LGC AXIO PROFICIENCY TESTING

Proficiency Testing Schemes

2024

Food & Feed
Beverage
Water & Environment
Petroleum
Consumer Safety
Clinical
Forensic

lgcstandards.com/AXIO

Labcare de Colombia

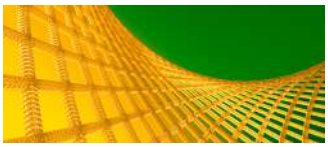
ISO/IEC 17043

ilac-MRA UKAS PROFICIENCY TESTING 0001

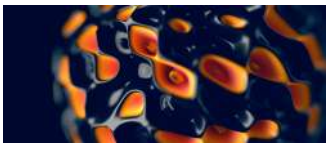
Contents

LGC AXIO Proficiency Testing operates schemes in a wide range of sectors from Food to Forensic, Consumer Safety to Clinical. Whatever your quality and testing needs, AXIO will have the scheme and sample options that will deliver the confidence in your results that you are looking for.

Intro

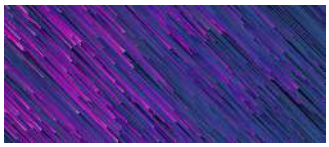


Food & Feed



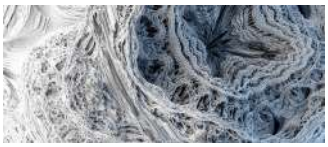
Beverage

Water & Environment



Consumer Safety

Clinical



Forensic

Petroleum

FAQs

What is Proficiency Testing?

DRIVING QUALITY TOGETHER

WHAT IS PROFICIENCY TESTING?

Proficiency testing (PT) is a mechanism for objectively evaluating a laboratory's performance by the use of independent external means, and includes regular comparisons of a laboratory's measurement or test results with those of other laboratories. PT is widely recognised as an essential tool for demonstrating the competence of laboratories, providing the infrastructure for a laboratory to monitor and improve the quality of its routine analytical measurements. PT can provide both evidence of competence and an indication of an underlying or emerging problem.

WHAT SHOULD I CONSIDER WHEN SELECTING A PT SCHEME?

Test items

Real/simulated materials, properties, concentrations, reporting units.

Distribution

Frequency, flexible participation, fit for purpose.

Reports

Speed, language, information, format, evaluation criteria, confidentiality.

Participants

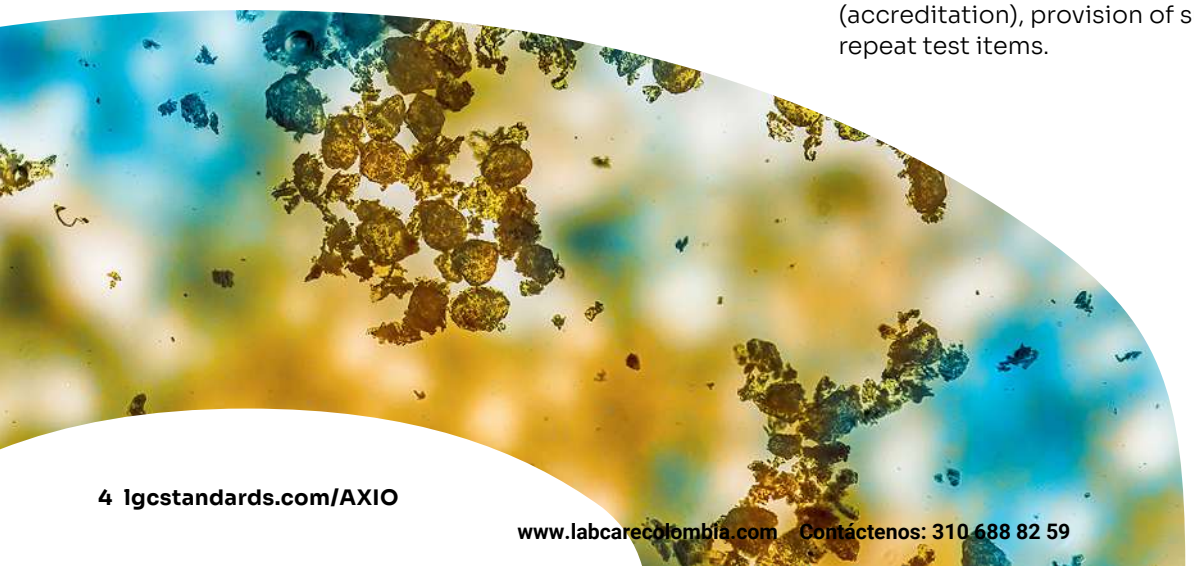
National/international, number, methods being used, type of laboratory.

Results

Deadlines, format, choice of method, reportability of measurement uncertainties, statistical approach.

PT provider

Scope of PT schemes offered, feedback/assistance provided, quality (accreditation), provision of surplus/ repeat test items.



WHAT ARE THE BENEFITS OF PT PARTICIPATION?

- Identifying measurement or test problems
- Comparing methods or procedures
- Comparing operator capabilities
- Comparing analytical systems
- Improving performance
- Verification of method performance
- Educating staff
- Instilling confidence
- Assessing measurement uncertainty
- PT test items as internal quality controls

WHAT SHOULD I CONSIDER WHEN INTERPRETING PT RESULTS?

Putting performance into wider context

- The overall results in the round
- Measurement or test method performance
- Test item factors
- Bimodal result distribution
- PT scheme factors

Trends in PT performance

- Performance over time
- Common groups of properties
- Performance of methods
- Performance of analysts

PT performance errors

- Non-analytical errors – transcription, units, format, calculations
- Analytical errors – calibration, methodology, property, sample extraction/clean-up, test items, analyst

ACCREDITATION & PT

Proficiency Testing (PT) is a requirement for accreditation to ISO/IEC 17025 and ISO 15189. Using an accredited PT provider gives you assurance in the quality and reliability of the service. LGC is a UKAS (United Kingdom Accreditation Service) accredited proficiency testing provider (ISO/IEC 17043) No. 0001. In addition, we are certified to ISO 9001.

Why AXIO?

What makes us your partner in proficiency?

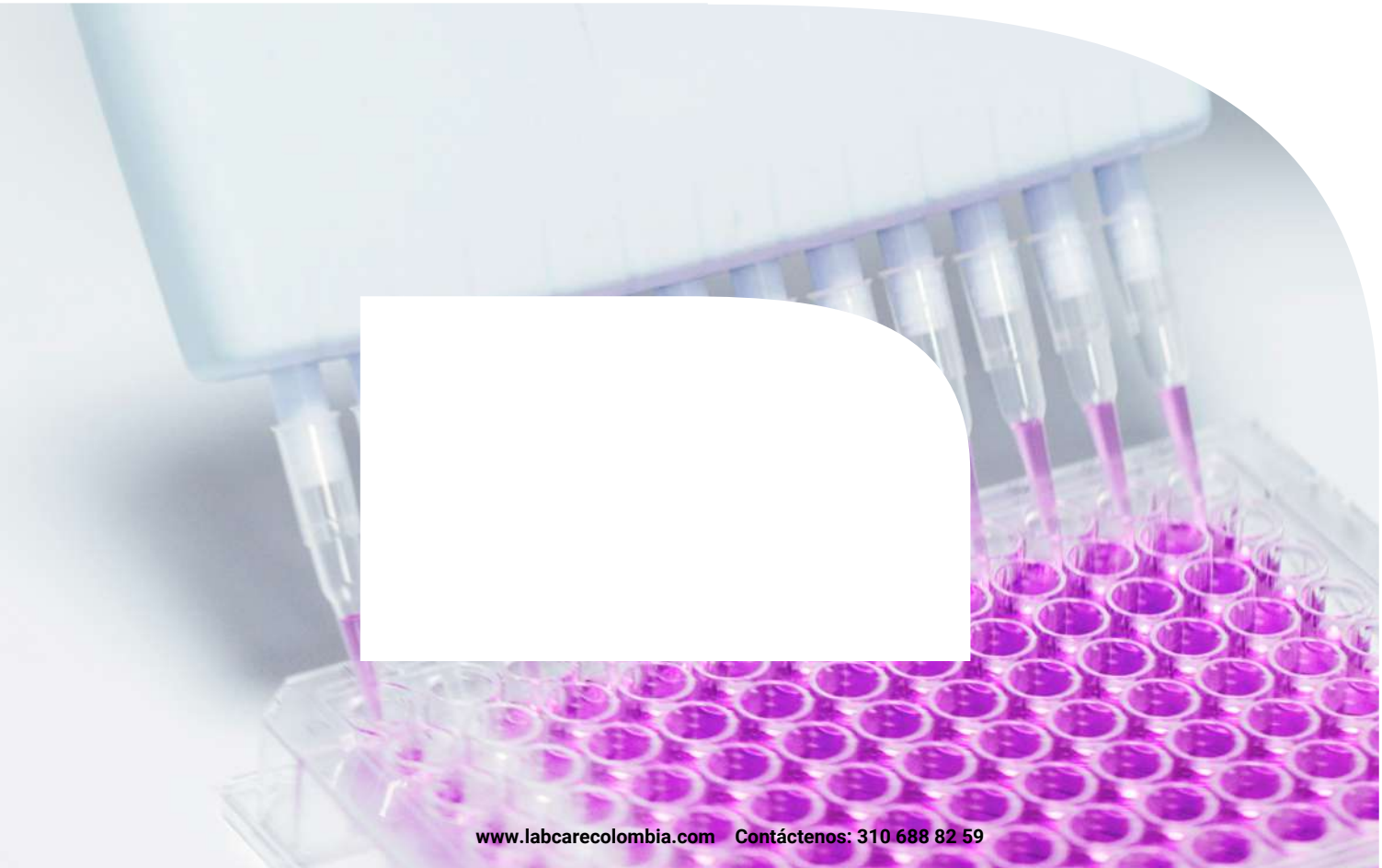
DRIVING QUALITY TOGETHER

Global participation

LGC AXIO Proficiency Testing is a truly global provider of proficiency testing schemes, providing PT to more than 13,000 laboratories in over 165 countries every year. This enables our global laboratory network to compare their results with a large number of peers from around the world, ensuring consistency in product, safety and quality from one side of the world to the other.

Fast reporting

LGC AXIO Proficiency Testing is proud to provide fast report turnaround times. When participating in one of our PT schemes, your laboratory will be provided with a performance report, on average, within 6 working days, so you can quickly address any performance issues identified.



Watch our video to discover more.

Local support

LGC AXIO Proficiency Testing is a global leader in proficiency testing solutions, but our teams are local. We support local laboratories, with local PT experts, who can assist in local language. Whether that is needing advice on which PT scheme best meets your requirements, or questions surrounding test results or shipments, we have a team on the ground to support.

Real-world test materials

LGC AXIO Proficiency Testing, where possible, offers real-world samples whose analytical results are comparable with routinely tested samples. AXIO offers the widest range of microbiological organisms, and our analytes are available at a range of concentrations, offering you the closest match to your routine samples.

