



ORGREZ, a.s.,
Ambient air monitoring and fuel analysis division
The Proficiency Testing Group
Budovatelů 2531, CZ 434 01 Most
tel. +420 476 702 785, e-mail: szz@orgrez.cz



Proficiency Testing Group

proficiency testing provider no. 7014 accredited by ČIA
according to ČSN EN ISO/IEC 17043:2010

Instructions on programme PT/BIO/A,S,Q,C,H,N/2022

Dear participants,

We are sending you detailed information on proficiency testing programme PT/BIO/A,S,Q,C,H,N/2022 (interlaboratory comparison). This programme is based on application of the standard ČSN EN ISO/IEC 17 043 Conformity assessment – General requirements for proficiency testing.

Tested entries

Tested entries are set of five analytic samples of solid biofuels. The ash, content of sulphur, gross calorific value, the content of carbon, hydrogen and nitrogen (chlorine and/or mercury content) will be determined in two parallel measurements. In addition to the SZZ accreditation, the determination of mercury and chlorine content is also included for registered candidates this year. These samples were prepared in accredited testing laboratory. The homogeneity of each set of samples was verified before distribution. At the end of the tests, the stability of each set will be verified. The analyses for homogeneity and stability were/will be performed in accredited testing laboratory.

The samples are labelled with unique numeric codes which do not comply with the names of participants. In case of not receiving the samples in time according to the schedule or in case of receiving damaged samples, please contact the proficiency testing provider.

The samples are distributed before 18.3.2022 as a registered parcel or in person by ORGREZ, a.s. employees together with these instructions and forms to be used for presenting the results of the tests performed in your laboratory and additional information. Treat the samples as standard test samples, normally analysed in your laboratory. Store samples out of direct sunlight and at normal laboratory temperature. The same conditions must be observed for both parallel determinations, ie. will be performed on the same day, by one operator, on the same equipment and the same chemicals will be used. **Report your results in dry matter (without analytical water):**

- **Ash, carbon, hydrogen, nitrogen and volatile matter content (A, C, H, N) in weight percent to two decimal places,**
- **Sulphur content in weight percent to three decimal places,**
- **Gross calorific values in MJ/kg to three decimal places,**
- **Chlorine content (outside the scope of accreditation) in mg/kg as an integer and**
- **Mercury content (outside the scope of accreditation) in mg/kg to four decimal places.**

Send the **completed result forms** (downloadable at <http://www.orgrez.cz/sluzby/zkouseni-zpusobilosti/>) **no later than 26 April 2022** by e-mail to szz@orgrez.cz in **Excel and scanned with signatures**.

Additional information will be used to evaluate and classify the results, or to clarify possible outliers. **Please pay extra attention when entering additional information on Results of the proficiency testing participant form.** There are some examples of possible information in the table at the end of this document, but they do not cover all possible entries. The laboratory may indicate its own developed methods or procedures. If it is not a standardized procedure, state its source (literature, legislation, manufacturer's manual, etc.). **State the uncertainty of the results for each characteristic determined as the expanded uncertainty ($k = 2$), clarifying whether it is an absolute or relative expression.**

Laboratories can use any of the methods they commonly use. Separate evaluation of results according to methods is possible only with a sufficient number of results/laboratories with the given method, otherwise this will be considered in the comments of the results. **The determination of all fuel quality characteristics or all samples in this programme is not mandatory.** Each laboratory will receive only one set of samples and may submit only one set of results (multiple methods or instruments may be combined, but only one parallel result for each sample - then list all methods and instruments used in the additional information).

Time schedule:

Application of participants	until 25. 2. 2022
Sample preparation and distribution	until 18. 3. 2022
Testing and delivery of results	until 26. 4. 2022
Statistical analysis of results and distribution of preliminary report (in PDF)	until 10. 6. 2022
Commenting of preliminary report	until 17. 6. 2022
Distribution of final report	until 1. 7. 2022
Time limit for reclaim	until 1. 8. 2022

