India

Underweight *(no change)*

Highlighted Companies

Gujarat Fluorochemicals Ltd

REDUCE, TP Rs1946, Rs2845 close

Extraordinary earnings kicker of HFC-125 will not last for long. Even PVDF will face cyclical headwinds in the near term. LiPF6 is still some time away, but the collapse of its spreads has reduced the option. Earnings disappointment is on the cards. Retain our high-conviction REDUCE rating on the stock.

Clean Science and Technology

REDUCE, TP Rs847, Rs1470 close

Clean Science and Technology is one of the costliest chemical stocks in India, trading at 70x FY22 EPS. The company has no sustainable advantage over its competitors.

SRF Limited

REDUCE, TP Rs1540, Rs2219 close

SRF trades at 20x P/E, the bluest of blue-sky EPS. In the medium term, cyclical headwinds in films and HFC businesses will lead to earnings disappointment. The company will be lucky to achieve even 70% of the consensus earnings forecast for FY24F and FY25F.

Summary Valuation Metrics

P/E (x)	Mar22-A	Mar23-F	Mar24-F
Gujarat Fluorochemicals Ltd	52.37	50.76	40.14
Clean Science and Technology	68.4	58.83	52.04
SRF Limited	34.82	36.45	41.31

P/BV (x)	Mar22-A	Mar23-F	Mar24-F
Gujarat Fluorochemicals Ltd	7.22	6.32	5.46
Clean Science and Technology	20.34	16.57	13.75
SRF Limited	7.68	6.44	5.65

Dividend Yield	Mar22-A	Mar23-F	Mar24-F
Gujarat Fluorochemicals Ltd	0%	0%	0%
Clean Science and Technology	0%	0%	0%
SRF Limited	0.25%	0.24%	0.24%

Analyst(s)

Satish KUMAR
T (91) 22 4161 1562
E satish.kumar@incredcapital.com

Shaily RUPARELIA
T (91) 22 4161 1556
E shaily.ruparelia@incredcapital.com

Chemicals - Overall

SRF and GFL- the day of reckoning is here

- Refrigerant gas-led ascent in earnings has plateaued and it's time now for the decline. The alternative to high-priced refrigerant gas is already there and as the carbon quota for such gas usage declines in USA, Indian exports will fall.
- Higher earnings of SRF and GFL in the last few quarters were due to an exorbitant margin on R-125, which is the most pollutant gas when we take the global warming perspective into consideration.
- We retain REDUCE rating on GFL and SRF with their target prices at Rs1,946 and Rs1,540 respectively.

SRF may not attain even 70% of consensus EPS forecast for FY25F

1QFY23 seems to the best quarter for SRF for many more quarters to come. SRF was in a sweet spot of higher refrigerant gas prices and hence its spreads, the best of PET film and BOPP margins as well as higher nylon tyre cord spreads. However, the things are changing as R-125 is witnessing an inevitable fall and given the US environmental laws which will kick in CY24F, R-134A prices will also collapse soon. R-32 prices will be steady as it is the only refrigerant which will the meet strict criteria of US EPA guidelines and a cut in the CO_2 quota (by 33% from 273mt CO_2 to 180mt CO_2 p.a., starting CY24F) of HFCs. If we normalize HFCs as well as BOPP and PET margins, our FY25F EPS (assuming chemical segment revenue growth of 20% in FY25F over FY24F, and FY24F to witness stagnant chemical revenue because of the fall in HFC prices) stands at Rs58.1 vs. consensus EPS estimate of Rs100.

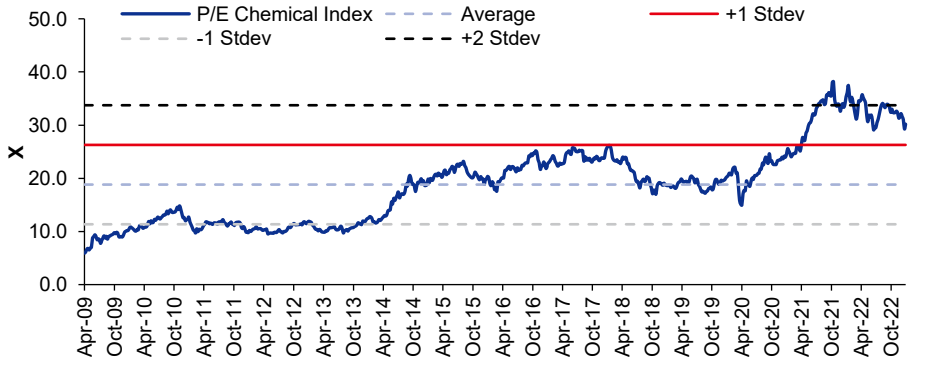
For GFL, the option value of LiPF6 is over and R-125 is declining

There is a better electrolyte for Li-ion batteries in the form of LiFSi. LiFSi not only enhances thermal stability in Li-ion battery technology but also gives a better performance in terms of electrical conductivity, cycle life, and low temperature. Also, as the prices of Lithium-ion batteries are rising, alternate technologies are coming to fore. Global supply of liPF6 is much higher than demand. China alone has 2x capacity vs. global demand and more capacities are being added. Rising prices of lithium carbonate are eroding the margins of LiPF6, which is more bad news for LiPF6 manufacturers. In the past few months, the LiPF6 spreads have collapsed by 80%. GFL also made an excess Rs1.6bn EBITDA in 2QFY23 by selling R-125 and we feel the excess EBITDA may evaporate in the coming quarters.

Overall chemical sector's peak appears to be well behind us

In all bull markets, excesses when it comes to earnings projection are common. We again take the liberty to point out the 2005-08 capital goods bull market and the most recent steel bull market. 2005-08 threw many names which promised to be second BHEL or L&T, but most of these companies' market cap eroded 90% or even 99% (some of the names are BGR Energy, Punj Lloyd, Suzlon, etc.). The chemical sector is in the same loop and companies are raising money at exorbitant valuations (interestingly for unidentified acquisition targets and capex plans). Optimism is super high and cyclical factors are catching on. When the dust settles, a few companies will survive and SRF will be one among them, but it may be at a much lower market capitalization than the current level.

Figure 1: Chemical sector trades at an exorbitant valuation



SOURCE: INCRED RESEARCH, COMPANY REPORTS

SRF and GFL- the day of reckoning is here

Refrigerants: The peak is well behind us, SRF and GFL to suffer

R-22, R-125 and R-134A have led to a sharp rise in the earnings of many fluorochemical stocks in in India. This has led to the belief that something structural is in the business of SRF, Gujarat Fluorochemicals, etc. Added to it was the belief that lithium hexafluoride ($LiPF_6$) is a magic chemical whose demand and prices will remain firm for a long span. We feel all these hypotheses will be proven wrong in the coming quarters. Consensus earnings face the highest risk in case of SRF and Gujarat Fluorochemicals (GFL). We reiterate our high-conviction REDUCE rating on SRF and GFL.

Developed world doesn't use R-22 in new refrigeration equipment any more ➤

Europe: Since 1 Jan 2010, it's illegal to use newly manufactured R-22 to service refrigeration and air-conditioning equipment - only reclaimed and recycled R-22 can be used. In practice, it means that this gas must be removed from the equipment before its servicing and replaced afterwards, rather than refilling it with new gas. Since 1 Jan 2015, it's illegal to use any R-22 gas to service refrigeration and air-conditioning equipment; broken equipment that used HCFC refrigerants must be replaced with equipment that does not use them.

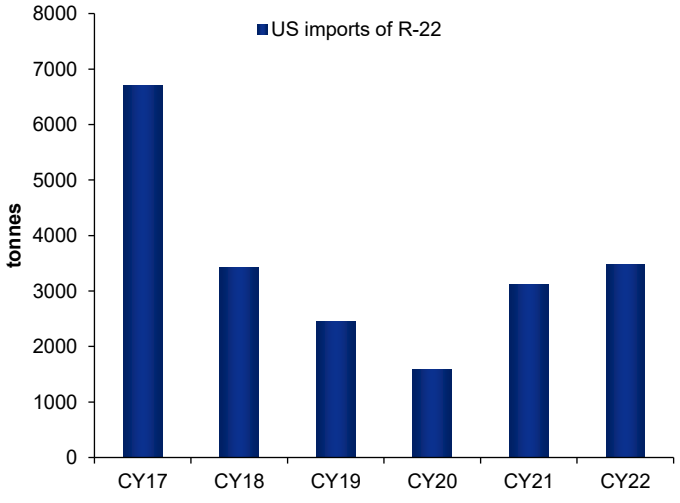
USA: The refrigeration and air-conditioning industry has discontinued the production of new R-22-based equipment since 2018. The practical effect of this is to reduce the cost of imported R-22 to maintain aging equipment and extending its service life while keeping the use of R-22 in new equipment too risky to pursue.

Developing world: In the developing world, the phaseout of R-22 will be over by 2030F.

However, as there is dependence on the developing world to meet the developed nations' requirement of R-22, the Covid-19 pandemic led to a supply chain crisis ➤

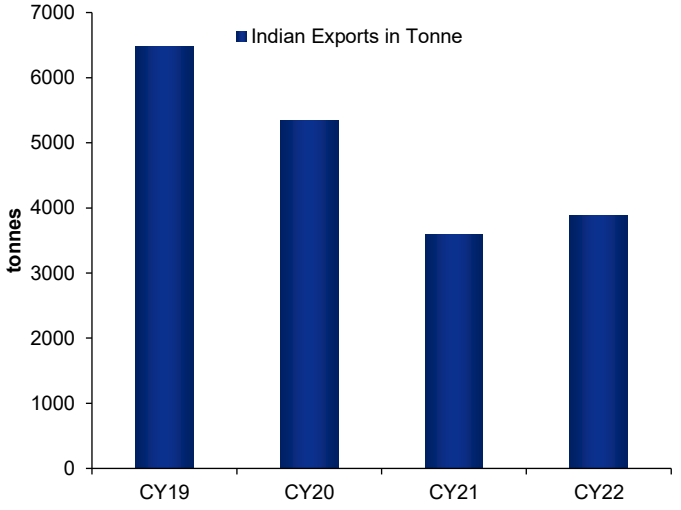
As is evident, the developed economies cannot produce R-22 for their minimum requirements. During the Covid-19 pandemic, supply chain and container crisis hit hard which led to skyrocketing prices of R-22. As the supply chain stabilizes, there will be a reduction in the prices of R-22. This crisis got further exacerbated because of China's zero-Covid policy which led to a sharp rise in R-22 prices and hence, its spreads over raw material.

