

## Order form for biogas analysis 2019

Sample container:



LUFA customer ID: .....

### Principal = invoice recipient

### Duplicate of the test report for:

Name, first name (company) .....

Name, first name (company) .....

Street .....

Street .....

Postcode/City .....

Postcode/City .....

Telephone .....

Fax .....

Telephone .....

Fax .....

Email .....

Email .....

Communication of the report: ☐ mail ☐ fax ☐ email

Communication of the report: ☐ mail ☐ fax ☐ email

Kind of sample: .....

Sample identifier: .....

Sample taker: .....

Date of sampling: .....

### Please mark required analyses with a cross:

### Methods

- ☐ 1. **Acetic acid equivalent**  
Tantamount to volatile organic acids (VOA-value) - preparation and analysis
- ☐ 2. **Spectrum of acids – IC method**  
Acetic acid equivalent and spectrum of acids (acetic acid, propionic acid, butyric acid) - preparation and analysis  
☐ only if acetic acid equivalent  $\geq 2,00$  g/kg
- ☐ 3. **Spectrum of acids – GC method**  
Acetic acid equivalent and spectrum of acids (acetic acid, propionic acid, butyric acid, iso-butyric acid, valeric acid, iso-valeric acid, caproic acid, iso-caproic acid) - preparation and analysis  
☐ only if acetic acid equivalent  $\geq 2,00$  g/kg
- ☐ 4. **Dry matter (DM)**
- ☐ 5. **Organic dry matter (oDM)**
- ☐ 6. **pH value**
- ☐ 7. **Ammonium nitrogen**
- ☐ 8. **Buffer capacity (TIC value)**  
Tantamount to total inorganic carbon (TIC) - incl. calculation of VOA/TIC value, only in combination with analysis of acetic acid equivalent according to analyses 1, 2, or 3
- ☐ 9.1 **Trace elements (small package)**  
nickel (Ni), cobalt (Co), molybdenum (Mo), selenium (Se)  
incl. dry matter and decomposition
- ☐ 9.2 **Trace elements (large package)**  
nickel (Ni), cobalt (Co), molybdenum (Mo), selenium (Se), iron (Fe), manganese (Mn), copper (Cu), zinc (Zn), boron (B), vanadium (V)  
incl. dry matter and decomposition
- ☐ 10. **Salt content**
- ☐ 11. **Determination of C/N-ratio**  
specification of total carbon and total nitrogen on request

methodology handbook<sup>1)</sup> III, C3

methodology handbook<sup>1)</sup> III, C3  
LUFA Nord-West AA 1/3A-046

methodology handbook<sup>1)</sup> III, C3  
LUFA Nord-West AA 1/3A-034

VDLUFA I, 2.1.1

VDLUFA II, 10.1

VDLUFA I A 5.1.1

VDLUFA II, 3.2.6

DIN 38409-7 (H 7)

DIN EN ISO 11885  
DIN EN ISO 17294

VDLUFA II, 11.14

DIN EN 15936  
DIN EN 16168

<sup>1)</sup> issued by the German Federal Quality Association for Compost

Prices are exclusive of VAT and subject to change. Subject to prior agreement, an allowance will be charged for extra work. The GTC of LUFA Nord-West apply (see Internet: [www.lufa-nord-west.de](http://www.lufa-nord-west.de)). LUFA Nord-West is a company of the Chamber of Agriculture of Lower Saxony.

