

Rain Industries



Enduring Tailwinds

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Rain Industries

BSE Sensex
33,213

S&P CNX
10,335

CMP: INR271

TP: INR362(+33%)

Buy



Stock Info

Bloomberg	RINDL IN
Equity Shares (m)	336
52-Week Range (INR)	257 / 41
1, 6, 12 Rel. Per (%)	37/108/352
M.Cap. (INR b)	91.3
M.Cap. (USD b)	1.4
Avg Val, INRm	286.4
Vol m	286
Free float (%)	58.9

Financial Snapshot (INR b)

Y/E Dec	2016	2017E	2018E
Net Sales	93.2	111.3	132.5
EBITDA	13.5	19.7	23.4
PAT	3.2	6.8	9.5
EPS (INR)	9.6	20.2	28.2
Gr. (%)	1.2	109.7	39.6
BV/Sh (INR)	89.6	107.4	133.2
RoE (%)	10.9	20.5	23.4
RoCE (%)	12.7	17.2	21.1
P/E (x)	28.2	13.4	9.6
P/BV (x)	3.0	2.5	2.0

Shareholding pattern (%)

As On	Sep-17	Jun-17	Sep-16
Promoter	41.1	41.1	41.1
DII	2.9	4.9	11.7
FII	17.6	17.4	17.2
Others	38.4	36.5	29.9

FII Includes depository receipts

Rain Industries Enduring tailwinds



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[Please click here for Video Link](#)

Rain Industries (RAIN) is the second largest carbon product supplier to the aluminum industry. Its carbon segment contributes 80% to consolidated EBITDA. Its chemicals segment converts coal tar distillates into resins, modifiers, aromatic chemicals, superplasticizers, etc. It also operates a 3.5mt cement plant in southern India and sells cement under the *Priya* brand.

Enduring tailwinds

Re-rated, yet attractive

- RAIN is riding tailwinds, triggered by supply disruption in China, which are driving margins and volume growth. We expect these tailwinds to last for 2-3 years, enabling EBITDA/PAT CAGR of 24%/50% over CY16-19.
- RAIN has been generating strong FCF and rewarding shareholders with dividends and buybacks. We believe it will continue to do so.
- The stock has been re-rated on change in business dynamics. Yet, our price target of INR362 indicates 33% upside. We initiate coverage with Buy.

Dual benefit of demand growth and supply shock driving CPC prices

Calcine pet coke (CPC) production is hurt in China after the government's firm action in 2017 to contain pollution. As a result, China has turned a net importer of CPC. Simultaneously, aluminum production is set to grow outside China – many smelters in North America and Europe are restarting. The dual benefit of demand growth and supply shock is driving up global CPC prices.

CT pitch market has stabilized on capacity cuts in key markets

CT pitch (CTP) has been oversupplied for many years in RAIN's key markets due to declining aluminum production. Consequently, there have been many shutdowns. Koppers, the largest producer of CTP in the world and a key competitor, has closed seven plants in the last 2-3 years. This has resulted in supply correction and improved utilization. The industry is now running at 80-90% utilization and margins have stabilized. As aluminum production starts to recover on expected restart of smelters, demand and margins will expand.

Investing in high IRR organic growth projects

RAIN has decided to set up a 370ktpa CPC kiln at a capex of USD65m near Vizag to meet strong growth in demand from Indian smelters. It is also investing USD17m in debottlenecking of petrochemical feedstock distillation by 200kt in Europe. Both projects are scheduled for completion by March 2019 and short payback period of 2-3 years should drive remunerative volume growth.

Value the stock at INR362/share – 33% upside; initiate with Buy

After trading at low single digit PE for very long period, RAIN has finally got re-rated on visibility of margin expansion and growth driven by multiple enduring tailwinds and multiple competitive advantages. Although stock has run up sharply, the valuations are still reasonable. We value the stock at INR362/share – 33% upside, based on SOTP (Exhibit 19). We initiate coverage with a **Buy**.

Exhibit 1: Volumes driven by demand and capex

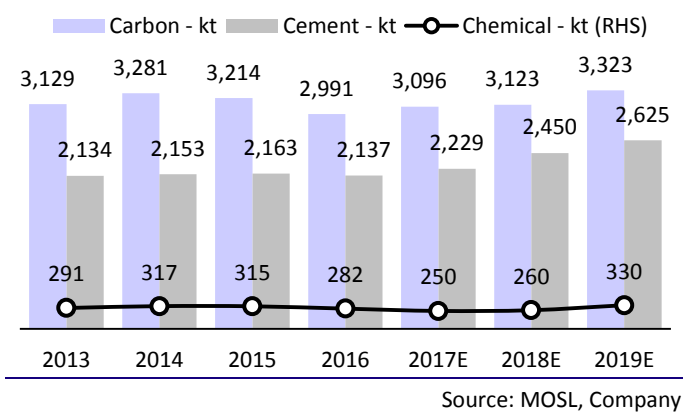


Exhibit 2: Margins (EBITDA/t) improving on tailwinds

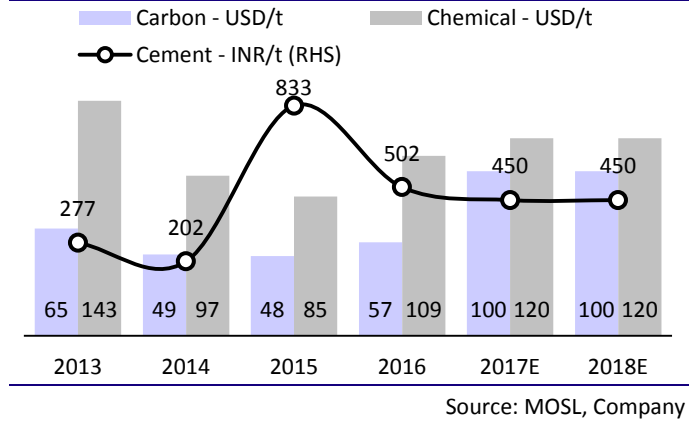


Exhibit 3: P/E bands

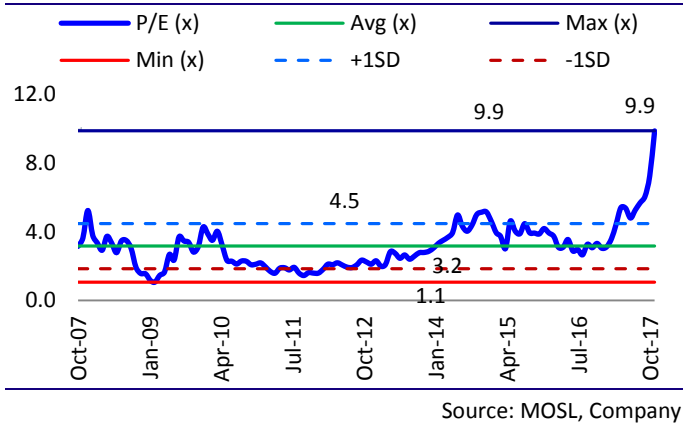


Exhibit 4: P/BV bands

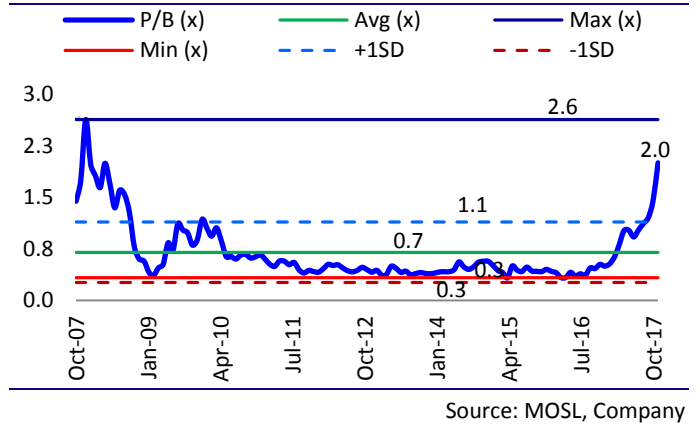


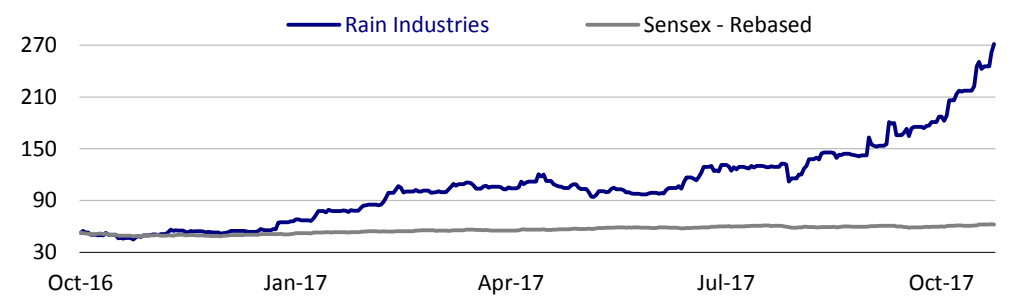
Exhibit 5: Valuations are still reasonable

	Rating	Price (INR)	MCAP (USD M)	EPS			P/E (x)		EV/EBITDA (x)		P/B(x)	
				FY17	FY18E	FY19E	FY18E	FY19E	FY18E	FY19E	FY18E	FY19E
Steel												
Tata Steel	Neutral	704	10,534	37.9	59.4	65.2	11.8	10.8	7.0	6.9	1.9	1.7
JSW Steel	Buy	258	9,605	14.8	20.3	24.9	12.7	10.4	8.2	7.3	2.3	1.9
JSPL	Buy	163	2,300	-20.9	-15.8	2.0	-10.3	81.1	10.2	7.0	0.5	0.5
SAIL	Sell	78	4,959	-6.2	-10.6	-4.2	-7.4	-18.6	38.3	16.1	1.0	1.0
Non-Ferrous												
Hindalco	Buy	267	8,509	16.2	22.0	26.3	12.2	10.2	7.0	6.1	1.7	1.5
Nalco	Neutral	92	3,634	3.7	3.8	4.2	24.4	21.9	10.6	9.6	1.7	1.6
Vedanta	Buy	332	15,165	15.1	25.4	40.0	13.1	8.3	8.1	5.4	1.9	1.7
Rain Ind.*	Buy	271	1,407	9.6	20.2	28.2	13.4	9.6	7.8	6.3	2.5	2.0
Mining												
Coal India	Buy	286	27,873	14.9	17.5	20.7	16.4	13.9	8.6	7.4	6.9	6.6
Hindustan Zinc	Neutral	315	20,540	19.7	22.7	29.4	13.9	10.7	8.8	6.3	4.6	3.6
NMDC	Buy	128	7,848	10.0	12.4	12.1	10.3	10.6	6.5	6.5	1.7	1.6

* CY reporting

Source: MOSL, Company

Exhibit 6: Stock Performance (1-year)



