

Synthetic slag

Synthetic slag, developed by Xibao Group as a new generation additives of metallurgy industry, are suitable for LF as a kind of purifying powder which has good capacity of desulfuration and deoxidation. It can efficiently lower the non-metal inclusion in the steel. It is made by sintered or fused. Often it is used together with lime to make into 7A112Ca as a kind of lower melting point material which can absorb the O and S in steel.

Chemical composition and physical properties:

Chemistry Type	SiO ₂ %	Al ₂ O ₃ %	CaO %	MgO %	Fe ₂ O ₃ %	CaF ₂ %	BaO %	S	P	Grain Size (mm)	Melting point (°C)
JL-1	1.0-4.0	35-41	48-52	≤ 1.5	≤ 2.5	--	--	<0.05	<0.05	2.0-40	< 1450
JL-2	3.0-8.0	50-53	32-36	≤ 3.5	≤ 2.5	--	--	<0.05	<0.05	2.0-40	< 1400
JL-3	3.0-8.0	30-25	35-45	≤ 1.5	≤ 1.5	≤ 10	≤ 10	≤ 0.05	<0.05	2.0-40	< 1400

Using method:

The amount should be according to practical application condition of different steels mills. We suggest that to add 5-12kg/ton steel. Also it is can be added in twice: layer it on the bottom of ladle before tapping, second time is adding when in the ladle furnace. When the steel are stirring by argon blowing, the synthetic slag shall be efficiently improve the steel.

Using feedback:

It is widely used in LF and VD. As the S content in steel not less than 0.03%, It should be low to 0.015% of S content after synthetic slag.

Customers:

An shan steel, Handan Steel, Zhujiang Steel, Jiangyin Binjiang Steel, Jinan Steel, Mega steel in Malaysia.

Dephosphorization for BOF

More and more high purity steel is required by the whole society. What we called “pure steel” means that the total impurities in the steel is less than 100 ppm, with the phosphorus content no more than 50 ppm, which is difficult to achieve by using converter or any other refining equipments, so we have to pre-treat the molten iron. There are many ways to dephosphorize the molten iron, but the converter is widely used because of small equipments investment, high efficiency and low cost.

Required by this market, we developed $\text{CaO-Fe}_2\text{O}_3\text{-CaF}_2$ serie dephosphorization which is suitable for different metallurgy techbics and equipments, and this product works very well.

Main physical & chemical index:

Type	$\text{SiO}_2(\%)$	$\text{Fe}_2\text{O}_3(\%)$	$\text{CaO}(\%)$	$\text{BaO}(\%)$	$\text{P}_2\text{O}_5(\%)$	$\text{F}^-(\%)$
TL-1	<5	10~15	30~35	10~14	3~6	3~6
TL-2	≤ 8	18~25	42~50	— —	— —	5~9

Any type, shape and packing can be made according to the requests from the customers.

Modified slag

Along with the development of special steel, pretreatment of molten iron, the technology of short refining and continuous casting period are quickly popularized, especially, it fulfilled the demands of high quality steel from the market. But the strong oxidizing capacity of the converter slag will result in a low yield of the alloy, increase of the oxide impurities, reduction of the steel quality, it will make against the secondary refining. In addition, the molten steel will be exposed in the open air when transferring the molten steel from converter to ladle, there is no cover on the molten steel surface, the steel will be oxidized, and the oxidized surface is very difficult to remove, so it's harmful to the steel quality.

Our product modified slag is developed to solve this problem, put this slag into the ladle during transfer of molten steel from converter to ladle, it will perform as deoxidant and absorb the impurities. This process is very easy, and can lower down the content of FeO in the slag, increase the alkalinity of the slag, enforce the deoxidizing capacity of the deoxidants, avoid secondary oxidation by covering the surface symmetrically, reduce the oxidizing capacity of the slag, increase the yield of alloy, avoid second phosphorization and sulfurization.

1. Main physical and chemical index:

Components	CaO	CaF ₂	Fe ₂ O ₃	CaC ₂	C
Content	45~55	5~10	20~30	10~15	A Few

2. Usage: 5-8Kg for 1 mt steel

Put 50% on the bottom of the ladle before tapping, 50% together with molten steel during tapping.

