FINAL VERSION

AUGUST 06TH 2014

TENDER

FOR A PROJECT PARTNER IN UTILIZING OUTPUT POTENTIALS OF BIOGAS PLANTS IN VRBAS

(FOR CONSTRUCTING GREENHOUSES AND MUSHROOM PRODUCTION)

MIROTIN ENERGO DOO
VINOGRADSKA KOSA BB, 21460 VRBAS, SRBIJA

TENDER
INFORMATION ABOUT THE INVESTOR

Company name	Mirotin-Energo d.o.o.
Address	Vinograska kosa bb 21460 Vrbas Republic of Serbia
Tax number (PIB)	107003271
ID number (MB)	20721723
Working code(ŠD)	3511
Account number	340-11006587-36 ERSTE bank
Web site	www.mirotinen.rs

CONTACT INFORMATION FOR THE TENDER

Name of the contact person	Dobrosav Baćović
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E-mail	tender@mirotinen.rs

CONTACT INFORMATION REGARDING PLANT VISIT AND TECHNICAL DOCUMENTATION

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BASIC INFORMATION

BASIC INFORMATION ABOUT THE INVESTOR

Mirotin Energo llc, a member of the *Mirotin Group*, is specialized in renewable energy sources, especially biogas, project and investment management, energy efficiency and designing. *Mirotin Group* is the leader in agricultural production and through its legally independent companies it cultivates over 4500 ha of land, owns more than 2000 heads of cattle (cows, calves...), fishery and oil production, and also a corn process plant.

Based on mutual development of the *Mirotin Group*, *Mirotin Energo* has made a decision about the investment in a single project (or more projects) for utilization of all outputs and products from own biogas plants with total capacity of 1.5 MW electrical. All projects that will be chosen through this tender will be realized in close vicinity of the biogas plants.

SCOPE OF THE WORKS

In accordance to its own plans for development, that are synchronized with development plans of the *Mirotin Group*, *Mirotin Energo* has made an analysis of the use of byproducts from biogas plants. Also, an “Assessment of the feasibility of the investment for 2 ha greenhouse for tomato production” was made by the company “SGS”, as well as an assessment of the feasibility for mushroom production. Bidders are entitled to receive the mentioned assessment. All these activities are focused on utilizing the heat energy, solid and liquid fermentation rests, as also the possible use of carbon-dioxide from the exhaust gasses. These assessments have shown that there is a possibility for vegetable cultivation, especially tomatoes, in a 9 month period, but based on the experiences from other producers, we have installed natural gas for additional heating.

In the periods when there is no need for the heating of the greenhouses, the heat energy will be used for other purposes, such as drying of alfalfa, and eventually for cold storage through a system of absorption chillers, which will be the subject of other, independent, investment programs with respect to the energy needs by the seasons. It means that the bidder can count on the complete heating energy (except for that of the need for heating the fermenter).

The bidder is required to rationally use the heating energy and deliver a solution that will be resistant to the extremely low temperatures in this area, as well as the short periods when the energy from biogas would not be available for some reasons.

Also, the solution that will offer the organization of the packaging and daily storage of the products is expected. The bidder should acknowledge and suggest a solution for the use of the available water supplies of the given amount and quality, as well as the solution for the excess of water after the big rainfalls. The possibility of the use of liquid post fermenter mass as a plant fertilizer should be checked. The liquid fraction that we currently have is available, and in case it is suitable as the fertilizer for plants, a suggestion for its treatment and purification should be given, so that it could be used as the fertilizer. We stress out that the investor has made available the required infrastructure for the realization of the project (electricity, gas, roads, water and other) so that the bidder can offer the solution with or without the lighting. We expect that the solid fraction could be used as the soil for the plants, and a suggestion for the use of the solid fraction should be given.

The bidders can deliver other technical solutions if they consider that such projects can have better feasibility and/or performance compared to the suggested ones.

Because of that it is requested that the bidder submits a feasibility study for his project and the investor highly values this segment, because he expects that this transfer of technology will be on the highest technical level. The technical support of the bidder throughout all phases of the realization of the project will especially be valued.

The possibility of presentation of the references of the bidder as well as his experience is valued, since *Mirotin Group* has the intention to expand this technology in the next period. The bidders will have available all information about the crop and vegetable production. All information that is needed by the bidder to make the best solution for the suggested projects will be available.