Figure 2: US imports have increased in CY22 compared to CY21 after a big decline in CY20 (may be channel-filling)



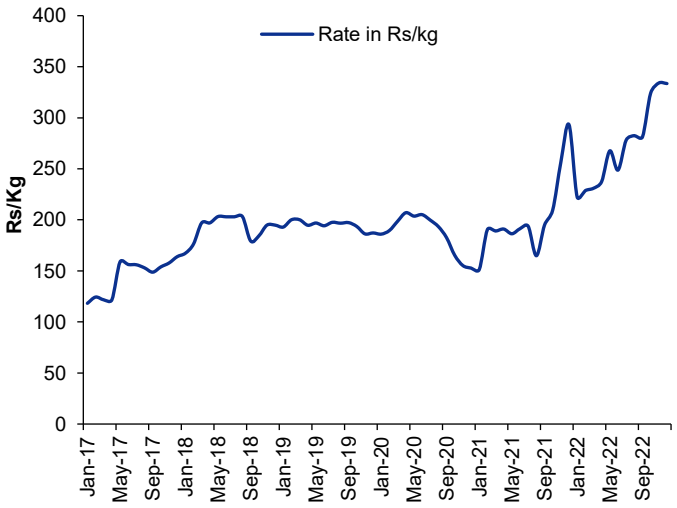
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 3: However, India's exports came down, leading to scarcity in the global market and hence, a rise in prices of R-22



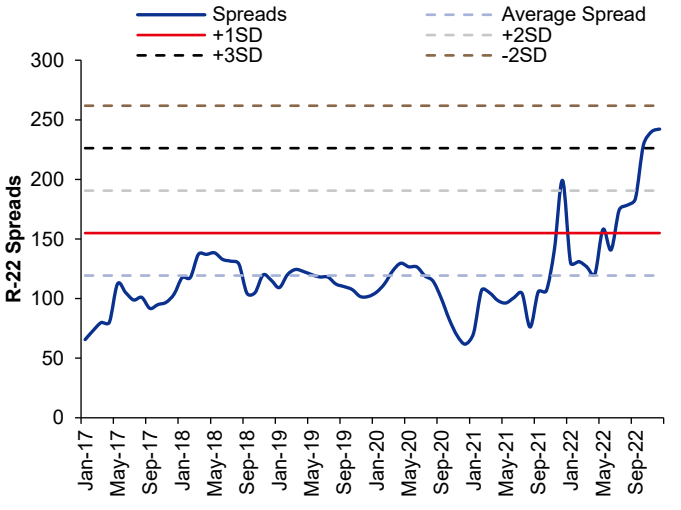
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 4: R-22 prices have been on an upswing because of one after another supply chain crisis…



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 5: …leading to supernormal spreads over raw material



SOURCE: INCRED RESEARCH, COMPANY REPORTS

USA's usage of R-22 cannot increase beyond a point - it's no longer used in refrigeration or AC equipment ➤

R-22 is banned in USA and most of the imports in that country are done by Baxter Healthcare Corporation, which uses it for medical purposes. CY21 supply chain crisis and China's zero-Covid policy led to overstocking, and we feel it will come down significantly in the coming months.

Consumption volume of R-22 will keep declining till it becomes extinct ➤

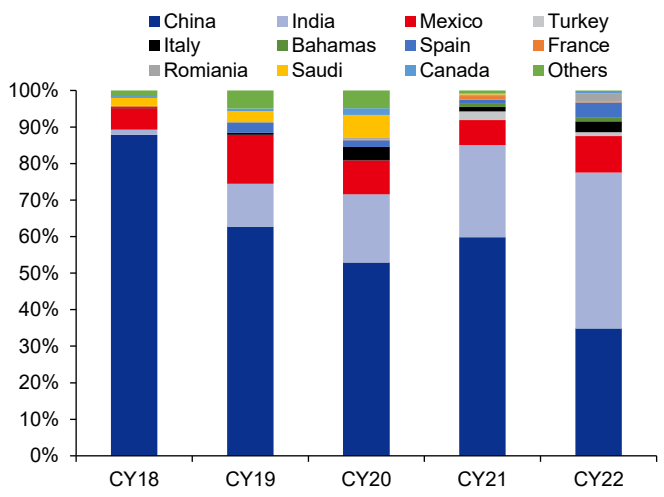
R-22 manufacturing is discouraged even in India (for AC and refrigeration usage). It is used only in medicines and fluoropolymers. Most of the world is moving away from R-22.

R-125's best time is over – its prices rose because of anti-dumping duty on Chinese imports in USA ➤

USA's imports of R-125 increased significantly in CY22. The price rise was after the anti-dumpling duty order was passed by the government of USA. Please click: Federal Register: Pentafluoro ethane (R-125) from the People's Republic of China: Anti-dumping and countervailing duty orders. As per this order, R-125

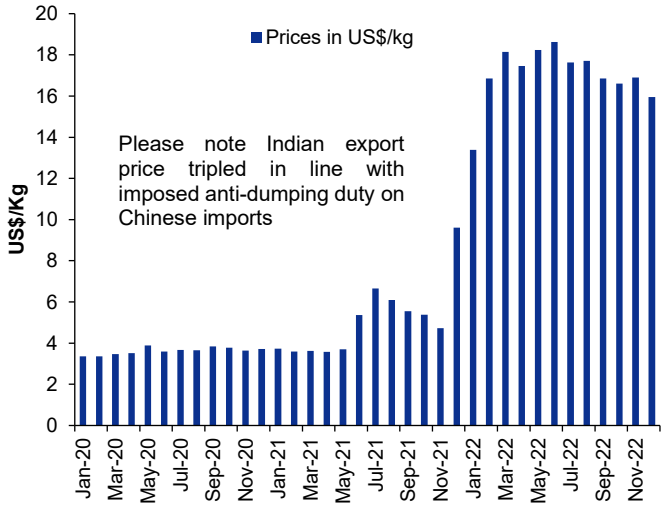
imports from China were subjected to, on an average, anti-dumping duty of ~270%. As a result, Chinese imports collapsed, and the prices rose.

Figure 6: Imposition of anti-dumping duty led to significant lower imports from China



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 7: Hence, global prices rose, which naturally benefitted Indian exporters



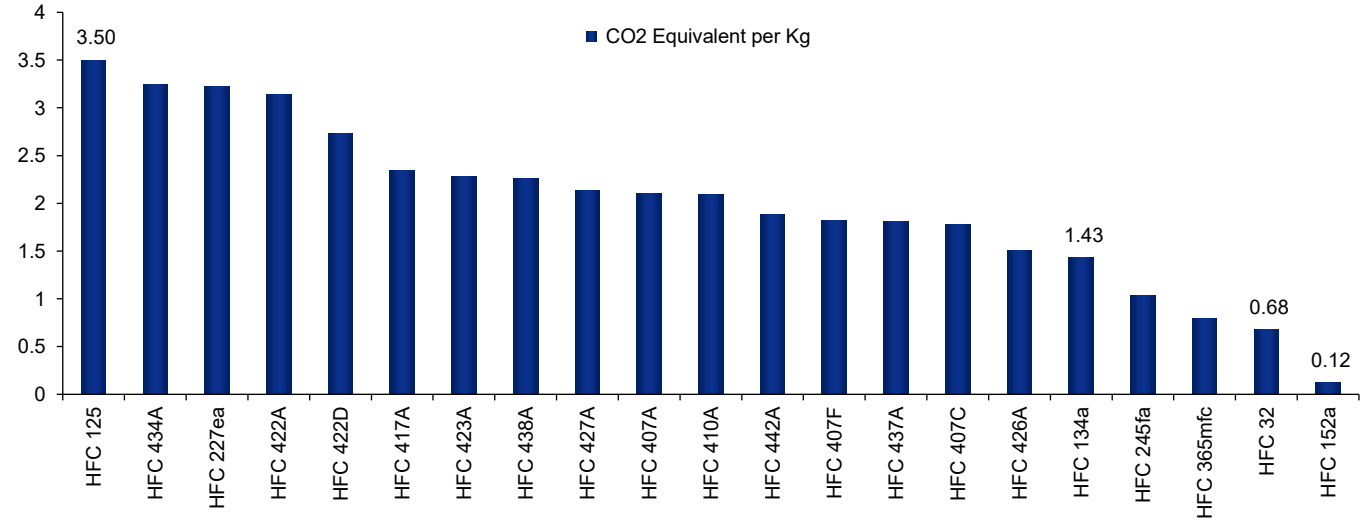
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Simply put, Indian exporters are taking advantage of China's predicament but this advantage has a limited shelf life ➤

If the supply of R-125 is limited in the world and its demand surges, then naturally R-125 makers have the pricing power in perpetuity. However, the critical component in the equation is the demand. We believe that given the regulation for a massive reduction in the CO2 allocated quota for HFCs from 2024F, high quota-consuming HFCs will get phased out much faster.

R-125 is a highl CO_2 quota-consuming HFC and hence, its usage will reduce significantly from 2024F ➤

Figure 8: In per kg terms, HFC-125 consumes 3.5t of the CO_2 consumption quota; please note that CO2 consumption quota for the HFC industry will come down by 93t (or 33%) from 2024F



SOURCES: INCRED RESEARCH, COMPANY REPORTS

Can R-125 be replaced by other refrigerants? Yes, it can be replaced ➤

R-125 is not directly used in refrigerant applications, but it is used as a mixture in multiple blends. There are multiple research papers which show that R-32 can replace R-125 in these blends. These changes may not be energy-efficient but are much more environment friendly than using R-125. Attached is the link of one such study (Link).

