

## Case Study #11

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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  
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**Case Study 11 - REDUX EF40L**  
**Objective: Clean slag build-up in**  
**Tundish Ladle Pocket and Walls**



**REDUX EF40L at International Foundry “K”**  
**Producing Grey and Ductile Iron Castings**



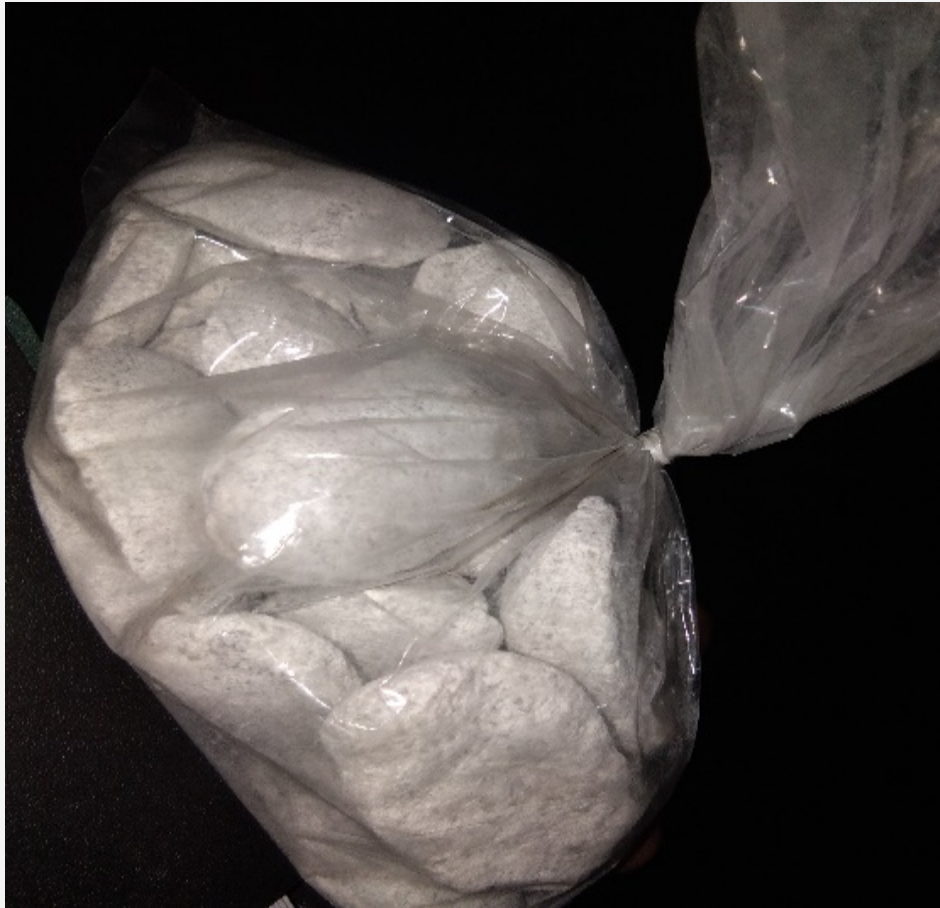
## Redux EF40 Test Conditions

- **Foundry “K” pours both Gray and Ductile Iron**
- **Raw Material Charge:** - Steel scrap, Foundry returns and boring scrap etc. for making both CI and SG castings
- **Furnace Size:** - 1.5 Metric Ton Coreless Induction Furnace
- **Lining:** - Silica lining
- **Ladle type:** -1Metric Ton tundish treatment ladle for magnesium treatment to convert Grey Iron to Ductile Iron, (Redux was used in treatment ladle)





# Redux was used in Treatment Ladle



Packing 500 gm  
REDUX 40L



Tundish Magnesium  
Treatment Ladle

# Redux EF40L Trial Details for Tundish Ladle Pocket Cleaning

- Process: - Redux EF40L was used for 4 treatments with magnesium ferrosilicon. For every treatment, 500 grams of Redux was used per 1 MT of liquid iron. The Redux EF40 was added in a bag and placed on top of the magnesium ferrosilicon addition. An appropriate amount of cover steel was then placed on top of the Redux.
- A total of 4 treatments were made
- The treatment temperatures in the ladle were: 1500°C, 1450°C, 1470°C, and 1480°C,





# Observations before the Redux Trial



**Considerable slag build-up inside the ladle**

# Condition of the ladle after 2 Redux treatments



**SLAG IS REMOVED  
AT START OF TRIAL**



**SLAG FLOATING ON TOP OF  
LADLE IS REMOVED**



# Tundish Pocket before and after four Redux treatments



**Closeup of Pocket before Redux treatment**



**Closeup of Pocket after 4 Redux Treatments**





# Summary of Foundry “K” Redux trial

- After just four magnesium ferrosilicon treatments, the tundish ladle pocket was essentially cleaned of slag
- Foundry “K” continues to use Redux EF40L to keep the tundish ladle pocket clean
- Although no magnesium recoveries statistics are available, Foundry “K” feels that they can reduce the amount of magnesium ferrosilicon because of improved magnesium recoveries.