The investor is ready to accept the HR organization, structure and trainings offered by the bidder.

COMMON PROFILE OF THE BIDDER

The bidder must be a company with good solvency and must have a sustainable, proved referentiality in designing, procurement and realization of projects of similar size, use of heat in similar projects, etc. It is expected that the bidder, together with the referentiality, also has the *know how* that he will present through his offer.

The bidder is obliged to make a feasibility study, together with submitted offer, that will be representative for making of the business plan and give the sufficient documents that will justify the investment for obtaining financial support and that will be good enough for realization. The bidder will be able to get additional information about the level and scope of the requested study during making of his offer.

All the equipment must be new and unused, made in the European Union, Europe, or countries whose standards are accepted by our country, as well as the countries that are defined by the financial institution.

The equipment must be unified.

The bidder is obliged to provide the bank guarantee for the agreed upon advance payment, covering all the risks that might arise from the extension of the deadline and handover of the project. The conditions of the bank guarantee will be specified after the internal screening of the credit ability of the bidder by the investor and the financial institutions.

The bidder guarantees the functioning of the plant in form of the bank guarantee that covers the performance test in the value of 10% of the contracted price as a performance bonds. The bidder that will be chosen on the tender is also obliged to submit the bank guarantee in the duration of the

warranty period in the value of 5% of the contracted price and the corporative guarantee in the value of 5% of the contracted price. All guarantees will be defined by the contract and can be changed in regards to the method of financing and obligations that will be determined by the financial institution.

The bidder may enter the tender alone or in consortium. In case that the bidder enters the tender in a consortium, he is required to list and document all the members of the consortium with valid financial reports of the members, list of reference of the members for the given type of work and the fulfillment of the common conditions for the bidders.

The bidder names a local project and/or constructor company, which has all the required licenses, in form of the subcontractor. The list of the subcontractors and their certificates (required modeling and constructor licenses), as well as the fulfillment of the common conditions, the bidder must submit together with the offer, or to make available the adequate validation of the documents needed to receive the license for the construction and the permit for usage.

COMMON CONDITIONS FOR THE BIDDERS

All bidders that are submitting their offers must fulfill the following conditions:

a) The bidder must have at least 3 (three) years of experience in modeling designing, realizing and exploitation of the same or similar projects to which he is giving the offer,
b) The bidder must have its own or hired qualified and trained personnel for the project works, which he has to document together with the offer,
c) The bidder must foresee, as part of the offer, the support during the minimum of 15 (fifteen) months of the exploitation of the project, after the beginning of the working phase of the project, in regards to the field support in the form of qualified experts, access to the databases, technical skills and trainings,
d) Bidder has to provide at least 100 (one hundred) theoretical and 150 (one hundred fifty) practical classes for at least 5 (five) Investor's employees.
e) In case of works in the vicinity of the explosive areas, the bidder and his subcontractors must have all the necessary certified equipment and personnel for working in EX zone and in the vicinity of the EX zone,
f) If he is chosen on the tender, the bidder must have the possibility to submit all the technical documentation on the level of the workshop documentation, required project of the working state for obtaining the working permit, equipment certificates (done by domestic certification companies) and the instructions for the operators in Serbian language,
g) If he is chosen on the tender, the bidder is obliged to sign the contract latest in 15 (fifteen) days from the completion of the tender process of selection,
h) The maximum deadline for completion of the works is 8 (eight) months from the date of signing the contract and fulfillment of its conditions,
i) As already stated, if he is chosen on the tender, the bidder must deliver new, unused, uniform and factory certified equipment
j) The bidders must shape the offer so that the offered equipment is, as much as possible, of the same producer.

