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THE SIC REVOLUTION: A SIT-DOWN WITH MATTHIUS HAUSMANN CEO OF ESK-SIC

By: Paul Harris



The industrial landscape continues to evolve at a frenetic pace with geo-political risk and strategic vulnerability increasingly part of supply chain considerations. And this is against the backdrop of climate change, global warming and the broadly recognised to decarbonise industrial economies. These macro trends create both opportunities and threats for silicon carbide, and which we dig deeply into through this exclusive interview with Matthias Hausmann, CEO of Germany's ESK-SIC and co-investor of its revolutionary RECOSIC technology.

SM What is the status of implementing the RECOSIC technology?

MH RECOSIC is a technology patented by Fraunhofer IKTS (Fraunhofer Institute for Ceramic Technologies and Systems) and ESK and we will implement this technology in Germany in Frechen, near Cologne. We have two test plants running: one in Frechen and the other at IKTS in Dresden. They are both running and are both at production scale. This is not lab-scale testing, it is real production-scale testing.

We are confident enough to say we have reached commercial status, but our plan is that the whole capacity starts to run mid-2026 in Frechen. We plan to install 12,000tpy RECOSIC capacity here and are in contact with the authorities to get the administrative and environmental permissions. If everything runs well, we aim to start construction work in mid-2024.

SM Will RECOSIC produce 100% crystalline SiC?

MH What comes out of this process is 100% crystalline silicon carbide. That is correct.

SM That is a huge advancement.

MH Yes it is. We have a less energy-consuming process. There is no metallurgical silicon carbide byproduct to deal with, which is a real advantage.

SM This presumably means more efficient use of raw material inputs because they're all converted into crystalline SiC?

MH With the RECOSIC technology, we are focusing on recycling or transferring all the by-products from the processing steps covering the whole silicon carbide world and transferring them to 100% crystalline silicon carbide of a really good quality. The silicon carbide content within this crystalline has a silicon carbide purity of at least 99.5%, 99.6% and above. That is the highest amount you can wish for and something the Acheson process normally never achieves; you would need very pure raw materials and to harvest very carefully. The educts [a substance

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> The SiC Revolution continued

separated from material in which it already existed] for our RECOSIC process are side products from silicon carbide ceramics processing, like pyrolyzed green bodies coming from the silicon carbide ceramic industry back to our plant. We can recycle metallurgical silicon carbide and transfer it into crystalline silicon carbide. That is a major advantage. There is no need any more to dump byproducts from other industries using silicon carbide. We are asking the industry to give these materials back to us so we transfer them to 100% crystalline silicon carbide of a very high quality.

SM Does that reduce the cost of your raw materials?

MH Not necessarily, because we have to deal with very high investment costs. The investment cost per tonne of silicon carbide is definitely higher [today] but compared with the costs coming in the future, higher prices for raw materials, prices for carbon dioxide emissions [carbon taxes and/or credits], taking all this into account in the long run, our technology will perhaps be cheaper than the Acheson process. The benefit our customers get is a sustainable silicon carbide source with nearly no carbon dioxide emissions. We can even alter the purity of the material, the dopants inside the material like the nitrogen or aluminum content. We can even change the morphology of the particles which has never been possible with the Acheson process. We are bringing materials into the market that are not cheaper, as we are asking for a sustainability [premium]. We think in the first years, RECOSIC products will be about 20% more expensive.

SM Given you are recycling materials, can generate carbon credits?

MH I am sure we can. We supply our customers with the proof that the material they are buying has a way lower carbon footprint, and that is their benefit. We can definitely reduce the carbon dioxide production by at least 80%, and most of the 20% remaining comes from the source of electricity. Here in Germany, we only use green energy from 2024, so we can even lower the carbon dioxide emissions per ton of silicon carbide by more than 90%. That is a tremendous reduction.

SM Does the RECOSIC process use a similar amount of energy per tonne of SiC produced?

MH No, it is much lower at around 2MW/t compared to 7MW/t for the Acheson process.

SM What is the capacity utilization at ESD-Netherlands furnace plant?

