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Initiating Coverage

Edelweiss
Ideas create, values protect

PCBL

focus

Black Going Green: The best is yet to come

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Edelweiss Securities Limited

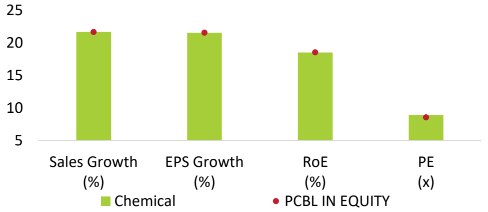
PCBL

INITIATING COVERAGE

KEY DATA

Rating	BUY
Sector relative	Outperformer
Price (INR)	123
12 month price target (INR)	150
Market cap (INR bn/USD bn)	46/0.6
Free float/Foreign ownership (%)	47.0/0.0

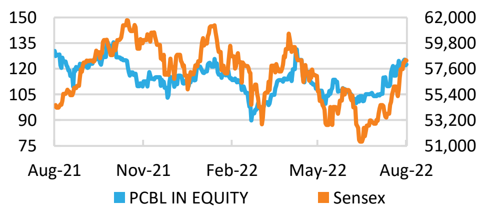
INVESTMENT METRICS



FINANCIALS (INR mn)

Year to March	FY22A	FY23E	FY24E	FY25E
Revenue	44,464	54,108	51,568	58,105
EBITDA	6,556	8,050	10,388	12,367
Adjusted profit	4,271	5,193	7,027	8,270
Diluted EPS (INR)	11.3	13.8	18.6	21.9
EPS growth (%)	24.9	21.6	35.3	17.7
RoAE (%)	18.8	18.5	21.6	21.6
P/E (x)	10.4	8.5	6.3	5.4
EV/EBITDA (x)	7.7	6.2	4.7	4.0
Dividend yield (%)	3.4	2.9	4.0	4.7

PRICE PERFORMANCE



Explore:

Financial model

Podcast

Corporate access

Video

Black going green: The best is yet to come

PCBL Ltd (PCBL) is at the cusp of a transformation with the consortium of value and volume working in its favour. By FY25E, we expect: i) Capacity ramp-up in speciality products' to likely lift EBITDA/t to INR20,000/t (FY22: INR14,434/t). ii) Sales volume growth at 9.7% CAGR. iii) EBITDA margin/RoE to improve to 20%-plus levels. Besides, we see a likely bolstering in PCBL's global leadership in the profitable speciality chemicals with superior performance on ESG parameters.

In our view, PCBL offers substantial value, considering its: i) improving profitability/returns profile; and ii) focus on ESG parameters and enriched product-mix. Initiate with 'BUY' at a TP of INR150/share, valuing the stock at 6.7x Q2FY24E EBITDA.

Dynamic duo: Global edge in ESG complements market leadership

In the Carbon-Black market, PCBL enjoys an indomitable 50% market share in India, 11%-globally and 17%-world ex-China. Furthermore, we see the global market share in the profitable Speciality-Carbon-Black market increasing to 5.9% by FY25E (FY22: 3.6%). Even in Rubber and Performance Chemicals grade, we expect the market share to rise by 30bp in both the categories. On the ESG front, the company outscores its global peers in areas such as GHG intensity (Scope 1) – 1.43tCO_2e/t vs. 2.28tCO2e/t and water intensity- 6.2m^3/t vs. 9.2m^3/t. The company's long-term targets is demonstrative of its focussed pursuit towards a spirited advancement.

Triple delight: Volume, value and technology

In a business that enjoys little margin volatility, owing to the cost pass-through mechanism, we see PCBL strengthening its market leadership through: i) volume ramp up in core rubber business as 147ktpa Tiruvallur plant ramps up; ii) margin aggrandizement via higher speciality product sales volume (up 10ktpa p.a. through to FY25E) – yielding ~2.6x margin compared to rubber products; and iii) harnessing state-of-the-art technology at the greenfield Chennai plant, resulting in better plant processes and yields. All in all, we see EBITDA margin surpassing 21% (FY22: 12%) and RoE improving to 22% (FY22: 18.8%) through FY25E.

Outlook and valuation: Plenty to cheer for; initiate with 'BUY'

Contrary to popular notion, that pegs PCBL as just a rubber carbon-black company, PCBL has far more on offer. Apart from foraying into sunrise sectors such as EVs, with two dedicated R&D bases, PCBL also has high-end speciality products in its crosshairs.

PCBL's stock is trading at a discount to its global peers – mean (5.2x), below its historical ten years range. Our TP works out to INR150 on 6.7x (one deviation above mean) Q2FY24E EPS, implying 23% upside potential. Initiate with **'BUY/SO'**.

Key risks to our thesis: Sustained slowdown in automotive/tyre industry; supplier/client concentration; development of substitute products; environmental and regulatory risks.

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Executive Summary

More than what meets the eye

PCBL's manufacturing process in a way is waste to wealth – converting Crude-Based Feedstock (CBFS) to carbon black, which is utilised in tyres and other specialty products. The process generates a by-product called 'off-gas', which is burnt and the resultant heat is utilised for power generation. Of PCBL's total GHG emissions of 824.08 tCO_2e in FY21, almost 25% was offset as a result of power reduction. PCBL has four strategically located plants at Mundra, Durgapur, Palej and Kochi, each serving twin purposes of facilitating ease of finished products export as well as import of CBFS.

Did you know?

Carbon black constitutes 25-30% of tyre's weight.

PCBL's model is reasonably insulated with formula-based contracts and the passing-on of raw material cost with a quarter's lag, thus reducing margin risk. The company is progressively increasing its exposure to speciality chemicals that commands 2.6x the margin of regular rubber products. This is likely to aid higher margins/RoE.

Twin focus on volume and value

PCBL is expanding capacity in both rubber and speciality carbon-black segments. The 147ktpa greenfield expansion (along with 24MW of green power) in Tiruvallur, Tamil Nadu at project cost of INR8bn (INR54/kg) is likely to be completed in Dec-22. On the speciality chemical front, the company has embarked on a 40ktpa brownfield expansion at Mundra at INR3.2bn (INR80/kg). The first phase (20ktpa) is likely to be completed by Mar-23. Post expansion, the total capacity of the company is likely to be 790kt by FY25E-end. In our view, there is an optionality for brownfield capacity expansion for specialty chemicals at Tiruvallur. Given, the low capex intensity and strong balance sheet, we expect the company to pursue further expansions in order to maintain its market share in line with demand growth.

Strong R&D commitment

PCBL has commercialised 23 new grades of carbon-black in the last three years.

PCBL has two dedicated R&D facilities at Palej, India and Ghent, Belgium to facilitate development of new products required by tyre and pave the way for new uses of carbon-black in areas such as engineering plastics, fibres, food contact plastics, wires and cables. PCBL has commercialised 23 new grades of carbon-black in the last three years. It has won three patents and applications for four more are in the works. The global R&D set-up has four major verticals: i) New product development. ii) Oil Engineering. iii) Product customisation. iv) Focus on futuristic technologies and materials such as super conductive grades for batteries and carbon nanomaterials. R&D expenses have ranged between INR90-100mn over the last two years.

Profitability/returns likely to improve as speciality share ramps-up

PCBL's RoE is expected to improve to 20%-plus by FY25E.

We expect EBITDA/t to rise to INR20,000/t-plus by FY25E (FY22: INR14,430/t) mainly due to additional speciality chemical volumes (10kt p.a.) and ramp up of Greenfield rubber carbon-black facility at Tiruvallur. As a result, the proportion of speciality products is expected to reach 11% by FY25E (FY22: 8%). While FY23E is expected to be a capex-heavy year, we expect cash accretion of INR4.6bn through to FY25E, equivalent to 11% of the current market cap. Further, owing to improving profitability, RoE is expected to improve to 20% plus by FY25E. On earnings front, we expect revenue/EBITDA to grow by 9%/25% CAGR through to FY25E. EBITDA/t and EBITDA margin are likely to increase to INR20,000/t-plus and 21%, respectively through to FY25E mainly due to relatively higher crude prices and increasing proportion of speciality products.

PCBL's earnings are most susceptible to change in price. For every 1% change in realization, TP and EBITDA/t change by 3.5% and 4.8%, respectively.

Earnings are most sensitive to price and cost

PCBL operates in an environment where margins are protected by contracts based on formula-based pricing for 50% of non-tyre rubber applications business and 80% of speciality business. However, spot sales are exposed to the fluctuations in price/cost though price and cost, both are linked to crude oil price and typically are aligned after a quarter lag. Our sensitivity analysis indicates that earnings are most susceptible to price fluctuations of the products. For every 1% change in blended price, the TP changes by 3.5% and EBITDA/t changes by 4.8%, while for every 1% change in raw material cost (primarily CBFS), the corresponding changes in TP and EBITDA/t are 1.7% and 3.2%, respectively.

PCBL's stock performance is closely correlated with peers- Cabot Corp. and Orion, though PCBL is trading at discount to both of them on EV/EBITDA.

Outlook and valuation: Plenty to cheer for; initiate with 'BUY'

We believe that perceptions around PCBL's business being susceptible to commodity price fluctuations, low-end product and high on carbon emissions as being overdone as: i) it has a cost pass-through mechanism in the contracts; ii) there is customer stickiness in rubber products while speciality products are high-end and differentiated; and iii) PCBL scores high on material ESG parameters vs. global peers.

The stock's performance is closely correlated to its global peers such as Cabot Corporation (Cabot) and Orion Engineered Carbons (Orion). On valuations, however, the stock is currently trading at a slight discount to both the aforesaid peers.

All in all, we are initiating coverage on PCBL with a **'BUY'** recommendation as a '**SECTOR OUTPERFORMER**' recognising its three pillars: volume/value-led growth, focus on R&D and ESG leadership. Our TP of INR150 is based on an exit 6.7x Q2FY24E EBITDA—one standard deviation above mean—as we expect significant and sustainable improvement in earnings and returns.

Key risks:

- *Customer and supplier concentration*
- *Automotive build-rate is the key volume driver*
- *Threat of substitutes*
- *Ongoing investigations on environmental impact*

Key risks

PCBL operates in a very competitive environment with significant dependence on automotive and tyre industries. While the replacement market in tyres is a major business enabler, OEM build-rate is also an important determinant of profitability. Automotive industry is particularly susceptible to supply chain disruptions such as semiconductor shortage and calamity such as covid-19, potentially impacting revenue and cash flows adversely.

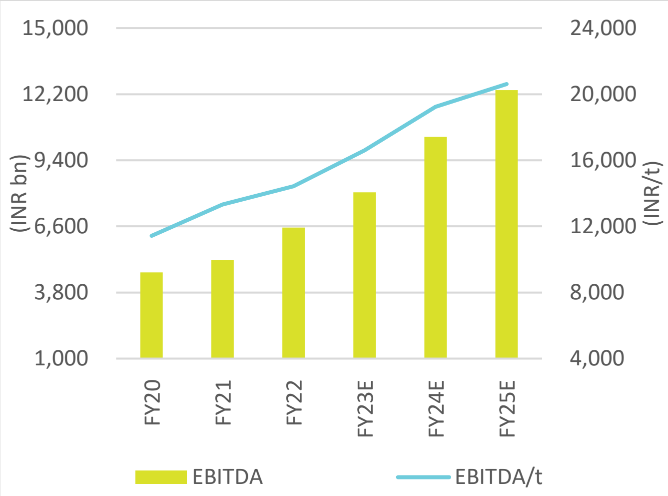
While operations are largely cost pass-through, the inability to do so, in the absence of a firm binding contract might have an impact on profitability. PCBL faces both client concentration risk (the top-5 customers account for 55-60% of revenue) and supplier risk as CBFS/CBO comprise ~75% of the total cost of raw materials. PCBL is dependent on a handful of suppliers across the world for this key commodity.

Besides, there is a need for constant innovation due to variations and changes required. The threat of substitution from silica precipitate, advanced materials and fused alloys remains. Currently, PCBL does not have these products in its portfolio. If the need arises, it might have to develop them without any assurance on commercial viability of the same.

Lastly, PCBL is subject to significant environmental and regulatory risks. Globally, carbon-black is being investigated as potential carcinogenic and nano-scale material. Any development in this regard, could have a significant impact on company's sales volumes and cashflows.

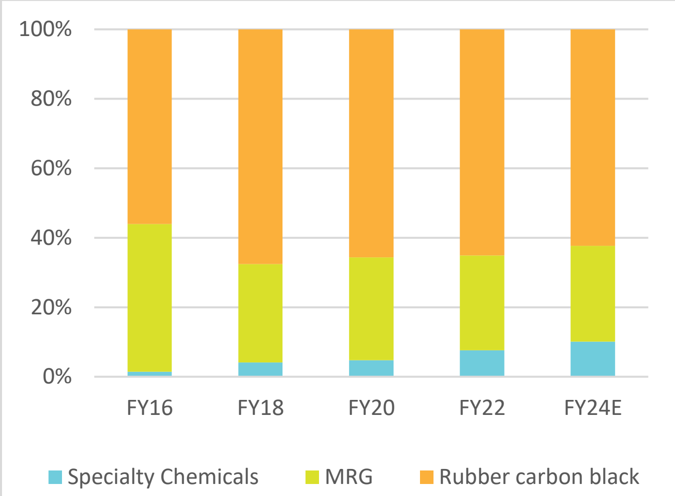
The Story in Charts

Exhibit 1: Significant improvement in earnings



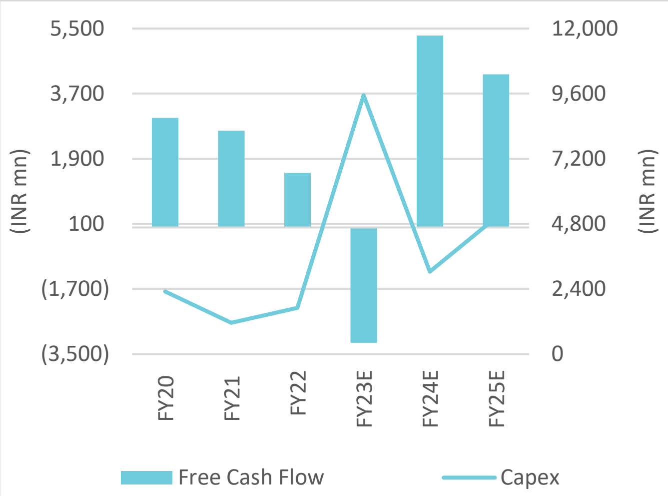
Source: Company, Edelweiss Research

Exhibit 2: …led by higher proportion of specialty chemicals



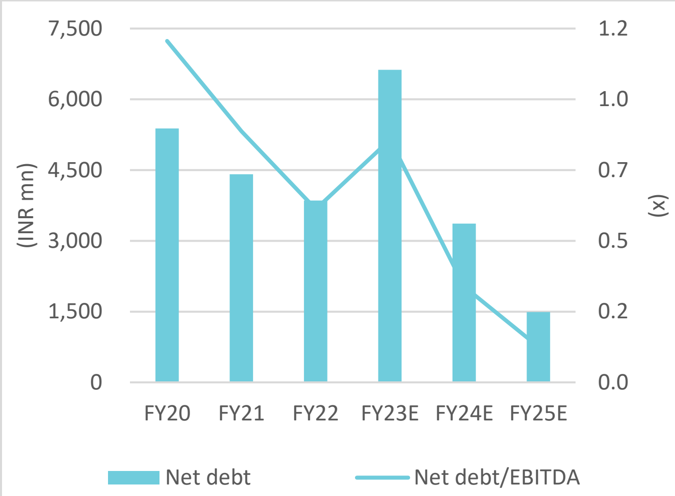
Source: Company, Edelweiss Research

Exhibit 3: FY23 is likely to be a peak capex period



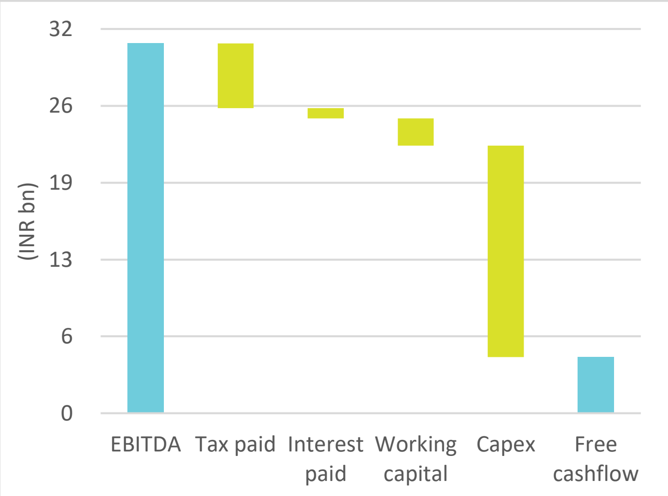
Source: Company, Edelweiss Research

Exhibit 4: …but significant improvement in leverage expected



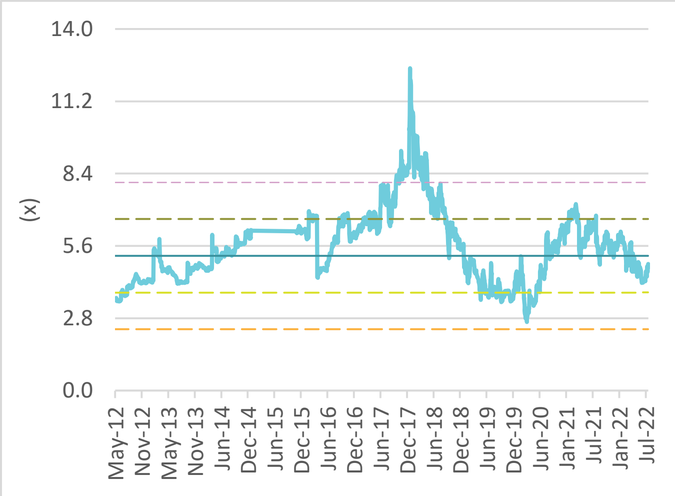
Source: Company, Edelweiss Research

Exhibit 5: FY23-25E accretion at 10% of current market cap



Source: Company, Edelweiss Research

Exhibit 6: Trading below mean EV/EBITDA



Source: Company, Edelweiss Research

Financial Statements

Income Statement (INR mn)

Year to March	FY22A	FY23E	FY24E	FY25E
Total operating income	44,464	54,108	51,568	58,105
Gross profit	13,126	15,036	18,045	20,753
Employee costs	1,587	1,651	1,717	1,785
Other expenses	4,983	5,335	5,940	6,600
EBITDA	6,556	8,050	10,388	12,367
Depreciation	1,209	1,354	1,613	1,896
Less: Interest expense	291	291	291	291
Add: Other income	267	86	299	422
Profit before tax	5,323	6,491	8,783	10,602
Prov for tax	1,052	1,298	1,757	2,332
Less: Other adj	0	0	0	0
Reported profit	4,271	5,193	7,027	8,270
Less: Excp.item (net)	0	0	0	0
Adjusted profit	4,271	5,193	7,027	8,270
Diluted shares o/s	378	378	378	378
Adjusted diluted EPS	11.3	13.8	18.6	21.9
DPS (INR)	4.0	3.4	4.7	5.5
Tax rate (%)	19.8	20.0	20.0	22.0

Balance Sheet (INR mn)

Year to March	FY22A	FY23E	FY24E	FY25E
Share capital	378	378	378	378
Reserves	25,672	29,566	34,836	41,038
Shareholders funds	26,049	29,944	35,214	41,416
Minority interest	0	0	0	0
Borrowings	7,030	7,030	7,030	7,030
Trade payables	9,110	10,735	10,154	11,278
Other liabs & prov	3,561	3,561	3,561	3,561
Total liabilities	47,554	53,073	57,762	65,088
Net block	18,132	19,992	26,598	28,927
Intangible assets	8	8	7	6
Capital WIP	1,294	7,794	2,794	3,794
Total fixed assets	19,433	27,793	29,399	32,726
Non current inv	7,875	2,875	4,875	7,875
Cash/cash equivalent	1,087	1,314	2,572	1,447
Sundry debtors	11,051	11,859	11,302	12,735
Loans & advances	5	5	5	5
Other assets	7,842	8,967	9,349	10,040
Total assets	47,554	53,073	57,762	65,088

