SHENG IRON
Refractories™

Taphole Clay

& Blast Furnace Operation

Sheng Iron Refractories

@ Luoyang Sheng Iron Refractories Co.,Ltd.

info@sirefractories.com
www.sirefractories.com

SHENG IRON Refractories™

01 PART ONE

During operation of blast furnace, molten iron is generated continuously with the smelting process going on. To prevent the molten iron exceed the designed capacity of blast furnace, it is necessary to schedule proper tapping times and do it upon schedule to make sure both molten iron and slag have been tapping out for safety reasons.

High performance tap hole clay will create conditions for safe and smooth operation.

Normal Length of Taphole

Normally, length of taphole is deeper than the thickness of taphole area lining. And the length is various from different size of blast furnace.

Size of BF (m3)	＜1000	1000～2000	2000～4000	＞4000
Length of Tap Hole (m)	1.5～1.8	1.8～2.5	2.5～3.2	3.0～3.5

This table only for your reference.

SHENG IRON Refractories™

Main Effect Factors

01 Molten iron & slag erosion

02 High temperature fluctuation

03 Chemical erosion

04 Gas attack

Main Effect Factors

SHENG IRON Refractories™

01

Under the gas pressure and pressure from BF burden, molten iron and slag come through tap hole with high velocity and wears the channel.

02

High temperature fluctuation occurs under the influence of tuyere. Molten iron and slag will be like under stir. This causes thermal shock and abrasion to the tap hole.

03

Tap hole clay long time exposure to slag and iron causes chemical reactions and be eroded by such reactions.

04

Each time before closing the tap hole, there is vast high temperature gas erupting out from taphole. This causes fierce abrasion to the tap channel.

SHENG IRON Refractories™

02

PART TWO

Tap Hole Operation Notice

For Safe & Sound Operation

Main Effect Factors

SHENG IRON Refractories™

- Let molten iron and slag run out entirely.
- Don’ t do tapping operation under humid taphole.
- Appropriate plugging quantity.
- Maintain certain tapping angle.
- Keep normal taphole diameter steady.
- Stabilize furnace operation.

Main Effect Factors

SHENG IRON Refractories™

01

It is after molten iron and slag run out entirely, the plugging-in taphole clay can be evenly spread on the surrounding furnace wall under full wind and form solid mud package. Otherwise, taphole clay will float away into piece due to the iron and slag existence. Thus, the proper tap hole length will be damaged.

02

Don’t do tapping operation when tap hole is humid. In this case, violent evaporation happens to moistures within tap hole clay. Under such power, clay package will crack. Meanwhile, the channel is expanded and molten iron abrupt into spray, which brings safety risks.

03

Appropriate plugging quantity and velocity assure tap hole clay coming into tap hole smoothly and easily be part of the clay package.

Main Effect Factors

SHENG IRON Refractories™

Maintain certain tapping angle in order to protect the furnace floor and make the tapping channel clear.

04

Keep the normal tap hole diameter steady to control molten iron flow, in case it doesn’ t run out of the iron trough.

05

Stabilize furnace operation. Temperature or alkali fluctuation will damage furnace lining and tap hole a lot.

06

SHENG IRON Refractories™

PART THREE

Taphole Clay for BF Operation

How to Choose a Good Product?

How to choose a good product?

Poor quality tap hole clay is very easy to get damaged. Consequently, taphole channel expands and become shallow. Molten iron flow splash out of tap hole. Therefore, high quality taphole clay is required to assure safety production and improve production effectiveness.

Quality Taphole Clay:

- Easy and reliable plugging and opening of the taphole
- Long stable taphole length and long tapping time, good slag resistance and pig iron resistance
- Quick and reliable hardening of the taphole clay
- Minimize taphole spraying while operating
- User-friendly by providing easier clean-out of the mud gun nozzle
- Low emission

SHENG IRON Refractories™

Thank You!

Sheng Iron Refractories

@ Luoyang Sheng Iron Refractories Co.,Ltd.

info@sirefractories.com
www.sirefractories.com