SM I cannot speak for ESD as I am the CEO of ESK-SIC, but the capacity is around 30,000tpy of crystalline silicon carbide, and the rest is metallurgical material. I think their overall capacity is 60,000tpy.

SM Have power and pet coke prices come back into line to pre-COVID-19 prices?

MH We still see inflation. I cannot say anything about coke prices because that's the business of ESD. Energy prices in Germany are definitely not on a pre-COVID-19 level, we are at least double, sometimes more. Energy prices, especially in Germany, are tremendously high. It's challenging, to be honest, for industrial production. It strengthens our case to go to more sustainable products and increase our energy-saving efforts. Silicon carbide raw materials prices in China are very volatile. I see, especially for metallurgical silicon carbide, the prices in China are dropping and Europe will definitely follow.

SM Do you see much of a future for furnacing SiC in Europe?

MH When it comes to the Acheson process, I doubt it because we have two problems. It's a very energy-consuming process, and it has very high carbon dioxide emissions. There has never been an alternative to the Acheson process until RECOSIC. RECOSIC is a technical alternative that is especially perfect for ceramic products, for electrical uses. It is also good for abrasives and refractories, but especially for ceramics and electronic products like wire-sawing material. I don't see much of a future for furnacing with Acheson here in Europe, at least the installation of new plants won't happen here.

SM Is RECOSIC allowing you to develop new markets?

MH The ceramic market especially is growing and the market for more value-added products is growing because the fantastic material properties of silicon carbon are things a lot of industries are asking for right now, the thermal and electrical properties, and hardness especially. We see still market growth despite the general market drop in Europe. With our new technology, we are capable of doing things we couldn't do before, especially for the 3D printing market where there hasn't been the possibility before. For example, to really govern the amount of dopants inside the silicon carbide lattice. That is possible now and will give us new markets in the future.

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There is a very specific interest in silicon carbide as a semiconductor material here in Europe and worldwide. The war in Ukraine means ceramic customers are asking for a lot more material for body armour, which is upsetting to say.

SM Are the diesel particulate filter and photovoltaic markets still key and large markets?

MH They are still a large market, a good market and still surprisingly growing.

SM What are aspects about the 3D printing market that the SiC industry couldn't meet in the past, that now you can?

MH You need to have a powder which has a special morphology and flowability, and customers wish for very high bike density. As we can now govern the morphology of our particles, it's perfect for us.

SM How do you see the global SiC landscape looking going forward?

MH There are a lot of very interesting technologies arising. Special silicon carbide-based ceramic materials will be a very fast-growing market. Aerospace and aviation ceramics, which are silicon carbide-based will be affected by new possibilities coming from the additive manufacturing industry. Conductive silicon carbide products for electric cars will be fast-growing fields in the near future.

SM The Western world has an increasing focus on strategic minerals. China is the major supplier of SiC, so is this a concern?

MH This is a very interesting topic to discuss. We are facing a very difficult situation in the European Union and the US because in general, our energy prices are higher compared to China. And we have huge environmental regulations to fulfil the Paris climate goal. I hope that these environmental regulations are rising in other parts of the world, because it's necessary and you cannot economically compare companies when they need to fulfil totally different regulations. That is problematic. That encourages us to always be on the front end of development and always do better scientific studies to improve our processes more than the rest of the world and develop more interesting products.

The general silicon carbide market in Europe is around 200,000tpy. The European and American Acheson and processing companies can cover half of this amount and the rest comes from China. If we are talking about critical substances that we rely on for our industries, we again see that the Chinese govern silicon carbide. The German government just listed silicon carbide as a product which is more and more important, and with very limited production within the European Union. With RECOSIC, you can recycle the products so you are not relying on suppliers from the Far East, you can keep material within your industry, and that is a major improvement that that gives raw material security, which for silicon carbide will be more important in the coming years.