Important Ratios (%)

Year to March	FY22A	FY23E	FY24E	FY25E
Realisation (INR/t)	90,855	1,01,913	86,785	87,721
EBITDA (INR/t)	14,434	16,598	19,238	20,612
Net Debt to EBITDA (x)	0.6	0.8	0.3	0.1
EBITDA margin (%)	14.7	14.9	20.1	21.3
Net profit margin (%)	9.6	9.6	13.6	14.2
Revenue growth (% YoY)	67.2	21.7	(4.7)	12.7
EBITDA growth (% YoY)	26.4	22.8	29.0	19.0
Adj. profit growth (%)	36.8	21.6	35.3	17.7

Free Cash Flow (INR mn)

Year to March	FY22A	FY23E	FY24E	FY25E
Reported profit	4,271	5,193	7,027	8,270
Add: Depreciation	1,209	1,354	1,613	1,896
Interest (net of tax)	233	233	233	227
Others	(142)	58	58	64
Less: Changes in WC	(2,361)	(482)	(584)	(1,183)
Operating cash flow	3,211	6,356	8,347	9,273
Less: Capex	(1,700)	(9,541)	(3,041)	(5,041)
Free cash flow	1,511	(3,185)	5,306	4,233

Assumptions (%)

Year to March	FY22A	FY23E	FY24E	FY25E
GDP (YoY %)	9.5	7.0	6.5	6.5
Repo rate (%)	4.0	4.3	5.3	5.3
USD/INR (average)	74.5	76.0	75.0	75.0
Sales Volumes (MT)	4,54,187	4,85,000	5,40,000	6,00,000
Crude Prices (USD)	70.8	91.2	75.0	70.0
Specialty Product (%)	7.6	9.2	10.1	10.8
EBITDA/tonne	14,434	16,597	19,237	20,612
Speciality Premium	1.7	1.7	1.7	1.7

Key Ratios

Year to March	FY22A	FY23E	FY24E	FY25E
RoE (%)	18.8	18.5	21.6	21.6
RoCE (%)	19.4	19.4	22.9	24.0
Inventory days	43	45	54	52
Receivable days	74	77	81	75
Payable days	87	93	114	105
Working cap (% sales)	20.2	17.2	18.8	18.4
Gross debt/equity (x)	0.3	0.2	0.2	0.2
Net debt/equity (x)	0.2	0.2	0.1	0.1
Interest coverage (x)	18.4	23.0	30.2	36.0

Valuation Metrics

Year to March	FY22A	FY23E	FY24E	FY25E
Diluted P/E (x)	10.4	8.5	6.3	5.4
Price/BV (x)	1.7	1.5	1.3	1.1
EV/EBITDA (x)	7.7	6.2	4.7	4.0
Dividend yield (%)	3.4	2.9	4.0	4.7

Valuation Drivers

Year to March	FY22A	FY23E	FY24E	FY25E
EPS growth (%)	24.9	21.6	35.3	17.7
RoE (%)	18.8	18.5	21.6	21.6
EBITDA growth (%)	26.4	22.8	29.0	19.0
Payout ratio (%)	35.4	25.0	25.0	25.0

Source: Company and Edelweiss estimates

Investment Rationale

A definitive edge: Twin focus on volume and value

- Ongoing expansion to deliver both growth and superior margins
- Global market share in speciality business expected to grow to 6% by FY25E

Capacity expansion in both rubber-black and specialty-chemicals to boost margins.

PCBL will expand capacity in both rubber and speciality carbon-black in a phased manner.

- By Dec-22 end, the 147ktpa Greenfield project for manufacturing various grades of carbon-black is likely to be commissioned. The plant would be spread over an area of 60 acres and will have 24MW co-generation power plant
- By FY23E-end, Phase 1 (20ktpa) of a new speciality chemical line at the existing Mundra plant would be commissioned. We expect the Phase-2 to be commissioned by FY24E.

These plants will result in total capacity at 790ktpa by FY24E compared to 603ktpa as on FY22-end. Furthermore, post commissioning of the both the Speciality chemical lines at Mundra, PCBL would be the largest Speciality carbon player in India, almost 1.9x (second largest player) Himadri Speciality Chemical Limited (60ktpa).

Exhibit 7: Capacity roll-out

Capacity (in tonnes)	FY20	FY21	FY22	FY23E	FY24E	FY25E
Rubber and Performance Chemicals						
Mundra, Gujarat	2,04,750	2,04,750	2,04,750	2,04,750	2,04,750	2,04,750
Durgapur, West Bengal	1,63,500	1,63,500	1,63,500	1,63,500	1,63,500	1,63,500
Palej, Gujarat	70,250	70,250	70,250	70,250	70,250	70,250
Kochi, Kerela	92,500	92,500	92,500	92,500	92,500	92,500
Tiruvallur, Tamil Nadu	-	-	-	1,47,000	1,47,000	1,47,000
Sub-total	5,31,000	5,31,000	5,31,000	6,78,000	6,78,000	6,78,000
Speciality black						
Mundra, Gujarat	-	-	-	20,000	40,000	40,000
Durgapur, West Bengal	-	-	-	-	-	-
Palej, Gujarat	40,000	72,000	72,000	72,000	72,000	72,000
Kochi, Kerela	-	-	-	-	-	-
Tiruvallur, Tamil Nadu	-	-	-	-	-	-
Sub-total	40,000	72,000	72,000	92,000	112,000	112,000
Total capacity	5,71,000	6,03,000	6,03,000	7,70,000	7,90,000	7,90,000

Source: Edelweiss Research, Company

Expect PCBL's global market share in tyres and performance chemicals to increase to 3.5% by FY25E.

As a result of the expansion in carbon-black capacity and subsequent ramp up, we expect global market share of PCBL to increase to 3.7% (FY22: 3.3%). Ex-China, PCBL's share is likely to increase to 6.0% (FY22: 5.4%). We expect Thiruvallur plant to be ramped up by 50kt p.a. However, owing to the variety of grades, capacity utilisation is expected at 80-85%.

Exhibit 8: Increasing share in Tyres and Performance chemicals

Tyres and performance chemicals (kt)	CY19 /FY20	CY20 /FY21	CY21 /FY22	CY22 /FY23	CY23 /FY24	CY24 /FY25
Demand-World	12,447	11,605	12,845	13,737	14,315	14,954
Demand- Ex-China	7,749	6,960	7,817	8,422	8,815	9,164
PCBL	387	365	420	440	485	535
Market share (%)						
World	3.1	3.1	3.3	3.2	3.4	3.6
Ex-China	5.0	5.2	5.4	5.2	5.5	5.8

Source: Edelweiss Research, Company

Expect PCBL's global market share in specialty chemicals to rise to 6% by FY25E.

In Speciality black, we expect 10ktpa additional volume p.a. owing to ramp up at Palej and Mundra lines. As a result, we expect PCBL's global market share to increase to 5.9% by FY25E (FY22: 3.6%). Ex-China, we expect PCBL's market share to increase to 7.3% by FY25E (FY22: 4.4%).

Exhibit 9: Increasing market share in speciality chemicals

Speciality chemicals (kt)	CY19 /FY20	CY20 /FY21	CY21 /FY22	CY22 /FY23	CY23 /FY24	CY24 /FY25
Demand-World	960	847	955	1,013	1,065	1,096
Demand- Ex-China	785	692	783	828	865	886
PCBL	19	24	35	45	55	65
Market share (%)						
World	2.0	2.8	3.6	4.4	5.1	5.9
Ex-China	2.5	3.5	4.4	5.4	6.3	7.3

Source: Edelweiss Research, Company

The enriched product mix is likely to drive PCBL's profitability. By FY25E, speciality chemicals; fetching 2.6x margin of commodity carbon-black is likely to increase to 11% of total capacity, compared to 8% in FY22.

Leadership position in India with strong global footprint

PCBL is the seventh largest carbon-black company the world and the largest in India in both rubber carbon-black and speciality chemicals. The company's global reach spans across ~45 countries, with exports progressively increasing to 32% in FY22 from 21% in FY18.

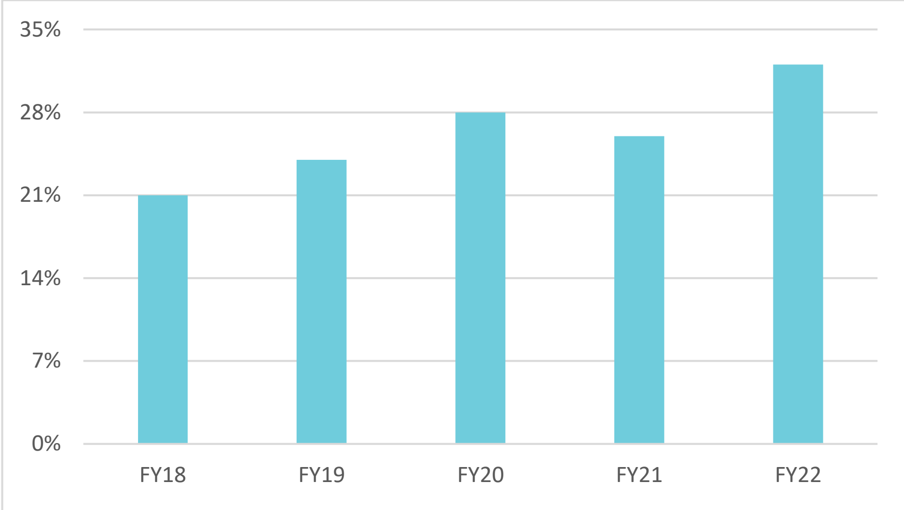
Working closely with leading tyre brands across the globe.

There are no protectionist measures for carbon-black anywhere in the world, hence it is a freely traded commodity ex-freight. Besides, PCBL is the leading exporter for carbon-black from India, accounting for 70-75% of total exports in the last five years. In FY22, the company took the following measures to tap into international market more aggressively:

1. Made breakthrough in new grades and locations for reputed customers such as Bridgestone Tyres, Giti Tyres, Toyo Tyres, Continental Tyres and Petlas Tyres.

2. Ventured into the less pursued markets in Latin America and Africa, besides strengthening position in Europe and North America.

Exhibit 10: Proportion of exports has progressively gone up



Source: Edelweiss Research, Company

In the domestic market, the company has been focusing on the MRG segment that resulted in improved volume sales. The company is exploring strategic tie-ups with key non-tyre customers. Besides, the enhanced focus on retail segment has resulted in margin improvement.

In next few years, we see PCBL well placed to strengthen its position as competitive activity is not significant. Birla Carbon India has just announced 80ktpa expansion in India as a part of its 200ktpa global expansion (80kt in China and 40kt in Hungary). It is noteworthy that the company sees India offering significant growth and is adding capacity for surface treatment of high-value specialty materials, serving customers in critical applications like water-based coatings in line with sustainability-driven industry trends.

Limited capacity expansion by domestic peers.

Balkrishna Tyres (BKT) has also announced doubling its current capacity from 140ktpa to 280ktpa through to FY25E. In immediate term, however, 55ktpa of carbon-black capacity is expected to be commissioned in next 2-3 months, followed by 30ktpa of Speciality carbon-black capacity by H2Y23. In case of BKT, however, we expect limited third party carbon-black sales as the company has recently commissioned brownfield tyre capacity of 50ktpa. Besides, tyre sales is expected to increase from 288.7kt in FY22 to 330-330kt in FY23.

Other competitors do not have any capacity expansion plans in the pipeline.

Exhibit 11: Capacity roll-out plans of Indian peers

Company	Domestic Capacity (ktpa)	Capex plans(Ktpa)	Comments
PCBL	603	187	147ktpa of carbon-black and 40ktpa of Speciality Chemicals
Birla Carbon India	315	80	Announced in May-22 end
Himadri Specialty Chemicals	180	0	No announced plans for expansion
BKT (BalkrishnaTyres)	140	140	55ktpa carbon-black capacity in next 2-3 months; 30ktpa Speciality carbon-black by H2FY23
Epsilon Carbon	115	0	No announced plans for expansion
Continental Carbon India	85	0	No announced plans for expansion

Source: Edelweiss Research, Company

At the forefront on sustainability

- Better than the global peers on emissions and water intensity
- On track to achieve medium term sustainability goals

We find the company increasing its focus on sustainability-linked parameters. There is a sustainability framework in place with plant-wise disclosure and concrete goals.

GHG emissions

First carbon-black company in the world to receive carbon credits from UNFCCC.

In CY04, PCBL started recovering the waste heat from the process gases to generate power for own consumption and exporting the excess power to grid. Besides, it is the first carbon-black company in the world to receive carbon credits from United Nation's Framework Convention on Climate Change (UNFCCC) for process waste heat utilisation for power generation at Palej plant in Gujarat. PCBL currently has 91MW co-generation power plants across the units. During FY21, the company exported to grid net 258,976MWh of electricity from waste heat recovery, offsetting equivalent emissions of 204,591 tCO_2 in FY21.

Plant-wise initiatives are as follows:

1. **Durgapur**: Installed variable frequency drive (VFD) and replaced old sodium vapour lighting system with LED bulbs.
2. **Palej**: Replaced plunger type compressor with new highly efficient high-pressure screw compressors in the plant and modified the APH design to improve efficiency. VFD was installed for air blowers with optimised power energy consumption
3. **Kochi**: Replaced conventional lighting with LEDs, installed VFDs and replaced least efficient reciprocating compressors with screw compressors.
4. **Mundra**: Installed LED lights in place of sodium vapour bulbs, initiated heat recovery by different inline heat exchangers. Also, the company has started using I-3 motors, which are 90% energy efficient against I-2 motors.

Exhibit 12: GHG emissions

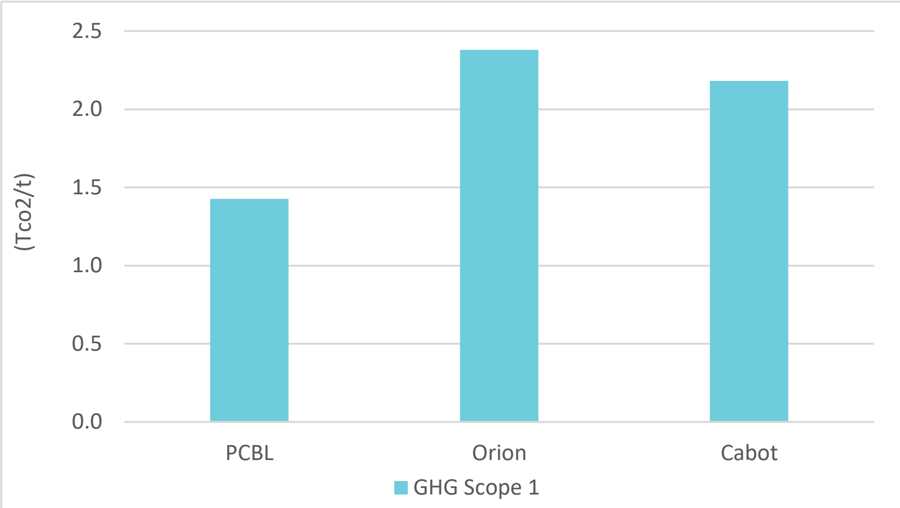
GHG emissions (tCO2e)	Durgapur	Kochi	Mundra	Palej
Scope-1	1,80,636	92,947	1,51,004	1,23,938
Scope-2	538	611	266	315
Scope-3	51,113	30,049	58,273	1,34,389
Total	2,32,287	1,23,607	2,09,543	2,58,642
GHG Emission intensity (tCO2e/mt)	2.2	1.5	3.2	1.9

Source: Edelweiss Research, Company

PCBL scores better compared to peers on GHG emissions.

Energy intensity at Mundra plant was higher in FY21 owing to stabilisation of new line. Compared to its global peers, PCBL enjoys lower Scope 1 emissions intensity.

Exhibit 13: GHG emissions – PCBL vs. peers



Source: Company, Edelweiss Research

Water management

PCBL has maintained Zero Liquid Discharge (ZLD) across its plants. Recycled water is used in scrubber and mixtures. The company has instated rainwater harvesting systems for a stable supply of freshwater and plants recycle this water using Effluent Treatment Plant (ETP):

1. Palej has 50KLPD STP (domestic water) and 250KLPD upgraded ETP. It is also commissioning 1,650KLPD WTP.
2. Mundra has ETP capacity of 285 KLPD and WTP of 1,800 KLPD. At Mundra, 46,500m^3 rainwater is recharged per annum. Going forward, the company is instating rainwater harvesting across the other three plants as well.
3. Durgapur has ETP capacity of 500KLPD.
4. Kochi has ETP capacity of 130KLPD.

PCBL's water intensity is better compared to peers.

As a result, water consumption intensity at all the plants has come off significantly in FY21 compared to FY20.

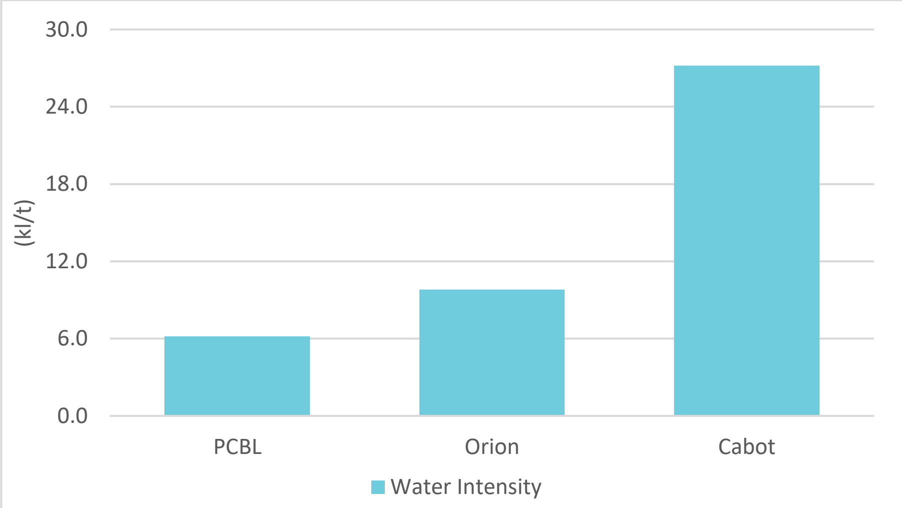
Exhibit 14: Water consumption intensity across the years

In Kl/t	FY21	FY20	FY19	FY21/FY20 (%)	FY20/FY19 (%)
Durgapur	3.2	4.4	4.5	-25.9	-2.9
Palej	3.2	3.7	2.5	-11.5	49.4
Kochi	3.4	3.4	3.6	0.3	-5.3
Mundra	2.7	4.2	4.0	-34.8	5.5

Source: Edelweiss Research, Company

PCBL's water intensity is much lower compared to its global peers. As against, Orion's 9.18 kl/t, PCBL's water intensity comes to 6.18 kl/t.

Exhibit 15: PCBL's water intensity compared to peers (Orion and Cabot)



Source: Company, Edelweiss Research

Curtailing emissions

PCBL is curtailing emissions by continuously monitoring them.

On the emissions front, PCBL is consistently undertaking measures to reduce emissions by installing Continuous Emission Monitoring System (CEMS) to track all emissions ofSO2, NOX, H2S and SPM (use callout). Further stack monitoring (24 hours sampling), effluent sampling and ambient air quality monitoring are carried out at regular frequency by authorised third-party agencies.

PCBL has installed highly-efficient filter bags to filter out fine dust particles. For the reduction of SOx and other gases, PCBL is selecting raw material feedstock with minimum sulphur content and other impurities.