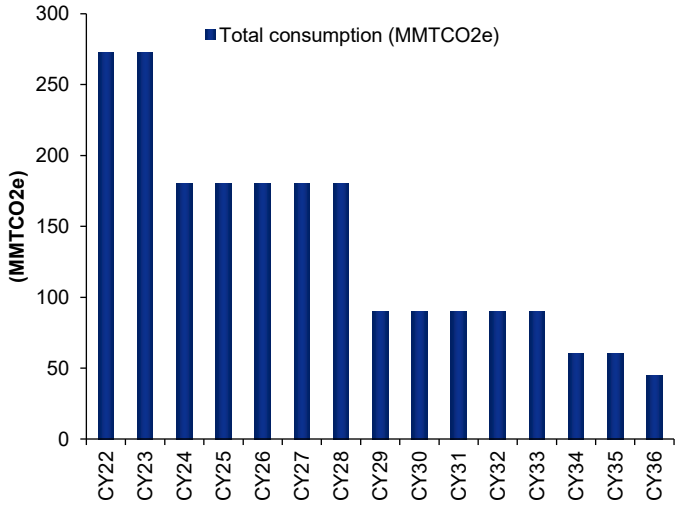
Figure 9: R-125 is used as a blend in multiple refrigerants (the attached picture image has been taken from a Honeywell leaflet); in most places, R-125 can be replaced by R-32

ASHRAE #	Trade Name	Manufacturer	Replaces	Type [b] [e]	Typical Lubricant [a]	Applications	Comments	GWP*
R-404A 125/143a/134a (44%/52%/4%)	Genetron® 404A Suva® HP62 Forane® 404A	Honeywell DuPont Arkema	R-502 R-22 HP-80 R-408A	Blend HFC	Synthetic (POE, PVE)	New Equipment Retrofits	Most widely used low and medium temperature replacement.	3922
R-507 125/143a (50%/50%)	Genetron® AZ-50® Suva® 507	Honeywell DuPont	R-502 R-22 HP-80 R-408A	Azeotrope HFC	Synthetic (POE, PVE)	New Equipment Retrofits	Slightly higher pressures and efficiency than R 404A Best choice for systems with flooded evaporators.	3985
R-422D 125/134a/600a (65.1%/31.5%/3.4%)	Genetron® 422D Isceon MO 29	Honeywell DuPont	R-22	Blend HFC/HC Blend	Mineral Oil POE	New Equipment Retrofits	Lower capacity Use of POE will enhance oil return, if required.	2729
R-407C 32/125/134a (23%/25%/52%)	Genetron® 407C Suva® 9000 Forane® 407C	Honeywell DuPont Arkema	R-22	Blend HFC	Synthetic (POE, PVE)	New Equipment Retrofits	Reasonable performance match to R-22 in medium temperature refrigeration. Lower capacity in low temperature refrigeration system. Best A/C retrofit.	1744
R-407F 32/125/134a (30%/30%/40%)	Genetron® Performax™ LT	Honeywell	R-22	Blend HFC	Synthetic (POE, PVE)	New Equipment Retrofits	Best performance match and highest efficiency to R-22. In most cases one POE oil change is sufficient.	1824
R-134a	Genetron® 134a Suva® 134a Forane® 134a Klea® 134a	Honeywell DuPont Arkema INEOS	R-12	Single Component Fluid HFC	Synthetic (POE, PVE)	New Equipment	Performs well in small hermetic systems.	1430

SOURCE: INCRED RESEARCH, COMPANY REPORTS

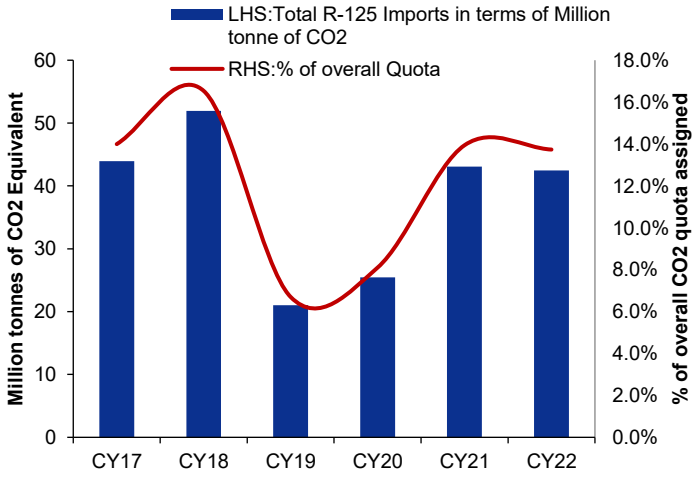
USA used 16% of the HFC consumption quota for CY22 only via R-125 imports - a very high number for a minor refrigerant ➤

Figure 10: EPA assigns overall consumption quota for HFCs in terms of mmt of CO2 equivalent



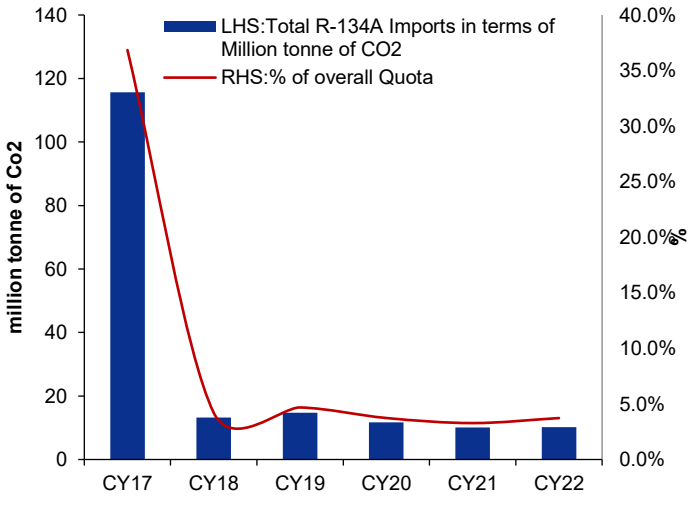
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 11: R-125 now accounts for 16% of the overall consumption (In terms CO2 equivalent) quota of HFC



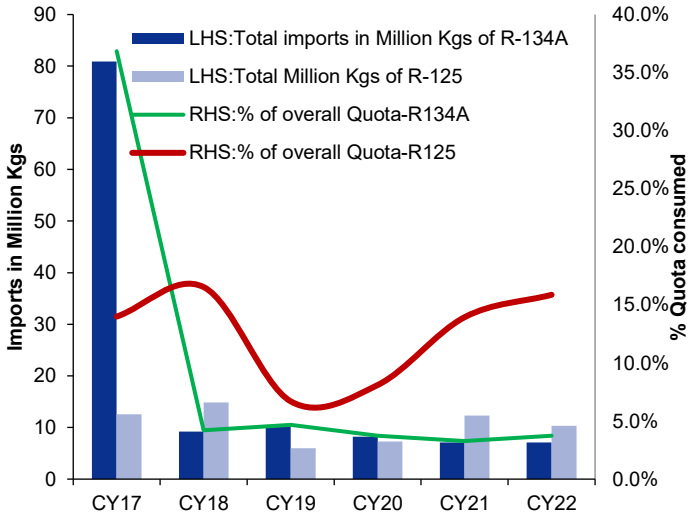
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 12: In CY22F, R-134A imports will account for only 3.7% of the consumption quota



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 13: The stark difference between the quota usage by importing R-134A and R-32 is shown below



SOURCE: INCRED RESEARCH, COMPANY REPORTS

While consumption will reduce in USA, but at the same time multiple Indian companies are expanding their R-125 production capacity ➤

SRF is increasing its R-125 production capacity. GFL has also started producing R-125 for the first time. SRF is investing in the total value chain of HFCs i.e., from intermediary material to the final product. SRF is expanding its perchloro ethylene-making capacity, at least by 25,000t, which can be used to make 17,000t of R-125. GFL is also making R-125, but most probably it will buy perchloro ethylene from the open market. Both these companies have enough HF (hydrofluoric acid) manufacturing capacity.

R-134A to meet a similar fate like that of R-125 ➤

Starting 2024F, USA will not allow new vehicle ACs to be operated using R-134A. The global warming potential of R-134A is lower compared to R-125. As USA imports a much larger quantity of R-134A compared to R-125, this results in a significant usage of the CO_2 quota.

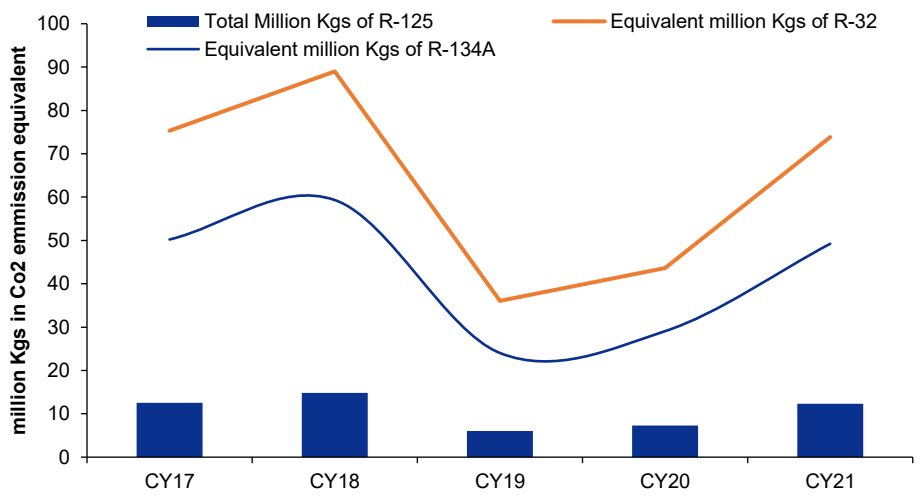
Please note that both R-134A and R-125 can be replaced by R-32 ➤

There are different parameters to consider while replacing R-125 with either R-32 or R134A. However, broadly speaking:

- R-125 as well as R-134A start at a super-cooled stage and approximately 1 kg of R-125 can replace 0.90kg of R-134A. R-1334A may need lower power as well compared to R-125.
- However, for ideal replacement, R-32 is much more suited compared to R-125. Ideally 0.6kg of R-32 can replace 1kg of R-125.

All thermodynamic calculations are from http://www.ethermo.us/ Replacing R-125 and R-134A with R-32 is preferable from the economic as well as usage of CO_2 equivalent quota perspectives.

