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NETWORK FLEXIBILITY KEY TO NAVIGATE TARIFFS FOR GNPGRAYSTAR

By Paul Harris

Jet milling and packaging at GNPGraystar

The imposition of tariffs on imports into the US has resulted in significant challenges for the minerals business, particularly from materials sourced from China, Brazil and now India, Rick O'Neil, president of GNPGraystar told ***SiC & More***. "Despite these headwinds, GNPGraystar's integrated sales and specialist teams are helping customers maintain continuity of supply, quality, and total cost control."

With 50% tariffs on imports from Brazil and India, and 57.6% (at the time of writing) on products from China, which is the dominant supplier of zirconia and boron carbide, the rapidly changing dynamic demands resourcefulness, network flexibility, and a solutions-first approach. Leveraging a diversified sourcing network and application engineering support, GNPGraystar has focused on protecting customers' processes and budgets rather than simply passing through cost.

"Tariffs have been challenging, mainly because of the constant uncertainty. We've taken a strategic approach, navigating this by utilizing our worldwide sourcing and partnerships globally. Our goal is still to offer the best total cost, but sometimes you're limited to a market or a region for a specific product, because there aren't other options. Many markets we serve have a very difficult time making changes to approved materials. We work closely with our customers and suppliers to seek creative solutions, ensuring our partners remain competitive and realize cost savings," said O'Neil. O'Neil emphasized that GNPGraystar's sales and technical specialists work in close alignment with leadership to evaluate equivalents, qualify alternates where possible, and implement risk-mitigation plans without compromising performance.

"As resources become limited, customers rely on industry-leading suppliers for technical advice and support to help them select the best total cost material. We are providing more value-added services because there's a need in the marketplace for non-standard specialty materials. This approach is sustained by the confidence customers place in GNPGraystar and strengthened through the company's long-standing partnerships across its global supply base," said O'Neil.

Another challenge with the recent tariffs has been the absence of any formal process for requesting exemptions or eliminations, which had been available in the past. "During implementation of tariffs in 2018, we successfully won an exemption for boron carbide used in the production of ceramic armor. This time around, there seems to be no similar option," said O'Neil. While the current environment offers fewer avenues for formal relief, the company's past success in navigating complex regulatory environments underscores the depth of its experience and its commitment to advocating for practical solutions on behalf of its customers.

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News

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Growth and Customer Impact

GNPGraystar's ability to provide specialized, added value solutions stems from having a broad base of suppliers and from having grown the company via acquisitions. As part of SurfacePrep—the largest national network of regional distributors of abrasive products, specialty ceramics, and surface finishing equipment, with 60 facilities across the US, Canada, Europe, and the UK—it combines national scale with local responsiveness, pairing materials supply with production finishing capabilities so customers can source solutions and support from a single, accountable partner. Utilization of our entire group affords us the ability to service customers locally if needed and provides indirect materials and production finishing offerings to our, traditionally direct material, customer base. GNPGraystar, which formed several years ago through the merger of GNP Ceramics and Graystar, is the specialty materials arm of SurfacePrep with a focus on silicon carbide, boron carbide, zirconia, diamond, and calcined & fused aluminas.

Unlike a trading company or basic distributor, GNPGraystar distinguishes itself with six ceramic engineers, ISO certification, extensive value-added services, and complete lab capabilities. Our secondary processing includes classification, blending, magnetic separation, and surface treatment, which allows us to differentiate ourselves and create value by supporting niche processes and customized solutions that cannot be found off-the-shelf.

Recent acquisitions include Panadyne, a leading distributor of abrasives and specialty ceramic materials acquired in April 2025, and UK Abrasives, a leading processor of boron carbide and diamond powders acquired in May 2025. These additions have strengthened GNPGraystar's manufacturing and value-added services portfolio while also expanding their team of technical sales specialists to better support customer needs.

O'Neil sees significant opportunity in the potential reshoring of manufacturing in the US driven by Trump's efforts, which would increase demand for the advanced materials and solutions GNPGraystar provides. "If semiconductor and metal-cast manufacturing is going to come back, that opens up a lot of precision finishing opportunities," he said.

https://www.piie.com/research/piie-charts/2019/us-china-trade-war-tariffs-date-chart

https://nautic.com/news/surfaceprep-announces-strategic-acquisition-of-panadyne/

Estimated Light Vehicle Sales by Country for 2025

Global total estimated to be 89.6 million units based on most recent data and forecasts from S & P Global Mobility, GlobalData, Statista, etc.

- China: 26.8 million units (EV's expected to represent 51% of total sales)
- United States: 16.2 million units (SUVs and light trucks expected to be 80% of sales)
- Japan: 4.8 million units (strong export demand)
- India: 4.4 million units (Growth rate of 2.5%)
- Germany: 2.9 million units (Largest European market)
- Brazil: 2.47 million units (Driven by tax incentives and urban demand)
- France: 2.1 million units (EV sales down 6% YTD)
- United Kingdom: 1.85 million units (YTD decline of 5.7%)
- South Korea: 1.7 million units (Growth of 3%)
- Canada: 1.5 million units (YTD 2025 decline of 6.9%)
- Mexico: 1.4 million units (Tariffs could slow exports)

MINE TO MAGNET REE PLAN SETS ACLARA APART – PART 1

By Paul Harris

Pictured above is the Aclara pilot plant located in Goiania.

