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DEVELOPMENT AND APPLICATION OF TAP-HOLE MUD FOR 5800 M^3 LARGE SCALE BLAST FURNACE

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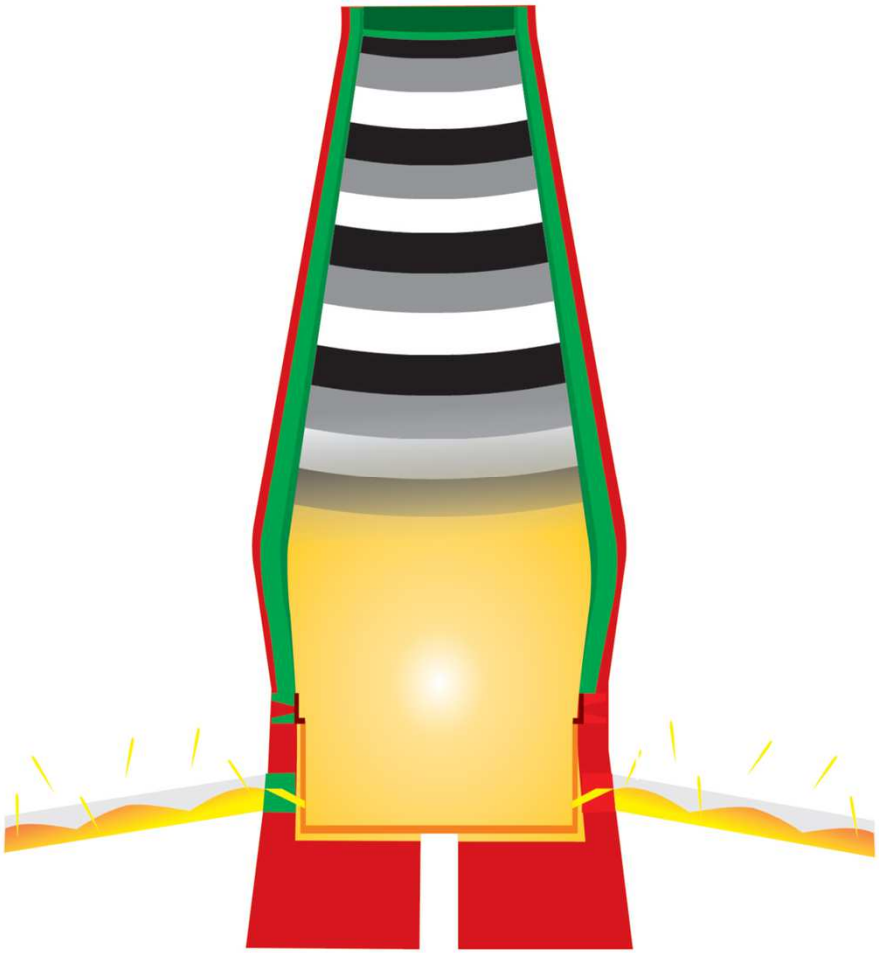
Introduction



For the demand of operation condition of Blast-Furnace ,MUD materials with the following features:

1.Can apply to alternative and continuous tapping

2.Dig easily

3.High corrosion resistance to molten iron and slag

4.Easy adhere to old material

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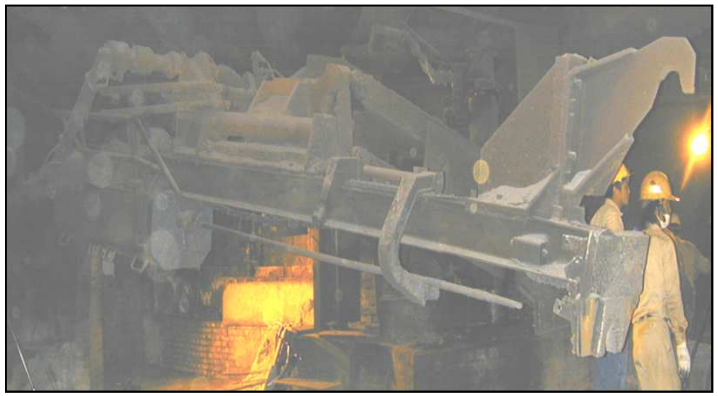
Experiment Direction

Basic Material	BFA、CBX、SiC
Sintering Agent	Clay、Coke
Binder	Tar
Smelting Condition	1.Flow speed : 11~14 ton/mins. 2.Tap-hole length : 3.6 meter 3.Tapping time : 140 mins.



