

Technical Information Sheet

1. Name of technology	Technology for effective utilization of steelmaking slag
2. Type of technology	This technology is used to recover metallic iron from the steelmaking slag produced in steel mills, and use its mineral constituents as raw materials for cement, thereby reducing the environmental load on the atmosphere.
3. Description of technology	[Objective and application of the technology] We use our own specially developed environmental protection and resource saving technology to process steelmaking slag—which is a by-product generated in steel mills—thereby recovering metallic iron and minerals (such as CaO, Al₂O₃, SiO₂, Fe₂O₃, MgO, and others) and allowing them to be put to effective use. Using minerals as raw materials for cement has the following beneficial effects: • Saving of natural resources such as limestone • Saving of energy as a result of replacing limestone with steelmaking slag • Reduction in CO₂ emissions produced by cement manufacturing In recent years, there has been an increase in steel production in developing countries, and the question of how to process and reuse the by-products from steelmaking, such as slag, has become an important issue. Aimed at establishing appropriate treatment and effective use of these by-products, this technology is now playing an active role overseas. [Characteristics of the technology] Our system crushes, separates, and purifies steelmaking slag, a by-product of steel making, in order to recover metals and minerals. Our own company developed magnetic separators are used in the separation process. Objective, application, characteristics, delivery record, and price of technology <pre> graph TD SP[Steel plant] --> SP1[Steel products] SP --> BP[By-products: Steelmaking slag] BP --> C1[Crusher] C1 --> S1[Screen] S1 --> MS1[Magnetic separator] MS1 --> MPA1[Materials picked up by magnetic attraction] MPA1 --> C2[Crusher] C2 --> S2[Screen] S2 --> MS2[Magnetic separator] MS2 --> NM1[Non-magnetic materials] NM1 --> S3[Screen] S3 --> CA[Component adjustment] CA --> QC1[Quality control] QC1 --> SLM[Slag for use minerals] SLM --> L1[Cement] SLM --> L2[Roads] SLM --> L3[Concrete aggregate] SLM --> L4[Civil engineering works and ports/harbors] SLM --> L5[Ground improvement] SLM --> L6[Fertilizer] MS2 --> MPA2[Materials picked up by magnetic attraction] MPA2 --> RM[Rod mill] RM --> S4[Screen] S4 --> MS3[Magnetic separator] MS3 --> M[Metal] M --> QC2[Quality control] QC2 --> RM2[Recovered metal] </pre> Figure: Process used by our technology [Delivery record] • Around 3.5 million tons processed annually, representing 30% of domestic steelmaking slag. • We process slag at steel mills in Japan, China, South Korea, the Ukraine, and Russia, providing these sites with technical assistance, and sales of related equipment.

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4. Classification of technology	
(1) Applicable fields	Industrial waste treatment, Recycling (materials), Other environmental protection technology (effective use and resource saving)
(2) Target waste	Other
(3) Services provided	Plant construction, Sales of machinery and equipment, Waste treatment service, Technical cooperation/ licensing, Survey/ data processing, other
5. Countries to which this technology can be provided	Not specified
6. Keywords	Slag, Steelmaking, Waste, By-Products, Cement, Magnetic, Separation, Steel Making, Steel, Environment, Saving of resources, Effective use, Reduction of environmental load, Minerals, Metallic iron, Reduction of CO ₂ emissions, Recycling
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