Wolfspeed to Sell RF Business to MACOM

DURHAM, N.C. *August 22, 2023* – Press Release: Wolfspeed, Inc. (NYSE: WOLF) today announced that Wolfspeed has entered into a definitive agreement to sell its radio frequency business (Wolfspeed RF) to MACOM Technology Solutions Holdings, Inc. (Nasdaq: MTSI) for approximately $75 million in cash, subject to a customary purchase price adjustment, and 711,528 shares of MACOM common stock, valued at $50 million based on the 30 trading day average for MACOM's common stock through August 21, 2023. The company expects to close the transaction by the end of this year.

"Given the significant growth we've seen in automotive, industrial and renewable energy markets, we believe this is the right time to further focus on scaling our Power device and materials businesses to meet this accelerated demand," said Wolfspeed President and CEO Gregg Lowe. "This transaction also represents a tremendous opportunity for our RF team to grow and operate at scale, leveraging MACOM's diverse customer base, RF engineering leadership and operational efficiencies."

Wolfspeed RF's technology and innovation engine drives a strong product development pipeline, with deep domain expertise supporting a competitive gallium nitride (GaN) on silicon carbide product portfolio optimized for next generation telecommunications infrastructure, military and other commercial applications. Leveraging MACOM's diverse customer base and operational expertise, Wolfspeed RF will be well positioned to continue to deliver industry leading products at scale.

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FLUORSPAR– RUNNING THROUGH HIS VEINS



Pictured above is Jeff Kofsky (center), owner of FluorOne, along with local guides, visiting fluorspar producing regions in Chihuahua, Mexico

Jeff Kofsky doesn't literally have fluorspar in his blood, but it's not far from the truth. Jeff joined Cometals (then a division of CMC - the Commercial Metals Company) in 1991 and has continuously been immersed in fluorspar from that point forward. Jeff went on to manage their fluorspar business (as well as Electrolytic Manganese, Molybdenum concentrate, Moly Oxide, Ferro Molybdenum…) In addition to product responsibilities, Jeff also handled all of CMC's bulk ocean chartering, covering about 5 million tons per year. At CMC, Jeff sourced & supplied over 10,000,000 MT of Chinese acid and metallurgical grade fluorspar to Europe, North Africa, Japan, and North America. He also arranged to represent Witkop, a now defunct, Zeerust, South African Mine, providing them the offtake agreements that let them reenter production after a period when they were idled due to market conditions. Jeff went on to put together the crucial offtake agreement that enabled the development of the greenfield Vietnamese fluorspar project that became Masan Resources, now one of the world's key producers of acid grade fluorspar concentrates.

In 2011, Jeff left CMC Cometals to found FluorOne (www.fluorone.com). The company was initially a J/V with Fluormin PLC, a London listed company that owned the Witkop mine in South Africa; 20% of Kenya Fluorspar; 16% of Canada Fluorspar, inc.; a fluorspar mine in Mongolia; and a fluorspar mine in Tunisia. However, when Fluormin PLC changed its focus from fluorspar to East African oil exploration, Jeff took over their minority stake in FluorOne Trading. Since that time, FluorOne has become one of the leading suppliers of Chinese & Mongolian fluorspar to Japan, Europe, North America, and Northern Africa, operating out of Englewood Cliffs, New Jersey, Shanghai, China, and Pretoria, South Africa.

FluorOne also represented Canada Fluorspar Inc. (CFI) during their start up phase and implemented most of their long term sales contracts as well as handling all their vessel chartering activities as out-sourced chartering management.

Since 2018, FluorOne has represented the Buffalo mine in South Africa, a producer of acid and metallurgical grade concentrates in Mookgopong, Limpopo Province, South Africa. Originally opened in 1943, Buffalo ceased open pit mining operations in 1993 and in recent years has been producing fluorspar concentrates from already quarried material and from tailings. Buffalo is currently exploring the possibility of a resumption of full scale open pit and underground mining operations and hopes to dramatically increase capacity in the coming years.