Strong tailwinds will last many years

Initiating with BUY

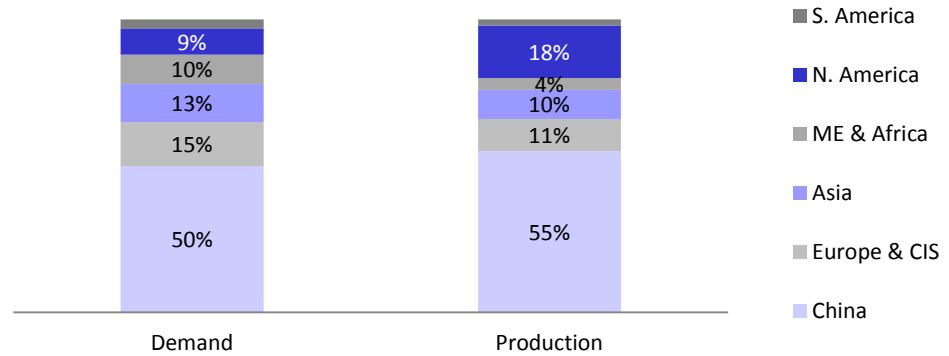
RAIN is one of the largest carbon product suppliers to the aluminum industry, with a global capacity of 3.5mt. Its carbon segment includes a 2.1mt CPC capacity and a 1.4mt coal tar distillation capacity, and contributes 80% to consolidated EBITDA. Its chemical segment converts coal tar distillates (other than CTP) into resins, modifiers, aromatic chemicals, superplasticizers, etc. It also operates a 3.5mt cement plant in southern India and sells cement under the *Priya* brand. Many business tailwinds are driving margins for the company, which will last many years, in our view.

Dual benefit of demand growth and supply shock driving CPC prices

In 2016, global CPC production was about 27.8mt, 73% of which was produced in China and North America. China was a net exporter, meeting nearly 10% of demand in the rest of the world.

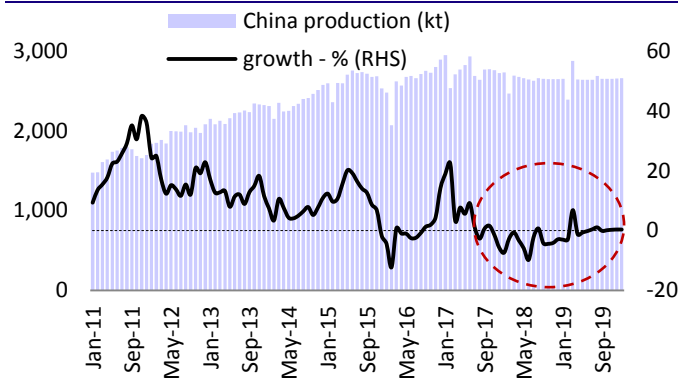
Exhibit 7: CPC demand and supply by geography in 2016

China and North America have been key exporters of CPC, but China has turned net importer in 2017



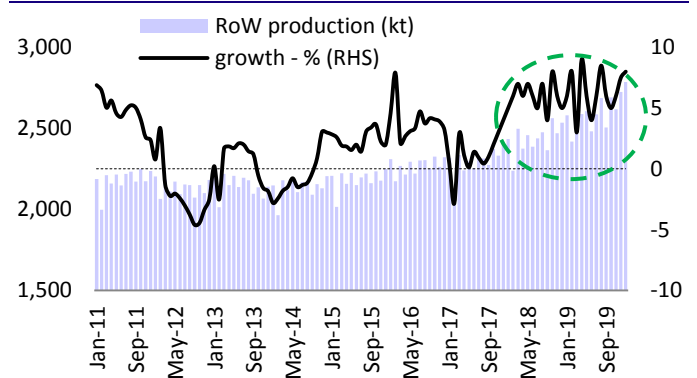
Source: Industry

Exhibit 8: While aluminum production declines in China...



Source: MOSL, Bloomberg

Exhibit 9: ...but it will grow faster in rest of world

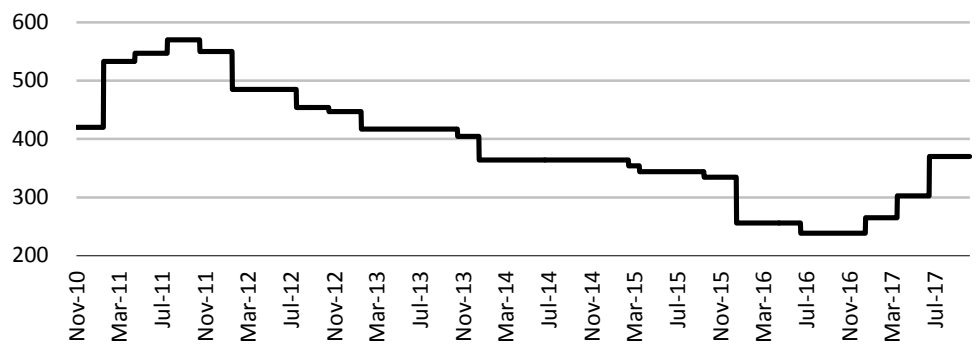


Source: MOSL, Bloomberg

CPC production is hurt in China after the government's firm action to contain pollution in 2017. This is creating imbalances in the global market, as China has turned net importer. Simultaneously, aluminum production is set to grow outside China, which will offset the production cuts (4.5mtpa already shut from NDRC's target of 7.6mtpa cuts) within China. Many smelters in North America and Europe are evaluating restart (for example, Alcoa is restarting 161ktpa pot lines at Warrick and evaluating Wenatchee restart). The dual benefit of demand growth and supply shock is driving CPC prices.

Dual benefit of demand growth and supply shock is driving CPC prices

Exhibit 10: CPC prices in USA at Gulf of Mexico (USD/t)



Source: MOSL

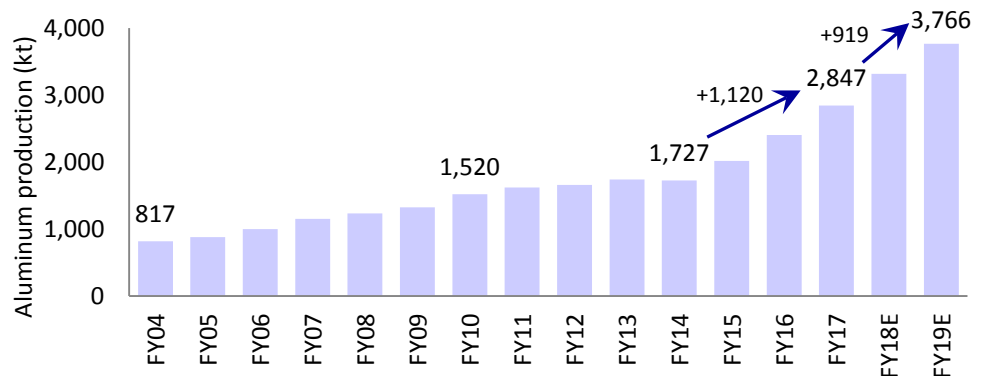
CT pitch market has stabilized on capacity cuts in RAIN’s key markets

Coal tar pitch (CTP) needs to be supplied in liquid form in heated vessels and this limits its international trade. CTP has been oversupplied for many years in RAIN’s key markets, Europe and North America, due to declining aluminum production. Consequently, many capacities have been shut down. Koppers, the largest producer of CTP in the world and a key competitor, has reduced the number of plants from 11 to four in the last 2-3 years. This has resulted in supply correction and improved capacity utilization. The industry is now running at 80-90% capacity utilization and margins are stabilizing. As aluminum production starts to recover on expected restart of smelters, demand and margins will expand.

Expanding capacity to leverage tailwinds

Capacity of Indian aluminum smelters has increased three fold to 4.1mtpa in the last 10 years. However, the production of aluminum could increase only in the last three years (FY15-17), as supply of domestic coal improved. Aluminum production is set to grow further over the next 2-3 years, as smelters improve capacity utilization.

Exhibit 11: Aluminum production in India



Source: MOSL

On the other hand, there has been no significant investment in CPC capacity addition. Domestic CPC production met only 50-60% of the 1.15mt consumption in FY17. The demand-supply gap is likely to widen further over the next 2-3 years. To leverage this, RAIN has already set up a 1mtpa blending facility at Vizag, where it is blending CPC imports from its plants in USA. As smelters restart in North America, the surplus from USA will shrink. Hence, RAIN has decided to set up a 370ktpa

vertical kiln at a capex of USD65m at another site in an SEZ near Vizag to meet incremental local demand. It is likely to be completed by March 2019. GPC is the key raw material for making CPC. RAIN has a good supply relationship with Sinopec in China for supply of GPC. On closure of CPC plants in China, Sinopec's and other suppliers' GPC exports from China will increase. RAIN's overall CPC volumes are likely to start growing after many years.

RAIN is investing USD17m to debottleneck petrochemical feedstock distillation facilities in Castrop-Rauxel, Germany and Zelzate, Belgium. This involves installation of additional balancing equipment and construction of storage facilities and other infrastructure. The installed capacity will increase by 200ktpa. This will provide higher volumes of petroleum pitch for specialty binders in graphite applications and other downstream products for Resins feedstock. The project is likely to be commissioned by December 2018.

Multiple competitive advantages

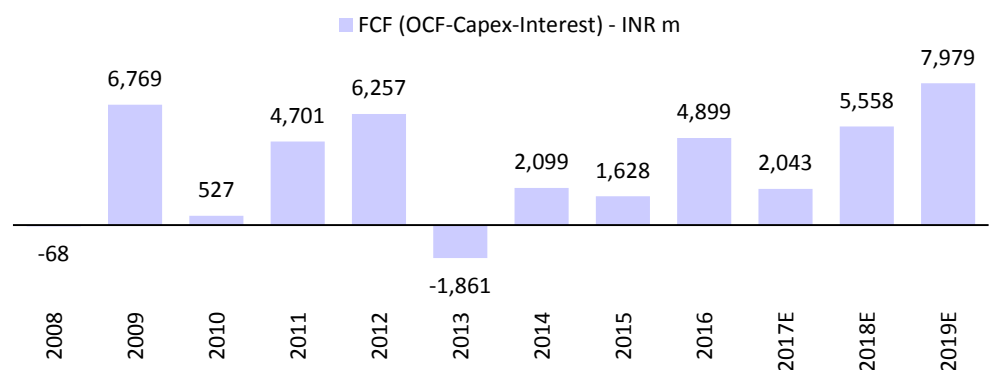
- Global leader in essential carbon products for the aluminum industry
- Longstanding, strategic relationships with global customers
- Long-term contracted raw material supply—a key barrier to entry
- Leadership in developing new products and alternative inputs

We have discussed these in more detail later in the report.

Free cash flows growing despite jump in working capital

RAIN has always generated strong free cash flows – even in tough market situations, as it operates its business on conversion basis.

