



WIM 9900 Wobbe Index - and Calorimeters

Measuring Wobbe Index, Combustion Air Requirement (CARI) and/or Calorific Value COG/BFG mixtures.

Blast Furnace Gas (BFG) is produced in every steel plant, most times Coke Oven Gas (COG) is available on site as well as it is being formed during the production of cokes.

Definitions:

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

Application:

As both gasses are by-products from the steel production process they are standardly available on every steel plant. 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 Hobre Instruments WIM9900 is especially designed for control purposes in harsh (hazardous area) environments.





Points of attention when measuring BFG / COG:

- Low sample pressure. Analyser including sample pump is required in most situations
- Saturation of the gas with water. This can cause problems when compressing the sample using a pump. Therefore pump and samplings system should be heated above dew point at all times
- Dirty application. Additional filtration (if necessary in combination with blow back probes) is required for proper sampling

Benefits we can offer:

- Insensitive to ambient temperature variations, no air-conditioning required.
- ATEX certified analysers for use in a hazardous area without the requirement of expensive pressurized shelters
- Large surface zirconium oxide cell with special corrosion resistant coating makes the instrument very suitable for dirty fuel gas applications
- Low TCO (total cost of ownership) due to simple calibration and minimum installation requirements and low maintenance requirement
- Easy to maintain by local maintenance personnel
- Rugged, easy accessible design
- Field proven computer based controller, user-friendly software and trend display
- Fastest analyser available (response time <5 sec. to T90)
- Due to the catalytic oven, no flame out errors due to low Wobbe Index can occur.
- No requirement for back up gasses to prevent for flame outs, we can measure down to 0 MJ/Nm³
- In combination with a SG-meter (integrated inside the WIM or input signal from client) the caloric value can be calculated.
- Suitable for air / fuel ratio control using the standard available CARI signal (Combustion Air Requirement Index)
- Typical accuracy on this application:
 - +/- 1% FS on Wobbe Index
 - +/- 0,4% FS on CARI

Sampling Coke Oven Gas is challenging; always consult factory on this application.

Besides being an analyser manufacturer, Hobre Instruments can supply total solutions including sample systems for your application!

