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**THE SKY IS THE LIMIT:
SHAPING THE FUTURE
OF REFRATORIES**

HEIKI MIKI
OVERSEAS BUSINESS DIVISION DIRECTOR
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SHINAGAWA

Shinagawa's Refractory Solution for Essential Industry

Shinagawa Refractories Co., Ltd., a Japanese company, headquartered in Tokyo, is one of the largest refractory suppliers in the world. Since its establishment in 1875 as a first private fire brick company in Japan, Shinagawa has always retained passion and commitment to quality and continues to enhance 145 years of refractory expertise.

With a focus on "proximity," the company places the greatest importance on pursuing improvements and providing one-of-a-kind solutions for each and every customer in essential industries worldwide. Promising the highest and most consistent performance, Shinagawa looks to expand global business to better serve all the needs of customers.

Find more at <https://www.shinagawa.co.jp/en/>





*Heiki Miki, Overseas Business Division Director
Shinagawa Refractories Co., Ltd*

The Sky is the Limit: Shaping the Future of Refractories

Shinagawa Refractories Co. Ltd., the world's leading refractories player, has been supporting major social infrastructures by providing superior values and optimal solutions. With over 145 years of experience in refractories, the company is trusted across almost every essential industry. Its contribution to the refractory segment is worth mentioning. In this interview with Iron & Steel Review magazine, Heiki Miki, Overseas Business Division Director, Shinagawa Refractories Co., Ltd., highlights the milestones touched by the company in its long journey. He discusses elaborately on the company's global expansion programme, products and services, and R&D activities. We also come to know from him how he views India as a potential market.

The Sky is the Limit for Shinagawa: It will be shaping the future of refractories. Heiki Miki elaborates on this particular aspect. Let's see what he has to say regarding this.

Shinagawa Refractories has completed 145 years of its journey. Could you tell us something about your major achievements during this period?

Katsuzo Nishimura, the founder of Shinagawa, commenced production of fire bricks in 1875 amid Japan's modernization movement during the Meiji era. Since then, the history of our company has been the one to support the modernization of Japan and the post-war high economic growth, often referred to as the Japanese economic miracle. With regard to the postwar Japanese steel industry, in 1946, only three blast furnaces were in operation and the crude steel production was just 560K tons, just above half of 1 million tons, merely 7% of the wartime levels. As the Japanese government introduced the "Priority Production System" to concentrate funds and resources on increasing steel production, the steel production increased significantly in a short time period and, in 1973, it reached over 100 million tons, increased 200 times in less than 30 years, to support the economic growth. Shinagawa has been very proud to be a part of this miraculous economic growth, to support steel and other fundamental industries by continuously providing high quality refractories.

Shinagawa Refractories is a global Refractory company. Which are your main markets in the world?

In addition to our dominant market position in Japan, Shinagawa's main markets for global expansions are Americas, Oceania, East/South East Asia and, last but not least, India. Shinagawa has been actively promoting our products and technologies globally by exporting them from Japan for many years, and we are now making far-reaching changes to our strategies, to achieve "PROXIMITY" for our global businesses by establishing more local productions at each overseas location. In the Americas, we have Shinagawa Americas in the US to locally produce high quality mould powders and are newly welcoming two plants by acquiring them from Saint-Gobain, one in Brazil and another in the US. Shinagawa has a dominant market position in Oceania

with Shinagawa Refractories Australasia in Australia and New Zealand. We established PT Shinagawa Refractories Indonesia in 2014 to start monolithic production in Jakarta Indonesia. And, in 2019, we established SG Shinagawa Refractories India at Halol, Gujarat, to locally produce tap-hole clay for blast furnaces in India and recently initiated strategic collaboration with Dalmia Bharat Refractories.

How strong is your business in the South East Asia market?

Taking advantage of having our main plants in Japan and Shinagawa Refractories Australasia in Australia, Shinagawa has been participating in the South East Asia market by import for years. In order to promote our PROXIMITY strategy in the region, we established PT Shinagawa Refractories Indonesia in 2014 to start monolithic production in Jakarta Indonesia. More recently, in addition to refractories, we have also been focusing on sales of insulation materials to Southeast Asia. In March, Shinagawa completed the acquisition of Isolite Insulating Products Co., Ltd. to make them our fully owned subsidiary. Isolite has their production base in Johor Malaysia, Isolite Ceramic Fibers Sdn. Bhd., and now we now start jointly working to promote refractories and ceramic fiber together in the South East Asia market.

Since decarbonisation is one of the most important topics at the moment, what kind of action you are taking towards this policy?

Environmental issues are a warning of the upcoming disaster. As a result, in whatever business segment you are operating, in order to be recognized as a respected company and to expand business globally, it is essential to respond actively to environmental issues and to be a part of the solutions. Shinagawa has been leading initiatives in mitigating the environmental burden by introducing heat insulating materials and designing their linings to save energy for our customers, and developing refractory products that do not contain any harmful substances. We have developed technologies



to minimize heat radiation from high temperature furnace bodies by utilizing refractory materials with low thermal conductivity. Shinagawa is promoting our carbon free refractory lining to prevent molten steel contamination by the C component contained in refractories. We have successfully developed technologies to recycle used bricks as raw materials for producing prime refractories products, promoting it to our customers globally.