Investing in your lab's future

LGC AXIO Proficiency Testing moves with the times, continuing to invest and develop our PT schemes and associated test materials to meet your laboratory's future needs. This year we have released over 50 new proficiency tests to meet new industry challenges and ever-changing regulatory requirements.

Flexibility in your participation

LGC AXIO Proficiency Testing is proud to supply over 2,700 proficiency tests every year. Many of our test materials are offered multiple times over a 12-month period, and some of our most popular proficiency tests are available up to 12 times a year. This means your laboratory can choose when to participate and at a frequency that suits you.

Flexibility in your reporting

When participating in an LGC AXIO Proficiency Testing scheme, our reporting system PORTAL enables you to submit up to 13 results per analyte, allowing you to compare results between different analysts, methods or instruments. All of the results will receive performance scores, although only 3 nominated results, using different methods, contribute to the statistical analysis.

PORTAL

Driving Quality Together

When you participate in an LGC AXIO Proficiency Testing scheme you gain access to our best-in-class reporting platform PORTAL. This hub provides the tools you need to maximise the benefits of your PT participation.

Introducing the PORTAL hub

PORTAL sits at the core of the LGC AXIO Proficiency Testing process. PORTAL is your gateway to improving laboratory performance: an online hub for result submissions, report downloads, data export and trend analysis – anytime, anywhere. So that our global laboratory network can maximise the benefits of their proficiency testing participation, we have developed a number of tools and materials; some of which are available in local language. If you have any further suggestions or can't find what you're looking for, please contact us at **axiopt@lgcgroup.com**.

PORTAL in numbers...

Last year PORTAL processed more than 2.8 million data points, delivering reports in under 4.6 working days, which were interacted with more than 450,000 times.

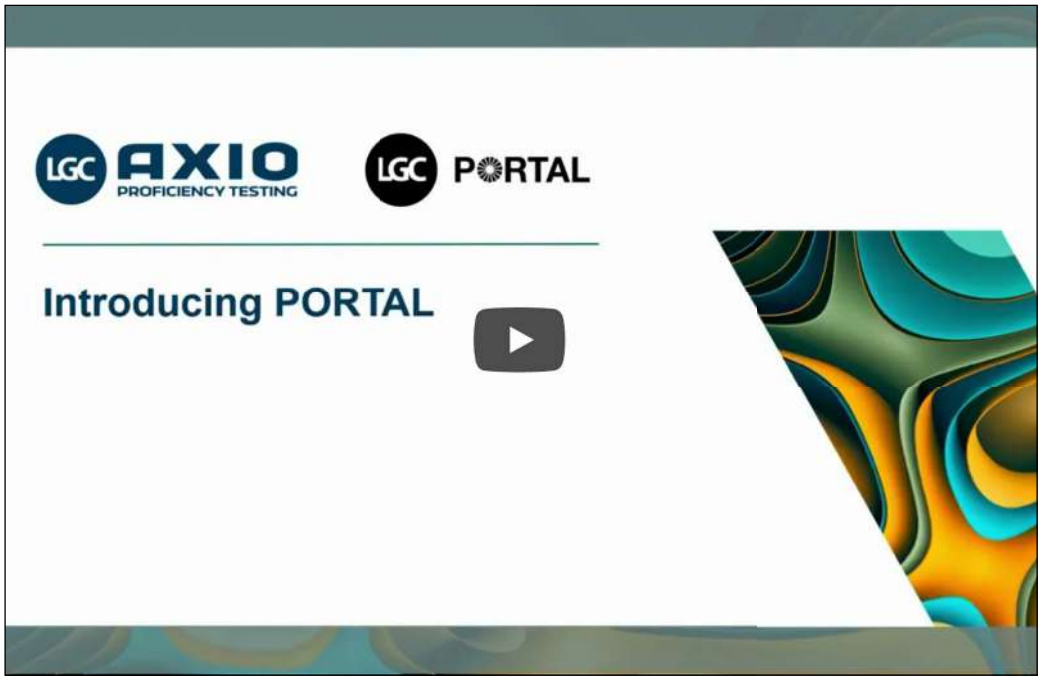
Learn more by watching our video.

PORTAL user guides

PORTAL has many tools available to you and your laboratory, tools that we are continuously developing which make it easier for our customers. To support laboratories who have just joined us, or have been with LGC AXIO for over 10 years, we have developed the PORTAL User Guide. The user guides are a series of short videos, which take you through the step-by-step functions of PORTAL. The guide is available in multiple languages, including English, Chinese, Spanish, Polish, German, French and Italian.

PORTAL: Maximising the benefits of your proficiency testing participation with LGC AXIO

Learn more by watching our webinar.



The LGC AXIO Proficiency Testing Process




How to select a scheme

Details of each scheme are provided in the AXIO PT Catalogue, the Application Forms and the PT Webshop. These provide information about the distribution dates, the sample format, matrix and analytes, and costs of participation. A Scheme Description is also available for each scheme, which provides technical and statistical information specific to that scheme.

How to join a scheme

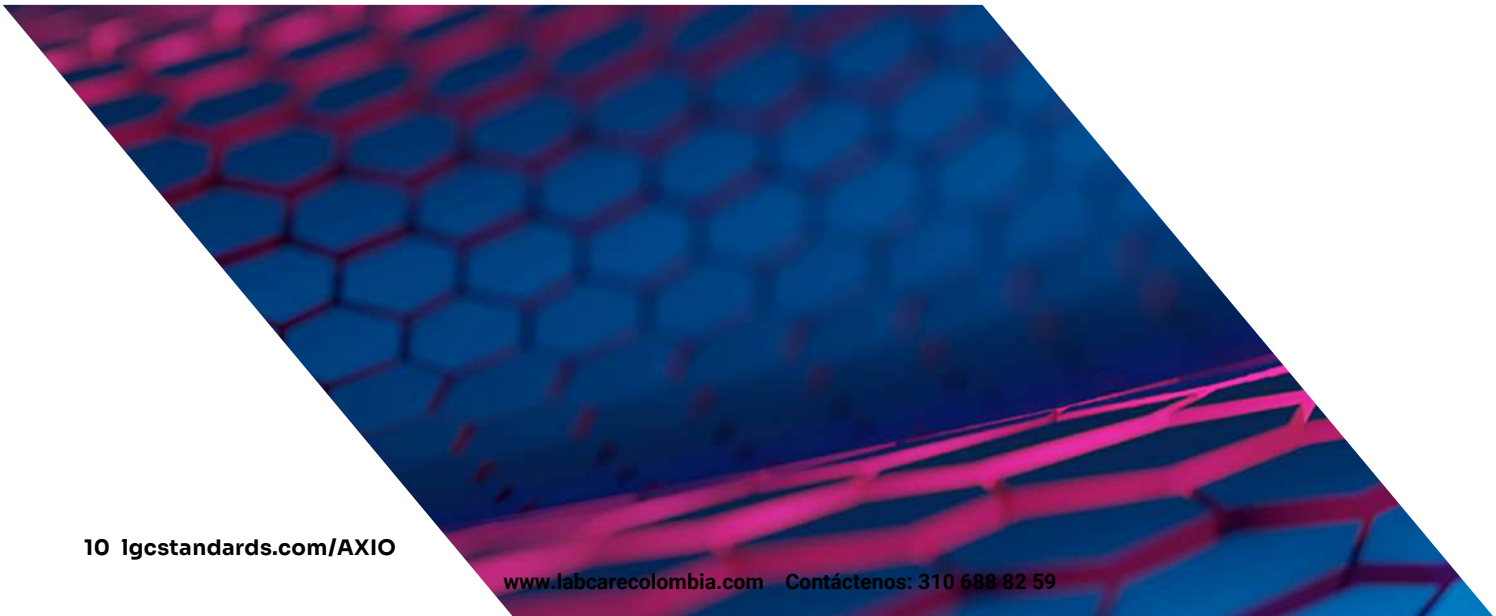
In order to join a scheme, participants should complete the relevant Application Form, indicating which test materials they wish to receive during the scheme year. Alternatively, the participants can register for an account and place an order via our PT Webshop.

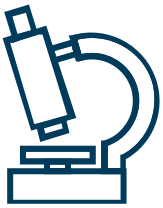
Order confirmation

Once a completed Application Form or an order placed on PT Webshop is received, an Order Confirmation will be sent to the participant, confirming the test materials selected and distribution dates. Participants can amend an order up to one week prior to the distribution date, subject to test material availability. Any amendments to a participant's order will be confirmed to them in writing.

Week 1

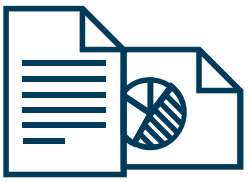
Test materials and instructions are sent to participants, from our on-site facility in Bury, UK. We also include in all of our samples a QR code, which takes you straight through to the instructions of that round, and a FAQ page, housed in PORTAL.





Week 2-4

Participants analyse test materials. The scheme allows participants to change the configurations of methods and instruments. Participants will report their results through PORTAL within the specified deadline and instructions.

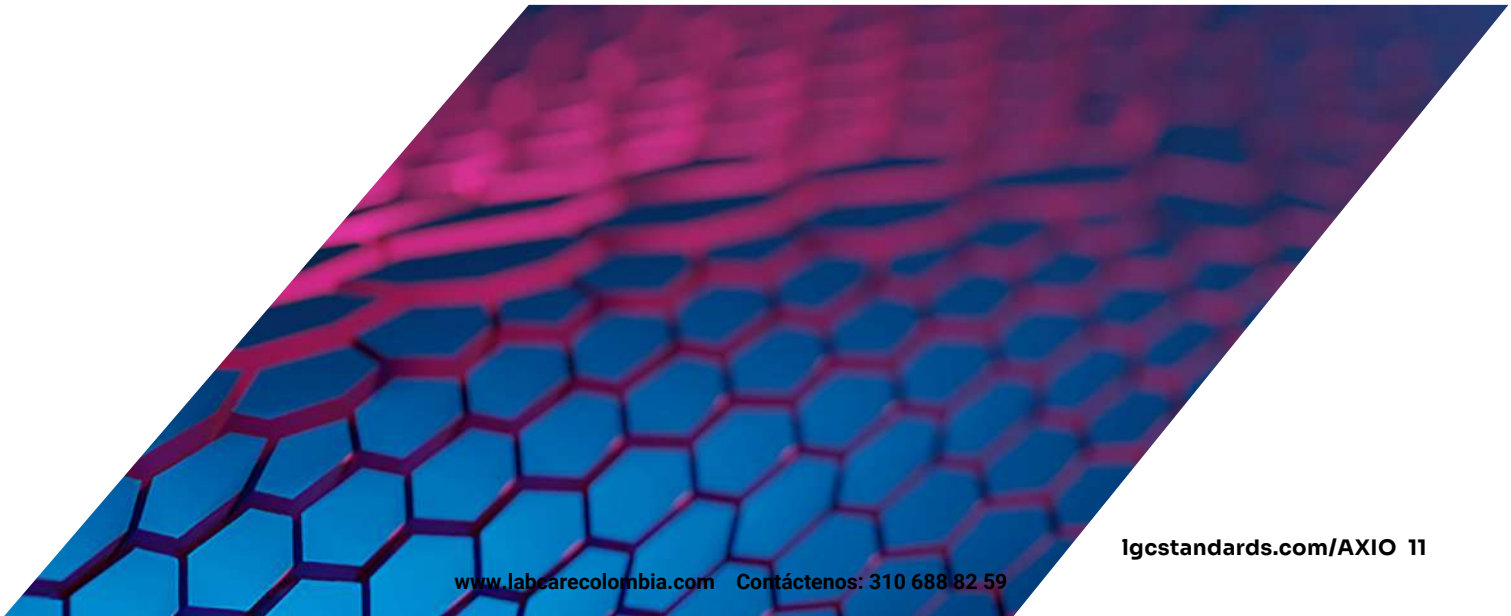


Week 5

All participating laboratories are provided with performance scores, and compared using appropriate statistical techniques.

