Scheme Description

Forensic Analysis for Explosives (FAE) Proficiency Testing Scheme

lgcstandards.com/AXIO
axiopt@lgcgroup.com

Issue No: 12
Issued: July 2025

RECORD OF ISSUE STATUS AND MODIFICATIONS

Issue	Issue Date	Details	Authorised by
2	Apr 2014	Scheme re-named to FAE. Sample structure amended. Traceability information added in Appendix A. Methods section added. Clarification regarding homogeneity. UKAS logo added.	K. Morgan
3	Mar 2015	Sample structure amended for 2015 Scheme Year.	K. Morgan
4	Jan 2016	Removed Hard copy report information Sample structure amended for 2016 Scheme Year	A McCarthy K Morgan
5	Feb 2017	Sample structure amended for 2017 scheme year Addition of information relating to the option of the introduction of quantitative data.	K Morgan
6	Feb 2018	Sample structure amended for 2018 scheme year	K Morgan
7	Sept 2019	Sample structure amended for 2019 scheme year	K Morgan
8	Nov 2019	Removed 'Standards' from page 1 Amended sample structure	A McCarthy K Morgan
9	Sep 2020	Removed fax number and hard copy report info	A McCarthy
10	July 2021	Updated email address and UKAS logo Generalisation of Samples provided	A Collins K Morgan
11	Sept 22	Expansion of types of cases and samples that have been included in the case scenarios.	K Morgan
12	Jul 25	New style SD created	A Collins

Notes: Where this document has been translated, the English version shall remain the definitive version

SCHEME INFORMATION

Scheme Aims and Organisation

The primary aim of the Forensic Analysis for Explosives (FAE) proficiency testing (PT) scheme is to enable laboratories providing FAE analytical services (in accordance with industry best practice and to the international standards ISO/IEC 17025 and ISO/IEC 17020) to monitor their performance and compare it with that of their peers. This scheme also aims to provide information to participants on technical issues and methodologies relating to the examination of items and the interpretation of evidence. The ENFSI Working Group on Explosives provides technical advice to LGC Standards on the organisation of this scheme.

The FAE scheme year operates from January to December. Further information about FAE including test material availability, round despatch dates and reporting deadlines, are available on the current FAE application form.

Test Materials

Details of test materials available in FAE are given in the 'Samples Available' section. The test parameters are continually reviewed to ensure they meet the needs of current laboratory testing and regulatory requirements. Participants will be provided with a case scenario and samples of substances found at the scene.

Test material batches may be tested for homogeneity for at least one test parameter. However, often a particular test material does not require homogeneity assessment prior to distribution; such sample types include standard solutions and aqueous solutions. Details of any homogeneity tests performed and results are given in the FAE Scheme Reports. Where homogeneity is undertaken the analytical work is subcontracted, details are provided in the FAE Scheme reports.

Some aspects of the scheme, such as test material production, homogeneity testing and stability assessment, can from time to time be subcontracted. When subcontracting occurs, it is placed with a competent subcontractor and LGC is responsible for this work. The planning of the scheme, the evaluation of performance and the authorisation of the final report will never be subcontracted.

Statistical Analysis

Information on the statistics used in FAE can be found in the General Protocol and in the Scheme Report. Methods for determining assigned values and the values for SDPA used for individual samples are given in the 'Samples Available' section.

Methods

Methods are listed PORTAL. Please select the most appropriate method from the list. If none of the methods are appropriate, then please report your method as 'Other' and record a brief description in the Comments Section in PORTAL.

Results and Reports

FAE results are returned through our electronic reporting software, PORTAL, full instructions for which are provided by email.

FAE reports will be available on the website within 10 working days of round closure. Participants will be emailed a link to the report when it is available.

Participants will have a choice of methodologies and the AV and Qual Form will be detected/not detected. Participants may enter quantitative data if they so wish but this is not mandatory. This data is processed with the AV being the RMean and the SDPA being RobustSD.

DESCRIPTION OF ABBREVIATIONS USED

Assigned Value (AV)

The assigned value may be derived in the following ways:

- From the robust mean (median) of participant results (RMean). This is the median of participant results after the removal of test results that are inappropriate for statistical evaluation, e.g. miscalculations, transpositions and other gross errors. Generally, the assigned value will be set using results from all methods, unless the measurement is considered method-dependant, in which case the assigned value will be set by method and indicated in the report tables. For some analytes, where there is a recognised reference method for that type of measurement, this may be used as the assigned value for a particular analyte i.e. it would be applied to results obtained by any method.

  Traceability: Assigned values which are derived from the participant results, or a sub-set of the results are not traceable to an international measurement standard. The uncertainty of assigned values derived in this way is estimated from the participant results, according to ISO 13528.

- From a formulation value (Form). This denotes the use of an assigned value derived from sample preparation details, where known and exact quantities of analyte have been used to prepare the sample.

  Traceability: Assigned values calculated from the formulation of the test sample are traceable, via an unbroken metrological traceability chain, to an international measurement standard. The measurement uncertainty of the assigned value is calculated using the contributions from each calibration in the traceability chain.

- From a qualitative formulation (Qual Form). This applies to qualitative tests where the assigned value is simply based on the presence/absence of the analyte in the test material.

  Traceability: Assigned values calculated from the qualitative formulation of the test sample are traceable to a certified reference standard or a microbiological reference strain.

- From expert labs (Expert). The assigned value for the analyte is provided by an 'expert' laboratory.

  Traceability: Assigned values provided by an 'expert' laboratory may be traceable to an international measurement standard, according to the laboratory and the method used. The uncertainty of measurement for an assigned value produced in this way will be provided by the laboratory undertaking the analysis. Details of traceability and the associated uncertainty will be provided in the report for the scheme/round.

Range

This indicates the concentration range at which the measurand may be present in the test material.

SDPA

SDPA represents the 'standard deviation for proficiency assessment' which is used to assess participant performance for the measurement of each measurand. This may be a fixed value (as stated), a percentage (%) of the assigned value or based on the robust standard deviation of the participant measurement results, either across all methods or by method depending on whether the measurement made is method dependent (see assigned value).

Units

This indicates the units used for the assessment of data. These are the units in which participants should report their results. For some measurands, in some schemes, participants may have a choice of which units to report their results, however, the units stipulated in this scheme description are the default units to which any results reported using allowable alternative results will be converted.

DP

This indicates the number of decimal places to which participants should report their measurement results.

SAMPLES AVAILABLE

Sample PT-FA-ID

Participants are provided with a case scenario and samples relating to this scenario. Details of the sample/samples will be supplied when they are distributed.

Participants will receive:

Samples for analysis and a corresponding Case Scenario. The case scenarios and samples differ between rounds and have included a range of scenarios including: a bomb factory, car bomb with debris, solutions from swabs taken after a letter bomb. Samples have included: analysis of raw materials, solutions obtained from post explosion swabbing's and solutions for anion and cation analysis.