India

Underweight *(no change)*

Highlighted Companies

Deepak Fertilisers & Petrochemicals Corp. Ltd.

ADD, TP Rs2051, Rs1146 close

Robust earnings growth with attractive valuation: Earnings are projected to grow at a CAGR of ~68% over FY24-FY28F, driven by capacity expansion and favourable demand outlook in mining and specialty chemicals. At a forward P/E of 14.8x FY27F EPS, the target price of Rs2,051 offers a significant upside of ~72.6% from the current market price.

Summary Valuation Metrics

P/E (x)	Mar25-F	Mar26-F	Mar27-F
Deepak Fertilisers & Petrochemicals Corp. Ltd.	14.29	12.37	8.27

P/BV (x)	Mar25-F	Mar26-F	Mar27-F
Deepak Fertilisers & Petrochemicals Corp. Ltd.	2.34	2.05	1.72

Dividend Yield	Mar25-F	Mar26-F	Mar27-F
Deepak Fertilisers & Petrochemicals Corp. Ltd.	0%	0%	0%

Chemicals - Others

NH3 and NH4NO3 spreads likely to go up

- Spreads of NH_3 (ammonia) and NH_4NO_3 (ammonium nitrate) over natural gas and ammonia, respectively, are expected to expand from their current levels.
- Due to lack of inventory, Russian exports of NH_4NO_3 will decline in 2025F and starting 2026F, European production of grey NH_3 ,NH_4NO_3 to become unviable.
- Ammunition shortage across NATO countries will trigger nitric acid and ammonium nitrate demand and that too, when supply is dwindling in Europe.

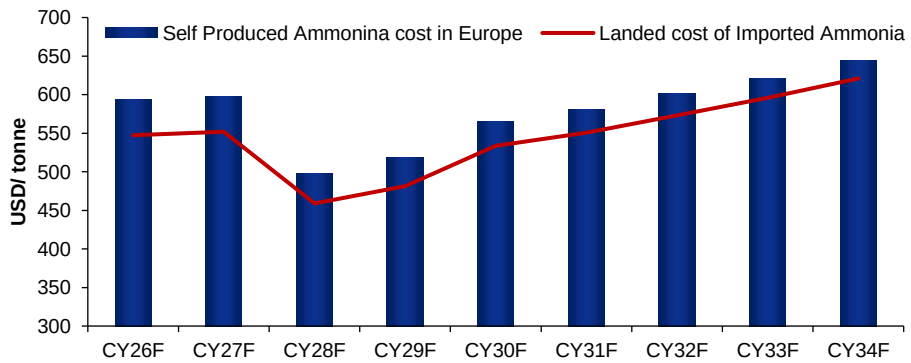
Ammonia and ammonium nitrate prices to go up in the near term

Contrary to popular belief, our analysis indicates that ammonium nitrate will not overflow in the global market. In fact, Russian exports are dwindling, as they exported in large quantities to Peru earlier during the year and, as of now, they will need production for internal consumption only. In fact, 2025F is likely to see lower ammonium nitrate imports in India compared to 2024, and much lower compared to 2023. Globally, the situation will begin to worsen in 2026F. Europe will introduce the ETS (Emission Trading Scheme) and CBAM (Carbon Border Adjustment Mechanism) from 2026, which will mean that ammonia, nitric acid, and ammonium nitrate production costs in Europe will rise significantly. In fact, our analysis indicates that Europe will be better off importing ammonia rather than producing it. Therefore, ammonia spreads over natural gas will rise and hence, the prices of ammonium nitrate and nitric acid will also rise. Please note that Europe still produces approximately 12mt of ammonia, which is used to produce ammonium nitrate and nitric acid. As ammonia prices rise, the prices of ammonium nitrate and nitric acid will also follow suit. In fact, if the war in Europe ends, ammonium nitrate consumption in Ukraine and Russia will rise significantly as the countries rebuild. Also, note that NATO countries as well as the US are suffering from a chronic shortage of ammunition, and ammonium nitrate and nitric acid consumption will rise exponentially in coming months as these countries replenish their ammunition stock.

CBAM & ETS are biggest triggers for the rise in NH_3 & NH_4NO_3 prices

Europe is introducing CBAM and ETS. While importers will have to pay full emission charges, domestic production will face carbon charges determined by the difference between actual and allowed emissions. Over time, free carbon allocations will be reduced to zero by 2034, and CBAM charges, which start at 2.5% of emissions in the manufacturing of ammonia, will reach 100% by 2034. Please note that Europe imports ~6mt of ammonia, and most of the older plants in Europe consume more gas to produce ammonia than newer plants in Asia. As a result, Europe's domestic production costs will keep rising, making imported ammonia and ammonium nitrate cheaper. Unless there is a significant technological breakthrough in green ammonia technology that can bring costs down to US$500/t, European ammonia output—currently about 7% of global output—will continue to fall. With new grey ammonia capacity not coming online at the same pace (to cater to increased demand & reduced European production), we are likely to face a tight ammonia market and consequently, tight ammonia product markets, for the next decade.

Figure 1: After CBAM and ETS adoption (2026), ammonia production in Europe to become unviable



SOURCE: INCRED RESEARCH, COMPANY REPORTS

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NH_3 and NH_4NO_3 spreads likely to go up

As mentioned in our *Money, Military, and Markets – VII report*, when Donald Trump assumes office as US president, he is likely to cut off war supplies to Ukraine, setting the stage for a Trump-brokered peace in Europe. Some signs of this are already visible in the media, as Russian President Vladimir Putin has reportedly stated that he is “ready for peace talks without any preconditions.” Investors fear that if the war in Europe ends, Russia may start dumping ammonium nitrate in India. However, we would like to point out that, barring 2023, Russian exports to India have never exceeded 200kt. Even in 2023, when alternative supply chains were not established, Russia dumped only 180kt in in 1Q2023, which exerted significant pressure on prices. Such a scenario is unlikely to occur again, as Russian domestic and overseas demand remains robust, and Russia is not currently carrying ammonium nitrate inventory. Additionally, Henry Hub prices are unlikely to rise significantly, as Trump’s policies, in his own words, emphasize 'Drill, baby, drill.’