With regards to metallurgical grade fluorspar specifically, for most of the 12 years Since FluorOne's inception, Mexican mine Koura (Mexichem) has been the hegemon in western markets. Koura effectively displaced other sources in those markets in the early 2000s and have been the predominant supplier ever since. For that reason, FluorOne has mainly focused on the acid grade concentrates that go into the aluminum and chemical industries. However Koura suffered a major accident in their San Luis Potosi, Mexico mine last year, leaving metspar customers around the world in the lurch.

Luckily, with their own Shanghai office, decades of experience sourcing in that part of the world, and longstanding partnerships, FluorOne was in excellent position to help supply material to those consumers as China & Mongolia have returned to the fore as reliable suppliers of metallurgical grade fluorspar.

The transition from Mexican to Chinese & Mongolian sources of fluorspar has definitely required some adjustment by consumers who were accustomed to Mexican material. The Mexican material's principal impurity is CaCO3, whereas Chinese and Mongolian material have very low CaCO3, but SiO2 as the main impurity. For that reason, customers whose specs have been built around Mexican

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FRANCISCO BATISTA & HIS PERSPECTIVE ON BRAZIL



a) Energy: There has been very little change since issue #98 of ***SiC & More*** that was published in June 2023. Short-term energy prices are extremely depressed and are expected to remain at the regulatory floor price (R$69.04/MWh) at least until Apr/24. Future energy prices have shown an overall drop of 2% compared to the last report. The market is still very illiquid for long-term contracts. The 2023 El Niño is performing as forecasted. Rainfall is accumulating in the south of Brazil and wind energy generation is above average in the northeast. A sudden blackout took place on Aug.19th in some regions of Brazil taking 19 GW of energy consumption out of the system. The official cause of this incident is yet to be announced but it is generally accepted that an over-generation from intermittent sources such as wind and solar highly concentrated in the northeast region of Brazil was responsible for collapsing the transmission backbone of the country. It was a first, but a clear indication that the BR electric system needs to add more backup sources of energy along with new transmission assets to support the fast growing solar and wind generation assets (responsible for 93% of future capacity coming online until 2029).

b) Macroeconomics: Brazilian Central Bank has cut interest rate by 0.5% to 13.25%. It has also indicated new cuts will be adopted in future monthly meetings should the positive assumptions remain in place. Focus report is now projecting interest rates of 11.75% by the end of 2023 and 9.00% by the end of 2024. However, there are mixed signs coming from main street. The overall decrease in hard and soft commodity prices along with stable domestic consumption are yellow to red flags now as they will impact the federal government revenues which in turn will increase the already large deficits for 2023 and for 2024. These deficits are the main drivers for further cuts in interest rates. FX on the other hand is being mostly driven by the FED's decision to keep increasing its interest rates. The higher the US interest rate, the more money that flies away from the rest of the world to US impacting negatively in every country's currency. Current projections for Brazilian FX are: R$ 4.98 for Dec/23 and R$ 5.07 for Dec/24.

c) Commodities: Soft and hard commodities are performing relevant drops in prices as a consequence of the stagnant Chinese economy (major off taker). Exports remain strong even under these new prices, but soft commodities' output will certainly be reduced in the next harvest season (2024).

d) Politics: Not much changed from last report other than the approval of the new fiscal policy by the lower house. It now needs to be voted again at the senate as changes were made in the previous version. Tax reform is still under negotiation and there is no guarantee it will be approved in 2023 (to be effective in 2024) although it is of the utmost importance for this administration.

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material have had to rethink their tolerance for SiO2. But Chinese and Mongolian material is very low in all other impurities and has achieved wide acceptance.

In retrospect, maybe Jeff Kofsky really does have fluorspar running through his blood. Then again, whether he does or doesn't, Jeff's objective of providing the industry with the highest quality fluorspar in a timely fashion and at reasonable prices remains essentially a lifelong commitment. Watch for more news about Jeff and FluorOne as we move forward.



Open Pit Mining Activities, South Africa

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ZAPORIZHABRASIVE KEEPS MOVING FORWARD



Pictured above is an aluminum oxide ingot being transferred from the furnace to the cooling center.

