

India

**Underweight** (no change)

**Highlighted Companies**

**Clean Science and Technology**

**REDUCE, TP Rs665, Rs1561 close**

Clean Science's MEHQ business is under stress (spreads are at an eight-year low) and HALS margin is even lower. As a result, it is margin-dilutive, with the gross margin for non-captive HQ at 30%, compared to the overall gross margin of Vinati Organics at 50% and Clean Science's 66%. We have a REDUCE rating on Clean Science with a target price of Rs665.

**Vinati Organics**

**ADD, TP Rs2772, Rs1972 close**

Butyl phenols, guaiacol and anisole will start contributing meaningfully from FY26F, driving a 20% revenue CAGR over FY24-27F. We believe that higher EPS growth, compared to the last three years (24% CAGR vs. -3% CAGR), deserves a 10% premium to the last five-year mean P/E. We upgrade the stock's rating to ADD with a 12-month target price of Rs2,772.

**Summary Valuation Metrics**

P/E (x)	Mar24-A	Mar25-F	Mar26-F
Clean Science and Technology	68.01	61.78	63.37
Vinati Organics	63.2	46.92	38.86

P/BV (x)	Mar24-A	Mar25-F	Mar26-F
Clean Science and Technology	14.4	11.94	10.24
Vinati Organics	8.26	7.3	6.38

Dividend Yield	Mar24-A	Mar25-F	Mar26-F
Clean Science and Technology	0%	0%	0%
Vinati Organics	0.36%	0.49%	0.59%

**Research Analyst(s)**



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

**Abbas PUNJANI**  
T (91) 22 4161 1598  
E abbas.punjani@incredresearch.com

# Chemicals - Overall

## US AD on vanillin will lead to lower MEHQ

- Anisole-based MEHQ margin will remain under pressure going ahead while HQ-based producers will have an upper hand.
- The probable AD on vanillin in the US to make Camlin Fine (UNRATED) much more cost-competitive in the MEHQ market – a negative for Clean Science.
- Vinati Organics is unlikely to achieve MEHQ EBITDA margin of 20%. MEHQ margin to be below 10%, but it will be compensated by ATBS & other products.

## US anti-dumping duty on vanillin will lead to lower prices of MEHQ

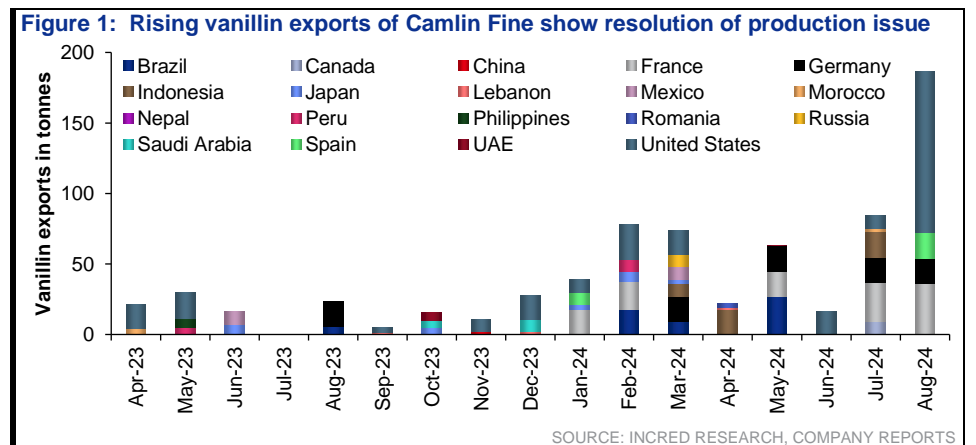
Vinati Organics and Clean Science and Technology (Clean Science) face a challenging path in the MEHQ market. While MEHQ can be manufactured relatively easily, making it profitable requires backward integration into HQ production. Clean Science uses the anisole method to produce MEHQ, but it has remained profitable primarily because its close competitor, Camlin Fine Sciences (Camline Fine), has struggled with HQ production. Please note that the HQ production process yields catechol and HQ in a 60:40 ratio. There is a global oversupply of catechol, around 15kt, which causes non-vanillin catechol prices to fall below raw material costs, diminishing their competitive power in MEHQ. As Camlin Fine starts producing vanillin and the US imposes anti-dumping duty on Chinese vanillin, the company will recover its full cost of catechol and make an impressive margin on vanillin. This will intensify competition in India's MEHQ market. Prices are already low, and Clean Science's MEHQ spreads are at an eight-year low, with a further decline likely.

## Post-AD vanillin seen at US\$12-13/kg, rendering China uncompetitive

The US is one the biggest vanillin markets and if indications come out to be true, then Chinese vanillin will attract a higher anti-dumping duty, which will make it very costly. At the same time, as Indian vanillin output ramps up, global oversupply of catechol will come down, thus raising its prices. Solvay, and a few others, who have the filed the anti-dumping petition, can make money only at a price of US\$15/kg or more and hence, it's possible that the anti-dumping duty or AD on Chinese vanillin will be higher than 100%. Assuming the price settles somewhere around US\$12-13/kg (currently at US\$9/kg vs. US\$15-16/kg before the Chinese dumping), China will have to supply vanillin at US\$5-6/kg to remain competitive. At that price, it will be impossible to cover even the raw material cost.

## Clean Science to be a major loser; Vinati may not make big margins

The AD on vanillin in the US and the start of vanillin production by Camlin Fine will ease cost pressure on MEHQ, further intensifying competition in an already oversupplied market. The entry of a new player, Vinati Organics, is not good news either. We believe Vinati Organics' estimate of 20% margin on MEHQ is overly optimistic, and it is more likely to achieve single-digit EBITDA margin in MEHQ. However, this will be more than compensated by rising ATBS margin. Overall, Vinati Organics is likely to post a 27% EBITDA margin, but consensus estimates for Clean Science are likely to face a rude awakening. Clean Science may still report an EPS of Rs6-7 in 2QFY25F, but things are expected to decline from 3QFY25F.