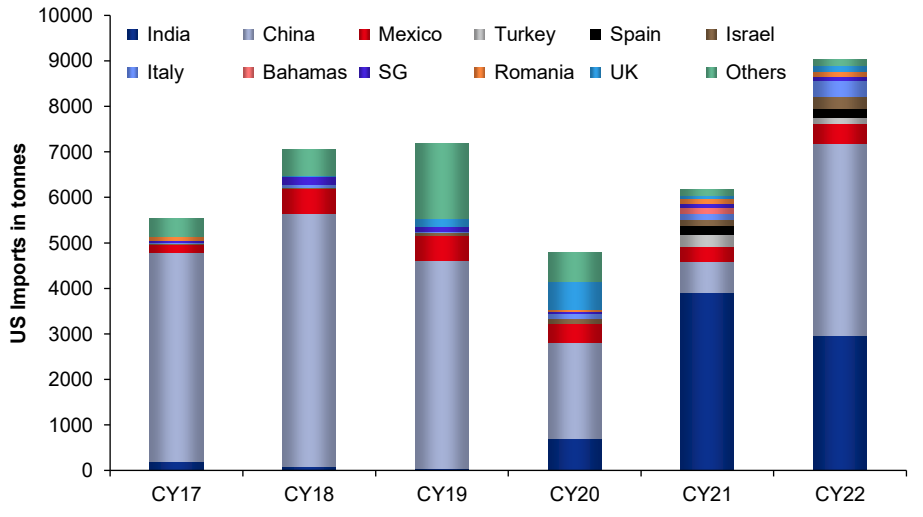
Figure 14: Using R-32 in lieu of R-125 and R-134A makes much more sense for USA



SOURCE: INCRED RESEARCH, COMPANY REPORTS

India's R-32 exports to USA picked up, but Chinese companies were back strongly in this market during 2022 ➤

Figure 15: India's exports are picking up, but Chinese companies are back strongly in USA market

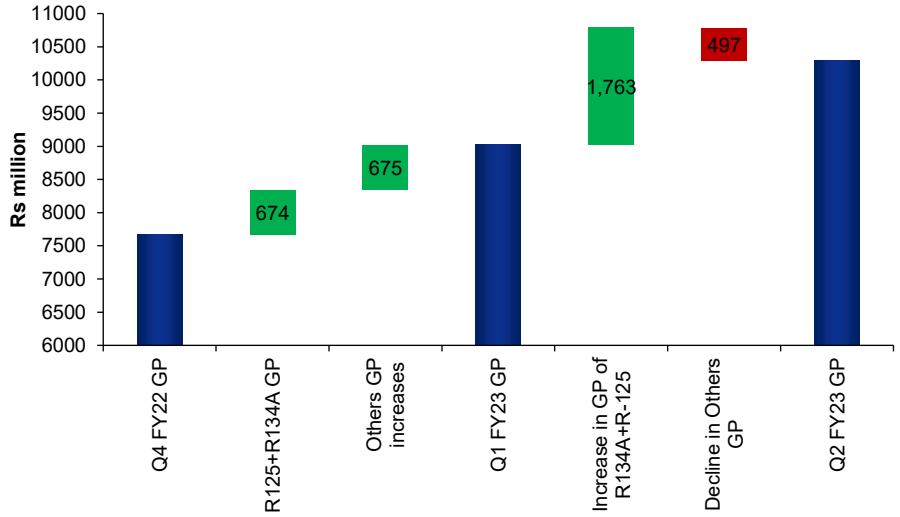


SOURCE: INCRED RESEARCH, COMPANY REPORTS

The rise in profits for GFL appears to be totally driven by R-125 and R-134A sales ➤

As per our rough estimates, (GFL doesn't reveal the chemical-wise operational profits), the change in fortunes of the company in the last couple of quarters was totally driven by R-125 sales.

Figure 16: Last two quarters, there has been an increase in gross profit of GFL; EBITDA has been totally driven by R-134A and R-125 sales

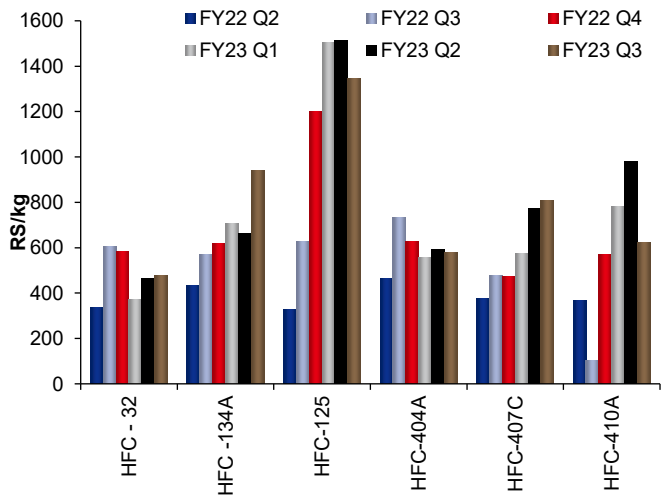


SOURCE: COMPANY REPORTS, INCRED RESEARCH

Even the rise in earnings of SRF in its chemical segment's EBIT is driven by R-125 and R-134A ➤

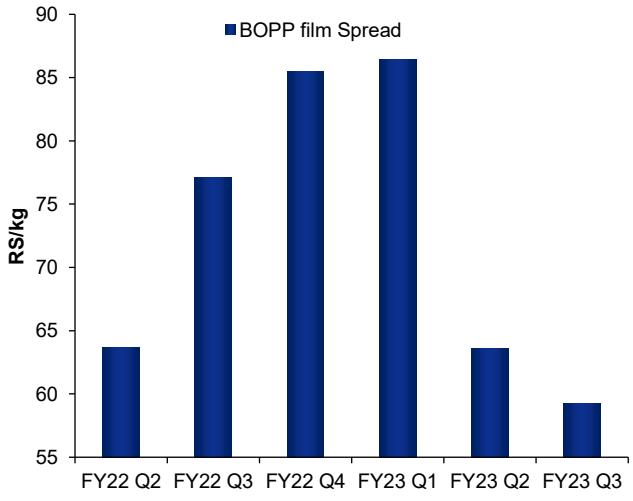
The rise in the prices of refrigerants led to the increase in earnings of the chemicals business of SRF. While SRF doesn't share the chemical-wise export data, we believe that extraordinary pricing of R-134A and R-125 led to the increase in the chemical segment's EBIT by Rs1.5bn/quarter. Apart from the above, BOPP film spreads are also falling.

Figure 17: Realization of all refrigerants, barring R-134A, has fallen qoq



SOURCE: INCRED RESEARCH, COMPANY REPORTS

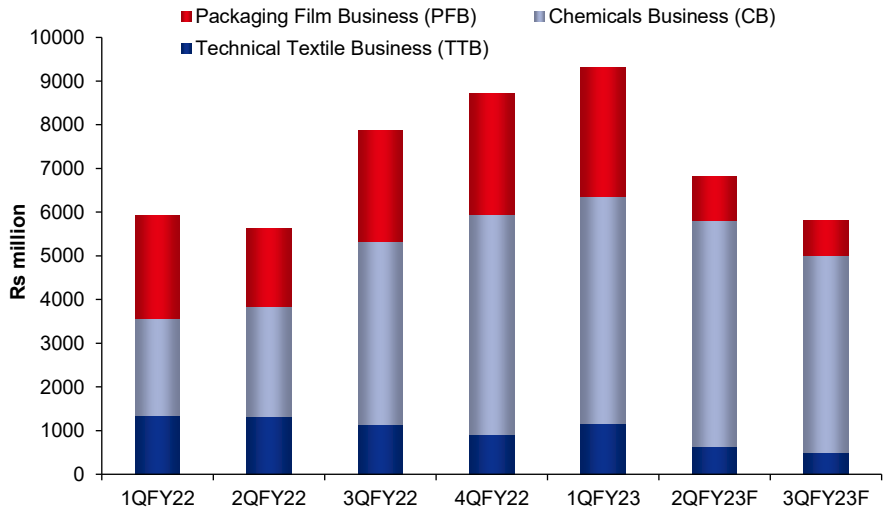
Figure 18: Even BOPP film spreads are below 2QFY22 level and way below 3QFY22 level



SOURCE: INCRED RESEARCH, COMPANY REPORTS

We expect a decline in all segments' profitablity in 3QFY23F

Figure 19: There may be a decline in the profitability across business segments in 3QFY23F



SOURCE: INCRED RESEARCH, COMPANY REPORTS

GFL: Pursuit of $LiPF_6$ is a losing proposition

Like Neogene, GFL is betting big on $LiPF_6$ but we feel it's a losing proposition.

1. There is a better electrolyte for Li-ion batteries in the form of LiFSi.
2. As the prices of Lithium-ion batteries are rising, alternate technologies are coming to fore.

LiFSi is a much better salt than $LiPF_6$

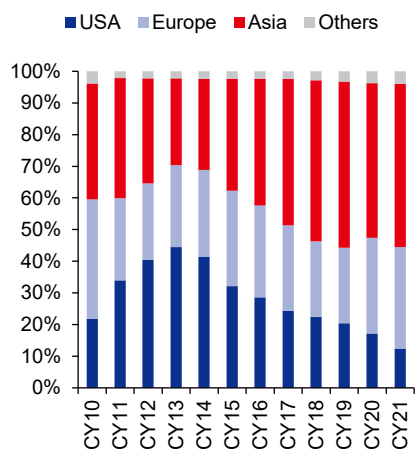
1. Using the new salt lithium bis(fluor sulfonyl)imide (LiFSi) rather than lithium hexafluorophosphate (LiPF6) as an electrolyte improves the performance of Li-ion batteries with silicon anodes, according to a paper published in the Journal of the American Chemical Society by researchers in Europe.
2. Compared to LiPF6, LiFSi not only enhances thermal stability in Li-ion battery technology but also gives a better performance in terms of electrical conductivity, cycle life, and low temperature. However, LiFSi may have certain corrosive effects on aluminium foil. Some academic papers show that the corrosion of aluminium foil mainly comes from FSI-ions in LiFSi, but this problem can be solved by additives such as fluorine-containing passivation aluminium foil additives.
3. The trend is quite certain that LiFSi is becoming one of the mainstream lithium salts for next generation electrolytes. Currently, ternary lithium batteries and LFP batteries are constantly being improved and iterated generation after generation that have higher requirements for energy density, high and low-temperature performance, cycle life, and charge and discharge rate performance.
4. Due to high technical difficulties in mass production and high cost, LiFSi has not been directly used as a solute lithium salt but as an additive mixed with lithium hexafluorophosphate ($LiPF_6$) for use in the electrolytes of power Li-ion batteries especially. To cite an example, LG Chem has been using LiFSi as an additive in its electrolytes for quite some time. As technology improves, more and more LiFSi will be added to electrolytes. It is believed that the cost of LiFSi will get lowered further with the scaling up of mass production. As time passes by, LiFSi has the potential to replace $LiPF_6$ as the main lithium salt for power Li-ion battery electrolytes.

