DRY SOLIDIFICATION WITH HEAT RECOVERY OF FERROUS SLAG

Heribert MOTZ, Andreas EHRENBERG, Dirk MUDERSBACH
Historical methods
DRY SOLIDIFICATION WITH HEAT RECOVERY OF FERROUS SLAG
Nippon Steel Rotating Roller method

1. Slag ladle
2. Molten slag
3. Rotating roller
4. Roller support
5. Side fin
6. Scattered and pulverized slag
7. Slag grains cooled in the water pool
8. Water pool
9. Driving motor
10. Chute
11. Cooling water jet
"KISS"
Problems for dry solidification of ferrous slags:

- viscosity of slag between tapping and solidification
- heat capacity of liquid slag
- heat conductivity of liquid slag
- transport/storage/distribution of liquid slag
- sticking/scalings/covering of slag pots and runners
- liquid metal in the tapped steel slag
- maintenance/wear
Blast furnace slag
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Versuchsanlage bei Svenskt Stål, Werk Oxelösund

Kapazität: 20 t/h
Wärmerückgewinnung: Sätt dampf
(250°C 40 bar)
Schlackenprodukt: Granulat
(Körnung: 3-5 mm Durchmesser)
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PAUL WURTH

DILLINGER HÜTTE
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Steel slags
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JFE Steel Corporation, Japan
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Gebläsehaus
2 x 90 Kw el Gebläse

Luftzuführung, obere Düse

Luftzuführung, untere Düse

obere Düse
untere Düse
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Nippon-Kokan, Japan
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Nippon-Kokan, Japan

Recovery as products of 3mm or less size 67%

Solidified in slag pan 16%
Solidified in tundish 6%
Ungranulated slag 10%

Over 3mm size 1%

Heat held by discharged air 39.9%
Heat absorbed by boiler 41.4%
Heat held by discharged slag 15.6%
Heat radiation loss 3.1%
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Blast

Particle size
- 0 - 1 mm
- 1 - 2 mm
- 2 - 3 mm
- 3 - 4 mm
- 4 - 5 mm

Cup

Nippon-Kokan, Japan

Belt/Drum

FeO₁ : FeO % in naturally cooled slag
FeO₂ : FeO % in blast granulated slag

Oxidation rate \( \left( \frac{FeO₁ - FeO₂}{FeO₁} \right) \) %

Specific blast flow rate \( (Nm^3/ton \text{ slag}) \)
Product

Quality
Dry solidification

Heat recovery

Quality slag product
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Announcement
7th European Slag Conference

We are pleased to announce the 7th European Slag Conference. It will be held in IJmuiden, the Netherlands from

Wednesday, 9th October, till Friday, 11th October 2013.

The organizers are Tata Steel, Haresco Metals Holland and Pell & Hooykaas.

The title of the conference will be:

"Don't waste your secondary resources".

The Conference Centre of the Tata Steel Dudok Huis in Velsen Noord, where the European Slag Conference will be held, is only 20 miles away from Amsterdam and Schiphol Airport.

The Conference will start on 9th October with a warm welcome in the Dudok Huis and presentations of papers. The second day will continue with the presentation of papers, and the closure of this day will be a forum discussion. In the evening a Gala Dinner will be given. On the last day, Friday 11th October, we will take you for a site visit at Tata Steel, Haresco and Pell & Hooykaas.

The fee will be € 450 including:

- Conference location
- Beverages at the Conference site
- Lunch
- Transport from the hotel to the Conference site and vice versa
- Papers of the presentations
- Site visit on Friday