In under 6 working days

Reports are issued, and participants are notified through PORTAL when they are available.



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If your country is not listed above please contact:
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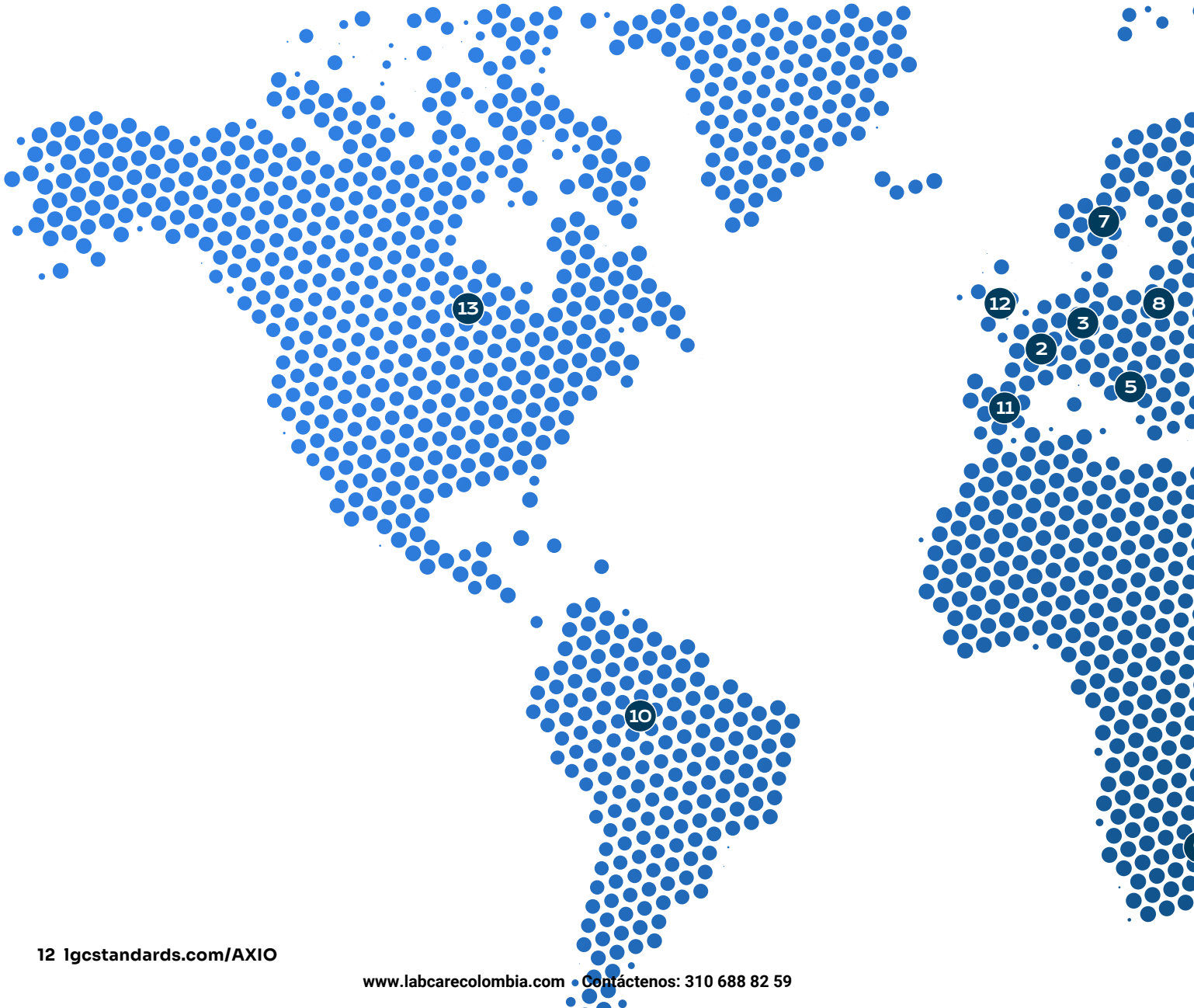


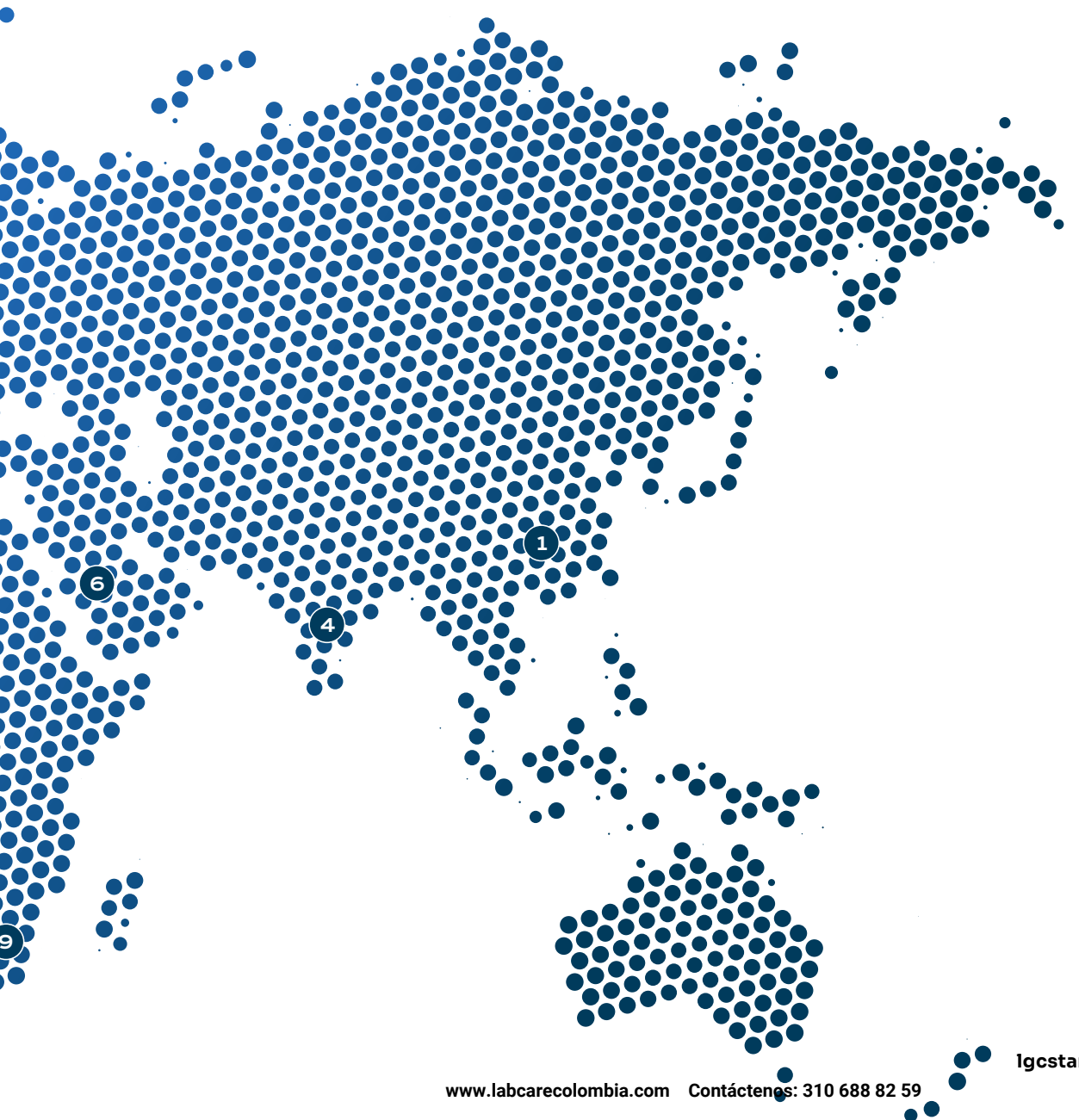
Distributors

LGC distributes its products throughout the world via a combination of direct field and office-based customer service teams, our extensive webshop and a network of authorised distributors.

We rely on our distributors to deliver our proficiency testing samples around the world to participants who rely on our schemes to monitor the quality of their testing.

We work with a number of quality distributors globally, who will be able to assist you with sourcing products from our ranges in your area.

Discover more



Food and Animal Feed Schemes

AXIO Proficiency Testing is a key provider of schemes for the food and feed industries. We are proud to support many of the top 20 global food businesses with their proficiency testing needs. This includes managed PT solutions as well as participation in our routine schemes.

AXIO operates a diverse range of food schemes. Food Microbiology, our largest scheme, has over 2,000 participating laboratories worldwide, enabling participants to compare their performance on a truly global scale.