How soon can LiFSi replace $LiPF_6$? It's already happening, and the process will accelerate in the near future ➤

1. The electrolyte mainly comprises solute lithium salt, organic solvent and additives.
2. The choice of solute lithium salt largely determines the capacity, operating temperature, cycle performance, power density, energy density and safety of the lithium battery.
3. Lithium hexafluorophosphate ($LiPF_6$) is now the dominant solute lithium salt due to its low cost, while LiFSi is currently a hot topic in the lithium battery industry.
4. LiFSi mainly exists as a solute in the electrolyte of lithium batteries, which is also its main application. At present, the downstream customers of LiFSI industry include **power battery plants and new energy vehicle enterprises, including LG, Samsung, Panasonic and other well-known new energy battery manufacturers as well as Volkswagen, Toyota, etc.**
5. The study of LiFSi first started overseas, and Nippon Shokubhai began to develop the industrial synthesis method for LiFSi as early as in 2009; after that, European and American companies such as Arkema also stepped into the development of LiFSi synthesis process. The research of LiFSi in China is a late development. Mr.Jiangsu Huasheng successfully mastered the synthesis technology of LiFSi in 2012; around 2015, the research and development of mass production accelerated, and was gradually translated into actual production capacity in 2017.
6. In 2020, there were eight major domestic LiFSi producers in China, with most production capacity held by Tianci Materials (002709), Shanghai Chemspec Corporation, and DFD Chem (002407), among which Tianci Materials has a market share of 36% and the CR3 concentration of LiFSi production capacity is 73%. In the next five years, 98% of the planned new LiFSi production capacity worldwide will be found in China, with Tianci Materials, Yongtai Technology (002326) and Growth Enterprise Market (300037) ranking among the top three brands in terms of new production capacity.
7. **In terms of material properties, LiFSi has better electrical conductivity, higher electrochemical and thermal stability, and resistance to hydrolysis compared to $LiPF_6$. The addition of LiFSi can significantly increase the charge and discharge cycles of the battery and keep extremely active electrode materials such as high nickel cathodes and high voltage cathodes stable, thus extending battery life while also improving the flame retardance of the electrolyte and also improving the safety.**
8. In terms of downstream applications, Tesla's '4680' battery has started mass production and the upgrade of the new battery technology enabled LiFSi to be rapidly introduced into the industry chain. The '4680' refers to a large ternary cathode cylindrical battery that is 46mm wide and 80mm long. According to the data released by Tesla, the '4680' battery can increase the battery capacity by five times, the mileage by 16%, and reduce the cost by 14% on the basis of the '2170' battery.
9. The promotion of the '4680' battery is expected to elevate the silicon content in the anode, as the conductivity of silicon-carbon anode is poor. LiFSi is expected to accelerate the replacement of LiPF6 as a new additive due to its better thermal and electrochemical stability and higher electrical conductivity. LiFSi is only about 3% in a normal high-nickel NMC battery, but in a '4680' battery the amount is directly increased to 15%.
10. As a core component of the electrolyte, the choice of solute lithium salt largely determines the performance of lithium batteries. Currently, the low-cost inorganic lithium salt $LiPF_6$ dominates the market but it is gradually failing to keep up with the development of lithium batteries due to its chemical instability and lack of efficiency in a low temperature environment. LiFSi, due to its high temperature stability and high conductivity, will be used more often in innovative batteries, and may become the best choice to replace LiPF6 with the mass production of '4680' battery and Qilin battery.

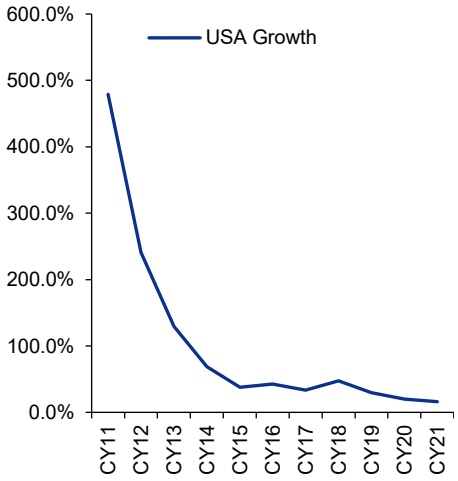
$LiPF_6$ demand growth is linked to overall electric vehicle or EV demand growth ➤

Figure 20: As of now, Asia and Europe are the main EV buyers



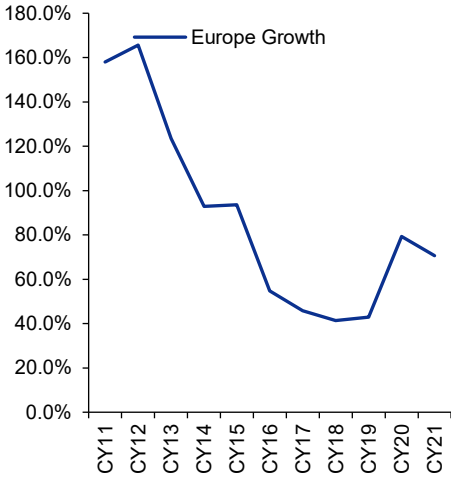
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 21: USA's EV sales have declined to mid-teens



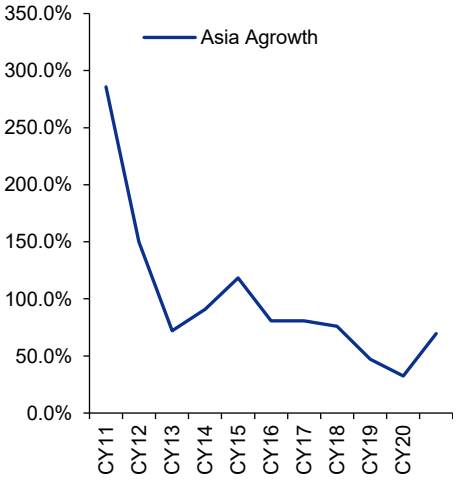
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 22: Europe's growth bounced back in CY21, but is seen coming down in CY22F



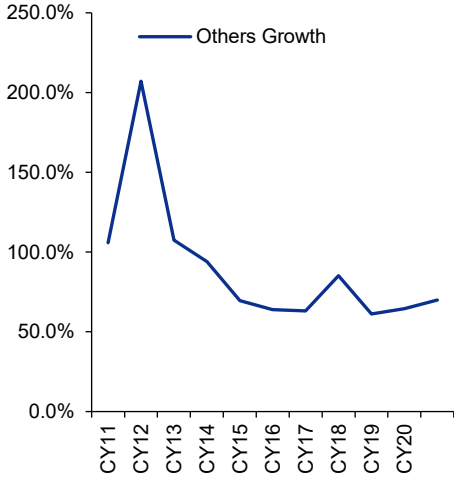
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 23: Asia's growth is still a bright spot in the global EV landscape



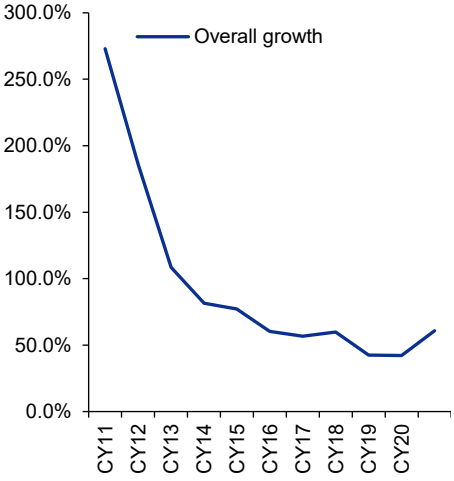
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 24: Others which contribute less than 3% to overall sales are also growing fast



SOURCE: INCRED RESEARCH, COMPANY REPORTS

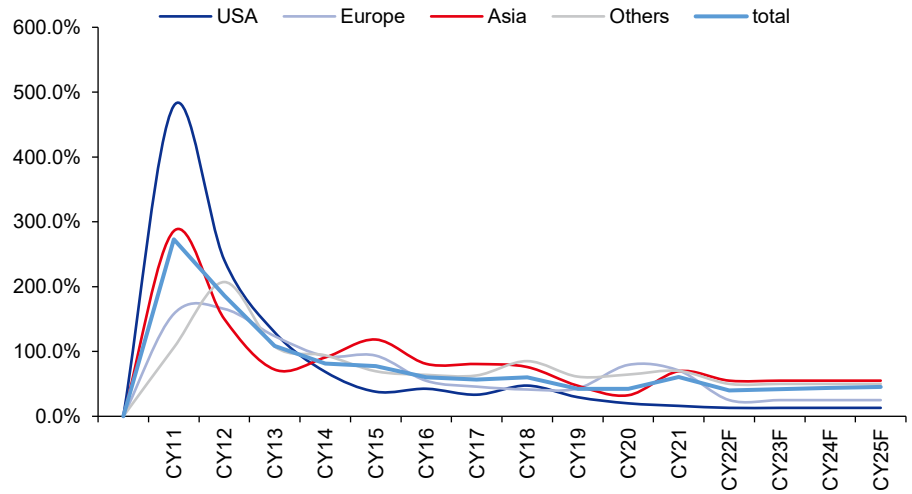
Figure 25: Overall, 60% global growth in CY21 was driven mainly by Europe and Asia



SOURCE: INCRED RESEARCH, COMPANY REPORTS

The exponential growth phase of EVs is over, more so after the European energy crisis ➤