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Experimental

Aim of This Study

- Development and application of tap-hole mud for the large scale blast-furnace.

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Samples

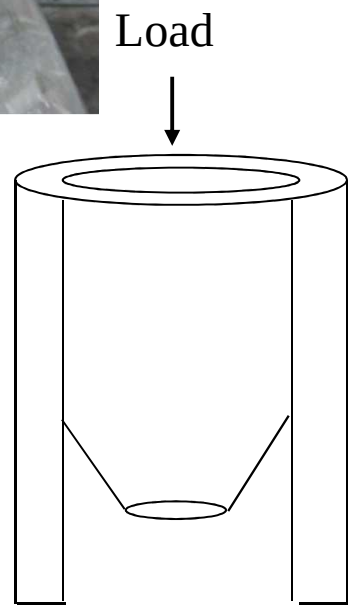
Compositions of Tap-Hole Mud Samples

Formula	A	B
BFA(%)	≧12	0
CBX (%)	≧8	≧25
Al_2O_3 (%)	≧27	≧29
SiO_2(%)	≧9	≧11
Si_3N_4+SiC (%)	≧38	≧37
F.C (%)	≧14	≧12
Tar (%)	≧10	

Samples size : 40 x 40 x 160 mm

Samples

Marshell Test



- Testing Standard :
  According to CSC-M09-76 testing standard.

- Examination Temperature :
  50 ± 1 ℃.

As higher the Marshell test value is , as harder the material would be .

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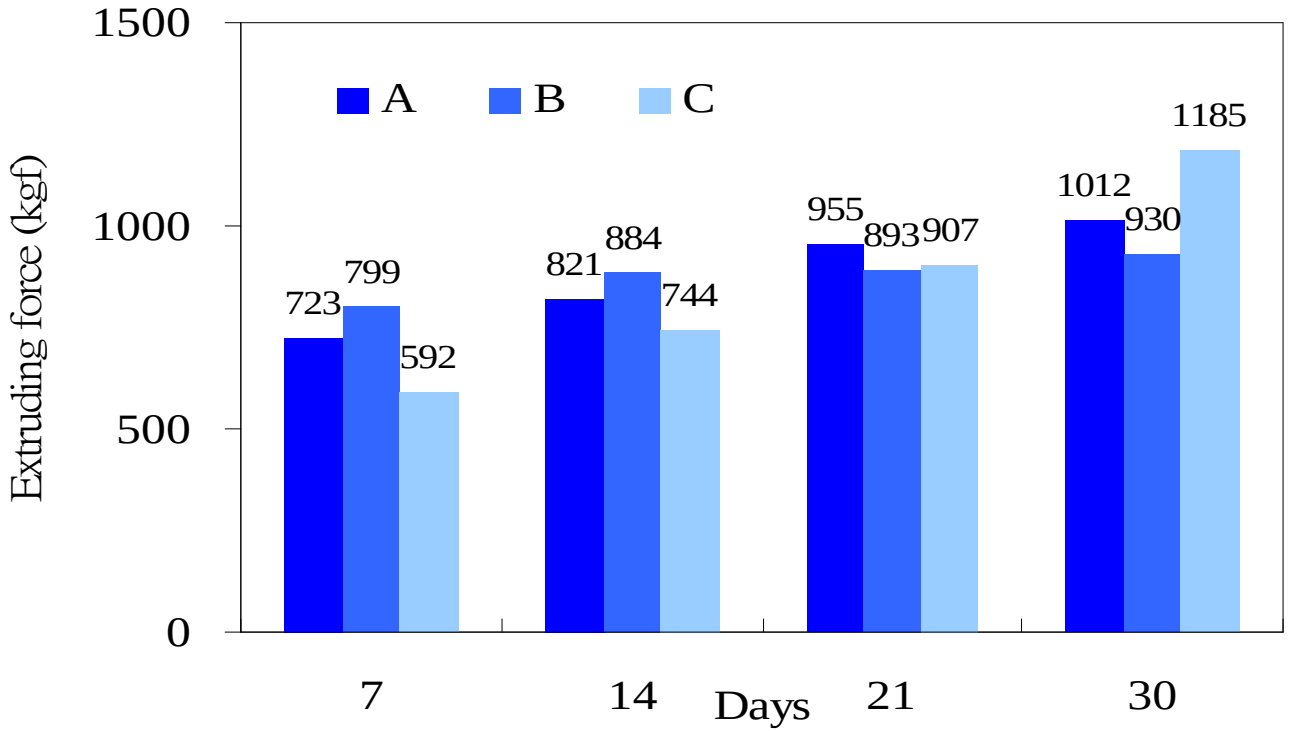
RESULTS AND DISCUSSION

