IEA Bioenergy

Operation and performance of gasification can be quantified through several parameters.

GASIFICATION

PERFORMANCE

GASIFICATION IN NUMBERS

Generic mass balance of a small-scale gasification process.

CHAR/ASH
50 kg/h
AIR
420 kg/h
PARTICLES, TARS, ETC.
20 kg/h
PRODUCER GAS
1350 kg/h

EXHAUST GASES
2830 kg/h

BIOMASS

TAR COMPOSITION /DEW POINT

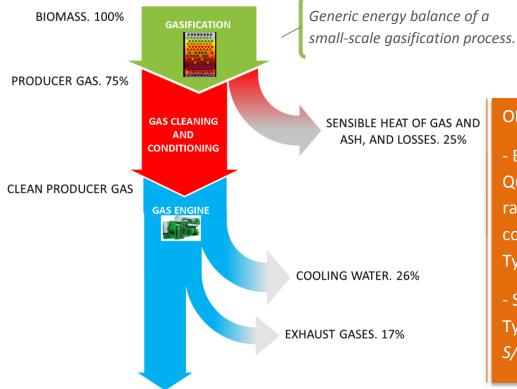
Cold Gas Efficiency (*CGE*, in %): Chemical energy contained in the product gas with respect to the energy contained in the initial solid fuel. *CGE* should be calculated with respect to the *LHV* of the solid feedstock.

PRODUCER GAS COMPOSITION

GAS HEATING VALUE (LHV_{pg})

COLD GAS EFFICIENCY (CGE)

Fuel conversion (%): Mass fraction of the original solid feedstock that ends up in the producer gas.



ELECTRICITY. 32%

SOME FIGURES:

70-80% Cold Gas Efficiency

80-100% Fuel conversion

OPERATING PARAMETERS:

- Equivalence Ratio, ER. Quantifies the O_2 /fuel mass ratio with respect to that of complete combustion. Typically, ER = 0.2 - 0.3.
- Steam/biomass ratio, S/B. Typical values are S/B = 0.6 - 1 (kg/kg).