Critical minerals have taken financial markets by storm this year with US president Donald Trump pressing hard to reduce the nation's dependency on foreign sources for many of the essential elements necessary to keep the country top dog.

Graphite, tungsten, antimony, copper, steel and aluminum are all within his sights, and so are the collection of elements known as rare earths (REE), which triggered the critical minerals anxiety when China imposed export restrictions in 2023 on certain REE and related technologies (they are essential to advanced military technologies, including precision-guided missiles, radar systems, and fighter jets). More recently, in April, China's Minister of Commerce introduced more restrictions in response to tariff measures from President Trump, and urged neighboring countries, including South Korea, not to export REE to US defense contractors.

The US Geological Service (USGS) estimates that China hosts 44Mt of REE and its southern neighbor Vietnam, 22Mt. Russia and India also have resources, while the US has a lowly 1.8Mt, and thoughts of benefitting from Greenland's 1.5Mt or resources in Ukraine, may be little more than thoughts.

With the US unable to domestically satisfy its demand, REE's have become a national security priority for the US. Friendly countries, such as Brazil, anticipated a significant opportunity opening and the possibility of US federal funding to help them to take advantage of it. Former US president Joe Biden passed the Inflation Reduction Act (IRA), which included working with friendly nations, such as those with whom the US enjoys Free Trade Agreements.

The US does not consider Brazil a 'foreign entity of concern', which aligns it with IRA, and it seemed there were the makings of a strategic relationship. However, Trump is culling much of IRA and his trade tariff barrage means countries that believed they were friends of the US, are no longer so certain that this is the case.

Under Trump, federal funding is flowing to critical minerals projects, and not just in the USA. In July, the US Export-Import Bank (Exim) issued a letter of interest to NexMetals Mining for up to US$150M of potential financing for nickel, copper, cobalt, and platinum group metals in Botswana, for example.

Importantly for REE companies, the US Department of Defense (DoD) is investing US$500M to take a shareholding in REE company MP Materials which mines REE at Mountain Pass in California and is building a processing plant in Texas. MP subsequently announced a $500M supply agreement with technology titan Apple. Together, these deals helped propel MP's market capitalization north of $9B. A decade ago, the company was in bankruptcy protection.

MP's recent deals have shone a broad spotlight on other REE companies. Brazilian REE developer Aclara Resources saw its share price leap from C$1.10 to C$1.70 after the MP announcements in July. "Trump has made REEs prominent in every discussion, and now everyone talks about REEs. This renewed attention to the critical nature of REE's for the world has helped. People are paying more attention to this market and why it is important to the US and Europe,

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which has led to a better understanding and more interest," Jose Augusto Palma, executive VP at Aclara told *SiC & More*.

Brazil REE 'bro' opportunity

With relations between the US and China, the largest REE producer, refiner and magnet maker, freezing, partnerships with other countries will become more important for the US. Brazil hosts the largest REE resources in the Americas, which the USGS estimates at 21Mt. "A strategic opportunity is emerging for non-aligned countries, most notably Brazil, which holds a privileged position thanks to its substantial rare earth resources," Patricio Faúndez, country manager at Chile's GEM Mining Consulting told ***SiC & More***.

"There is potential for existing partnerships and trade routes to be reshaped, so the question is, what will new trading partnerships turn into? There are different levers that are reshaping trade flows and the diversification of supply chains. Regionalization may replace globalization. There may be trading blocs rather than free trade," David Merriman, research director at Project Blue, told ***SiC & More***.

As with other Latin American mineral powerhouses Chile and Peru, Brazil has followed a policy of non-alignment to service clients in the USA and China. Pressure from Trump on the regime of President Ignacio Lula related to alleged mistreatment of former Brazilian president, and Trump ally, Jair Bolsonaro, together with the threat of 40-50% tariffs on Brazil's exports to the US, is causing distaste that could tip the angle of Brazil's axis away from the US. China could benefit from this rift; Brazil recently said it plans to establish a tax advisory office in Beijing, deepening ties, reported *Reuters*.

At least 15 companies are exploring for REE's in Brazil, but the US does not have the field to itself, as China Molybdenum (CMOC) is also active there with the Catalao I and II deposits in Goiás, and China Nonferrous Metal Mining Group (CNMC) with the Pitinga mine in Amazonas. China has also secured future REE sources by using debt, equity and offtake agreements, and China has an offtake for the Serra Verde operation in Brazil.

Despite the promise of MP Materials, it is one company with a single US deposit. Other potential REE sources in the US are at a very early stage of exploration. The US needs more REE, and it would be an error to push Brazil away. Trump could overplay his hand.

Aclara

Brazil has geological potential for REE, but there is a lot of work to do, as its production is only about 80tpa, less than 1% of the global total.

In the few short years since Aclara Resources went public in 2021, its mindset has evolved from being a miner to being a technology company to integrating along the value chain to get closer to the final user of permanent magnets. Aclara's mine-to-magnet vertical integration strategy positions it obtain more of the profit from each stage of the value process: mining, separation, alloy and possibly even magnets.