SiC & More first started reporting on activities at Zaporizhzhia Abrasive Plant (Zaporizhabrasive) during 2003 and the company has been mentioned in ***SiC & More*** on no less than 30 occasions. As reported by ***SiC & More,*** the company is accustomed to fighting adversity.

For example, while in the penalty box when it came to trade with the U.S., due to the US Trade Representative (USTR) placing 100% ad valorem duties on virtually all Ukrainian exports, Zaporizhabrasive still managed to increase production during 2005. In fact, at that time, the company was forecasting 25,000-30,000 metric tons of SiC production which was a sizable increase compared to its output in any of the previous five years. When the USTR lifted the duties due to the Ukraine adopting improvements to its legislation protecting intellectual property rights, Zaporizhabrasive was poised to ship value-added products to the U.S.

When many believed that the financial crises of 2008 would count Zaporizhabrasive as one of its casualties, the company again persevered. Of course, the most recent crises and certainly the most threatening, has proven that Zaporizhabrasive can not only survive, but thrive, in the middle of a war zone.

Zaporizhzhia Abrasive Plant (Zaporizhabrasive), remains the sole producer of grinding materials in Ukraine and the largest abrasive manufacturer in Eastern Europe. The company recently announced that it is launching its brand new website as part of an ambitious enterprise modernization strategy.

This step aims to expand the company's capabilities, enhance competitiveness, and provide convenient access to information for clients and partners.

"Thanks to modern design and a user-friendly interface, users can easily find all necessary information about the company, product range, technical specifications, properties, and application areas. We have identified English as the primary language of the new website, which will allow us to attract clients from various countries and simplify the cooperation and ordering process," said Chairman of the Supervisory Board of Zaporizhabrasive Maksym Bielawski.

One of the key innovations on the revamped website will be introducing a convenient service for customers – an electronic catalog of the plant's products.

“The electronic catalog will help our customers familiarize themselves with the full range of abrasive materials and tools produced at the enterprise. It will be an open public tool, with the help of which our client from any country of the world, after visiting the site, will be able to choose the desired products and order the required quantity independently. After pressing the «Order» button, the request is immediately sent to the sales department. It will allow the client to place orders much faster, and us to be more efficient and focused on customers’ needs», said Chairman of the Supervisory Board Bielawski.

During 1H 2023, Zaporizhzhia Abrasive Plant PJSC produced 15.7 thousand metric tons of products. That volume included:

- Normal electrocorundum (aluminum oxide) – 5.9 thousand m/t
- Abrasive tools/bakelite – 260 m/t
- Cutting wheels – 712 m/t
- Grinding wheels – 2.1 m/t

In addition, the production of silicon carbide during this period amounted to 8.73 thousand m/t, which represents a 23.7% increase over 1H 2022.

SiC & More will continue to follow Zaporizhabrasive’s progress and provide updates to readers as this well managed company continues to thrive in the face of adversity.

*** Link to the new site. https://www.abrasive.zp.ua/

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METALS INDUSTRY UPDATE

US STEEL

The Directors of U.S. Steel have put the company on the sale block. The Directors added that the company has received several bids for parts or all of the company including from the likes of Cleveland-Cliffs. On August 13, the board announced that investment bankers and attorneys had been hired to help them navigate the offers. U.S. Steel is forecasted to hit $20 billion in sales for the year.

CUTTING TOOLS

Machine shops and other manufacturers increased purchases of cutting tools by about 3.2% from May to Jun3 2023. This is an indication that durable good manufacturing may be destined for growth that exceeds expectations. The June result is a 23.5% rise over the $175.9 million reported for June 2022. Year-to-date performance for cutting tool consumption reached $1.24 billion for 1H 2023.

JOHN DEERE

Deere plans to build a 115,000 square foot facility to expand production of Kriesel Electric products. JD acquired majority ownership in Kreisel in 2022. Kreisel produces battery technology for e-mobility and stationary systems as well as Level 3 charging solutions. The new plant will be located in Kernersville, North Carolina where JD already manufactures excavators.