Figure 26: Global energy crisis of CY22 has put an end to the exponential growth of EVs

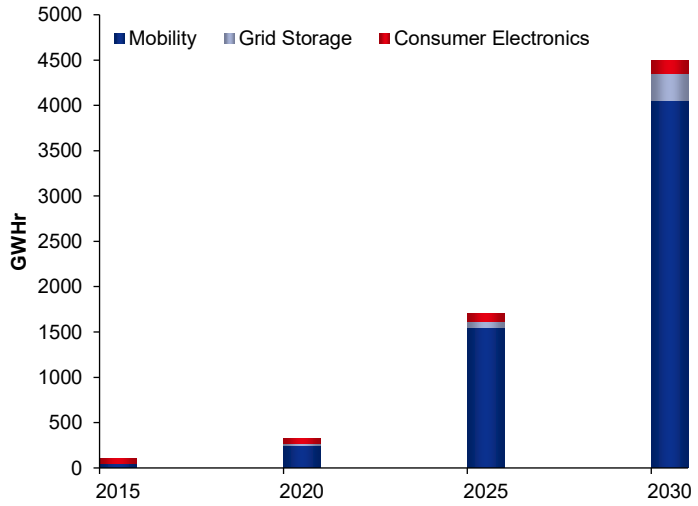


SOURCE: INCRED RESEARCH, COMPANY REPORTS

Hence, $LiPF_6$ will face multiple headwinds such as 1) slowing EV demand, 2) replacement by LiFSi, and 3) overcapacity ➤

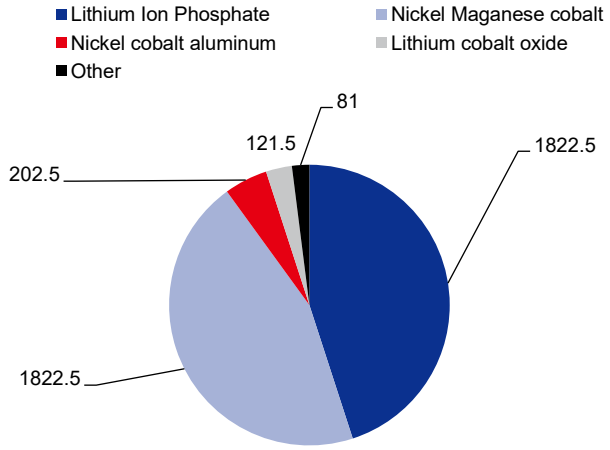
Based on the above calculations, we expect LiPF6 demand to be, at best, ~ 97kt in CY25F.

Figure 27: Projected battery demand



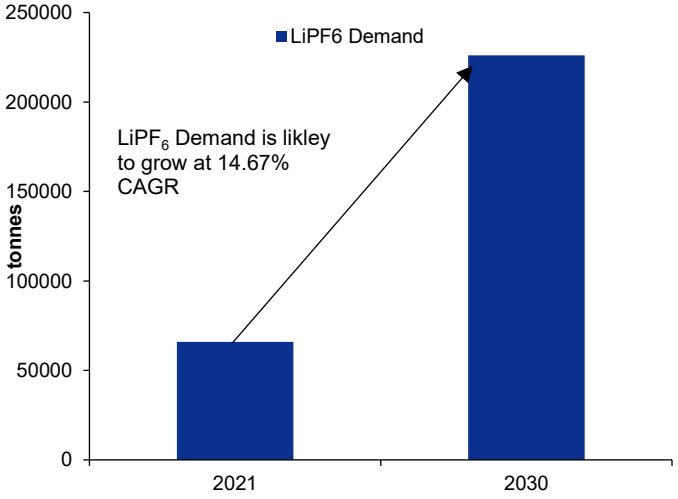
SOURCE: COMPANY REPORTS, INCRED RESEARCH

Figure 28: By 2030F, the share of Li-ion phosphate-based battery will be 1,822GW



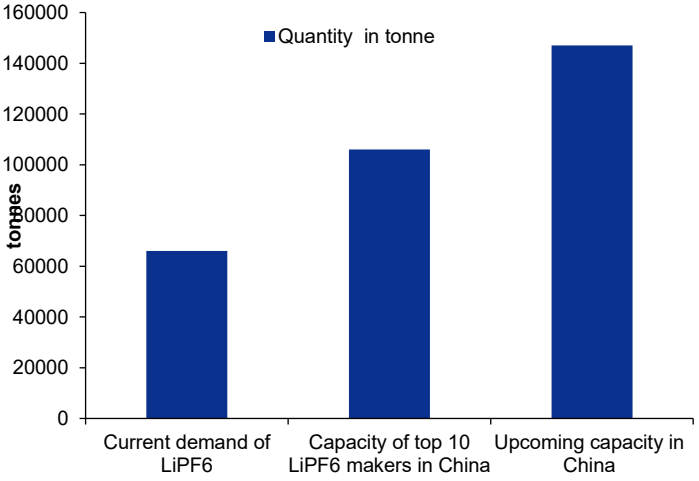
SOURCE: COMPANY REPORTS, INCRED RESEARCH

Figure 29: LiPF6 demand is likely to grow at a 14.6% CAGR over the next nine years to 226kt by 2030F



SOURCE: COMPANY REPORTS, INCRED RESEARCH

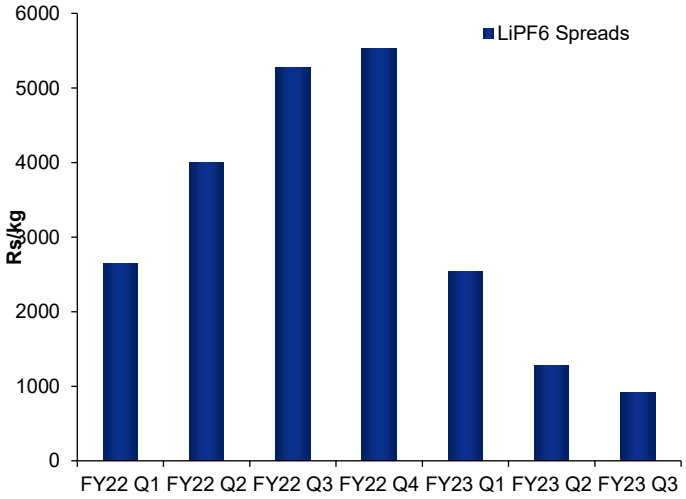
Figure 30: However, LiPF6 capacity is increasing exponentially in the global market



SOURCE: COMPANY REPORTS, INCRED RESEARCH

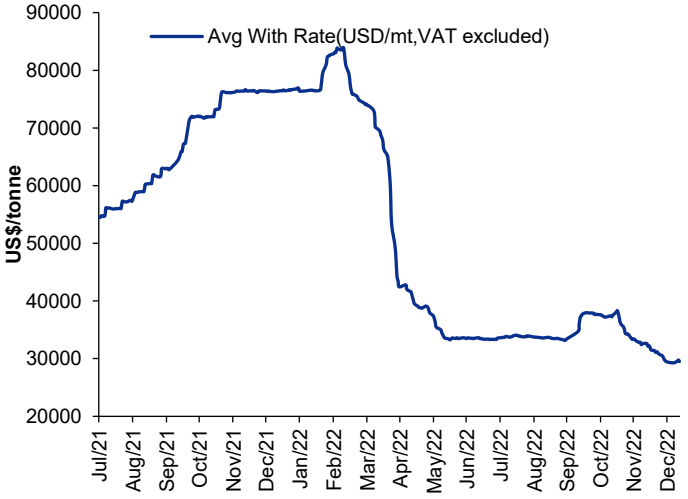
Hence, LiPF6 margins, which have already collapsed, will decline further ➤

Figure 31: LiPF6 spreads over raw material have collapsed



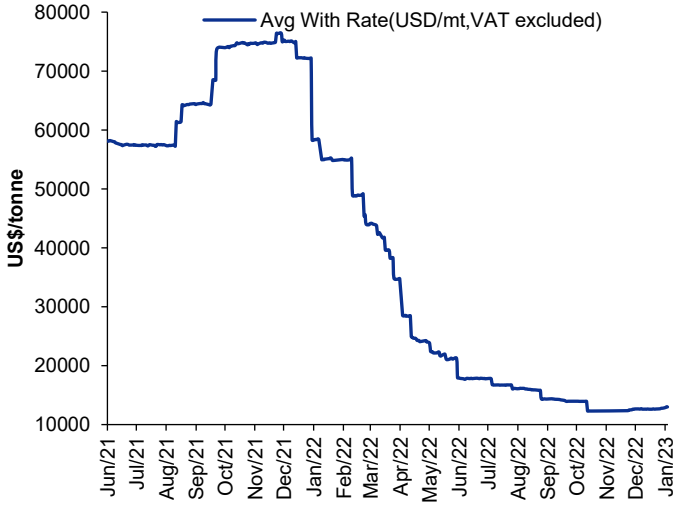
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 32: LiPF6 prices are back to the same level where they were in May 2021



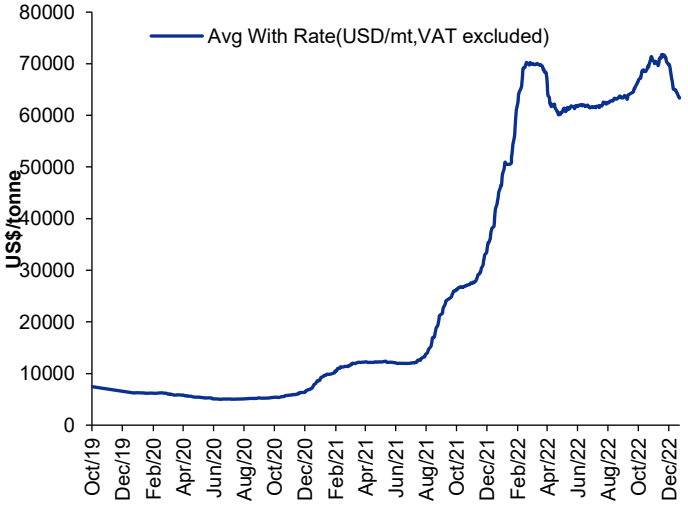
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 33: Even LiPF6 additive line vinylene carbonate prices are collapsing