Aclara contemplates the development of REE deposits, at Carina in Goiás, Brazil and Penco near Concepcion in Chile. Both are ionic clay deposits characterized by their concentrations of heavier REEs (HREEs) relative to light REE's (LREEs). ***SiC & More*** undertook a site visit to Carina in Nova Roma, a sun-baked town of about 1500 people, a five-hour drive north of capital, Brasilia.

The Carina deposit is Paleo Proterozoic to Neoproterozoic in age (1.5-1.7 billion years old), with a REE and casserite-enriched A-type granite intrusion and greisen in the Pedra Branca Massif that formed several kilometers below the Earth's crust. This was uplifted along the Placha Fault and brought to the surface, where it underwent erosion and weathering that deposited the REEs in the overlying regolith.

The deposit consists of a free-digging regolith (a layer of loose, unconsolidated material above the bedrock) formed by the weathering of greisen-altered

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monzonite intrusive rocks. Albitisation sees hydrothermal alteration changes the rock to clay, with the REE minerals in the rock further broken by weathering, releasing their ions and making them available for absorption onto the surface of the clay. The REE that weathered out of the rock were trapped at the surface, which concentrated them and gave them a fine consistency, making them easy to excavate by shovel without drilling and blasting. The strata considered regolith are the upper pedolith, lower pedolith, upper saprolite and saprock. The best grade is in the transition between the lower pedolith and upper saprolite zones. "Our Circular Mineral Harvesting process does not contemplate using explosives as that would add 20-25% to the mining cost. Crushing and grinding would add about 40% to the processing costs," country manager Murilo Nagato told ***SiC & More***.

Successive drilling campaigns have targeted the regolith. The first round of 1700m was auger drilling that did not reach bedrock and was used for a maiden resource. The second round was 2000m of reverse circulation drilling, which allowed the company to drill to the bedrock and determine the average depth of the mineable deposit is 10-12m.

The 2024 preliminary economic assessment (PEA) was based on 4000m of drilling that provided a resource of 297.6Mt grading 1452ppm total rare earth oxides (TREO). This included 284ppm NdPr, 39ppm Dy and 6ppm Tb. The PEA outlined a 22-year mine life to produce 203Mt of process plant feed and 4736tpa of TREO, including 1248tpa of NdPr, 163t of Dy and 28t of Tb.

Aclara cautions that TREO is a misleading number as it includes some low-valued REE that the company has no intention of producing. Instead, it focuses on desorbable rare earth oxides (DREO) as the key figure, as its plan is to only recover those REE that can be released from the clay by ion exchange using an ammonium sulfate solution. The bedrock is also rich in REE, but they are not desorbable with such technique. Aclara says its recovery assumption as a percentage of DREO is more reflective of processing efficiency. Metallurgical testing indicates that 95% recovery is possible.

Aclara says its deposits ratio of LREE to HREE (NdPr:DyTb) is higher than that of hard rock or mineral sand producers. At Carina, its ratio is 7:1; at Penco 3:1, which compares favorably to the 150:1 from other sources. Testing has shown that its final product will also have this 7:1 ratio.
A recently completed third drilling campaign brings the total metres drilled to more than 25,000m across the entire deposit, and included more 1000m of sonic drilling for metallurgical testing for a resource update and prefeasibility study (PFS) in the October quarter. A feasibility is planned for the first half of 2026.

Drilling has evolved the geological model and so the PFS pit shell will be different to that in the PEA, excluding bedrock, but including an extension to the southeast. It will also feature lower tonnage due to the company having a better and more precise geological model. Current thinking is to advance three or four mining fronts simultaneously to excavate two blocks on each front measuring 2m x 25m x 25m. Each block contains about 2000t, 10% of daily production. The deposit will be mined to an average depth of 10-12m.

The mine will be operated by a contract miner. Material from the ROM stockpile will be loaded into the circuit and washed with ammonium sulphate in one of three 2.5Mtpa capacity washing drums for total capacity of 7.5Mtpa. Material will then be screened to separate the -1mm material that will continue in the process, with the remaining either backfilled into the pit or sent to the dry stack for disposal.

**** Part two of this article will appear in issue #110 beginning with a site visit to the pilot plant and discussions regarding the market opportunity and capital concerns**.

DIGGING THROUGH THE ARCHIVES – SiC IN REFRACTORIES

SiC & More follows up issue #107 about the *Advantages of SiC as a Refractory*, with another excerpt from a marketing report of yore.

Abrasion Resistance: The abrasion resistance of SiC refractory is excellent in impinging, scrubbing, and slurry service. The material often outperforms rubber and hard metal liners by factors ranging from 3:1 to 30:1, depending on service conditions. A high-performance factor can be expected when acidic slurries are handled. Applications such as nozzles, pump components, hydrocyclone liners, and pulverized coal combustion equipment liners are just a few applications in which SiC refractor excels.

Thermal Shock Resistance: The thermal shock resistance of SiC refractory is excellent because of its combined hot strength, low expansion and high thermal conductivity (equal to that of stainless steel). Cast SiC parts can withstand repeated rapid cycles through large temperature differentials without developing cracks or losing strength.