---

## US AD on vanillin will lead to lower MEHQ

Vinati Organics and Clean Science face a challenging path in the MEHQ market. While MEHQ can be manufactured relatively easily, making it profitable requires backward integration into HQ production. Clean Science uses the anisole method to produce MEHQ, but it has remained profitable primarily because its close competitor, Camlin Fine, has struggled with HQ production. Please note that HQ production process yields catechol and HQ in a 60:40 ratio. There is a global oversupply of catechol, around 15kt, which causes non-vanillin catechol prices to fall below raw material costs, diminishing their competitive power in MEHQ. As Camlin Fine starts producing vanillin and the US imposes anti-dumping duty on Chinese vanillin, the company will recover the full cost of catechol and make an impressive margin on vanillin. This will intensify competition in India's MEHQ market. Prices are already low, and Clean Science's MEHQ spreads are at an eight-year low, with a further decline likely in the coming quarters.

### MEHQ is under pressure

The ramp-up of vanillin capacity by Camlin Fine is reducing its dependency on MEHQ. Simultaneously, Vinati Organics' MEHQ capacity has come online. Together, these developments are contributing to increased competition in the market.

### MEHQ has limited usage ➤

MEHQ, or methoxy hydroquinone, is commonly used as an inhibitor in the polymerization of monomers such as styrene, vinyl acetate, and other unsaturated compounds. Its main purpose is to prevent premature polymerization during storage, handling, or processing of these monomers. This is especially important for industrial processes where uncontrolled polymerization can lead to hazards and material waste.

#### Key uses of MEHQ:

1. Polymerization Inhibitor: MEHQ is often used in small amounts (typically 200-1,000ppm) to stabilize monomers like styrene and butadiene during storage and transport.
2. Antioxidant: It is also used as an antioxidant in various formulations to prevent oxidative degradation.
3. Stabilizing Agent: MEHQ helps in stabilizing resins and adhesives by inhibiting polymerization until required.
4. Cosmetic Applications: It has limited uses in some cosmetic products as a stabilizer or antioxidant

### Global market of MEHQ is limited at 14-15kt ➤

Given its limited usage, the growth in MEHQ market is constrained, and we currently estimate the market size to be around 14-15kt. Many producers use this chemical for their captive consumption, but a few players like Clean Science (REDUCE) sell it in the open market.

**There are two way to produce MEHQ: 1) HQ route, and 2) anisole route ➤**

MEHQ can be produced through two routes.

**Figure 2: The HQ production route requires HQ, methanol, para benzoquinone and resin catalyst**

4-Methoxy Phenol (MeHQ)	181.81	Hydroquinone	1.000
		Methanol (Fresh)	0.346
		Methanol (Recovered)	2.440
		p-Benzoquinone	0.100
		Resin Catalyst	0.001

**Figure 3: The anisole route is a two-step process**

<b>MEHQ</b>	<b>Output</b>	
	MEHQ	0.726 kg
	Guaiacol	0.31 kg
	Anisole	0.099 kg
	<b>Input</b>	
	Anisole	0.95 kg
Hydrogen Peroxide	0.8 kg	
Catalyst	0.1 kg	
Acetone	1.5 kg	
<b>Anisole</b>	<b>Output</b>	
	Anisole	1.00 kg
	<b>Input</b>	
	Phenol	1.00 kg
Methanol	0.34 kg	

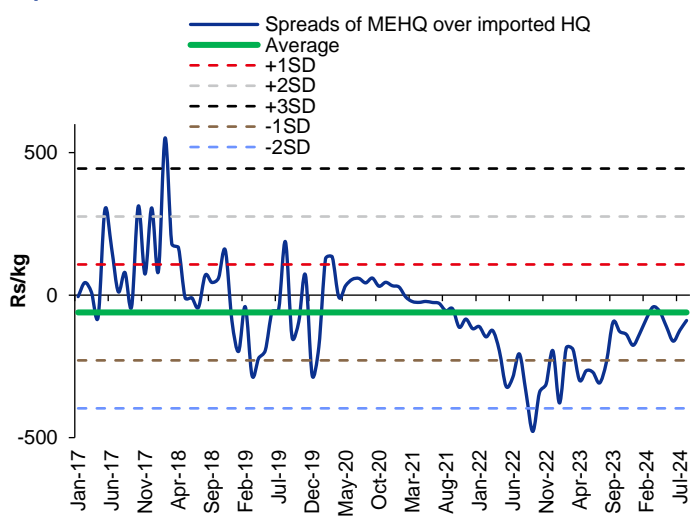
SOURCE: INCRED RESEARCH, COMPANY REPORTS

SOURCE: INCRED RESEARCH, COMPANY REPORTS

**Captive HQ is the only sustainable way to produce MEHQ under the HQ route ➤**

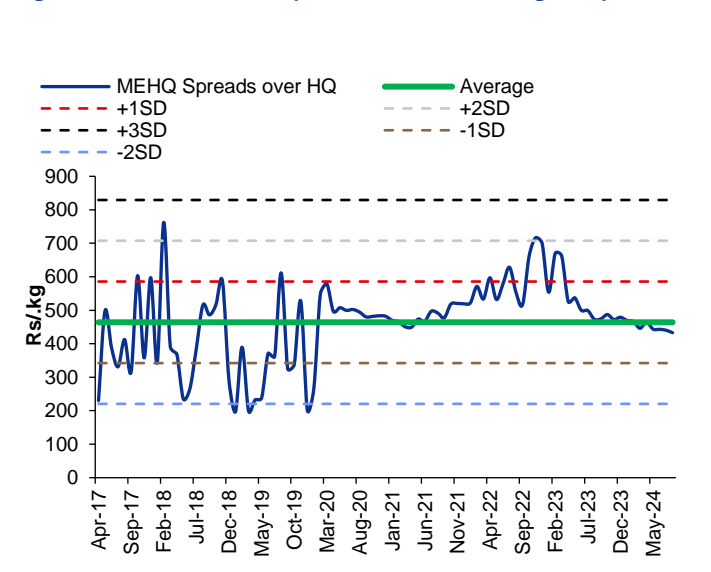
Producing MEHQ using imported HQ is simply not viable, as MEHQ prices won't even cover the cost of imported HQ. The only sustainable way to produce MEHQ through the HQ route is via captive supply.