Exhibit 16: SOx emissions

SO2(mg/nm3)	FY21	FY20	FY19	FY21/FY20 (%)	FY20/FY19 (%)
Durgapur	74.8	74.5	73.0	0.4	2.1
Palej	13.0	14.0	14.5	-7.1	-3.4
Kochi	128.4	132.3	151.7	-3.0	-12.8
Mundra	6.4	6.5	15.8	-1.5	-58.9

Source: Company, Edelweiss Research

Exhibit 17: NOx emissions

NOx (mg/nm3)	FY21	FY20	FY19	FY21/FY20 (%)	FY20/FY19 (%)
Palej	12.5	14.6	14.5	-14.4	0.7
Mundra	19	20	13.0	-5.0	54.1

Source: Company, Edelweiss Research

Exhibit 18: Particulate matter emissions

Particulate matter(mg/nm3)	FY21	FY20	FY19	FY21/FY20 (%)	FY20/FY19 (%)
Durgapur	34.0	32.0	36.1	6.3	-11.4
Palej	22.7	23.0	23.5	-1.3	-2.1
Kochi	33.9	34.7	35.8	-2.4	-3.2
Mundra	37.2	38.7	58.9	-3.9	-34.3

Source: Company, Edelweiss Research

Lags behind peers on oil spillage instances and employee turnover…

PCBL has been trying to prevent oil-spillage by using leak-proof containers. While transferring oil from one tanker to another, the company uses barrel pumps to prevent the surplus oil from spilling. Sump-pits are used to store and reuse oil. As a result of these efforts, oil spillage has reduced to 50kg in FY21 from 81kg in FY19. However, Orion has not reported any significant spill during the past three years.

Exhibit 19: Oil spillage

(In kg)	FY21	FY20	FY19	FY21/FY20 (%)	FY20/FY19 (%)
Palej	13	15	22	-13.3	-31.8
Durgapur	11	10	9	10.0	11.1
Kochi	20	30	40	-33.3	-25.0
Mundra	6	5	10	20.0	-50.0
Total	50	60	81	-16.7	-25.9

Source: Company, Edelweiss Research

Employee turnover at both Cabot and Orion is at 4% each over past three years, while in case of PCBL it is at 15%.

…however, fares better on diversity

PCBL is better compared to peers on diversity and age of workers.

PCBL has a higher percentage of people below 30 years of age, compared to its peers. While the percentage of people in the mid-age group (30-50 years) are similar for all the companies (50-60%), the proportion of people above 50 is also lower. This demonstrates PCBL's agility and future readiness. Also, its peers could suffer loss of talent as the ageing population of workers achieves superannuation.

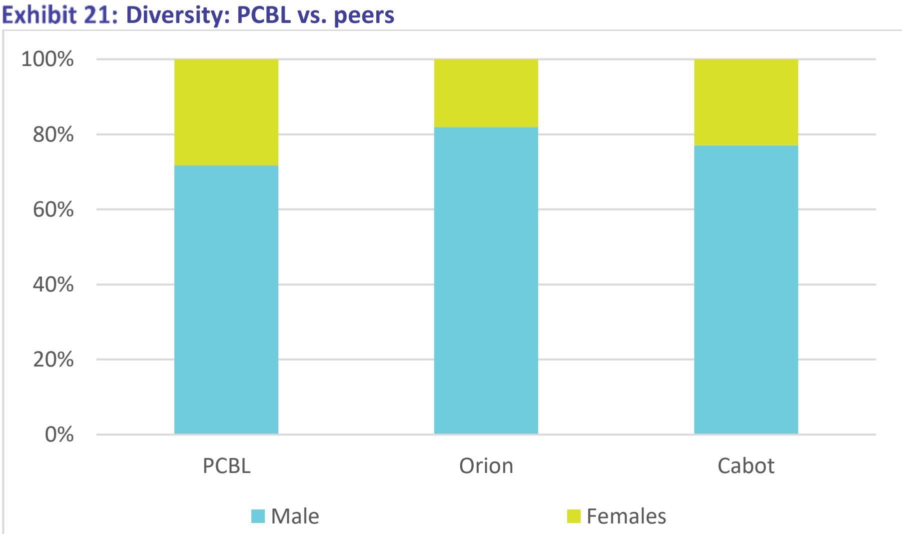
Exhibit 20: Number of employees by age-group

Employees by age group	PCBL	Orion	Cabot
Less than 30	35%	9%	10%
between 30-50	57%	50%	59%
More than 50	8%	42%	31%

Source: Company, Edelweiss Research

PCBL has a higher proportion of female employees compared to its peers, demonstrating the focus on diversity.

Exhibit 21: Diversity: PCBL vs. peers



Source: Company, Edelweiss Research

Geared to achieve long-term sustainability goals

Despite being better placed, compared to peers, on GHG emissions, water intensity and diversity, PCBL is focused on accentuating improvement on these parameters. Furthermore, the company is focusing on supplier sustainability in order to ensure that even supply-chain is positioned on this front.

Exhibit 22: Well-positioned to achieve CY30 goals

Topics	Targets
Energy	Reduce net CO_2 emission by 15% by 2030
Water	Reduce specific fresh water consumption by 25% from baseline 2018 by 2030
Waste diverted from Landfill	20% reduction in waste to Landfill by 2025 from baseline 2020
Employee Engagement, Health and Safety	Zero Recordable Injuries report based on Total Recordable Injury Rate (TRIR) by 2025
Suppliers Sustainability	New key suppliers to be screened for ESG Criteria every year.
	Assessment of critical suppliers by 2025
	Continuous engagement with our key suppliers and tier 1 suppliers to improve collective sustainability performance
Diversity and Inclusion	Create a gender balanced workforce by 2030

Source: Company, Edelweiss Research

Focus on R&D to drive value enrichment

- Developed 75 grades of carbon-black of which 40 grades are for speciality
- 2 existing patents. Applications in process for 4 additional patents

PCBL's R&D facilities at Palej, Gujarat (established in 2018) along with an innovation centre (operational in 2020) at Belgium are equipped with some of the latest technology and equipment in the field of carbon-black research and development. The in-house R&D capabilities focus on the following –

Development of new carbon-black grades

PCBL endeavours to move up the value chain in both speciality chemicals and ubber black by rapidly expanding its existing speciality business, including inks, coatings and plastic masterbatch segments. In rubber grade carbon-black products, the focus is on improving the existing grades by adopting physical and chemical routes of modification. In FY22, PCBL came up with following new offerings:

1. Introduced NuTone^{TM}21, providing improved dispersion in aqueous and non-aqueous medium and satisfactory color performance. A series of similar NuTone^{TM} grades is ready to be introduced in market in FY23.
2. Developed CarboNext®10, CarboNext®20 and a series of PRD022 grades for moulded rubber goods and ultra-high reinforcing applications. These are various stages of approval.
3. PRD018, a carbon-black trial grade offering with potential capability of improving rolling resistance and tyre durability.

Modifications/improvement in process design

Specialty chemicals has variety of use.

The company evaluates the existing carbon-black manufacturing processes and technologies with an aim to provide cleaner carbon-black grades. The key aspects are improving the reactor efficiency, productivity, yield and pellet quality.

Noteworthy achievements in FY22 include:

1. Introducing specially designed potassium burner to avoid nozzle damage.
2. Introducing hot-air line with bellow design change to prevent damage of bellow
3. Implementation of new design atomised burner for improved carbon-black feedstock atomisation
4. Rectification of pelletiser-pin design for improvement of pellet quality
5. Installation of decanter systems to carbon-black feedstock supply (CBFS)
6. Installation of high capacity conveying fan.

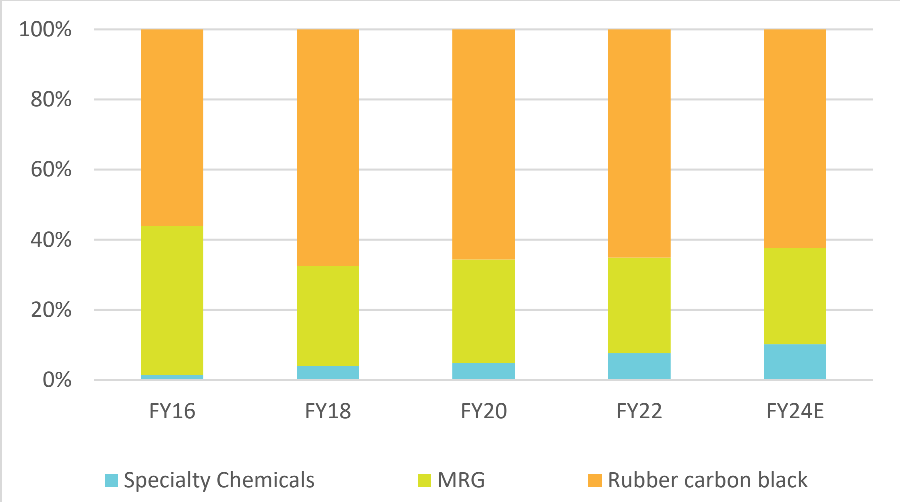
CBFS research

CBFS is an important determinant of profitability as it is a major part of CoGS – about 65-70% of revenue. The R&D team analyses the inbound feedstock to ensure the effectiveness for manufacturing carbon-black. The team is also involved in evaluating eco-friendly CBFS with lowest possible contaminants content, new sources of CBFS including bio-sourced and physical and/or chemical treatment of feedstock which can meet environmental norms of present and future demand. PCBL has developed a seamless capability of using multiple feedstock, like CBFS and CBO for the manufacture of carbon-black. This capability provides the company with a flexibility and a choice between multiple feedstock, based on price arbitrage.

Tracking industry trends

The R&D department also regularly monitors and analyses the industry trends and evolving market dynamics, which includes patents and products analysis. There is a focus on futuristic technologies such as super conductive grades for batteries, hybrid fibres, carbon nano tubes and new carbon-black manufacturing technology.

Exhibit 23: Higher proportion of speciality products to improve profitability



Source: Edelweiss Research, Company

Exhibit 24: Research goals

Timeframe	Goals
Short to Mid-Term (5 Years)	To evolve superior Carbon-black Feedstock (CBFS) to augment manufacturing of sustainable and high worth carbon-blacks
	Cost effective, and high performing carbon-black platforms to strengthen fuel economy, weight reduction, durability of tyre for electric vehicle and other tyre segments
Long-Term (5-10 Years)	Synergise carbon-blacks to suit for energy storage and advanced ink applications

Source: Edelweiss Research, Company

Strong customer relationship and strategically located plants

- Customer collaboration through virtual plant concept
- Cost pass mechanism through contracts keeps margins protected

PCBL has been collaborating with its customers to tailor grades as per their requirements. It has strategic relationships with global tyre manufacturers through joint product development collaboration and focus on developing value-added portfolio for enhanced fuel-efficiency and durability. Sales to top 10 customers has contributed 66-68% of total revenue over last three years while the company has been associated with its top five customers for more than a decade.

The company runs an efficient supply chain process by way of 'Virtual Plant Concept' which primarily aims in facilitating the next door supply to the customers. This has the following advantages:

1. Provides flexibility to serve customers, similar to just-in-time (JIT) concept
2. Ability to meet local demand, supplied through the warehouses located at Chennai, Kolkata, Ponda and Medak and decanting stations located across Asia, Europe and USA.
3. Capacity to supplement domestic presence with overseas presence through offices in Korea, China, Belgium, Germany, Vietnam and France.

Formula driven contracts for 100% of tyre applications, 50% of non-tyre rubber applications and 80% of specialty chemicals.

Most of the long-term contracts contract formula-driven price adjustment mechanisms for changes in raw material, freight and foreign exchange rates. PCBL sells carbon-black under the following two main categories of contracts based on price adjustment mechanisms:

1. Contracts with feedstock adjustments (indexed contracts): This category includes term contracts with automatic feedstock, freight and foreign exchange adjustments. The typical lag for cost pass-on is one quarter. All the tyre volumes- global and domestic are in this category. 50% of non-tyre rubber applications business and 80% of speciality business is covered under contracts.
2. Spot sales: This mechanism typically covers retail segment, primarily in MRG and to a lesser extent in speciality carbon category. Sales to retail segment results in better margins.

Location advantage and flexibility to use alternate feedstock

Proximity of plants to the ports has advantage both for export of finished products and optimizing freight cost for imported raw material.

The existing four carbon-black manufacturing facilities are located near the port, resulting in multiple advantages, including easy access to raw materials, proximity to domestic tyre manufacturers and export market. Also, there is easy grid connectivity at all the four locations for sale of surplus power. The spatial dispersion of facilities across the three corners of the country makes PCBL efficient for serving customers, lowers logistics cost and hedges against the local disruptions.

PCBL has developed a seamless capability of utilising multiple feedstocks, like CBO and CBFS for the manufacture of carbon-black, providing the company with a flexibility and a choice between multiple feedstocks based on price arbitrage available at different points in time. For instance, the company is using CBFS predominantly as feedstock currently as the price difference between CBFS and CBO is almost USD300/t.

Performance expected to improve further

- Speciality products capacity ramp up to result in higher margins
- Free cash flow accretion through FY25E equivalent to 12% of market cap

Triple-20 by FY25: EBITDA margin at 20%; EBITDA/t at INR20K and RoE in excess of 20%.

We expect PCBL's EBITDA margin to increase to 21% and EBITDA/t to increase to INR20,000 plus by FY25E owing to ramp up of value-added speciality chemicals capacity and higher performance chemicals sales. The proportion of speciality chemicals volume is likely to increase to 11% (FY22: 8%) as Mundra and Palej capacities ramp up. In our view, the profitability of Speciality chemicals is 2.6x and Performance chemicals is 1.3x compared to rubber carbon-black.

While PCBL does not disclose the profitability of rubber carbon-black and speciality chemicals separately, our analysis of the one of the competitors, Orient Carbon suggests that EBITDA/t of speciality chemicals has ranged between 2.5-3.5x over past four years.

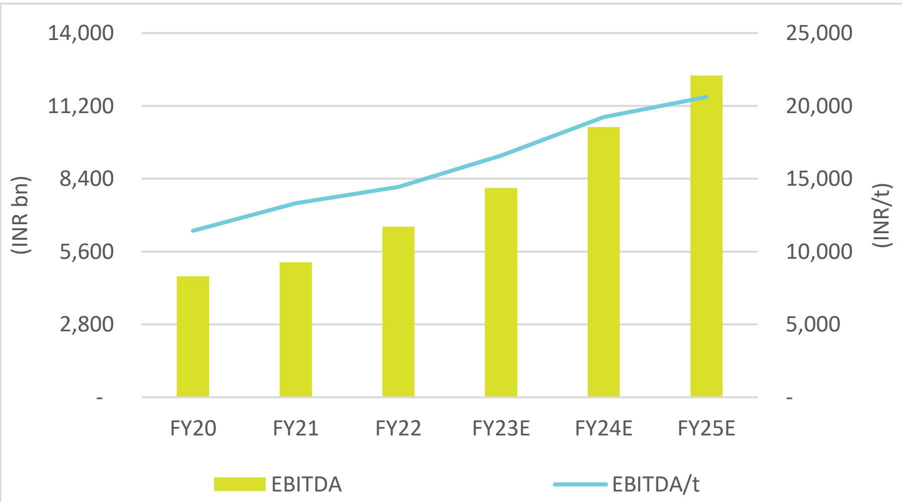
Hence, as the proportion of speciality chemicals goes up, blended EBITDA also goes up. In case of Orion, as the proportion of speciality chemicals increased to 27.3% in CY21 (CY15: 20.4%), the blended EBITDA also increased to USD278/t (CY15: USD224/t).

Higher percentage of specialty products implies higher profitability.

Currently, the proportion of speciality products for PCBL is at 7.6%, compared to 27.3% for Orion, hence EBITDA/t is also significantly lower. For CY21/FY22, blended EBITDA/t for PCBL was at USD194/t compared to USD278/t for Orion. By FY25E, we expect PCBL's EBITDA/t to increase to USD291 as proportion of Speciality products rises to 11.0%.

We expect PCBL's EBITDA at INR8bn in FY23E and improving to INR10-12bn p.a. FY24 onwards mainly due to volume ramp of both rubber carbon-black and speciality chemicals segments. We expect cashflow from operations to improve to INR8-9bn post FY24E.

Exhibit 25: Both earnings and profitability are expected to improve

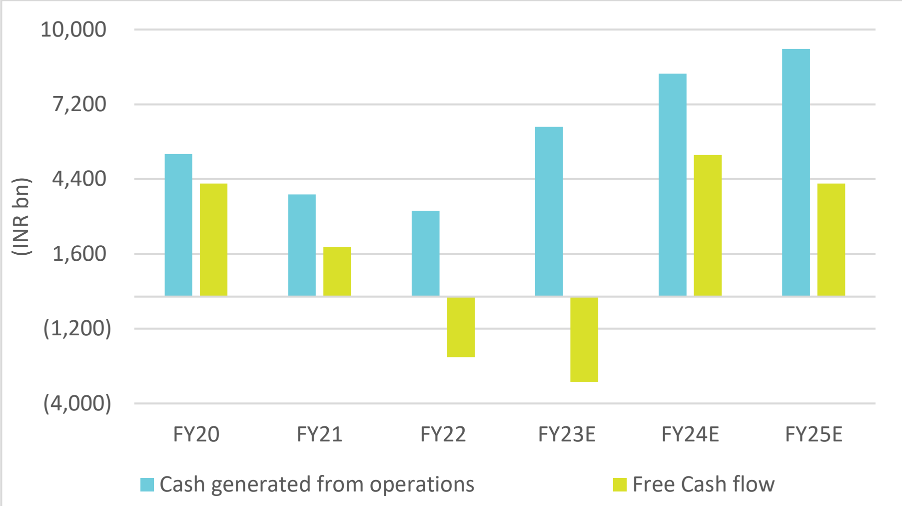


Source: Company, Edelweiss Research

High capex intensity to lead to negative free cashflow in FY23.

That said, the capex intensity is likely to pick up as well as the company endeavours to complete the ongoing expansions. Hence, we expect negative free cashflow in FY23E. This is in-line with its global competitors such as Cabot and Orion Carbon, as companies world-wide look to ramp up capacity. We expect free cashflow at INR4-5bn p.a. post FY24E.

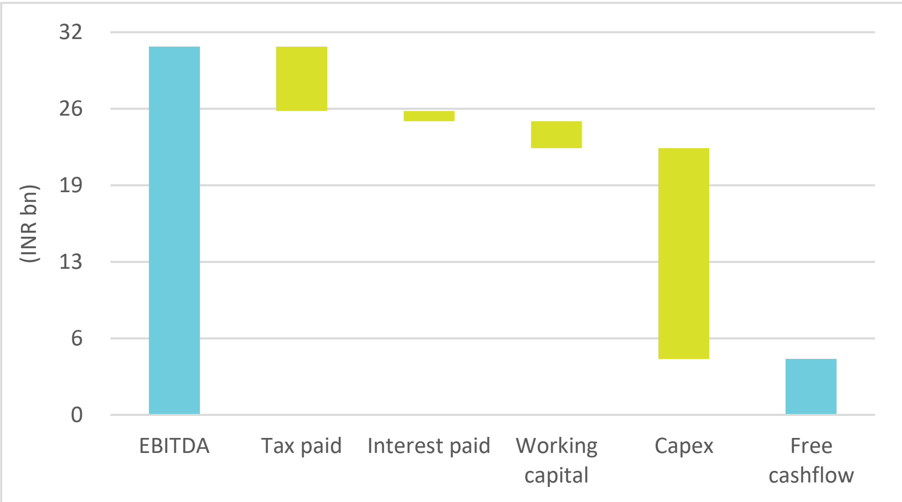
Exhibit 26: Negative free cashflow in FY23E owing to peak capex



Source: Edelweiss Research, Company

For FY23E-FY25E, the cumulative free cashflow is likely to be INR4.7bn, ~10% of the current market cap.