Chemical Resistance: The chemical resistance of cast SiC refractory is superior to that of most other refractories and metals, particularly with respect to strong acids. Chemical resistance makes cast SiC refractory ideal for coal ash slags, most molten salts and halogens at elevated temperatures. However, oxidizing agents such as iron and lead oxide, cyanide salts, molten borax, and other strong bases, may react adversely and affect cast SiC shapes. Most non-ferrous metals do not wet this material and there are very few common industrial environments in which it cannot be used.

Strength: Strength at room and elevated temperatures is exceptional. It retains its room temperature strength to 3,000 degrees F (1650 Celsius). As a result, SiC pars can be designed for high temperature service where common refractories and metals cannot function.

Design Flexibility:

- Cast SiC refractory is as easy to work with as metal castings. Dimensions are accurate, detail is precise, and complex shapes can be designed without difficulty.
- For specific applications, cast SiC can be cast with wall dimensions as think as ¼ inch.
- Generally, cast SiC shapes are used as produced. The material is much too hard to be machined conventionally.
- Part geometry usually duplicates metal counterparts exactly. Some allowance may have to be made in cast SiC parts in highly stressed areas because of lack of ductility.
- Threads are easily produced. Generally, NPT threads are used, although others can be formed.
- Assemblies are often held together by mechanical methods to accommodate stresses from large thermal changes or for other pertinent reasons.
- Individual parts can be made to 48” (1200mm) in length, 40” (1016mm) in diameter, and from ¼” (6mm) to 3/8” (10mm) in wall thickness. Some parts can be made with wall thickness of up to 3” (76mm) depending on part configuration. Larger parts can be made by bonding separate pieces.

An author could not be ascertained for this paper. The paper does not indicate any footnotes of support data or trials that would substantiate any of the commentary. This ends the *SiC Refractory Fines* segment.

BFA, MgO & MORE

Mgo Rock Stock Image

In issues #106, #107, and #108, we noted that global demand for both fused, and dead burned MgO (DBM) was flat, and prices were soft. This was due to many Chinese suppliers of MgO sitting on large inventories while steel production slogged along. In issue #108, a trader told ***SiC & More***, "There is oversupply and prices are soft. I don't expect that situation to change in Q3." From recent discussions with traders and end-users, it is believed that prices will continue to be soft during Q3 as well as Q4.

Although DBM90 continues to be the best-selling product of the lot, prices are down on that item as well.

Regarding Fused MgO, the situation is about the same as DBM. The only fused product in demand remains FM97 but pricing dropped on that item as well over the past 60 days. The cost to produce MgO has increased due to kWh pricing, but demand remains weak and that has trickled down to end-use market pricing. A trader told ***SiC & More*** that many fused MgO facilities in China have shut down due to lack of demand and low prices.

In other words, MgO is in the doldrums and that is unlikely to change for the balance of 2025 and quite possibly into Q1 2026.

BFA appears to be no different than MgO. Over the past 60 days, prices on BFA crude FOB China dropped by $10-20 ton sans the tariff. Not much has changed regarding BFA other than the 20% tariff levied on Chinese crude on April 9. The 20% gets tacked on to the previous 7½%, which equates to 27½% for any BFA crude imported into the U.S.

The situation in Europe is much different than in the states. On June 26, 2025, the European Commission provided a letter referencing the antidumping investigation concerning imports of fused alumina originating from the People's Republic of China. The provisional duties on BFA and WFA range from 111.9% to 136.3% depending on the exporting producer.

A subscriber voiced his anxiety over the situation since his company had traditionally purchased BFA from Brazil. "This is crazy. We want alternatives to China, and we have diligently purchased Brazilian aluminum oxide over the years only to discover that Brazil is getting hit with a 40% tariff while China receives only 27%. Does that make sense? Brazil has most generally been considered a loyal ally to the U.S. and a seemingly fair trading partner. We are at a loss. The 40% tariff appears to be mostly political and has nothing to do with dumping, reciprocal, or fair trade. Additionally, the dumping duties on Chinese finished grain represent yet another reason why we need a legitimate alternative to Chinese aluminum oxide."

SIC: IS IT THE CALM BEFORE THE STORM?

Issues #105-108 of ***SiC & More*** were mostly dedicated to explaining the dynamics surrounding President Trump's tariff negotiations and the roller coaster ride's potential impact on global trade. In issue #108 of ***SiC & More***, we elaborated on SiC supply with emphasis on China's continued global SiC dominance and the potential for supply displacement.

Over the last 30-60 days, however, the SiC landscape has calmed considerably as virtually everyone associated with SiC's end-use markets has, for the most part, rationalized supply and price.

