

Call for participation

ENFSI Proficiency Test on Identification of GSR by SEM/EDS – GSR 2021 –

Dear GSR expert,

On behalf of the ENFSI Expert Working Group “Firearms/GSR” we would like to invite you to participate in the proficiency test on the Identification of gunshot residue (GSR) particles by means of Scanning Electron Microscopy coupled with Energy Dispersive X-ray Spectroscopy (SEM/EDS). As part of the GSR Quality Scheme [1], the GSR proficiency test is organized, conducted and evaluated by QuoData GmbH.

Since receiving ASCLD/LAB approval in 2006, the program has enjoyed worldwide success. ISO 17043 accreditation is in preparation and scheduled for 2021. The GSR Quality Scheme is conducted annually and we invite you and your laboratory to participate in the 2021 round. State-registered Forensic Science Laboratories and all members of the European Network of Forensic Science Institutes (ENFSI) are welcome to participate.

Each participant will receive a specially prepared sample for the detection and identification of typical GSR particles (containing lead, barium and antimony) using their own laboratory-specific procedure for the *automated* detection of GSR particles via SEM/EDS according to ASTM E1588 [2].

The primary purpose of this proficiency testing program is to help laboratories improve and maintain their level of performance and correct any inaccuracies in their reported findings. The scheme also enables laboratories to demonstrate the quality of their measurements to accreditation bodies and other relevant authorities.

Background information

The scheme has existed since 2001. Preparations for the 2021 round are currently in progress and the samples are expected to be ready for dispatch in June 2021. The organization and statistical evaluation of the GSR2021 round will be conducted by QuoData GmbH (based in Dresden, Germany) on behalf of the ENFSI Expert Working Group “Firearms/GSR” [5], as has been the case since 2010. QuoData GmbH is specialized in providing services in the area of external quality assurance and proficiency testing; more generally, QuoData GmbH develops statistical tools for quality assurance. In connection with the GSR PT scheme, QuoData provides a dedicated website where supplementary information on the current round is available [6].

Results of previous GSR proficiency tests have been published in the Journal of Forensic Sciences ([7], [8] and [9]).

The findings compiled from the GSR2021 proficiency test will be published in a final report which will be submitted to all participants. In addition, each participant will receive an individual certificate of participation.

Test sample description

It has been shown that the use of a synthetic sample set is necessary in order to guarantee identical test samples. Therefore, GSR2021 will be performed again with synthetic samples ([7], [8] and [9]).

Test sample preparation has been subcontracted to Plano GmbH (Germany) [2] and will soon be completed. Sample characteristics were chosen as in former GSR PT rounds, though the number of particles, their diameter and their location will be different.

Homogeneity and stability testing of test samples has been subcontracted to an ISO 17025 [10] accredited ENFSI laboratory (Bundeskriminalamt (BKA), Germany [4]).

Time table of GSR2021

Date	Action	Responsibility
30 April 2021	Deadline for enrollment	Laboratories register for participation in GSR2021 PT through the GSR PT Portal (https://gsr.quodata.de)
09 June 2021	Sample dispatch	QuoData GmbH sends the samples to the participants
07 July 2021	Deadline for uploading test results	Participants upload test results using the GSR PT Portal (https://gsr.quodata.de)
28 July 2021	Activation of the GSR QC analysis tool for cross checking submitted data	QuoData GmbH sends login data and activates the GSR QC analysis tool (https://gsr-ie.quodata.de)
11 August 2021	Deadline for cross checking submitted data	Using the GSR QC analysis tool, participants check their submitted data
30 September 2021	Publication of the final report and providing the individual certificates	QuoData GmbH publishes the final report and the individual certificates, which are made available in the GSR PT Portal (https://gsr.quodata.de)

The **deadline for enrollment** is **30 April 2021**. If you participated in the 2020 GSR PT round, you can login and enroll here:

<https://gsr.quodata.de/pt-participant/enrollment>

If you have forgotten your password, you can request a new password to be sent to your registered email address at any time.

Otherwise, please first fill in the online application form, provided here:

https://gsr.quodata.de/pt-participant/lab_applicant/add

You will get an email with your login data and the link for enrollment.

Sample dispatch is scheduled for **09 June 2021**. Each laboratory will receive one test sample along with instructions. Test results are uploaded and an online questionnaire on instrumental and procedural conditions is filled out in the GSR PT Portal, which is available on <https://gsr.quodata.de> – a website provided by QuoData GmbH.

The **deadline for uploading test results** along with the online questionnaire is four weeks after sample dispatch on **07 July 2021**.