Exhibit 27: Free cashflow accretion at 10% of market cap



Source: Edelweiss Research

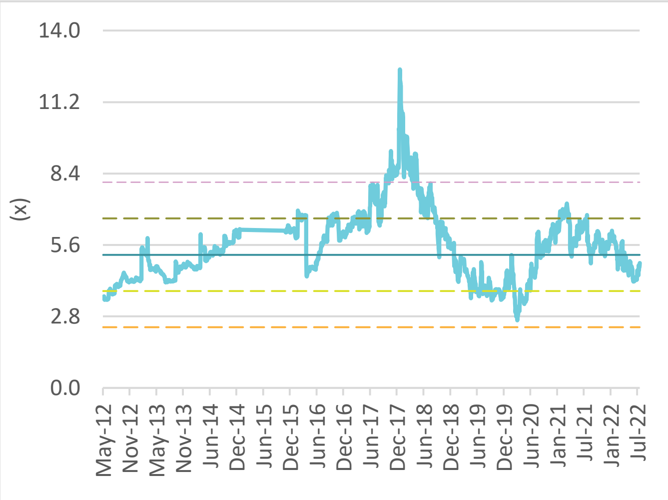
Valuation

- We are initiating coverage on PCBL with 'BUY/SO' and a TP of INR150, implying 23% upside potential
- Our valuation multiple of 6.7x is one deviation above mean owing to the better operating prospects of the company
- PCBL stock is trading at discount to global peers on all the valuation parameters

Trading at discount to its past ten year average.

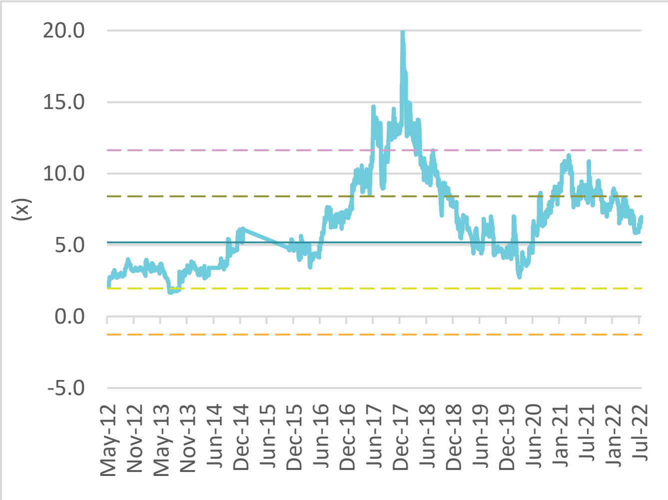
PCBL stock is trading at discount to its mean of past ten years range on both EV/EBITDA. Compared to average EV/EBITDA of 5.2x over past ten years, the stock is trading at 4.6x (2Y-forward). The stock is trading below its past ten year's average on P/E as well. It is noteworthy that the stock has never traded at two deviations below mean EV/EBITDA and has rarely been lower than one deviation below mean P/E over the last ten years.

Exhibit 28: EV/EBITDA range over last year



Source: Edelweiss Research, Bloomberg

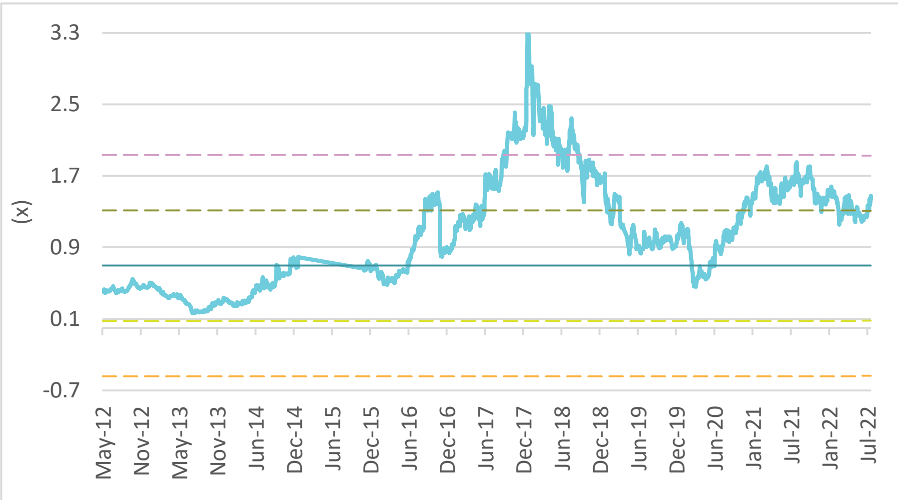
Exhibit 29: P/E range over last year



Source: Edelweiss Research, Bloomberg

On P/BV, the stock is trading one deviation above mean. PCBL stock has never traded lower than one deviation below mean P/BV.

Exhibit 30: P/BV range over last ten years

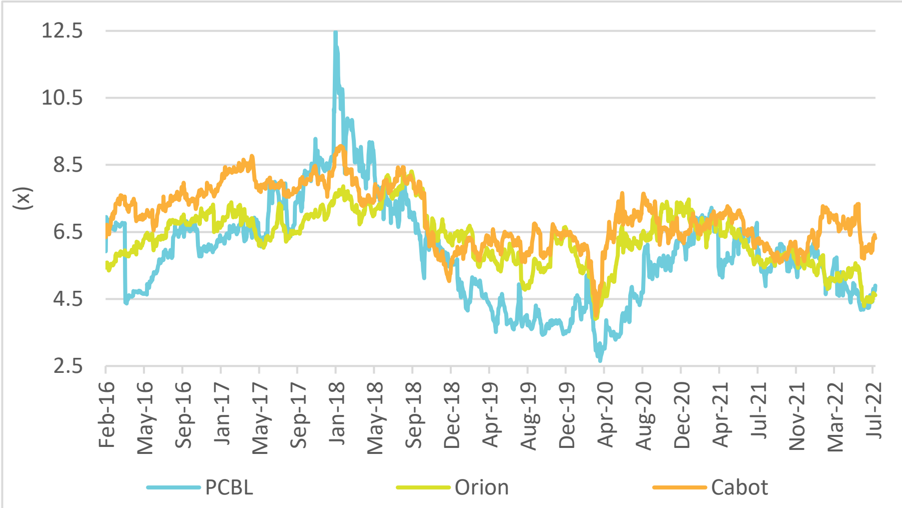


Source: Edelweiss Research, Bloomberg

Trading at discount to peers

Compared to global majors, PCBL's stock is trading at a discount to listed global majors – Orion Chemicals and Cabot Corp. Notably, PCBL has traded at a discount to these peers for the major part of the past six year period. Recently, peers have seen an uptick in multiples, however, in case of PCBL it has trended lower.

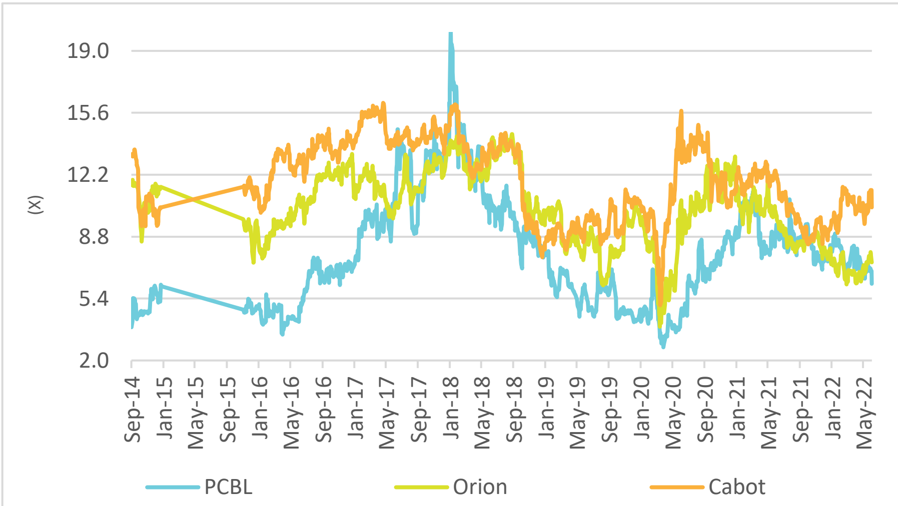
Exhibit 31: EV/EBITDA: PCBL vs. peers



Source: Edelweiss Research, Bloomberg

On P/E as well, the PCBL stock is trading at a lower multiple compared to peers. The discount, with-respect-to Cabot, has come off recently though. It is also noteworthy that all the companies are trading at a multiple similar to Jan-16.

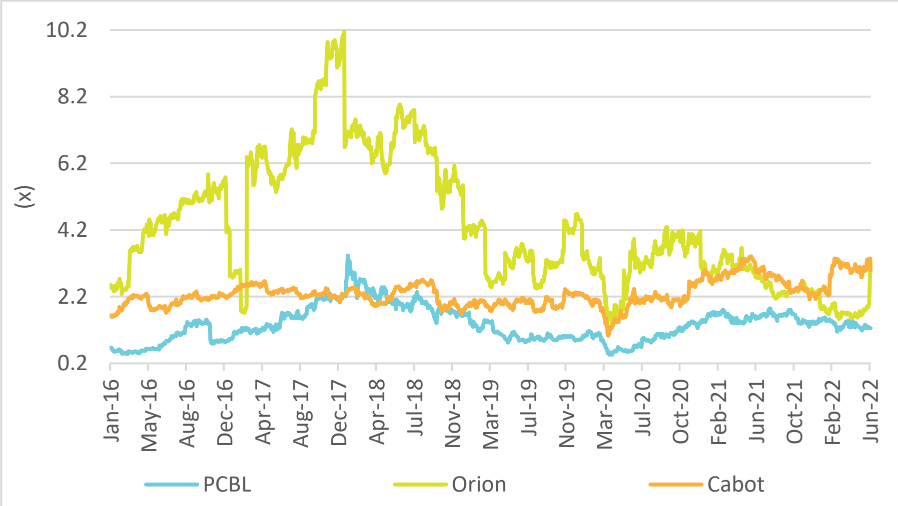
Exhibit 32: P/E- PCBL vs. peers



Source: Edelweiss Research, Bloomberg

On P/BV as well, PCBL is trading at discount to peers. PCBL stock has traded at a discount to global peers on P/BV mainly due to lower RoE across the time. With RoE improving progressively owing to better cash accretion, we expect the discount to be narrowed.

Exhibit 33: P/BV – PCBL vs. peers



Source: Edelweiss Research, Bloomberg

We value PCBL at 6.7x Q2FY24E EBITDA

Value at one-deviation above mean on improving prospects

We expect PCBL's profitability to improve henceforth mainly due to better product mix and volume ramp up even in staple rubber carbon-black. Furthermore, the competitive position of PCBL is likely to be buttressed both in domestic and international market due to limited expansion plans of domestic players and improving market share in profitable speciality chemicals segment. With China losing its competitive edge due to CBO (their traditional feedstock) being at a significant premium of USD300/t to CBFS, we do not foresee the possibility of import onslaught. On the contrary, owing to the incessant efforts of the management to strengthen customer relationship through collaborative manufacturing, virtual plant concept and new product development, we see an improving market exports.

We value PCBL at 6.7x Q2FY24E EBITDA—at one deviation above mean trading range owing to: i) better profitability potential sustaining; ii) improved RoE; and iii) FCF generation from FY24E. Our 6.7x multiple, implies discount rate of 15% to EBITDA. On 6.7x Q2FY24E EBITDA, our TP works out to INR150, implying 23% upside potential.

Exhibit 34: We value PCBL at INR150/share

EBITDA- Q2FY24E	9,219
Multiple	6.7
EV	62,113
Net debt- Q2FY23E	5,571
Market cap	56,542
Shares	378
Fair value	150

Source: Edelweiss Research

Most sensitive to blended realisation.

Sensitivity analysis

We have performed a sensitivity analysis of target price, RoE, EBITDA/t and free cash flow for FY24E to change in realisation, cost, volume and crude price forecasts.

Our analysis suggests that change in price has the highest impact on various parameters. Among the critical parameters, free cashflow is most impacted by the change in any assumption.

Exhibit 35: Sensitivity analysis of key parameters on main assumptions

	Price	Cost	Volume	Crude price
TP	3.5%	-1.7%	1.1%	1.8%
RoE	5.1%	-3.8%	0.9%	1.5%
EBITDA/t	4.8%	-3.2%	NM	1.6%
FCF	5.2%	-2.9%	1.4%	2.3%

Source: Edelweiss Research

Our analysis suggests that the target price is more sensitive to change in prices than a change in cost. For every 1% change in blended realisation, the change in target price is 3.5% while for every 1% change in cost, the change is target price is 1.7%. Within +/- 5% of change in realisation/cost, target price ranges is INR111–189/share.

Exhibit 36: TP sensitivity to Realisation and Raw material cost

		% change in realisation				
		-10%	-5%	0%	5%	10%
% change in Cost	-10%	124	150	176	202	228
	-5%	111	137	163	189	215
	0%	98	125	150	177	203
	5%	86	112	138	164	190
	10%	73	99	125	152	178

Source: Edelweiss Research

Our base case FY24E RoE of 21.6% is also more susceptible to the change in realisation than cost. For every 1% change in realisation carbon-black products, the change in RoE is 5.1% while for every 1% change in cost, the change in RoE is 3.8%. Within +/- 5% of change in realisation/cost, RoE ranges from 11.5–30.9%. It is worth noting that PCBL is unlikely to incur loss even if blended realisation drops by 10%. Furthermore, even if there is a raw material cost escalation of 10% and blended realisation remain unchanged, RoE is likely to drop to only 13.4%.

Exhibit 37: RoE sensitivity to realisation and cost

		% change in realisation				
		-10%	-5%	0%	5%	10%
% change in cost	-10%	18.1	24.0	29.4	34.6	39.5
	-5%	13.8	19.9	25.5	30.9	35.9
	0%	9.4	15.7	21.6	27.1	32.3
	5%	5.0	11.5	17.5	23.2	28.6
	10%	0.4	7.1	13.4	19.3	24.8

Source: Edelweiss Research

Our base case FY24E EBITDA/t of INR19,238 is also more susceptible to the change in realisation than cost. For every 1% change in realisation carbon-black products, the change in EBITDA/t is 4.8% while for every 1% change in cost, the change in EBITDA/t is 3.2%. Within +/- 5% of change in realisation/cost, EBITDA/t ranges from

11,488–26,987. It is worth noting that PCBL is unlikely to incur loss even if blended realisation drops by 10% and cost increases by 10%.

Exhibit 38: EBITDA/t sensitivity to realisation and cost

						Price
		-10%	-5%	0%	5%	10%
Cost	-10%	16,155	20,800	25,446	30,091	34,737
	-5%	13,051	17,696	22,342	26,987	31,633
	0%	9,947	14,592	19,238	23,883	28,529
	5%	6,843	11,488	16,134	20,779	25,425
	10%	3,739	8,384	13,030	17,675	22,321

Source: Edelweiss Research

Our base case FY24E FCF of INR6.1bn is also more susceptible to the change in realisation than cost. For every 1% change in realisation carbon-black products, the change in FCF is 5.2% while for every 1% change in cost, the change in FCF is 2.9%. Within +/- 5% of change in realisation/cost, FCF ranges from INR3.6-8.6bn. Even if there is simultaneous decline in realisation (10%) and increase in cost (10%), there is positive free cash flow despite high committed capex.

Exhibit 39: FCF sensitivity to realisation and cost

		% change in realisation				
		-10%	-5%	0%	5%	10%
% change in cost	-10%	3,974	5,582	7,190	8,798	10,406
	-5%	3,032	4,640	6,248	7,856	9,464
	0%	2,090	3,698	5,306	6,914	8,522
	5%	1,148	2,756	4,364	5,972	7,580
	10%	206	1,814	3,422	5,030	6,638

Source: Edelweiss Research

Our base case TP of INR150 is more susceptible to the change in crude oil price than volume. For every 1% change in crude oil price, the change in TP is 1.8% while for every 1% change in cost, the change in TP is 1.1%. Within +/- 5% of change in volume/crude oil price, TP ranges from INR129-172. The impact of crude oil price is on both realisation/cost as both of them are dependent on the former.

Exhibit 40: TP sensitivity to volume and crude price

		% change in Volume				
		-10%	-5%	0%	5%	10%
% change in Crude	-10%	110	117	124	130	137
	-5%	122	130	137	145	152
	0%	134	143	150	159	167
	5%	147	155	164	173	182
	10%	159	168	178	187	196

Source: Edelweiss Research

Financial Outlook

- Triple-20 by FY25E: EBITDA/t INR20k; EBITDA margin- 21% and RoE at 20% plus
- Negative free cash flow likely in FY23E owing to peak capex

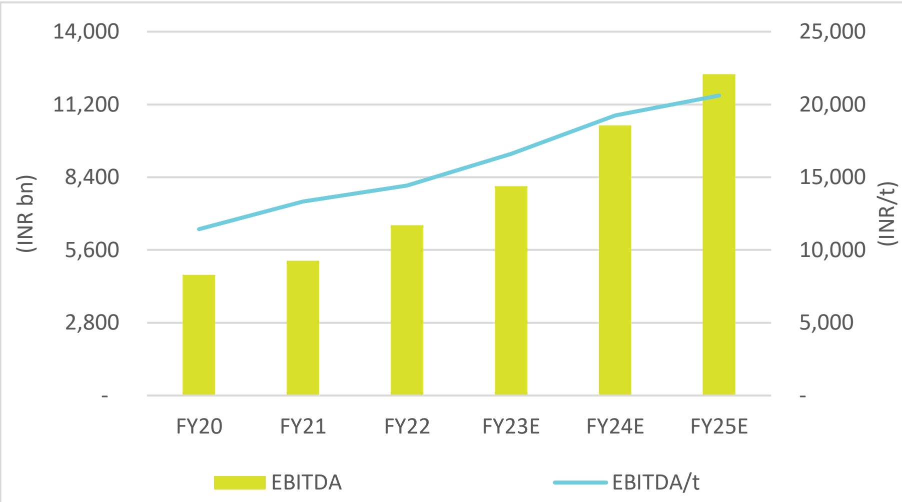
Triple 20 by FY25

PCBL is more of a FY25E story when the twin value enablers- rubber carbon-black volume and high margin speciality chemicals capacity ramp up is likely to shore up profitability and returns. Besides, we expect the market share in speciality chemicals to increase globally, providing the company enough export opportunities. On cash accretion front, while FY23 is expected to be rather staid, owing to peak capex of INR10bn, FY25 onwards, the company is expected to deliver EBITDA margin/RoE of 20% and above.

EBITDA margin to scale 20% plus by FY25E

PCBL's EBITDA/t has been constrained at INR15,000 in the past, owing to limited share of speciality chemicals. As the share of speciality chemicals fetching 2.6x margins over rubber carbon-black picks up, we expect EBITDA/t to increase to INR20,000/t by FY25E. Furthermore, EBITDA margin is expected to increase to 21% and EBITDA at INR12bn-plus.