SOURCE: INCRED RESEARCH, COMPANY REPORTS

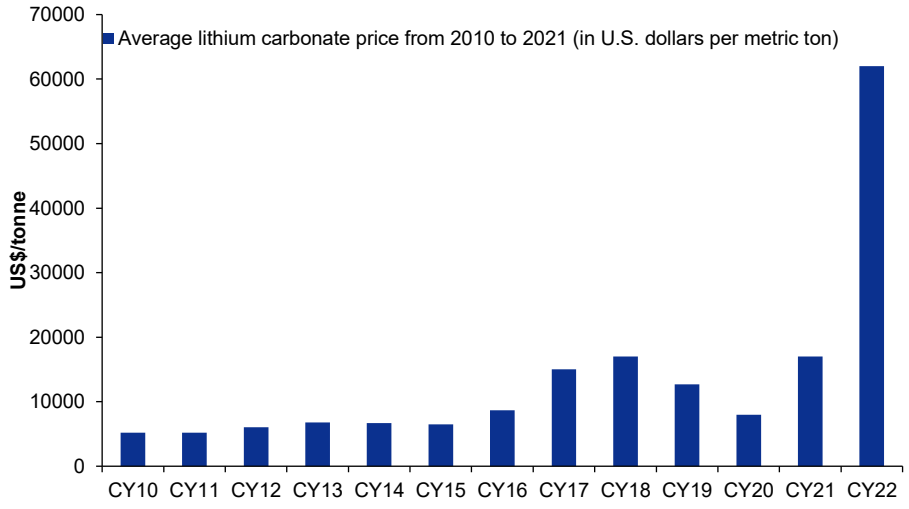
Figure 34: However, such a high capacity is creating a shortage of input materials like lithium carbonate



SOURCE: INCRED RESEARCH, COMPANY REPORTS

The extent of margin pressure on LiPF6 makers will be evident if we see historical prices of LiC (lithium carbonate) ➤

Figure 35: Lithium carbonate prices are at their highest level since the last 12 years



SOURCE: INCRED RESEARCH, COMPANY REPORTS

SRF: Chloromethanes are used mostly in commodity grade chemicals

SRF plans to increase its chloromethanes capacity by 150kt. We have covered the details of spreads of these chemicals in detail in our downgrade note of SRF IN: SRF Limited - Pricing in bluest of blue-sky EPS - REDUCE (REDUCE - Downgrade)

Figure 36: SRF plans to expand its bulk chemicals capacity by 0.15mt - these chemicals have multiple usage but mainly in refrigerants

Name of chemical	Existing qty. (mtpa)	Additional qty. (mtpa)	Total proposed qty. (mtpa)	end use
Trichloroethylene	150,000	150,000	300,000	Raw material for refrigerant and as a degreasing agent.
Perchloroethylene				Raw material for refrigerant, degreasing agent, and as a dry-cleaning agent.
Methyl chloride				Industrial solvent.
Methylene dichloride				Raw material for refrigerant and as a pharma intermediate.
Chloroform				Raw material for refrigerant and as a pharma intermediate.
Carbon tetrachloride				Raw material for agrochemicals.

SOURCE: INCRED RESEARCH, COMPANY REPORTS

Trichloroethylene is mainly used to produce R-134A ➤

SRF has approximately 19,000t R-134A-making capacity which requires trichloroethylene. Trichloroethylene is also used as a degreasing agent and hence, it has some industrial applications. The overall trichloroethylene requirement for HFC-134A is around 19,000t and so the remaining trichloroethylene capacity will be used for industrial applications.

Perchloroethylene is mainly used to produce R-125 ➤

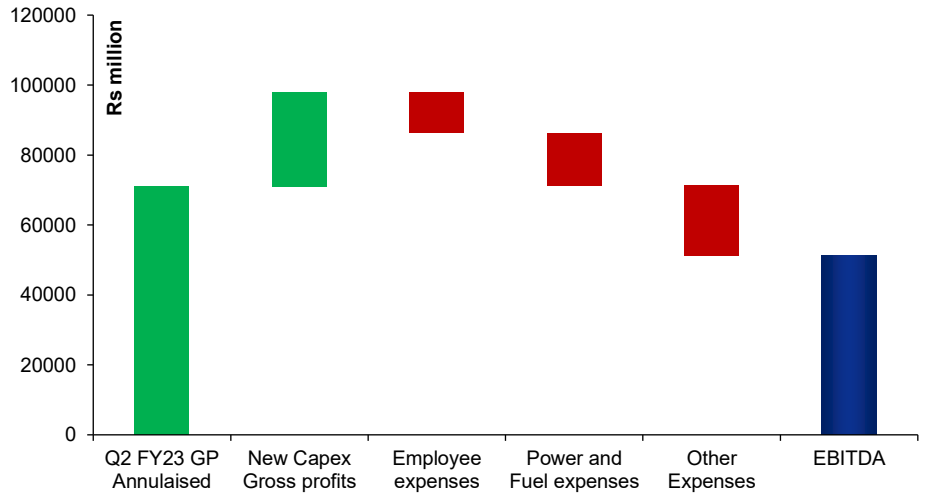
1 kg of R-125 needs around 1.5kg of perchloroethylene and hence, its requirement is based on the current capacity of SRF which is around 11,000t. Hence the rest of the perchloroethylene has to be used in other applications.

Methylene dichloride is used for R-32 production which is a growth area for SRF ➤

1kg of R-132 needs around 1.8kg of methylene dichloride and hence, its requirement is based on the current capacity of SRF which is around 54,000t. SRF is planning to expand the capacity for R-32 as well and will add ~10-15kt. Expanding R-32 production makes sense as it's a much better refrigerant vis-à-vis the global warming potential.

On an overall basis, the best-case EPS accounting for all expansions is ~Rs100 ➤

Figure 37: We have arrived at a best-case EBITDA of Rs52bn when all incremental capex is completed and hence, PAT can be Rs30bn and EPS ~Rs100

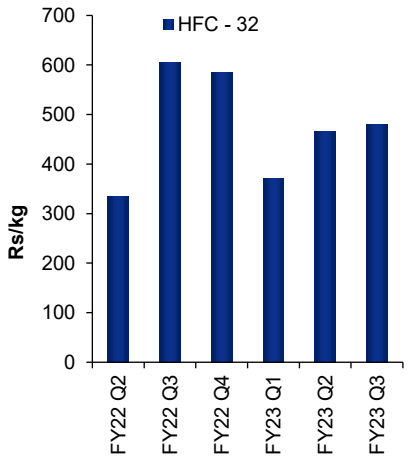


SOURCE: INCRED RESEARCH, COMPANY REPORTS

Consensus EPS is likely for a big negative surprise in FY24F and FY25F ➤

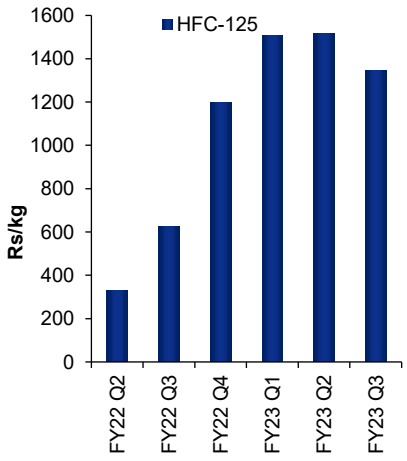
- While EBITDA in FY23F can be in the range of Rs30-32bn, it will be peak EBITDA for the next couple of years.
- As the refrigerant business has hit its peak, the spreads are falling in the case of R-32 and R-125.

Figure 38: HFC-32 prices have never overheated



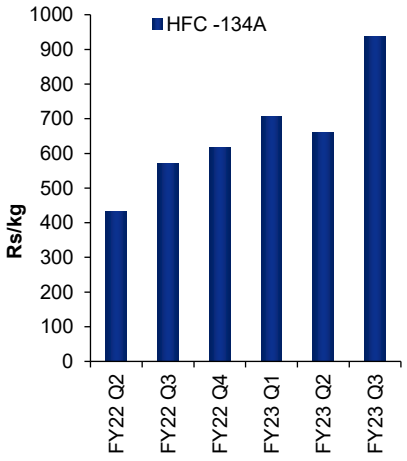
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 39: HFC-125 prices have hit their peak and will fall in the coming quarters



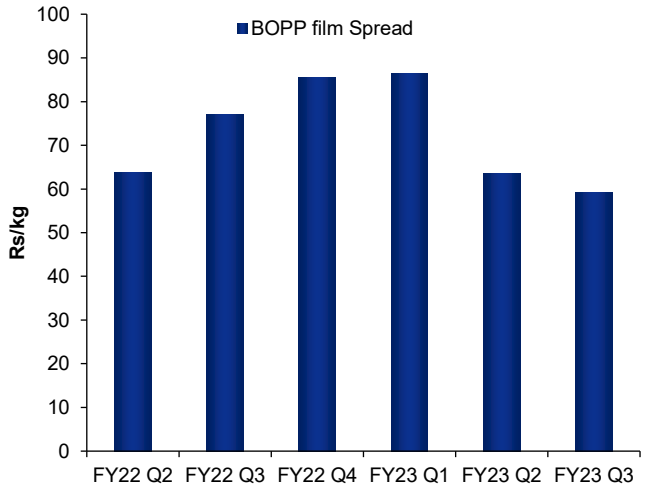
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 40: HFC-134A prices are still going strong, but this may not last for long



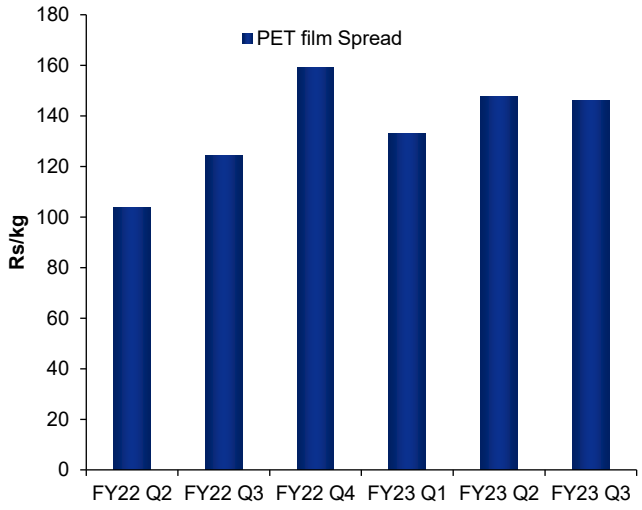
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 41: BOPP spreads hit their peak in 1QFY23