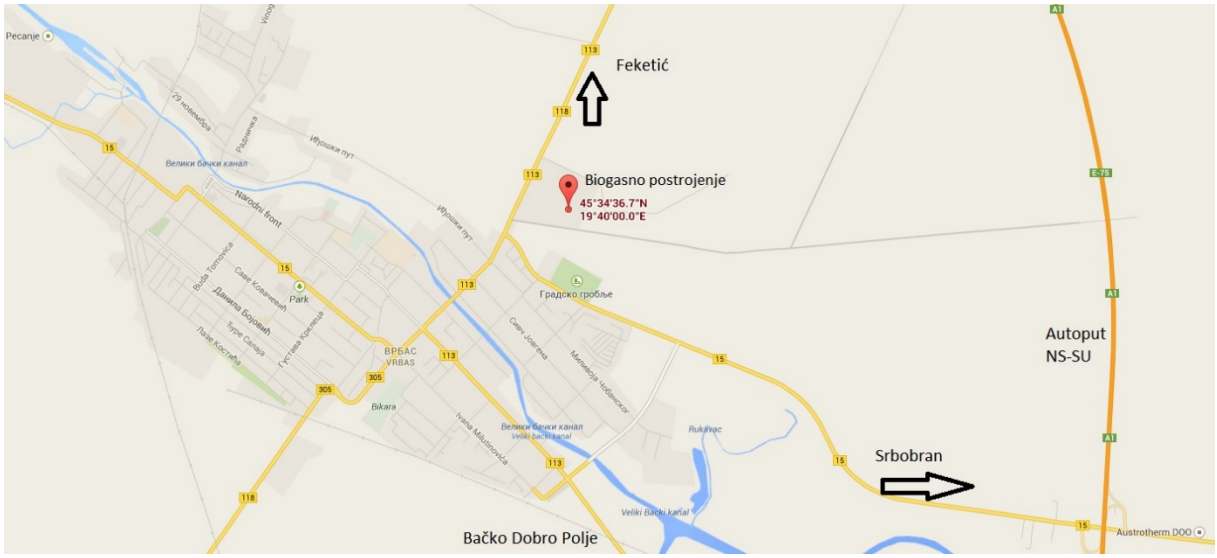
These conditions (from a) to j)) are mandatory for the bidders and the investor holds the right not to take into further consideration the offer of the bidder that does not fulfill one or more of the given conditions. The bidder has right for an additional explanation of each and every condition, whereas the explanation will be delivered to all the bidders.

ABOUT THE BIOGAS PLANT

LOCATION OF THE BIOGAS PLANT

Both biogas plants are located on the location Put za Feketić bb, 21460 Vrbas.

Plant GPS coordinates	45°34'33.79"N 19°39'58.47"E
Parcel number	1400/2 K.O. Vrbas
Hight above sea level	83 m



Type of the biogas plant	Agricultural biogas plant
Type of biogas fermentation	Mesophilic
Yearly biogas production	~6.000.000 Nm^3
Yearly electricity production	~12.000.000 kWh
Input materials	Maize silage: 14,000 t/year
	Cattle manure: 27,000 t/year
	Sugar beet cut-off: 10,000 t/year
	Vegetable production waste: 1000 t/year

Engines 1 MW	
Type of engine	GE Jenbacher J 416 GS
Installed power (electricity)	1189 kW
Installed power (heat)	1170 kW
Operating power (electricity)	1000 kW

Operating power (heat)	1000 kW
0,5 MW	
Type of engine	GE Jenbacher J312 GS-D225
Installed power (electricity)	**549 kW**
Installed power (heat)	**559 kW**
Operating power (electricity)	**500 kW**
Operating power (heat)	**500 kW**

The heating power of 1 500 kW is available on one place of attachment, and the real heating energy is dependent from the efficiency of the generator on the monthly level (usually in interval of about 95% of available time). The own need for heat of the fermenter is also a changing category, but it is in the limit of the changing values which will be determined on site.

LIST OF OUTPUTS AND PRODUCTS AND INFRASTRUCTURE ATACHMENTS

List of outputs is shown in the table

Name of the output	Description	No of the attachment
Heat energy	The heating energy in total, approximate, amount of 12 000 000 kWh/year is produced by two cogenerative plants and it is available on a one hot water connection of the temperature 90/70 °C	In the attachment 1. the system for producing the head from both engines, that is joined into one system, is shown.
Solid post fermenter mass	It is made by separation of the solid phase of the fermentation residue. It represents a very good bio fertilizer for plants. If there is interest of the bidder, it is possible to deliver a sample of the mass for specific testing. The estimated yearly amount is 8 000 t. In the attachment the analysis of the solid post fermenter mass is shown.	Attachment 2.
Liquid post fermenter mass	It is made by separation of the liquid phase of the fermentation residue. It represents a very good bio fertilizers for plants. If there is interest of the bidder, it is possible to deliver a sample of the mass for specific testing. The estimated yearly amount is about 30 000 m^3. In the attachment the analysis of the liquid post fermenter mass is shown.	Attachment 2.