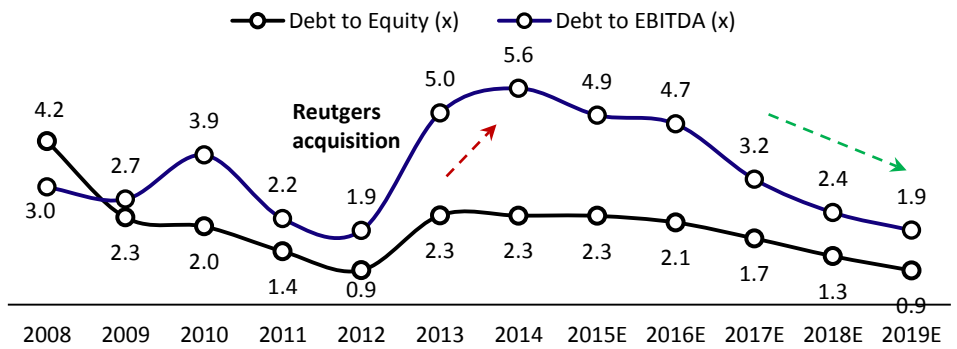
Exhibit 12: Free Cash flows will be increasing



Note: FCF were affected by INR8b WC increase on acquisition of Ruetgers in 2013 Source: Company

Its strong free cash flows help RAIN to deleverage its balance sheet. Its net debt/EBITDA ratio has consistently declined except when it acquired Ruetgers in 2013. This trend is likely to continue despite expected increase in working capital and announced capex.

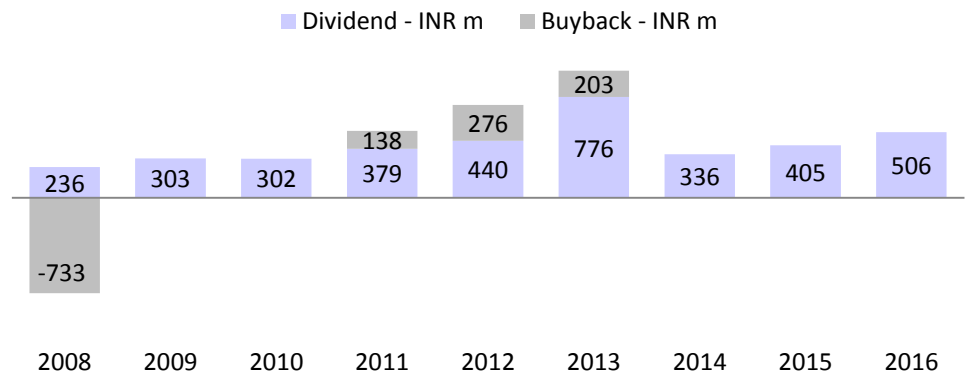
Exhibit 13: Financial leverage continue to decline



Source: MOSL

RAIN has been rewarding its shareholders through buybacks and dividends.

Exhibit 14: RAIN has been always been rewarding share holders



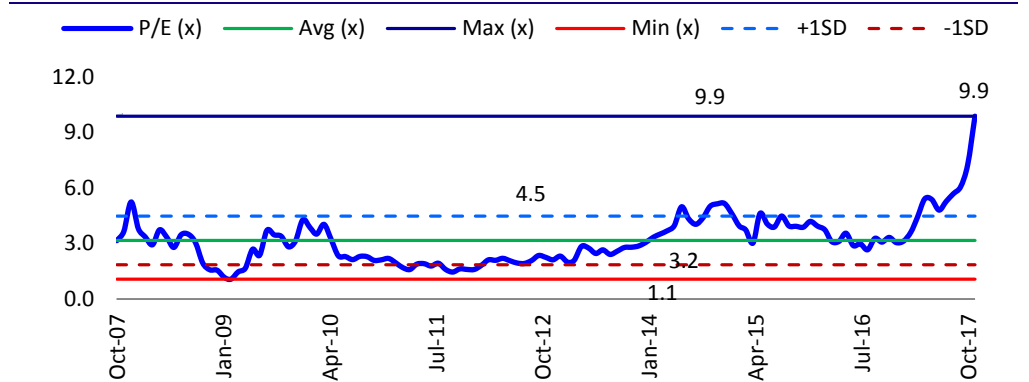
Source: MOSL, Company

Stock getting re-rated; valuations still reasonable

RAIN’s long-term relationships with customers and suppliers, strategic locations of operations in Europe and North America, and quest to help customers with new product development allows it to negotiate reasonable margins through the cycles.

P/E re-rating; still attractive

Exhibit 15: P/E Bands

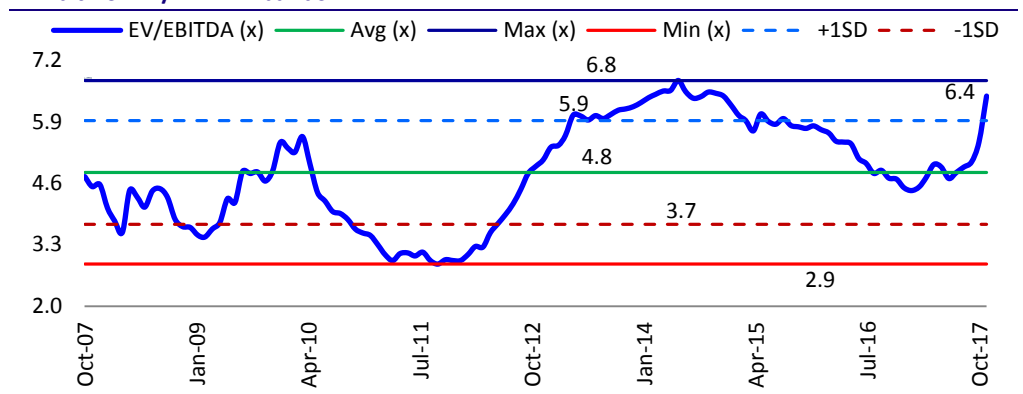


Source: MOSL, Bloomberg

The stock languished below INR50/share and at low single-digit P/E for a very long period (2008-2016) due to lack of investor interest in a low growth stock, poor understanding of its business, concerns on overseas inorganic growth at high valuations (v/s RAIN's multiple), and lack of risk appetite for midcaps. All of these factors have now changed. Investors' interest in midcaps is now high. With disruption in global trade, earnings growth is back on track. As it is already among the two largest producers of CPC and CTP in the world, and there is little room for consolidation in its key markets, we do see RAIN actively exploring further inorganic growth opportunities overseas. On the other hand, organic growth opportunities in India have arisen. RAIN is investing in a 370kt CPC plant in India and a 200kt debottlenecking of distillation plant in Europe. These are likely to be completed by March 2019. The stock has been re-rating and we expect its multiples to sustain.

On EV/EBITDA, valuations remain reasonable in light of strong cycle for at least another 2-3 years

Exhibit 16: EV/EBTIDA bands

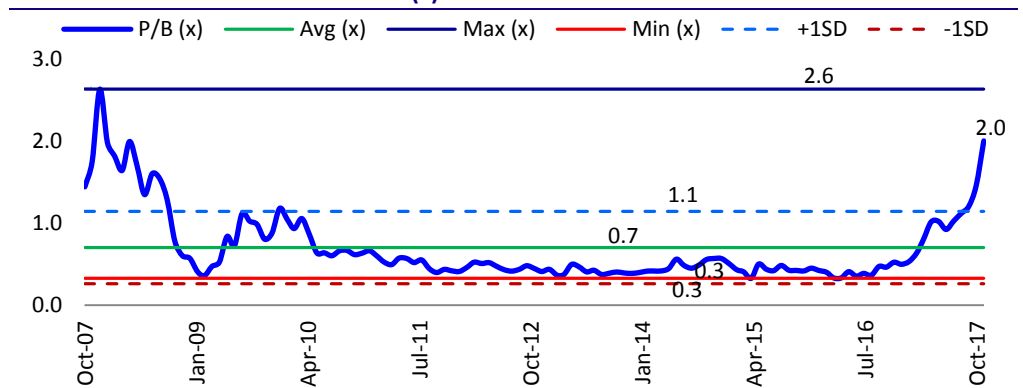


Source: MOSL, Bloomberg

Stronger aluminum prices and production growth in its key market improves its negotiating power and margins. Although aluminum prices have recovered, aluminum production has yet to start growing in its key markets, North America and Europe. Also, competitive intensity has reduced in the CT pitch market after reduction in capacity by Koppers, the largest producer in world. Crackdown on CPC producers in China to contain pollution has disturbed world trade, sending prices higher. These are structural changes in market dynamics. The impact is likely to last at least 2-3 years till new capacities come up in other parts of the world.

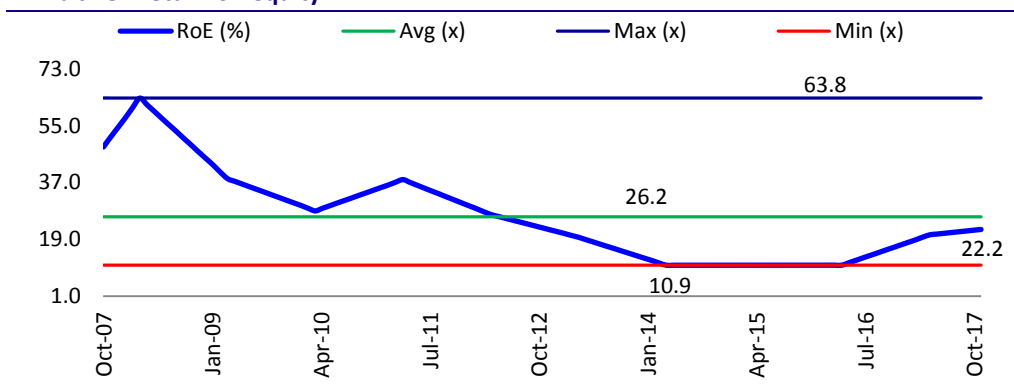
P/BV re-rating...

Exhibit 17: Price to book value ratio (x)



Source: Bloomberg, MOSL

...is driven by improvement
in RoE

Exhibit 18: Return on equity

Source: MOSL, Bloomberg

Value the stock at INR362/share – 33% upside; initiate with BUY

We expect EBITDA to grow at a CAGR of 24% and PAT at a CAGR of 50% over CY16-19, driven by (1) 4% volume CAGR and expansion of EBITDA from USD57/t to USD100/t in the carbon segment, (2) 5-6% volume CAGR and improvement in margins from USD109/t to USD120/t in the chemical segment. The cement segment too is likely to see gradual improvement in capacity utilization and margins.

We value the carbon and chemical business at CY19E EV/EBITDA of 6.5x and cement business at CY19E EV/EBTIDA of 10x (at EV/t of ~USD58 – significant discount to sector valuations and M&A transactions). Thus, we value the stock at INR362/share –33% upside. We initiate coverage with a BUY rating.