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 42: PET spreads will start feeling the heat in the coming quarters

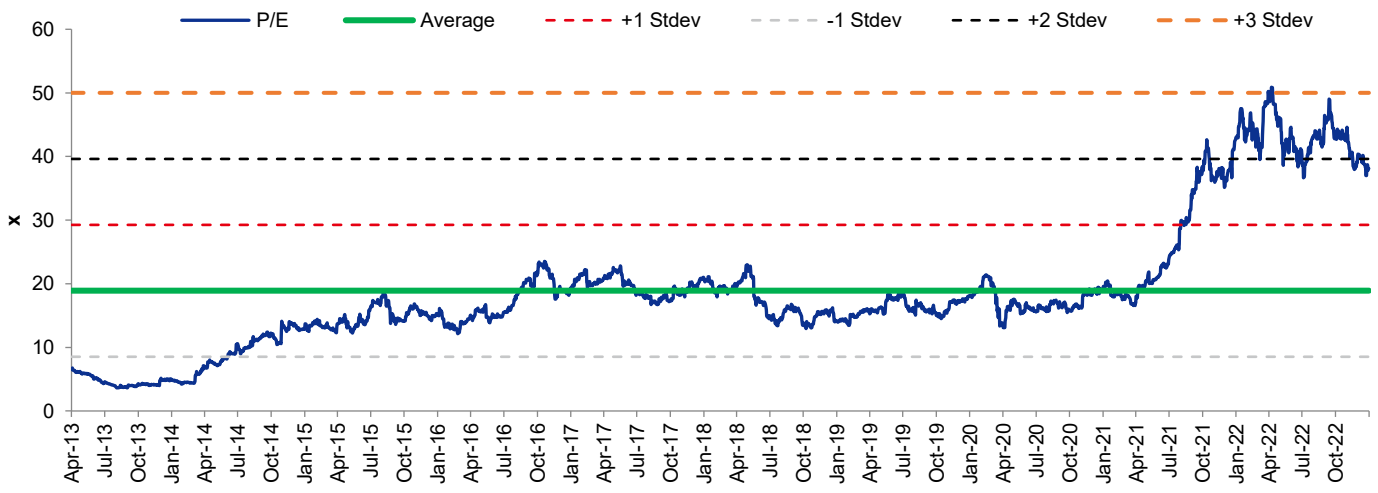


SOURCE: INCRED RESEARCH, COMPANY REPORTS

Valuation leaves nothing on the table; REDUCE »

With Rs52bn EBITDA, SRF can make an earnings per share or EPS of Rs100 after the completion of its expansion project. We don't know when this EPS will be achieved (if at all). The stock trades at a historical average multiple on the bluest of the blue-sky EPS. We have downgraded our rating on the stock to REDUCE (from ADD earlier).

Figure 43: SRF trades at a historical average multiple based on the bluest of blue-sky EPS; downgrade to REDUCE



SOURCE: INCRED RESEARCH, COMPANY REPORTS

DISCLAIMER

This report (including the views and opinions expressed therein, and the information comprised therein) has been prepared by Incred Research Services Private Ltd.(formerly known as Earnest Innovation Partners Private Limited) (hereinafter referred to as "IRSPL"). IRSPL is registered with SEBI as a Research Analyst vide Registration No. INH000007793. Pursuant to a trademark agreement, IRSPL has adopted "Incred Equities" as its trademark for use in this report.

The term "IRSPL" shall, unless the context otherwise requires, mean IRSPL and its affiliates, subsidiaries and related companies. This report is not directed or intended for distribution to or use by any person or entity resident in a state, country or any jurisdiction, where such distribution, publication, availability or use would be contrary to law, regulation or which would subject IRSPL and its affiliates/group companies to registration or licensing requirements within such jurisdictions.

This report is being supplied to you strictly on the basis that it will remain confidential. No part of this report may be (i) copied, photocopied, duplicated, stored or reproduced in any form by any means; or (ii) redistributed or passed on, directly or indirectly, to any other person in whole or in part, for any purpose without the prior written consent of IRSPL.

The information contained in this report is prepared from data believed to be correct and reliable at the time of issue of this report.

IRSPL is not required to issue regular reports on the subject matter of this report at any frequency and it may cease to do so or change the periodicity of reports at any time. IRSPL is not under any obligation to update this report in the event of a material change to the information contained in this report. IRSPL has not any and will not accept any, obligation to (i) check or ensure that the contents of this report remain current, reliable or relevant; (ii) ensure that the content of this report constitutes all the information a prospective investor may require; (iii) ensure the adequacy, accuracy, completeness, reliability or fairness of any views, opinions and information, and accordingly, IRSPL and its affiliates/group companies (and their respective directors, associates, connected persons and/or employees) shall not be liable in any manner whatsoever for any consequences (including but not limited to any direct, indirect or consequential losses, loss of profits and damages) of any reliance thereon or usage thereof.

Unless otherwise specified, this report is based upon reasonable sources. Such sources will, unless otherwise specified, for market data, be market data and prices available from the main stock exchange or market where the relevant security is listed, or, where appropriate, any other market. Information on the accounts and business of company(ies) will generally be based on published statements of the company(ies), information disseminated by regulatory information services, other publicly available information and information resulting from our research. Whilst every effort is made to ensure that statements of facts made in this report are accurate, all estimates, projections, forecasts, expressions of opinion and other subjective judgments contained in this report are based on assumptions considered to be reasonable as of the date of the document in which they are contained and must not be construed as a representation that the matters referred to therein will occur. Past performance is not a reliable indicator of future performance. The value of investments may go down as well as up and those investing may, depending on the investments in question, lose more than the initial investment. No report shall constitute an offer or an invitation by or on behalf of IRSPL and its affiliates/group companies to any person to buy or sell any investments.

The opinions expressed are based on information which are believed to be accurate and complete and obtained through reliable public or other non-confidential sources at the time made. (Information barriers and other arrangements may be established where necessary to prevent conflicts of interests arising. However, the analyst(s) may receive compensation that is based on his/their coverage of company(ies) in the performance of his/their duties or the performance of his/their recommendations. In reviewing this report, an investor should be aware that any or all of the foregoing, among other things, may give rise to real or potential conflicts of interest. Additional information is, subject to the duties of confidentiality, available on request.

The report is not a "prospectus" as defined under Indian Law, including the Companies Act, 2013, and is not, and shall not be, approved by, or filed or registered with, any Indian regulator, including any Registrar of Companies in India, SEBI, any Indian stock exchange, or the Reserve Bank of India. No offer, or invitation to offer, or solicitation of subscription with respect to any such securities listed or proposed to be listed in India is being made, or intended to be made, to the public, or to any member or section of the public in India, through or pursuant to this report.

The research analysts, strategists or economists principally responsible for the preparation of this research report are segregated from the other activities of IRSPL. Information barriers and other arrangements have been established, as required, to prevent any conflicts of interests.

The research analysts, strategists or economists principally responsible for the preparation of this research report are segregated from the other activities of IRSPL. Information barriers and other arrangements have been established, as required, to prevent any conflicts of interests.

IRSPL may have issued other reports (based on technical analysis, event specific, short term views etc.) that are inconsistent with and reach different conclusion from the information presented in this report.

Holding of Analysts/Relatives of Analysts, IRSPL and Associates of IRSPL in the covered securities, as on the date of publishing of this report

	Analyst/ Relative	Entity/ Associates
any financial interests in the company covered in this report (subject company) and nature of such financial interest	NO	NO
actual/beneficial ownership of 1% or more in securities of the subject company at the end of the month immediately preceding the date of publication of the research report or date of the public appearance;	NO	NO
any other material conflict of interest at the time of publication of the research report or at the time of public appearance	NO	NO
received any compensation from the subject company in the past twelve months for investment banking or merchant banking or brokerage services or investment advisory or depository or distribution from the subject company in the last twelve months for products/services other than investment banking or merchant banking or broker- age services or investment advisory or depository or distribution from the subject company in the last twelve months	NO	NO
managed or co-managed public offering of securities for the subject company in the last twelve months	NO	NO
received any compensation or other benefits from the subject company or third party in connection with the research report	NO	NO
served as an officer, director or employee of the subject company	NO	NO
been engaged in market making activity for the subject company	NO	NO

Analyst declaration

- The analyst responsible for the production of this report hereby certifies that the views expressed herein accurately and exclusively reflect his or her personal views and opinions about any and all of the issuers or securities analysed in this report and were prepared independently and autonomously in an unbiased manner.
- No part of the compensation of the analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations(s) or view(s) in this report or based any specific investment banking transaction.
- The analyst(s) has(have) not had any serious disciplinary action taken against him/her(them).
- The analyst, strategist, or economist does not have any material conflict of interest at the time of publication of this report.
- The analyst(s) has(have) received compensation based upon various factors, including quality, accuracy and value of research, overall firm performance, client feedback and competitive factors.

IRSPL and/or its affiliates and/or its Directors/employees may own or have positions in securities of the company(ies) covered in this report or any securities related thereto and may from time to time add to or dispose of, or may be materially interested in, any such securities.

IRSPL and/or its affiliates and/or its Directors/employees may do and seek to do business with the company(ies) covered in this research report and may from time to time (a) buy/sell the securities covered in this report, from time to time and/or (b) act as market maker or have assumed an underwriting commitment in securities of such company(ies), and/or (c) may sell them to or buy them from customers on a principal basis and/or (d) may also perform or seek to perform significant investment banking, advisory, underwriting or placement services for or relating to such company(ies) and/or (e) solicit such investment, advisory or other services from any entity mentioned in thisreport and/or (f) act as a lender/borrower to such company and may earn brokerage or other compensation. However, Analysts are forbidden to acquire, on their own account or hold securities (physical or uncertificated, including derivatives) of companies in respect of which they are compiling and producing financial recommendations or in the result of which they play a key part.