INFRASTRCTURE CONNECTIONS

Name	Description	Estimated current price of cost
Electricity	The investor will make available an electrical substation of appropriate power with current ratio 20/0.4 kV for supplying the project with electricity	0,06 EUR/kWh
Natural gas	The location includes a natural gas connection with the capacity of 100 m^3/h at the operating pressure of 2 bar. If needed, this capacity can be increased in agreement with the investor.	0,37 EUR/m^3
Water	Water is available from own artesian wells in amount of 10 l/s and pressure of 6 bar.	N/A
Road infrastructure	The road infrastructure enables easy access to the project location with transport vehicles like trucks etc.	
Phone and internet		

It is the obligation of the bidder to check the mentioned capacity of the heating sources on site, and to orient based on those capacities during defining of the production conditions.

PROCESS OF CHOOSING THE BIDDER

All adequately submitted offers will thoroughly be studied and will be awarded points based on the subheading “Awarding points”. The investor holds the right to keep the final list confidental.

INSTRUCTION ON SUBMITTING THE OFFERS AND DEADLINES

a) Interested companies are invited to visit the biogas plant location in Vrbas, every weekday until 10.09.2014., with prior announcement to *Mirotin-Energo* llc(look at the contact page).
b) The bidders that wish to participate on the tender should submit their offers and tender documentation in Serbian or in English language to the office of Mirotin-Energo d.o.o. (Bulevar oslobođenja 127/II, 21000 Novi Sad, Republic of Serbia) latest by 22.09.2014. at 9:00h in a double sealed envelope. The inner envelope is sealed.
c) Public opening of the offers will be made in presence of all the bidders on 22.09.2014. at 10:00h (Bulevar oslobođenja 127/III, 21000 Novi Sad, Republic of Serbia). The committee will make a report about the received documentation. The committee will make available a reasonable amount of time to the bidders that qualify to improve their offer until the deadline that will be determined by the chairperson of the committee. The eventual improvements and additions to the offer will not be publically presented, but will be available to all the qualified bidders after the choice of bidders.
d) The results of the points awarded will be announced on the website www.mirotinen.rs latest 15 (fifteen) days from the determined deadline for improvement of the offers.
e) Additional negotiations will be held on 26.09.2014 at 10:00h. During the negotiations all chosen bidders will have the opportunity to make final explanations of their offers, submit the technical documentation as well as to make final improvements to their offers.

f) The tender committee will announce the winner by 29.09.2014. The decision of the committee will be final.
g) The tender committee has the right to proclaim the tender unsuccessful and not award any company that participated in the tender.
h) The tender will be considered successful no matter to the number of the participating bidders.

AWARDING POINTS

To all offers, the tender committee will award points by the same principle, taking into consideration five aspects:

1. Total investment cost: 30 points (30%)
2. Technology and support: 45 points (45%)
3. Financial arrangement: 15 points (15%)
4. Deadline and services: 5 points (5%)
5. Referentiality: 5 points (5%)

Elements 2-5 will be awarded points in the given limits, so that all the elements from the offer will be considered and compared with the other bidders. The quantification will be entirely numerical and it will be considered that all the elements will be entirely objectively valued and comparable to the respected parts of the offers from other bidders.

TOTAL COST

Total cost is referred to the total cost of the offer, without tax, on the principle of "turn-key". The bidder that has the lowest overall price receives 30 (thirty) points. Other bidders receive proportionally less points calculated from the formula:

$$Number_{points} = \frac{Price_{lowest}}{Price_{offered}} \cdot 30$$

TECHNOLOGY AND SUPPORT

The offer will be valued considering the following elements: efficiency of the investment, energy efficiency, operative costs, offered personnel training, field availability of experts and feasibility.

FINANCIAL ARRENGEMENT

The following elements will be valued: Payment conditions, Possibility to get a grant, Support of the bidder by the financial institutions, total solvency of the bidder.

DEADLINE AND SERVICE

The offered deadline for completion of the works will be valued as well as the availability of the service for the offered equipment with as short as possible time of response.

Service represents the availability of the service and service network for the offered equipment in Republic of Serbia.

REFERENTIALITY

It is expected from the bidder to have at least three years of experience in the given field, and the list of references will be valued, its size and number, taking into consideration to especially value projects for which the investor decides in favor of.

FINAL REMARKS

This tender will not be published in public announcing services, but will be available in form of inviting tender on the website in part “Tender” and will be available in the printed form by the request of the tender participants. The assessment of the “SGS” will be available online on Serbian language, while the English version will be available after paying the defined amount.