Ammonium nitrate prices likely to rise

Contrary to popular belief, our analysis indicates that ammonium nitrate will not overflow in the global market. In fact, Russian exports are dwindling, as they exported in large quantities to Peru earlier during the year and, as of now, they will need production for internal consumption only. In fact, 2025F is likely to see lower ammonium nitrate production in India compared to 2024, and much lower compared to 2023. Globally, the situation will begin to worsen from 2026F. Europe will introduce ETS and CBAM from 2026, which will mean that ammonia, nitric acid, and ammonium nitrate production costs in Europe will rise significantly. In fact, our analysis indicates that Europe will be better off importing ammonia rather than producing it. Therefore, ammonia spreads over natural gas will rise and hence, the prices of ammonium nitrate and nitric acid will rise. Please note that Europe still produces approximately 13mt of ammonia, which is used to produce ammonium nitrate and nitric acid. As ammonia prices rise, the prices of ammonium nitrate and nitric acid will follow suit. In fact, if the war in Europe ends, ammonium nitrate consumption in Ukraine and Russia will rise significantly as the countries rebuild. Also, note that North Atlantic Treaty Organization or NATO countries as well as the US are suffering from a chronic shortage of ammunition, and ammonium nitrate and nitric acid consumption will rise exponentially in coming months as these countries replenish their ammunition stock.

Ammonium nitrate is a versatile chemical with multiple usage ➤

Ammonium nitrate (NH_4NO_3) is a versatile chemical compound with a wide range of uses across industries, particularly due to its role as a powerful oxidizer. Given below are its key applications:

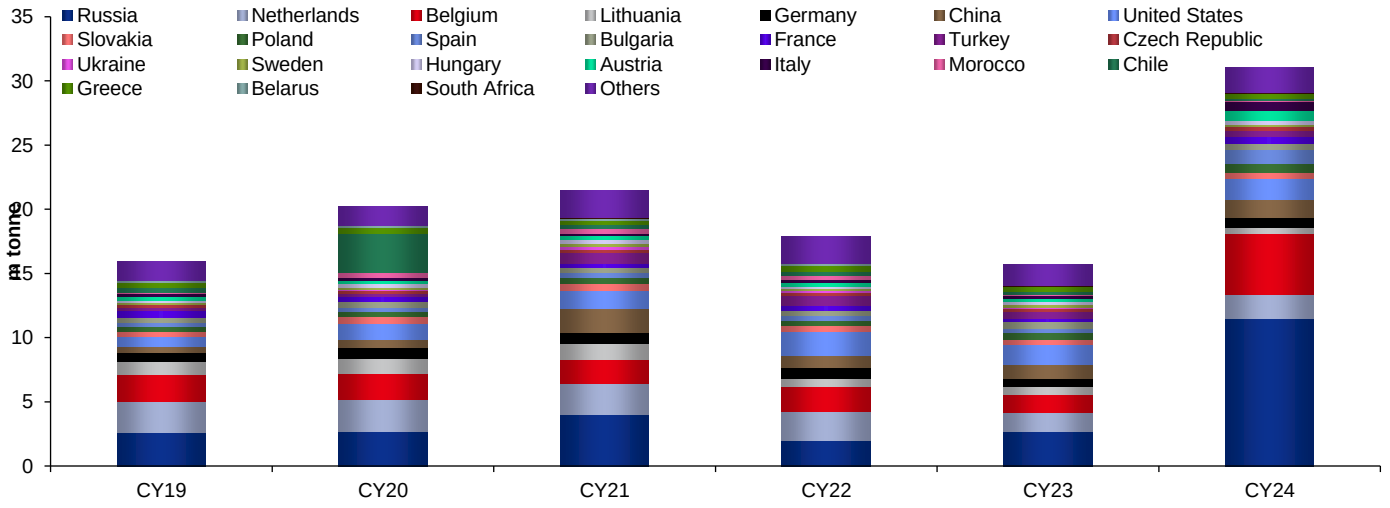
1. **Fertilizer industry:** Ammonium nitrate is one of the most used nitrogen-based fertilizers globally, contributing to agricultural productivity.
2. **Explosives:** Ammonium nitrate's ability to rapidly release oxygen makes it a critical component in explosive formulations.
    a. **Industrial explosives:** Used in **ANFO (ammonium nitrate fuel oil)**, the most widely used industrial explosive in mining, quarrying, and construction. Provides consistent energy output for controlled blasts.
    b. **Military explosives-military grade TAN:** Used in specific formulations for warheads, bombs, and other ordnance. Combined with other chemicals to produce high-energy explosives.
    c. **Improvised explosive devices (IEDs):** Unfortunately, ammonium nitrate is also misused for illicit purposes. As a result, its sale and distribution are heavily regulated in many countries.

3. **Medical and pharmaceutical applications - A) cold packs:** Ammonium nitrate is a component in instant cold packs used for injuries. When mixed with water, it absorbs heat, providing a cooling effect. **B) Drug synthesis** -Used in specific pharmaceutical manufacturing processes.
4. **Laboratory reagent:** Ammonium nitrate serves as a chemical reagent in laboratories for experiments requiring a strong oxidizer.
5. **Rocket propellants:** A component in solid rocket propellants due to its oxidizing properties.
6. **Pyrotechnics:** Used in the production of fireworks and other pyrotechnic displays. Helps produce vibrant colours and powerful bursts.
7. **Soil improver:** Used to improve soil pH and texture in non-agricultural lands, such as in land reclamation projects.
8. **Refrigeration:** Found in cooling solutions for industrial and medical applications.

