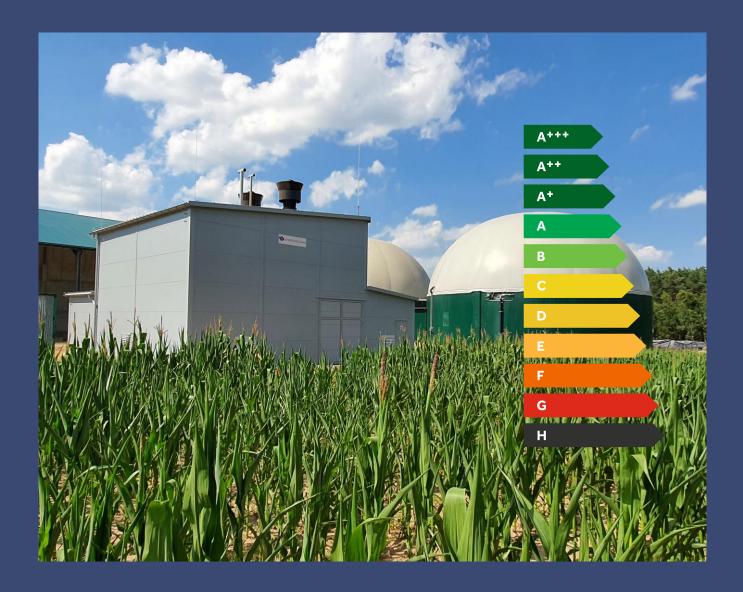


BUILDINGS AND VEHICLES EMISSION CERTIFICATION INSTITUTE AND TECHNICAL MEASUREMENTS

BIOGAS PLANTS CERTIFICATION AND GENERATION





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

To the limit of its possibilities

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 ...

As a basic criterion for the classification of biogas systems, the annual performance facto ($\eta_{tot \ bs}$) expressed in [%] defined according to the formula.

E_e	 electricity generated in [kWh]
Q_{th}	 heat generated and used in [kW

 Q_{tc}

- heat generated and used in [kWh]

- enerated and used cold in [kWh]

 QE_{eCV_biogas} - biogas_calorific value of the biogas burned for the generation of E_e , Q_{th} oraz Q_{tc} w [kWh]

A+++	
A++	
A+	
Α	
В	
С	
D	
E	
F	
G	
н	

ICEB reserves all copyrights for the development of the abovedescribed method of assessing systems using biogas and for the issuing of the relevant certificates and attestations.

Do wystawienia certyfikatów PreQurs dla pojazdów drogowych upoważniony jest wyłacznie ICEB, który opracował ww. system oceny jako pierwszy w świcie.

Generation	Class	η_{tot_bs}	Comments
G11	A+++	A plus CO ₂ (> 66 %)	
G10	A++	A plus CO ₂ (od 33 % ÷ 66 %)	Recovery CO ₂
G9	A+	A plus CO ₂ (< 33 %)	-
G8	A	135 % < η _{tot_bs}	
G7	В	120 % < $\eta_{tot_{bs}} \le 135$ %	
G6	С	$105 \ \% < \eta_{tot_{bs}} \le 120 \ \%$	
G5	D	90 % < $\eta_{tot_{bs}} \le 105$ %	
G4	E	75 % < η _{tot_bs} ≤ 90 %	
G3	F	60 % < η _{tot_bs} ≤ 75 %	
G2	G	$35 \% < \eta_{tot_{bs}} \le 60 \%$	
G1	Н	η _{tot_bs} ≤ 35 %	

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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