U.S. LIGHT VEHICLE SALES

August sales were up 13.6% compared to the same month in 2022 and up by 13.3% when comparing the first eight months of this year to 2022. Sales through August annualize at a 15 million pace compared to 13.75 million in 2022. By comparison, sales in 2016 were 17.5 million units.

CRITICAL RAW MATERIALS

According to a EU Commission report, China has 45% of critical raw materials markets with U.S. at 7%; Australia 4%; Russia 4%; South Africa 4%; Brazil 5%; and others at 19%.

GLOBAL STEEL PRODUCTION

According to *Worldsteel Association*, world steel production for 63 countries for the month of July was 158.5 million m/t, which represents a 6.6% increase compared to July 2022. From January through July 2023, China leads all producing countries with 626.5 million m/t followed by India (79.9), Japan (51.2), U.S. (46.8), and Russia (44.2). Of the regions, through the month of July 2023, the EU is down 10.3% compared to the same time 2022 while North America is down 3.5% and South American down 7.4%. Despite all of the negative news regarding the Chinese economy, Asia and Oceania is up 1.7%.

CUMMINS

Cummins recently reported that results for Q2 2023 reflected a 31% sales increase in North America compared to the same quarter in 2022. International revenues increased 32% due to the additional of Meritor and strong demand across most global markets. According to CEO Jennifer Rumsey, “While we see demand remaining strong through 2023 and we are maintaining our guidance on revenue and profitability, we continue to closely monitor global economic indicators. Should economic momentum slow, Cummins will remain in a strong position to keep investing in future growth bringing new technologies to customers as we advance our Destination Zero strategy, and returning cash to shareholders.”

U.S. STEEL PRODUCTION

U.S. raw steel production 2023 Year-to-date production is down 3.7% compared to 2022. Recent weeks show 76-78% capacity utilization rates.



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GLOBAL BFA PRICING & REDUCED PRODUCTION IN CHINA

In November 2022, in issue #95, a trader told ***SiC & More***, "Don't expect a freefall in BFA prices from China because domestic demand is way down. Several large BFA producers have already significantly scaled back production. Between issues related to COVID, environmental pressure and lower steel production, the BFA industry is a bit upside down."

It is believed that China supplies about 85% of the world's brown fused aluminum oxide (BFA). There are a few other options for BFA including the Curimbaba Group, which is a major player out of Brazil.

SiC & More reported in issue #94, "The cost of bauxite, environmental issues, cost of energy, COVID, capacity utilization, and logistics remain hurdles for most Chinese producers and their trading partners." What most observers didn't foresee, was a softening in China's ferrous and non-ferrous metals industry while BFA producers continued to build inventory.

The result has been profound as some traders and processors believe that China's aluminum oxide capacity utilization has dipped to about 20%.

It's always difficult to assess the status of China's Al2O3 industry. Although according to reliable sources, the total capacity remains nearly 2 million metric tons with the Yichuan New Zone leading the way with approximately 530,000 m/t of furnace capacity. No doubt, demand from China's domestic abrasive and refractory industries have dropped off significantly since the second half of 2022 and exports aren't much better.

Several reliable sources estimate China's current output at something closer to 400,000 m/t meaning utilization of 20% against the aforementioned capacity of 2 million m/t. To further cloud the landscape, another source believes about 300,000 m/t of capacity has been shut down with no intention of restarting. That would mean utilization of closer to 30% based on 500,000 m/t per year of output.

Suffice it to say, demand is down and so is production. Prices have gone south but not as quickly as capacity utilization would suggest. For example, from mid-2022 to price quotes for Q4 2023 shipments out of China, crude has dropped by about $120 net ton or about 13%.

In issue #100, ***SiC & More*** will reflect on Al2O3 production for the past 10 years as well as take a look at Chinese BFA exports.

A MOMENT WITH FENGCHI GROUP

Liaoning Province in China is the magnesite capital of the world, and the largest producer is The Fengchi Group located in Haicheng City. With over 2,000 employees The Fengchi Group consists of eight (8) subsidiaries and is unique in having over 250 technical people on staff ensuring that only the highest quality products leave their facilities.