Testing

Aging Extruding Force



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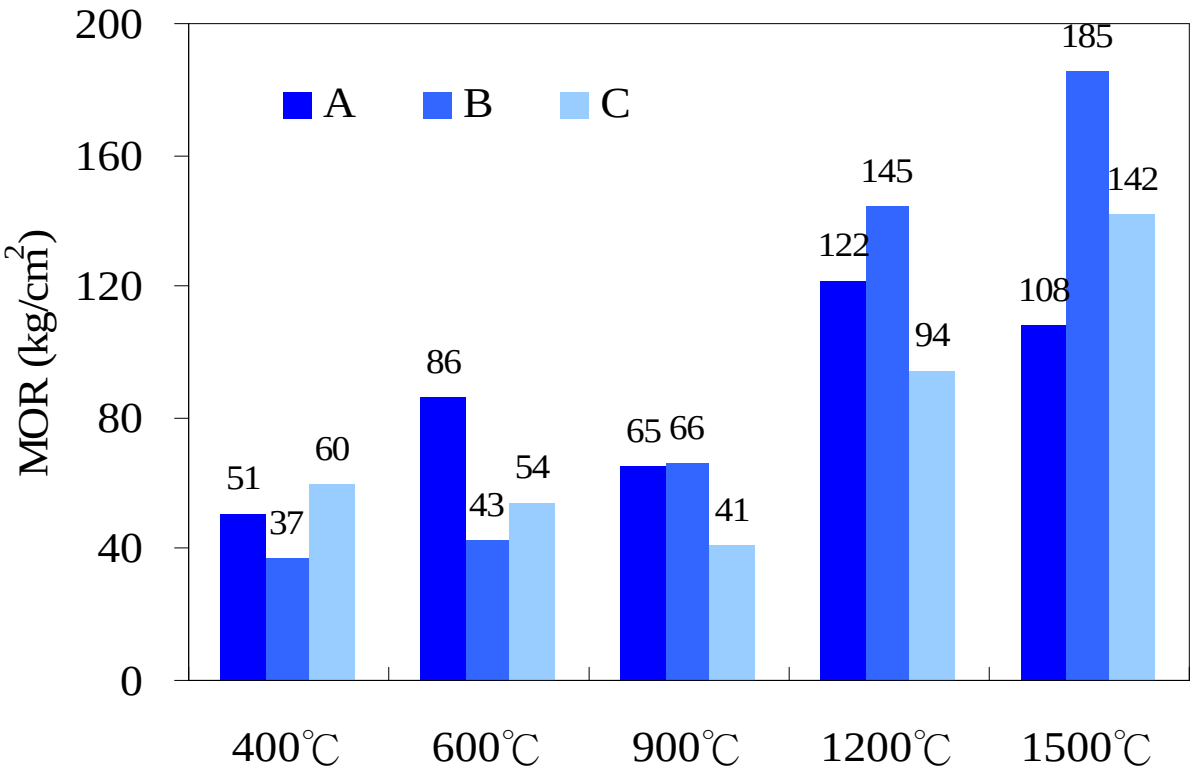
The Modulus of Rupture