Exhibit 41: EBITDA and EBITDA margin trend

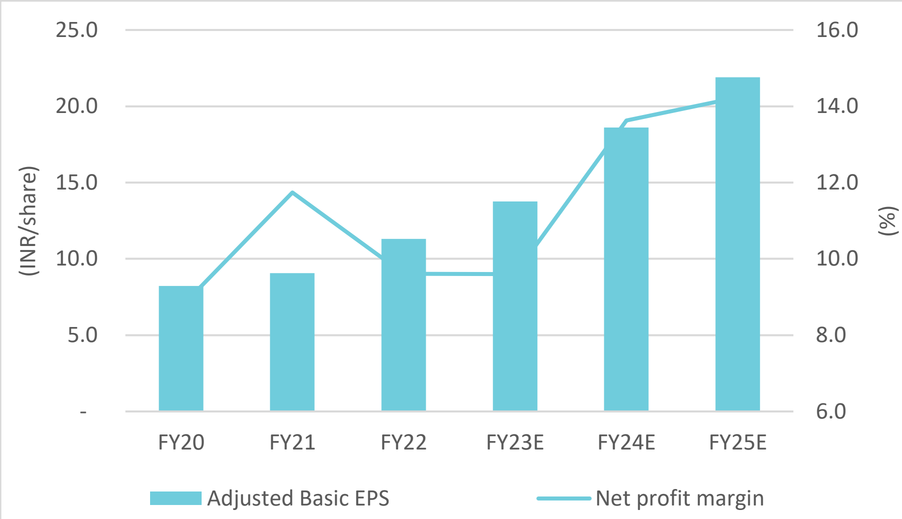


Source: Edelweiss Research, Company

Profitability set to improve

Alongside improvement in EBITDA, we expect PAT to improve. We estimate EPS at INR20/share plus and PAT margin at 14% plus by FY25E aided by higher EBITDA. Going ahead, we expect PAT to sustain at INR8.2bn-plus owing to enhanced capacity and value added product mix.

Exhibit 42: Net profit and EPS trend

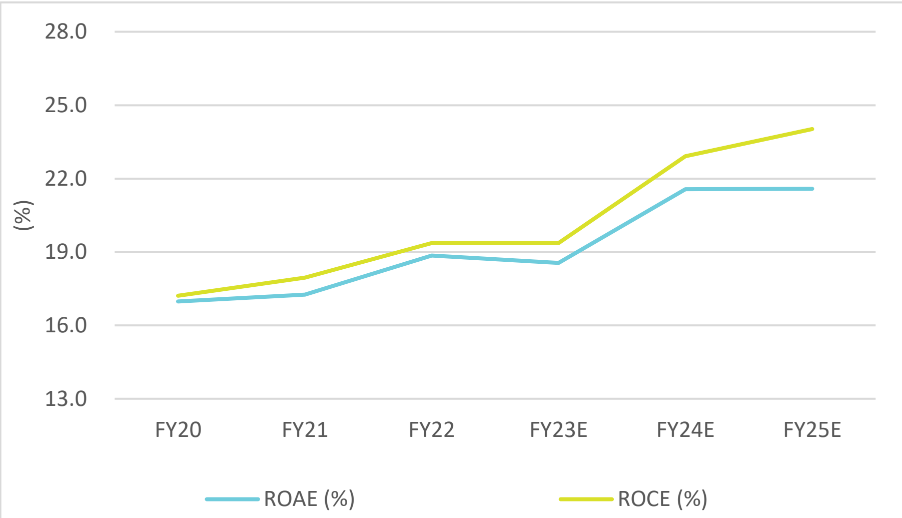


Source: Edelweiss Research, Company

Attractive returns in store from FY25E

We expect PCBL's returns to improve significantly from FY25E. We expect both RoE and RoCE to be above 20%. However, FY23E is likely to be a year of modest returns as the company sets up capacities.

Exhibit 43: RoE and RoCE expected to improve

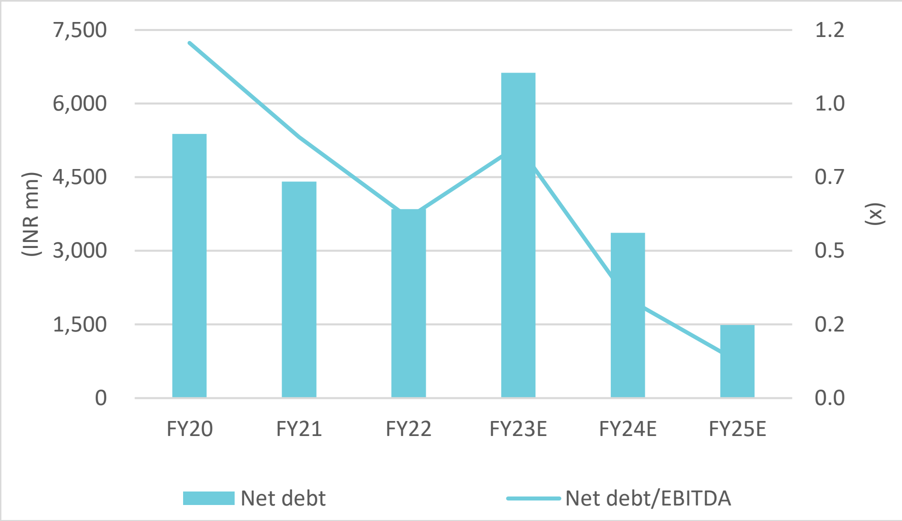


Source: Company, Edelweiss Research

Low leverage despite peak capex

We expect net debt to increase in FY23E owing to capex requirement of INR9.5bn against cashflow from operations at INR6.35bn. That said, net debt/EBITDA at 1.0x is still expected to be lower than FY20 level. We expect net debt/EBITDA to progressively reduce to >0.2x by FY25E as cash accretion improves despite capex remaining at INR5bn p.a.

Exhibit 44: Net debt expected to come off, post FY23

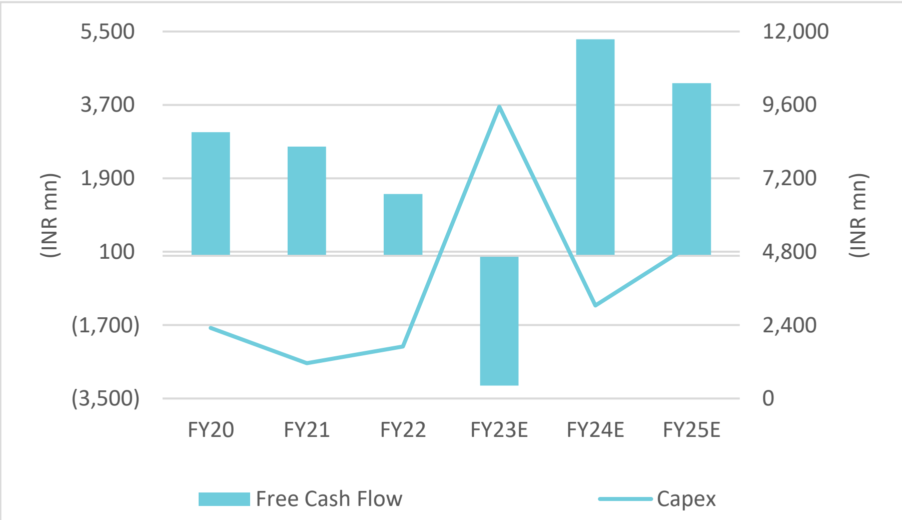


Source: Edelweiss Research, Company

Net debt to taper off and free cashflow to improve post FY23

We expect negative free cash to firm in FY23E owing to capex requirement of almost INR10bn. However, free cashflow is expected to increase from FY24. All in all, we expect cumulative free cashflow (FY23-FY25E) at INR4.6bn, equivalent to 10% of the current market cap.

Exhibit 45: Free cashflow expected to improve as capex tapers off



Source: Edelweiss Research, Company

Key Risks

PCBL operates in a competitive environment, with no protectionist measures. As carbon-black is used in a diverse group of end products, demand for carbon-black has historically been related to real GDP and general global economic conditions. In particular, a large part of the sales has direct exposure to the cyclical automotive industry and, to a lesser extent, the construction industry. As a result, the business experiences a level of inherent cyclicality. The company is subject to both supplier and customer concentrations risks. Despite being a cost pass through business, the fall in crude oil price might adversely impact absolute spreads. Besides, the operations are also subject to hazards inherent in chemicals manufacturing and the related use, storage, transportation and disposal of feedstock, products and waste.

Slowdown in the growth of automotive or tyre industry

Almost 75% of PCBL's sales volume goes to tyre industry and another 18-20% goes to moulded rubber goods, which are highly dependent on the prospects of automotive and tyre industry. While bulk of the tyre sales is towards replacement market, sales to OEMs in part by new vehicle production rates, which are primarily dependent by consumer demand for new vehicles. Any slowdown in the sale of two-wheelers and four-wheeler vehicles due to overall economic conditions would likely result in a decrease in net sales and adversely impact the results.

Highly competitive markets with no protectionism

PCBL operates and sells its products in highly competitive markets. Competition in the business is based on, among other things, pricing, product quality, customisation, innovation, and relationship with customers. PCBL faces price pressures from the customers who aim to procure chemicals at competitive costs. The company needs to compete on a global scale to gain and retain its market share. PCBL faces significant competition from other entities manufacturing products similar to theirs, based in, or selling in, the same regional markets that it caters to. As a result, to remain competitive in its markets, the management must continuously strive to reduce the costs of production, transportation and distribution and improve its operating efficiencies.

Product substitution risk

As a reinforcing agent in certain rubber applications, carbon-black competes primarily with precipitated silica in combination with silane, which is not a part of PCBL's product portfolio. Historically, silica has offered some performance benefits over carbon-black in the area of rolling resistance. To date, silica-based tyre applications have gained position in passenger car tyre treads. Although substitution has not been significant due to carbon-black's cost advantage, technological advances and changing customer requirements may lead to increased demand for silica-based tyres, especially in developed regions.

Alternative materials, procedures or technologies may be developed, or existing ones may be improved, and may replace those currently offered in the carbon-black industry. If such newly developed or improved products are being offered at lower prices, have preferable features or other advantages, in particular from a regulatory perspective, and PCBL is not able to offer similar new or improved products, the company lose substantial sales volumes or customers, which could have an adverse effect on business, financial condition, results of operations and cash flows.

Customer concentration risk

PCBL derives more than half of its revenues from operations from a limited number of key customers. In past four years, the top-5 clients account for 55-60% of the revenue. The clients typically do not enter into any long-term supply agreements with PCBL. The products are delivered to the clients based on purchase orders raised from time to time. Hence, there is no assurance of either volume or price (customary in fixed price contracts).

While PCBL has established long-standing relationships with several of its key customers and is engaged in active collaboration with them. This imparts some stickiness to the business; the relationship with the customers through agents are to a large extent dependent on its ability to regularly meet customer requirements, including price competitiveness, efficient and timely product deliveries, and consistent product quality. In the event of PCBL being unable to meet such requirements in the future, it may result in decrease in orders.

Supplier concentration risk

During past four years, the company imported 75-80% of its total raw material consumed from selected vendors across the world. The company does not enter into long term supply contracts with such suppliers. This exposes PCBL to the risk of price fluctuations and if required to change the suppliers on account of price escalation, the company might be subject to a variety of supply risks. In addition, prices for these raw materials fluctuate and while the management seeks to manage this exposure, the company may not be successful in mitigating these risks.

Further, management has limited ability to monitor the financial stability of its suppliers. Raw materials used, i.e., CBFS or CBO are subject to daily price volatility. In case of extreme volatility, and if PCBL is unable to pass on the increase in CBFS or CBO cost to customers, there may be an adverse impact on profit and cash flows.

Fluctuations in crude oil prices might impact profitability

Crude oil is the source of CBFS which is the basic raw material required for the production of carbon-black. Fluctuations in crude oil prices may adversely affect PCBL's revenue and profit, and substantial or extended increment in international prices for crude oil may have a material adverse effect on our financial condition, including liquidity and therefore the ability to finance planned capital expenditure, and results of operations.

Historically, international prices for oil have been volatile, fluctuating widely in response to changes in many factors. Such fluctuations may cause fluctuations in the results of operations and cash flows. While sales contracts have cost pass through mechanism, there might be instances when PCBL is unable to pass on the prices.

The operations are subject to environmental risks

PCBL's operations inherently create significant hazards when storing carbon-black oil, converting carbon-black oil to carbon-black and packaging and storing of carbon-black and shipping the products to the customers. These hazards and risks include fires, explosions, spills, discharges and other releases, any of which could impact the environment, neighbouring community and employees, which could result in, environmental pollution, personal injury or wrongful death claims and damage to their own & neighbouring properties. In these cases, the authority could impose fines and the Company could be required to rectify any damage which occurs outside of their fence lines.

For instance, the 100 tpd PCBL unit at Kochi was shut down on July 26, 2001 when accidental emission of carbon dust led to the closure of factory on the directions of the Kerala High Court. Soon thereafter, the company announced concerted efforts towards ensuring an environment-friendly and green factory and the court in Nov-2001 partially lifted the restriction and allowed the company to recommence operations but at 50% of the capacity.

Compliance with future more stringent environmental laws and regulations may result in significantly increased capital expenditures related to prevention and remediation. Regardless, PCBL will be forced to evaluate non-capital expenditure costs that need to be incurred in order to satisfy climate change and other environmental disclosure obligations imposed on it by the various regulations.

Certain national and international health organizations have classified carbon-black as a possible or suspect human carcinogen. To the extent that, in the future, (i) these organizations re-classify carbon-black as a known or confirmed carcinogen, (ii) other organizations or government authorities in other jurisdictions classify carbon-black or any of our other finished products, raw materials or intermediates as suspected or known carcinogens or (iii) there is discovery of adverse health effects attributable to the production or use of carbon-black or any of our other finished products, raw materials or intermediates, the management could be required to incur significantly higher costs to comply with environmental, health and safety laws, or to comply with restrictions on sales of PCBL's products.

Developing regulation on carbon-black as nano-scale material

Carbon-black consists of aggregates of primary nano-scale particles. The EPA and other governmental agencies are currently developing a regulatory approach wherein they will collect further data on nano-scale materials, including carbon-black, under the Toxic Substances Control Act ("TSCA"). Additionally, the EPA and other nations' environmental regulatory authorities, including the European Commission, are also conducting extensive environmental health and safety testing of nano-scale materials.

If carbon-black is found to be harmful to humans and/or to the environment, it could be subject to more stringent regulatory control, which could require PCBL to incur significantly higher costs to comply with new environmental, health and safety laws and could adversely affect our reputation and business.

Company Description

PCBL, a part of RP-Sanjiv Goenka Group is the largest carbon-black producer in India by capacity. PCBL was set up in association with Phillips Petroleum a US-based company in 1960. PCBL commenced its commercial production in Dec-62 with 14ktap plant in Durgapur, using oil furnace technology. PCBL had a technical collaboration with Columbian Chemical for about a decade. In FY97, Carbon and Chemicals India Ltd was amalgamated with the company. By FY04, PCBL had three plants at Durgapur, Palej and Kochi with a total capacity of 270ktpa.

Key milestones

2014

The company commissioned a facility to produce 50ktpa carbon-black at its Kochi plant during Q4FY14. With this the Company's total capacity increased to 472000 MTPA. During the year 2014 PCBL successfully developed new grades of carbon-black for domestic and international markets, improved product characteristics to meet more stringent customer specifications, continued recasting of Standard Operating Procedures (SOPs), established state of the art rubber application laboratory and modified reactor design operating conditions to improve yield.

2019-21

During the year 2019 the Company completed its brownfield expansion at its Mundra plant thereby increasing capacity by 56ktpa taking the total capacity to 571ktpa. In 2019 and 2020, R&D centre in Palej and Innovation centre in Belgium respectively were commissioned. In CY21, PCBL completed capacity expansion of 34ktpa at Palej, resulting in total capacity of 603ktpa.

Exhibit 46: Key milestones

1960 Incorporated as a Public Limited Company in collaboration with Phillips Petroleum Company, USA.	**2005** Expansion of power plant at Palej, Bharuch to 12MWH	**2009** Greenfield plant at Mundra of 90ktpa capacity	**2021** Total production capacity increased to 603ktpa
1962 Started production with oil furnace technology for carbon black production with capacity of 14ktpa at Durgapur on June 5.	**2004** Expansion of Palej plant capacity by 70ktpa Kochi Hard Black Line modernized and capacity enhanced to 40ktpa	**2010** Expansion of co-generation power plant at Mundra, Gujarat to 16MWH	**2021** Completed capacity expansion at Palej plant by 32ktpa
1974 Durgapur capacity enhanced to 36,000 MTPA.	**2003** Durgapur plant capacity further increased to 135ktpa	**2011** New Soft Black Line of capacity 50,000 MTPA initiated at Mundra.	**2020** Innovation Centre at Belgium commissioned
1988 Entered into a technical collaboration with Columbian Chemicals Company USA. Initiated a 4 MWH co-generation power plant at Durgapur	**1998** Durgapur plant capacity increased to 110ktpa Acquisition of CACIL in Kochi and capacity enhanced to 36ktpa	**2012** Capacity addition of 12ktpa Carbon Black plant at Durgapur Expansion of co-generation power plant at Mundra, Gujarat to 6 MWH	**2019** Completed capacity expansion at Mundra plant by 56ktpa R&D center at Palej commissioned
1988 Durgapur plant capacity enhanced to 78ktpa	**1996** Acquisition of Carbon Black unit of Gujarat Carbon Ltd at Palej, adding 25ktpa	**2013** New Soft Black Line of capacity 50,000 MTPA commissioned at Kochi	**2018** R&D center at Palej commissioned Increased capacity by 43ktpa across the plants by debottlenecking

Source: Edelweiss Research, Company

Globally, PCBL is the seventh largest carbon-black company by sales in CY20. In Asia (ex-China), the company holds 9% of the carbon-black market. PCBL has a diversified portfolio of 75 carbon-black grades and a global presence in 45+ countries.

Plants

Currently, PCBL operates four manufacturing units located in Durgapur (eastern India), Kochi (southern India) and Palej and Mundra (western India).

The strategic locations of the plants have the following advantages: i) Proximity to the ports resulting in facilitation of exports and receipt of imported raw materials; ii) Proximity to the domestic tyre companies; and iii) Ease of access to the grids for supplying excess power generated.

Exhibit 47: Plants and their capacity

Location	Carbon-black (MTPA)	Co-generation Power Plant (MW)
Durgapur, West Bengal	1,63,500	30
Mundra, Gujarat	2,04,750	32
Palej, Gujarat	1,42,250	19
Kochi, Kerala	92,500	10
Total	**6,03,000**	**91**

Source: Edelweiss Research, Company

PCBL Durgapur unit

Durgapur is the oldest unit and has now a production capacity of 163.5ktpa. There are three production lines running at the plant with a proven capability of producing all ASTM grades of carbon-black.

The plant has gone through successive stages of modernisation and expansion. The unit is ISO 9001:2015, IATF 16949:2016, ISO 14001:2015, ISO 45001:2018 and WASH (Workplace Assessment for Safety and Hygiene for COVID-19 preparedness) certified.

The unit has a captive power-plant with 30MW/hour of power generation capacity.

PCBL Kochi plant

PCBL Kochi plant came into being after the amalgamation with Carbon and Chemicals India Ltd (CACIL), Kochi in 1996. It has two lines of production with a total capacity of 92.5ktpa of ASTM carbon-black grades. The unit is ISO 9001:2015, IATF 16949:2016, ISO 14001:2015, ISO 45001:2018 and WASH (Workplace Assessment for Safety and Hygiene for COVID-19 preparedness) certified.

The unit has a captive power-plant with 10MW/hour of power generation capacity.

PCBL Palej plant

PCBL Palej Unit, was acquired from M/s Gujarat Carbon & Industries Limited (GCIL), Palej, Bharuch, Gujarat in Nov-96. The merger came into effect 1 April, 1997 with the aim of increasing volumes and proximity to the key customers. At the time of acquisition, the plant had a capacity of 25,000 MTPA of various carbon-black grades.

After a capacity expansion in 2004, the plant was running with three lines of production with a total production capacity of 110.25ktpa. In 2021, two new production lines have been installed, taking its production capacity up to 142.25ktpa. The plant has the capability of producing carbon-black grades for specialty black applications, such as plastics, inks, paints, coatings, adhesives, sealants, fertilisers, batteries and other niche applications, apart from producing various ASTM carbon-black grades.

The power plant has a running capacity of 12 MW per hour. The unit is ISO 9001:2015, IATF 16949:2016, ISO 14001:2015, ISO 45001:2018 and WASH (Workplace Assessment for Safety and Hygiene for covid-19 preparedness) certified.