Schemes available

Food Microbiology
QMS

Food Chemistry
QFCS

Meat and Fish
QMAS

Dairy Chemistry
QDCS

Chocolate & Cocoa Products
QCS

Animal Feed
AFPS

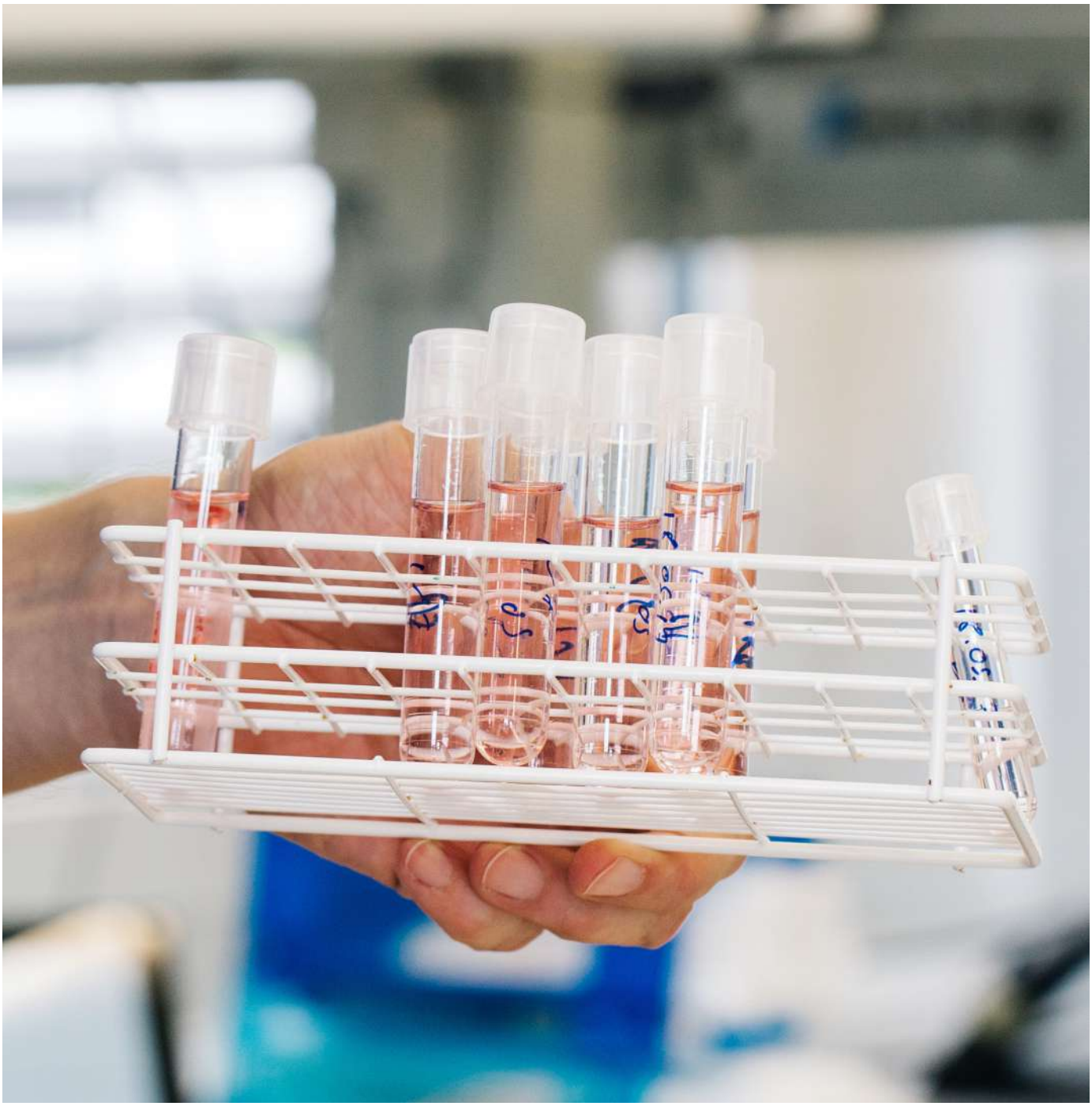
Shiga Toxin E.coli
STEC

Gelatine
QGS

NEW Food & Animal Feed PT samples for 2024

Sample Code	Sample Name	Analytes	Rounds per year
PT-CH-74	Heavy metals in infant formula	Lead (Pb); Cadmium (Cd); Arsenic (As); Mercury (Hg)	1
PT-CH-75	Density of liquid infant formula	Density	1
PT-CH-76	Nutritional Analysis of infant formula	Fat; Saturates; Carbohydrate; Total sugars; Net carbohydrates; Protein; Salt; Fibre; Docosahexaenoic acid (DHA); Arachidonic acid (ARA)	1
PT-FC-889	Colour of ground spices e.g. turmeric	Colour L; Colour a; Colour b	1
PT-FC-890	Mycotoxins in spices (natural levels)	Aflatoxins B1; B2; G1; G2; Total aflatoxins; Ochratoxin A (natural levels)	1
PT-FC-891	Polyols in food products	Xylitol; Isomalt; Sorbitol; Maltitol; Mannitol	1
PT-FC-892	Quality of vanilla beans	Moisture; Vanillin	1
PT-FC-893	Water in flavouring powder by Karl Fischer	Water	1
PT-FC-894	Aroma baking ingredients for chemical & physical parameters	Water activity	1
PT-FC-895	Quality parameters of spice mix	Salt; Volatile oil; Piperine content	1
PT-FC-896	Gluten in cake mix (allergen testing - low in gluten)	Gluten (quantitative)	1
PT-FC-897	Peanut in food product (allergen testing)	Peanut (quantitative); Presence/absence of peanut protein	1
PT-FC-898	Milk in infant breakfast cereals (allergen testing)	Milk (quantitative); Presence/absence of milk	1
PT-FC-899	Multi allergens in infant soya formula (allergen testing)	Gluten; Milk protein; Presence/absence of gluten; Presence/absence of milk protein	1
PT-FC-900	pH only in food products	pH	1
PT-FC-901	Net content of prepacked product	Net content	1
PT-GL-607	Yeast and mould in gelatine	Enumeration of yeast and mould	1

Sample Code	Sample Name	Analytes	Rounds per year
PT-MC-51	Commercial sterility testing in milk	Commercial sterility	1
PT-MT-762	Fenbuconazole in beef	Fenbuconazole	1
PT-MT-763	*Salmonella* in 375g meat powder	Detection of *Salmonella* species	1
PT-MT-764	*Listeria* in 125g meat powder	Detection of *Listeria* sp. and *Listeria monocytogenes*	1
PT-MT-765	PFAS in food e.g., fish or meat (natural levels)	Perfluorononanoic acid (PFNA); Perfluorooctanoic acid (PFOA); Perfluorohexane sulfonic acid (PFHxS); Perfluorooctane sulfonic acid (PFOS); Sum of 4 PFAS	1



Food Microbiology

QMS

“The most extensive analyte range in the world...”

Food poisoning outbreaks are not just dangerous for consumers, but also potentially ruinous to consumer confidence, brand reputation and value, as well as company profitability. At their worst, with the potential to cause serious illness and even death, responsibility for outbreaks can be met with civil or criminal charges.

Laboratories performing microbiological testing of food must therefore maintain constant vigilance in their ability to detect potential pathogens, indicator organisms, and spoilage – as well as demonstrating that their results are accurate and meaningful enough to form part of a robust quality assurance programme.

To support laboratories across the world with this dual challenge, the AXIO QMS Scheme provides the most exhaustive offer on the market in terms of analytes – including routine pathogens and indicators, as well as rare analytes like *Shigella*, psychrotrophic bacteria, osmophilic yeast and mould or probiotic bacteria.

QMS also supplies a wide variety of matrices reflecting the real-world range of substances that our participating laboratories demand – including a wide selection of samples where *Salmonella* is the target analyte, but also more specialised items requested by our customers.

Download Application Form

Download Scheme Description

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-MC-03D	Skimmed milk powder	10g	Enumeration of *Salmonella* species	1
PT-MC-04D	Skimmed milk powder	25g	Detection of *Cronobacter* species in 10g; *Cronobacter* species in 25g	3
PT-MC-04F	Oatmeal	25g	Detection of *Cronobacter* species in 10g; *Cronobacter* species in 25g	1
PT-MC-05D	Skimmed milk powder	10g	Enumeration of Osmophilic yeast; Osmophilic mould; Osmophilic yeast and mould	1
PT-MC-05F	Oatmeal	10g	Enumeration of Osmophilic yeast; Osmophilic mould; Osmophilic yeast and mould	1
PT-MC-06CF	Chicken faeces	25g	Detection of *Salmonella* species	1
PT-MC-06D	Skimmed milk powder	25g	Detection of *Salmonella* species	4
PT-MC-06EG	Egg powder	25g	Detection of *Salmonella* species	1
PT-MC-06F	Oatmeal	25g	Detection of *Salmonella* species	8
PT-MC-06HB	Herb	Vial + 25g	Detection of *Salmonella* species	2
PT-MC-06NS	Seeds and Nuts	Vial + 25g	Detection of *Salmonella* species	1
PT-MC-06SP	Spice	Vial + 25g	Detection of *Salmonella* species	2
PT-MC-06TE	Tea	Vial + 25g	Detection of *Salmonella* species	1
PT-MC-06VG	Salad and Vegetables	25g	Detection of *Salmonella* species	1
PT-MC-07CH	Cheese	Vial + 25g	Detection of *Listeria* species; *Listeria monocytogenes*	1
PT-MC-07D	Skimmed milk powder	25g	Detection of *Listeria* species; *Listeria monocytogenes*	4
PT-MC-07F	Oatmeal	25g	Detection of *Listeria* species; *Listeria monocytogenes*	8
PT-MC-07HB	Herb	Vial + 25g	Detection of *Listeria* species; *Listeria monocytogenes*	1
PT-MC-07VG	Salad and Vegetables	25g	Detection of *Listeria* species; *Listeria monocytogenes*	1
PT-MC-08D	Skimmed milk powder	10g	Detection of *Listeria* species; *Listeria monocytogenes*	2
PT-MC-08F	Oatmeal	10g	Detection of *Listeria* species; *Listeria monocytogenes*	4
PT-MC-09D	Skimmed milk powder	10g	Enumeration of Enterococci (faecal streptococci)	6
PT-MC-09F	Oatmeal	10g	Enumeration of Enterococci (faecal streptococci)	4
PT-MC-10D	Skimmed milk powder	10g	Detection of *Clostridium* species; *Clostridium perfringens* Enumeration of *Clostridium perfringens*; *Clostridium* species	4
PT-MC-10F	Oatmeal	10g	Detection of *Clostridium* species; *Clostridium perfringens*; Enumeration of *Clostridium perfringens*; *Clostridium* species	6
PT-MC-11D	Skimmed milk powder	10g	Enumeration of mesophilic aerobic bacterial spores; Thermophilic aerobic plate count; Thermophilic aerobic bacterial spores; High heat resistant thermophilic aerobic spores (HHR-TSC)	2
PT-MC-11F	Oatmeal	10g	Enumeration of mesophilic aerobic bacterial spores; Thermophilic aerobic plate count; Thermophilic aerobic bacterial spores; High heat resistant thermophilic aerobic spores (HHR-TSC)	1

The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-MC-12F	Oatmeal	25g	Detection of *Shigella* species	1
PT-MC-13F	Oatmeal	25g	Detection of *Vibrio* species; *Vibrio parahaemolyticus*	3
PT-MC-14D	Skimmed milk powder	25g	Detection of *Yersinia* species; *Yersinia enterocolitica*	2
PT-MC-15D	Skimmed milk powder	10g	Total anaerobic mesophilic count; Enumeration of anaerobic sulphite-reducing bacteria; Mesophilic anaerobic spores; Sulphite-reducing *Clostridium* spores	2
PT-MC-15F	Oatmeal	10g	Total anaerobic mesophilic count Enumeration of anaerobic sulphite-reducing bacteria; Mesophilic anaerobic spores; Sulphite-reducing *Clostridium* spores	2
PT-MC-16D	Skimmed milk powder	10g	Total aerobic mesophilic count; Enumeration of Coliforms; Enterobacteriaceae; *Escherichia coli*	12
PT-MC-16F	Oatmeal	10g	Total aerobic mesophilic count; Enumeration of Coliforms; Enterobacteriaceae; *Escherichia coli*	12
PT-MC-17D	Skimmed milk powder	10g	Enumeration of *Staphylococcus* species; Coagulase positive staphylococci; *Bacillus* species; *Bacillus cereus*	6
PT-MC-17F	Oatmeal	10g	Enumeration of *Staphylococcus* species; Coagulase positive staphylococci; *Bacillus* species; *Bacillus cereus*	12
PT-MC-18D	Skimmed milk powder	10g	Detection of *Escherichia coli*; Enterobacteriaceae; Coliforms;	2
PT-MC-18F	Oatmeal	10g	Detection of *Escherichia coli*; Enterobacteriaceae; Coliforms;	2
PT-MC-20D	Skimmed milk powder	10g	Enumeration of *Escherichia coli*; Thermotolerant coliforms	2
PT-MC-20F	Oatmeal	10g	Enumeration of *Escherichia coli*; Thermotolerant coliforms	1
PT-MC-21	Lyophilised test material + Matrix	25g	Detection of *Campylobacter* species	4
PT-MC-22D	Skimmed milk powder	25g	Detection of *Escherichia coli* O157 (non-toxigenic strain)	1
PT-MC-22F	Oatmeal	25g	Detection of *Escherichia coli* O157 (non-toxigenic strain)	3

★ PRODUCT HIGHLIGHT

PT-MC-16 - Indicator Combination

This sample covers the enumeration of total mesophilic aerobic flora, coliforms, Enterobacteriaceae and *Escherichia coli*, all important criteria for indicating inadequate processing or post-processing contamination, and routinely tested in all food microbiology laboratories. We have several hundred laboratories participating in every round, testing either the food or dairy matrix.

