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## 10 Questions to get-to-better-grip with GFCL business dynamics/FP Industry (standardised comprehensive set to use with any domain expert we may run into).

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### 1. GFCL MANAGEMENT DNA?

Unknown/Not-so-understood entity?  
Perseverance/Focus as defining Traits?  
How do they Think/Plan/Execute?  
Who/How do they benchmark themselves on?  
Recruit/Develop/Nurture key Middle Management?

GFCL Management has steered GFCL through extraordinary milestone(s) achievement in the last 5-10 years or more. Long-term vision Vision/Execution has been top class. It would appear to have suddenly come out-of-nowhere and punched far above its weight – way more than established peers like SRF, Naveen Fluorine.

Will be great to get a sense of the GFCL Management Strategy/Execution process – how/ what makes them what they are? What/how would you characterise GFCL Management DNA?

### 2. AMBITIOUS/AGGRESSIVE/NIMBLE?

FY23-24 2500 Cr Expansion  
FY25-27 4000-6000 Cr Expansion  
Inherent-GFCL Business-Model Vulnerabilities.

Above is one characterization that easily comes to mind when we try to characterise GFCL Management?

a) How would you characterise GFCL charted course for next 4-5 years? Where do you see them 5 years down the line?

b) Fluorine Chemistry (evolution) never seems a **done deal**? Too Many variables to juggle including on Regulatory (ESG), Technology (Process Chemistry), volatile supply/demand situation in its chosen product-mix/value-migration curve?

c) To really take advantage of the extraordinary Opportunities before it, one has to be planning far-ahead, and always feet-on-ground, aggressive-in-scale expansions. So far GFCL has executed brilliantly, but next 3-5 years scale - there are big **Vulnerabilities** too. As an industry insider, how do you think about these?

### 3. VALUE MIGRATION/CREATION AMBITIONS

Subsidiaries  
- Battery Chemicals (immediate opportunity Electrolytes)  
- Green Hydrogen (immediate opportunity PEM Membrane)

a) Does it look like EV-Electrolyte Market expansion/explosion (China example Tinci EV Electrolyte sales have gone up 3-4x 36000 Cr) a significantly bigger opportunity of the two?

b) Can't this market in India be 20-25% of where China is today, in 3-4 years given the EV momentum underway? And GFCL having a dominant share?

c) Perception generally is the Green Hydrogen opportunity is some years away?

But given the Orderbook sizes of EU Players for PEM Membranes (Solvay, Daikin, Arekema (?) though and the fact that they do NOT have significantly enhanced capacities, GFCL could be in a great competitive position (Only 2 players currently have commercialized technology) if they are able to develop this quickly?

#### 4. PRODUCT SEGMENT CHOICES

ALWAYS 2 sides to the business/product mix 😊?

- Likely-Commodity soon vs Protected/Hard-to-get (think new FP, think Refrigerants)
- New complex grades – the proven way to stay ahead in the game?

We understand there was an evolutionary path perhaps (for everyone in Fluorine-Chemistry-related industry) – FSC to PTFE/Value-added grades to new FPs. Recent choices though should have been **simple?** - but there seems to be far more complex factors at play – seeing the pattern unfolding before us!

- a) LiPF<sub>6</sub> – first heard 1 to 1.5 years back – 1000T capacity salt, 6000T Electrolyte  
The ease with which lot of players are able to claim commercial/production within 12 months? Timing is a bit off (drastic pricing downgrades) even though tons of money will be made probably in FY24?
- b) But within a year this capacity is going to 4000T Salt, 24000T Electrolyte?  
Given that Indian battery Chemicals/Electrolyte Market is as yet underdeveloped, how will GFCL really compete?
- c) GFCL LiPF<sub>6</sub> Process chemistry – different from Tinci's? Any Yield/Efficiency advantages?
- d) China Market would be impenetrable by GFCL? So it really is EU-US market for GFCL? On the back of fully contracted-out capacities?
- e) CS Report quotes global capacity expansion **@61% CAGR**, but demand growth **@34% CAGR**; In 2022 utilisation rate 72%, utilisation to fall to **42% by 2025**
- f) LiPF<sub>6</sub> - Pass-Through Sourcing/Pricing contracts for Lithium Carbonate (Li<sub>2</sub>CO<sub>3</sub>) Sourcing  
1000 Kg LiPF<sub>6</sub> (\$28/kg currently) requires 250Kg Li<sub>2</sub>CO<sub>3</sub> (\$66/Kg)  
Given the huge uptick in Li<sub>2</sub>CO<sub>3</sub> pricing, why won't existing pass-through contracts come under pressure? How will GFCL manage the dichotomy?

