

National Metrology Institute of South Africa
Private Bag X34
Lynnwood Ridge
0040
South Africa

Tel: +27 12 947 2742

Dominique Marajh
dmarajh@nmisa.org
pt@nmisa.org

www.nmisa.org

NMISA-PT78

Proficiency Testing Scheme

Description

Determination of aqueous sodium fluoride for forensic blood alcohol testing

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1 FOREWORD

This is the call for participation in, and description of the NMISA proficiency testing (PT) scheme for the determination of sodium fluoride in aqueous medium. Participants will be required to report on the sodium fluoride content as part of their routine laboratory services for forensic blood alcohol preservation testing. A confidential report will be issued to all participants after completion of the PT scheme. The concentration range, dates for distribution and reporting are listed in Table 1.

This forms part of a range of ISO 17043 accredited PT services offered by NMISA. Please consult our website www.nmisa.org for information on PT schemes on offer. NMISA can also assist with the preparation of traceable gravimetrically prepared spike solutions for benchmarking *ad-hoc* analyses for which commercial PT schemes are not available.

2 SCHEME AIMS

This scheme will assist laboratories that routinely determine sodium fluoride for forensic blood alcohol preservation testing to monitor and improve the quality of their measurements, to monitor their laboratory performance. The PTS allows laboratories to evaluate their accuracy and comparability of measurement results produced; the continued competency of analytical staff; and the maintenance and effectiveness of the current quality assurance systems within the laboratory. In addition, this information may also be used to provide accreditation bodies or clients with objective evidence of laboratory performance.

3 PARTICIPATION FEES AND ADDITIONAL CHARGES

The scheme will consist of one round per annum. Two different concentration levels, between 0,8 g/ 100 ml and 3,0 g/ 100 ml will be prepared and distributed in 100ml bottles. The cost of participation in the PT scheme is R 4 000. For delivery within the Republic of South Africa (RSA) the fee includes delivery. For participants outside the RSA the actual delivery costs, including customs and import duties, will be carried by the participants. This fee includes the material and a confidential report upon completion.

Since many of the South African participants are located within close proximity to NMISA, the option of collecting the PT scheme samples from NMISA premises is permitted.

International laboratories will have test samples sent by courier and appropriately packaged to maintain sample integrity. International participants must provide NMISA with any import or quarantine permits that might be required to complete sample delivery well in advance of the shipment date and are liable for any customs or import duties charged.

Upon registration for participation an official quotation will be provided. Participation is confirmed following receipt of a purchase order and/or proof of payment.

4 PT SCHEME DESCRIPTION

The timeline for the PTS is presented in Table 1. Laboratories are requested to report results for as many of the parameters/replicates specified as possible, to allow for maximum benefit from the participation. The levels of the analytes should be easily achievable using analytical methods typically applied. Instructions for proper handling and storage of the samples prior to sample preparation will accompany the PT scheme samples. Participants should adhere to these instructions to ensure sample integrity and comparability of the results.

Table 1: PTS details for NMISA-PT 78 Aqueous sodium fluoride.

| NMISA-PT78 Aqueous sodium fluoride | | Sample format | Distribution/ Dispatch | Result reporting |
|------------------------------------|---|---------------------------------------|------------------------|--|
| Parameters | Aqueous sodium fluoride Distributed once annually concentration between 0.8 g/100ml to 3.0g/ 100ml | 100 ml X 2 concentration levels | September 2022 | 5 weeks after PTS distribution date |
| Result Reporting | <p>Participants will be required to perform the analysis using their normal laboratory procedures and are required to report <u>two results for each concentration level measured in the sample provided</u> .</p> <p>Participants are encouraged to include an uncertainty estimate for each result obtained. The result reporting form will be distributed to participants and will request additional information on the measurement technique and parameters, any recovery correction application, calibration standards used etc. Up to four sets of results can be submitted by each participating laboratory</p> | | | |
| PT conduct | <p>Assigned value</p> <p>The certified reference value and associated expanded uncertainty of measurement of the certified reference material will be used as the assigned value of PT test samples. The aqueous ethanol CRMs produced at the NMISA Organic Analysis Laboratory, are ISO 17025 and 17034 accredited solutions.</p> <p>Laboratory performance</p> <p>Laboratory performance will be evaluated using the z-score</p> <p>Standard deviation of proficiency assessment</p> <p>The Horwitz model will be used to estimate a standard deviation of proficiency assessment. The standard deviation of participant results will also be included in the final PT report for reference and comparison to the Horwitz prediction.</p> <p>PT report</p> <ul style="list-style-type: none"> • The PTS report will be distributed within 2 week following the result submission deadline. Reports will be provided in electronic format only (Adobe Acrobat- pdf) files. • The scheme is fully confidential. Each participant will be issued with a unique identification number. For multiple participants within the same laboratory the participating laboratory is required to identify its analysts by a code known only to the laboratory. | | | |