Unlike the popular belief, many European countries are also big exporters of ammonium nitrate ➤

It is commonly assumed in the investor community that Russia is the sole exporter of ammonium nitrate; however, multiple European nations are also major exporters of ammonium nitrate.

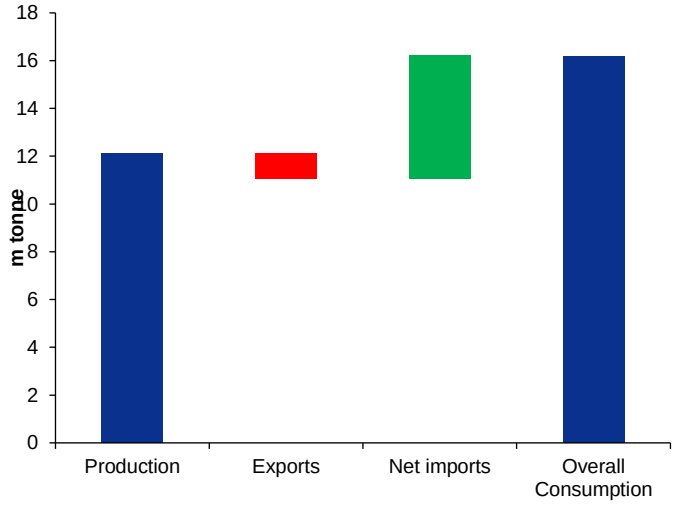
Figure 2: Globally, approximately 20mt of TAN is traded; while Russia is one of the principal exporters, there are multiple countries that export more than Russia



SOURCE: INCRED RESEARCH, VOLZA

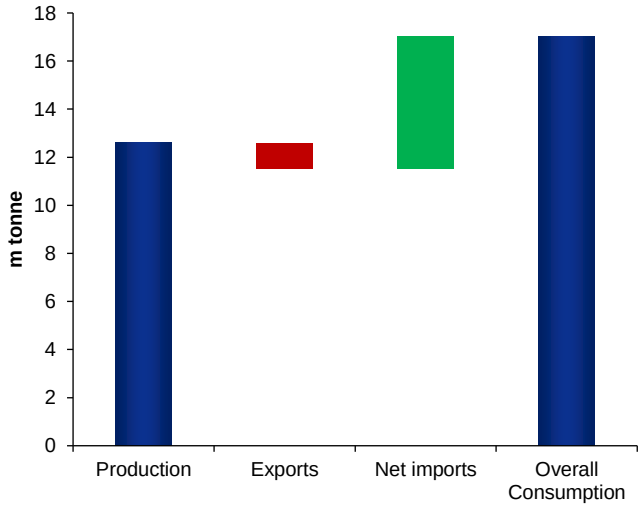
Please note that Europe is struggling with ammonia production capacity, which will make it difficult for them to continue producing ammonium nitrate from 2025F »

Figure 3: European ammonia imports are likely to be ~5mt…



SOURCE: INCRED RESEARCH, COMPANY REPORTS

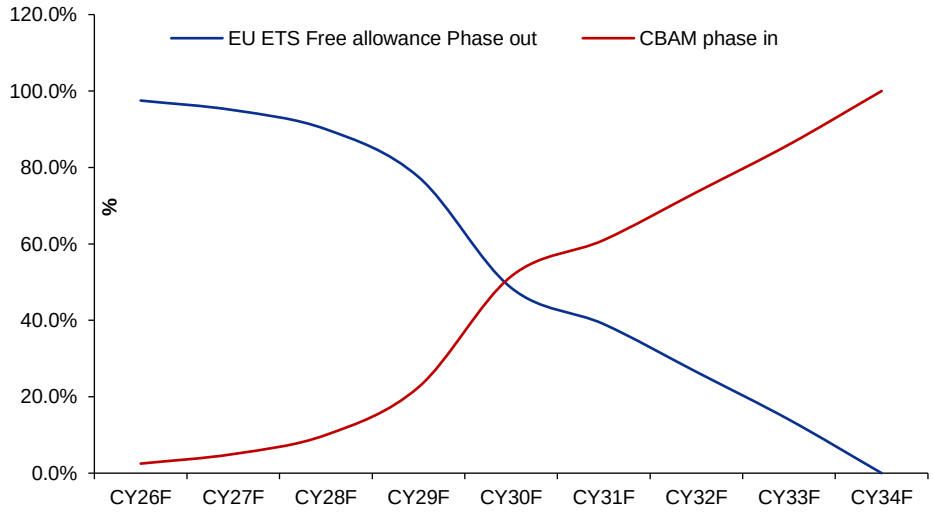
Figure 4: …which will increase to 5.5mt in CY25F



SOURCE: INCRED RESEARCH, COMPANY REPORTS

At the same time, CBAM is kicking in, which will raise ammonia costs for Europe»

Figure 5: The CBAM will kick in from 2026, making ammonia imports more difficult and costlier, with an increase of 2.5% in CY26F, gradually rising to 50% by 2030F



SOURCE: INCRED RESEARCH, HTTPS://WWW.MDPI.COM/ENGPROC/ENGPROC-64-00015/ARTICLE_DEPLOY/HTML/IMAGES/ENGPROC-64-00015-G002.PNG

ETS is a death blow for European ammonia production »

The number of free allowances an ammonia plant in Europe receives under the EU Emissions Trading System (ETS) depends on its benchmark emissions intensity and actual production levels.