**Figure 4: Producing MEHQ through the imported HQ route has never been viable, as MEHQ prices will barely cover the cost of imported HQ**



SOURCE: INCRED RESEARCH, COMPANY REPORTS

**Figure 5: However, the captive HQ route makes gross profit**

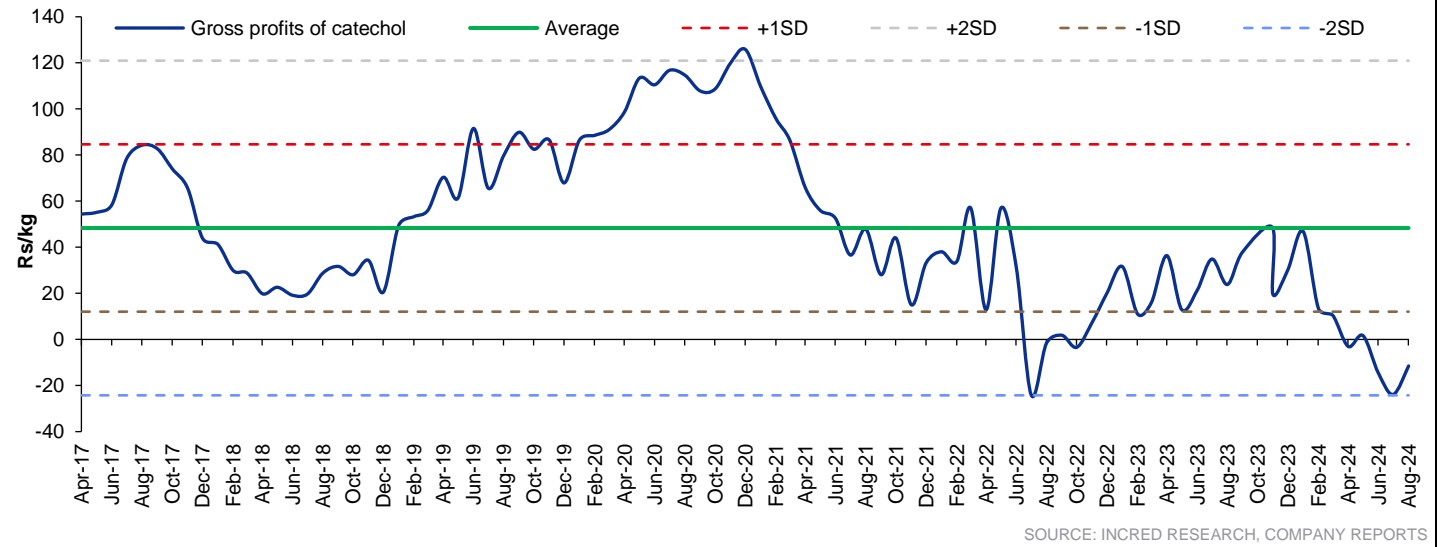


SOURCE: INCRED RESEARCH, COMPANY REPORTS

**The only problem in captive HQ is production of catechol which sells at below its raw material price ➤**

During the production of HQ, 1t of HQ is generated along with 1.5t of catechol. Globally, catechol is oversupplied by 15-20kt and has limited usage apart from vanillin production. This is why it sells below raw material costs and significantly below the fully loaded cost of US\$3/kg.

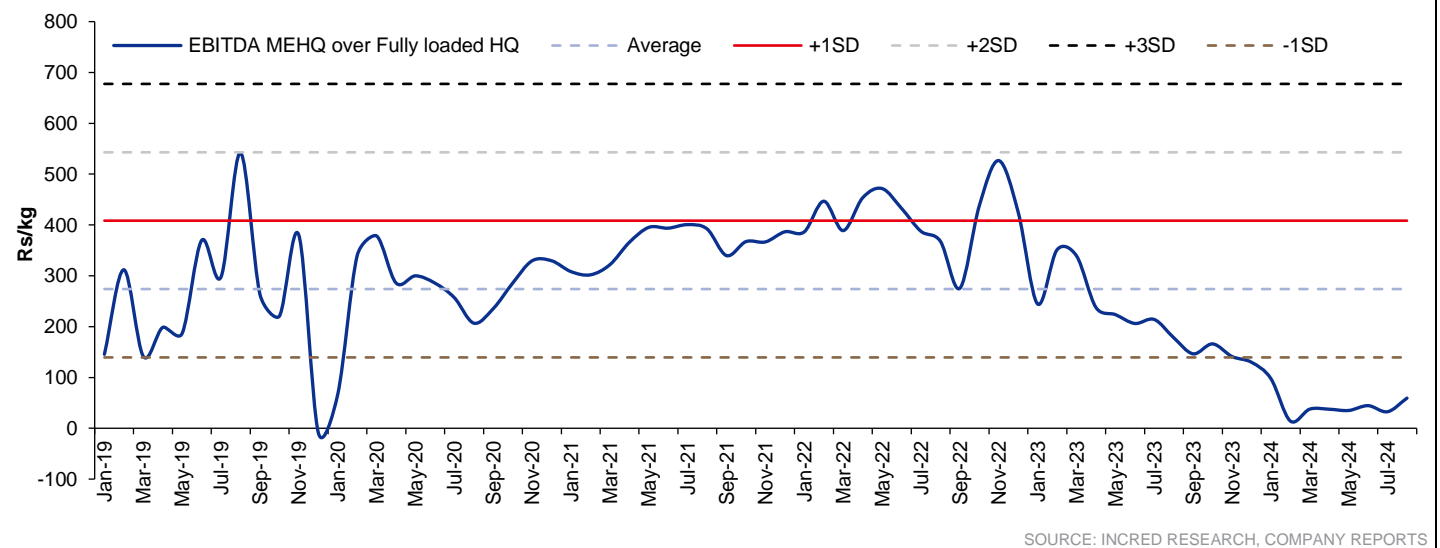
**Figure 6: Currently, catechol sells below raw material costs, and recovering the fully loaded cost of Rs250/kg is a distant possibility**



