

Case Study #13

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The following series of slides document the results of using Redux EF40L fluxes at 15 International Foundries to eliminate slag buildup on refractory walls of coreless induction furnaces, extend refractory life and clean ladles. Additional details on increases in refractory life are presently not available because of the COVID-19 pandemic.

By
Forace Polymers / ASI
International Ltd

**Case Study 13 - Objective: Clean slag
build-up from Coreless Induction
furnace walls and extend lining life**



**Field Trial of REDUX EF40L in a 1.5 Metric Ton
Coreless Induction Furnace at
International Foundry "M" pouring Grey and Ductile Iron**

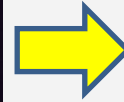
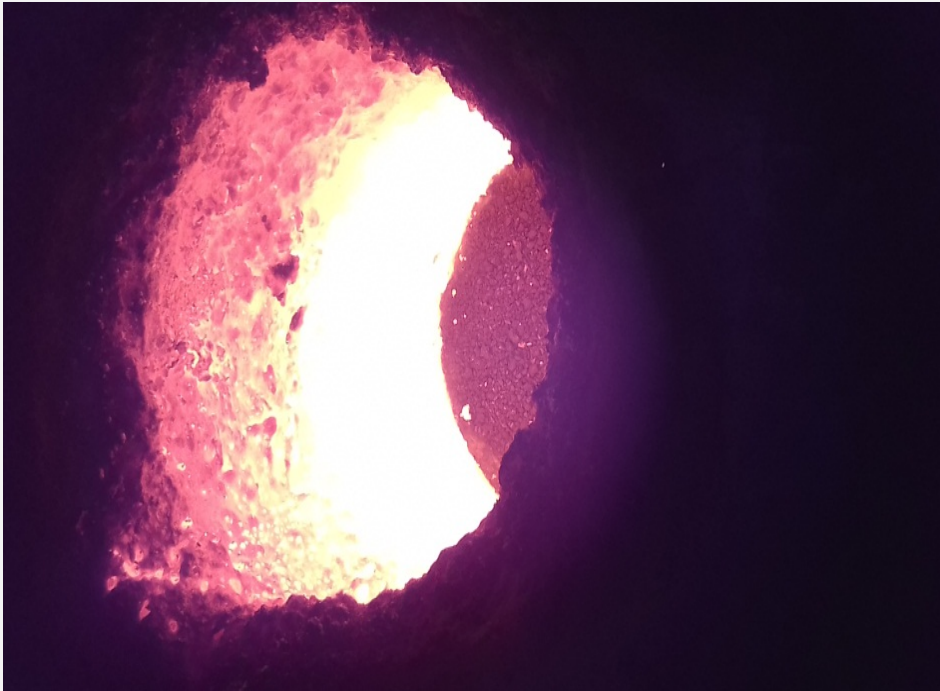


Redux EF40 Test Conditions

- Furnace type – Medium frequency Coreless Induction Furnace
- Furnace Capacity – 1.5 (Two Nos.)
- Plant capacity – 1600 Ton/Month
- Charge Mix –
 - a. Pig Iron – 15%
 - b. Steel – 10%
 - c. Boring – 45%
 - d. Foundry Returns – 30%
- Furnace Lining – Silica Lining (DFT)
- Lining life – Avg. 600 Heats
- Power consumption – 615 Kwh/Ton (Grey and S.G. Iron)



Observations Before the Redux EF40L Trial



Lining condition
before trial

- Dirty, un-shot blasted foundry returns generate considerable slag build-up on refractory lining
- High temperature (1500°C/2732°F) is required to clean slag from furnace walls
- Due to slaggy lining conditions, CAP voltage signal is continuously on



Trial details at Foundry “M”

Trial Details

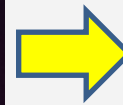
0.05% REDUX EF40L
was used the for trial

After 10 min, Redux was
added to the furnace

All liquid slag was
removed with perlite ore



First Trial Observation

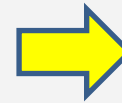


Lining condition
after 1st Redux
furnace addition

- Liquid slag was generated at the top of the furnace lining
- No extra temperature was required for slag removal.
- During first 20 minutes of power on, the CAP voltage signal remained continuously on.
- It was observed that there was still approximately 30% slag adhering to the furnace walls



Second Trial Observation



Lining condition
after 2nd Redux
addition

- The CAP voltage signal remained off during charging and melting
- All liquid slag generation remained on top of melt
- No extra time and temperature was required for melting
- Slag sticking on the furnace lining was eliminated

