Heraeus

Electro-Nite

SUSTAINABILITY CASE STUDY

Instant analysis of phosphorus content with QuiK-Spec® & QuiK-Lab®

INTRODUCTION

Due to steel grades with tighter specifications and increased phosphorus content in the iron ore, steel makers have to wait for the final sample (TSO measurement). Based on this result, the decision can be made to tap immediately or to execute a necessary reblow to obtain the correct composition.

- Availability of all vital information on the composition of the liquid steel before the end of blow.
- Helps the operator to decide which actions to undertake to get temperature, carbon, phosphorus within specification.
- Reduces reblows and overblows to a minimum.

SUMMARY

The system is made up of the:

- Multi-Lance® QuiK-Spec® – a sensor that also uses inert atmosphere purging technology to provide a clean, preparation-free sample; and
- QuiK-Lab® – an instrument that quickly spectroanalyzes the sample with the help of a high-end optical emission spectrometer

This resulted in an extra time gain of minimum 3 min/heat.

RESULTS

6,5%

6.5 % productivity increase at the same fixed cost with increased refractory lifetime.

3°C

Reduction of temperature loss with 3°C. This energy can be implemented in higher scrap/hot metal ratio. And this energy saving results in 3216 ton CO2 carbon credits.

Time gain

Decreased blowing times for P-critical heats lower oxygen consumption and iron losses in convertor process. Timely detection of possible out-of-spec heats allows for corrective measures to be taken, resulting in lower volume of downgraded material.

CONCLUSION

The customer benefit of more than 3 minutes time gain per heat results in 2 extra heats a day. QuiK-Spec® leads also to a better process control, certainly in phosphorous critical heats.