On **28 July 2021**, the participating laboratories will receive an email with the **login data for the GSR QC analysis tool** (<https://gsr-ie.quodata.de>). Once they login, the participants will be able to access their own test results as well as additional information, including the exact number of GSR particles,

their sizes and exact positions. This will give the laboratories the opportunity to cross-check their previously submitted data. It also allows the samples to be subsequently used in the laboratory as a standard for validation purposes in a GSR analysis. Laboratories have ten working days until **11 August 2021** to **cross-check** their submitted **data**.

The **final report and the individual certificate of participation** will be made available for the participating laboratories in the GSR PT Portal (<https://gsr.quodata.de>) on **30 September 2021**.

Participation fee

A participation fee will be charged to the laboratories covering the costs, arising from the production of suitable sample material, the statistical evaluation, and the preparation of the final report and the individual certificates. The fee is **995 €** per participant (plus 19 % VAT for German participants) plus 30 € for shipping and packing.

It is possible to order more than one PT test sample. The price for any additional test sample is 995 €. However, to ensure the comparability and independence of all laboratory test results, only one set of results per laboratory can be submitted for taking into account in the PT evaluation across laboratories and to receive an individual certificate of participation. For the evaluation of additional sets of results, please refer to the web-based GSR QC analysis tool, which can be used for the purpose of quality assurance: <https://gsr-ie.quodata.de>

GSR QC analysis tool

The GSR QC analysis tool (<https://gsr-ie.quodata.de>) will be available free of charge for one year after completion of GSR2021 with a maximum of 100 evaluations. It is an additional service offered to the participants and a benefit in the context of quality assurance within laboratories. This opportunity will make it possible to subsequently use PT test samples for other purposes (e.g. as a validation standard for the SEM/EDS system or for quality assurance studies).

Payment and shipping

For participants from EU-countries other than Germany, the declaration of a VAT registration number is necessary; otherwise, they will be charged German VAT.

Payment and sample shipping will proceed as follows:

1. The laboratory accepts the conditions for participation by filling in the enrollment form provided in the GSR PT Portal (<https://gsr.quodata.de>). In doing so, the laboratory specifies whether payment will be carried out by bank transfer or by credit card (MasterCard, Visa or JCB). Please note that we have to charge a 3 % fee for payment by credit card.
2. Additionally, a flat rate of 30 € per test will be charged for shipping and packaging. Sample shipping will be carried out by a global courier delivery service (e.g. FedEx).

Any additional costs, e.g. due to customs duties, are covered by the participating laboratory.

Binding enrollment for participation

The statement of participation is binding and cannot be cancelled once QuoData GmbH has received the enrollment. If a purchase order was submitted together with your statement for participation, an invoice for the participation fee and shipping costs will be mailed to the address indicated on the purchase order.

The amount indicated on the invoice must be credited within four weeks as specified in the invoice. No sample will be shipped until the fee has been received.

On behalf of the ENFSI Expert Working Group "Firearms/GSR"



Dr. Steffen Uhlig, QuoData GmbH

References

- [1] https://quodata.de/fileadmin/forensik_2016_public/GSR-PT-scheme-description.pdf
- [2] ASTM E1588-20, Standard Practice for Gunshot Residue Analysis by Scanning Electron Microscopy/Energy Dispersive X-Ray Spectrometry, ASTM International, West Conshohocken, PA, 2020, www.astm.org
- [3] <https://www.plano-em.de>
- [4] <https://www.bka.de>
- [5] <http://www.enfsi.eu/about-enfsi/structure/working-groups/firearms-and-gsr>
- [6] <https://quodata.de/gsr-quality-scheme.php>
- [7] Niewoehner L., Wenz W., Andrasko J., Beijer R., Gunaratnam L.; "ENFSI Proficiency Test Program on Identification of GSR by SEM/EDX"; Journal of Forensic Sciences; vol. 48(4); (2003); pp. 786-792.
- [8] Niewoehner L., Andrasko J., Biegstraaten J., Gunaratnam L., Steffen S., Uhlig S.; "Maintenance of the ENFSI Proficiency Test Program on Identification of GSR by SEM/EDX (GSR2003)"; Journal of Forensic Sciences; vol. 50(4); (2005).
- [9] Niewoehner L., Andrasko J., Biegstraaten J., Gunaratnam L., Steffen S., Uhlig S., Antoni, S.; "GSR2005-Continuity of the ENFSI Proficiency Test on Identification of GSR by SEM/EDX"; Journal of Forensic Sciences; vol. 53(1); (2008).
- [10] ISO/IEC 17025:2017; General requirements for the competence of testing and calibration laboratories.