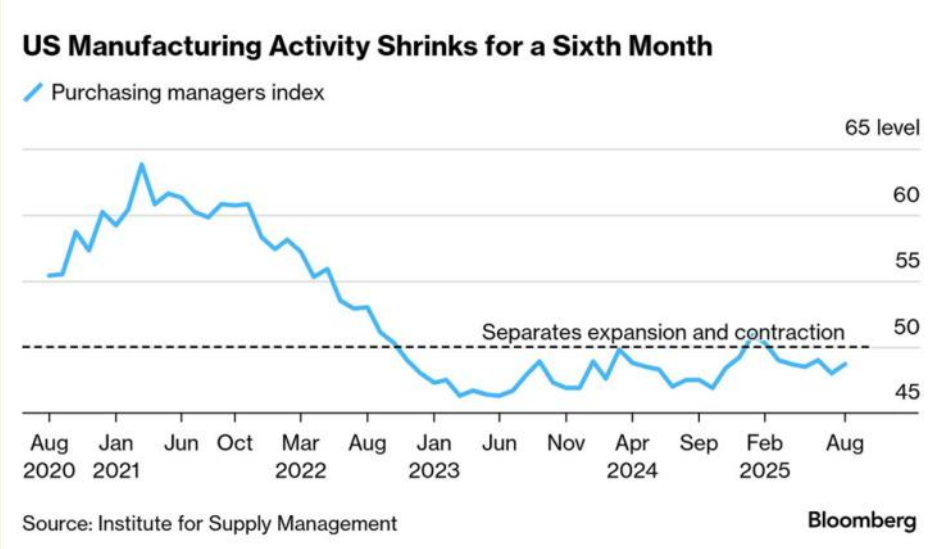
Regarding China, although tariffs tend to skew what is happening in the markets, the current base price of Chinese SiC, less the tariff percentage, has been softening. The softening is across virtually all the markets including abrasive, refractory, and metallurgy. It appears as if abrasive SiC products are down about $50-60 ton while refractory grades have slipped nearly $40 ton and metallurgy dropped in price in the range of $10-20 ton.

What should consumers expect as we move forward? Most experts believe that the U.S. IEEPA China tariff rate will remain 20%. The reciprocal tariffs did not come into play since SiC landed on the Annex II list of products, and that isn't expected to change either.

A trader told ***SiC & More***, "Most global economies are stagnant and prospects for short term growth seem dull at best. China's once robust construction industry remains in a slump with new starts down almost 20% compared to the same time in 2024. As a result, I don't expect to see increased demand for silicon carbide or most other industrial minerals between now and year-end. I wouldn't be surprised to see another drop in most Chinese mineral prices over the next 60 days."

That brings us to a processor who shares the above trader's view but in the spirit of déjà vu commented, "After watching people rush to beat potential Trump tariffs, while business was seemingly slowing down, I was fearful that many of us would have excess inventory of both feedstock and finished goods. That situation would lead to a slowdown in ordering, which would result in supply pipelines drying up. Most of us remember the 2021/2022 run-up in pricing caused by COVID when we let our supply pipelines go empty. Prices went to record levels. There are days when I wonder if the next six months are going to be another calm before the storm."

Suffice it to say, ***SiC & More*** cannot predict future SiC pricing, but we feel reasonably certain that over the balance of 2025, FOB China prices will be soft. As one of our favorite philosophers, Yogi Berra, once said, "It's tough to make predictions, especially about the future."



BRAZIL: POLITICS DOMINATE THE MACRO AND COMMODITY LANDSCAPE

a) Energy: The end of the dry season is around the corner and all eyes are now on when the rainfall season will start and how much water the reservoirs receive during the next rainy window (Nov/25- Apr/26). Weather forecast has a 70% likelihood of a weak La Niña effect taking place from Nov/25 until Jan/26. The consequences of that in rainfall in Brazil are usually an increase in the north and northeast regions and a reduction in the rest of the country. Because the forecast is weak, La Niña it is not weighing so much on the forward price curve. 2026 is being traded at R$ 220/MWh ($41/MWh) and 2026 at R$ 245/MWh ($46). These values can quickly rise if La Niña hits Brazil harder than predicted.

b) Macroeconomics, Commodities and Politics: Still in the aftermath of POTUS' decisions these three subjects are completely tied to each other. The 50% tariff for Brazilian goods effective on Aug. 1st. Right before that tariffs for specific products were reduced to 10% (as previously reported) and more recently the tariff for Pulp produced in Brazil was reduced to 0%. After all these changes the real economic effect of the new tariffs became significantly reduced meaning commodity exports to US are almost intact. The political effects though are a different story. POTUS announced the increase in tariffs in Jul/25 using also the justification of an allegedly political "Witch Hunt" against former BR President Bolsonaro. Since that the US: (i) imposed the Magnitsky law over Supreme Court member Alexandre de Moraes forcing almost every bank in Brazil to cut any sort of commercial relationship with him, and; (ii) has canceled hundreds of visas of not only members of the Supreme Court but also of their families and related activists. As a response, Mr. Moraes sped up the trial of former president Bolsonaro which ended last week convicting Bolsonaro for crimes against democracy sentenced to 27 years of prison (still to be defined where and how to be served). The only surprise during this trial was the vote of Supreme Court member Luiz Fux against Bolsonaro's conviction. This specific vote has opened the doors for the legislative houses to push a bill to amnesty every person involved not only in the alleged democracy coup but also on the invasion of the Supreme Court back on Jan. 8th, 2023. It is too early to predict if this bill will pass or not, but we can so far state that Bolsonaro, even if favored by the amnesty law, will not be an eligible politician anytime soon. The fight for his legacy has begun among rightist leaders being Tarcisio de Freitas, governor of the state of São Paulo, the most likely heir.