PCBL Mundra unit

The greenfield project of PCBL was commissioned in Oct-09. It has a total production capacity of 204.75ktpa of various ASTM carbon-black grades.

The unit is ISO 9001:2015, IATF 16949:2016, ISO 14001:2015, ISO 45001:2018 and WASH (Workplace Assessment for Safety and Hygiene for covid-19 preparedness) certified.

The power plants at Mundra have a capacity of 32MWH.

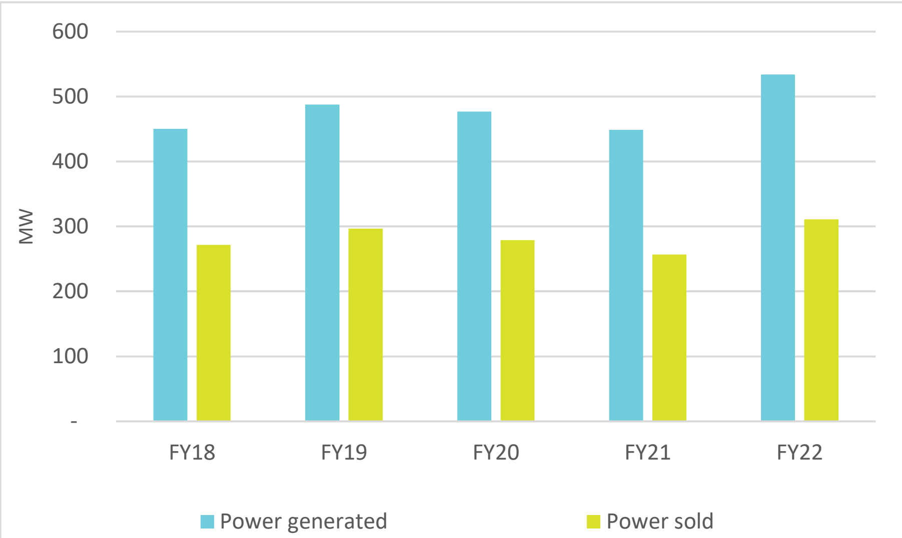
Business characteristics

Co-generation of power using tail gases is an additional revenue stream

Co-generation of power aids earnings as well as offsetting the company's GHG emissions by almost 25%

PCBL has co-generation power plants in every manufacturing facility that use tail gases produced during the production of carbon-black. The company is not only self-sufficient for its power consumption requirement, but also has been able to generate significant stable earnings from the sale to the third parties. Over past five years, the company has been able to sell ~60% of the power generated to the third parties on an average.

Exhibit 48: Green power: Generated vs. Sold



Source: Edelweiss Research, Company

As revenue generated by the power division directly flows through the bottom-line, the division has been a key contributor to profitability. During FY11-FY16, EBIT from external sale of power was almost equal to the carbon-black. However, post setting up of Mundra unit and ramp up of Speciality chemicals, the contribution from carbon-black business has gone significantly up. That said, EBIT from power division has sustained in a range of INR700-1,000mn over last ten years.

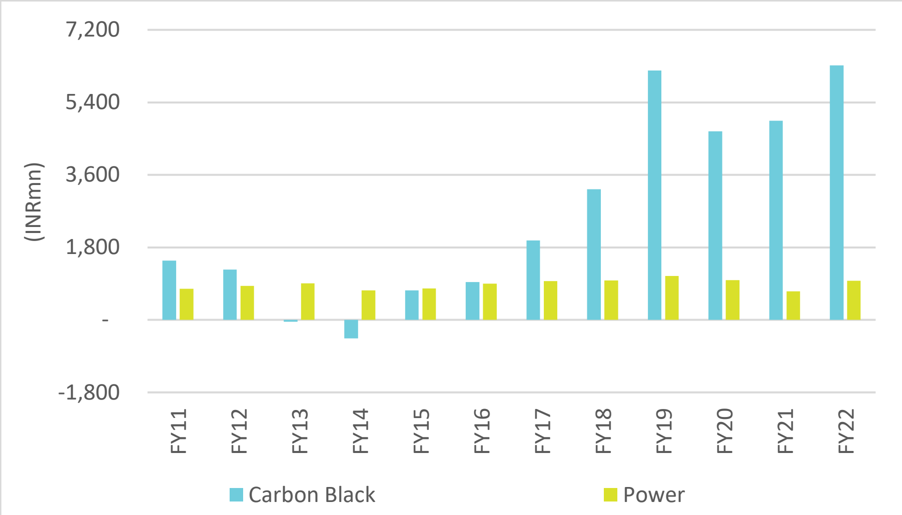
Further, to the expansions at Palej and Kochi facilities and the completion of the ongoing greenfield and brownfield projects, the existing capacity for power generation is likely to increase to 122MW by FY24, resulting in higher contribution of power in sales and margins.

CBFS price has a significant correlation to crude price

Correlation of blended realization with crude price has increased since China's dominance has reduced

PCBL is the world's first carbon-black company to receive carbon credits from UNFCCC for Process Waste Heat utilisation for power generation at Palej. During FY21, the company exported 259MWh of electricity from waste heat recovery, offsetting the equivalent emissions of 204.6t CO_2e.

Exhibit 49: Power division has delivered stable EBITDA

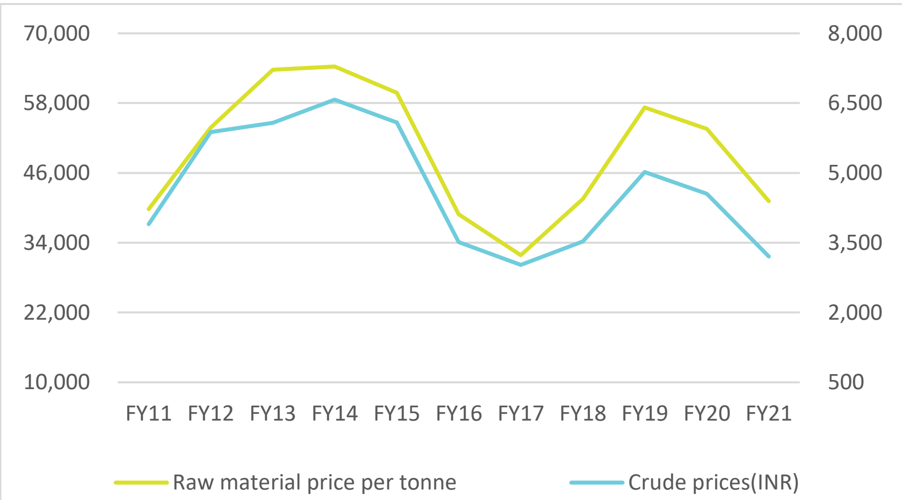


Source: Company, Edelweiss Research

Sensitivity to crude oil prices

Crude oil is the source of CBFS which is the basic raw material required for the production of carbon-black. In past, raw material cost/t is extremely correlated to the movement in crude oil price. Anecdotal evidence suggests a correlation of close 0.98 between crude oil price and raw material cost/tonne.

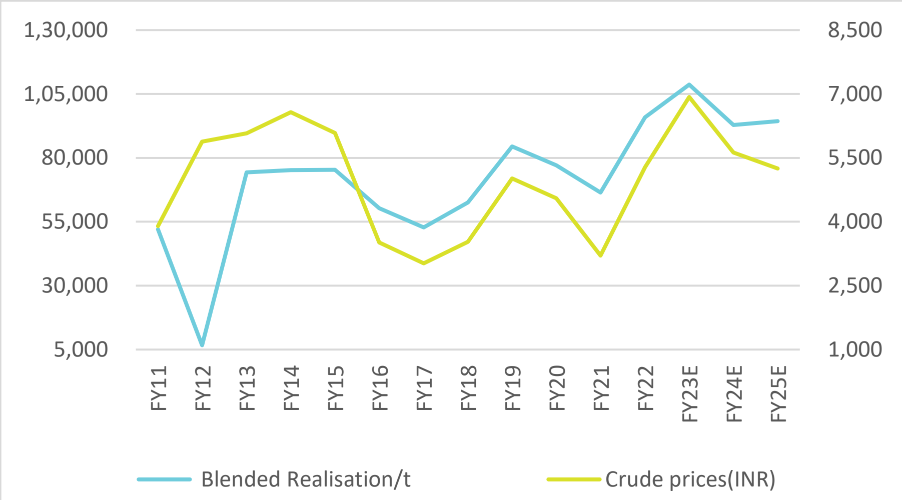
Exhibit 50: Raw material price is more sensitive to crude oil price



Source: Company, Edelweiss Research

On realisation, owing to cost pass-through mechanism we see a significant correlation with crude oil price. It is noteworthy that post FY16, the correlation of blended realisation with crude oil price has strengthened. In our view, prior to FY16, China was a major player in export market. Chinese players used CBO as feedstock which had significant price advantage over CBFS and hence were able to export at lower prices. With price of CBO now at USD300/t premium to CBFS, resulting in reduced exports from China, we expect the correlation between blended realisation and crude oil to sustain.

Exhibit 51: Realisation has broadly followed crude price post FY16



Source: Edelweiss Research, Company

Effective capacity is lower due to variety of grades

Effective capacity is lower for all the players owing to product mix

In a carbon-black manufacturing plant, various grades are manufactured in each production line. As per the quality specification, manufacturing process for different grades require different parameters resulting in capacity for each grade to be different from the same line. Since each grade has a different output from the same production line, the equivalent capacity is lower than installed capacity. PCBL has defined the production capacity of tread reactor for grade N330 and for carcass line, it is defined for grade N660. The effective capacity keeps changing, contingent on the product mix.

For instance, the capacity utilisation based on effective capacity was 92% in FY19, however, based on installed capacity it was just 77.6%. As the proportion of speciality products rises, the capacity utilisation based on installed capacity is likely to seem lower due to higher time taken for processing such grades. However, the superior margin for speciality chemicals results in higher cash accretion.

Exhibit 52: Capacity utilisation across the years

	Installed capacity (t)	Effective capacity (t)	Production (t)	Capacity utilisation (%)
FY21	6,03,000	4,67,469	3,84,785	82.3
FY20	5,71,000	4,71,171	4,08,061	86.6
FY19	5,29,000	4,44,427	4,10,798	92.4

Source: Edelweiss Research, Company

Product portfolio

PCBL is the largest carbon-black producer in India by capacity. A large volume of rubber carbon-black is sold directly to tyre producers. Carbon-black is used for the production of rubber-based products, primarily as a reinforcing agent in tyres and for production of industrial rubber goods, and for the production of non-rubber-based products including specialty chemicals (primarily where carbon-black acts as a pigment, UV stabilizer, improving resilience of products, and also as a conductive agent).

PCBL caters to various industries such as tyre, rubber, industrial rubber goods, elastomer, plastic, coatings, paints, fibre, footwear and cables. In FY22, rubber black (including performance chemicals) accounted for 92% of total sales volume.

Rubber black

PCBL offers its rubber grades carbon-black under the 'Orient Black' brand, which are manufactured in furnace process. Orient Black is a prominent class of carbon-black grade that is used in rubber compounds as reinforcing fillers in order to provide the rubber compound the utmost solution in tailoring specific rubber compound requirements. The enhancement in rubber properties is a function of the major physiochemical properties of carbon-black, covering particle size, structure, aggregate distribution and surface characteristics. Orient Black is the volume driver in our business and contributes almost 90% to the total sales volume.

Rubber black finds different downstream applications in rubber industries under two primary utilities:

Technical and moulded rubber goods (Performance chemicals)

These applications leverage mechanical properties of rubber for its downstream utilisation in moulded products. The various downstream applications comprise: Conveyor belts, extrusions and profiles, hoses and ducting, power transmission belts (V belts), moulded rubber goods and seals and gaskets.

Tyre: The various rubber black grades are used by tyre manufacturers to impart such characteristics as increased durability and decreased rolling resistance between the tyre and the road surface. This in turn improves fuel economy and increases vehicular safety and control. The various downstream application of rubber black under this product bracket comprise: Passenger vehicle tyres, truck and bus tyres, off-the-road tyres and two-wheeler and three-wheeler tyres.

Exhibit 53: Product portfolio and applications

Product Portfolio		
	Specialty Carbon-black	**Rubber Carbon-black**
Key End Applications	FDA & food contact plastics	Conveyor belts
	Fibre	Extrusions and profiles
	Wire and cables	Hoses and ducting
	Film	Power transmission belts
	Engineering plastics	Moulded rubber goods
	Pipe	Seals and gaskets
	Printing inks	Tyres
	Paint/coatings	
	Battery	
Sales Volume FY22 (KT)	35	419
Key Brands	Royale Black- Bleumina and NuTone	Orient Black

Source: Edelweiss Research, Company

Specialty black

PCBL sells Specialty Chemicals under the registered trade name – "*Royale Black*". Royale Black product range caters to various applications of plastics, printing ink and coating markets. There are two sub-brands namely i) Bleumina; and ii) NuTone.

Bleumina is a series of medium and high-coloured Specialty Chemical, is used in car interiors to improve the aesthetic appeal and durability of the products and also used in electronic and home appliances.

NuTone is a new range in specialty chemical available in a powder form. It is used for printing ink applications such as offset ink, liquid ink, and inkjet, owing to its colour strength and gloss. NuTone series is also used in coatings, fertilizer, adhesives, and sealants due to its low viscosity, good stability and dispersion. These products are regularly sold to key customers in France, Russia, China and other countries.

Upcoming projects

PCBL is undertaking an expansion program in both carbon-black and power segment, involving both Greenfield and brownfield expansion. The Greenfield expansion is underway at Chennai, Tamil Nadu with an installed capacity of 147ktpa of carbon-black production along with a 24 MW captive power plant. The company is also in the process of commissioning co-generation power plant at Kochi with capacity of 7MW.

The 147ktpa Greenfield project would be set up at an estimated cost of INR8bn with commercial production set to start by Dec-22. There would be a co-generation power capacity of 24MW. The plant will be equipped with three independent production lines (2 lines for hard black and 1 line for soft black). This plant would be unique in following ways:

1. Smart factory with incorporation of latest industry 4.0 concepts using machine learning and artificial intelligence for process control
2. IGBC platinum green factory building certification, zero liquid discharge plant, rain water harvesting and water conservation
3. Equipped with automated and advanced material handling and warehouse management system.

Besides, the company has also embarked on brownfield speciality chemical capacity expansion of 40ktpa in two phases at the cost of INR3.2bn. Commercial production is likely to commence by end-Mar-23. After completion, the total Speciality Chemical capacity of the company would rise to 112ktpa from 72ktpa currently.

The completion of the Greenfield and brownfield projects would not only bring our Company's total installed capacity to approximately 790ktpa but also increase the green power generation capacity of our Company to 122 MW.

Exhibit 54: Upcoming projects

Upcoming capacities	Product	Unit	Volume
Munda	Specialty Chemical	tonnes	20,000
Chennai, Tamil Nadu	Carbon-black	tonnes	1,47,000
Kochi Kerala	Power	MW	7

Source: Edelweiss Research, Company

Management Overview

PCBL, a part of RP-Sanjiv Goenka Group, was set up by Mr. K. P. Goenka in 1960. For over six decades, PCBL has been playing a pioneering role in the performance materials and specialty chemicals segment, with a current production capacity of 6,03,000 MT per annum and generating 91 MW per hour of green power.

Sanjiv Goenka, *Chairman*

Chairman of PCBL Board and its Director since 1986, Mr. Goenka is the former member of the Prime Minister's Council on Trade & Industry and the youngest-ever President of Confederation of Indian Industry (CII). He is also the chairman of the Board of Governors, Indian Institute of Technology (IIT), Kharagpur.

Kaushik Roy, *Managing Director*

Mr. Roy has the cumulative experience of about 30 years spread over Apollo Tyres and PCBL, besides a brief stint with Gujrat Ambuja Cement. He was Indian Tyre Industry Representative on the Industry Body of International Rubber Study Group, Singapore; and also the Member of Governing Council, RSDC (Rubber Skill Development Centre), India.

Raj Kumar Gupta, *CFO*

Mr. Gupta joined PCBL in 2015. He started his career with CESC Limited in 1998 and has since been working with the Group.

Shashwat Goenka, *Non-Executive Director*

Mr. Goenka is on the board of the company. He was appointed as President of Indian Chamber of Commerce (ICC) w.e.f 15th July, 2017. He has previously worked in Nestle India Limited and KPMG India.

Mainackya Ghosh, *Chief – National Markets (Rubber Blacks)*

Mr. Ghosh's career spans over 18 years spread over ICM (Export House), ITC (Tobacco Division India), Orient Refractories Ltd, Liaoning, Birla Carbon Company Ltd, Quingdao Eastlion I&E Co Ltd, Continental Carbon India Ltd, Himadri Chemicals & Industries Ltd and currently PCBL

Gautam Kalia, *Chief – International Markets (Rubber Blacks)*

Mr. Kalia has worked for more than 20 years in L&T Ltd. He is a B. Tech (Mechanical) - University Topper & Gold Medalist, Rani Durgavati University, Jabalpur and PGDBA, XLRI Jamshedpur

Dr Mosongo Moukwa, *Chief – Global R&D*

Mr. Moukwa has more than 26 years of experience spread over BASF - Master Builders Technologies, SC Johnson Polymer Division, Reichhold, Innovation Tipping Point, Asian Paints and PolyOne.

Lohit Shringi, *Chief – Specialty Blacks*

Has Joined PCBL in Jun 2022 as head of specialty black.

Jiten Keluskar, *Chief Procurement Officer*

Mr. Keluskar has worked in Reliance Industries Ltd, Cummins India Ltd, Mahindra & Mahindra Ltd, Siemens Ltd, Crompton Greaves Ltd and ACC Ltd.

Sabyasachi Bhattacharya, *Chief – HR & IT*

Mr. Bhattacharya has more than 25 years of experience spread over Reckitt Benckiser, Coates of India, Hutchison, Haldia Petrochemical, Berger Paints, Saregama India Ltd, Sherwin Williams and currently PCBL

Girish Singh, *Chief – Projects*

Mr. Singh has worked in Oriental Carbon, Ralson Carbon, Hi-Tech Carbon, Liaoning Birla Carbon, prior to joining PCBL

Kaushik Mukherjee, *Company Secretary & Chief Legal*

Mr. Mukherjee started his career with CESC Limited in 1993 and has since been working with the Group since then.

Industry Outlook

Overview

Carbon-black is a form of elemental carbon that is manufactured in a highly controlled process to produce particles and aggregates of varied structure and surface chemistry, resulting in many different performance characteristics for a wide variety of applications. Rubber grade Carbon-blacks are used to enhance the physical properties of the systems and applications in which they are incorporated.

About 93% of global carbon-black demand is related to its use as a reinforcing filler in rubber, so the fortunes of the carbon-black market are inextricably linked with the rubber and tyre industries. Worldwide, about 46 parts of carbon-black are consumed for every 100 parts of rubber (a metric for rubber compounding ingredients known in the industry as PHR, or parts per hundred rubber).

In addition to the total volume of rubber used worldwide, carbon-black demand is affected by the product mix of the rubber industry, particularly the percentage of rubber used in tyre applications versus non-tyre applications. This is because tyre compounds on average require higher carbon-black loadings than non-tyre rubber goods (some individual mechanical rubber goods may take very high loadings).

The rubber and tyre industries, in turn, are reliant upon the motor vehicle industry, where the key indicators are motor vehicle production and the number of vehicles in use around the world. Carbon-black consumption is predominantly driven by tyres and other rubber goods while non-rubber application command relatively small share. Carbon-black demand is linked to tyre and motor vehicle production.