location

date

signature

- ☐ 12. **NIR analysis of energy content**  
maize silage, grass-silage, hay, CCM, corn maize, barley whole plant silage, rye whole plant silage, wheat whole plant silage, oat whole plant silage, triticale whole plant silage, crop - barley, rye, wheat, triticale, soya grist (not any mixtures).  
VDLUFA III, 31.2
- ☐ 13. **NIR analysis of energy content incl. calculation of the theoretical gas yield according to Baserga**  
Maize-silage, grass silage, hay, CCM, grain maize, barley whole plant silage, rye whole plant silage, wheat whole plant silage, oat whole plant silage, triticale whole plant silage; cereals like barley, rye, wheat, triticale, soybean meal (not any mixtures).  
Specification of the theoretically possible gas yield as l/kg FM, l/kg DM, l/kg organic DM and % methane.  
VDLUFA III, 31.2  
calculated according to Baserga
- Additional analysis of**  
☐ Ca ☐ P ☐ Na ☐ Mg ☐ K ☐ S ☐ Cu  
☐ Zn ☐ Mn ☐ Fe ☐ Al  
DIN EN ISO 11885
- ☐ 14. **theoretical gas yield according to Baserga – wet chemical analysis**  
Duration approx. 7-10 working days; Specification of the theoretically possible gas yield as l/kg FM, l/kg DM, l/kg organic DM and % methane; specification of dry matter, organic dry matter, crude fibre, crude protein, crude fat and nitrogen free extractives (NFE)  
Weender analysis  
calculated according to Baserga
- ☐ 15. **Fermenting quality / fermenting acids**  
LUFA Nord-West AA 1/3A-046
- ☐ 16. **Determination of total nitrogen (N<sub>tot</sub>)**  
VDLUFA II, 3.5.1.1  
VDLUFA III, 4.1.1
- ☐ 17. **Sulphur**  
DIN EN ISO 11885
- ☐ 18. **Screening test of antibacterial substances**  
VDLUFA III, 28.4.1
- ☐ 19. **Analysis of nutrients – fermentation residues from renewables biogas plants**  
DM, oDM, N<sub>tot</sub>, ammonium N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O, MgO, CaO, S, Cu, Zn  
VDLUFA II  
DIN 38414 (S3)  
DIN 38414 (S2)  
DIN EN ISO 11732 (E23)  
DIN ISO 11261  
DIN EN ISO 11885
- ☐ 20. **Analysis of nutrients – fermentation residue of co-fermentation biogas plants**  
DM, oDM, N<sub>tot</sub>, ammonium N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O, MgO, CaO, S, Cu, Zn, alkaline active components  
**Obersehe the declaration note! See below**
- ☐ 21. **Heavy metals according to the German biowaste regulation**  
lead (Pb), cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni), mercury (Hg) and zinc (Zn) – incl. dry matter and decomposition  
according to the German biowaste regulation
- ☐ 22. **Analysis according to the regulation of bio waste (complete)**  
**Obersehe the declaration note! See below**
- ☐ 23. **Salmonellae**  
methodology handbook<sup>1)</sup> IV, C1  
ASU L 00.00-20 (mod.)  
methodology handbook<sup>1)</sup> IV, B1
- ☐ 24. **Germinable seeds and parts of plants capable of sprouting**
- ☐ 25. **Fermenting test for substrates**  
Duration approx. 35 days; Specification of the gas yield as l/kg FM, l/kg DM, l/kg organic DM and % methane; daily maintenance over the whole period - **Prior consultation of the laboratory is necessary (phone: +49 (0) 441-801-836)!**
- ☐ 26. **Fermenting test of residual gas potential**  
Duration approx. 90 days; Specification of the gas yield as l/kg FM, l/kg DM, l/kg organic DM and % methane; daily maintenance over the complete period - **Prior consultation of the laboratory is necessary (phone: +49 (0) 441-801-836)!**  
VDI guide line 4630  
VDI guide line 3475
- ☐ 27. **Measurement of biogas composition**  
CH<sub>4</sub>, CO<sub>2</sub> and other components on request (specified as vol.-%)

## Important - declaration note – referred to items 19 and 22

### Declaration suggestion for farm manure brought into market:

☐ **yes additional costs: 5,- €** (not necessary when spreading on own land!)

This declaration can only be made for the use of plant and animal inputs in form of manure or fecal matter!  
In case of a declaration preparation, the indication of input materials and quantity proportion is mandatory!

(If filled by hand, please enter legibly into the table.)

The fee-based entry of the animal N-amount into the declaration is desired: ☐ **yes** ☐ **no**

Please also enter the total N-values in % into the table.  
The additional cost for assumption and calculation of the animal N-amount into the declaration amount 4,- €.

	input material	quantity amount (in %)	total nitrogen (in %)
1.			
2.			
3.			
4.			

In case of more than four input materials please use the back or a separate sheet.  
The sum has to be 100%.

1) issued by the German Federal Quality Association for Compost

June 2019

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