AM/NS India First to Secure CSIR-CRRI’s Breakthrough Steel Slag Aggregates Technology License to Unlock ‘Waste-to-Wealth’ Potential in Road Infrastructure Development

Category: Business
written by News Mall | July 28, 2025

- This means company can apply the special technology developed by CSIR-CRRI to scientifically process steel slag aggregates at the flagship plant in Gujarat for their use in steel slag road building
- License from country’s premier scientific institute, under the Ministry of Science & Technology, reinforces firm’s leadership in innovation in line with circular economy and India’s net-zero goal
- Technology will reduce environmental degradation and natural resource strain when applied at scale, replacing

natural road-building aggregates

ArcelorMittal Nippon Steel India (AM/NS India) has partnered with the Council of Scientific and Industrial Research (CSIR) – Central Road Research Institute (CRRI) to spearhead the transformative shift towards sustainable infrastructure development by promoting the adoption of steel slag road technology that replaces the usage of natural aggregates with processed steel slag aggregates in road construction. AM/NS India has become the first company in the country to secure the coveted license for steel slag valorisation technology from CSIR – CRRI, a premier national research institution operating under the Ministry of Science & Technology, to produce processed steel slag aggregates for road construction.

Steel Slag Road Technology

AM/NS India has received the 'Steel Slag Valorization Technology for Development of Processed EAF Steel Slag Aggregates at AM/NS India plant in Hazira for Utilization in Road Construction' certificate of license, which means the company can apply the special technology developed by CSIR-CRRI to scientifically process steel slag aggregates at the flagship plant in Hazira, Gujarat, for their use in road construction.

AM/NS India currently produces specially designed slag under the brand name '**AM/NS Aakar**', which meets the CSIR-CRRI's

stringent technical guidelines, specifications, and quality control measures. Processed steel slag aggregates produced by AM/NS India under technological license have proven to be more durable and cost-effective than natural aggregates typically used in road and highway constructions. AM/NS India generates about 1.70 million tonnes of steel slag annually, which now can be processed as per the CSIR-CRRI's technology.

Satish Pandey, Senior Principal Scientist at CSIR-CRRI and inventor of the technology, said, "*The steel slag road technology is a game-changer for India's road infrastructure. The country generates over 19 million tonnes of steel slag annually, and the direct use of untreated steel slag poses a significant risk to the mechanical properties and durability of the steel slag-derived composites. With this license, AM/NS India – which collaborated with us in building India's first 'all steel slag road' in Hazira – is now being allowed to manufacture, market or sell the specially designed processed steel slag aggregates for road construction*."

Ranjan Dhar, Director and Vice President, Sales & Marketing at ArcelorMittal Nippon Steel India (AM/NS India), said, "*We are proud to have received the first license of the technology for steel slag valorization used for conversion of steel slag as road-making aggregates. This achievement builds upon our previous involvement in successfully building what is possibly the worlds first one-kilometre, six-lane road made from steel slag, which was also recognised by the India Book of Records and the Asia Book of Records. This not only reiterates our commitment to contribute to a circular economy by recycling and reusing by-products from our steelmaking operations but also sets a new benchmark, besides aligning with Hon'ble Prime Minister Narendra Modi ji's mission of 'Waste to Wealth'*."

Scientifically processed steel slag for roads provides significant advantages over traditional construction materials. The steel slag roads are about 30 to 40 % more cost-effective and can last up to three times longer than

standard bitumen roads, reducing repair and maintenance needs. Their strength makes them suitable for various environments, from coastal regions to rugged terrains.

Utilisation of unprocessed steel slag in road making poses challenges in durability of roads and can cause environmental impact. To address this, CSIR-CRRI was awarded a national project by the Ministry of Steel, Government of India, to conduct scientific research on the uses of steel slag in road construction, with AM/NS India opting to collaborate for the initiative. As a result, India's first 'all steel slag road' was built in Hazira using specially designed steel slag aggregates in collaboration with the CSIR – CRRI. The road, which was made by replacing natural aggregates in all the layers, was subsequently inaugurated by the then Hon'ble Union Steel Minister Ram Chandra Prasad Singh in 2022.

In recent developments, the world's first coastal steel slag road was inaugurated inside a private port at Hazira. Another steel slag road 'NH-53 diamond bourse' in Surat was also developed, which used **'AM/NS Aakar'**.

Meanwhile, steel slag generation is expected to reach 60 million tonnes by FY 2030, considering the ongoing capacity augmentation in Indian steel plants to produce 300 million tonnes of steel by FY 2030-31. Therefore, the Steel Ministry is promoting the usage of steel slag road technology and actively collaborating with the Ministry of Science & Technology, and Ministry of Road Transport & Highways to facilitate the large-scale utilisation of the industrial by-product. This initiative supports India's circular economy, which is expected to generate a market value of over $2 trillion and create close to 10 million jobs by 2050.

About ArcelorMittal Nippon Steel India (AM/NS India)
ArcelorMittal Nippon Steel India (AM/NS India) is a joint venture between ArcelorMittal and Nippon Steel, two of the world's leading steel manufacturing organisations. A leading

integrated flat carbon steel producer in India, the company has a crude steel capacity of 9 million tonnes per annum with state-of-the-art downstream facilities. It produces a fully diversified range of flat steel products, including value-added steel, and has a pellet capacity of 20 million tonnes.