12 in food matrix + 12 in dairy matrix

Download Application Form Download Scheme Description

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-MC-23D	Skimmed milk powder	10g	Enumeration of Yeast; Mould; Yeast and Mould (ISO 21527-1)	8
PT-MC-23F	Oatmeal	10g	Enumeration of Yeast; Mould; Yeast and Mould (ISO 21527-1)	5
PT-MC-24D	Skimmed milk powder	10g	Enumeration of lactic acid bacteria	2
PT-MC-24F	Oatmeal	10g	Enumeration of lactic acid bacteria	4
PT-MC-24HB	Herb	Vial + 10g	Enumeration of lactic acid bacteria	1
PT-MC-24SP	Spice	Vial + 10g	Enumeration of lactic acid bacteria	1
PT-MC-25D	Skimmed milk powder	10g	Enumeration of aerobic psychrotrophic organisms	1
PT-MC-25F	Oatmeal	10g	Enumeration of aerobic psychrotrophic organisms	1
PT-MC-26D	Skimmed milk powder	10g	Enumeration of *Pseudomonas* species; Detection of *Pseudomonas* species	3
PT-MC-26F	Oatmeal	10g	Enumeration of *Pseudomonas* species; Detection of *Pseudomonas* species	3
PT-MC-27	Lyophilised test material	Vial	Enumeration of *Bifidobacterium* species; *Lactobacillus* species; Combined Enumeration of *Lactobacillus* species and *Bifidobacterium* species	2
PT-MC-29	Tea	Vial + 10g	Total aerobic mesophilic count; Enumeration of Coliforms; Coagulase positive staphylococci; Yeast; Mould; Yeast and Mould	1
PT-MC-32	Lyophilised test material	Vial	Enumeration of *Campylobacter* species	2
PT-MC-33	Freeze-dried material	Vial	Identification of unknown organism (non pathogen)	2
PT-MC-34	Freeze-dried material	Vial	Identification of *Salmonella* species	2
PT-MC-35	Photograph and a scenario	–	Colony count and calculation of number of microorganisms	2
PT-MC-36	Skimmed milk powder	2 x Vial + min 20g sample	Quantitative Package (2 samples) Total aerobic mesophilic count; Enumeration of total coliforms; Enterobacteriaceae; *Escherichia coli*; *Bacillus cereus*; Coagulase positive staphylococci; Yeast; Mould; Yeast and mould Detection of coagulase positive staphylococci	4
PT-MC-36HB	Herb	2 x Vial + min 20g sample	Quantitative Package (2 samples) Total aerobic mesophilic count; Enumeration of total coliforms; Enterobacteriaceae; *Escherichia coli*; *Bacillus cereus*; Coagulase positive staphylococci; Yeast; Mould; Yeast and mould Detection of coagulase positive staphylococci	2
PT-MC-36SP	Spice	2 x Vial + min 20g sample	Quantitative Package (2 samples) Total aerobic mesophilic count; Enumeration of total coliforms; Enterobacteriaceae; *Escherichia coli*; *Bacillus cereus*; Coagulase positive staphylococci; Yeast; Mould; Yeast and mould Detection of coagulase positive staphylococci	2
PT-MC-37	Skimmed milk powder	2 x Vial + min 200g sample	Qualitative Package (2 samples) Detection of *Escherichia coli* O157 (non-toxigenic strain); *Listeria* species; *Listeria monocytogenes*; *Salmonella* species; Identification of *Listeria* species	4
PT-MC-38	Skimmed milk	Vial + min 20g sample	Detection of *Clostridium perfringens*; Coagulase positive staphylococci	2

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-MC-39D	Skimmed milk	10g	Bacterial level by Bactoscan; Bacterial level by colony count	2
PT-MC-40	Skimmed milk	Vial + min 375g sample	Detection of *Salmonella* species in 375g	2
PT-MC-41	Ready meal	Vial + 10g	Total aerobic mesophilic count; Enumeration of Coliforms; Coagulase positive Staphylococci; Yeast; Mould; Yeast and Mould; Enterobacteriaceaec; *Escherichia coli*	2
PT-MC-42	Skimmed milk powder	Vial + 25g	Detection of *Cronobacter* species (low level)	1
PT-MC-43	Skimmed milk powder	Vial + min 375g sample	Detection of *Cronobacter* species in 375g	1
PT-MC-44	Ready-to-eat	Vial + min 100g sample	Detection of *Escherichia coli* O157 (non-toxigenic strain); *Listeria* species; *Listeria monocytogenes*; *Salmonella* species Identification of *Listeria* species	1
PT-MC-45	Fruit	Vial + 10g	Enumeration of thermophilic acidophilic bacteria (*Alicyclobacillus* spp); Detection of guaiacol producing thermophilic acidophilic bacteria	1
PT-MC-46EG	Egg powder	2 x 25g	Detection of *Salmonella* Typhimurium and/or *Salmonella* Enteritidis (2 samples)	1
PT-MC-47	Skimmed milk powder	Vial + 125g matrix	Detection of *Listeria* species; *Listeria monocytogenes* in 125g	1
PT-MC-48	Infant formula powder	2 x Vial + 100g matrix	Detection of *Salmonella* species in 25g; *Cronobacter* species in 10g or 25g (2 samples)	1
PT-MC-50	Cheese	Vial + 10g matrix	Enumeration of Enterobacteriaceae; Coliforms; Coagulase positive staphylococci	1

Sample Code	Sample Name	Quantity of Matrix	Analytes	Number of Rounds
ENHANCED PT-MC-21	*Campylobacter* in milk	lyophilised test material + matrix	Detection in 10g	4
NEW PT-MC-51	Commercial sterility testing in milk	5 x 10ml	Commercial sterility	1
NEW PT-MC-52	Gram-negative panel	3 x 10ml	Confirmation and /or Identification of Gram-negative organisms to genus and/or species	1
NEW PT-MC-53	Gram-positive panel	3 x 10ml	Confirmation and /or Identification of Gram-positive organisms to genus and/or species	1
NEW PT-MC-54	Mixed culture	3 x 10ml	Identification of organisms to genus and/or species	1

Food Chemistry

QFCS

“Encompassing more than 500 analytes and over 100 individual samples...”

International food safety regulations have evolved to reflect the incredible variety of foods that modern technology allows us to enjoy year-round, all around the world. Since the goods we produce can contain potentially harmful chemicals from multiple sources, extensive laboratory testing is fundamental for food safety and stability, as well as quality and customer satisfaction.

The AXIO Proficiency Testing Quality in Food Chemistry Scheme (QFCS) is an extremely diverse programme aimed at supporting labs to demonstrate their capability over a vast range of food analytes, and ensure their regulatory compliance whatever the market they are selling in.

Encompassing more than 500 analytes and over 100 individual samples, QFCS provides participating laboratories with a holistic, full-product approach that not only takes in pesticides, allergens, toxins, trace elements, etc., but also packaging, nutritional analysis and subtler aspects of quality – including authenticity for herbs and olive oil.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-FC-760	Liquid	100ml	Sorbic Acid; Benzoic Acid; Sulfur Dioxide	2
PT-FC-761	Liquid	100ml	Acesulfame K; Aspartame; Saccharin; Sucralose	2
PT-FC-762	Liquid	100ml	Ponceau 4R; Carmoisine; Sunset Yellow; Indigo Carmine	2
PT-FC-763	Liquid	100ml	Allura Red; Tartrazine; Quinoline Yellow; Brilliant Blue	2
PT-FC-770	Cereal	100g	Energy; Fat; Carbohydrate; Total Sugars; Total Dietary Fibre; Protein; Salt; Sodium; Ash; Moisture; Phosphate; Magnesium; Potassium; Zinc	4
PT-FC-771	Cereal	200g	Vitamin A; B1 (Thiamine); B2 (Riboflavin); B3 (Niacin); B5 (Pantothenic Acid); B6; B9 (Folic acid); B12; C; D; Iron	2
PT-FC-772	'Ready to eat' product	200g	Ash; Carbohydrate; Cholesterol; Energy; Fat; Moisture; Mono-unsaturates; Phosphate; Poly-unsaturates; Protein; Salt; Saturates; Sodium; Fibre; Total Sugars; Total trans fatty acids	4
PT-FC-774	Cereal	50g	Water activity	5
PT-FC-775	Flour	100g	Fat; Protein; Total dietary fibre; Ash; Moisture; Calcium; Iron	2
PT-FC-776	Bread	100g	Fat; Protein; Total Dietary Fibre; Acidity; Ash; Moisture; Sodium; Chloride; Calcium; Iron; Vitamins B1; B2; B3; pH	2
PT-FC-777	Dried tea	2 x 50g (spiked & blank)	Pesticides	1
PT-FC-778	Oil or fat	150g	Water; Free fatty acids; Saponification value; Unsaponifiable matter; Anisidine value; Colour; Iodine value; Peroxide value; Fatty acid composition*	2
PT-FC-779	Nuts	2 x 50g (spiked & blank)	Aflatoxins B1; B2; G1; G2; Total Aflatoxins	2
PT-FC-780	Dried tea	50g	Total Arsenic; Cadmium; Mercury; Lead; Selenium	1
PT-FC-781	Flour	100g	Gluten	2
PT-FC-782	Mixed Fat Spread	100g	Total Fat; Saturates; Mono-unsaturates; Poly-unsaturates; Total trans fatty acids; Omega 3; Omega 6; Salt; Water; pH; Vitamin A; Vitamin D	2
PT-FC-783	Tomato paste/puree	100g	pH; Brix; Total acidity; Total solids; Ash; Salt	2
PT-FC-784	Cereal	50g	Total Arsenic; Cadmium; Lead; Mercury	1
PT-FC-785	Edible Oil	50g	Total Arsenic; Cadmium; Lead; Mercury	1
PT-FC-786	Dried Fruit	50g	Total Arsenic; Cadmium; Lead; Mercury	1
PT-FC-787	Vegetable Leaves	50g	Nitrate	1
PT-FC-788	Snacks (e.g. potato crisps)	50g	Acrylamide	1
PT-FC-789	Rice	10g	Total Arsenic; Total Inorganic Arsenic; Arsenic III; Arsenic V; Cadmium; Lead	1
PT-FC-790	Extra virgin olive oil	2 x 200ml & 1 x 50ml	Peroxide value; Free fatty acids (Acidity); Wax content; 3,5 Stigmastadienes; Ethylesters; Total Sterols; -7-stigmastenol; Insoluble Impurities; Moisture and Volatile Matter at 103°C; Total Polyphenols; Fatty Acid Composition	2