Another impact of POTUS' attempt to influence in the judiciary branch in Brazil is that President Lula, who was struggling to finish his mandate, has gained significant public support to fight against an "external imperialist" that Lula now has a legitimate chance of re-election in the 2026 general elections. Lula's disapproval rate, which was 50% on Jun/25 and rising, has now dropped to 48% and his approval rate has jumped from 29% to 33% in the same period with a rising trend. Lula has also gained motivation and support to strengthen relations with India and specially China. These other countries are also highly motivated to start replacing US in their agendas due to the commercial conditions imposed by POTUS.

In terms of economic impact of POTUS' policy to Brazil it seems like the worst is behind as the BR currency has gained value over the dollar (now at R$ 5.35), stock market is doing well and interest rate is stable. The fact that the FED has indicated the beginning of an interest rate-cutting cycle is also helping the flow of funds into Brazil to benefit from Carry Trade operations between US and BR interest rates.

FOCUS projections are now:

- Interest Rates: Dec/25: 15.00%; Dec/26: 12.38%.
- FX Rates: Dec/25: R$ 5.50; Dec/26: R$ 5.60.

METALS INDUSTRY UPDATE

Superior Graphite

ExxonMobil press release September 9, 2025: On September 8, 2025, ExxonMobil entered into an agreement to acquire the technology and U.S.-based assets of Superior Graphite, along with select international offices. Superior Graphite is a leader in the graphite industry with more than 100 years of experience in graphite and materials production.

The move marks a major milestone in our strategy to build a robust, synthetic graphite supply chain – right here in the U.S.

DRI Production

According to Midrex Technologies, Inc., Direct reduced iron production surpassed 140 million metric tons in 2024, which represents a new record. The new record represents 3.8% growth over 2023.

Deere & Company

For the third quarter of its 2025 fiscal year, Deere reported net income of $1.289 billion. That figure is down 26% compared to the company's third quarter in the last fiscal year. Worldwide net sales fell 9% for the third quarter while for the nine month period sales dropped by 18%.

Hyundai Motor

Hyundai Motor Group recently announced its plans to increase its investment in the U.S. market by $5 billion bringing the total investment to $26 billion all of which is dedicated to advancing initiatives in automotive, steel, and robotics. The investment will be made between 2025 and 2028.

Ares Strategic Mining

Ares recently reported a promising breakthrough from its ongoing materials analysis program. Early lab results confirmed the presence of germanium (Ge), in addition to the previously discovered gallium (Ga).

North American Tractor & Combine Shipments

Year-to-date 2025 shipments of ag-related equipment are down 10.1% compared to the same period last year and down 22% compared to the same period in 2023.

Caterpillar

According to executives at Cat, the most recent wave of tariffs will cost the company an extra $100 million in Q3 2025, which raises the forecast to a range of $1.5-1.8 billion for the year. Caterpillar logged nearly $65 billion in sales in 2024.

Machine Tool Orders

Purchases of capital equipment by U.S. machine shops and other manufacturers fell to $387.3 million in July. Although this was a 9.5% drop from June 2025, it was 20.1% higher than the same month in 2024.

Machine Tools Stock Photo

Global Steel Production

According to World Steel Association, global steel production dropped by 1.3% compared to the same time in 2024. Compared to June, the tonnage decreased by 0.8%. According to World Steel, the top ten steel-producing countries in July were:

- China – 79.7 million tons (-4% y/y);
- India – 14 million tons (+14%);
- USA – 7.1 million tons (+4.8%);
- Japan – 6.9 million tons (-2.5%);
- Russia – 5.7 million tons (-2.4%);
- South Korea – 5.3 million tons (-4.7%);
- Turkey – 3.2 million tons (+4.2%);
- Brazil – 2.9 million tons (-5.5%).
- Germany – 2.7 million tons (-13.7%);
- Iran – 2.2 million tons (+29.7%).

News

SYRAH RESOURCES

A. Syrah Resources LtdSyrah Resources Ltd

The U.S. Geological Survey (USGS) has released a draft version of the 2025 Critical Minerals List, reaffirming natural graphite as a critical mineral and identifying it as being at maximum risk of supply disruption.

Natural graphite was assigned the highest possible supply risk score (1.0) by the USGS, reflecting the United States' exceptionally high reliance on imports and the highly concentrated nature of global supply. The USGS specifically notes that over 65% of natural graphite supply originates from China, with limited diversification across global markets. The report highlights natural graphite as essential to the U.S. economy and national security, particularly for its role in lithium-ion batteries and energy transition technologies.

The Critical Minerals List is an important policy tool for U.S. federal agencies and relevant legislation. The final list will be confirmed following a 30-day public comment period.

Syrah remains strategically aligned with U.S. Government priorities through its vertically integrated natural graphite active anode material (AAM) supply chain. Syrah's Balama Graphite Operation in Mozambique and Vidalia AAM Facility in Louisiana, USA, provide a secure source of natural graphite and AAM for the North American battery market.

The full USGS report is available at:
https://lnkd.in/gNzcQ69P

B. Syrah Resources has received a US$11.7 million direct payment from the US IRS under Section 45X of the Inflation Reduction Act, claimed in its 2024 tax return filing in connection with the 11.25ktpa AAM facility in Vidalia, Louisiana.