**On a fully loaded cost basis (i.e., adjusted for losses in catechol), MEHQ producers will be barely EBITDA positive**

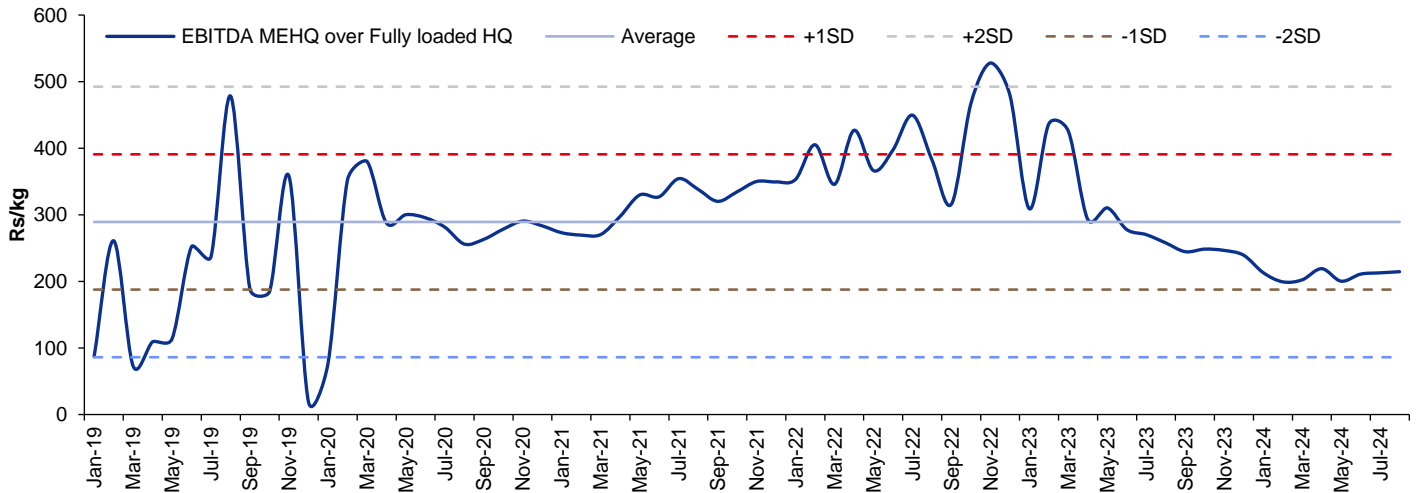
The production of diphenol (40% hydroquinone + 60% catechol) is a highly energy-intensive process. To produce 10,000tpa of diphenol, approximately 500,000 Kcal/hr of energy is required. This energy is typically supplied by burning coal and heating the thermic fluid. The production is a continuous process, and the temperature needs to be maintained above 220°C. Any drop in temperature below 220°C is disastrous for the production process, as diphenol solidifies.

**Figure 7: Assuming that integrated HQ players have no avenue to utilize catechol and accounting for catechol losses in HQ costs, they will hardly generate any EBITDA from MEHQ production**



**However, if they start producing vanillin then the scenario changes completely, with MEHQ becoming highly profitable ➤**

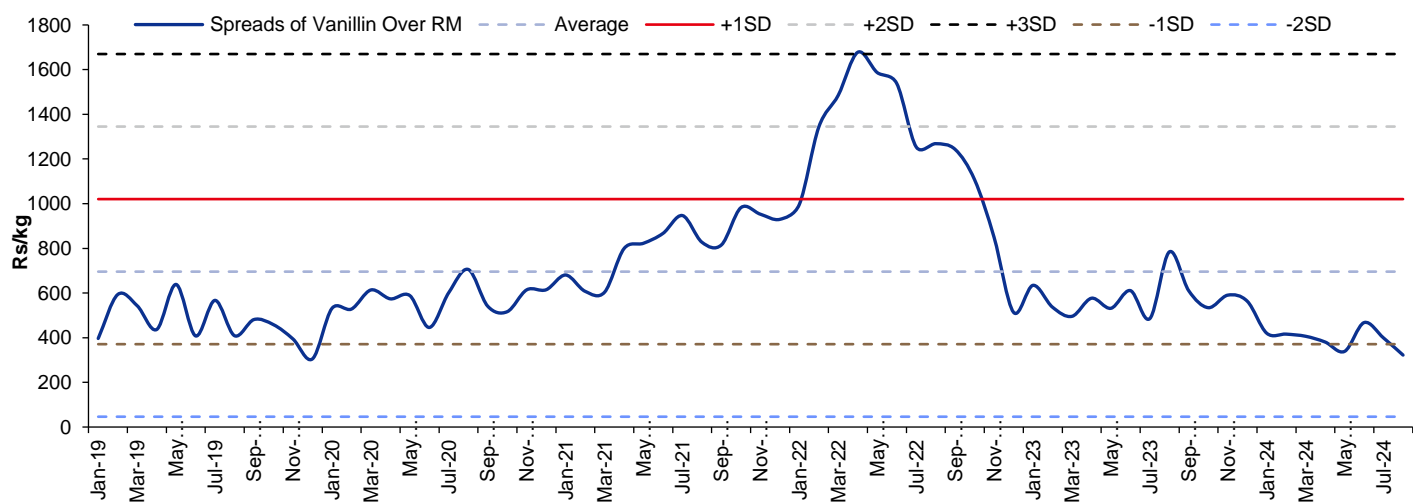
**Figure 8: Not accounting for catechol losses, MEHQ EBITDA at current prices is around Rs215/kg; this EBITDA is significantly higher than that of producers like Clean Science, who use the anisole route to produce MEHQ**



SOURCE: INCRED RESEARCH, COMPANY REPORTS

**At the same time, even at depressed prices, vanillin spreads remain high when accounting for the fully loaded cost of catechol ➤**

**Figure 9: While vanillin prices are currently depressed due to China dumping the material in the global market, Indian vanillin producers are still achieving a 40% gross margin even after accounting for the actual cost of catechol**

