REFIS 4.0 23-24 September 2022 Bokaro Steel City Jharkhand India

सेल SAIL 50 स्थापना के 50 साल 50 YEARS OF INCORPORATION स्वर्ण जयंती • SWARNA JAYANTI

IMPROVEMENT IN LINING LIFE OF 300T CONVERTER AT BSL/SAIL (2007-2022)

Presented by :
Rahul Pandey
SRU Ranchi Road

Aim

1. Improve Life
2. Reduce per heat Cost

Raw Material Selection

1. Magnesia :

- High melting point ~2800 deg C
- Large periclase grain
- Low in impurities

Types Available :

Sea Water Magnesia, Fused Magnesia & Dead Burnt Magnesia

Spec :

MgO >96% Fe_2O_3 <0.8%

CaO/SiO_2 >2

Raw Material Selection

2. GRAPHITE :

- Purity 94-96% Carbon

3. ANTIOXIDANTS :

- Al, Si, B_4C, etc.

4. BINDERS :

- Resin – Resol or Novalac

5. Pitch Powder, etc. :

- Provide strength & reduce open porosity

Process Control

Manufacturing :

1. Ensure proper grain size distribution
2. Mixing sequence
3. Volatile Matter during pressing
4. Sp. Pressure
5. Uniform heating during curing

Operational Control

1. Low SiO_2 in slag
2. CaO addition
3. FeO in Slag 12-16%
4. MgO in Slag 8-10%
5. Temperature <1670 ° C.

MEASURES TAKEN TO IMPROVE LINING LIFE

Design :

Rationalization of shapes to single length brick: Single bricks replaced the combination bricks – Reduced loss of wear lining due to dropping out at advanced life.

Zonal lining pattern:

varying quality of bricks used to match wear out pattern for optimum performance

Charge Pad , Tap Belly, Other Zones

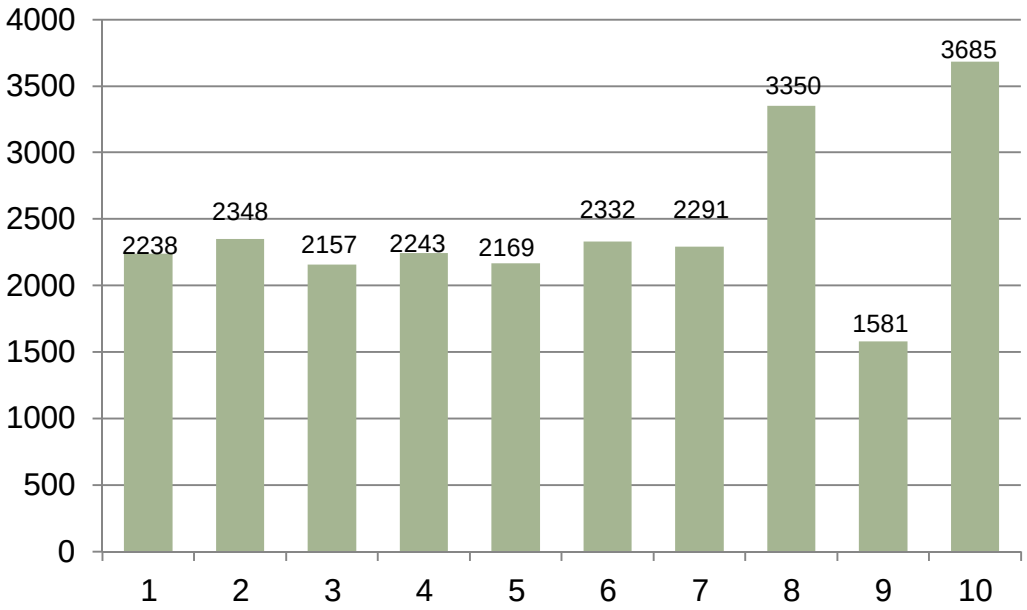
MEASURES TAKEN TO IMPROVE LINING LIFE

Operational steps taken:

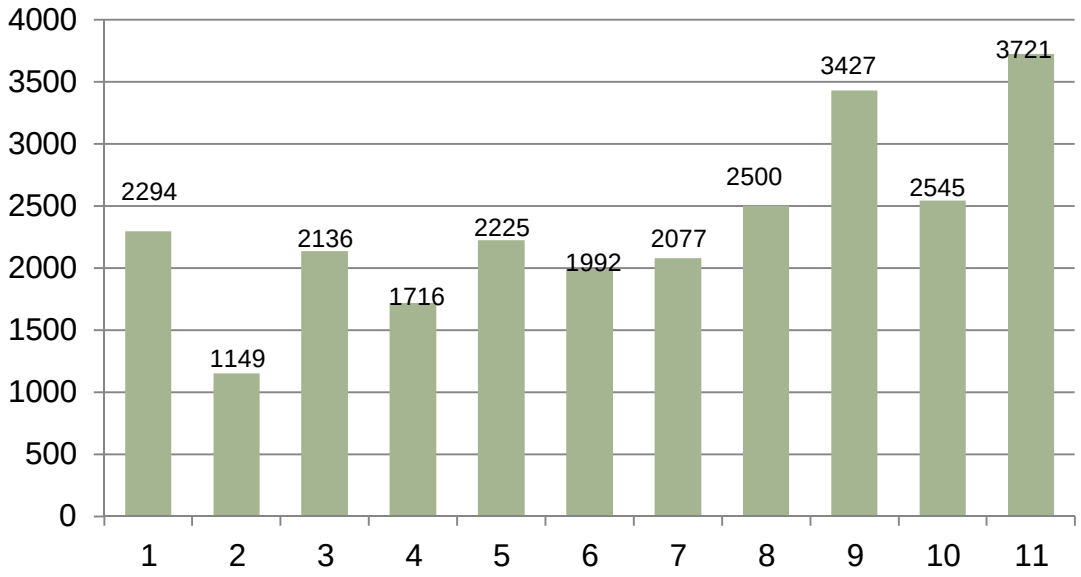
- Reduction in Re blows
- L.D. Slag addition
- Use of Dolomite lime
- Slag splashing
- Drainage of slag

RESULT

BOF-1



BOF-2



It is evident from the above graph that during the years from 2007 to 2021, in a span of 14 years, the life of converter has increased from the range of 2200 heats to 3721 heats.

Thank You