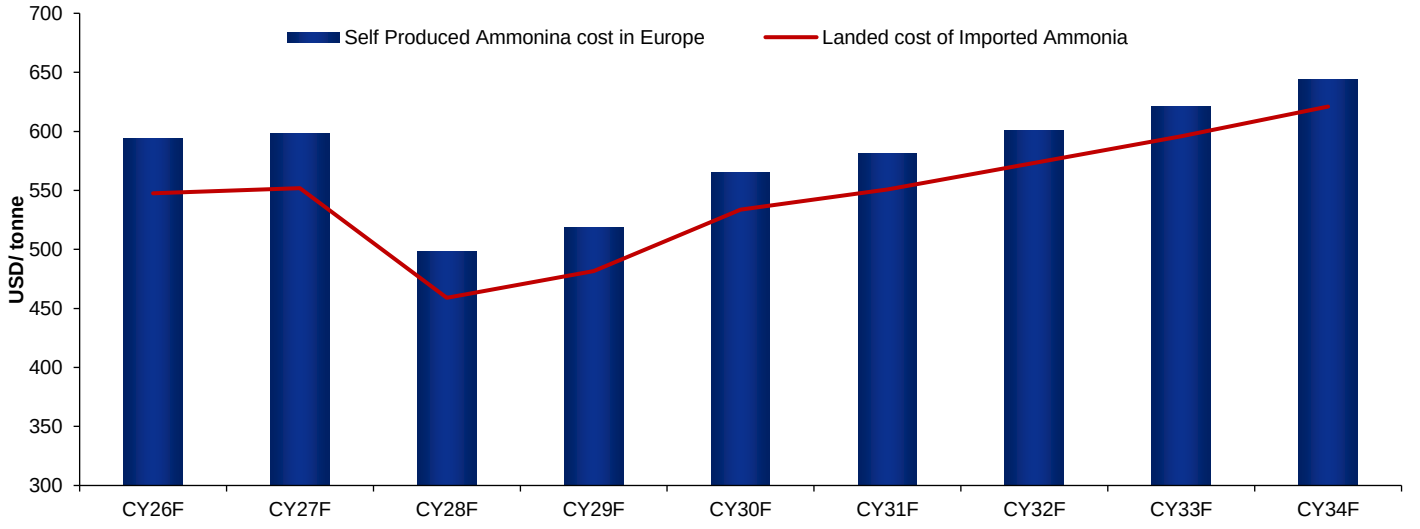
1. **Benchmarking**
   - A. The EU sets **benchmark emissions intensity** for each sector, representing the top-performing (lowest-emitting) 10% of installations in the EU.
   - B. For ammonia production, the benchmark is based on the emissions from producing **one tonne of ammonia** using the most efficient technologies.
   - C. The current benchmark for ammonia is **1.619t of CO_2 equivalent per tonne of ammonia produced** (as of ETS Phase-4, subject to periodic updates).

2. **Actual production**
   A. Free allowances are allocated based on the **actual production level** of the plant during a reference period.
   B. If a plant produces **100,000t of ammonia annually**, the free allowances are calculated using the benchmark: Free Allowances=Benchmark × Production Volume
3. **Reduction factors**
   A. **Carbon leakage list**: Ammonia production is classified as being at a high risk of carbon leakage, and so it qualifies for 100% of the benchmark in free allowances.
   B. **Cross-sectoral correction factor**: If the total demand for free allowances exceeds the available cap, a proportional reduction (correction factor) may apply to all sectors.
4. **Free allowance decline over time**
   1. To align with climate targets, the **benchmarks decline annually** (e.g., ~1.6% reduction per year in Phase-4) to incentivize efficiency improvement.
   2. For ammonia:
      a. If the benchmark started at **1.619 tCO_2/t NH_3** in 2023, it might reduce to **1.585 tCO_2/t NH_3** by 2026F.
5. **Implications for ammonia plants:** Plants that emit less than the benchmark per tonne of ammonia can sell surplus allowances or save them for future use. Plants that emit more must purchase additional allowances to cover the excess emissions.

Because of outdated technology, after the advent of ETS and CBAM in 2026, many European ammonia plants will close down ➤

1. After the advent of ETS, it will make sense to import ammonia in the first couple of years rather than produce ammonia.
2. From 2027, as global LNG prices should fall to around US$7-8/mmBtu and with more LNG capacity coming online, it will be difficult for the prices to recover in the long term. We can work with Europe gas prices at US$8/mmBtu.

Figure 6: It doesn't make sense to produce ammonia in Europe after the advent of CBAM and ETS schemes



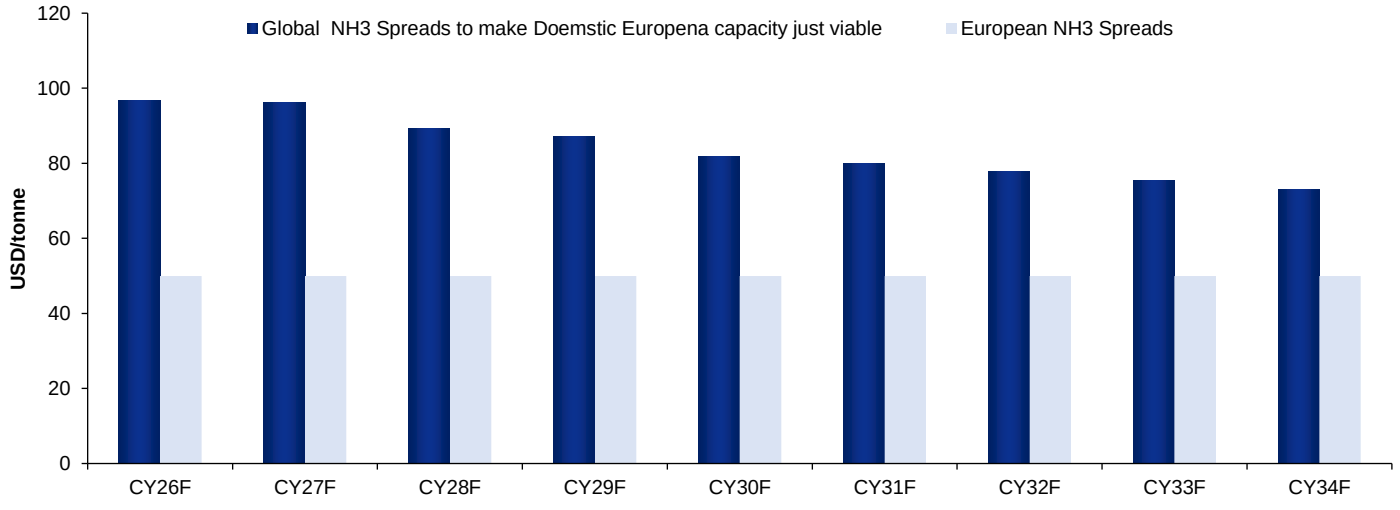
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Old ammonia plants in Europe present a significant challenge under the Emissions Trading System (ETS), as they emit substantially more CO_2 than the benchmark levels set by the European Union (EU). These benchmarks determine the free allocation of carbon allowances, and plants emitting above these levels face the burden of purchasing additional allowances, leading to higher production costs.