Shinagawa set our goal to (1) reduce greenhouse gas emissions 50% by 2030 (vs 2013) and (2) achieve carbon neutrality by 2050. In December 2021, Shinagawa declared support for the TCFD (Task Force on Climate-related Financial Disclosures) and its recommendations and joined their consortium. We will voluntarily and proactively promote information disclosure based on the TCFD's recommendations, reduce the burden on the global environment through our business activities, and continue verification for the creation and sustainable development of a decarbonized, circular economy, and a society in harmony with nature. Shinagawa is fully committed to continually actively addressing global environmental issues.

Shinagawa Refractories has acquired the two operations of Saint-Gobain, one in Brazil and another in the US. Could you tell us how much it would benefit from this deal?

The acquisition of the Brazilian refractories company represents a natural extension of our long-standing collaboration with Saint-Gobain in Brazil, whereby Shinagawa has been supplying technologies for the manufacture of iron and steel refractory products. This relationship dates back to 1991 when Shinagawa first started licensing technology for the production of tap-hole clay for the South American market. In recent years, Saint-Gobain

in Brazil has also represented Shinagawa for the sale of refractory products made in Japan for the South American markets for iron and steel, cement, and other industries. This acquisition allows Shinagawa to further penetrate the South American market for various industries by providing Shinagawa with its own production base with well-established customer service networks.

The acquisition of the US Alumina-based Wear-Resistant Ceramics Business represents a new and attractive adjacent non-refractories product offering for Shinagawa in the US, complementing Shinagawa's existing offering for the North American iron & steel industry. Shinagawa has been in the business of Wear-Resistant Ceramics in Japan through Shinagawa Fine Ceramics Co., Ltd. and this acquisition enables Shinagawa to tap into the global market for the first time. Further strengthening of our non-refractories business was a key objective identified in our 5th mid-term plan for the period 2021 to 2023 and this acquisition represents the perfect opportunity for Shinagawa to implement this strategy.

It is understood that you consider India to be one of the major markets for Refractory products. What kind of investment do you plan to do in the near future?

Shinagawa certainly considers India as one of the most important markets for our refractory products considering its significant growth potential of its steel production. We believe that India continues to be the world's second-largest producer of crude steel and understands it aims to produce 300 million tons by 2030. After supplying various refractory products from Japan to India for years, in 2019, Shinagawa established SG Shinagawa Refractories India as a JV with Grindwell Norton at Halol, Gujarat, which was our first local production site to produce tap-hole clay for blast



furnaces in India. And, considering the strategic importance of India for Shinagawa's global expansions, we recently entered into a Know-How License Agreement with Dalmia Bharat Refractories, one of the most prestigious and well-respected refractory producers in India, for other refractory products. It is our desire and goal to capture rapidly growing demand for refractories in India by strategically collaborating with Dalmia Bharat Refractories.

Could you tell us something more about your technology, products and services?

Since our founding, Shinagawa has been placing the greatest importance on pursuing innovation and improvements, providing one-of-a-kind solutions to our customers globally. Refractories are not commodities but very unique special products. We develop and design refractories based on specific needs and requirements of our customers. Shinagawa works very closely together with our customers to develop and identify optimal solutions. We consider technology, products and services as components to constitute our solution, "Shinagawa's Solution," and present them as a whole to our customers. Our R&D teams develop new technologies supported by state-of-the-art laboratory facilities, while our shop floor produces high quality refractories consistently using the most advanced machinery and equipment, and sales engineers are always in close communication with our customers to find their specific needs and provide optimal solutions. They are all working in tandem to create the best values, "Shinagawa's Solution," for our customers.

Securing cutting-edge technologies have always been the most important aspect to stay ahead in any manufacturing business. Could you tell us how much investment you make every year to keep your company ahead of others?

Yes, it is vital for Shinagawa to actively make investments constantly to keep us ahead of our competitions by securing cutting-edge technologies at all times. We plan on spending 14.0 billion JPY during our 5th mid-term plan for the period 2021 to 2023 to optimize our production in Japan (consolidating monolithic plants from 3 to 1) and to further modernize and automate our production processes. We spent 9.4 billion JPY for the period 2015 to 2017, 11.0 billion JPY for the period 2018 to 2020. Shinagawa is consistently making capital investment positively for further future growth.

How do you see your company doing in the next 3 to 5 years downline?

Shinagawa is in the midst of active global expansion. While we continue to serve the Japanese market as one of the major suppliers, further global business expansion is absolutely essential for the future of Shinagawa. We continue to actively pursue new opportunities in our strategically focused counties and regions, plan on further increasing our production sites outside of Japan, especially in the Americas, China and India. Shinagawa will go global further and faster. The Sky is the Limit for Shinagawa. We will be shaping the future of refractories. We will be the future of refractories.