3. Model: GXZ

Desulphurization Agents for Pretreatment of Liquid iron

Desulphurization Agents for Pretreatment of liquid iron are new products, developed by our company for the marketable request, New products compared with traditional desulphurization, have more advantages. High-S hot metal suitable short flow of metallurgy, high quality liquid iron, solve difficult coagulant. Utilize S have more appetency than Fe with elementary compound, go into liquid iron I, with S contained of FeS, make S-compound, which have steady structure, and non-dissolve in S-compound. So it have good efficiency of desulphurization, non coagulant, non reclaim S. It is easy to handle, Lower the cost of steel marking.

1. Type: TTS

2. Application :Desulphurization for pretreatment of high-S liquid iron

3. Main physical &chemical index:

Items	CaO	CaCl ₂	NaO	Al ₂ O ₃	Fe ₂ O ₃	H ₂ O
%	10-35	10-35	5-20	≤ 10	≤ 10	≤ 1.0

4. Use:

①Make desulphurization agents into the bottom of liquid iron ladle, which use is receive liquid iron, utilize liquid iron flowing efficiency sufficient mix with desulphurization agents, in order to increase reaction interface and speed.

②Dosage of steel/ton:5-15kg/ton, according to originality S content, make proper accommodate.

Refining foaming Agents for LF

Our group newl developed FPJ foaming agent to meet the requirements requirements resulted from the highly developing refining technology. After the basic slag melt completely, add this foam- ing agent, it will generate lots of tiny airbladders inside the basic slag, and the thickness of the basic slag will increase and the steel will be easily refined by submerged arc.

1. Main Index:

Items	SiO ₂	Fe ₂ O ₃	CaO	MgO	LOI	Moisture	Size
%	3-7	< 1.0	40-50	4-8	≥ 35	< 0.5	< 20

2. Main Function:

2.1 Lengthen the life of working layer of the furnace by decrease the interface area between the foaming basic slag and LF slag line.

2.2 The chemical reaction and thermal conductivity condition between molten steel and slag will be changed by the continuous generating and breakage of airbladders, which will help the basic slag to improve its refining capacity.

2.3 Never secondary carburization or oxidization.

2.4 The thickness of foaming slag is 2-3 times of basic slag, so we can achieve the purpose of submerged arc, and save energy when heating by electricity.

3.Usage and Notes:

3.1 Put 2-5kgs per ton steel after basic slag completely melt.

3.2 Basic slag chemical composition should be:CaO/SiO₂>2.5;slag's M index: R/Al₂O₃ 0.2~0.25

3.3 Please mill completely with basic slag after add this agent.

3.4 Please control the deoxidization, or, it would result in sparkling and unsatisfying desulphurization.

Comprehensive SiC based deoxidant

SiC is combined by C and Si by covalent bond, Which is a kind of non-oxide materials. It is very active under high temperature condition, especially when the temperature is higher than 1627°C, it will react with Oxygen very quickly, so we developed this comprehensive SiC based deoxidant to take the place of FeSi and recarburizer used in smelting ordinary carbon steel and low alloy steel, it will lower the cost of steel making, as well as good effect.

1. Main physical and chemical index:

Model	SiC	F.C	Si+SiO ₂	Moisture	Grain size
SiC – F1	80–85%	⟨3%	10–13%	⟨0.5%	0–5 mm
SiC – F2	70–75%	⟨6%	15–20%	⟨0.5%	0–5 mm

2. Usage and dosage:

Put a certain amount (3-6kgs per ton steel) of this product into the bottom of ladle, and start alloyage after tapping for 1/3 of the total steel, other operation remains the same.

3. Effecton:

- a. This comprehensive SiC based deoxidant can take the place of all the consumption of FeSi and recerburizer, and reduce the consumption of FeAlSi, the steel making cost will be lower down by RMB6-10/ton.
- b. The reclaim of the elements is stable when making low alloy steel with this comprehensive SiC based doxidant.

Lz-Flake Graphitic Series of product

Xixia county lies Funiu mountain, there is plenty of resource of graphite . Natural flake graphite°Øs content is very high and easily select; After select medium carbon graphite direct used for metallurgy materials Mg-C brake and other electrocial carbon product. Our company and Wuhan steel company united invest set up medium high carbon graphite branch plant. Our company possess 4 mineral mountain, Adopt modern select mineral equipment, Every day deal with raw mineral 150 tons, Annual product of low and medium carbon up of 5000tons. Our company have high technical test level. Our product have super quality and perfect service after sales.