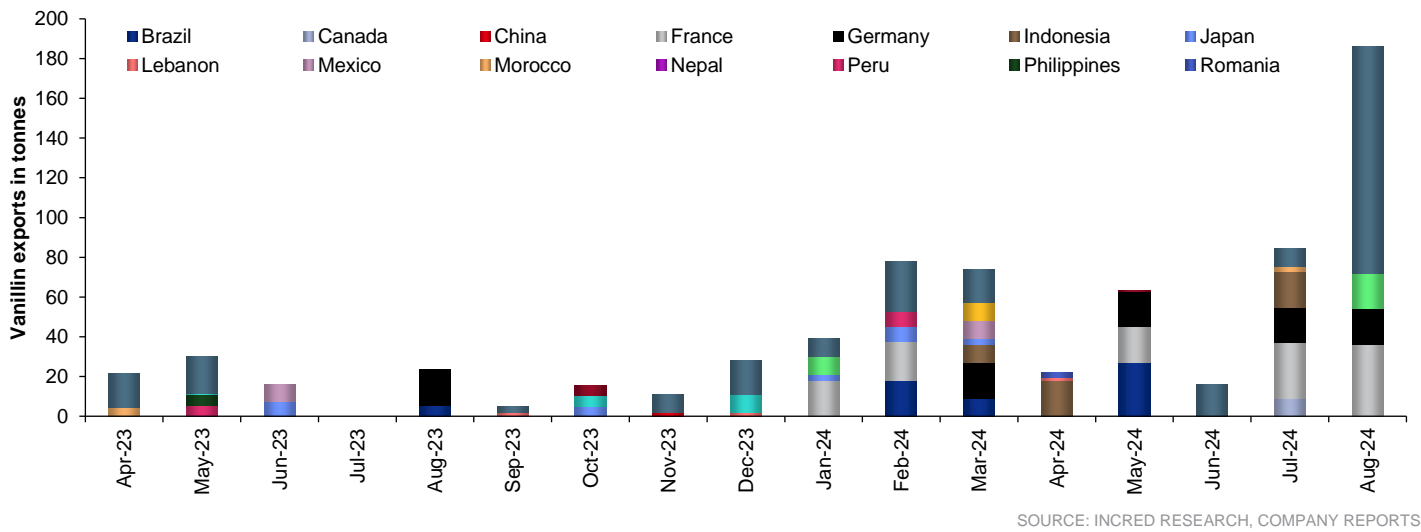


SOURCE: INCRED RESEARCH, COMPANY REPORTS

**Full ramp-up of vanillin plant will mean catechol losses need not be recovered from MEHQ sales and competition intensifies in an oversupplied Indian MEHQ market ➤**

Indian company Camlin Fine (UNRATED) has begun vanillin production, and exports have ramped up, indicating that its initial teething problems are a thing of the past. Camlin Fine has also started exporting vanillin, which is why its MEHQ spreads at current prices (on a fully loaded cost basis) are at Rs215/kg, compared to Clean Science's Rs100/kg and Vinati Organics' losses on MEHQ.

**Figure 10: Camlin Fine's vanillin plant has ramped up, which means Clean Science will face tough competition and its margins are likely to collapse in the coming quarters**



SOURCE: INCRED RESEARCH, COMPANY REPORTS

**MEHQ market is oversupplied and we have one new player Vinati Organics**

It seems the competitive dynamics in the Indian market for specialty chemicals, particularly about Clean Science and its competitors, have shifted significantly. Clean Science had an advantageous position due to the factors such as:

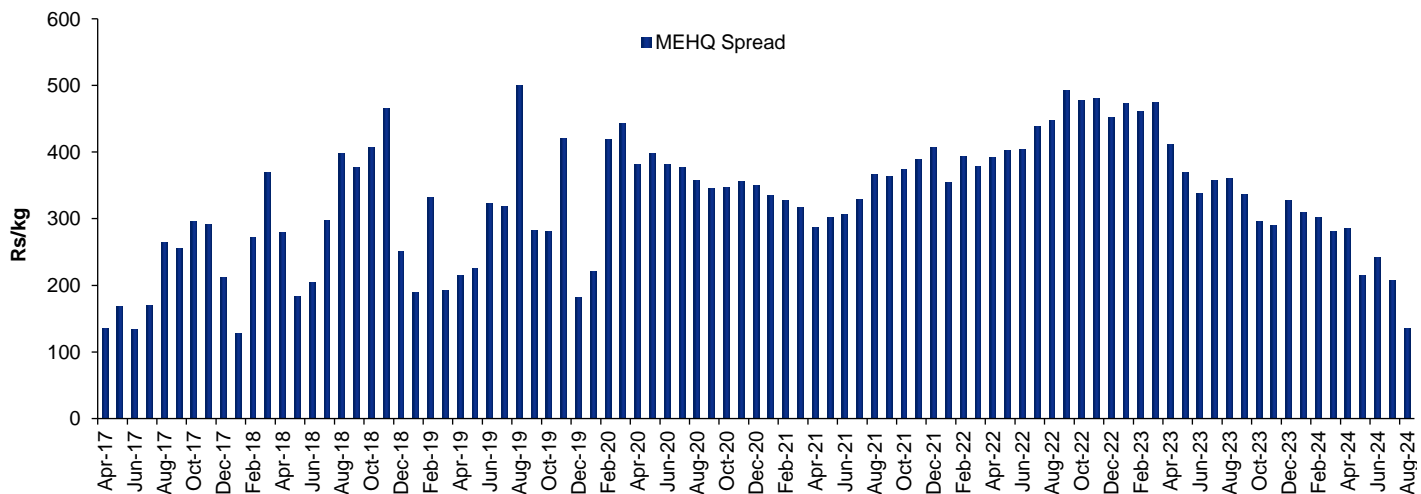
**Camlin Fine's struggles:** The company was facing elevated costs due to catechol price pressure, which affected its profitability. Catechol is a key raw material for vanillin production, and any inefficiency or cost surge can severely impact the margin.

**Vinati Organics' initial phase:** Earlier this year, Vinati Organics was relatively new in this sector and had not ramped up its production fully, and thus Clean Science faced limited competition in the segments like MEHQ (monomethyl ether hydroquinone) and vanillin.

However, with Vinati Organics' production facility now operational, the market has witnessed more supply, and this has likely led to declining spreads for MEHQ. At the same time, vanillin exports have stabilized, indicating that the supply-demand balance in that market may have also returned to a more sustainable level.

As a result, the monopoly that Clean Science enjoyed has eroded, leading to falling spreads for some of its key products like MEHQ. The competitive pressure from Vinati Organics, coupled with recovery at Camlin Fine, is driving this shift. We can expect further capacity ramp-ups or cost management strategies from these companies, which will continue to impact the market dynamics going ahead.