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-FC-791	Olive oil	2 x 200ml	Free fatty acids (Acidity); K270; Wax content; beta;-sitosterol (apparent); Campesterol; Erythrodiol; Uvaol; Accelerated Oxidation test (Rancimat) at 120 degrees C; 2-glyceryl monopalmitate; Fatty Acid composition	2
PT-FC-792	Vegetable	50g	Perchlorate	1
PT-FC-793	Cake	100g	Energy; Fat; Total Sugars; Total Dietary Fibre, Protein; Acidity; Ash; Moisture; Sodium; Chloride; Calcium; Salt	2
PT-FC-794	Chilli powder	100g	Aflatoxins B1; B2; G1; G2; Total Aflatoxins; Ochratoxin A	1
PT-FC-795	Lyophilised mushrooms	10g	Total Arsenic; Cadmium; Lead	1
PT-FC-796	Frying oil	150g	Total polar compounds; Free fatty acids (Acidity); Accelerated oxidation test (Rancimat) at 120°C	2
PT-FC-797	Dried Fruit	200g	Sulfur dioxide	1
PT-FC-798	Infant vegetable food	100g	Nitrate	1
PT-FC-801	Honey	200g	Moisture; Electrical conductivity; Ash; pH; Free acidity; Hydroxymethylfurfural (HMF); Diastase enzymatic activity (Diastase number); Fructose; Glucose; Sucrose; Water insoluble solids; Apparent reducing sugars	2
PT-FC-802	Coffee	200g	Water; Ash; pH; Total acidity; Total chlorogenic acid; Caffeine; Potassium; Phosphorus; Magnesium; Calcium; Copper	1
PT-FC-803	Palm oil	50g	Sudan IV	1
PT-FC-804	Dried Fruit	200g	Aflatoxins B1; B2; G1; G2; Total Aflatoxins; Ochratoxin A	1
PT-FC-805	Vegetable oil	50ml	Benzo[a]pyrene; Benz[a]anthracene; Benzo[b] fluoranthene; Chrysene;;Sum of EU 4 PAHs	1
PT-FC-806	Cod liver oil	100ml	cis Alpha-linolenic acid (ALA); cis Eicosapentaenoic acid (EPA); cis Docosapentaenoic (DPA); cis Docosahexaenoic (DHA); Monounsaturated fatty acids; Polyunsaturated fatty acids; Saturated fatty acids; Total EPA+DHA Omega-3 fatty acids; Total Omega-3 fatty acids; Total Omega-6 fatty acids; Total Omega-9 fatty acids; Omega-3 : Omega-6 ratio; Total trans fatty acids; Vitamin A; Vitamin D	1
PT-FC-807	Barley flour	25g	AMPA; Glyphosate	1
PT-FC-808	Rice flour	2 x 20g	Almond; Presence/absence of almond	1
PT-FC-809	Rice flour	2 x 20g	Soy; Presence/absence of soy	1
PT-FC-810	Infant formula powder	2 x 20g	Presence/absence of beta-lactoglobulin	1
PT-FC-811	Ketchup	200g	Energy; Fat; Saturates; Carbohydrate; Total sugars; Protein; Salt; Total dietary fibre; Soluble solids; pH; Total acidity; Citric acid; Formol number	2
PT-FC-812	Mayonnaise	150g	Energy; Fat; Saturates; Total trans fatty acids; Carbohydrate; Total sugars; Protein; Salt; Sodium; pH; Cholesterol; Total acidity	2
PT-FC-813	Mustard	150g	Energy; Fat; Saturates; Carbohydrate; Total sugars; Protein; Salt; Total dietary fibre; pH; Total acidity; Erucic acid	1
PT-FC-814	Canned fruit	2 x cans	Drained weight; pH; Energy; Carbohydrate; Total sugars; Glucose; Fructose; Total dietary fibre	2

The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-FC-815	Ground pepper	200g	Moisture; Total ash; Crude fibre, insoluble index; Volatile oil; Piperine content; Acid insoluble ash; Non volatile ether extract; Water activity	2
PT-FC-816	Ground pasta	100g	Energy; Fat; Saturates; Carbohydrate; Total sugars; Protein; Ash; Moisture; Total dietary fibre	1
PT-FC-817	Jam or marmalade	100g	Energy; Fat; Carbohydrate; Protein; Total sugars; Fructose; Glucose; Soluble solids; pH; Moisture; Ash; Total acidity; Brix	2
PT-FC-818	Sample A / Sample B (both potentially contaminated)	-	Presence/absence; Identification of foreign body	2
PT-FC-819	Table salt	300g	Purity; Moisture; Sulfate; Iodine; Calcium; Magnesium; Total Arsenic; Lead; Cadmium; Mercury; Copper, Ferrocyanide	2
PT-FC-820	Food product	100g	Lactose (low level)	2
PT-FC-821	Dehydrated food product	150g	Energy; Fat; Saturates; Total trans fatty acids; Carbohydrate; Total sugars; Protein; Salt; Sodium; Cholesterol	2
PT-FC-822	Vinegar	100ml	Total acidity; Total ash; Density; Total dry extract; Volatile acidity; pH	2
PT-FC-823	Infant formula powder	50g	Alanine (free); Arginine (free); Aspartic acid (free); Glutamic acid (free); Glycine (free); Histidine (free); Isoleucine (free); Leucine (free); Lysine (free); Phenylalanine (free); Proline (free); Serine (free); Threonine (free); Tyrosine (free); Valine (free); Cystein; Cystine (sum of); Methionine (free); Tryptophan (total)	1
PT-FC-824	Instant coffee	200g	Moisture; Solubility in cold water at 16 degrees;; Fat; Carbohydrate; Total glucose; Protein; Total dietary fibre; Ash; pH; Total chlorogenic acids; Caffeine; Total xylose	2
PT-FC-825	Dried oregano or ground pepper	15g	Confirmation of authenticity	2
PT-FC-826	Dried chilli powder	15g	Capsaicin; Dihydrocapsaicin; Nordihydrocapsaicin; Heat unit	2
PT-FC-827	Infant fruit/vegetable pureé	20g	Total Arsenic; Inorganic arsenic; Cadmium; Lead	1
PT-FC-828	Processed nut product	20g	Energy; Fat; Saturates; Carbohydrate; Total sugars; Protein; Salt; Sodium; Moisture	1

★ PRODUCT HIGHLIGHT

PT-FC-774 - Water Activity

As a result, water activity measurement is used as a critical control point in many food production processes. As a result water activity is measured with a high frequency, in a range of different matrices, making it one of AXIO's most popular food PT samples.

70 participants on average

6 rounds per year

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-FC-829	Dried tea	100g	Water extract; Total ash; Water soluble ash; Crude fibre; Moisture; Caffeine	2
PT-FC-830	Fruit/vegetable purée	20g	Vitamin C (as ascorbic acid)	1
PT-FC-831	Ground poppy seeds	15g	Morphine; Codeine	1
PT-FC-832	Non-wheat flour	100g	Fat; Protein; Total dietary fibre; Ash; Moisture; Calcium	3
PT-FC-833	Food purée	150g	Energy; Fat; Saturates; Carbohydrate; Total sugars; Protein; Total dietary fibre; Salt; Sodium	1
PT-FC-834	Potato chips	100g	Energy; Fat; Saturates; Monounsaturates; Moisture; Polyunsaturates; Total trans fatty acids; Carbohydrate;Total sugars; Protein; Total dietary fibre; Salt; Sodium	1
PT-FC-835	Tortilla chips	100g	Energy; Fat; Saturates; Monounsaturates; Moisture; Polyunsaturates; Total trans fatty acids; Carbohydrate; Total sugars; Protein; Total dietary fibre; Salt; Sodium	1
PT-FC-836	Pome fruits	2 x 100g (spiked & blank)	Pesticides; Glyphosate	1
PT-FC-837	Citrus fruits	2 x 50g (spiked & blank)	Pesticides; Glyphosate	1
PT-FC-838	Fruiting vegetables	2 x 50g (spiked & blank)	Pesticides; Glyphosate	1
PT-FC-839	Tuber fruits	2 x 50g (spiked & blank)	Pesticides; Glyphosate	1
PT-FC-840	Pulses	2 x 50g (spiked & blank)	Pesticides; Glyphosate	1
PT-FC-841	Cereals	2 x 50g (spiked & blank)	Pesticides; Glyphosate	1
PT-FC-843	Spices	2 x 50g (spiked & blank)	Pesticides	1
PT-FC-845	Rice	100g	Aflatoxins B1; B2; G1; G2; Total aflatoxins; Ochratoxin A; Zearalenone	1
PT-FC-846	Food labelling benchmark	-	Assessment to European Union Food law or equivalent	2
PT-FC-847	Honey	2 x 5g	Confirmation of authenticity	1
PT-FC-848	Vegan food	10g	Presence or absence of animal DNA	1
PT-FC-849	Food	-	Cannabidiol	1
PT-FC-850	Vanilla extract	2 x 20ml	Vanillin; Ethyl alcohol; Density Refractive index at 20°C	1
PT-FC-851	Pasta sauce	25g	Gluten	1
PT-FC-852	Canned meat	2 x 20g	Presence/absence of gluten; Presence/absence of egg white protein	1
PT-FC-854	Biscuits	20g	Presence/absence of gluten; Presence/absence of egg white protein; Presence/absence of milk protein	1
PT-FC-855	Surface to swab	-	Presence/absence of Gluten	1