English version of the tender can be delivered if the potential bidders request it.

The correspondence can be in Serbian or in English language, in written or electronic form.

Hot water circuit

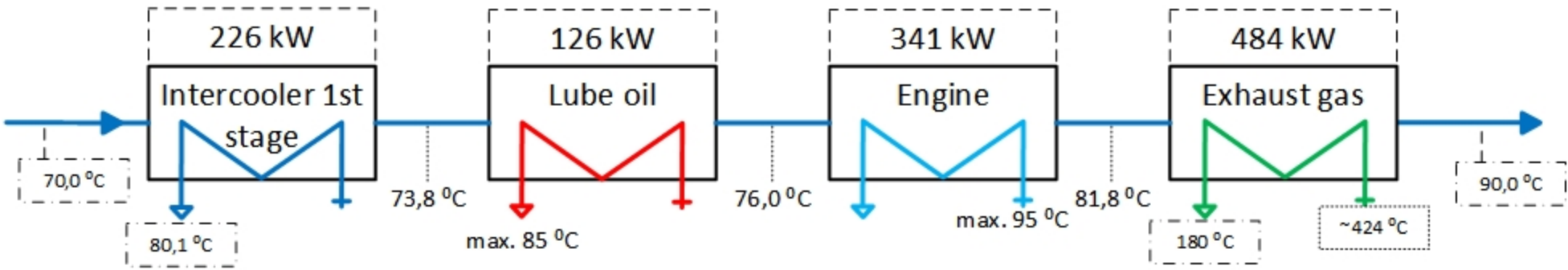
Connection variant F

BGA Vrbas 416 J 416 GS-B25

Recoverble thermal output = 1.177 kW

(±8% tolerance +10% reserve for cooling requirements)

Hot water flow rate = 50,5 m^3/h

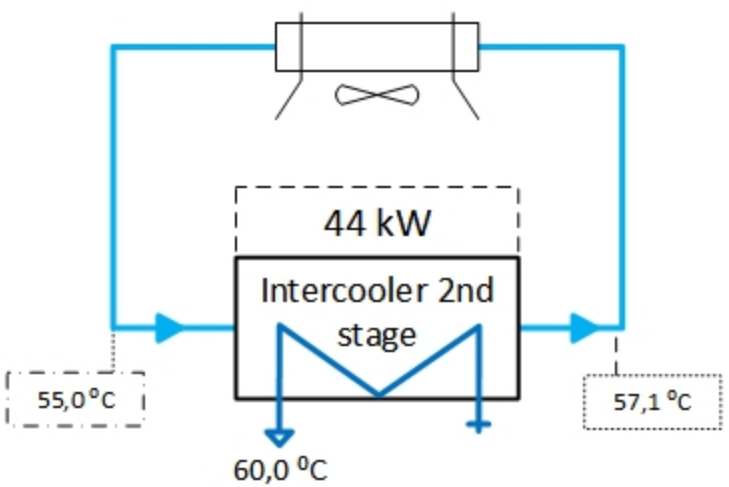


Low temperature circuit (calculated with Glykol 37%)

Heat to be dissipated = 44 kW

(±8% tolerance + 10% reserve for cooling requirements)

Cooling water flow rate = 20,0 m^3/h



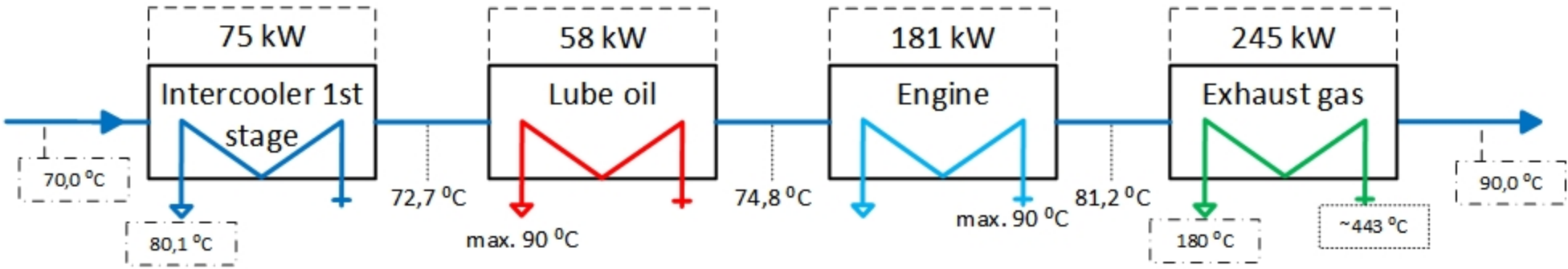
Hot water circuit

Connection variant F
- J 312 GS-D225

Recoverble thermal output = 559 kW

(±8% tolerance +10% reserve for cooling requirements)

