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Magnesia Silicone High Strength Insulation Board



DGWMS-LD magnesium silica high-strength insulation board has the advantages of high strength, low density, high apparent porosity, low thermal conductivity, high temperature resistance, and easy processing. It is widely used in thermal insulation in many fields such as metallurgy, chemical industry, cement, and construction. Especially when used in ladles, it replaces traditional aluminum silicate fiber boards and calcium silicate boards, and the use effect is better.

1.Main technical index

Item	Unit	DGWMS-LD70X	ISOMAG-55XCO
Al ₂ O ₃	%	9.0-12	-
SiO ₂	%	31-35	35-37
MgO	%	25-30	23-25
Fe ₂ O ₃	%	6.0-9.0	-
CaO	%	1.5-2.0	-
P ₂ O ₅	%	6.8-9.0	-
K ₂ O+Na ₂ O	%	2.0-3.0	

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Apparent Porosity	%	≥ 40	≥ 58
Density	kg/m ³	≥ 1300	≥ 1000
C.C.S	Mpa	≥ 15	≥ 6
Room temperature flexural strength	Mpa	≥ 12	≥ 5
thermal conductivity	w/m.k	$\leq 0.3, 600^{\circ}\text{C},$	$\leq 0.23, 350^{\circ}\text{C}$ $\leq 0.25, 400^{\circ}\text{C}$ $\leq 0.27, 600^{\circ}\text{C}$
Continuous operating temperature	$^{\circ}\text{C}$	≥ 1000	Refractoriness:1280 $^{\circ}\text{C}$

2.Product description

DGWMS-LD high-strength insulation board is a high-performance insulation material produced with forsterite and expanded vermiculite as the main raw materials and phosphate as the binding agent. It is a new type of high-temperature-resistant insulation board product. Due to the use of traditional aluminum silicate fiber boards and calcium silicate boards in ladles, converters, refining furnaces and other equipment, many defects have occurred, resulting in insufficient thermal insulation effects, high outer surface temperatures of the cladding, unsatisfactory energy saving effects, and poor use effects. The DGWMS-LD product overcomes the shortcomings of traditional aluminum silicate fiber boards and calcium silicate boards, reducing the outer surface temperature of the cladding by more than 40 $^{\circ}\text{C}$, effectively improving the energy-saving effect, and basically no defects occur during use.

DGWMS-LD products, also known as vermiculite or magnesium silicate board, have advantages such as high strength, low density, high porosity, low thermal conductivity, and high temperature resistance. They can work continuously at temperatures greater than 1000 $^{\circ}\text{C}$. Reduced the steel tapping height, shortened the smelting time, improved production efficiency, reduced the erosion rate of refractory materials, and extended the service life of refractory materials. At the same time, reducing the outer wall temperature of the converter, ladle, and intermediate ladle has improved the working environment.

3. Main features of the product

- 1> High temperature resistance, continuous working temperature $\geq 1000^{\circ}\text{C}$.
- 2> Apparent porosity $\geq 58\%$, low thermal conductivity. $600^{\circ}\text{C} \leq 0.3\text{w/mk}$
- 3> Compared with traditional aluminum silicate fiber board and silicon calcium board, it reduces the outer wall temperature of the cladding by more than 40 $^{\circ}\text{C}$, effectively improving the energy-saving effect.
- 4> Effectively improved the defects in the use of traditional aluminum silicate fiber

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board and calcium silicate board, and enhanced their effectiveness

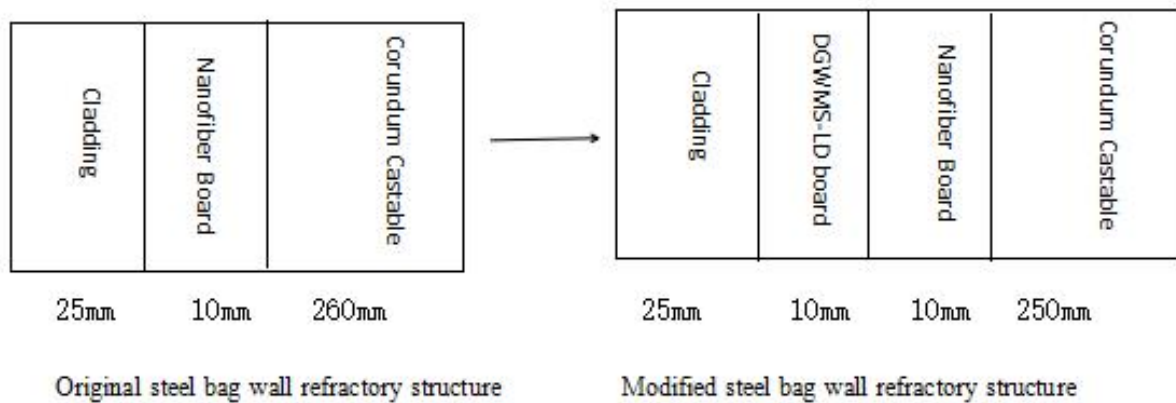
4. Application Fields

The product is mainly used for thermal insulation of metallurgical ladles, converters, intermediate ladles, as well as insulation in many fields such as chemical engineering, cement, and construction.

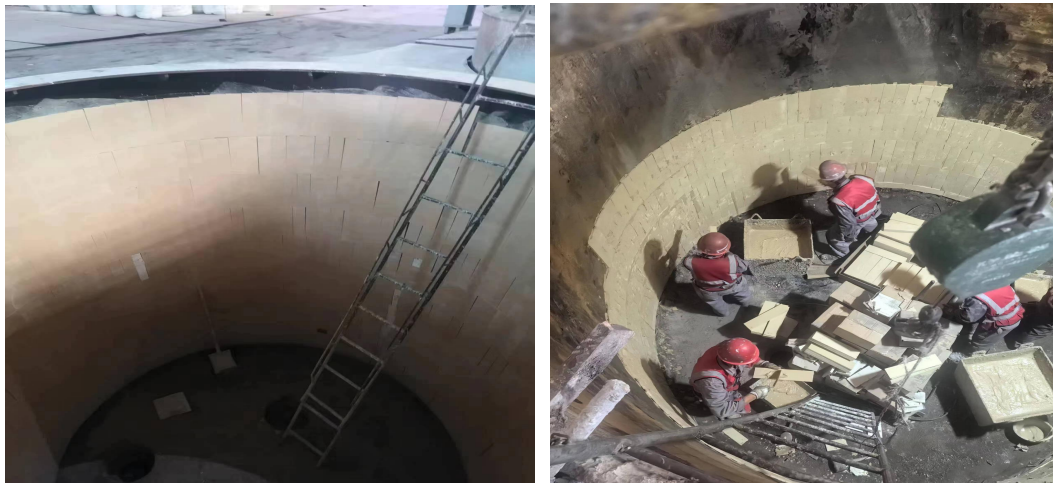
5. Case analysis

The analysis data and conclusions after use on the 6#-14# steel ladle of China Rizhao Iron and Steel Group Company in December 2022 are as follows.

- 1) The outer wall of the ladle is cooled down to 36-46°C, effectively improving the energy saving effect.
- 2) Cost saving means annual benefit: 3.72 yuan/ton * 2.99 million tons of steel = 11.12 million yuan.
- 3) Renovation sketch



6. Construction photos



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