1. **Outdated technology and high emissions:**
   - Older plants use less efficient processes, consuming more natural gas and emitting more CO_2 compared to newer, state-of-the-art facilities.
   - These plants are unable to meet the benchmark emissions levels, resulting in **higher carbon credit costs**.
2. **Rising carbon prices:**
   - The EU ETS carbon price has been trending upwards, exceeding €90 per tonne of CO_2 in recent years, which disproportionately affects high-emission plants.
   - Ammonia producers with older facilities must either invest in carbon allowances or undertake costly retrofitting.
3. **Lack of retrofitting:**
   - Many companies hesitate to invest in retrofitting old plants due to high capital expenditure and uncertain returns, especially in a market with fluctuating demand.
4. **Competitive disadvantage:**
   - European ammonia producers face competition from regions without stringent carbon regulations, such as the Middle East and Russia, where production is more cost-effective due to lower energy costs and the absence of carbon pricing.
5. **Impact on exports and fertilizer supply chain:**
   - The high cost of ammonia production in Europe could reduce export competitiveness, shifting market share to producers in regions with lower costs.
   - Fertilizer prices in Europe may rise, further straining agricultural sectors.

Please note that in order to avoid the closure of European ammonia plants, the landed cost of ammonia should converge with domestic prices ➤

Figure 7: At all points in time, global ammonia spreads will be higher than European spreads



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Rising ammonia prices will exert pressure on nitric acid cost ➤

Rising ammonia prices can indeed exert pressure on the cost of nitric acid production. Nitric acid is primarily produced through the Ostwald process, which involves the oxidation of ammonia in the presence of oxygen to form nitric oxide, which is then further oxidized to nitrogen dioxide and absorbed in water to produce nitric acid.

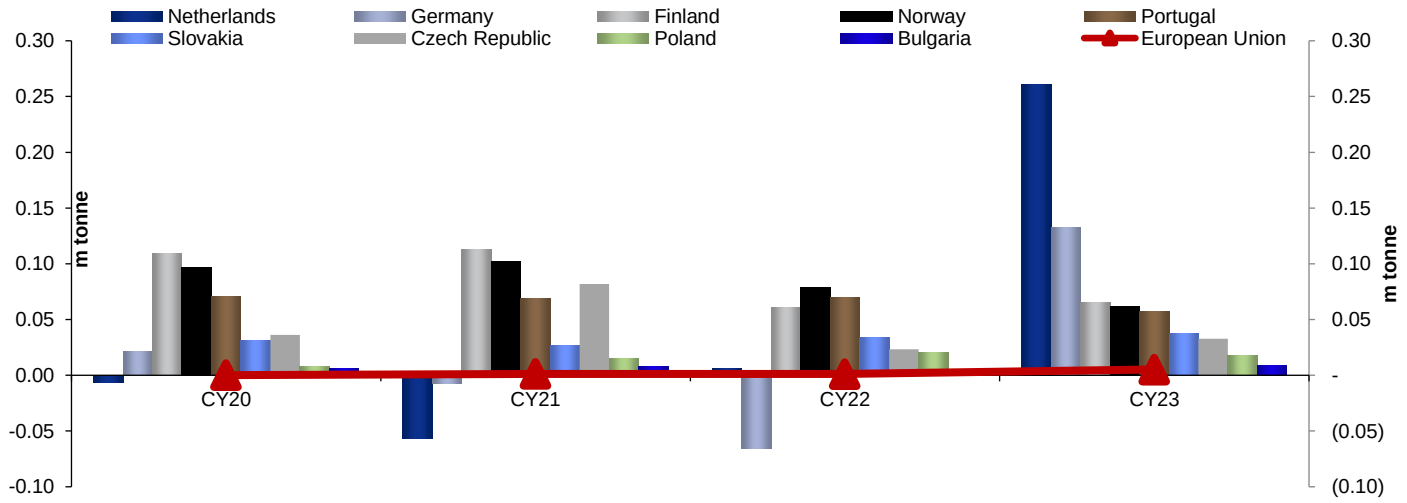
As ammonia is a key raw material in this process, any increase in its prices directly impacts the production cost of nitric acid. This can lead to higher prices for nitric

acid, which may affect industries that rely on it, such as fertilizers, explosives, and various chemical manufacturing entities.

In summary, as ammonia prices rise, the overall cost structure for nitric acid producers will become more expensive, likely resulting in higher prices for end-consumers and potentially squeezing margins of companies producing or using nitric acid.