Fengchi Group Mine boasts of having 200 million tons of high purity reserves. As a result, the world's traders beat a path to Haicheng City to supply the dozens of large refractory companies scattered across the earth with both dead burned (DBM) and fused magnesite.

The Haichen Sanyan Mining Co. (Sanyan) is the heart of the world's fused magnesia supply base. The company built an 80,000 KVA primary transformer station with 30 sets of 5000 KVA electric fused magnesia furnaces that create 200,000 m/t per year of capacity. In addition, Sanyan has annual capacity of 350,000 m/t of DBM. Truly, an impressive facility with incredible output.

When management was questioned about the biggest hurdles facing the company and the magnesia business in general, ***SiC & More*** was told, "Continued labour cost increases and uncertainty of government's policy for environmental protection."

However, despite the incredible capacity of high-quality product and astute leadership, Fengchi is not exempt from the global economic dynamics that effect companies around the world. ***SiC & More*** queried about how much the slowdown in China's economy affected the magnesia business; "The weak economic conditions indeed affect business. Volume for domestic market dropped about 20% year over year."

Sanyan's key export markets include U.S., EU, and Japan. As far as power costs, kWh for fused magnesia has been stable and coal dedicated to DBM returned to pre-COVID levels.

To close the interview, Mr. Gao Yanshi, Sales Director for Fengchi Group, commented, "All of us at Sanyan are committed to servicing the world's refractory industry and continue to maintain the highest quality standards when it comes to dead burned and fused MgO. As the world's largest DBM supplier, we feel obligated to provide the very best product at a reasonable price and always prioritize customer service and delivery."

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GLOBAL SIC PRICES CONTINUE TO ERODE

It appears as if most of the rough and tumble roller coaster ride is over when it comes to SiC pricing.

In issue #98, "Although worldwide SiC prices are not dropping as dramatically as they did during Q1, there is still a slow incremental erosion taking place that seems likely to continue throughout the balance of 2023." It appears as if this ***SiC & More*** position statement will ring true as a trader recently said, "Prices are down with every shipment leaving China, however, a lot of SiC plants in China have been shutdown of late so many believe that supply and demand are basically back in balance. Prices will continue to soften during the balance of 2023, but I expect Q4 pricing to drop in a similar fashion to the last few months, which is in the $5-10 ton range with each ship carrying SiC leaving China. The wild card is if China devalues their currency."

Since 1989, China has experienced average growth of about 9% per year while in 2023 the estimate is 4.5%. Although 4.5% is still significantly better than in the U.S. and most of EU, there remains issues that are likely to affect the industrial minerals business. For example, there has been a significant slowdown in construction, which has for the most part been responsible for the incredible growth in China over the past 30 years. The property market has plunged, which means that personal savings has taken a substantial hit. In addition, there is an issue with unemployment that is unlikely to go away any time soon. With the drop in domestic demand, there are those that believe China will slowly devalue their currency in an effort to export their way out of the current dilemma. Then again, with an average annual income of only $12,850 and 40% of the population still living in rural areas, China's growth potential is still there.

What can readers expect as we prepare to enter Q4 2023 and move into a New Year? We repeat what a trader told ***SiC & More*** in June, "If you held my feet to the fire for a price prediction, I would forecast global prices will drop during Q3 and Q4, which generally means end-use markets in the Americas and Europe will continue to soften into Q1 2024. But I do believe the largest price decreases are behind us."

A processor in the U.S. said, "We believe most of our raw material price concessions are behind us, but we will be passing on savings to our customers during the last quarter of 2023 and the first quarter of 2024. I also anticipate price decreases to the end-use markets during the second quarter of 2024 but in much smaller percentages than we have seen through most of 2023."

End-user's pricing lags the raw material purchases from China made by traders and processors by about 3-6 months depending on the amount of inventory processors carry in their warehouses. The timing might be a bit less in EU vs. North America, but they are at least similar.

In closing, a trader told ***SiC & More***, "Yes, it appears as if the price instability that started during COVID might finally be in the home stretch."

Silicon Carbide & More

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