Exhibit 55: Key drivers of demand

	CY19	CY20	CY21E	CY22E	CY23E	CY24E	CAGR (CY19-24E)
Motor Vehicle production ('000 units)	92,172	77,619	87,752	97,137	1,04,413	1,10,920	3.8
Tyre production (mn units)	1,865	1,701	1,889	2,018	2,102	2,208	3.4
Rubber demand (kt)	28,798	26,991	29,582	31,500	32,835	34,385	3.6
Carbon-black demand (kt)	13,407	12,452	13,800	14,750	15,380	16,050	3.7

Source: Company, Edelweiss Research

Tyres are by far the largest application of carbon-black, comprising almost three-fourth of the consumption, followed by non-tyre rubber applications (mechanical rubber goods). Carbon-black's application in the tyre market is expected to grow 3.8% CAGR CY19-24E.

Exhibit 56: Carbon-black demand across applications

Application	CY19	CY20	CY21E	CY22E	CY23E	CY24E	CAGR (CY19-24E)
Tyres	9,854	9,175	10,164	10,912	11,368	11,880	3.8
Non-Tyre Rubber	2,593	2,430	2,681	2,825	2,947	3,074	3.5
Speciality Blacks	960	847	955	1,013	1,065	1,096	2.7
Total	13,407	12,452	13,800	14,750	15,380	16,050	3.7
As a % of total							
Tyres	73.5	73.7	73.7	74.0	73.9	74.0	
Non-Tyre Rubber	19.3	19.5	19.4	19.2	19.2	19.2	
Speciality Blacks	7.2	6.8	6.9	6.9	6.9	6.8	

Source: Edelweiss Research, Company

Global carbon-black market

Global carbon-black demand totalled 12.5mt in CY20, a decline of 7.1% YoY. On average carbon-black market is expected to grow 3.7% CAGR through to CY24E. Capacity utilisation is also expected to improve from 70% in CY20 (lower due to COVID-19) to 84% by CY24E.

Carbon-black market has remained under deficit for three years in a row through to CY21 and is expected to remain in deficit in CY22 as well. Hence, we expect price to remain fairly robust. The industry's capacity utilisation was low in CY20 and CY21 owing to covid-19 related disruptions. However, it has remained at ~81% (as a percentage of installed capacity) on average owing to the various grades produced by the companies. Going ahead, unless the capacity utilisation picks up to 83-85%, the industry is expected to remain in deficit.

Exhibit 57: Global carbon-black market balance

(In tonnes)	CY19	CY20	CY21E	CY22E	CY23E	CY24E
Capacity	17,293	17,293	18,231	18,506	18,506	19,176
Capacity Utilisation (%)	75.6	70.0	74.3	79.0	83.1	83.7
Production	13,077	12,100	13,550	14,615	15,380	16,050
Demand	13,407	12,452	13,800	14,750	15,380	16,050
Market balance	-330	-352	-250	-135	0	0

Source: Edelweiss Research, Company

Major carbon-black suppliers in the market

Global carbon-black market is fairly concentrated with top-10 players accounting for ~60% and top 5 players accounting for 46% of market share by revenue respectively. PCBL is the seventh largest player in carbon-black in the world with revenue share of 3%. Larger players such as Cabot, Birla Carbon and Orion Engineered Carbons have multiple plants across all the major regions of the world. The idea of having multiple plants is to remain closer to both clients and raw material sources.

Over the next few years, limited supply-side capacity expansions have been announced leading to the tightening industry utilisation. Besides, stricter environmental requirements are increasing the barriers to entry. Business is largely make-in-region, sell-in-region, thus, insulated from global supply chain disruptions to a large extent.

Exhibit 58: Competitive landscape- global

Company	Country	Market share by revenue
Cabot Corporation	US	14
Birla Carbon	India	12
Orion Engineered Carbons	US	9
Jiangxi Black Cat Carbon-black	China	6
Tokai Carbon	Japan	5
CSRC Group	Taiwan	3
PCBL	India	3
Longxing Chemical Group	China	3
Omzk Carbon Group	Russia	2
OCI Corporation	Korea	2

Source: Edelweiss Research, Company

Macro drivers for rubber carbon-black market

We find three macro trends shaping the rubber carbon-black market: Changing mobility landscape with shift to EVs, Increasing focus on sustainability and Overall trend of shift towards owned vehicles.

The shift to EVs implies following challenges for Auto and Tyre industries: Higher torque requirements, higher tyre wear owing to battery weight and lower rolling resistance. For Reinforcement materials players, this translates into opportunities in volume growth, better product mix, new materials and higher use of precipitated silica in combination with silane to improve rolling resistance.

PCBL is focusing on volume, better mix and R&D. Hence, the company is suitably equipped to take advantage of this macro trend. However, the advent of silica precipitate is a threat. Although, management maintains that both carbon-black and silica precipitate complement each other and they are developing material to lower the rolling resistance.

Exhibit 59: Macro trends in the sector

Macro trend	Trend impact	Auto industry trends & Challenges	Tyre industry trends & Challenges	Opportunities	Impact on PCBL
Changing mobility landscape	Move to EVs	Higher torque	Quicker replacement	Growth in volume	Very positive
		Battery weight	Higher wear	Better mix	Positive
		Lower noise	Performance rubber	Material innovation	Mildly positive
		Longer range	Lower rolling resistance	Growth in silica	Negative
Increasing focus on sustainability	Growing environmental awareness	Circular economy	Sustainable material targets	Material innovation	Mildly positive
		Desire to reduce footprint	Desire to reduce footprint	E2C solutions	Very positive
Becoming a more connected world	Growth of autonomous vehicles and ride sharing	Growth in miles driven	Higher replacement rates	Growth in volumes	Very positive
		High frequency tyre use	New tyre needs	Potential innovations	Positive

Source: Edelweiss Research, Company

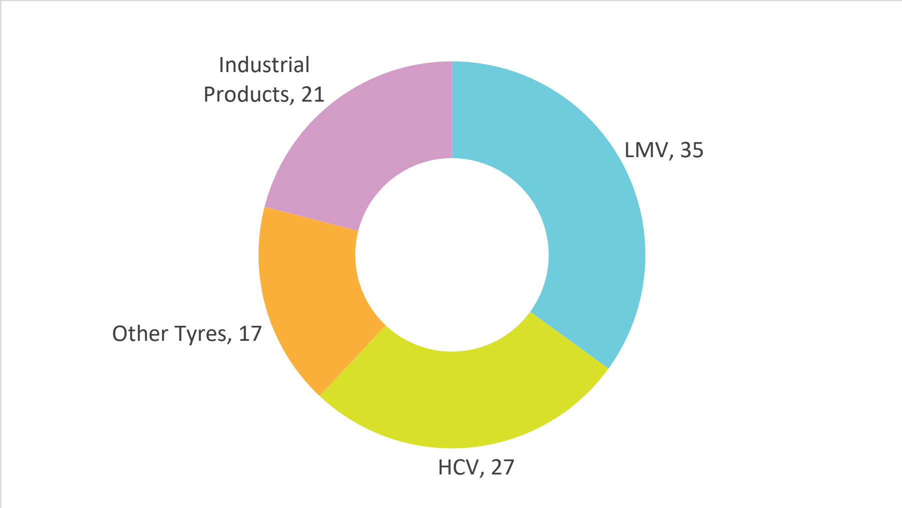
Carbon-black inherently is associated with fossil fuels, hence, a move towards alternate materials is definitely a negative given limited scope in the current availability of materials for shifting to greener material. However, PCBL is experimenting with a variety of feedstock to develop a greener solution. Besides, it is actively collaborating with customers on sustainability and in general has better record compared to peers on GHG emission intensity and water consumption.

Tyre market: Volume enabler for carbon-black players

Global tyre market is dominated by LMVs and HCVs, together accounting for 62% of the share. Industrial products and Other Tyres such as for Aerospace constitute the rest. While rubber is an essential ingredient to car tyres, around two hundred different materials, including special oils, carbon-black, pigments, antioxidants, silica, and other additives help determine the specific characteristics of a tyre. After planning and selecting these materials, the tyre is assembled.

Car tyres owe their signature black colour to the additive carbon-black. This material makes an appearance in the pigment and reinforcing phase of tyre creation, and it is valued for enhancing surface durability. By reducing thermal damage, Carbon-black extends the lifespan of tyres on the road.

Exhibit 60: Carbon-black in tyres – Revenue split(%)

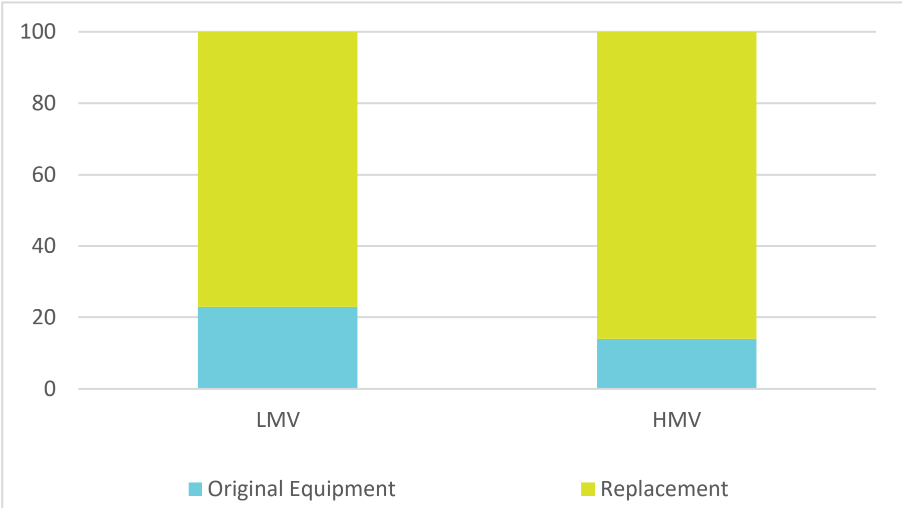


Source: Edelweiss Research, Company

Replacement demand is the primary driver for LMV/HCV; ~80% of the market.

In tires, replacement demand is more significant than automotive build-rates

Exhibit 61: Replacement demand is paramount in LMV and HCVs



Source: Edelweiss Research, Company

Long-term reinforcing carbon demand is expected to grow at 2-3% CAGR globally, with strongest growth rates expected in southeast Asia at 4-5% p.a. World tyre production (LMV/HCV) is forecast to increase 3.4% p.a. from 2019 to 2024, with global output projected to reach 2.2bn units in 2024. This forecast remains unchanged from the pre-covid forecast as production is expected to recover in 2021/2022.

Through CY24, the world's advanced economies are forecast to see gains of 2% p.a., while Developing Economies are forecast to see gains of 4.4% p.a. over the same period. Regions such as India, Asia and Eastern Europe are expected to see a growth of over 5% p.a. – higher than the others.

Within tyre types, we expect higher growth in trucks and buses compared to passenger vehicles.

Exhibit 62: Tyre production dynamics through to CY24E

World Tyre Production (mn units)	2019	2020	2021(F)	2022(F)	2023(F)	2024(F)	CAGR (CY19-CY24E)
Tyre Production	1865	1701	1889	2019	2102	2208	3.4%
Advanced Economies	781	653	760	811	838	862	2.0%
Developing Economies	1,084	1,048	1,129	1,208	1,264	1,346	4.4%
By tyre type							
Passenger	1,409	1,269	1,419	1,517	1,578	1,657	3.3%
Truck & Bus	457	431	470	501	524	551	3.8%
By region							
World excl. China	1,249	1,096	1,242	1,333	1,397	1,461	3.2%
North America	208	163	200	221	230	236	2.6%
South America	72	65	70	77	81	84	3.1%
European Union	351	301	343	364	379	393	2.3%
Eastern Europe	54	50	54	62	66	72	5.9%
Asia	1,129	1,074	1,169	1,238	1,287	1,360	3.8%
China	616	605	647	685	705	747	3.9%
Asia excluding China	513	469	522	553	582	613	3.6%
India	81	75	83	88	96	105	5.3%
Japan	143	117	137	141	143	144	0.1%
South Korea	74	63	72	80	83	87	3.3%
Other Asia	215	214	230	244	260	277	5.2%
Africa/Mideast	52	50	53	56	59	63	3.9%

Source: Edelweiss Research, Company

Flurry of new investments to drive growth

The total investment in new capacity is expected to be USD20bn through to CY20-25. Nearly half of these expansions are expected in Asia at USD11.4bn while investments in the US and Europe are expected at USD3-3.5bn each.

Among countries, investments in China are expected at USD5.4bn, highest in the world. India is expected to see USD1.1bn in new investment from 2020 to 2025, including projects from Apollo Tyres, BKT, Bridgestone, Goodyear, MRF, and Yokohama.

Exhibit 63: Tyre expansion plans across the regions

Country/Region	New Investments 2020–2025
World	20,401
North America	**3,105**
Canada	250
Mexico	370
United States	2,485
South America	500
Total Europe	**3,573**
European Union	1,989
Russia	249
Serbia	1,335
Total Asia	**11,363**
Bangladesh	110
Cambodia	557
China	5,451
India	1,143
Indonesia	70
Japan	125
Malaysia	140
Pakistan	610
Sri Lanka	550
Taiwan	75
Thailand	1,082
Vietnam	1,450
Africa/Mideast	**1,860**
Algeria	430
Saudi Arabia	1,200
Turkey	230

Source: Edelweiss Research, Company

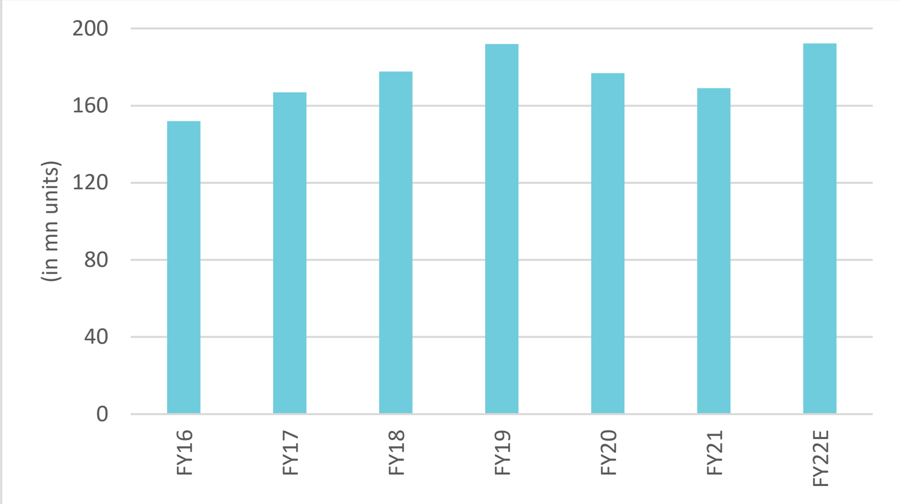
Indian tyre industry

After suffering from the covid-19 related disruptions, the domestic tyre industry is expected to record 192mn units in FY22, similar to FY19. In India, tyres are structurally important products, given road is a critical transport medium. India, in the world, is the:

1. 4th largest tyre market
2. 5th largest passenger car market
3. 3rd largest commercial vehicle market

The long-term growth profile is driven by positive tailwinds from rising vehicle penetration. Similar to global trend, commercial (trucks and buses) is the largest segment of Indian tyre industry (50% of the overall) featuring a greater mix of replacement vs. OEMs (80% of segment sales). According to 'Invest India', India is expected to become the world's third-largest automotive market by 2026.

Exhibit 64: Domestic tyre production – all categories



Source: Edelweiss Research, Company

One of the key element of tyre industry is exports. According to the Government of India's Ministry of Commerce and Industry's trade database, tyre export has significantly expanded across all the segments of tyres. As shown in the graph below, exports for tyres of 2-Wheeler (motorcycles and scooters) is presenting an incremental trend, however the tyre exports for other kinds of 2-Wheelers other than motorcycles and scooters declined.

Given the rising demand for the Indian tyres in the world markets, tyres of buses and trucks, and tyres used in various sectors like agricultural and construction witnessed an increase in exports.

Exhibit 65: India – Export import split (by application)

In INR mn	FY22	FY21	% growth
Exports			
Buses/lorries	35,846	20,144	78.0
Agricultural/Forestry vehicles	87,398	60,228	45.1
Industrial	42,150	28,192	49.5
Total	1,65,394	1,08,563	52.3
Imports			
Buses/lorries	1,261	1,513	-16.6
Agricultural/Forestry vehicles	90	80	13.2
Industrial	7,808	5,780	35.1
Total	9,160	7,372	24.2

Source: Edelweiss Research, Company

The export balance in both FY21 and FY22 is significantly positive, demonstrating the competitiveness of domestic tyres in the global market. Increasing duties/ restrictions on import of tyres have led to steep decline in imports in number terms.

Exhibit 66: Export/Import split – India (by vehicle type)

In INR mn	FY22	FY21	% growth
Exports			
2-Wheeler Tyres	62,597	27,714	125.9
Motor Car Radial Tyres	1,28,288	45,432	182.4
Total	1,90,885	73,146	161.0
Imports			
2-Wheeler Tyres	3,573	624	472.4
Motor Car Radial Tyres	7,106	638	1013.7
Total	10,679	1,262	746.0

Source: Company, Edelweiss Research

Global carbon-black grades and application potential

Carbon-black suppliers continue to be heavily reliant on the tyre industry accounting for ~75% of total volume. Use of carbon-black as a reinforcement in non-tyre rubber goods, primarily mechanical rubber goods such as hoses, belts, extruded and moulded goods, anti-vibration components, rollers, and roofing accounted for another 20% of demand, and the market's overall reliance on rubber applications was 93%. The remaining 7% of carbon-black demand consists of special blacks, which are primarily used in plastics compounding or as a pigment in printing inks and paints and coatings.

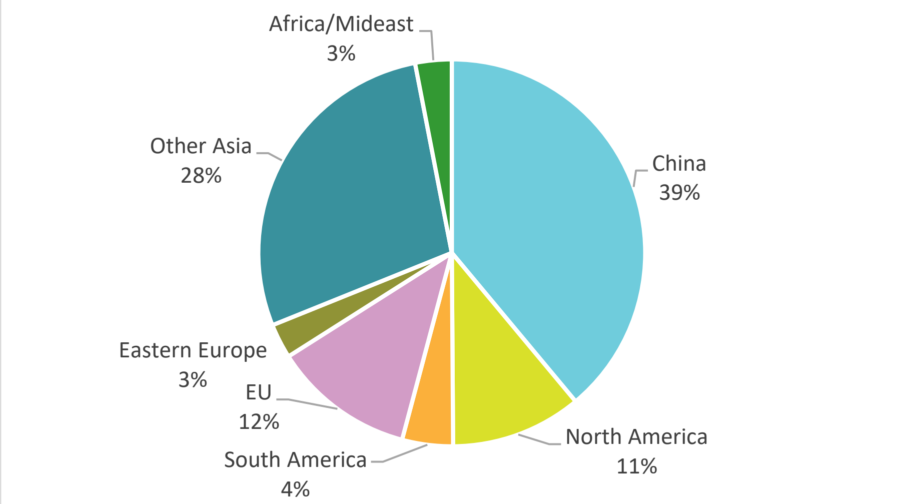
In rubber compounding, natural and synthetic elastomers are blended with carbon-black, insoluble sulphur, processing oils and various organic processing chemicals (such as anti-degradants, accelerators and retarders) and then heated to produce a wide range of vulcanized rubber products. In these applications, carbon-black provides reinforcement and improves resilience, tear-strength and other physical properties. As a reinforcing filler, carbon-black competes primarily with precipitated silica. Outside the rubber industry, carbon-black functions primarily as a pigment, while conductive grades are used for their static dissipative properties. Carbon-black has little or no functional competition in most of its pigmenting applications, as it offers intensely black pigmentation at a cost effective price.

Tyre applications: Rubber carbon-black

Rubber carbon-blacks are used to enhance the physical properties of the systems and applications in which they are incorporated. Rubber carbon-blacks have traditionally been used in the tyre industry as a rubber reinforcing agent to increase tread durability and are also used as a performance additive to reduce rolling resistance and improve traction.