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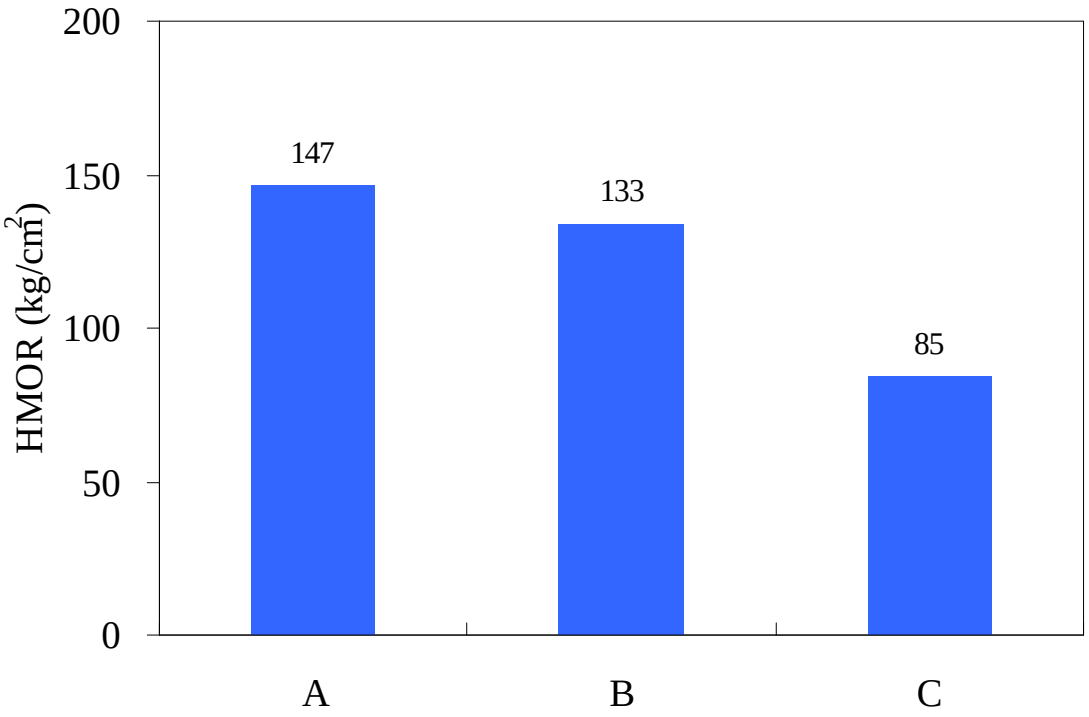
The Hot Modulus of Rupture of the Three Formulas



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Field Test Data

Formula	Iron production/ batch (ton)	Average tapping time (min)	Tapping length (m)	Slag/Iron ratio of tapping (%)	End tapping rate (ton/min)	Extrusion pressure (kg/cm^2)	Drill size (mm)	Average drilling time (min)
A	1334	165	3.2~3.6	91~98	12.0	240~290	55	10~12
B	1180	160	3.4~3.7	91~98	11.0	270~290	55	8~10
C	1112	150	3.8~4.0	90~98	12.0	210~240	60	10~11

From : S . G

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Conclusion

Strength	**The whole evaluation B is Better**
	Uses an actual control in the 11 tons/mins.
HMOR	**A and B performance to all surpass C**
	Tapping time is obviously over 10% than usual
Workability	**Better performance on Aging Extruding Force**
	The wave of Aging Extruding Force of sample A and B is smaller than C

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Conclusion

Advantage	**A and B all compare on operation C cost to reduce 10-15%**
	Sample A and B could meet the smelting requests

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Thank you for your attention!

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