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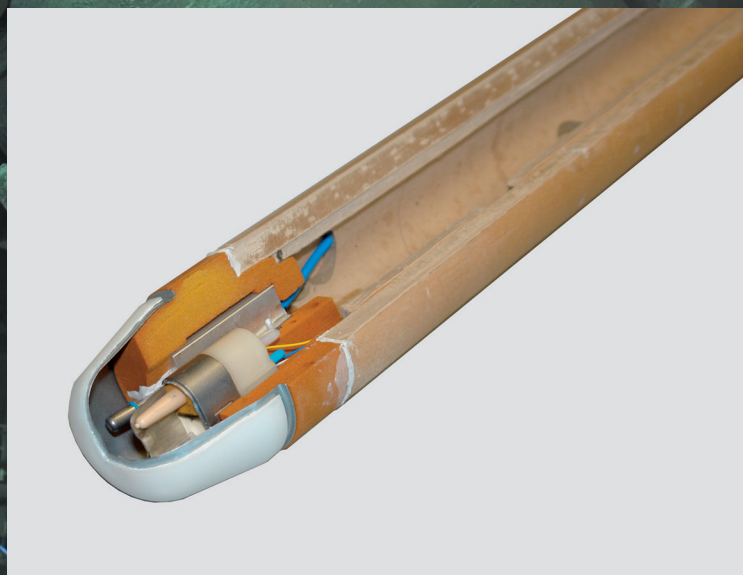
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QuiK-Spec®
QuiK-Lab®
Your critical link to instant analysis

QuiK-Spec[®] and QuiK-Lab[®]

Your critical link to instant analysis

Introduction

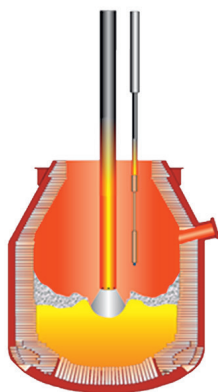
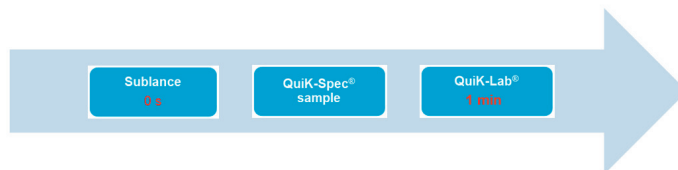
Increasing demands to produce high quality steels with lower phosphorus levels and lower CO₂ outputs require steel plants to reinvent their converter process. Key element is a faster knowledge of the steel composition during this process.

The QuiK-lab[®] Spectral Units of Heraeus Electro-Nite provide a fast and reliable analysis of the most critical elements such as Carbon, Phosphorus, Manganese and Sulfur, within one minute after immersion during converter treatment.

Benefits

- 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.
- Reduce the converter tap-to-tap time by a few minutes and increase the productivity of the converter shop.

System Timeline



The system

QUIK-SPEC[®] MULTI-LANCE[®] SENSOR

The use of the gas purging technology, either being nitrogen or argon, and the unique sample design provide a clean preparation-free sample. The design ensures an almost direct cooling of the sample and a clean surface, which needs no preparation and is ready for a direct spark, giving an almost immediate analysis. A nice cut-out of the QuiK-Spec[®] Multi-Lance[®] in the picture on the cover shows its concept.

The new hardware for these QuiK-Spec[®] probes has been developed to allow as well measurements with the classical TSC-TSO probes as the new QuiK-Spec[®] probes, giving the operators the flexibility and autonomy for selecting the correct type of probes. The sublance technology, together with the new Multi-Lance[®] QuiK-Spec[®], provides the measurement of temperature, oxygen and liquidus identical with the existing Multi-Lance[®] sensors.

QUIK-LAB[®] INSTRUMENT

An instrument that quickly spectroanalyzes the sample with the help of a high-end optical emission spectrometer.

The QuiK-Lab[®] spectroanalyzer provides:

- a balance between operational simplicity and accurate analysis; and
- automatic spectro analyser calibration based on preloaded reference samples (only for QuiK-Lab[®]2)
- a strong enclosure suitable for the converter environment.

We have designed the QuiK-Lab[®] instrument to withstand the harsh environment around the converter, while access to the unit and its analysing functions is easy. The instrument also needs limited maintenance.

The analysis: Synergy between Speed, Simplicity, Accuracy

The Multi-Lance[®] enables a quick recovery of the sample. The operator puts the sample in the sample holder. A positioning robot takes over and moves the sample to the first measurement position, a spark is ignited and a first sparkresult obtained in 20 seconds.

By default, the following basic elements are analyzed and displayed:

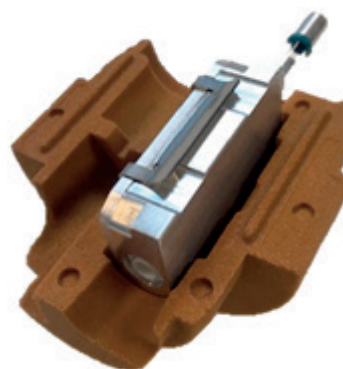
- Carbon
- Manganese
- Phosphorus
- Sulphur

QuiK-Lab[®]2 versus QuiK-Lab[®]3

The QuiK-Lab[®]3, a lean and smaller unit, providing C, Mn, P and S. If space on converter floor is limited and the results of these 4 elements is sufficient, this is the best choice.

The QuiK-Lab[®]2 uses more space but offers the full analytical spectrum. A total of 21 other elements are also analyzed and displayed.

Accuracy of QuiK-Lab[®]2 and 3 are identical. The pictures on the right show an example of a measurement result.



QuiK-Spec[®] Sampler

Manual Measurement							
Vessel A Heat Number 0SS32							
Elements (%)							
Fe	192395	S	0.0183	Al	0.0009	Sn	0.0104
C	0.2280	Cr	1.1720	Ti	0.0003	Pb	< 0.0010
Si	0.0814	Ni	0.1347	Co	0.0039	Zr	< 0.0010
Mn	0.4334	Mo	0.0476	Ca	< 0.0001		
P	0.0187	Cu	0.1112	Zn	0.0008		

QuiK-Lab[®]2 measurement screen

Measurement			
01/12/2021 09:27:30			
Vessel A QR-Code 157330			
Results			
C (%)	Mn (%)	P (%)	S (%)
0,0202	0,0565	0,0189	0,0330
Sparks			
C (%)	Mn (%)	P (%)	S (%)
0,0199	0,0567	0,0189	0,0327
0,0204	0,0563	0,0190	0,0334

QuiK-Lab[®]3 measurement screen

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