Cash proceeds from this Section 45X Production Credit are in restricted accounts and, with the approval of the US Department of Energy, may be used to fund Vidalia operating costs.

At full capacity, annual credits are estimated at US$7–9 million (~US$0.62-0.80/kg AAM) prior to phase down.

Read the full ASX Announcement here:
https://bit.ly/46wyvXk

WOLFSPEED ANNOUNCES COMMERCIAL LAUNCH OF 200MM SIC MATERIALS PORTFOLIO

DURHAM, N.C. September 10, 2025 – Wolfspeed, Inc. (NYSE: WOLF) Press Release: Wolfspeed a global leader in silicon carbide (SiC) technology, today announced the commercial launch of its 200mm SiC materials products, marking a significant milestone in the company's mission to accelerate the industry's transition from silicon to silicon carbide. After initially offering 200mm SiC to select customers, the positive response and benefits warranted a commercial release to the market. Wolfspeed is also offering 200mm SiC epitaxy for immediate qualification, which, when paired with the company's 200mm bare wafers, delivers breakthrough scalability and improved quality, enabling the next generation of high-performance power devices.

"Wolfspeed's 200mm SiC wafers are more than an expansion of wafer diameter – it represents a materials innovation that empowers our customers to accelerate their device roadmaps with confidence," said Dr. Cengiz Balkas, Chief Business Officer. "By delivering quality at scale, Wolfspeed is enabling power electronics manufacturers to meet growing demand for higher-performing, more efficient silicon carbide solutions."

The improved parametric specifications of the 200mm SiC bare wafers at 350µm thickness and enhanced, industry-leading doping and thickness uniformity of the 200mm epitaxy enables device makers to improve MOSFET yields, accelerate time-to-market, and deliver more competitive solutions across automotive, renewable energy, industrial, and other high-growth applications. These product and performance advancements for 200mm SiC can also be applied to our continuous learnings for 150mm SiC materials products.

"This advancement reflects Wolfspeed's long-standing commitment to pushing the boundaries of silicon carbide materials technology," said Balkas. "This launch demonstrates our ability to anticipate customer needs, scale with demand, and deliver the materials foundation that makes the future of more efficient power conversion possible."

About Wolfspeed, Inc.
Wolfspeed (NYSE: WOLF) leads the market in the worldwide adoption of silicon carbide technologies that power the world's most disruptive innovations. As the pioneers of silicon carbide, and creators of the most advanced semiconductor technology on earth, we are committed to powering a better world for everyone. Through silicon carbide material, Power Modules, Discrete Power Devices and Power Die Products targeted for various applications, we will bring you
The Power to Make It Real.TM

Learn more at www.wolfspeed.com.

DEPARTMENT OF ENERGY & CRITICAL MINERALS

Proposed funding will accelerate the growth of the U.S. critical minerals and materials sector.

WASHINGTON—August 13, 2025: The U.S. Department of Energy (DOE) today announced its intent to issue notices of funding opportunities (NOFO) totaling nearly $1 billion to advance and scale mining, processing, and manufacturing technologies across key stages of the critical minerals and materials supply chains. The funding announcements, issued in accordance with President Trump's Executive Order *Unleashing American Energy*, will help ensure a more secure, predictable, and affordable supply of critical minerals and materials that are foundational to American energy dominance, national security, and industrial competitiveness.

"For too long, the United States has relied on foreign actors to supply and process the critical materials that are essential to modern life and our national security," said U.S. Secretary of Energy Chris Wright. "Thanks to President Trump's leadership, the Energy Department will play a leading role in reshoring the processing of critical materials and expanding our domestic supply of these indispensable resources."

Proposed NOFOs announced today include:

Critical Minerals and Materials Accelerator
The Advanced Materials and Manufacturing Technologies Office expects to release a NOFO of up to $50 million early this fall through the Critical Minerals and Materials (CMM) Accelerator program. The CMM Accelerator promotes technology maturation that can unlock capital investments and facilitate domestic commercialization. The proposed NOFO addresses several areas of interest, including processes in the rare-earth magnet supply chain; processes to refine and alloy gallium, gallium nitride, germanium, and silicon carbide for use in semiconductors; cost-competitive technologies for direct lithium extraction and separation; and critical-material separation technologies that allow for the co-production of useful products from byproducts and scrap.

Mines & Metals Capacity Expansion – Piloting Byproduct Critical Minerals and Materials Recovery at **Domestic Industrial Facilities**

The Office of Fossil Energy and Carbon Management is announcing its intent to issue a NOFO to support approximately $250 million of financial assistance for American industrial facilities that have the potential to produce valuable mineral byproducts from existing industrial processes. To derisk the technical uncertainty and financial risk for commercial deployment, many technologies must be piloted at an industrial scale in an industrial facility where material feedstocks can be processed. The proposed NOFO addresses topic areas pertaining to both industry at large and the coal-based industry.

Rare Earth Elements Demonstration Facility
The Office of Manufacturing and Energy Supply Chains (MESC) is announcing its intent to issue a NOFO of up to $135 million to enhance domestic supply chains for rare earth elements (REEs). The goal of this initiative is to reduce America's dependence on foreign sources of REEs by demonstrating the commercial viability of methods for domestically refining and recovering REEs from mine tailings, deleterious material, and waste streams. An academic partner is required as a part of the project team and an award requires a cost-share of at least 50% by the recipient.

