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

Tel: +27 12 947 2795

Maré Linsky
mlinsky@nmisa.org
pt@nmisa.org

www.nmisa.org

# Food labelling

# Proficiency Testing Scheme Description

## PT133 – Elements and Ochratoxin in Coffee

## PT135 – Fatty acids, Elements and Protein in Fish and Fish oil

Issue date: April 2025

## 1 FOREWORD

This is the call for participation in, and description of the NMISA proficiency testing (PT) schemes for the determination of elemental, protein, proximate, etc. content in various food matrices aimed at food labelling requirements. Participants will be required to report on the measurands which form part of their routine laboratory services. A confidential report will be issued to all participants after completion of each PT. Information on the mycotoxins including, 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 analyse various measurands such as elemental, protein, proximate content to monitor their laboratory performance. The PT Scheme 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 cost of participation in each PT is captured in Table 1. These rates exclude costs associated with delivery (0% VAT, please note that we are not a VAT registered company). This fee includes the material and a confidential report upon completion. Upon registration for participation an official quotation will be provided. Participation is confirmed following receipt of a purchase order and/ or proof of payment.

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. Please note that it remains the participants responsibility to ensure custom documents and requests are seen to expediently to ensure the sample is not held in customs.*

## 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 specified as possible, to allow for maximum benefit from the participation. This study is designed to support laboratories routinely performing food labelling analysis (e.g., elemental content, protein analysis, fatty acids, proximates, etc.). The levels of the analytes should be easily achievable using analytical methods typically applied, however care should be taken to ensure maximum recovery and monitor potential matrix effects. 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: PT details for the Food labelling Testing Schemes to be conducted in 2025-26.**

| Food labelling PT schemes | | Sample format* | Distribution/ Dispatch | Result reporting | Cost ZAR |
|---|---|---|---|---|---|
| **Mycotoxin content,**<br><br>**Elemental content,**<br><br>**Protein content,**<br><br>**Fatty acids content,** | **PT133 – Elements and Ochratoxin in Coffee**<br><br>Ochratoxin A (0.05 – 50 µg/kg)<br><br>Total Arsenic (10 – 500 µg/kg)<br>Cadmium (10 – 500 µg/kg)<br>Copper (0.10 – 100 mg/kg)<br>Lead (10 – 500 µg/kg)<br>Total Mercury (10 – 500 µg/kg)<br>Nickel (0.050 – 50 mg/kg)<br>Zinc (0.10 – 100 mg/kg) | 1 x 50 g Roasted coffee<br><br>1 x 30 g Ground coffee | Nov 2025 | Jan 2026 | R 5 500 |
| | **PT135 – Fatty acids, Elements and Protein in Fish and Fish oil**<br><br>Total Arsenic (50 – 1 000 µg/kg)<br>Cadmium (10 – 500 µg/kg)<br>Copper (50 – 1 000 µg/kg)<br>Iron (0.10 – 50 mg/kg)<br>Manganese (5 – 500 µg/kg)<br>Total Mercury (10 – 1 000 µg/kg)<br>Selenium (0.050 – 1 000 µg/kg)<br>Zinc (0.10 – 100 mg/kg)<br><br>Omega-3 fatty acids (0.5 – 100 g/100g of fat)<br>Omega-6 fatty acids (0.5 – 100 g/100g of fat)<br>Omega-9 fatty acids (0.5 – 100 g/100g of fat)<br>Palmitic acid (C16:0) (0.5 – 50 g/100g of fat)<br>Margaric acid (C17:0) (0.05 – 10 g/100g of fat)<br>Oleic acid (C18:1 n-9 cis) (0.5 – 50 g/100g of fat)<br>Linoleic acid (C18:2 n-6) (0.5 – 50 g/100g of fat) | 1 x 50g Fish paste<br><br>1 x 30 mL Fish Oil | Sept 2025 | Nov 2025 | R 7 800 |
| **Result Reporting** | Participants will be required to perform the analysis using their normal laboratory procedures and are required to report **<u>two results for each parameter measured in the sample provided.</u>** 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. | | | | |
| **PT conduct** | **Assigned value.**<br>• The assigned values will be based on either, or a combination of external, reputable sources and analyses at the NMISA Organic and Inorganic Analysis Laboratory, employing ISO 17025 accredited methods; and or the reference value(s) assigned to a reference material.<br>• The robust H15 mean of participant results may be considered depending on the number of participants. Outsourcing of PT activities is usually limited to couriers, but the robust H15 mean of results obtained from, and/or outsourced to, expert laboratories may be considered.<br><br>**Laboratory performance**<br>• Laboratory performance will be evaluated using the z-score.<br><br>**Standard deviation of proficiency assessment**<br>• The modified 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.<br><br>**PT report**<br>• The PTS report will be distributed within 2 weeks following the result submission deadline. Reports will be provided in electronic format only (Adobe Acrobat- pdf) files.<br>• 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. | | | | |