

Experience

- Current and further gas compositions in Germany and Europe: limits from regulations, diversifications of storage sites, LNG, injection of biogas into the natural gas system, hydrogen generation from Power-to-Gas, synthetic natural gas
- Identification of fluctuation ranges, because of the diversification of supply sources until 2030/2050
- Effects on industrial and commercial appliances because of changes in gas composition
- Research, studies, overview
- Surveys on the effects of changes in gas composition:
 - Matrix construction concerning the test gases in the field of L- and H-gas, that have to be examined
 - Theoretical calculations and laboratory analysis
 - Examination of various, typical industrial burners
 - Examination of commercial and industrial appliances (boilers and steam boilers, glass melting processes...)
- Compensatory methods regarding to changes in gas composition
- Recommendations for operators

Contact / Directions

DBI Gas- und Umwelttechnik GmbH

Subsidiary of DVGW e.V.
Karl-Heine-Straße 109/111
D-04229 Leipzig / Germany

www.dbi-gut.de

Ihr Ansprechpartner

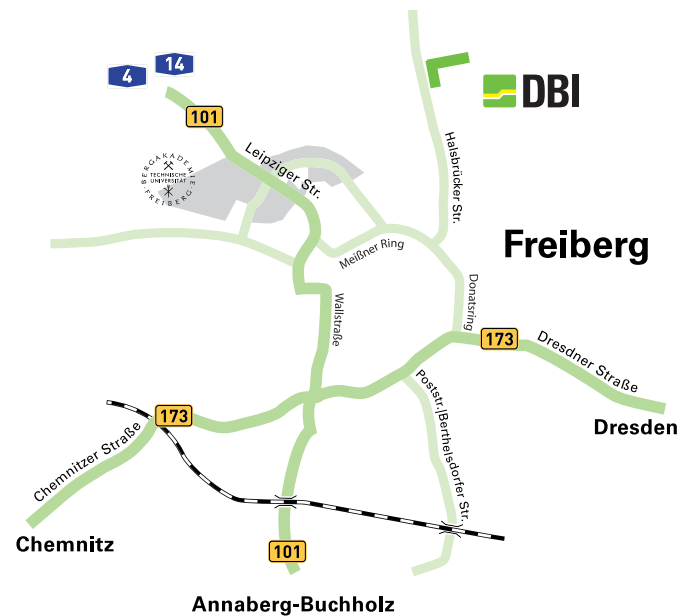


Dr. Matthias Werschy

Gas Utilization / Thermo Processing Technology
Halsbrücker Straße 34 | D-09599 Freiberg | Germany

Phone: (+49) 3731 4195-321 | Fax: (+49) 3731 4195-309
matthias.werschy@dbi-gut.de

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GAS COMPOSITION

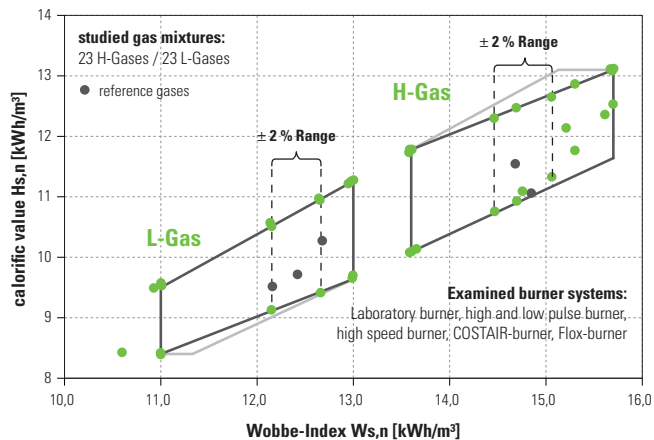
Investigation concerning the effects of changes in gas composition on industrial and commercial appliances.



Initial situation

Because of the liberalization of the German natural gas market, the changing supply situation in Europe and the increasing importance of combustible gases from renewable sources (e.g. biogas and hydrogen / synthetic methane from Power-to-Gas) chemical compositions and also the combustion properties of gases in the German natural gas network will be more subject to spatial and temporal fluctuations than now.

While the flexibility and diversification of the natural gas supply offers a high range of ecological and economic benefits, the operators are facing new challenges, because in some of this processes even minor changes of the process parameters have a significant impact on the product quality, the process efficiency and the pollutant emissions. For those operators should be develop suitable solutions.

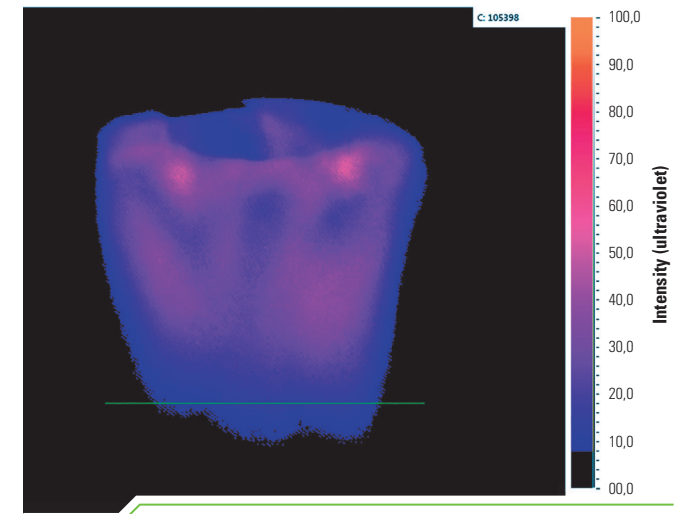


Matrix of the examined test gases in the field of L- and H-gas, based on DVGW-code of practice G260

Engineering & Consulting

- Identification of the fluctuation range at the customers for a specific time period (use of GC...) / information concerning the gas composition, e.g. through the network operator.
- Carrying out measurement campaigns for the customers regarding to the influence of changes in gas composition through the use of innovative analytical technology, e.g. with the optical diagnostic system OPTISOS® for flame analysis (see figure).
- Execution of examinations with customer systems (e.g. burner system) in the inspection field "Industriekessel" regarding to different gas compositions.
- All gas compositions in the field of L- and H-gas visualized (DVGW-code of practice G260 – gas composition).
- Development of cost-effective, customized solutions for changes in gas composition:
 - Specific customer counselling on all matters of gas composition
 - System analysis and demonstration of various solutions
 - Identification of suitable process- and facility-specific control values
 - Measuring variants concerning an adaptive combustion control
 - Installation of a regulation for combustion material, readjustment of the need of oxidizing agent volume flow

- Concerning all adaptive performance and combustion material regulation systems a useful, safe and standard – confirming involvement into existing systems of measurement, taxation and regulation of thermo process facilities is very important
- Proof of achieved results through the use of installed compensation technique
- Service and supervision regarding to installed sensors (compensation technique)



Exemplary false – color image of a burner flame in the UV range. Visualization of OH radicals during the consumption of a forced air burner (H-gas) to mark the real flame shape and the hot spots of the flame (OPTISOS®).