Battery Materials Processing and Battery Manufacturing and Recycling Grant Program
MESC is announcing its intent to issue a NOFO of up to $500 million to expand U.S. critical mineral and materials processing and derivative battery manufacturing and recycling. The proposed funding opportunity supports demonstration and/or commercial facilities processing, recycling, or utilizing for manufacturing critical materials which may include traditional battery minerals such as lithium, graphite, nickel, copper, aluminum, as well as other minerals that are contained within commercially available batteries, such as rare earth elements. An award requires a cost-share of at least 50% by the recipient.

Recover Critical Minerals from Industrial Wastewater

The Advanced Research Projects Agency-Energy (ARPA-E) is planning to announce project selections for its $40 million program to develop technologies to recover critical minerals from industrial wastewater early this fall. ARPA-E's Realize Energy-rich Compound Opportunities Valorizing Extraction from Refuse waters (RECOVER) program aims to enable the U.S. to reduce its dependence on critical mineral imports and replace them with secure, domestic sources. Significant amounts of critical minerals exist in domestic wastewater systems, untreated and discarded. RECOVER technologies complement more traditional mining operations to access these materials and potentially meet a significant portion of America's needs using supplies that might otherwise go to waste.
Energy.gov

SEVEN THINGS YOU PROBABLY DON'T KNOW ABOUT ZAPORIZHABRASIVE

Pictured above are Al2O3 pigs cooling at Zaporizhabrasive.

On June 26, 2025 the European Commission provided a letter referencing the antidumping investigation concerning imports of fused alumina originating from the People's Republic of China. The provisional duties on BFA and WFA range from 111.9% to 136.3% depending on the exporting producer. As European Al2O3 processors and consumers rationalize the duties, Zaporizhabrasive is poised to fill a potential supply gap left by the absence of products being sold at unfairly low prices.

1. Zaporizhabrasive (ZAP) is the only producer of brown fused alumina in Ukraine and enjoys a stable supply of raw materials and total independence from imported raw materials. ZAP's well-trained staff controls the quality at virtually every stage of production: preparing the furnace and raw materials, smelting alumina, processing, and packaging of finished abrasive tools. ZAP also uses high quality EU-grade phenolic resins to ensure durability and consistent performance.

2. Soon, ZAP will increase the volume of production of normal electrocorundum abrasives with grain sizes F22 (F24), F40 (F46), which are in high demand. ZAP's plant specialists have ascertained a process to increase the production volume of the high demand grain sizes by modernizing the existing technological scheme of Shop 62, which means maximizing equipment segments. The increase in volume will be the result of grinding coarse grain sizes F12-F20 with magnetic enrichment of the crushed material and its subsequent sieving into the required grain sizes with standardized grain and chemical composition.

3. With over 85 years of experience, ZAP is one of Eastern Europe's oldest and most reputable abrasive producers. Founded in 1939, the company combines long-standing reliability with modern production standards.

4. ZAP products meet ISO 9001 requirements and are certified by MPA Hannover, proving their compliance with European safety and quality standards. ZAP is also a full member of FEPA (Federation of European Producers of Abrasives), which unites leading abrasive manufacturers across Europe.

5. ZAP produces up to 2.2 million cutting and grinding wheels per month and up to 50 tons of ceramic tools for household and industrial use.

6. ZAP has over 10 years of experience in "Private Label" production for European and international partners. ZAP's services include everything from formulation and label design to full-cycle manufacturing with production lead times as short as 30 days!

7. One of ZAP's key advantages is prompt and efficient logistics, which translates to delivery to EU countries in only 7-10 days. This allows partners to respond quickly to market demands without maintaining costly warehouse inventory.

News

GRAPHITEHUB: FROM THE HEART OF THE GRAPHITE MARKET

by Harry Minnis

Harry Minnis founder of GraphiteHub.

ExxonMobil enters synthetic graphite:

- Acquired Superior Graphite's assets and technology.
- Superior is U.S.-based with over a century of expertise in carbon and graphite materials.
- Marks one of the most high-profile entries into the graphite space to date.
- ExxonMobil's move is likely just the beginning of further activity in the sector.

U.S. critical minerals fund:

- Administration in talks to establish a $5 billion fund to back mining projects.
- Proposed as a joint venture between the U.S. International Development Finance Corp. and Orion Resource Partners.
- If realized, could direct much-needed capital to the upstream sector, where funding has historically favored downstream projects.

China activity (ICCSINO, August 2025):

- 31 new anode material projects announced.
- 16 silicon-carbon, 11 graphite, 2 sodium-ion, 1 lithium metal, 1 nanotube.
- Alternatives like silicon-carbon are rising, but the scale of graphite capacity additions remains far larger.

** True to its name, *GraphiteHub* is quickly becoming a hub for everything graphite-related. You can explore more at graphitehub.com and also follow along on LinkedIn. Watch for issue #110 when Harry Minnis and *GraphiteHub* will begin summarizing graphite pricing for *SiC & More* as well as identifying emerging technologies.

Silicon Carbide & More

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