Please note that Europe is self-sufficient in nitric acid but with the rise in ammonia cost, this competitiveness will vanish in coming years»

Figure 8: Multiple European countries are exporters of nitric acid to neighbouring countries, while the European continent remains balanced; however, in the coming period, they will have to import nitric acid because of rising ammonia costs

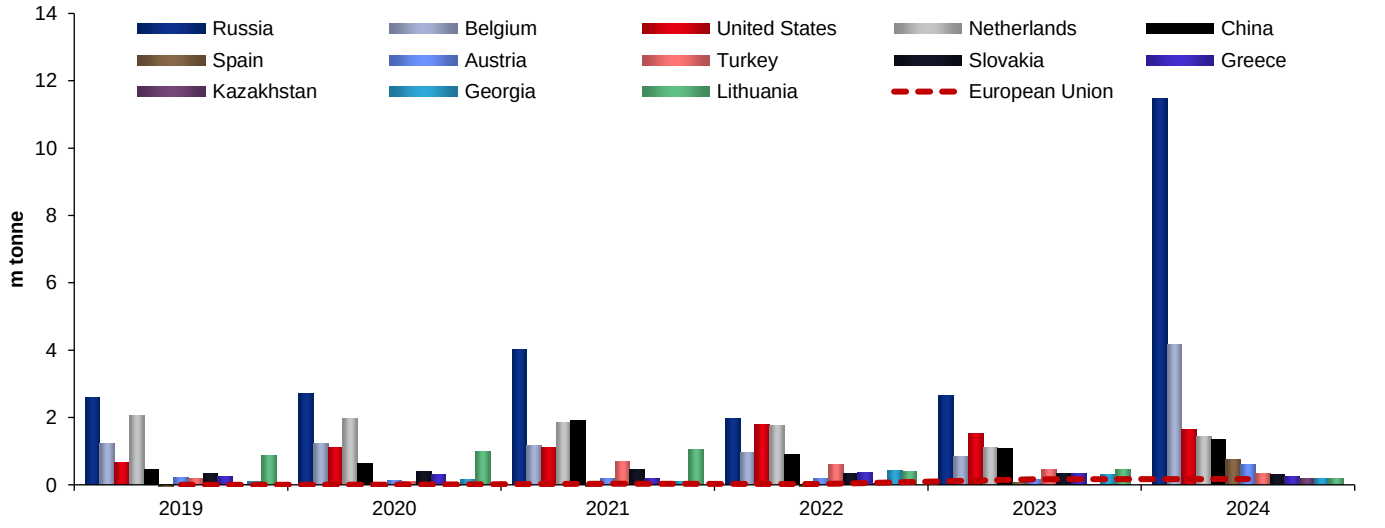


SOURCE: INCRED RESEARCH, COMPANY REPORTS

High-cost nitric acid can make fertilizers costly, as well as ammonium nitrate »

In this scenario, Europe can almost forget exporting ammonium nitrate to the outside world.

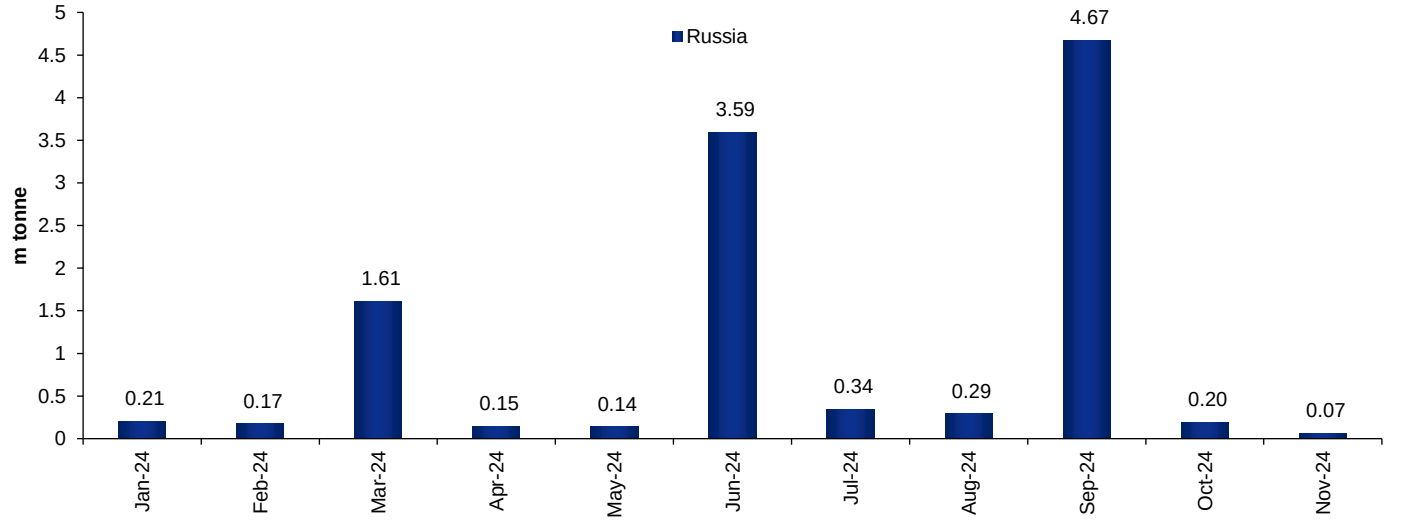
Figure 9: Like nitric acid, Europe is self-sufficient in ammonium nitrate and net exports to outside countries are only 0.17mt



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Russian exports have declined significantly in the past few months »

