

Process Optimization Software for Secondary Steel Metallurgy(SSM)

Brief Process Description:

This is basically a steel making process from Ferro Alloys. Depending on the grade of steel to be produced, complete calculation showing the material requirement for that heat is done. Complete metallurgical database for various grade of steel, metal composition of various alloys & related calculation data is available. In this process, carbon is reduced by oxidation, which results in increase in temperature of the process, which is controlled by various additives. In this process, when carbon is getting oxidized, chrome is also getting oxidized which is undesired. Better the optimization of the process, less will be the chrome reduction & less will be the costly material(Ferro Silicon) consumption.

Advantages of the process Optimization:

- Saving in qty of Ferro Silicon (FeSi) to recover the oxidized Chrome
- Save refractory life by avoiding thermal shocks to refractory.
- Reducing blow time thus increasing no of heats per day.
- Saving in Oxygen quantity

Features of the Software:

- Completely Metallurgical database for Steel Process
- Bourdon calculation for any particular heat
- Mathematical modeling for Temperature controlled oxidation-reduction reaction
- Mathematical modeling for Material addition
- On line Process display
- Complete Software solution is staggered into three phases

Phase-I: Complete off line modeling

Phase-II: Temperature Measurement, Spectrometer interface & interface to the Process control system

Phase-III: Material handling system automation

- Complete Production database for individual heats
- Cost Analysis of individual heat