Hot water flow rate = 26,9 m^3/h

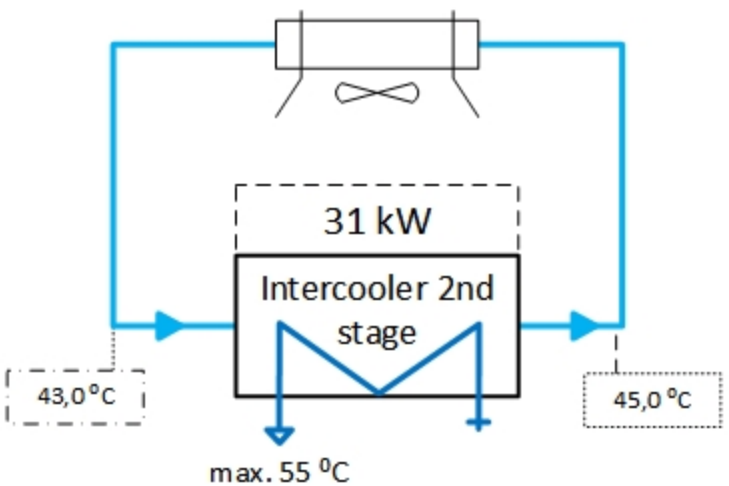


Low temperature circuit (calculated with Glykol 37%)

Heat to be dissipated = 31 kW

(±8% tolerance + 10% reserve for cooling requirements)

Cooling water flow rate = 15,0 m^3/h



Analysis result

Basic chemical properties of the soil
Archive number: 2000-10/51,
Department of field and vegetable crops, Faculty of Agriculture Novi Sad

Type of analysis	Measured value
pH in water	8.45
NH_4-N (mg kg^{-1})	0.21
NO_3-N (mg kg^{-1})	465.2
Total N (%)	0.77
Total C (%)	31.32
C:N ratio	24.12
Total phosphorus P_2O_5 (%)	1.01
Total potassium K_2O (%)	4.42
Available phosphorus (mg P_2O_5 kg^{-1})	745.8
Available potassium (mg K_2O kg^{-1})	5328.8
Organic matter content (%)	89.82
Ash content (%)	10.18

Analysis methods

Determination of overall acidity - pH in water - SRPS ISO 10390:2007.
Determination of mineral nitrogen content (NH_4-N + NO_3-N): by steam distillation by Bremner, Agrochemical workbook. Faculty of agriculture, Novi Sad.
Determination of total nitrogen and carbon content by automatic method - by CHNS analyser; AOAC method 972.43
Determination of total phosphorus and potassium. Arsenijević-Maksimović I., Pajević S. (2002): Plant physiology workbook. Faculty of agriculture, Novi Sad.
Determination of P_2O_5 and K_2O content by ammonium lactate method - Determination of available phosphorus and potassium in soil by Al-method (Egner and Reihm, 1958). Agrochemical workbook, Faculty of agriculture, Novi Sad, p. 55-63. DM-2
Determination of organic matter and ash content. SRPS EN 13039:2013

Head of department of Agrochemistry

Prof. dr Darinka Bogdanović

Analysis results of organic fertiliser
PSS VRBAS DOO VRBAS
Laboratory for testing

Sample: Liquid fermentation rest
Analysis requested by: PP "Sava Kovačević" AD
Description of sample / State of sample: Simple is submitted in a 1l plastic bottle

Parameter	Analysed value
Dry matter	3.43%
Ash	1.63%
Organic matter	1.80%
pH value	7.84%
Total P_2O_5	0.089%
Total K_2O	0.220%
Total nitrogen	0.181%
Ammonium nitrogen	0.107%
Available P_2O_5	0.046%
Available K_2O	0.148%

Weight of 1000ml sample is 1010.4 g
Date of the report: 11.02.2014.