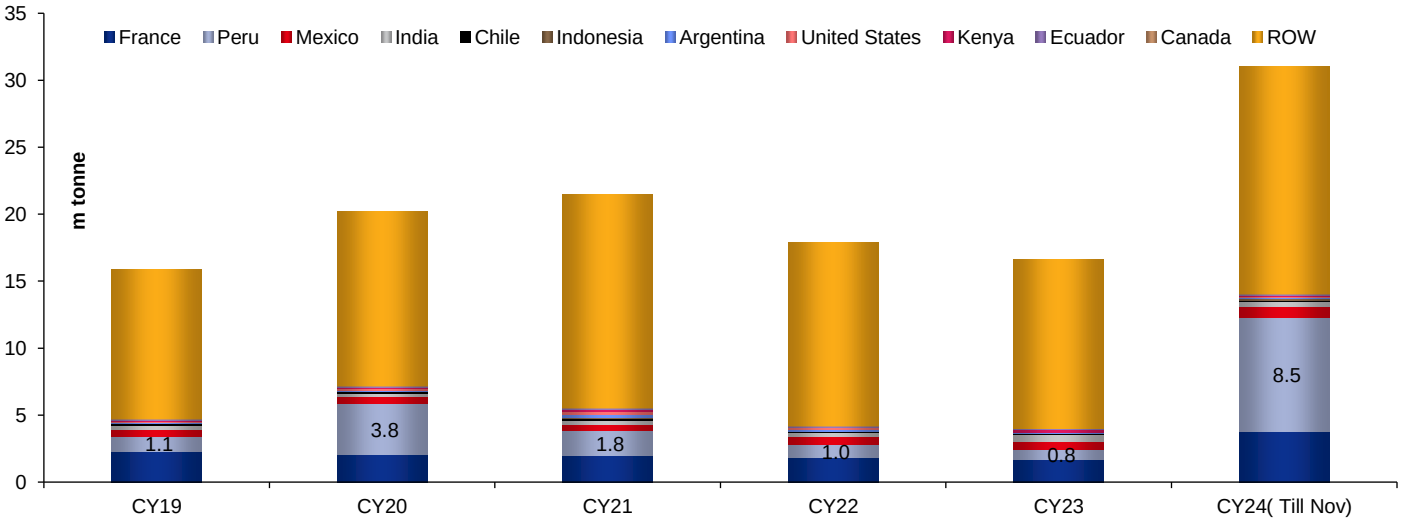
Figure 10: Russian inventory of ammonium nitrate seems to have depleted



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Peru has bought lots of material from the open market at very low prices, which may be of sub-standard quality »

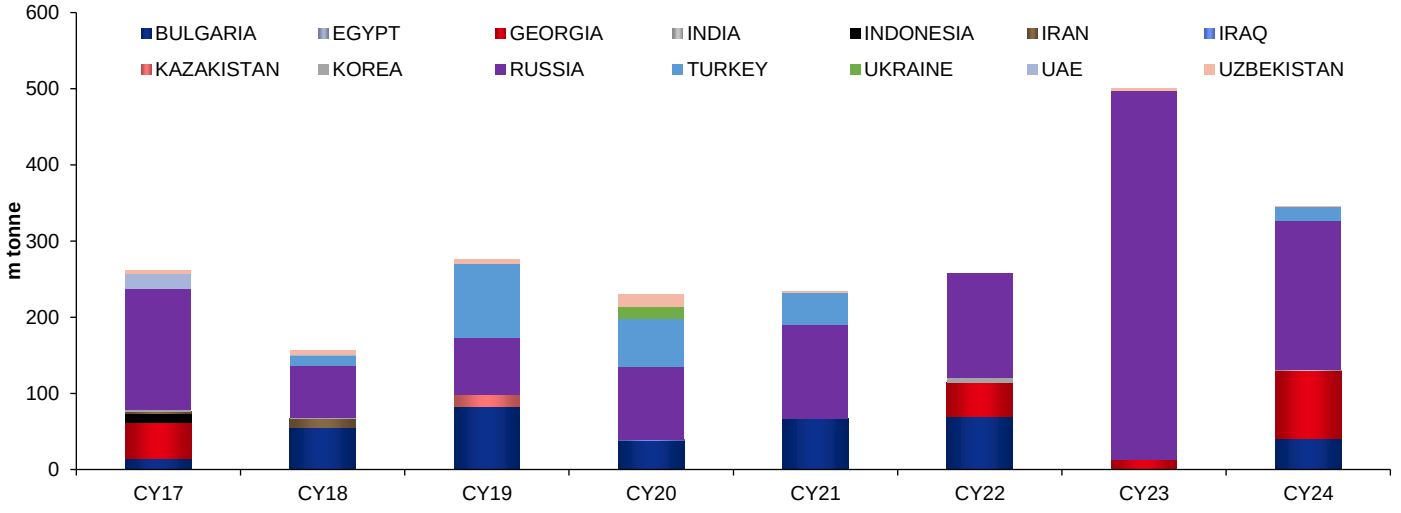
Figure 11: Russian exports must have mostly gone to Peru



SOURCE: INCRED RESEARCH, COMPANY REPORTS

A major portion of ammonium nitrate comes to India from Russia ➤

Figure 12: Prior to CY23, India was never flooded by imports from Russia; here flooding means 3x imports vis-à-vis CY22 level



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Please note that after the war ends and both Russian and Ukrainian rebuilding begins, there will be even higher consumption of NH_4NO_3 in domestic market, leading to even lower exports ➤

The rebuilding efforts in both Russia and Ukraine following the war will indeed increase domestic demand for ammonium nitrate (NH_4NO_3), potentially leading to reduced exports as the supply is diverted to meet the growing local needs. This could affect global supply dynamics, potentially driving up prices and creating tighter markets for ammonium nitrate. It would be important to monitor the pace of recovery in these regions to gauge the full impact on both demand and pricing trends.

Ammunition shortage across the Western world will trigger nitric acid and ammonium nitrate demand

The lack of running production capacity to supply war materials to Ukraine has led to a massive reduction in the warfighting reserves of NATO countries, most notably the US. The US is facing a chronic shortage of warfighting ammunition and, as of now, may not be in a position to fight a conventional war on any other front. Both the US and Europe will take years to replenish these stocks. This will require a significant increase in nitric acid consumption across the world. Rising nitric acid demand and the ammonia squeeze in Europe will lead to much higher prices of ammonia and nitric acid.

US manufacturing capacity of Howitzer shells was surprisingly low in Feb 2022 ➤

In Feb 2022, when the Russia-Ukraine war started, the US was manufacturing about 14,000 shells a month or around 168,000 shells a year. It is a minuscule number in comparison to the US needs and indicate the deterioration of the conventional warfighting ability of the global military leader.

