Steelmaking
Quick-Tap Analysis Prediction

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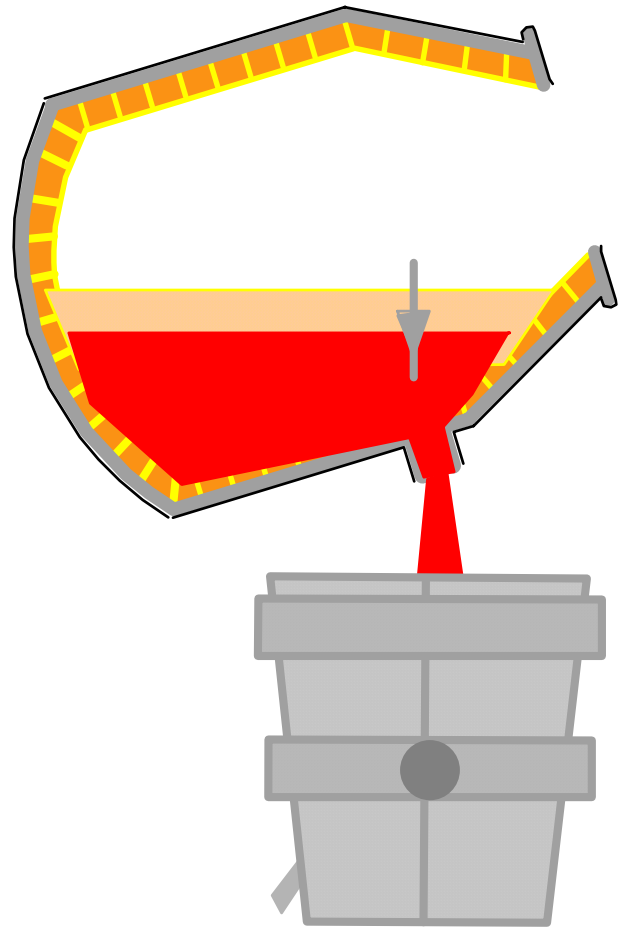
PREDICTION OF BOS END-POINT ANALYSIS FROM IN-BLOW SUBLANCE SAMPLE

CONCEPT:-

The C, Mn, P and S analysis at the end of the BOS blow is predicted from the in-blow sublance sample result, allowing the heat to be tapped without waiting for the final sample to be analysed.



DETAILS:-

The Quick-Tap Analysis Prediction Model is available as part of the sublance model package. The model is integrated into the plant process control computer system, and is triggered automatically on receipt of the required data. As soon as the analysis of the in-blow sublance sample is received from the laboratory (normally about 2-4 minutes after the end of the blow), a prediction of the predicted tap C, Mn, P and S analysis is displayed. The operator can then judge whether it is safe to tap the converter without waiting for the post-blow sample to be analysed.

The model is based on statistical principles, and projects the analysis forward from the in-blow sample result to the estimated carbon content at the end of the blow.

The carbon estimate may be based on the post-blow sublance sensor reading of liquidus temperature, or more usually the bath oxygen activity. If a sublance carbon estimate is not available for any reason, the aim carbon content is used.

Other factors (e.g. hot metal silicon, end-blow ore addition, etc.) are also taken into account in the calculation. Self-tuning adaptive factors are automatically updated each heat to keep model predictions in line with changing conditions in the converter. Advice is given on specification and design of the system, and training given in the method of use.

BENEFITS:- Include:

- No need to wait for final analysis result before tapping,
- Reduced temperature losses due to delays,
- Reduced converter cycle time, with the potential to increase production,
- Tailored to meet local plant policy and operating conditions,

STATUS:- Installed and operating at three Corus BOS shops.