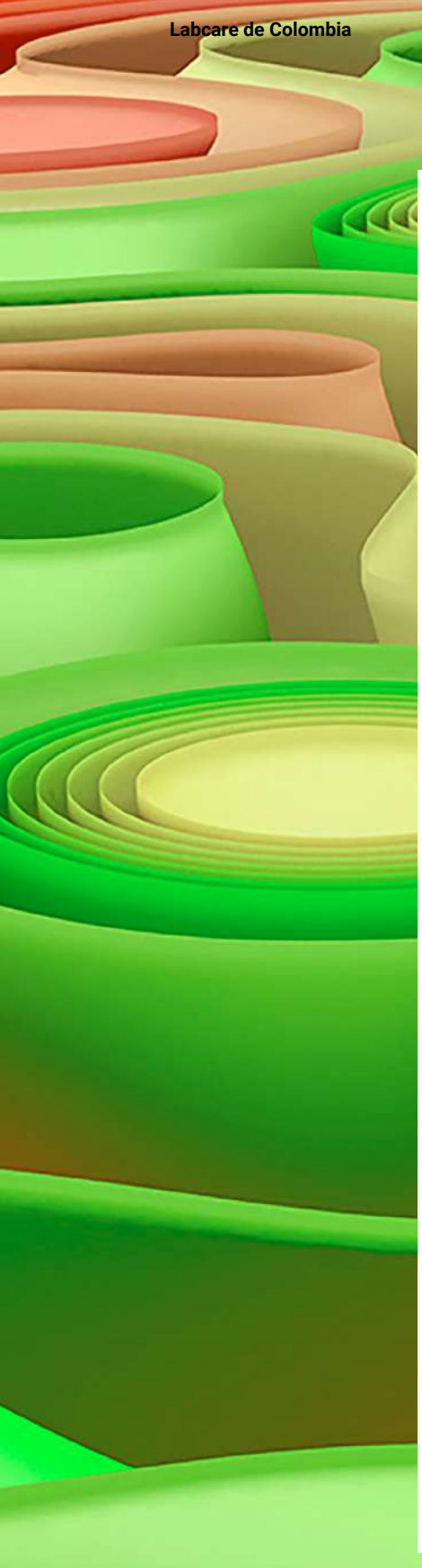
The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-FC-857	Sesame product	10g	Ethylene oxide; 2-chloroethanol as a sum of ethylene oxide and 2-CE; Ethylene oxide NEW; 2 chloroethanol NEW	1
PT-FC-858	Relish	100g	pH; Brix; Total Acidity; Salt	1
PT-FC-859	Candy	25g	Moisture; Total Acidity	1
PT-FC-860	Chewing gum	25g	Moisture; Total Acidity; pH	2
PT-FC-861	Garlic powder	150g	Moisture; Sulfur dioxide; Allicin; Ash (total);;Acid insoluble ash	1
PT-FC-862	Peanut butter	50g	Fat; Salt; Moisture	1
PT-FC-863	Confectionery/bakery products	100g	Propionic acid (E280); Sorbic acid (E200); Benzoic acid (E210); Citric acid (E330); Tartaric acid (E334); Acetic acid (E260); Malic acid (E296); Butyric acid	1
PT-FC-864	Tomato paste	25g	Vitamin A; Colour	1
PT-FC-865	Green coffee	25g	Moisture	1
PT-FC-866	Ground pepper	10g	Total Arsenic; Cadmium; Lead; Mercury	1
PT-FC-867	Ground corn (maize flour)	100g	Aflatoxins B1; B2; G1; G2; Total aflatoxins; Ochratoxin A; Zearalenone	1
PT-FC-868	Spices	20g	Ethylene oxide; 2-chloroethanol as a sum of ethylene oxide and 2-CE; Ethylene oxide NEW; 2 chloroethanol	1
PT-FC-869	Spices	50g	Water activity; Moisture	1
PT-FC-870	Quality of spices	100g	Bulk index; Bulk Density; Colour strength; Mercury	1
PT-FC-871	Herbs	10g	Total Arsenic; Cadmium; Lead	1
PT-FC-872	Simulant	50ml	Bisphenol A; Bisphenol S	1
PT-FC-873	Simulant	300ml	Aniline; 4-Methylenedianilinel; 2,4-Toluenediamine	1
PT-FC-874	Simulant	50ml	Lead; Cadmium	1
PT-FC-875	Vegetable/seed oil	20ml	DEHP; BBP; DBP	1
PT-FC-876	Ketchup/mayonnaise	50g	Water activity	1
PT-FC-877	Plant based meat	150g	Energy; Fat; Saturates; Mono-unsaturates; Poly-unsaturates; Total trans fatty acids; Carbohydrate; Total sugars; Total dietary fibre; Protein; Salt	1
PT-FC-878	Cereals/grains	5g	Qualitative identification of the GM Events; Quantification of GM events detected	1
PT-FC-879	Herbs	100g	Moisture; Acid Insoluble Ash; Ash; Volatile Oil; Water activity NEW	2
PT-FC-880	Herbs	2 x 50g (spiked & blank)	Pesticides	1
PT-FC-882	Surface to swab	-	Presence/absence of Peanut protein; Presence/absence of Sesame protein; Presence/absence of Soya protein	1
PT-FC-883	Soya sauce	100ml	pH; Total titratable acidity; Total sugars; Sorbic acid (E200);;Salt; Sodium; Magnesium; Potassium; Calcium	1
PT-FC-884	Dried dates	50g	Total sugars; Total dietary fibre; Protein; Ash; Moisture	1
PT-FC-885	Food product	20g	Titanium dioxide	1

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-FC-886	Spices	25g	Dyes	1
PT-FC-887	Chewing gum	25g	Acesulfame-K	2
PT-FC-888	Chewing gum	25g	Sorbitol	2

Sample Code	Sample Name	Quantity of Matrix	Analytes	Number of Rounds
ENHANCED PT-FC-777	Pesticides in tea matrix	2 x 50g (spiked and blank)	Nicotine	1
ENHANCED PT-FC-836	Pesticides in pome fruits	2 x 100g (spiked and blank)	AMPA	1
ENHANCED PT-FC-837	Pesticides in citrus fruits	2 x 100g (spiked and blank)	AMPA	1
ENHANCED PT-FC-838	Pesticides in fruiting vegetables	2 x 100g (spiked and blank)	AMPA	1
ENHANCED PT-FC-839	Pesticides in root and tuber vegetables	2 x 100g (spiked and blank)	AMPA	1
ENHANCED PT-FC-840	Pesticides in pulses	2 x 50g (spiked and blank)	AMPA	1
ENHANCED PT-FC-841	Pesticides in cereals	2 x 50g (spiked and blank)	AMPA	1
ENHANCED PT-FC-870	Bulk index of spices	300g	Bulk index; Bulk density (Untapped density); Tapped density	1
NEW PT-FC-889	Colour of ground spices e.g. turmeric	20g	Colour L, colour a, colour b	1
NEW PT-FC-890	Mycotoxins in spices Natural levels	100g	Aflatoxins B1, B2, G1, G2; Total Aflatoxins; Ochratoxin A	1
NEW PT-FC-891	Polyols in food products	50g	Xylitol, Isomalt, Sorbitol, Maltitol, Mannitol	1
NEW PT-FC-892	Quality of vanilla beans	50g	Moisture; Vanillin	1
NEW PT-FC-893	Water in flavouring powder by Karl Fischer	25g	Water	1
NEW PT-FC-894	Liquid Aroma baking ingredients	50ml	Water activity, Density, Vanillin	1
NEW PT-FC-895	Quality parameters of spice mix	100g	Salt, Volatile oil, Piperine content	1
NEW PT-FC-896	Gluten in cake mix (allergen testing – low in gluten)	25g	Gluten (quantitative)	1
NEW PT-FC-897	Peanut in food product (allergen testing)	2 x 25g	Peanut (quantitative and qualitative)	1
NEW PT-FC-898	Milk in infant breakfast cereals (allergen testing)	2 x 25g	Milk (quantitative and qualitative)	1
NEW PT-FC-899	Multi allergens in infant soya formula (allergen testing)	25g	Gluten (quantitative and qualitative); Milk protein (quantitative and qualitative)	1
NEW PT-FC-900	pH only in food products	TBC	pH	1
NEW PT-FC-901	Net content of prepacked product		Net content	1

The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.



Meat & Fish

QMAS

“Official control laboratories must be accredited to ISO/IEC 17025”

Global demand for high-quality meat, fish and seafood products remains strong – with the world producing more than three times as much meat as it did 50 years ago, and seafood accounting for 7% of our total protein intake. Customer expectations that such products are both authentic and free from original, fraudulent or accidental contamination mean that manufacturing processes are highly regulated. As a result, official control laboratories must be accredited to ISO/IEC 17025 and participate in proficiency testing.

AXIO’s Quality in Meat and Fish Scheme (QMAS) is designed to ensure that the wide range of laboratories involved in ensuring that products are compliant – from in-house and contract organisations to government institutions – can have confidence in the integrity of their results. It also encompasses a wide range of analyses, from quality assurance and elemental testing, to authenticity and contaminant testing employing sophisticated instrumental analysis.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-MT-718	Fish	50g	Nitrate; Nitrite	1
PT-MT-725	Lyophilised Chicken	2 x 25g	Detection of *Salmonella* Typhimurium; *Salmonella* Enteritidis;	1
PT-MT-726	Meat	Vial + 10g sample	Detection of *Escherichia coli* O157; Detection of *Salmonella* species	2
PT-MT-727	Lyophilised tablet	Vial to be reconstituted	Detection of *Escherichia coli* O157; Detection of *Salmonella* species	1
PT-MT-728	Fish	150g	Energy; Fat; Saturates; Carbohydrate; Dietary fibre; Protein; Salt; Ash; Moisture; Sugar	1
PT-MT-729	Meat	50g	Sulfur dioxide	1
PT-MT-730	Dried or cured meat	150g	Energy; Total Fat; Saturates; Cholesterol; Carbohydrate; Total Sugars; Dietary Fibre; Protein; Salt; Ash; Moisture; Sodium; Phosphate; pH	2
PT-MT-731	Precooked, raw or processed meat	150g	Energy; Total Fat; Saturates; Cholesterol; Carbohydrate; Total Sugars; Dietary Fibre; Protein; Salt; Ash; Moisture; Sodium; Phosphate; pH; Calcium; Potassium; Iron; Magnesium	4
PT-MT-732	Lyophilised meat	50g	Nitrate; Nitrite	4
PT-MT-733	Meat	150g	Hydroxyproline; Starch; Total fat; Saturates; Monounsaturates; Poly-unsaturates; Total trans fatty acids;	4
PT-MT-734	Fish	150g	Fat; Protein; Salt; Ash; Moisture; pH;	4
PT-MT-735	Lyophilised meat	10g	Total aerobic mesophilic count; Enumeration of Enterobacteriaceae; Coliforms; *Escherichia coli*;	4
PT-MT-736	Lyophilised meat	25g	Detection of *Salmonella* species;	4
PT-MT-737	Lyophilised meat	25g	Detection of *Listeria* species; *Listeria monocytogenes*; Identification of *Listeria* species	4
PT-MT-738	Lyophilised meat	10g	Total aerobic mesophilic count; Enumeration of Enterobacteriaceae; *Escherichia coli*; Coagulase positive staphylococci; Coliforms	4
PT-MT-739	Lyophilised fish or shellfish	Vial + 10g sample	Total aerobic mesophilic count; Enumeration of Enterobacteriaceae; *Escherichia coli*; Coagulase positive staphylococci; Coliforms	2
PT-MT-740	Lyophilised fish or shellfish	Vial + 25g sample	Detection of *Salmonella* species	2

★ PRODUCT HIGHLIGHT

PT-MT-731 - Meat-Based Sample

This is normally either a raw meat used in the production of burgers or sausages, or a cooked/ processed meat product. This sample tends to represent meat products more routinely consumed in the northern hemisphere, whilst sample 730 (cured meats) represents those more commonly found in the southern hemisphere.