Property of flake graphite:

ITEM TY LG(—)pe	Csteady%	Over mesh %	Under mesh %	moisture	application
LG(—) 100—97	> 97		> 75	<0.5	Lubricate agent
LG(—) 200—97			> 75	<0.5	
LG(—) 100—95	> 95		> 75	<0.5	Electrical carbon material
LG(—) 200—95			> 75	<0.5	
LZ100—91	> 91	> 75		<0.5	Crucible,Casting Powder
LZ80—91		> 75		<0.5	
LZ(—)100—89	> 89		> 75	<0.5	Metallurgy materials
LZ(—)200—89			> 75	<0.5	
LZ(—)100—85	> 85		> 75	<0.5	Refractory
LZ100—80	> 80	> 75		<0.5	Crucible
LZ(—)100—80			> 75	<0.5	
LDMIX60	60 ± 3	—	—	—	COpe of metallrgy

Molten Steel Purifying Agent

Molten steel purifying agent is a kind of new supporting material researched and developed by the Company in order to meet the need variety steel grade. It can be used in deoxidation of many types of steel-melting, especially in deoxidation of converter. Excellent capability in deoxidation and desulfurization can ensure the improvement of flowing capability of molten steel and solve the problem of nozzle blocking. It can reduce the air and inclusion in steel. In addition, the product is easy to operate, which can improve the recovery rate and reduce the consumption of alloy. It can save cost of steel raw materials about RMB2-4 Yuan in per ton of straight carbon steel and RMB5-10 Yuan of alloy steel, so its economic and social benefit is obvious.

I. Main Physical and Chemical Capabilities:

Ca	Si	C	H ₂ O	Graininess
32-40	12-20	5-8	<0.5	<10mm

II. Using Methods

1. Added amount is in conformity with terminal carbon content of steel, usually 1.5-2.5 kg/ton of steel.
2. Adding Methods: Adding into the bottom of the ladle directly before tapping.
3. Adding Mn-Fe, Si-Fe and Al as regular in the 1/4 course of pouring steel.
4. After pouring, adding Mn, Si-Fe into carbon steel and alloys, Al and lining are no need to add for others. The molten steel in the ladle only needs blowing by argon.
5. If the product is used in deoxidization, the dosage of carburant (silicon carbide) can be reduced properly.

III. Main Used Clients:

Tangshan Steel Company, Tangshan Jinxi Steel Company, Tangshan Guofeng Steel Company, Guangdong Zhujiang Steel Company, Jinan Steel Company, Fujian Sanming Steel Plant, Meishan Steel Inc. etc.

Ba based desulphurizing agent

In 2001, we have desulphurizer Ba desulphur in order to adapt the LF refinery, which has better effect than Ca desulphurizer because of Ba's special atom format. It has the proper of low melting point, speed melting the slag to reduce the CaO, CaF₂, short the time of ladle furnace. The desulphur stable rate can be reach by 30%-80% (according to different customer), meanwhile it can also reduce the noisy pollution and the wear of electrode. It has also a good effect of increasing the speed of temperature, shorten the LF time and lower the cost of steel making. It is the effective way in broad desulphuring of the metallurgy way.

1. Main physical and chemical index:

SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	CaO	BaO	Moisture(%)	Grain size(mm)	Melting point(°C)
4-10	≤ 2	≤ 2	30-40	18-22	≤ 0.5	<20	<1400

2. Usage:

- a. Put 1/3 to 1/2 into the bottom of ladle, the position should be around the shock zone, to avoid the harm to the purge plug.
- b. Use the balance during tapping.
- c. The recommended dosage is 4-10kgs per ton steel, can be adjusted according to the original S content in the steel.
- d. The consumption can be lower down to 3-5kgs per ton steel if with 5-7kgs CaO per ton steel.

3. Pay attention to the following items while using:

- a. Please skim slag while using.
- b. Please add this product continuously in order to desulphur better under the enough reaction area and time. And the ladle should have corresponded purging stirring to help the reaction.
- c. For the converter without Ladle furnace, it should be paid attention to the final slag content with lower deoxidizing and suitable basic. Better less bottom purging.
- d. When the refinery desulphur are added into, The temperature loss of steel should be 1-2°C/kg