GasCalc® includes the following calculation modules

Module (properties to be calculated)	Application examples
1. Gas properties to ISO 6976 Superior calorific value, Wobbe index, normal density, molar mass, etc.	• Energy billing, conversion of reference states (superior calorific value, normal density) • Monitoring / compliance with DVGW Code of Practice G260 (Wobbe index), for example biogas injection
2. Combustion Air requirement, exhaust gas analysis, etc.	• Design / control of combustion processes
3. CO_2 emission factor Calculated from gas analysis or based on billing data	• Determination of CO_2 output in accordance with DVGW Code of Practice G693 for emissions trading
4. Methane number Methane number to AVL method and simplified method	• Avoiding engine knock in gas engines / packaged CHP • Monitoring / compliance with natural gas quality required at CNG fuelling stations
5. SGERG Thermal properties (Compression factor, gas law deviation factor, density) to ISO 12213-3	• Energy billing - conversion of volume at flowing conditions to volume at normal conditions (DVGW Code of Practice G486)
6. AGA 8 Thermal properties to ISO 12213-2, caloric properties (specific heat capacity, enthalpy, entropy, etc.) to ISO 20765-1	• Energy billing in accordance with module 5 based on full analysis (DVGW Code of Practice G486, 2nd supplement) • Design of heat exchangers, expansion / compression processes
7. GERG 2004 reference equation Thermal and caloric properties over entire fluid range (gas phase, liquid phase, two-phase boundary)	• Calculation of data for liquefied natural gas (LNG) processes • Calculation of dew points, boiling points • Calculation of data for extreme temperature and pressure conditions (storage) • Calculation of pure substance data
8. GERG Water Water dew point to ISO 18453	• Monitoring / compliance with DVGW Code of Practice G260
9. Transport properties Dynamic viscosity, kinematic viscosity, heat conductivity, etc.	• Calculation of pressure loss in pipelines • Fluid flow calculations (Reynolds number)
10. Compression Isentropic / polytropic changes of state based on AGA 8 equation	• Design / optimisation of natural gas compressors • Compressor efficiency
11. Heater Required temperature increase, heat output and gas consumption of natural gas-driven heaters to ISO 20765-1	• Design and operation of heaters in pressure reducing stations (regulators)
12. Orifice calculation to ISO 5167	• Determination of normal volume for differential pressure meters

E.ON SE | Betrieb Essen – Brüsseler-Platz 1 – 45131 Essen
gascalc@eon.com | www.gascalc.com