Exhibit 19: Target price Calculations

Y/E December	2016	2017E	2018E	2019E
Target multiple				
Carbon	6.5	6.5	6.5	6.5
Chemical	6.5	6.5	6.5	6.5
Cement	9.0	10.0	10.0	10.0
EBITDA				
Carbon	11,452	16,900	20,300	21,600
Chemical	2,072	2,023	2,028	2,574
Cement	1,073	790	1,103	1,313
EV/t	42	34	49	58
Target EV	97,563	130,902	156,154	170,253
Net Debt (Rs m)	64,002	61,794	56,060	48,450
Residual Market Cap		69,108	100,094	121,803
Target price		205	298	362

Source: MOSL

Multiple competitive advantages

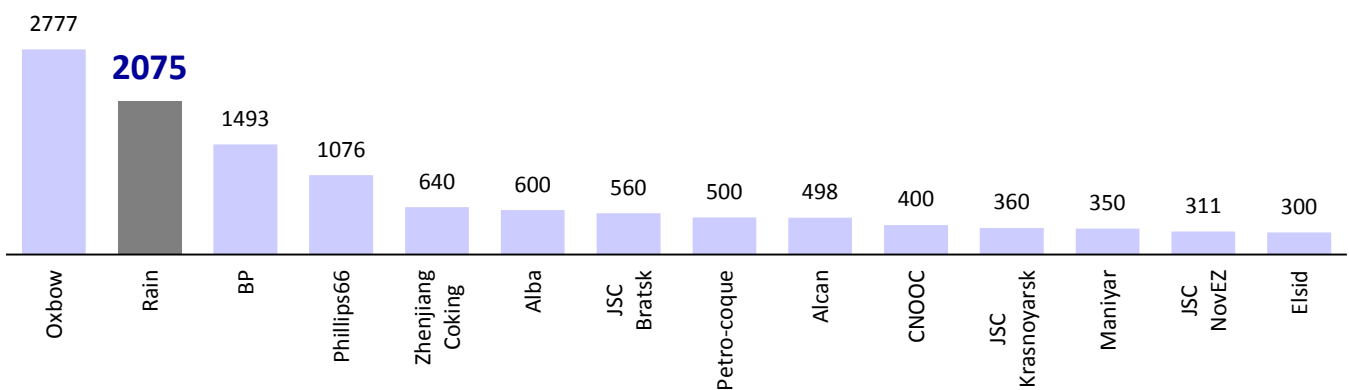
Global leadership in both CPC & CTP I input supply contracts I patents

- Global leader in essential carbon products for the aluminum industry
- Longstanding strategic relationships with global customers
- Long-term contracted raw material supply—a key barrier to entry
- Leadership in developing new products and alternative inputs

Global leader in essential carbon products for aluminum industry

RAIN is investing in a 370kt CPC expansion in India, which will increase its capacity to 2.45mtpa and narrow the gap with Oxbow in the CPC business.

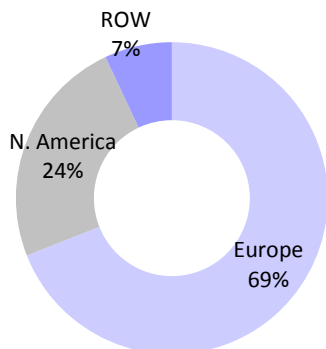
Exhibit 20: RAIN is the second largest CPC producer in the world - capacity in ktpa



Source: Company, MOSL

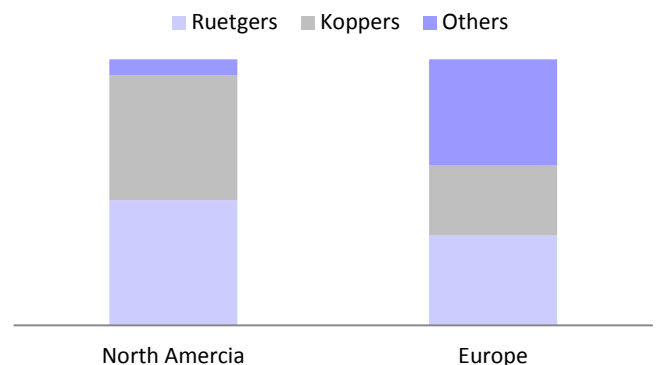
CTP is supplied to end customers in liquid form in heated vessels to avoid hardening. It needs to be produced close to customers. This acts as significant entry barrier against imports from low cost countries like China. RAIN’s subsidiary, Ruetgers sells most of its CTP in Europe and North America. The market is highly consolidated and there is a duopoly with Koppers. With prolong decline in production of aluminum and demand for CTP in these regions, Koppers has consolidated its business from 11 locations to just 4 locations. This has addressed over-capacity. Now, the industry is running at 80-90% capacity utilization and margins have recovered.

Exhibit 21: Ruetgers revenue region wise



Source: MOSL, Company

Exhibit 22: Market leadership in key CTP markets

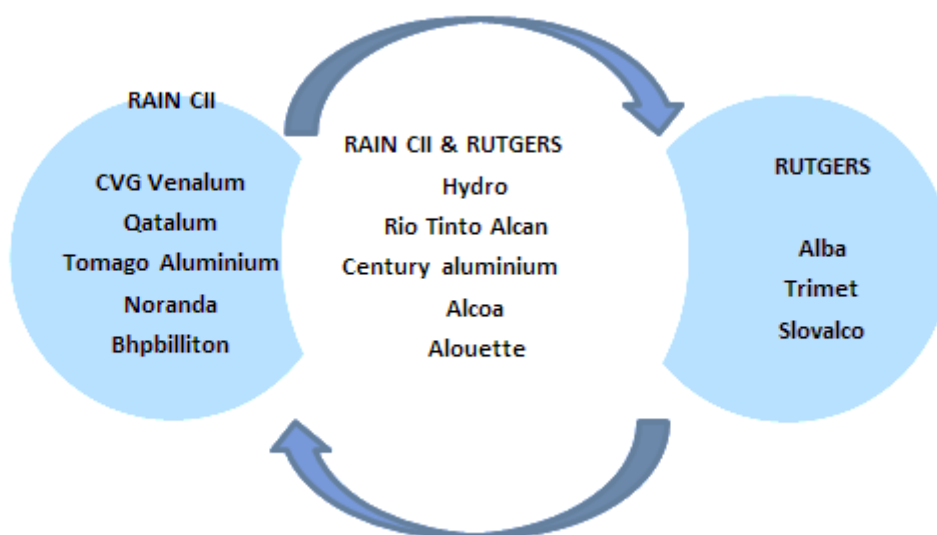


Source: MOSL, Company

Longstanding strategic relationships with global customers

CII (1.5mtpa CPC business in USA acquired in 2007) and RÜTGERS (coal tar distillation in Europe and North America acquired in 2013) derive a majority of revenues from longstanding global customers. CII and RÜTGERS have a complementary global aluminum customer base, which includes companies such as Alcoa, Rio Tinto Alcan, Norsk Hydro ASA, Century Aluminum and Aluminerie Alouette Inc. Furthermore, both CII and RÜTGERS have maintained relationships with many of their customers for over 15 years on average. RAIN works closely with customers to improve existing products and to develop new products and processes to reduce costs for both. It also leverages its complementary customer bases to cross-sell its CPC and CTP products. CII and RÜTGERS have established themselves in their respective markets as reliable and high-quality suppliers and enjoy preferred supplier status with many industry leaders.

Exhibit 23: Leveraging customer by cross selling



Source: company

Long-term contracted raw material supply—a key barrier to entry

In both the CPC and CTP industries, secure access to raw materials is a key competitive advantage. In light of tightening in the worldwide supply of traditional anode-grade GPC and coal tar, and RAIN's long-term supply contracts and integration with certain of its key suppliers, we believe it would be difficult for a new entrant to access a meaningful secure supply of these critical raw material inputs.

RAIN enjoys long-standing relationships with many of its suppliers. It is strategically located close to key suppliers, and in some cases, has co-located facilities. We believe that the close proximity of its calcining facilities to suppliers minimizes freight costs and provides a significant competitive advantage. RAIN has several long-term supply contracts with an average maturity of over 20 years. In addition, it has maintained strong relationships with its refining partners regardless of contract duration, resulting in repeated contract renewals over many years. RAIN's relationships with suppliers such as Motiva, Phillips66, Marathon Ashland Petroleum and Exxon Mobil exceed 20 years and these have provided it access to essential GPC

supply sources for both traditional and non-traditional anode grade cokes. More than 90% of RÜTGERS' coal tar supply is based on longstanding framework contracts and its relationships with most of its suppliers exceed 10 years. RÜTGERS extended its coal tar supply base by establishing the Russian JV. The Russian JV will provide approximately 180kt of additional coal tar supply annually at attractive prices. The secure access to high quality GPC and coal tar through long-term relationships provides a relatively stable source of raw materials to serve customers reliably.

Industry leader in
proprietary product
development

Leadership in developing new products and alternative inputs

RAIN is recognized by its customers and suppliers as a leader in research and product development. CII has published and presented more than 15 technical papers at leading industry conferences since 2000. CII's CPC business has led the industry in development efforts to utilize a wider range of GPC raw materials for use in aluminum anodes. Alternative raw materials such as shot coke and other non-traditional anode cokes ("NTAC") are not only typically priced at a discount to traditional anode grade coke, but commercial use of NTACs is likely to increase, as traditional anode grade GPC availability declines. CII developed the patented ICE technology with Century Aluminum Company; it allows exclusive use of shot coke in anode blends, where shot coke is a very specific and distinctive type of NTAC. Today, NTACs are an important GPC source. Anode grade shipments typically contain around 10% NTACs, which is providing significant raw materials cost savings.

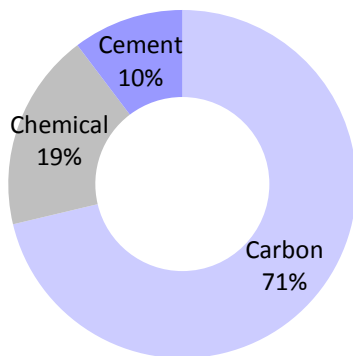
Through selective investment, RÜTGERS has developed flexible production facilities and processes that allow it to produce high quality CTP and downstream products. In addition to the flexibility of its facilities and production processes, RÜTGERS' research and development team focuses on creating innovative products to meet its customers' evolving needs and to keep up with industry standards and preferences. RÜTGERS has filed more than 15 patents and approximately 24 trademarks, most of which have a remaining maturity of 5-15 years. In particular, RÜTGERS' CARBORES technology is an environment-friendly pitch binder, which produces less emission upon use compared to certain alternative pitch binders and has the potential to be used in the aluminum industry to improve anode performance and reduce anode production costs.