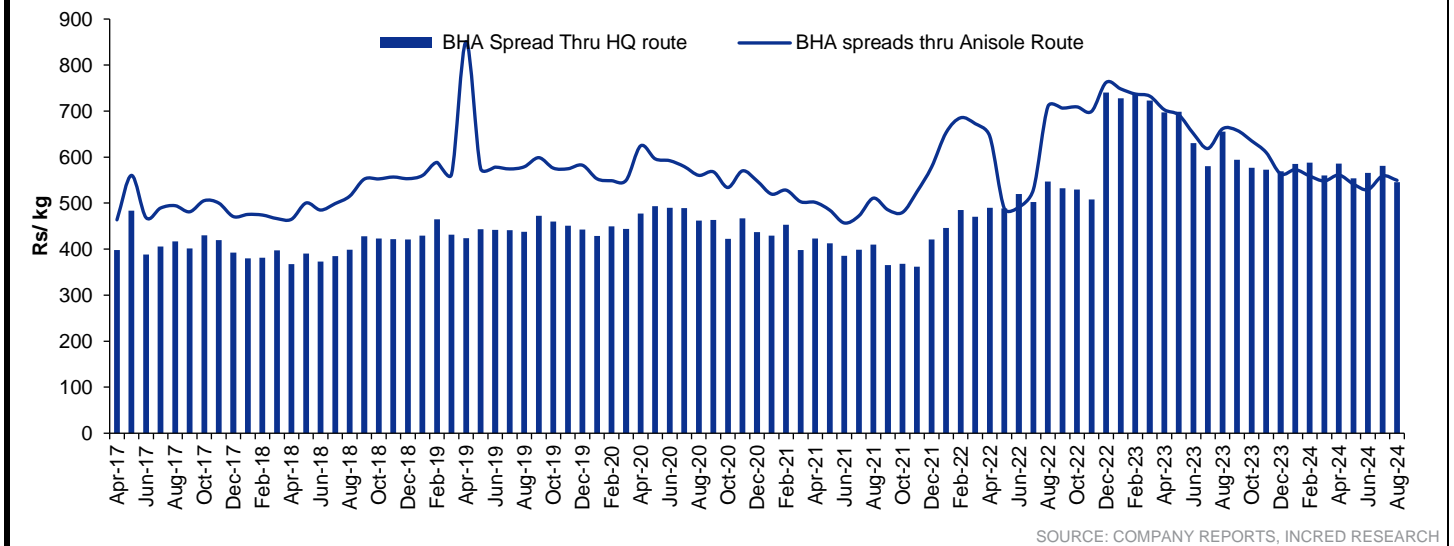
**Figure 11: Clean Science's MEHQ spreads over raw material have collapsed to last eight years' lows**



SOURCES: INCRED RESEARCH, COMPANY REPORTS

The impact of falling MEHQ prices will be felt in the BHA market as well; please note that Clean Science uses MEHQ to produce BHA, while HQ-based producers do not use MEHQ in BHA production ➤

Figure 12: As vanillin ramps up losses, HQ production will vanish, which will intensify competition in BHA as well



SOURCE: COMPANY REPORTS, INCRED RESEARCH

### The impact of the US AD on vanillin will just intensify problems for Clean Science

1. Vanillin is produced using catechol, an isomer of hydroquinone, which naturally occurs as a byproduct along with HQ during the diphenol manufacturing process. The price of catechol is so low that it doesn't even cover raw material costs. Therefore, HQ producers can only achieve profitability if they start manufacturing and sale of vanillin.
2. China is one of the largest producers of vanillin and exports approximately 3,000t of vanillin to the US, contributing to the decline in prices in the US market. As a result, the US has initiated an anti-dumping (AD) investigation into vanillin exports from China, led by the International Trade Commission (ITC). A complaint regarding this issue was filed by Solvay, and the ITC has accepted the case. Please see <https://www.trade.gov/initiation-ad-and-cvd-investigations-vanillin-china>
3. Unlike in India, anti-dumping cases in the US are resolved in a time-bound manner. Once the ITC endorses the case, it is highly likely that the Department of Commerce will impose anti-dumping duty. If the duty is imposed, it will be beneficial for Indian vanillin producers.
4. The competitive dynamics of India's MEHQ market are intense. It now seems very unlikely that players will maintain discipline. Therefore, if Camlin Fine starts making significant money in vanillin, it's almost certain that MEHQ prices will collapse further.

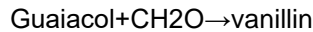
**Vanillin is produced using catechol, an isomer of hydroquinone, which naturally occurs as a byproduct along with HQ during the diphenol manufacturing process ➤**

Vanillin can be synthesized from catechol (a dihydroxy benzene) through a multi-step chemical process. Here is an outline of the method:

**Methylation of Catechol:** Catechol is first methylated to form guaiacol. This involves the reaction of catechol with a methylating agent like dimethyl sulphate or methyl iodide, leading to the formation of guaiacol (o-methoxyphenol).

$\text{Catechol} + \text{CH}_3\text{X} \rightarrow \text{Guaiacol}$  where  $\text{CH}_3\text{XCH}$  is a methylating agent such as dimethyl sulphate.

**Formylation of Guaiacol:** Guaiacol is then subjected to a formylation reaction, like glyoxalic acid and a base, to introduce a formyl group (-CHO) into the aromatic ring at the para position relative to the methoxy group. This leads to the formation of vanillin.



This step can be carried out using a process such as the Reimer-Tiemann reaction or a related formylation process.

**Purification:** Once vanillin is synthesized, it is purified using techniques like crystallization or distillation to obtain the final product. This process transforms catechol into vanillin through intermediate steps of methylation and formylation.

**Catechol, guaiacol, caustic soda, glyoxalic acid, H<sub>2</sub>SO<sub>4</sub>, toluene and iso propyl alcohol are used to produce vanillin in a two-step process ➤**

**Figure 13: Guaiacol is produced from catechol, methyl chloride, and a catalyst**

2	Guaiacol	727.27	Catechol	120-80-9	763.634	---	763.634	1.05
			Methyl Chloride	67-56-1	249.454	---	249.454	0.343
			Catalyst	---	0.727	---	0.727	0.001

**Figure 14: The second step in the synthesis of vanillin involves reacting guaiacol with caustic soda (sodium hydroxide), glyoxylic acid, and toluene**

5	Vanillin	545.45	Guaiacol	90-05-1	589.086	---	589.086	1.08
			Sodium Hydroxide	1310-73-2	1334.716	---	1334.716	2.447
			Glyoxylic Acid (50%) / Glaxal	298-12-4	709.085	---	709.085	1.3
			Sulphuric Acid	7664-93-9	1167.263	---	1167.263	2.14

M/s. JYOTI OM CHEMICAL RESEARCH CENTRE PVT. LTD., ANKLESHWAR  
Project No. 2021\_JOCRCP\_L3\_21\_0010 27

EIA REPORT OF M/s. CAMLIN FINE SCIENCES LTD., SEZ PART-II, DAHEJ, GUJARAT.

