Net debt	Rs million	984.8	-600.7	-3.1	-320.7
Net debt-to-equity	Times	0.18	NA	NA	NA
Net debt-to-EBITDA	Times	0.37	NA	NA	NA
Gross fixed asset turnover	Times	13.6	8.3	7.4	9.6
Manufacturing gross margin spread**	Rs/KL	9,735.8	-	-	-

Note: Consolidated financial data in Rs million

**Savita Oil's revenue break-up: petroleum products (98.4%), wind power (1.1%), and other unallocated (0.5%)*

**Apar Industries' revenue break-up: Transformer and specialty oil (36%), conductors and cables (63%), and thermoplastic elastomers (1%)*

**Panama Petrochem: Cosmetics and pharma (24%), rubber process oil (21%), printing Ink (20%), knitting and antistatic coning oil (19%), transformer oil (7%), and other (9%). Others include drilling fluids and industrial oils and lubricants*

Gross fixed asset turnover has been calculated on the basis of revenue from manufacturing except for Savita due to unavailability of data.

*** Manufacturing gross margin spread is available only for Gandhar Oil but not for peers due to the non-availability of volume data.*

Source: CRISIL Research

Table 14: Financials for fiscal 2021 (Specialty oil companies)

Metric/Company	Units	Gandhar Oil	Savita Oil	Apar Industries	Panama Petrochem
Revenue from operations	Rs million	20,636.3	20,012.0	63,880.2	14,469.6
EBITDA	Rs million	2,483.8	3,112.3	4,191.4	1,897.5
EBITDA margin	%	12.0	15.6	6.6	13.1
PAT	Rs million	1,609.5	2,372.0	1,605.0	1,353.5
PAT margin	%	7.8	11.6	2.5	9.3
Gross margin	%	18.4	29.9	24.9	22.6
ROE	%	54.9	24.6	12.6	27.2
ROCE	%	62.8	29.7	21.1	36.0
Working capital cycle	No. of days	18.8	97.9	22.0	76.7
Net debt	Rs million	1,654.9	-644.1	571.5	-52.6
Net debt-to-equity	Times	0.44	NA	0.0	NA
Net debt-to-EBITDA	Times	0.67	NA	0.1	NA
Gross fixed asset turnover	Times	8.9	6.1	5.5	7.6
Manufacturing gross margin spread	Rs/KL	10,977.1	-	-	-

Note: Consolidated financial data in Rs million

Source: CRISIL Research

Table 15: Financials for fiscal 2020 (Specialty oil companies)

Metric/Company	Units	Gandhar Oil	Savita Oil	Apar Industries	Panama Petrochem
Revenue from operations	Rs million	15,127.5	20,461.7	74,254.5	10,027.5
EBITDA	Rs million	924.5	1,553.5	4,661.9	532.4
EBITDA margin	%	6.1	7.6	6.3	5.3
PAT	Rs million	472.3	956.4	1,351.5	287.8
PAT margin	%	3.1	4.6	1.8	2.9
Gross margin	%	13.5	23.0	23.1	14.1

ROE	%	22.4	11.1	11.5	6.8
ROCE	%	27.6	15.3	27.1	10.6
Working capital cycle	No. of days	11.4	85.9	13.4	114.7
Net debt	Rs million	2,007.3	-241.8	1,532.7	192.4
Net debt-to-equity	times	0.95	NA	0.13	0.04
Net debt-to-EBITDA	times	2.17	NA	0.33	0.36
Gross fixed asset turnover	times	7.1	6.8	7.1	5.6
Manufacturing gross margin spread	Rs/KL	7,081.0	-	-	-

Note: Consolidated financial data in Rs million

ROE, ROCE, Working Capital and Gross Fixed asset turnover -ratios for Gandhar have been calculated using the closing amount for fiscal 2020.

Source: CRISIL Research

Table 16: Financials for fiscal 2022 (Specialty chemicals companies)

Metric/company	Units	Gandhar Oil	Galaxy Surfactants	Rossari Biotech	Privi Specialty	Fairchem Organics
Revenue from operations	Rs million	33,890.7	36,857.1	14,829.7	14,037.2	6,431.8
Revenue CAGR (FY20-FY22)	%	49.7	19.1	57.2	3.0	44.9
EBITDA	Rs million	2,674.3	4,007.1	1,834.4	1,938.4	1,048.7
EBITDA CAGR (FY20-FY22)	%	70.1	4.2	32.3	-5.5	47.2
EBITDA margin	%	7.9	10.9	12.4	13.8	16.3
PAT	Rs million	1,841.5	2,627.8	977.0	973.8	679.1
PAT CAGR (FY20-FY22)	%	97.4	6.8	22.4	-18.3	39.9
PAT margin	%	5.4	7.1	6.5	6.8	10.6
Gross margin	%	13.5	29.8	25.5	40.8	28.7
ROE	%	39.4	18.3	16.1	12.6	33.9
ROCE	%	47.0	20.8	19.9	10.7	42.1
Working capital cycle	No. of days	22.4	66.9	51.3	128.7	58.0
Net debt	Rs million	984.8	3,022.2	-290.5	8,774.9	620.2
Net debt-to-equity	times	0.18	0.19	NA	1.1	0.3
Net debt-to-EBITDA	times	0.37	0.75	NA	4.5	0.6

Gross fixed asset turnover	times	13.6	3.1	5.0	1.4	4.0

Note: Consolidated financial data in Rs million

Source: CRISIL Research

Table 17: Financials for fiscal 2021 (Specialty chemicals companies)