Company description

Only player with global leadership in both CPC and CTP

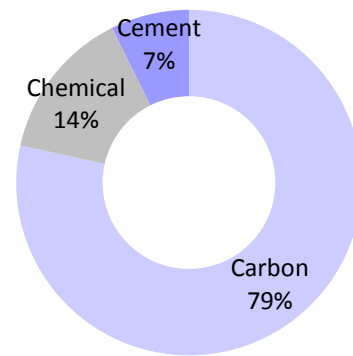
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Exhibit 24: Revenue segment wise in 2016



Source: Company

Exhibit 25: EBITDA segment wise in 2016

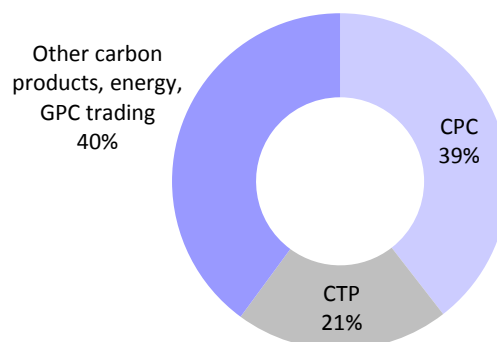


Source: Company

Carbon business segment

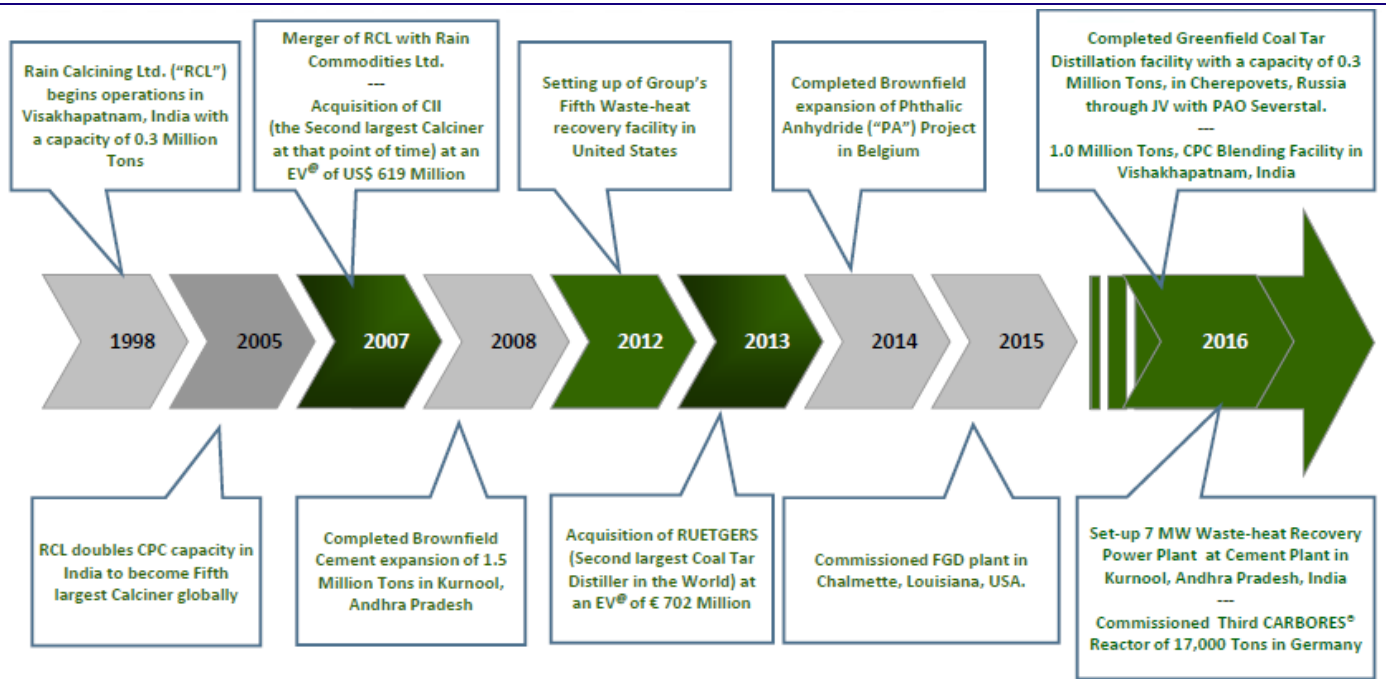
RAIN began its business with its first 300kt CPC kiln in 1998 at Visakhapatnam (Vizag) in India. It added another kiln of 300kt in 2005 at the same location. Although capacity has doubled to 600kt, it is constrained to produce only 500kt due to limit set by pollution control departments. In 2007, it acquired CII (the second largest calciner at that point of time) with total capacity of 1.9mtpa at an enterprise value (EV) of USD619m, thus increasing its total capacity to 2.5mtpa. A 420kt CPC capacity at Moundsville, West Virginia was shut down to avoid large investment to meet new environmental norms while the demand was weak.

Exhibit 26: Revenue distribution by products in 2016



Source: Company

Exhibit 27: Timeline



Source: Company

Calcined petroleum coke (CPC)

RAIN’s CPC facilities are spread across the USA and India. Three of the US CPC facilities are strategically located adjacent to an oil refinery. At one of these locations, it also supplies steam to the refinery. It owns three vessel loading terminals at the Chalmette, Gramercy and Lake Charles facilities. Its Visakhapatnam facility enjoys logistical benefits, as it is a port city.

Exhibit 28: CPC plants

Location	ktpa	Commission	Co-generation	Number of kilns	Remarks
Lake Charles, Louisiana	400	1979	yes	2	
Robinson, Illinois	315	1958	No	2	
Chalmette, Louisiana	230	1968	Yes	1	
Gramercy, Louisiana	230	1972	Yes	1	
Norco, Louisiana	230	1965	Yes	1	
Purvis, Mississippi	70	1959	No	1	
Moundsville, West Virginia	420	1957-2015	no	2	mothballed
ZXTTCL, China	20		No	1	
Visakhapatnam, India	600	1998	Yes	2	
Subtotal	2,095		118MW		
Project					
SEZ, Vizag	370	2019Q1	15MW	1	Vertical Shaft
Total	2,465		133MW		

Source: Company

CPC is a product derived through calcination of green petroleum coke (GPC), which is a by-product in the oil refining industry. GPC is processed and converted into anode grade coke, which is used in aluminum smelting process. Every ton of aluminum requires 400kg of CPC. There is no other economic alternate to CPC in aluminum-making.

RAIN derives more than 90% of its CPC revenues from sale of anode grade CPC to aluminum producers. Its customers are located throughout the world. In particular, the Group derives a significant portion of revenues from North America, South America, Middle East, South Africa, India and Europe.

RAIN has made the following investments to improve operating performance:

- Waste heat recovery power generation plants to improve margins
- Flue gas desulfurization in Chalmette, Louisiana, USA during December 2015
- 1mtpa CPC blending at Vizag, AP during December 2016

Key business drivers

- Global aluminium production growth
- Production of green petroleum coke by oil refineries

Coal tar pitch (CTP)

RAIN has a 1.06mt coal tar distillation capacity, which it entered through the acquisition of Ruetgers in beginning of 2013 (second largest coal tar distiller in the world) at an EV of EUR702m. CT pitch is a critical input in aluminum smelting, used primarily to make carbon anodes. It is also used in the steel industry in carbon electrodes for electric arc furnace. Every ton of aluminum consumes ~100kg of CTP.

CTP is produced from coal tar, a by-product of metallurgical coke ovens in the steel industry. Coal tar distillation yields 48% CTP, 40% aromatic oils and 12% naphthalene oil. These by-products are supplied to the downstream chemical business, reported as a separate division.

Exhibit 29: Coal Tar Distillation Capacity

Location	ktpa	Distillation	Chemical/downstream
Castrop-Rauxel, Germany	500	yes	yes
Duisburg, Germany		no	Resin
Zelzate, Belgium	300	yes	yes
Uithoorn, The Netherlands		no	Resin
Hamilton, Canada	260	yes	no
Candiac, Canada		no	superplasticizer
Cherepovets, Russia JV	300	yes	no
Kedzierzyn-Kozle, Poland		no	Soft pitch production
Subtotal	1,360		
Project			
Europe debottlenecking	200	yes	Petro-feedstock
Total	1,560		

Source: Company

Since the acquisition of Reutgers, RAIN has made the following investments to enhance production, improve product mix and sweat assets.

- 300kt coal tar distillation in Russia during February 2016
- 7MW waste heat recovery power plant in its cement plant at Kurnool, AP, India during September 2016
- 17kt CARBORES III reactor in Castrop-Rauxel, Germany during December 2016
- Debottlenecked coal tar distillation plant at Hamilton, Canada, thus increasing capacity by 23kt to 263kt during June 2017 to meet growing demand.

RAIN has recently added a 300kt coal tar distillation project along with Severstal in Russia. It has a 65% stake in the project. Raw material (coal tar) would be supplied by Severstal steel plants, thus ensuring raw material availability. This project was commissioned in 2016.

RAIN is investing USD17m in debottlenecking of petrochemical feedstock distillation facilities in Castrop–Rauxel, Germany and Zelzate, Belgium. This involves installation of additional balancing equipment and construction of storage facilities and other infrastructure. The installed capacity will increase by 200ktpa. This will provide higher volumes of petroleum pitch for specialty binders in graphite applications and other downstream products for resin feedstock. The project is likely to be commissioned by December 2018.

Key business drivers

- Global aluminum production growth and steel electric arc furnace route production growth
- Availability of coal tar from steel plants; this is driven by growth in steel production through the blast furnace route

Chemicals

RAIN produces chemicals in two parallel production streams. One stream is derived from the downstream refining of primary coal tar distillates and the other from petroleum derivatives such as C9 and C10 fractions as raw material. The chemicals produced include: resins, modifiers, aromatic chemicals and superplasticizers. Production of RAIN's chemicals depends on the coal tar distillation process and on the proximity to petroleum refineries and availability of suitable-quality petroleum derivatives like C9 and C10. These chemicals are used in a variety of end-markets including paints, coatings, construction, plastics, paper, tyres, rail ties, insulation and foam. About 18.4% of the consolidated revenue for 2016 was from this segment. The chemicals business can be classified broadly into three sub-product categories:

1. Resins and modifiers

RAIN produces aromatic hydrocarbon resins that are based on either coal tar distillates or petrochemical raw materials. Coal tar distillate-based resins are produced from the downstream refining of the carboindene that RAIN produces internally. Petrochemical-based resins are produced from C9 aromatic resin oil and several other petrochemical raw materials procured from third-party suppliers. RAIN also produces modifiers from the downstream refining of naphthalene and other inputs procured externally.

It sells coal tar and petrochemical-based resins under the brands, Novares® (customized resins with softening points up to 170°C) and Multires® (low cost resins). Coal tar-based resins are used primarily for applications in coatings, rubber tires and other end-user rubber products. Petrochemical-based resins are used primarily for applications in adhesives and printing inks. RAIN produces resins with different chemical compositions and softening points, which allows resins to have different hardening and adhesive properties depending on the intended application and customer specification. RAIN produces specialty resins – it is the only

commercial-scale producer in Europe of coal tar-based resins for rubber tire applications in electric cars. RAIN also sells by-products of the resins production process under the brands, Novaboost® and Novadest® for applications in petroleum products.