Asia is the major market in Rubber carbon-black with 2/3rd of the total consumption. China has the largest market share in the world at 39%. North America and EU account for 11-12% of global consumption each. India is a relatively minor player with 7.3% of global market share in CY21.

Exhibit 67: Tyre applications – Region-wise demand split



Source: Company, Edelweiss Research

Carbon-black consumption in Tyres worldwide is expected to grow 3.8% CAGR CY19-24E. China, the largest player is expected to grow by 4.3% CAGR while advanced economies such as Japan, EU and North America are expected to grow sub-3.5% p.a. through to FY24E. The use of carbon-black is expected to grow highest in Other Tyres segment comprising farm equipment, off-the road vehicles etc.

Exhibit 68: Tyre based applications – Demand roll-out

	2019	2020	2021(F)	2022(F)	2023(F)	2024(F)	CAGR CY19-CY24E
China (kt)	3,708	3,655	3,958	4,225	4,360	4,580	4.3%
World excluding China (kt)	6,146	5,520	6,206	6,687	7,008	7,300	3.5%
North America (kt)	1,142	927	1,113	1,234	1,266	1,286	2.4%
South America (kt)	436	398	432	473	491	509	3.1%
European Union (kt)	1,202	1,029	1,206	1,286	1,333	1,368	2.6%
Eastern Europe (kt)	289	269	294	318	335	358	4.4%
Asia excluding China (kt)	2,773	2,598	2,851	3,046	3,224	3,399	4.2%
India (kt)	721	682	748	814	889	958	5.8%
Japan (kt)	514	430	495	513	517	516	0.1%
South Korea (kt)	281	241	275	306	317	329	3.2%
Other Asia (kt)	1,257	1,245	1,333	1,413	1,501	1,596	4.9%
Africa/Mideast (kt)	304	298	310	330	359	380	4.6%
Passenger Tyres (kt)	3,718	3,352	3,749	4,011	4,171	4,365	3.3%
Truck & Bus (kt)	3,275	3,090	3,380	3,629	3,801	3,984	4.0%
Other Tyres (kt)	2,861	2,733	3,035	3,272	3,396	3,531	4.3%
PHR (CB to rubber) (x)	55.4	55.4	55.9	56.3	56.2	56.0	0.2%
Tyre Rubber Consumption (kt)	17,788	16,559	18,193	19,380	20,226	21,224	3.6%

Source: Edelweiss Research

Non-tyre applications: Rubber carbon-black

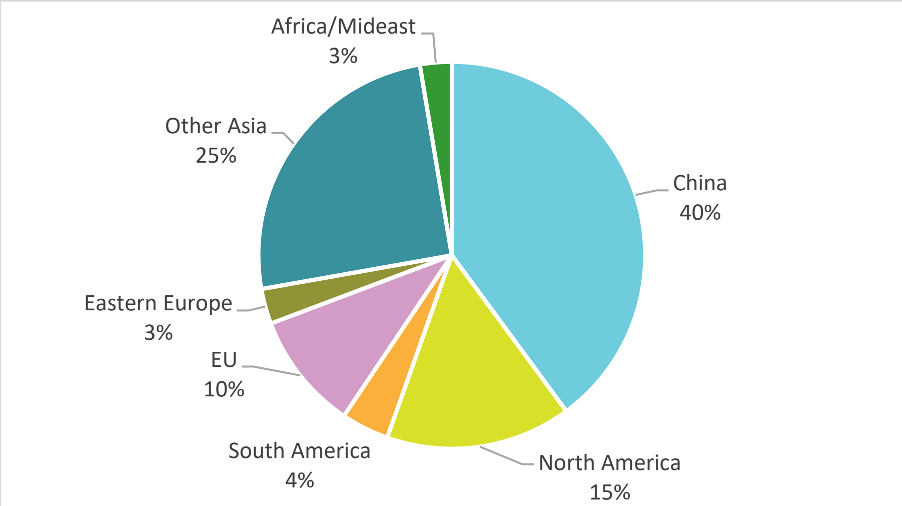
There is a wide range of carbon-black products for various MRG end-uses, including automotive production, construction, manufacturing of wires and cables, as well as certain food, consumer and medical applications. These grades have an exceptionally high purity and high consistency and satisfy special requirements needed for smooth surfaces and electrical resistance. These grades also disperse well in rubber compounds used in parts like window seals, automotive hoses, transmission belts, damping elements and electrically conductive and antistatic rubber goods

Major applications in this segment extrusions/profiles (automotive profiles, construction profiles, gaskets and seals, bumpers and fenders, wipers, etc.); belts and hoses (reinforced hose for auto, off- shore and general industrial use; transmission or V-belts, conveyor belts, drive belts, timing belts); anti-vibration (mounts, bushings, and boots for motor vehicles and industrial machinery, rubber pads for wood flooring, architectural dampers, bridge expansion joints); roofing, sheeting, and geo membranes; wire and cable; and other goods such as rubber mats, sporting goods, and sponge rubber. These articles find use in motor vehicles as well as industrial, consumer, construction, and other types of equipment.

The average carbon-black loading in this sector of the market was 23.3 PHR in 2020, which means that 23 parts of carbon-black were consumed relative to every 100 parts of rubber used in the manufacturing of non-tyre rubber goods.

In MRG segment, similar to tyre segment, Asia accounts for 65% of global consumption. China is the largest consumer for black carbon used in MRG segment at 40%. EU and North America accounted for 10% and 15% of the total consumption, respectively.

Exhibit 69: Non-tyre based applications – Region-wise split



Source: Edelweiss Research, Company

Global carbon-black consumption in MRG application is expected to grow 3.5% CAGR FY19-24E. Similar to tyre application, carbon-black consumption (for MRG applications) in China is expected to grow at 4.1% while advanced economies such as North America and EU are expected to grow by sub-3%. Japan consumption on the other hand, is expected to decline compared to CY19.

Exhibit 70: Demand rollout – Non-tyre based applications

Regions	2019	2020	2021(F)	2022(F)	2023(F)	2024(F)	CAGR CY19-CY24E
China (kt)	990	990	1,070	1,090	1,140	1,210	4.1%
World excluding China (kt)	1,603	1,440	1,611	1,735	1,807	1,864	3.1%
North America (kt)	432	365	416	456	469	483	2.3%
South America (kt)	105	96	107	117	126	126	3.7%
European Union (kt)	268	220	264	281	288	292	1.7%
Eastern Europe (kt)	76	73	79	84	89	94	4.3%
Asia excluding China (kt)	653	622	674	718	751	782	3.7%
India (kt)	123	117	125	136	147	156	4.9%
Japan (kt)	109	89	102	106	106	106	-0.6%
South Korea (kt)	36	26	33	39	42	43	3.6%
Other Asia (kt)	385	390	414	437	456	477	4.4%
Africa/Mideast (kt)	69	64	71	79	84	87	4.7%
PHR (CB to rubber) (x)	23.6	23.3	23.5	23.3	23.4	23.4	
Non-Tyre Rubber Consumption (kt)	11,010	10,432	11,389	12,120	12,609	13,161	3.6%

Source: Company, Edelweiss Research

Speciality black: Carbon-black consumption

The most fundamental difference between commodity and specialty grades is the degree of product quality and purity. Standards are more exacting for specialty grades, so the delivered product must be of a consistently higher quality. Specialty grades are substantially cleaner than conventional grades, meaning they have lower levels of sulphur, ash and metals, as well as physical impurities and water wash residue. These grades are characterized by minute variations in their particle size and structure, which can have a profound effect on ease of processing (particularly with regard to dispersibilty), colouring properties, and the final properties of the product into which the carbon-black is added, such as a printing ink, paint or plastic component. To maximize dispersion and flow, specialty grades generally are produced at lower structural density (as measured by DBPA) and bulk density than rubber blacks.

Carbon-black is useful in specialty markets because of its intensely black pigmentation, its resistance to UV energy, and its ability to impart electrical and thermal conductivity to products in which it is incorporated. The vast majority of these applications use carbon-black as a colorant or tint, or to provide conductive or weathering properties to products. However, some niche markets use carbon-black in unique ways not seen in other markets. When used as a foundry-casting agent, for instance, carbon-black acts as a lubricant and oxygen scavenger. In high temperature refractories, carbon-black is used as an insulator and thermal conductor, where it reduces energy costs and helps to maintain ambient plant temperature. In the metallurgical industry, carbon-black serves as a reducing agent or carburizer. In the production of graphite and carbon products (such as carbon brushes), carbon-black serves as a carbon feedstock.

Plastics application is the major growth driver accounting for almost 2/3rd volume share of the Speciality Blacks market. The increasing application scope can be attributed to its high durability, corrosion resistance, flexibility, and low maintenance requirements. Increasing demand for electrical and electronic components, such as microwaves, ovens, phones, tablets, laptops, computers, television, music player, and fax machine, is expected to drive the plastics demand.

The applications for carbon-black in speciality products is as follows:

1. **Coatings:** Includes products used for pigmentation in black coatings and enhancement of various other coatings (e.g., automotive base coats and architectural coatings), for conductivity and for tinting, as well as for paints and for light tinting in transparent coatings (e.g., metallic effects and wood glazing). The diversity of the manufacturing processes allows for the creation of a wide range of specialty carbon-black grades with different structures and chemical properties, thereby allowing these products to impart unique characteristics to the customers' products.

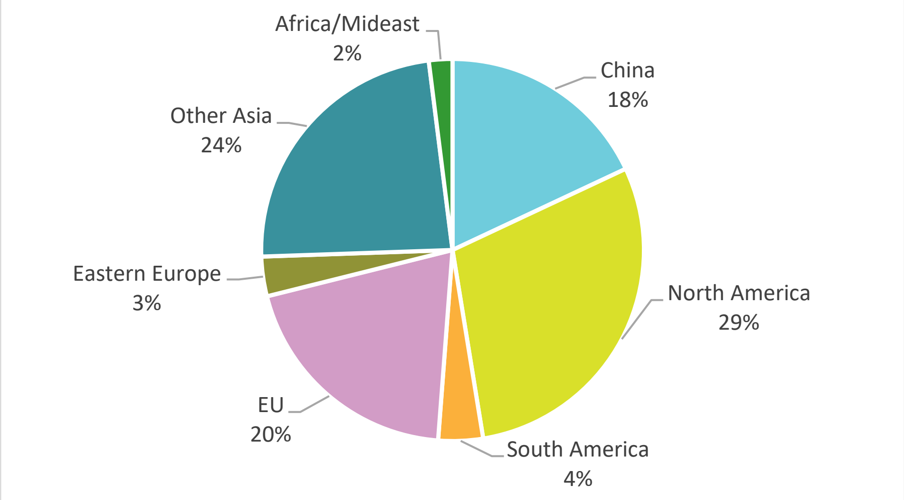
2. **Polymers:** Finds use in pipe (e.g., gas, oil, municipal water, sewage), construction, energy distribution (e.g., power cables), automotive, agriculture, and consumer packaging. Certain products within this portfolio provide UV protection against polymer degradation for material such as pipe used for potable water, injection molding, agriculture films and cables. Other products include standard-to high-performance grades designed and modified to provide electrical conductivity, antistatic and reinforcing properties to many different polymer articles, including high-voltage cables, films, boxes and high-pressure pipes.

3. **Printing:** There is a wide range of printing products that provide numerous grades for different printing technologies and applications. The different process technologies to offer highly specialized products meeting specific requirements, including compliance with food-contact regulations and specially formulated products that require unique attributes such as colour undertone, optical density and gloss.

4. **Batteries:** There is a range of specialty carbon-black products for energy storage applications such as lead-acid batteries, dry cells, super capacitors and lithium-ion batteries. The products, which are manufactured in different production processes, function as tailor-made additives to provide electrical conductivity to increase the performance of batteries.

Unlike rubber carbon-black applications, Speciality chemicals market is dominated by North America, accounting for 29% of global consumption. China accounts for 18% of global consumption. India accounts for 5.4% of global consumption.

Exhibit 71: Speciality black – Region-wise split



Source: Company, Edelweiss Research

Global consumption of Speciality chemicals is expected to grow by 2.7% CAGR CY19-24E. Consumption in advanced economies such as North America, EU and Japan is expected to grow sub-2.5% CAGR. In China, speciality products consumption is expected to grow by 3.7% CAGR through to CY24. India's speciality chemicals consumption is expected to grow 4.1% CAGR through to CY24.

Exhibit 72: Demand roll out – Speciality chemicals

Regions	2019	2020	2021(F)	2022(F)	2023(F)	2024(F)	CAGR CY19-CY24
China (kt)	175	155	172	185	200	210	3.7%
World excluding China (kt)	785	692	783	828	865	886	2.5%
North America (kt)	277	249	281	290	300	306	2.0%
South America (kt)	36	31	36	40	43	45	4.6%
European Union (kt)	192	169	190	198	204	205	1.3%
Eastern Europe (kt)	33	28	32	33	36	38	2.9%
Asia excluding China (kt)	228	199	225	246	260	269	3.4%
India (kt)	54	48	52	60	64	66	4.1%
Japan (kt)	48	42	48	51	52	53	2.0%
South Korea (kt)	45	39	44	48	51	53	3.3%
Other Asia (kt)	81	70	81	87	93	97	3.7%
Africa/Mideast (kt)	19	16	19	21	22	23	3.9%
Customized Non-ASTM (kt)	600	534	607	644	677	698	3.1%
Clean Rubber Grades (kt)	360	313	348	369	388	398	2.0%

Source: Edelweiss Research, Company

Annex: Manufacturing process

PCBL manufactures carbon-black by a process known as the "Oil Furnace Process". This process uses continual thermal decomposition of gaseous or liquid hydrocarbons under controlled conditions. The company has seamless capability of producing carbon-black from multiple feed stock like Carbon-black Oil ("CBO"), CBFS etc. PCBL uses CBO or CBFS, sourced domestically or from outside India, depending on the availability and prices. Raw materials consist of hydrocarbon oils rich in carbon content. Preheated air and oil feedstock are injected in a reactor lined with high temperature refractories, kept at a temperature of 1400°C-1900°C, where the feedstock undergoes 'cracking' or decomposition.

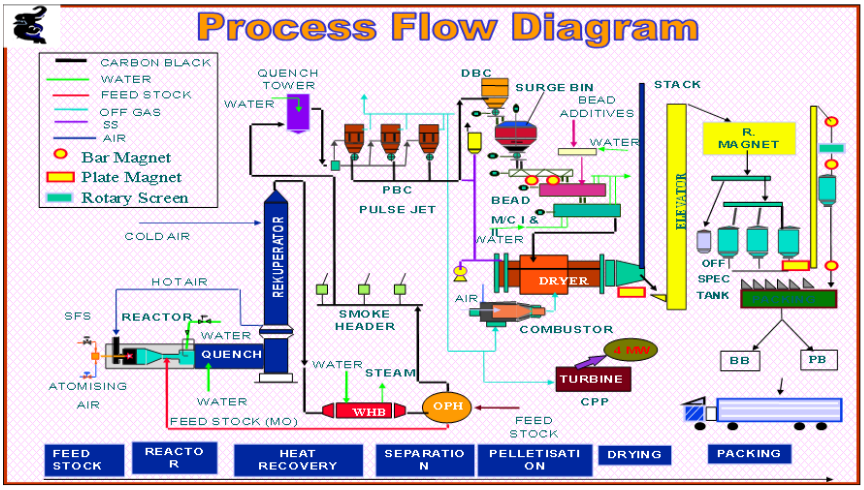
PCBL imports significant portion of our feedstock requirement from various countries. During the FY21, FY20 and FY19, the company imported 76.08%, 74.02% and 78.65% of our feedstock requirement. The remainder of the feedstock requirement is met primarily from domestic refineries.

The decomposition of the feedstock in deficiency of air and under carefully controlled conditions results in the formation of carbon-black aggregates. The reaction, which takes place in a few milliseconds, is stopped by water quenching which brings down the temperature. The resultant smoke carrying carbon-black is quenched with water sprays and passed through heat exchangers, which in turn is used to preheat the inlet oil and air, thus achieving conservation of energy, and improving the yield. The product stream i.e., smoke, is further cooled by secondary water quenching in vertical towers. It then enters bag filters where carbon-black is separated from gas. The by-product called 'off-gas' having calorific value (around 650-700 Kcal/NM^3 average) is burnt and the heat is utilized for generation of steam, generation of power and also in the manufacturing process.

Separated carbon-black dust is pneumatically conveyed to a pelletiser, where, with the help of a molasses and water solution and high gyrating force, pellets are formed which are dried in rotary dryers and finally stored in product storage tanks.

The manufacturing process is described in a process flow diagram given below:

Exhibit 73: Carbon-black manufacturing process



Source: Edelweiss Research, Company

Additional Data

Management

Chairman	Sanjiv Goenka
Vice-Chairman and MD	Kaushik Roy,
Non- Executive Non- Independent Director	Shashwat Goenka
Auditor	S. R. Batliboi & Co. LLP

Holdings – Top 10*

	% Holding		% Holding

*Latest public data

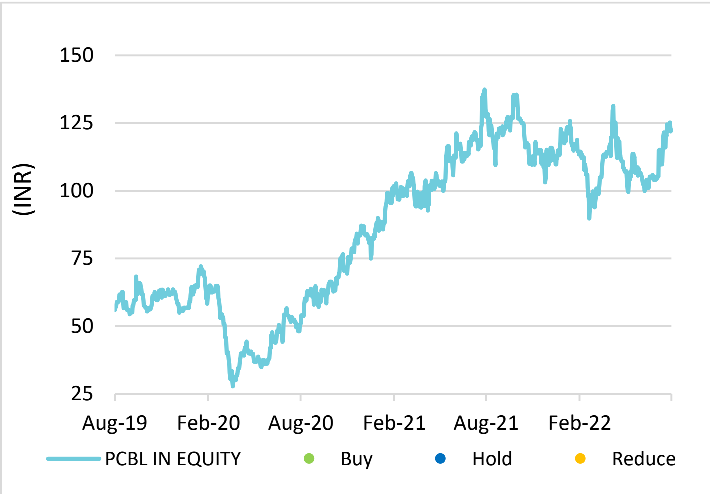
Recent Company Research

Date	Title	Price	Reco

Recent Sector Research

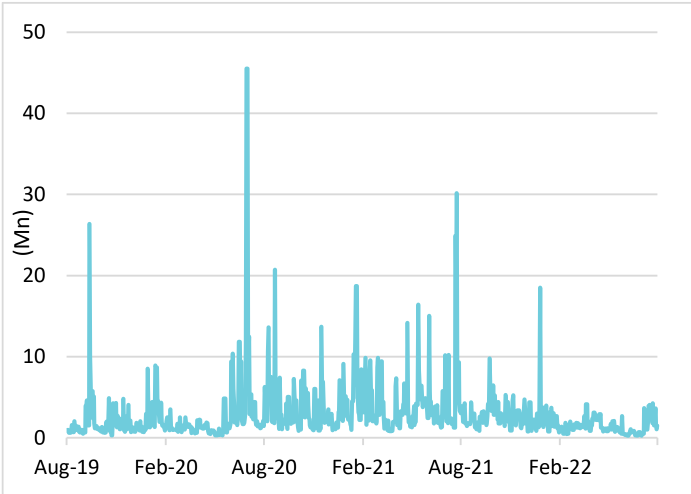
Date	Name of Co./Sector	Title
25-Apr-19	Chemical	Chemspec: Party for domestic manufacture; *Sector Update*

Rating Interpretation



Source: Bloomberg, Edelweiss research

Daily Volume



Source: Bloomberg

Rating Distribution: Edelweiss Research Coverage

	Buy	Hold	Reduce	Total
Rating Distribution*	198	54	18	272
	>50bn	**>10bn and <50bn**	**<10bn**	**Total**
Market Cap (INR)	245	38	5	288

*2 stocks under review

Rating Rationale

Rating	Expected absolute returns over 12 months
Buy:	>15%
Hold:	>15% and <-5%
Reduce:	<-5%

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