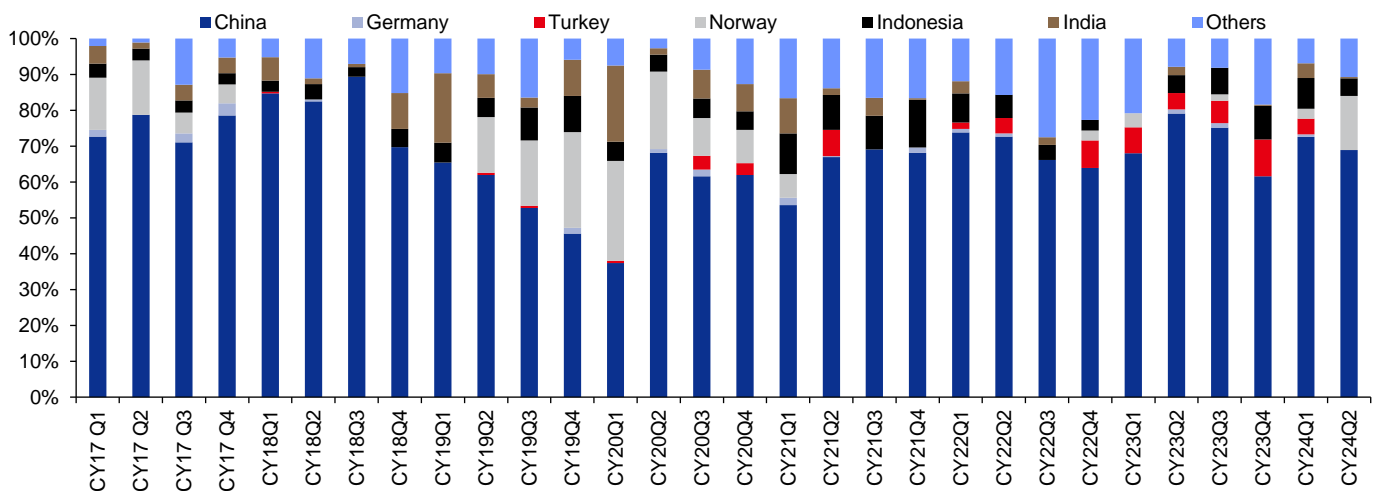
Toluene	108-88-3	19.091	---	19.091	0.0344
Cupric Oxide/Cupric Acetate	1317-38-0 /142/71/2	0.545	---	0.54545	0.001
Isopropyl Alcohol / Ethanol	67-63-0	5.455	---	5.138139	0.00942
O2	7782-44-7	156	---	156	0.28

SOURCE: INCRED RESEARCH, COMPANY REPORTS

SOURCE: INCRED RESEARCH, COMPANY REPORTS

**The US is one of the largest importers of vanillin, with Chinese vanillin accounting for 60% of its total imports ➤**

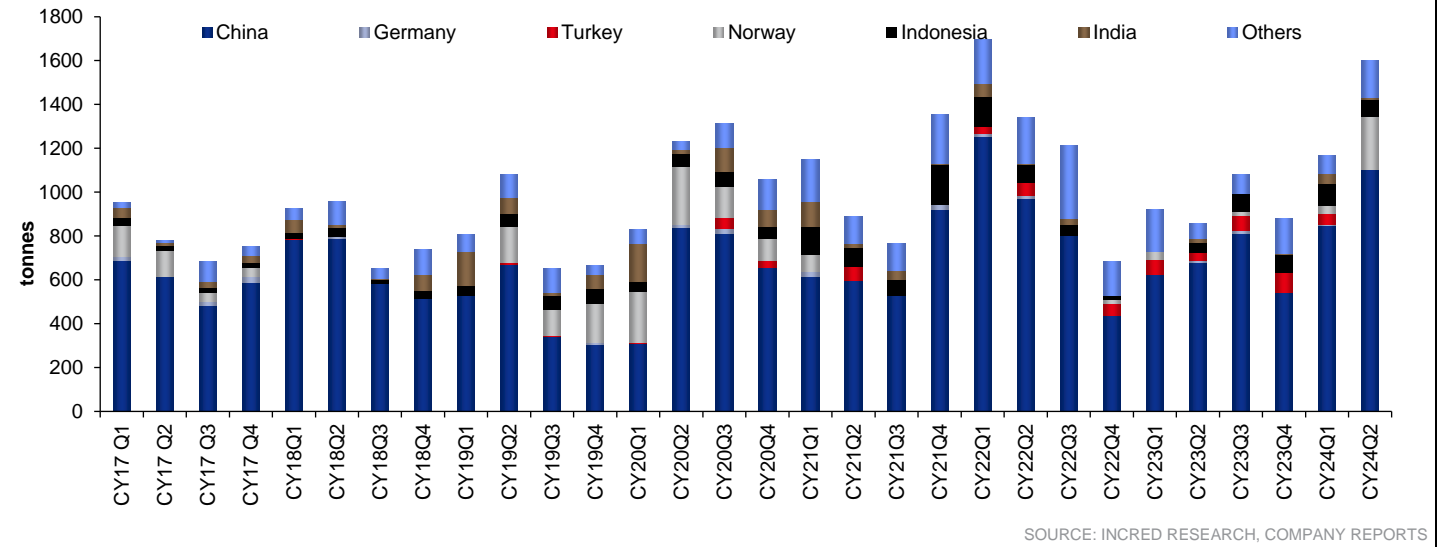
**Figure 15: Chinese vanillin accounts for approximately 60% of US imports**



SOURCE: INCRED RESEARCH, COMPANY REPORTS



Figure 16: Overall, US vanillin imports have increased significantly, with China being one of the main exporters



As a result, the US has initiated an anti-dumping (AD) investigation into vanillin exports from China, led by the International Trade Commission (ITC) ➤