RAIN sells modifiers under the brand names KMC® and RUETASOLV®. KMC® modifiers are used for carbonless copy papers, carrier and insulation oils, and flooring production. RUETASOLV® modifiers are used for epoxy-based coatings, which are highly resistant to extreme temperatures and chemical stresses as well as to extreme dry or wet conditions.

In addition, RAIN offers various services to its customers of resins and modifiers, which include technical advice, customized production, research and development, and technical knowhow. RAIN has a dedicated product development and applications group team that works closely with customers to tailor the quality and grade of resins and modifiers to meet their specific application needs.

RAIN has achieved success in several innovative products developed by its in-house Product Development and Application group. Some examples are: (a) coal tar-based resins used for rubber tire applications in electric car, (b) family of colorless water-white resins used in color sensitive adhesive applications such as tape and book bindings, and (c) new generation eco-friendly resins, such as those with water-miscibility to be used in novel waterborne coatings and adhesive formulations with reduced volatile organic emissions.

2. Aromatic chemicals

Aromatic chemicals comprise of a wide range of phenolics such as Phenol, O-Cresol, M/P-Cresol and Xylenol. RAIN also produces and sells Anthracene, Carbazole, Acetophenone and 3.5-Xylenol. Phenolics are produced from the downstream refining of carbolic oil that RAIN internally distills from coal tar, as well as carbolic oil and other raw materials purchased from third parties. Anthracene and Carbazole are produced from the downstream refining of anthracene oil that RAIN internally distills from coal tar. Acetophenone and 3.5-Xylenol are produced from petrochemical-based raw materials purchased from third parties. RAIN also produces Carboindene from the downstream refining of carbolic oil for use as a raw material in coal tar-based resins. Aromatic chemical products, certain of which can be custom mixed to meet exacting customer specifications, are used as precursors for several end-user products. For example, phenolics are used for applications in leather treatment, electric wire enamels, and food and pharmaceutical applications. Carbazole is an important constituent for the high-performance pigment violet, PV23, which is used in textiles, printing inks and plastics.

3. Superplasticizers

Superplasticizers are specialty polymers produced from the downstream refining, polymerization and purification of naphthalene oil and naphthalene produced internally, as well as several raw materials purchased from third-party suppliers. Superplasticizers products are a class of polymer-based dispersant materials, principally used as in-process aides in the manufacture of products such as concrete

and gypsum, as well as a variety of other industrial and agricultural applications. High-performance superplasticizers provide end-users with meaningful reductions in their process water demand, which serves to enhance properties such as strength, elasticity, flow, spreading, permeability, latex coalescence, wetting, color-fastness, resistance to wear and useful life. RAIN produces a range of differentiated naphthalene ("PNS") and melamine ("PMS") superplasticizers in both liquid and powder form, as well as carboxylate ("PCE") dispersants in liquid form.

Cement operations

RAIN operates a 3.5mt cement plant in Andhra Pradesh, southern India. It sells mainly to retail customers in Andhra Pradesh, Karnataka and Tamil Nadu under the brand name, Priya Cement.

The company recently invested INR700m on a waste heat recovery system in the cement plant to improve its captive power generation potential and reduce reliance on costly grid-based power.

Calcined pet coke – an industry overview

CPC demand increasing; no shortage of raw material

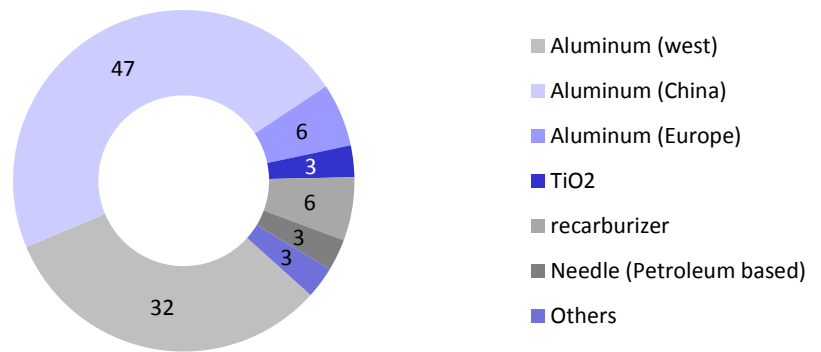
CPC is produced from GPC, a porous black solid that is a by-product of the crude refining process, through a process known as "calcining". This process removes moisture and volatile matter from GPC at a very high temperature. CPC is produced in two primary forms:

- Anode Grade CPC (for use in the aluminum smelting process), and
- Industrial Grade CPC (for use in the manufacturing of Titanium Dioxide and other industrial applications).

Anode Grade CPC represents approximately 85% of global CPC production and Industrial Grade CPC represents the remaining 15%. For every metric ton of primary aluminum produced, approximately 0.4 metric tons of CPC is consumed.

85% of CPC is consumed by aluminum smelters

Exhibit 30: CPC by end use

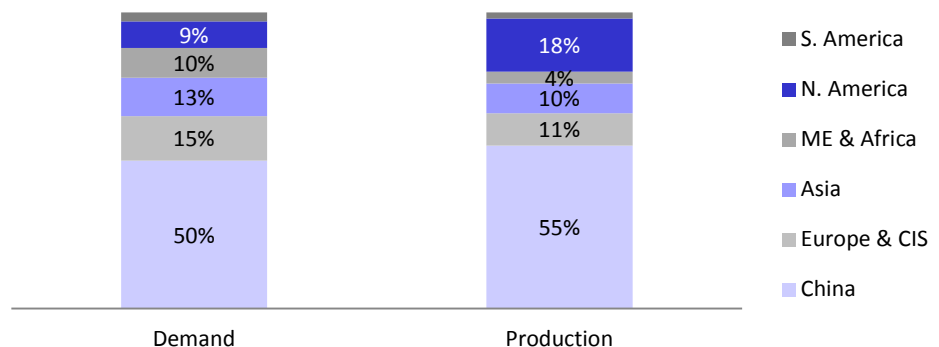


Source: Industry

Global CPC production for 2016 was about 27.8mt, 73% of which was produced in China and North America. China continues to play a dominant role in the CPC industry. CPC production is hurt in China after the government’s firm action to contain pollution in 2017. This is creating imbalances in the global market, as more than 5% of global supply of nearly 10% of demand outside China is unmet, as China has turned importer of CPC.

China and North America are key exporter of CPC

Exhibit 31: CPC demand and supply by geography in 2016



Source: Industry

As per recent industry estimates, demand is expected to grow at a CAGR of 2.3% to approximately 30.5mt by 2020, driven by growth in aluminum production.

Right quality GPC supply is the key

GPC has several different structural forms, commonly referred to as needle coke, sponge coke, and shot coke. Crude oil quality plays a major role in determining which of these is produced, although coker operation can also play a role.

Needle coke is a premium product with very low S and impurity levels and a highly layered or anisotropic structure. It has a low coefficient of thermal expansion ($CTE < 2.0 \times 10^{-6}/K$), making it the material of choice for the production of graphite electrodes used in steel-producing electric arc furnaces. Needle coke is produced from highly aromatic feedstock such as decant or slurry oil produced in a fluid catalytic cracker.

Sponge coke is the preferred structure for anode production

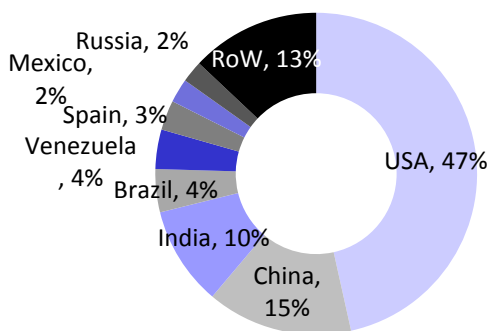
Sponge coke is the preferred structure for anode production and CTEs are typically in the range of $3.5-4.8 \times 10^{-6}/K$. It has a mixed optical texture with a wide range of domain sizes. The open porosity in sponge coke allows good pitch penetration during mixing, and a mechanically strong, interlocking structure develops after anode baking. Shot coke has a characteristic spherical particle shape and a dense, highly isotropic texture, sometimes referred to as a granular texture. Shot coke has a high CTE (>5.5) and typically higher levels of sulfur and trace metal impurities, particularly V and Ni. It is formed from crudes with high levels of resins and asphaltenes, which are large molecular weight precursors.

All GPC has residual volatile matter (VM) when it is cut from the drum. The VM level is dependent on the coking severity, but typical ranges are 9–14%.

China and USA are key anode grade GPC suppliers

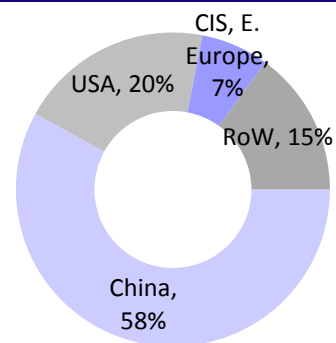
Over 130 oil refineries worldwide produce and sell GPC in varying forms and qualities. Generally, the sale of GPC does not constitute a material portion of oil refineries' revenues.

Exhibit 32: Pet coke supply (only 25% is usable in CPC)



Source: Industry

Exhibit 33: Anode grade Green Pet Coke supply



Source: Industry

The price of GPC varies depending on the quality and the market in which it will be used. The price of GPC is largely driven by prevailing demand and supply conditions. A refinery typically realizes higher prices for Anode Grade GPC that is used in production of Anode Grade CPC than Non-Anode/ Industrial Grade GPC that is used in production of Industrial Grade CPC. As the quality of GPC (whether Anode Grade

or Industrial Grade) cannot be controlled by a refinery, the manufacturers of CPC blend various grades of GPC and CPC, to meet the stringent quality specifications of aluminum smelters.

