

Order form
BIOGAS ANALYSIS

115BG25A

Technical advice: 0441 801-830
Information on order form: 0441 801-836
E-mail: biogas@lufa-nord-west.de

CLIENT invoice recipient

Name, first name (company)

Address

Postcode/Place

LUFA client ID

Phone

E-Mail

DUPLICATE of test report for

Name, first name (company)

Address

Postcode/Place

LUFA client ID

Phone

E-Mail

Sample identification

Date of sampling

Sample type: _____ **Sampler:** _____

REQUIRED ANALYSES - PLEASE CHECK ACCORDING BOX -

- | | | |
|--------------------------|---|--|
| <input type="checkbox"/> | 1 Acetic acid equivalent (preparation and analysis) | methodology handbook ¹⁾ III, C3 (2021-09) |
| <input type="checkbox"/> | 2 Spectrum of acids – IC method Acetic acid equivalent and spectrum of acids (acetic acid, propionic acid, butyric acid) – preparation and analysis <input type="checkbox"/> only if acetic acid equivalent $\geq 2,0$ g/kg | methodology handbook ¹⁾ III, C3 (2021-09)
LUFA Nord-West AA 1/3A-046 (2022-04), #6 |
| <input type="checkbox"/> | 3 Spectrum of acids – IC method incl. isoacids 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 <input type="checkbox"/> only if acetic acid equivalent $\geq 2,0$ g/kg | methodology handbook ¹⁾ III, C3 (2021-09)
LUFA Nord-West AA 1/3A-046 (2022-04), #6 |
| <input type="checkbox"/> | 4 Dry matter (DM) | VDLUFA I, 2.1.1 (mod.) (1991)
VDLUFA II, 9.28.1 (1976) |
| <input type="checkbox"/> | 5 Organic dry matter (oDM) | VDLUFA II, 10.1 (2014) |
| <input type="checkbox"/> | 6 pH value | VDLUFA I, A 5.1.1 (mod.) (2012-01), #6
DIN EN ISO 10523 (2012-04), #6 |
| <input type="checkbox"/> | 7 Ammonium nitrogen (NH₄-N) | VDLUFA II, 3.2.6 (1995), #6 |
| <input type="checkbox"/> | 8 Buffer capacity (TIC value) Incl. calculation of VOA/TIC value, only in combination with analysis of acetic acid equivalent according to analysis 1, 2 or 3 | DIN 38409 - H7 (2005-12), #6 |
| <input type="checkbox"/> | 9.1 Trace elements (small package) Nickel (Ni), cobalt (Co), molybdenum (Mo), selenium (Se) incl. dry matter and decomposition | DIN EN ISO 17294 (2017-01) |
| <input type="checkbox"/> | 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 | DIN EN ISO 17294 (2017-01)
DIN EN ISO 11885 (2009-09), #6 |
| <input type="checkbox"/> | 9.3 Cobalt (Co), soluble incl. dry matter and extraction | DIN EN ISO 17294 (2017-01) (mod.), #6 |
| <input type="checkbox"/> | 10 Salt content | VDLUFA II, 11.14 (1995), #6 |
| <input type="checkbox"/> | 11 Determination of C/N ratio Specification of total carbon and total nitrogen on request | DIN EN 15936 (2012-11), #6
DIN EN 16168 (2012-11), #6 |

¹⁾ issued by the German Federal Quality Association for Compost

This form is double-sided, please also note page 2

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Place

Date

Signature

- 12 **NIR analysis of energy** | 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 (no mixtures), barley, rye wheat, triticale, soya grist VDLUFA III, 31.2 (2004)
- 13 **NIR analysis of energy 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 (no 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 (2004)
calculated by Baserga, #6
- + **Additional analysis of:** DIN EN ISO 11885 (2009-09), #6
- Ca P Na Mg K S Cu Zn Mn Fe Al (basic price plus each element)
- package of minerals (Ca, P, Na, Mg, K incl. basic price) package of trace elements (S, Cu, Zn, Mn, Fe incl. basic price)
- 14 **Theoretical gas yield according to Baserga (wet chemical analysis)** VO EG 152/2009 Annex III
A, M, I, H and C (2009)
calculated by Baserga, #6
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)
- 15 **Fermenting quality/fermenting acids** LUFA Nord-West AA 1/3A-046
(2022-04), #6
- 16 **Determination of total nitrogen (N_{total})** VDLUFA II, 3.5.1.1 (2004)
- 17 **Sulphur** DIN EN ISO 11885 (2009-09), #6
- 18 **Screening test of antibacterial substances** VDLUFA III, 28.4.1 (2007), #6
- 19 **Analysis of nutrients – fermentation residues from renewables biogas plants** | DM, oDM, N_{total}, NH₄-N, P₂O₅, K₂O, MgO, CaO, S, Cu, Zn **Pay attention to declaration note!** According to DüVO: VDLUFA II;
DIN EN 12880-S2a (2001-02);
DIN EN ISO 11732 (2005-05);
DIN EN ISO 11885 (2009-09);
VDLUFA II.1, 6.3 (2008)
- 20 **Analysis of nutrients – fermentation residues of co-fermentation biogas plants** | DM, oDM, N_{total}, NH₄-N, P₂O₅, K₂O, MgO, CaO, S, Cu, Zn, alkaline active constituents
- 21 **Heavy metals according to 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 german biowaste
regulation (2022-04)
- 22 **Analysis according to the regulation of biowaste (complete)** **Pay attention to declaration note!** according to german biowaste
regulation (2022-04)
- 23 **Salmonellae** methodology handbook¹, IV C1
(2013-05)
- 24 **Germinable seeds and parts of plants capable of sprouting** methodology handbook¹, IV B1
(2006-09)
- 25 **Fermenting test for substrates** | Duration at least 40 days; specification of the gas yield as IN/kg FM, IN/kg DM, IN/kg oDM and % methane; daily maintenance over the whole period. VDI guideline 4630 (2016-11), #6
Prior consultation of the laboratory is necessary (phone: +49 (0) 441-801-836)!
- 26 **Fermenting test of residual gas potential** VDI guideline 3475 (2016-11), #6
Duration approx. 90 days; specification of the gas yield as IN/kg FM, IN/kg DM, IN/kg oDM and % methane; daily maintenance over the complete period.
Prior consultation of the laboratory is necessary (phone: +49 (0) 441-801-836)!

IMPORTANT – declaration note – referred to items 19 and 22
Declaration suggestion for farm manure brought into market:

Yes, additional cost 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 out by hand, please enter legibly into the table.

input material	quantity in %
1. <input type="text"/>	<input type="text"/>
2. <input type="text"/>	<input type="text"/>
3. <input type="text"/>	<input type="text"/>
4. <input type="text"/>	<input type="text"/>
5. <input type="text"/>	<input type="text"/>

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

Specification of the measurement uncertainty in the test report