Metric/Company	Units	Gandhar Oil	Galaxy Surfactants	Rossari Biotech	Privi Specialty	Fairchem Organics
Revenue from operations	Rs million	20,636.3	27,840.6	7,093.5	12,765.6	3,965.7
EBITDA	Rs million	2,483.8	4,488.3	1,235.4	2,075.8	688.3
EBITDA margin	%	12.0	16.1	17.4	16.3	17.4
PAT	Rs million	1,609.5	3,021.4	800.5	1,169.0	424.8
PAT margin	%	7.8	10.8	11.1	9.0	10.7
Gross margin	%	18.4	36.3	34.8	41.2	32.7
ROE	%	54.9	25.5	23.0	16.0	28.8
ROCE	%	62.8	28.1	27.4	12.9	34.2
Working capital cycle	No. of days	18.8	66.3	42.1	127.4	68.0
Net debt	Rs million	1,654.9	1,865.2	-152.1	5,165.0	567.8
Net debt-to-equity	times	0.4	0.1	NA	0.7	0.3
Net debt-to-EBITDA	times	0.7	0.4	NA	2.5	0.8
Gross fixed asset turnover	times	8.9	2.4	4.5	1.5	2.7

Note: Consolidated financial data in Rs million

Source: CRISIL Research

Table 18: Financials for fiscal 2020 (Specialty chemicals companies)

Metric/Company	Units	Gandhar Oil	Galaxy Surfactants	Rossari Biotech	Privi Specialty	Fairchem Organics
Revenue from operations	Rs million	15,127.5	25,963.8	6,000.9	13,241.1	3,064.9
EBITDA	Rs million	924.5	3,689.1	1,047.4	2,171.5	483.7
EBITDA margin	%	6.1	14.2	17.5	16.4	15.8
PAT	Rs million	472.3	2,304.1	652.5	1,460.3	347.0
PAT margin	%	3.1	8.9	10.8	10.8	11.1
Gross margin	%	13.5	33.9	38.1	39.3	32.4
ROE	%	22.4	23.7	31.8	24.6	27.4
ROCE	%	27.6	27.2	38.9	24.1	27.2
Working capital cycle	No. of days	11.4	67.7	27.4	122.4	79.4

Net debt	Rs million	2,007.3	2,718.9	318.0	3,963.9	606.7
Net debt-to-equity	times	1.0	0.3	0.1	0.7	0.5
Net debt-to-EBITDA	times	2.2	0.8	0.3	1.8	1.3
Gross fixed asset turnover	times	7.1	2.4	6.4	1.8	2.2

Note: Consolidated financial data in Rs million

ROE, ROCE, Working Capital, and Gross fixed asset turnover - ratios for Fairchem and Gandhar have been calculated using the closing amount for fiscal 2020.

Source: CRISIL Research

Formulas used:

EBITDA = PBT+ D&A + Finance costs – Other Income

Net debt = Long-term borrowing + short-term borrowing – Cash and cash equivalents

EBITDA margin (%) = EBITDA/ Revenue from operations

PAT margin (%) = PAT/ Total Income

RoE = PAT/ Average Shareholders' equity (Net worth)

Gross margin= (Revenue from operation-Cost of goods sold)/revenue from operation

RoCE = EBIT/ Average Capital employed

Capital employed= Total shareholders’ equity + Total non-current assets

Working capital days = Inventory days + receivable days – payable days

Inventory days = Average inventory * 365/revenue from operations

Receivable days = Average trade receivable * 365/revenue from operations

Payable days = Average trade payables * 365/revenue from operations

Net debt-equity ratio = Net debt/ Shareholders equity

Net debt-to EBITDA= Net debt/EBITDA

Gross Fixed asset turnover ratio= Revenue from manufacturing /Average gross fixed asset in last two fiscal

Manufacturing gross margin spread = Manufacturing gross profit/ Manufacturing sales volume

Manufacturing gross profit = Finished goods sold - Cost of materials consumed - Changes in inventories of finished goods

Gandhar Oil’s financial positioning

With specialty oil companies

- Revenue from operation grew at 49.7% CAGR from fiscal 2020 to 2022, which was the highest among its peers
- RoE in fiscal 2022 was ~39.4%, the highest among the peers
- Capital efficiency improved, highlighted by improvement in RoCE (27.6% to 47.0%) over fiscal 2020 to 2022, and was the highest among the peers in fiscal 2022

- Cash conversion cycle was very efficient in fiscal 2022 at ~22 days
- The company exhibited healthy PAT and EBITDA, which have been grown at 97.4% and 70.1% CAGRs, respectively, from fiscal 2020 to fiscal 2022.
- The company has highest gross fixed asset turnover ratio for all the three fiscals amongst its peers.
- Gandhar is the largest manufacturer of specialty oils amongst its peers in terms of revenue

With specialty chemicals companies

- Revenue from operations increased to Rs 33,890.7 million in fiscal 2022 from Rs 15,124.3 million in fiscal 2020, which was a CAGR of ~49.7%, which is the 2nd highest amongst the above considered peers after Rossari Biotech.
- PAT rose to Rs 1,841.5 million in fiscal 2022 from Rs 472.3 million in fiscal 2020, which was a CAGR of 97.4%, the highest among all peers.
- EBITDA improved significantly between fiscals 2020 and 2022, from Rs 924.5 million to Rs 2,674.3 million, thereby recording the highest EBITDA growth of 70.1% CAGR vis-à-vis all peers.
- The Company also recorded the highest return ratios (ROE and ROCE) in fiscal 2022, amongst its peers.

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