#### 5. NEW REFRIGERANT GASES (Class 3)

More RATIONAL scale-expansion choice (R32, R410A, R1234yf)

2010 #1 Dongyue Group 178,000T capacity; #2 Juhua Group 134000T

2023 #1 **Juhua Group 379,000T**; put up 150,000-200,000T additional capacity in last 2 years to take advantage of new Quotas (deflating prices)

Class 3 Refrigerant capacity estimated to grow at **46% CAGR** next 2-3 years

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GFCL has announced 10000T R32, R410A Capacity expansion  
Why NOT 30000T capacity expansion given the Protected Market/Commoditised Market conundrum?

Is there a **Rethink ongoing on immediate expansion strategic choices?**

## **6. NEW FP COMPETITIVE POSITIONING**

- ARKEMA, DAIKIN, SOLVAY and GFCL
- CHEMOURS?

How would you characterise GFCL Competitive position among new age FP companies?  
Isn't it a given that for non-China Markets (US and EU in particular) volumes would come to GFCL? Why or why not?

Do they have some better grades that they have but GFCL doesn't hasn't yet commenced development/approval trials?

Typical Development/Trial/Approval timeframes for complex grades? What is the maximum GFCL has taken?

## **7. Fluorine Process Chemistry Yield% improvements over time?**

Multi-Step Reaction Yields generally improve over time in Organic chemistry (Think Divi's in Pharma, PI Industries in AgChem)

a) Please elaborate what has been the experience curve for GFCL in FP processing over the years. Can we expect that this will remain the case for most product developments in future?

b) If yes, how much of a cushion does this provide in mitigating/insulating against inevitable pricing volatility/commoditization risks?

## **8. PFAS-Free Process for all GFCL fluoropolymers**

- Competition catch-up?
- Premium for PFAS-Free?

Reaction Yield% differences with earlier process? Any advantages/Disadvantages?

a) How long to did we take to develop PFAS-free process? How long will other players take to develop? Chinese players also export to EU it appears, so are they also becoming PFAS free??

b) Shouldn't GFCL be expecting premium pricing for PFAS-Free FPs in future. As we move from PFAS to PFAS free processes within the year, should we expecting significant yield differences?

## **9. PFA Semiconductor Grade Development**

- Purity Grades
- Very High Purity Grades

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a) Please elaborate on state of the industry/applications, and GFCL development status?

b) Do major customers PUSH/HELP GFCL in developing better grades – as they see a stable, most backward-integrated player, most cost-efficient FP player than others in the fray today  
No Chinese companies likely here? Why? What is the major Technology/Process differentiator? Any sourcing limitations?

### **10. PTFE/PVDF and FKM Differentiators**

PVDF Separator commoditised

PVDF Binder – only 2-3 companies worldwide – Protected Market?

PTFE Binder – advantages over PVDF Binder? Preferred choice? GFCL development status?

Given 3M exit – why no aggressive scale-up to take up the slack?

FKM advantages? due both R22 and R142b routes?

FKM Low growth/High Growth segments? Demand/Supply?

Why No Chinese Players? # of FKM Grades, the secret sauce?

Since No China players, who is supplying to Chinese Market today?

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*PS1: Refine using Numbers/volumes from ICICI Reports*

*PS2: Parse Con-Call Statements (@Needl.ai) for quickly extracting key Product/Numbers/Plans specifics*

*PS3: Incrementally use the learnings from one expert, use that with the next, with 5-6 domain experts*