

Aggregates with a low environmental impact that replace natural materials

# Air-cooled blast furnace fine slag aggregates

## Features

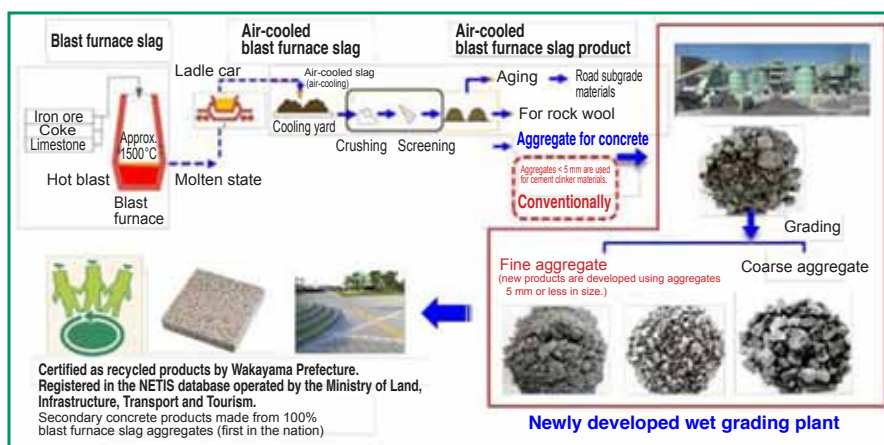
- The 100% air-cooled blast furnace slag suppresses the alkali-silica reaction in the product.
- The 100% air-cooled blast furnace slag reduces CO2 generation (from 0.0029 to 0.00095 kg-CO2/kg).
- The products can replace natural materials and protect natural resources.

## Overview

(Technical principles, actions, etc.)

By incorporating a wet vibrating screen classifier and a cyclone centrifuge in the production line of the “blast furnace coarse slag aggregates for concrete” (20 to 5mm), which are crushed and sorted air-cooled blast furnace slag materials, it has become possible to produce fine aggregates that satisfy the fineness modulus and fine particle content of the blast-furnace fine slag aggregates specified in the JIS standards by fractionally recovering the fine aggregates in sizes of 5 mm or less and separating them into “aggregates for concrete blocks” (5 to 2.5mm) and “air-cooled fine aggregates for concrete” (2.5-0.075mm).

Because the JIS standards specify blast furnace fine slag aggregates as rapidly cooled slag materials, and the use of such materials was limited in the market, a series of quality evaluation tests of the fine aggregates were conducted to demonstrate that their quality is equal to or better than crushed sand. The secondary concrete products made from the fine aggregates were certified as recycled products by Wakayama Prefecture, where they have come to be used in public works projects.



Production flow of air-cooled blast furnace slag products

## Effects

Conventionally, natural fine aggregate materials (natural sand) were used for secondary concrete products. However, after air-cooled blast furnace fine slag aggregates for concrete were developed, it became possible to raise the fine aggregate content in the product to 100% and produce products that do not induce an alkali-silica reaction. By using 100% recycled air-cooled blast furnace slag, the CO2 emissions were reduced from 0.0029kg-CO2/kg to 0.00095kg-CO2/kg\*1, and the protection of natural resources became feasible at the same time.

\*1 Recommendation of Environmental Performance Verification for Concrete Structures (draft), excerpt from the Japan Society of Civil Engineers.

For other steel slag products, refer to “Nippon Steel & Sumitomo Metal steel slag products” at: [http://www.nssmc.com/product/catalog\\_download/pdf/L001.pdf](http://www.nssmc.com/product/catalog_download/pdf/L001.pdf)

Applicable field  
Secondary concrete products used for civil engineering and construction work (e.g., U-shaped gutters with covers)

Water

Energy saving/Energy recovery

Energy storage/Energy creation

New energy

Waste disposal/ Recycling/ Resource saving

Air

Soil

Other

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