Availability of low-Sulfur GPC and quality changes

Access to a reliable supply of low sulfur (S), low metal GPC has become more challenging

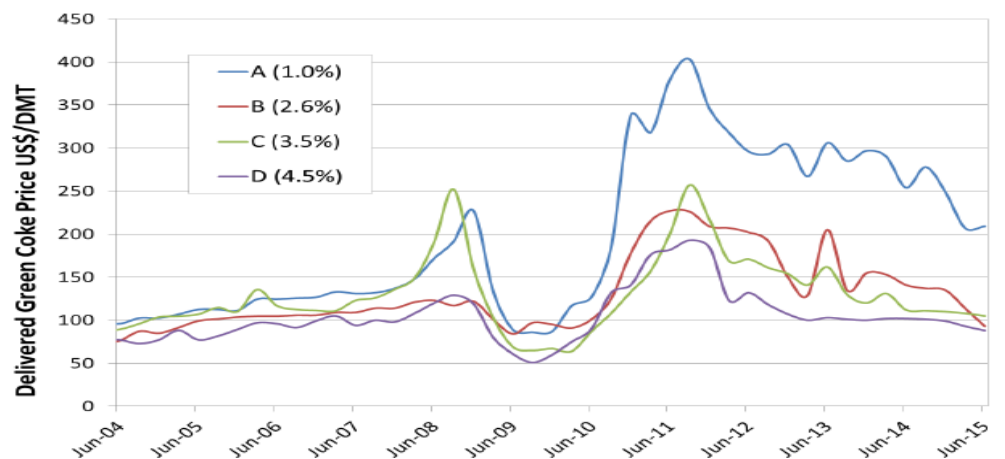
The greatest change to have impacted the CPC industry in recent times is availability of suitable quality GPC. Over the last 10-15 years, gaining access to a reliable supply of low sulfur (S), low metals GPC has become more challenging, and the industry no longer enjoys a ready supply relative to the demand from the calcining and aluminum industries due to changes in crude oil quality and refining economics.

Price gaps from grade “A” (1.2% S) grade to grade “D” (~5% S) have sharply widened after 2010

Most of the world’s newly constructed refineries are configured to process heavy, sour crude oils that sell at a significant discount compared with light, sweet crudes. Many existing refineries, particularly in the US, have made capital investments to allow the processing of more heavy, sour crudes like those from Canada. These changes have directly impacted the quality and volume of GPC produced. The general trend has been an increase in trace metals like V and Ni and an increase in S levels. The production of low S sponge coke (<2.5%) in the United States has decreased by approximately 50% over the last 10-15 years. In many other parts of the of the world, including China, most of the growth in new GPC production is coke with higher S and metals levels and more isotropic textures. Price gaps from grade “A” (1.2% S) grade to grade “D” (~5% S) have sharply widened after 2010.

Supply of low sulfur GPC is declining and premium has shot up

Exhibit 34: Historical GPC prices grade wise



Source: Company

Rise of shale oil production has impacted quality of GPC due to substitution of sweet crude

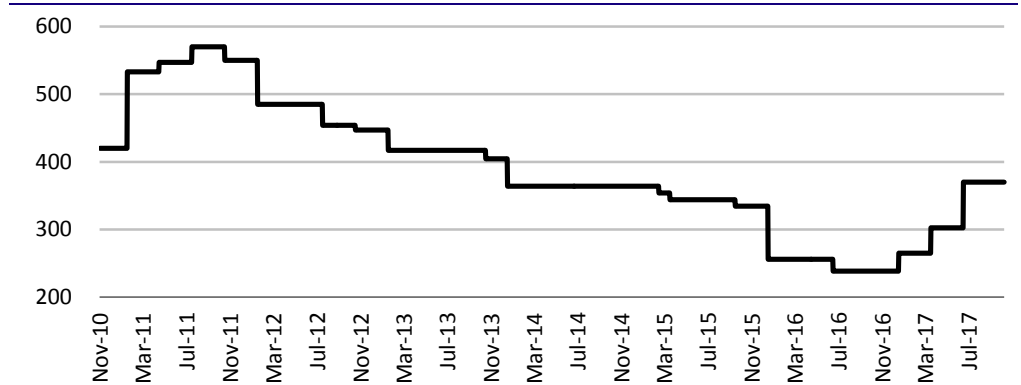
A more recent development beginning to impact GPC quality in the United States is the growth of shale oil production. Shale oil is a light, sweet crude oil with a low specific gravity and low sulfur level. Given the declining supply of low S, low metals GPC in the United States, shale oil would initially seem to be good news for the production of low S GPC. The experience thus far has been the opposite because shale oil contains very little “bottoms” (higher molecular weight hydrocarbons), and therefore, makes very little coke.

Refineries using shale oil are using it as part of a crude blend to take advantage of its lower S and lower specific gravity by blending it with heavier, higher S crude oils.

Demand for CPC is bound to increase outside China, while Chinese export of CPC is declining; this augurs well for the margin outlook for CPC producers outside China

Despite concerns, the industry did not experience any sustained shortages until around 2007, just before the global financial crisis (GFC). Both GPC and CPC were in short supply at that time and prices increased rapidly. The GFC quickly changed that due to smelter closures and curtailments, which reduced the demand for CPC. The market tightened again in the 2010–2012 period, but continued smelter curtailments in the West in 2013 and 2014 have moderated the demand for CPC outside China. This situation is now changing, as China has started shutting smelters to address the issue of pollution. Demand for CPC is bound to increase outside China, while Chinese export of CPC declining. This augurs well for the margin outlook for CPC producers outside China.

Exhibit 35: CPC prices in USA at Gulf of Mexico (USD/t)



Source: MOSL

There is no shortage of GPC; rather, it is a matter of the industry continuing to use what is available

The aluminum industry continues to adapt well to changes in CPC quality such as higher V and S levels and more isotropic textures, and many smelters have pursued a strategy of relaxing specifications to procure lower cost CPC. In 2014, the world produced ~125mt of GPC, and only about 25% of this was used by calciners for production of CPC for aluminum and other industries. There is no shortage of GPC; rather, it is a matter of the industry continuing to use what is available.

Coal tar distillation – an industry overview

CT pitch and various chemicals

Coal tar is the main raw material in the coal tar distillation process. The coal tar distillation process can be categorized into two stages: (i) primary coal tar distillation business ("primary distillation"), and (ii) downstream processing of select products of primary distillation into co-generated refined products ("downstream").

CTP is produced during primary distillation of coal tar

CTP yield is 48% of coal tar input

Primary distillation products co-generated are coal tar pitch (CTP; about 48% of tar distilled), naphthalene oil (about 12%), and aromatic oils (about 40%). With a distillation yield of 48%, CTP is the main end-product in the coal tar distillation business, and therefore, crucial for its growth. While the consumption of CTP in the rest of the world has shrunk, consumption of CTP in Asia (including China and Middle East) and Europe has increased by 5.5% and 2.4%, respectively due to increase in production of aluminum.

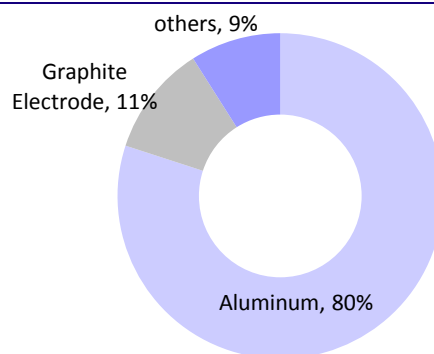
Demand growth outlook is robust

Global demand for CTP aggregated to ~6.7mt in 2016. This is expected to grow to ~8mt by 2020, representing a CAGR of +4.3%. Global production of CTP was ~6.8mt in 2016 and is expected to grow to ~8.1mt by 2020, representing a CAGR of +4.6%.

Geographically, CTP production is led by China, followed by Europe and Asia/Australasia, with an aggregate share of 92% in 2016. These are the only regions with surplus production. Europe will maintain positive surplus through 2020, with a CAGR of +18.6%. The surplus production over demand for CTP in China is expected to decline on drive to cut down pollution in China. However, CTP is a local market, because it needs to be transported in heated vessels to avoid hardening. Recent shut down by Koppers has corrected the market.

Aluminum smelters and graphite electrode producers are key market

Exhibit 36: Application of CT Pitch



Source: MOSL, Company

Eighty percent of the world's CTP production is primarily used to produce carbon anodes for the aluminum smelting process. For every metric ton of primary aluminum, ~0.1 mt of CTP is consumed. Therefore, production of primary aluminum is one of the most important determinants of demand for CTP. The second-largest CTP end-users, consuming ~11% of global production are graphite electrode producers. Graphite electrodes are used for electric arc furnace (EAF) steel-making.

Other products in tar distillation

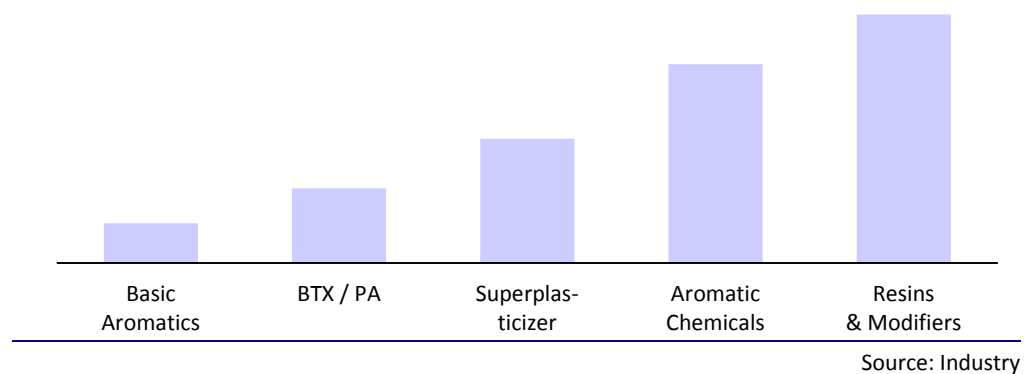
Naphthalene, as a chemical intermediate, is mainly used as a precursor to other chemicals or as a solvent for chemical reaction. It is used in the production of dispersants, in the construction industry, and as superplasticizer to produce concrete and gypsum. Demand for naphthalene is correlated with the building materials industry. Naphthalene is also used in the production of Phthalic Anhydride as a substitute for Ortho-xyleneas, as it is more cost-effective. Phthalic Anhydride is used in the manufacturing of plastics, polyester resins and alkyd resins. Additionally, phthalate esters made from Phthalic Anhydride are used as plasticizers in the production of several PVC products.

Aromatic oils, such as Creosote Oil and Carbon Black Oil, are sold to a variety of industries. Creosote Oil is used by the wood treatment industry for the impregnation of wood. Carbon Black Oil is primarily used by the rubber and automobile tyre industries.

Chemicals – downstream

After industrial processing, the downstream products made from Naphthalene and Aromatic Oils such as Phthalic Anhydride, Toluene, etc form indispensable constituents of many articles of daily life. For example, they are used in the leather, construction, car tyres, and pharmaceutical industries as key raw materials.

Exhibit 37: Downstream products have higher margins



The chemical industry is in the process of gradual recovery after a setback caused by recession. Global chemical production increase of 2.2% in 2016 was slightly lower than the increase of 2.7% during 2015. The US reached an annual growth rate of 0.9%, Western Europe of 1.0% and Central/Eastern Europe of 4.2%. The growth in demand for chemicals primarily depends on the manufacturing sector, and correlates with GDP. After a global annual GDP growth of 3% in 2016, annual growth is projected to be 3.3% in 2017 and 3.6% in 2018, in particular led by Asia (especially China and India) and North America. With improving economic prospects, in particular through the development of the manufacturing sector, global annual growth in chemicals is projected to be 2.9% in 2017 and 3.3% in 2018. The strongest effects will originate from the developing nations of Asia-Pacific, Africa and the Middle East.