Evaluation

The results will be evaluated in accordance with the standard ČSN EN ISO / IEC 17 043 (01 5264) and will be used exactly as the participants in the programme fill them in the result form. If the participant corrects the results at his own discretion within the deadline for delivery of results, this correction will be accepted. In accordance with the requirements of ČSN EN ISO / IEC 17 043, statistical methods (according to ISO 13528) with performance evaluation according to z-score or z'-score will be used for evaluation of laboratory performance. The differences will be further compared with the standard values for reproducibility:

- **ČSN EN ISO 18122** – Solid biofuels — Determination of ash content
- **ČSN EN ISO 16994** – Solid biofuels — Determination of total content of sulfur and chlorine
- **ČSN EN ISO 18125** – Solid biofuels — Determination of calorific value
- **ČSN EN ISO 16948** – Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen
- **ČSN 44 1393** – Hard and brown coal — Determination of mercury

A suitable robust average, characterizing the distribution of the set the participants' results, will be used as an assigned value. For small number (4-20) of results, the use of the Horn procedure will be considered.

Proficiency Testing Results

The results will be included in a summary report, in which they will be presented under the secret code numbers of the individual participants. Each participant thus knows only his own code number, which preserves the confidentiality of the results. Each participant will receive a Certificate of Participation in the PT programme with identification of their own number, including individual performance evaluation and one set of reference samples (five samples of about 50 g each).

The evaluation of performance in the proficiency testing programme can be claimed within the period according to the schedule above. The reasons for the complaint will be reviewed and a written opinion will be issued.

Protection of personal data

ORGREZ, a.s. processes personal data of business partners in accordance with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, effective on 25 May 2018, on the protection of individuals with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (GDPR) information on the processing of personal data of business partners is available on the website of ORGREZ, a.s., (<http://www.orgrez.cz/about-us/gdpr>).

Wishing you successful cooperation

Mgr. Jan Pomahač – Head of the Proficiency Testing Group
Michal Petrák – Coordinator of the Proficiency Testing Group
Ing. Miroslava Šindelářová – Quality manager of the Proficiency Testing Group

Examples of additional information:

PARAMETER	METHOD / PROCEDURE	STANDARD	EQUIPMENT	PRINCIPLE	PHYSICAL CALIBRATION	CHEMICAL CALIBRATION	UNCERTAINTY
	Method you are using	Standard you are using	What equipment was used	The principle of the equipment	How often is calibration performed	How often is calibration performed	Always use expanded uncertainty U with k=2
A^d	- combustion in furnace - radiometric analyser	- ČSN EN ISO 18122	- TGA 701 - muffle furnace	- IR spectroscopy - gravimetric analysis (Eschka)	- scales calibration - temperature calibration - volume calibration	- Internal reference material (IRM); - certified ref. material (CRM); - standard (LECO, BCR, LGC, TEKO, ...); - pure chemicals, - matrix RM	± 0,8 weight. % ± 3 % relative
S^d	- Eschka method - own method	- ČSN EN ISO 16994 - ČSN 44 1379	- LECO SC 144DR - LECO SC-DRPS 140 - muffle furnace	- adiabatic calorimetry - isoperibolic calorimetry.			
Q_s^d	- measuring of temperature increase in calorimeter - method according to the equipment manufacturer	- ČSN EN ISO 18125	- Laget MS10A - LECO AC 600 - IKA C 5000 - PARR 6400	- gravimetric analysis - IR spectroscopy			
C^d	- instrumental method - Liebig method	- ČSN EN ISO 16948 - ČSN ISO 625	- LECO TRUSPEC CHN - LECO CHN 628 - PE 2400 SERIES II CHN - ANALYTIC JENA MULTI N/C CHN	- IR spectroscopy - gravimetric analysis			
H^d	- instrumental method - Liebig method	- ČSN EN ISO 16948 - ČSN ISO 625	- LECO TRUSPEC CHN - LECO CHN 628 - PE 2400 SERIES II CHN - ANALYTIC JENA MULTI N/C CHN	- semimicro Kjeldahl method - thermal conductivity detection			
N^d	- instrumental method - titrimetric method after distillation	- ČSN EN ISO 16948 - ČSN ISO 333	- LECO TRUSPEC CHN - LECO CHN 628 - PE 2400 SERIES II CHN - ANALYTIC JENA MULTI N/C CHN	- gravimetric analysis - thermogravimetric analysis			