Remember that US is the main ammunition supplier to Ukraine in the Russia-Ukraine war ➤

The US has emerged as the primary supplier of ammunition and weaponry to Ukraine during the Russia-Ukraine war, with significant impacts on logistics, defence production, and geopolitics.

1. Logistics of ammunition supply
   A. The US has committed over US$40bn in military aid to Ukraine, with a significant portion allocated to ammunition.
      a. 155mm artillery shells: Critical for long-range artillery systems like the M777 Howitzer.
      b. HIMARS rockets: High Mobility Artillery Rocket Systems (HIMARS) for precision strikes.
      c. Small arms ammunition: For infantry and support weapons.
      d. Anti-aircraft systems: Including Stingers and Patriot missiles.
      e. Tank rounds: For modern systems like the Abrams tanks.
   B. Stockpile strain - High rate of consumption in the Ukraine war has strained the explosive stockpile of the US in particular, and NATO in general.
      a. High consumption rates in Ukraine have stressed US and NATO ammunition stockpiles.
      b. For example, Ukraine has been firing 6,000–7,000 rounds daily, compared to NATO's planned rates.
2. Impact on US defence production to keep on increasing
   A. To replenish US and allied stockpiles while meeting Ukraine's needs, manufacturers have significantly scaled production:
   B. 155mm artillery shell production has increased from 14,000/month to over 24,000/month, with a goal of 85,000/month by 2028F.
   C. Javelin anti-tank missiles and HIMARS rockets have seen expanded production lines.
3. Industrial bottlenecks
   A. Raw materials: Shortage of explosives and specialized metals, such as ammonium perchlorate (used in rocket propellants), have caused delays.
   B. Labour shortage: Defence manufacturing faces challenges in recruiting skilled workers.
   C. Supply chain disruption: The global semiconductor shortage has impacted production of guided munitions.
4. Stockpile depletion - The US faces the risk of depleted ammunition reserves, potentially impacting readiness for other conflicts (e.g., with China over Taiwan).

NATO as well as the US are suffering from a chronic shortage of ammunition, which requires ammonium nitrate and nitric acid ➤

As of now, the US is producing 40,000 Howitzer shells per month, which translates into 1,330 shells per day. Remember that Ukraine is firing at least 8,000 shells per day, which means the daily stock pile is getting ~3,000 shells.

1. Also for the initial 24 months, the US was producing only 500 shells per day.
2. The initial firing rate of Ukraine was well exceeding 10,000 shells per day.
3. This means that NATO would have lost at least 6.6m shells from their stock pile in first couple of years.
4. In the last 12 months, the loss is around 2.2m shells.
5. On an overall basis, the NATO stock pile has reduced by ~9m shells.

Just replenishing the Howitzer shell stockpile will mean extra nitric acid-related demand for 0.2mt of ammonia ➤

One standard 155 mm shell contains around 10kg of RDX or highly explosive agent. 1kg of RDX needs around 2kg of 98% concentrated nitric acid. Remember that 98% concentrate nitric acid cannot be transported and it needs to be made locally, which will create extra ammonia demand.

There are multiple other explosives which are used in the Ukraine war that need to be replenished in NATO stockpile ➤

The war in Ukraine has significantly depleted NATO's stockpile of a wide variety of munitions and explosives. These include not only high-explosive shells like the **155 mm artillery rounds** but also a range of other explosives and munitions used in various systems. Here's an overview of some key explosives and their likely usage:

1. **Artillery and mortar rounds**
   - **Explosives**: TNT, composition B (TNT + RDX), or PBX (polymer-bonded explosives). **Usage**: Standard 155mm, 105mm, and smaller-calibre artillery rounds. Mortar rounds like 120mm, 81mm, and 60mm.
2. **Rockets and missiles**
   - **Explosives**: **RDX and HMX** (high melting explosive): Used in rocket warheads.
   - **PBX formulations**: High-energy and stable explosives.
   - **Octol (HMX + TNT)**: Found in anti-tank missiles.
   - **Examples**: HIMARS-guided rockets. Javelin and NLAW anti-tank systems. Stinger anti-aircraft missiles.
3. **Bombs and air-launched munitions**
   - Explosives: Tritonal (TNT + aluminium powder): Common in aerial bombs. PBXN series (plastic-bonded explosives): Used in precision-guided munitions.
   - Usage: JDAM kits converting unguided bombs into precision-guided ones. Other NATO aerial munitions.
4. **Anti-tank and anti-personnel mines**
   - **Explosives**: RDX and PETN (pentaerythritol tetranitrate). TNT and composition B.
   - **Examples**: Anti-tank mines deployed in defensive operations. Remote anti-armour mine systems like RAAM.
5. **Small arms and grenades**
   - **Explosives**: **Nitrocellulose-based propellants** for bullets and cartridges. **TNT or RDX** for grenades and smaller explosive devices.
   - **Usage**: Hand grenades, rifle grenades, and under-barrel grenade launchers.
6. **Naval and air defence systems**
   - **Explosives**: **PBXN or composition**: For anti-ship and air defence missiles. Specialized thermobaric or cluster munitions in some systems.
   - **Examples**: Sea-launched cruise missiles. Advanced surface-to-air systems like Patriot or NASAMS.

However, replenishment challenges are multiple ➤

1. **High demand**: Ongoing conflicts have escalated the consumption rate of these munitions beyond pre-war production levels.
2. **Industrial bottlenecks**:
   - Production of raw materials like **RDX, HMX, and TNT** is time-consuming and capital-intensive.
   - Sourcing **nitric acid** and other precursors at scale is crucial.
3. **CBAM impact**: Rising costs of ammonia and nitric acid in Europe, coupled with environmental regulations, complicate replenishment efforts.
4. **Lead time**: Even with accelerated production, ramping up stockpile may take several years for NATO countries.

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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.