Raw material supply

What is coal tar?

Coal tar is a liquid by-product derived from the conversion of coal into metallurgical coke. During this conversion process, approximately 80% of the coal volume is processed into metallurgical coke. Metallurgical coke is used as an important reducing agent and energy source in blast furnaces to produce pig iron and steel.

Supply linked to pig iron production

Consequently, the supply of coal tar is correlated to pig iron production, which, in turn, is driven by steel production. Asia (including 61% from China) contributes approximately 78% of total global pig iron production and Europe contributes about 6% of total global pig iron production.

Coal tar supply to increase at modest 0.6% CAGR

Every metric ton of metallurgical coke produced yields on an average 0.04 metric tons of coal tar. As per industry estimates, global coal tar supply will increase from 22.6mt in 2016 to 23.1mt 2020 – a CAGR of +0.6%.

SWOT analysis



Bull & Bear case



Bull Case

- ☑ We assume a USD50/t higher realization on CPC, CTP and other carbon products if the supply shocks were to intensify and aluminum demand growth in RINDL's key markets were to be better than expected.
- ☑ EBITDA margins are expected to be higher by USD25/t over the base case, as we expect some part of the price increase would be offset by increase in raw material prices.
- ☑ This results in EBITDA upgrade of 22%/21% to INR29b/31b in CY18/19E over the base case. PAT would be upgraded by 37%/35% to INR13b/15b in CY18/19E.
- ☑ We also expect the EV/EBITDA multiple to re-rate to 8x (base case is 6.5x) on sustainability of the structural changes in the industry driving strong cash flow generation and growth opportunities.
- ☑ Based on the above assumptions, the bull case target price is INR615/sh.



Bear Case

- ☑ We expect margins on carbon products to be lower by USD10/t (to USD90/t) on risk of raw material cost inflation.
- ☑ We do not expect risk to product prices given strong demand growth potential and supply shocks.
- ☑ This results in EBITDA cut of 9%/8% to INR21b/23b for CY18/19E over the base case assumptions. PAT would be cut by 15%/14% to INR8b/9b in CY18/19E.
- ☑ We also expect EV/EBITDA multiple to de-rate to 5x,
- ☑ Based on the above assumptions, the bear case target price is INR214/sh.

Exhibit 38: Scenario Analysis

	Bear case			Base case			Bull case		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Revenue - INR b	111	133	146	111	133	146	111	143	157
EBITDA - INR b	20	21	23	20	23	25	20	29	31
PAT - INR b	7	8	9	7	9	11	7	13	15
EPS - INR	20.2	24.0	27.6	20.2	28.2	32.1	20.2	38.7	43.2
RoE - %	20.5	20.3	19.5	20.5	23.4	21.7	20.5	30.8	26.3
RoCE - %	17.2	18.9	20.2	17.2	21.1	22.2	17.2	26.5	26.9
PE - x	13.4	11.3	9.8	13.4	9.6	8.5	13.4	7.0	6.3
EV/EBITDA - x	7.8	7.0	6.1	7.8	6.3	5.5	7.8	5.1	4.3
P/BV - x	2.5	2.1	1.8	2.5	2.0	1.7	2.5	1.9	1.5
Target multiple - x			5.0			6.5			8.0
Target price - INR/sh			214			362			615

Financials and Valuations

Income Statement						(INR Million)		
Y/E Dec	2012	2013	2014	2015	2016	2017E	2018E	2019E
Net Sales	53,614	117,443	119,370	102,185	93,164	111,303	132,546	146,067
Change (%)	-4.9	119.1	1.6	-14.4	-8.8	19.5	19.1	10.2
EBITDA	11,090	14,978	12,220	13,492	13,537	19,713	23,430	25,486
EBITDA Margin (%)	20.7	12.8	10.2	13.2	14.5	17.7	17.7	17.4
Depreciation	1,200	3,568	3,470	3,278	3,461	4,947	4,822	5,009
EBIT	9,891	11,410	8,750	10,213	10,076	14,766	18,608	20,477
Interest	2,076	5,933	6,079	5,763	5,867	5,974	5,944	5,940
Other Income	665	566	369	499	704	1,148	1,152	1,158
Extraordinary items	-1,651	-1,809	-2,464	35	-996	-670	0	0
PBT	6,828	4,235	577	4,984	3,918	9,271	13,815	15,695
Tax	2,180	367	-121	1,962	1,648	2,975	4,170	4,748
Tax Rate (%)	31.9	8.7	-20.9	39.4	42.1	32.1	30.2	30.3
Min. Int. & Assoc. Share	71	10	-189	-217	69	176	168	167
Reported PAT	4,577	3,845	885	3,233	2,242	6,120	9,477	10,780
Adjusted PAT	6,229	5,654	3,349	3,198	3,238	6,790	9,477	10,780
Change (%)	-6.2	-9.2	-40.8	-4.5	1.2	109.7	39.6	13.7

Balance Sheet						(INR Million)		
Y/E Dec	2012	2013	2014	2015	2016	2017E	2018E	2019E
Share Capital	683	673	673	673	673	673	673	673
Reserves	24,833	31,560	28,785	28,702	29,471	35,454	44,123	54,096
Net Worth	25,517	32,233	29,458	29,375	30,144	36,126	44,796	54,769
Debt	69,268	82,905	76,726	75,957	74,493	71,493	67,493	63,493
Deferred Tax	4,118	4,721	4,225	3,844	2,833	2,833	2,833	2,833
Total Capital Employed	99,024	120,275	110,625	109,200	108,185	111,168	115,838	121,810
Gross Fixed Assets	44,290	150,718	148,683	150,241	157,425	158,925	166,894	172,944
Less: Acc Depreciation	7,096	58,095	61,565	64,843	68,304	73,251	78,073	83,082
Net Fixed Assets	37,194	92,623	87,118	85,398	89,121	85,674	88,821	89,862
Capital WIP	5,866	2,721	2,691	4,108	2,352	5,705	2,471	1,171
Investments	16	76	68	59	99	99	99	99
Current Assets	64,476	50,845	45,675	43,665	38,707	44,390	50,697	58,393
Inventory	9,850	20,002	15,337	16,210	12,678	16,515	18,940	21,398
Debtors	5,649	15,371	13,712	11,968	10,637	13,274	15,423	17,050
Cash & Bank	46,657	8,512	8,995	8,605	10,491	9,699	11,434	15,043
Loans & Adv, Others	2,320	6,961	7,630	6,882	4,901	4,901	4,901	4,901
Curr Liabs & Provns	8,528	25,989	24,926	24,030	22,094	24,699	26,250	27,714
Curr. Liabilities	8,528	25,989	24,926	24,030	22,094	24,699	26,250	27,714
Provisions	0	0	0	0	0	0	0	0
Net Current Assets	55,948	24,856	20,748	19,635	16,613	19,690	24,447	30,679
Total Assets	99,024	120,275	110,625	109,200	108,185	111,168	115,838	121,810

Financials and Valuations

Ratios

Y/E Dec	2012	2013	2014	2015	2016	2017E	2018E	2019E
Basic (INR)								
EPS	18.2	16.8	10.0	9.5	9.6	20.2	28.2	32.1
Cash EPS	21.7	27.4	20.3	19.3	19.9	34.9	42.5	46.9
Book Value	74.7	95.8	87.6	87.3	89.6	107.4	133.2	162.8
DPS	1.1	1.0	1.0	1.0	1.0	2.0	2.0	2.0
Payout (incl. Div. Tax.)	7.1	13.7	10.0	12.7	15.6	11.9	8.5	7.5
Valuation(x)								
P/E				4.0	5.7	13.4	9.6	8.5
Cash P/E				2.0	2.8	7.8	6.4	5.8
Price / Book Value				0.4	0.6	2.5	2.0	1.7
EV/Sales				0.8	0.9	1.4	1.1	1.0
EV/EBITDA				5.9	6.1	7.8	6.3	5.5
Dividend Yield (%)				2.6	1.8	0.7	0.7	0.7
Profitability Ratios (%)								
RoE	26.9	19.7	10.9	10.9	10.9	20.5	23.4	21.7
RoCE	14.2	11.8	9.4	11.2	12.7	17.2	21.1	22.2
Turnover Ratios (%)								
Asset Turnover (x)	0.5	1.0	1.1	0.9	0.9	1.0	1.1	1.2
Debtors (No. of Days)	38	48	42	43	42	44	42	43
Inventory (No. of Days)	67	62	47	58	50	54	52	53
Creditors (No. of Days)	41	39	31	37	31	34	33	34
Leverage Ratios (%)								
Net Debt/Equity (x)	0.9	2.3	2.3	2.3	2.1	1.7	1.3	0.9

Cash Flow Statement

(INR Million)

Y/E Dec	2012	2013	2014	2015	2016	2017E	2018E	2019E
Adjusted EBITDA	11,090	14,978	12,220	13,492	13,537	19,713	23,430	25,486
Non cash opr. exp (inc)	98	-5	-1,925	1,045	-1,069	0	0	0
(Inc)/Dec in Wkg. Cap.	3,651	-7,954	4,340	-587	4,454	-3,868	-3,023	-2,622
Tax Paid	-819	-927	-1,722	-1,567	-3,037	-2,975	-4,170	-4,748
Other operating activities	0	0	0	0	0	0	0	0
CF from Op. Activity	14,020	6,091	12,913	12,382	13,885	12,870	16,237	18,116
(Inc)/Dec in FA & CWIP	-5,284	-3,654	-3,903	-4,987	-3,086	-4,853	-4,735	-4,750
Free cash flows	8,736	2,438	9,010	7,395	10,799	8,017	11,502	13,366
(Pur)/Sale of Invt	0	0	0	0	0	0	0	0
Others	1,338	-37,262	303	505	178	1,148	1,152	1,158
CF from Inv. Activity	-3,946	-40,916	-3,599	-4,482	-2,908	-3,705	-3,583	-3,592
Inc/(Dec) in Net Worth	-276	-203	0	0	0	0	0	0
Inc / (Dec) in Debt	30,993	212	-1,670	-1,782	-2,492	-3,000	-4,000	-4,000
Interest Paid	-2,479	-4,299	-6,911	-5,767	-5,900	-5,974	-5,944	-5,940
Divd Paid (incl Tax) & Others	-440	-776	-336	-405	-506	-807	-807	-807
CF from Fin. Activity	27,798	-5,066	-8,917	-7,954	-8,898	-9,781	-10,752	-10,747
Inc/(Dec) in Cash	37,872	-39,890	396	-54	2,079	-616	1,902	3,776
Add: Opening Balance	8,294	46,657	8,512	8,995	8,605	10,491	9,699	11,434
Closing Balance	46,657	8,512	8,995	8,605	10,491	9,699	11,434	15,043

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