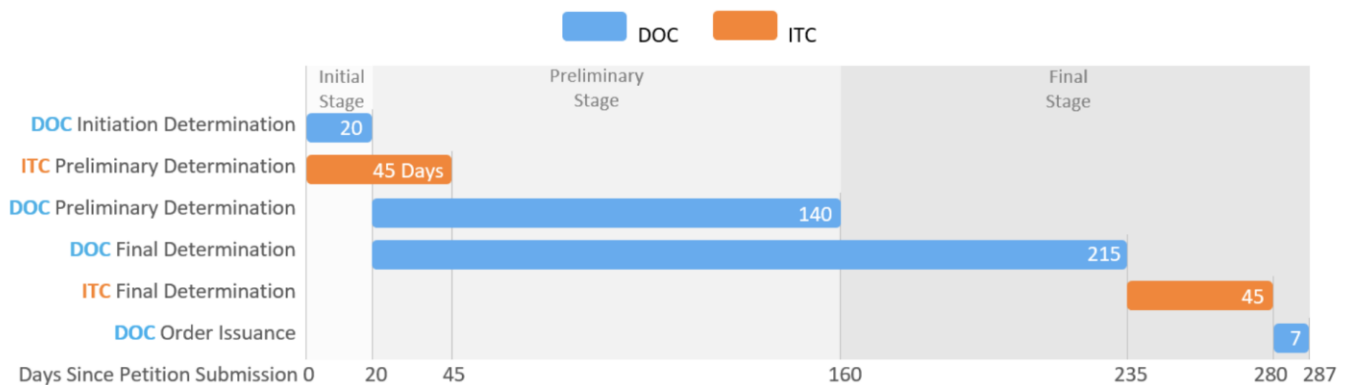
Please see the link <https://www.trade.gov/initiation-ad-and-cvd-investigations-vanillin-china>. The US International Trade Commission has found a prima facie case of dumping of vanillin by Chinese producers in the US. Please see the link [https://www.usitc.gov/publications/701\\_731/pub5527.pdf](https://www.usitc.gov/publications/701_731/pub5527.pdf)

Unlike India, the US decides CVD (countervailing duty) and AD decision in a time-bound manner ➤

Figure 17: While the Department of Commerce (DOC) will make the final decision on imposing anti-dumping duty, the DOC and the International Trade Commission (ITC) work very closely; it is highly unlikely that the DOC would not approve the decision once the ITC has made its determination; notably, the ITC has already concluded that there is a case of vanillin dumping in the US

### Permalink

#### Statutory Time Frame for Antidumping Duty Investigations



\*The DOC determination dates may be extended under certain circumstances. Note that if at any point a DOC or ITC determination (excluding the DOC Preliminary Determination) is negative, the investigation will terminate. When the DOC and ITC's final determinations are affirmative, the DOC will issue an AD order within approximately seven days after the ITC's final determination.

SOURCE: INCRED RESEARCH, COMPANY REPORTS

Imposition of AD on Chinese vanillin will open the market for Indian producers ➤

The imposition of anti-dumping duty on Chinese vanillin will open the market for Indian producers. Additionally, the imposition of countervailing duties will be a

positive development for Indian vanillin manufacturers. Camlin Fine (UNRATED) is one such producers of vanillin.

**Indian producers will gain volume at a slightly higher realization as catechol prices rise, while Chinese companies will struggle to cover even raw material costs at US prices of US\$12-13/kg ➤**

1. The US is one the biggest vanillin markets and if indications come out to be true, then Chinese vanillin will attract high anti-dumping duty, which will make it very costly.
2. At the same time, as Indian vanillin production ramps up, global oversupply of catechol will come down, thus raising its prices.
3. Solvay, and a few others, who have the filed the anti-dumping petition can make money only at a price of US\$15/ kg or more and hence, it's possible that AD on Chinese vanillin will be higher than 100%.
4. Assuming the price settles somewhere around US\$12-13/kg (currently at US\$9/kg vs. US\$15-16/kg before Chinese dumping), China will have to supply vanillin at US\$5-6/kg to remain competitive. As global catechol prices rise, it will become impossible for China to cover even the base raw material costs at US\$5-6/kg.

**Higher vanillin spreads are even more negative for MEHQ ➤**

The competitive dynamics of India's MEHQ market are intense. It now seems very unlikely that players will maintain discipline. Therefore, if Camlin Fine starts making significant money in vanillin, it's almost certain that MEHQ prices will collapse further.

## 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. INH000011024. 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. While 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 is 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 a 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

Research Analyst or his/her relative(s) or InCred Research Services Private Limited or our associate may have any financial interest in the subject company.

Research Analyst or his/her relatives or InCred Research Services Limited or our associates may have actual or beneficial ownership of 1% or more securities of the subject company(ies) at the end of the month immediately preceding the date of publication of the Research Report.

Research Analyst or his/her relative or InCred Research Services Private Limited or our associate entities may have any other material conflict of interest at the time of publication of the Research Report.

In the past 12 months, IRSPL or any of its associates may have:

- a) Received any compensation/other benefits from the subject company,
- b) Managed or co-managed public offering of securities for the subject company,
- c) Received compensation for investment banking or merchant banking or brokerage services from the subject company,
- d) Received compensation for products or services other than investment banking or merchant banking or brokerage services from the subject company

We or our associates may have received compensation or other benefits from the subject company(ies) or third party in connection with the research report.

Research Analyst may have served as director, officer, or employee in the subject company.

We or our research analyst may engage in market-making activity of the subject company.

#### 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 on 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 this report 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.

#### Recommendation Framework

##### Stock Ratings

Definition:

- Add** The stock's total return is expected to exceed 10% over the next 12 months.
- Hold** The stock's total return is expected to be between 0% and positive 10% over the next 12 months.
- Reduce** The stock's total return is expected to fall below 0% or more over the next 12 months.

*The total expected return of a stock is defined as the sum of the: (i) percentage difference between the target price and the current price and (ii) the forward net dividend yields of the stock. Stock price targets have an investment horizon of 12 months.*

##### Sector Ratings

Definition:

- Overweight** An Overweight rating means stocks in the sector have, on a market cap-weighted basis, a positive absolute recommendation.
- Neutral** A Neutral rating means stocks in the sector have, on a market cap-weighted basis, a neutral absolute recommendation.
- Underweight** An Underweight rating means stocks in the sector have, on a market cap-weighted basis, a negative absolute recommendation.

##### Country Ratings

Definition:

- Overweight** An Overweight rating means investors should be positioned with an above-market weight in this country relative to benchmark.
- Neutral** A Neutral rating means investors should be positioned with a neutral weight in this country relative to benchmark.
- Underweight** An Underweight rating means investors should be positioned with a below-market weight in this country relative to benchmark.