



BUILDINGS AND VEHICLES EMISSION
CERTIFICATION INSTITUTE
AND TECHNICAL MEASUREMENTS

BIOGAS PLANTS CERTIFICATION AND GENERATION





The energy contained in biogas is classified as a renewable and natural energy resource with great development prospects. As the review of practical applications shows, the ways in which the energy contained in biogas can be used are not yet fully developed. In order to make all interested parties aware of the current state of the art in this area, our institute has developed a classification into classes and generations of biogas systems..

$$\eta_{tot_bs} = 100 \cdot \frac{E_e + Q_{th} + Q_{tc}}{Q_{eCV_biogas}} [\%]$$

As a basic criterion for the classification of biogas systems, the annual performance factor (η_{tot_bs}) expressed in [%] defined according to the formula.

- E_e – electricity generated in [kWh]
- Q_{th} – heat generated and used in [kWh]
- Q_{tc} – enerated and used cold in [kWh]
- Q_{eCV_biogas} – *biogas* calorific value of the biogas burned for the generation of E_e , Q_{th} oraz Q_{tc} w [kWh]



Generation	Class	η_{tot_bs}	Comments
G11	A+++	A plus CO ₂ (> 66 %)	Recovery CO ₂
G10	A++	A plus CO ₂ (od 33 % ÷ 66 %)	
G9	A+	A plus CO ₂ (< 33 %)	
G8	A	135 % < η_{tot_bs}	
G7	B	120 % < η_{tot_bs} ≤ 135 %	
G6	C	105 % < η_{tot_bs} ≤ 120 %	
G5	D	90 % < η_{tot_bs} ≤ 105 %	
G4	E	75 % < η_{tot_bs} ≤ 90 %	
G3	F	60 % < η_{tot_bs} ≤ 75 %	
G2	G	35 % < η_{tot_bs} ≤ 60 %	
G1	H	η_{tot_bs} ≤ 35 %	

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CO₂ recovery means the proportion of recovered carbon dioxide in [%], e.g. for industrial purposes, related to the total amount of CO₂ contained in the raw biogas and the CO₂ contained in the flue gas from biogas combustion.

We welcome your cooperation

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