



Optimise Combustion Efficiency with Blast Furnace Gas / Coke Oven Gas

Optimise BFG/COG and natural gas
mixing for combustion efficiency, with
fast-responding feed-forward control

Blast Furnace Gas (BFG) is produced in every steel plant. Coke Oven Gas (COG) is frequently also a by-product in coke production. BFG and COG are often mixed and used as fuel gases for boilers and power plants to improve efficiency of the steel production process by saving energy. In most cases the BFG/COG mixture is enriched, with e.g. natural gas, to improve combustion. Mixing of these gases requires control -based on the Wobbe Index.

With industry-best response time, accuracy and repeatability, **the Hobré WIM Compas analyzer delivers unmatched analyzer-feed-forward control of this mixing process, in harsh steel plant environments.**

The WIM Compas offers the above control benefits with maximum availability, reliability, installation convenience and minimal maintenance. Do not compromise on quality!

Sampling Coke Oven Gas is challenging. Talk to us – we understand how to make it work!

At Hobré, we pride ourselves on the best analyzers – but also on complete solutions: sampling systems for many applications.

The challenge

BFG is a by-product of blast furnaces that is generated when the iron ore is reduced with coke to metallic iron.

- Typical composition: 60% N₂, 20% CO₂, some H₂, CO and O₂
- Typical Wobbe Index: 3-6 MJ/Nm³

COG is a by-product produced during the production of cokes from coal

- Typical composition: 55% H₂, 30% CH₄, 8% CO, 4% N₂ and 2% CO₂
- Typical Wobbe Index: 17-18 MJ/Nm³

BFG and COG are often mixed and used as fuel gases for boilers and power plants to improve efficiency of the steel production process by saving energy. In most cases the BFG/COG mixture is enriched with for instance natural gas to improve the combustion. Mixing of these gases requires a control based on Wobbe Index. With the unmatched combination of response time, accuracy and repeatability the Hobré Instruments WIM Compas is especially designed for control purposes in harsh (hazardous area) environments.

Particular challenges when measuring BFG / COG

- **Low sample pressure:** a sample pump is required in most situations.
- **Saturation of the gas with water:** this may cause problems when compressing the sample using a pump. For this reason, pump and sampling systems should be heated above dew point at all times.
- **Dirty environment:** additional filtration, if necessary in combination with blow back probes, is required for proper sampling.

The WIM Compas advantage for BFG / COG

- Insensitive to ambient temperature variations - no air-conditioning required.
- ATEX certified analyzers - no expensive pressurized shelters required.
- Large surface zirconium oxide cell with a special corrosion resistant coating – robust in dirty fuel gas environments.
- Low Total Cost of Ownership - simple calibration; minimal installation and maintenance requirements.
- Can be maintained by plant personnel.
- Field-proven computer-based controller, user-friendly software and trend display.
- Catalytic oven - prevents flame out errors if Wobbe Index low. No requirement for back-up gasses to prevent flame outs - the WIM COMPAS™ measures down to 0 MJ/Nm³.
- In combination with a SG-meter - integrated inside the WIM or input signal from client - calorific value can be calculated.
- Suitable for air / fuel ratio control using the (Combustion Air Requirement Index (CARI) signal.
- Typical Accuracy on this application
 - +/- 1% FS on Wobbe Index
 - +/- 0.4% FD on CARI