18 analytes in one sample

4 rounds per year

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-MT-741	Shellfish	50g	Total Arsenic; Cadmium; Zinc; Mercury; Lead; Phosphorus	2
PT-MT-742	Fish	50g	Total Arsenic; Cadmium; Zinc; Mercury; Lead; Phosphorus	2
PT-MT-743	Lyophilised meat	Vial + 25g sample	Detection of *Campylobacter* species	2
PT-MT-744	Lyophilised meat	Vial +25g sample	Detection of *Escherichia coli* O157	2
PT-MT-745	Lyophilised fish or shellfish	Vial + 25g sample	Detection of *Vibrio* species; *Vibrio parahaemolyticus*	2
PT-MT-746	Lyophilised meat	10g	Enumeration of *Pseudomonas* species; Lactic acid bacteria; Yeast; Mould; Yeast and Mould	4
PT-MT-747	Meat	50g	Total Arsenic; Cadmium; Zinc; Mercury; Lead	2
PT-MT-748	Fish	150g	Histamine; Total volatile nitrogen (TVN); Trimethylamine (TMA)	3
PT-MT-749	Meat	2 x set of 2 samples (2g each)	Meat authenticity; Species stated to be screened for presence of other species of meat, e.g. chicken, pork, horse, beef, lamb.; Analytes will vary each round.	4
PT-MT-752	Fish	4 x 20g	Fish species identification	2
PT-MT-754	Shellfish	50g	Chloramphenicol	1
PT-MT-755	Meat	100g	Ractopamine	1
PT-MT-756	Meat	2 x vial + 1 x mínimum 20g matrix	Quantitative Package: Total aerobic mesophilic count; Enumeration of Total coliforms; Enterobacteriaceae; *Escherichia coli; Bacillus cereus;* Coagulase positive staphylococci; Yeast; Mould; Yeast and Mould; Detection of coagulase positive staphylococci	4
PT-MT-756+757	Meat	Vial + Matrix	756 Quantitative Package: Total aerobic mesophilic count; Enumeration of total coliforms; Enterobacteriaceae; *Escherichia coli; Bacillus cereus;* Coagulase positive staphylococci; Yeast; Mould; Yeast and Mould; Detection of coagulase positive staphylococci 757 Qualitative Package: Detection of *Escherichia coli* O157; *Listeria* species; *Listeria monocytogenes*; *Salmonella* species; Identification of *Listeria* species	4
PT-MT-757	Meat	2 x vial + 1 x mínimum 200g matrix	Qualitative Package: Detection of *Escherichia coli* O157; *Listeria* species; *Listeria monocytogenes*; *Salmonella* species; Identification of *Listeria* species	4
PT-MT-758	Lyophilised meat	10g	Enumeration of aerobic psychrotrophs	1
PT-MT-759	Lyophilised meat	10g	Enumeration of *Listeria* species; *Listeria monocytogenes*	2

Sample Code	Sample Name	Quantity of Matrix	Analytes	Number of Rounds
ENHANCED PT-MT-742	Elements in fish	50g	Methyl mercury	2
ENHANCED PT-MT-743	Detection of *Campylobacter* in meat	lyophilised test material + matrix	Detection in 10g	2
NEW PT-MT-762	Fenbuconazole in beef	10g	Fenbuconazole	1
NEW PT-MT-763	Detection of *Salmonella* in 375g meat powder	375g	Detection of *Salmonella* species	1
NEW PT-MT-764	Detection of *Listeria* in 125g meat powder	125g	Detection of *Listeria* and *Listeria monocytogenes* in 375g meat powder	1
NEW PT-MT-765	PFAS in food e.g., fish or meat (natural levels)	30g	Perfluorononanoic acid (PFNA); Perfluorooctanoic acid (PFOA); Perfluorohexane sulfonic acid (PFHxS); Perfluorooctane sulfonic acid (PFOS); Sum of 4 PFAS	1

The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

Dairy Chemistry

QDCS

“Covering a wide range of analytes from aflatoxins to antibiotics...”

Analytical testing is vital in assuring that dairy products such as milk, infant formula, whey, cream, and cheese are free from contaminants and adulterants before they reach customers.

The AXIO Proficiency Testing Quality in Dairy Chemistry Scheme (QDCS) is suitable for laboratories using both traditional and modern instrumental techniques for dairy analysis, and provides samples to cover a wide spectrum of established and emerging matrices – including yogurts, freeze-dried, skimmed and powdered goods, plus hard and soft cheeses.

The range of analytes included is also extensive: from aflatoxins to vitamins, energy content to natamycin, and antibiotics to Staphylococcal enterotoxins. Successful participation in QDCS is an essential part of developing a quality system to ensure that your laboratory’s results are both accurate and meaningful.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-CH-27	Skimmed milk	250ml	Fat 0.10% to 0.50%	4
PT-CH-28	Milk	250ml	Protein 3.0% to 4.0%; Calcium; Total Solids; Lactose	4
PT-CH-29	HCl solution	125ml	Titratable Acidity	4
PT-CH-31	Freeze dried milk	2 x 10ml	Phosphatase	4
PT-CH-32A	Milk	250ml	pH	4
PT-CH-32B	Buffer solution	250ml	pH	4
PT-CH-35	Potassium hydrogen phthalate	100ml	COD	4
PT-CH-36	Butter	250g	Energy; Fat; Saturates; Salt; Sodium; Moisture; pH; Solids-non-fat (SNF)	4
PT-CH-37	Hard cheese	100g	Energy; Fat; Saturates; Protein; Salt; Sodium; Moisture; pH; Cholesterol; Calcium; Lactose; Ash	4
PT-CH-38A	Skimmed milk powder	120g	Moisture; Ash; Scorched Particles; pH	4
PT-CH-38B	Whey powder	120g	Moisture; Scorched particles; Fat; Protein; Ash; Lactose; Galactose; pH	4
PT-CH-39	Whipping cream	240g	Fat 30% to 40%; Titratable Acidity; Protein; Dry Matter	4
PT-CH-40	Semi skimmed milk	250ml	Fat 1.2% to 2.0%	4
PT-CH-42	Whole milk powder	20g	Elements: Minerals (Chloride; Fe; Mg; Mn; P; Zn)	2
PT-CH-43	Whole protein concentrate	120g	Fat; Protein; Moisture; Ash; pH; Bulk Density; Lactose; Insolubility Index	2
PT-CH-44	Milk Powder	20g	CH324: Whole milk powder CH330: Infant milk powder	2
PT-CH-51	Skimmed milk powder	120g	Fat; Protein; WPNI; Titratable Acidity (rehydrated); Titratable acidity (milk powder); Insolubility Index; pH	4
PT-CH-52	Whole milk powder	120g	Fat; Protein; Moisture; WPNI; Titratable acidity (rehydrated); Titratable acidity (milk powder); Insolubility Index; pH	4
PT-CH-53	Single cream	240g	Fat 12% to 25%	4
PT-CH-54	Double cream	240g	Fat 40% to 50%	4
PT-CH-55	Whole milk	250ml	Fat 2.8% to 5.0%	4

★ PRODUCT HIGHLIGHT

PT-CH-56 - Whole Milk

This sample focuses on titratable acidity and freezing point depression. For fresh milk, the acidity is mainly due to the presence of phosphates, casein and carbon dioxide. However, as the milk sours, lactic acid is formed due principally to the action of organisms such as *STREPTOCOCCUS* on the lactose. Therefore, as milk sours the acidity will gradually increase, and titratable acidity can be used as a quick test to determine the freshness of milk. Freezing point depression is a test used to determine if any added or extraneous water is present in milk as, once cattle have been milked, the product should not be adulterated or diluted by watering down. In most laboratories a 'Thermistor cryoscope' is used for this purpose.

50 participants on average

4 rounds per year

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-CH-56	Milk	250ml	Titratable Acidity; FPD	4
PT-CH-58	Yogurt	100g	Energy; Fat; Protein; Salt; Sodium; Total solids; pH; Calcium	4
PT-CH-59	Soft cheese	100g	Energy; Fat; Saturates; Protein; Salt; Sodium; Moisture; pH; Cholesterol; Calcium; Lactose; Ash; Total dietary fibre	4
PT-CH-60	Freeze dried milk	25ml	Aflatoxin M1	4
PT-CH-62	Soft cheese	70g	Aflatoxin M1	4
PT-CH-63	Cheese powder	120g	Salt; Moisture; pH; Fat; Protein; Ash; Sodium; Colour**	2
PT-CH-65	Milk Powder	120g	Nitrate; Nitrite	2
PT-CH-66	Condensed milk	100g	Energy; Fat; Saturates; Carbohydrate; Total sugars; Protein; Salt	1
PT-CH-67	Processed cheese	100g	Energy; Fat; Saturates; Cholesterol; Carbohydrate; Total sugars; Protein; Salt Sodium; Moisture; pH; Sorbic acid; Lactose; Calcium; Phosphorus	2
PT-CH-68	Freeze-dried cheese	2 x 50g	Staphylococcal enterotoxins	2
PT-CH-70	Freeze dried milk	2 x 5ml	Antibiotics (beta lactams)	4
PT-CH-71	Freeze dried milk	2 x 5ml	Antibiotics (sulphonamides)	4
PT-CH-72	Freeze dried milk	2 x 5ml	Antibiotics (tetracyclines)	4
PT-CH-73	Cheese	25g	Natamycin	1

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
ENHANCED PT-CH-42	Infant milk powder	20g	Calcium (Ca); Potassium (K); Copper (Cu); Sodium (Na)	1
NEW PT-CH-74	Infant formula	10g	Lead (Pb), Cadmium (Cd), Arsenic (As), Mercury (Hg)	1
NEW PT-CH-75	Liquid infant formula	150ml	Density	1
NEW PT-CH-76	Infant formula	150g	Fat, Saturates, Carbohydrates, Total sugars, Net carbohydrates, Protein, Salt, Fibre, DHA, ARA	1

Chocolate & Cocoa Products

QCS

“Confidence with the challenge of chocolate testing”

Ensuring the safety and quality of chocolate and cocoa products is particularly challenging. In mature markets like Europe, regulators set clear rules and definitions for the composition, manufacture, packaging, and labelling of chocolate and cocoa products. When producers fail to meet those standards, mass recalls tend to make the news and provoke an emotive response amongst devoted consumers – leading to significant damage to both brand reputation and to the bottom line.

Guaranteeing product safety is also becoming more difficult for company laboratories – not just because of innate compositional factors such as high sugar and fat content, but also due to uncertain growing and cultivation conditions that potentially increase the concentration of certain analytical parameters, and the rise in popularity of organic, raw and unprocessed ranges. Covering both raw and finished products, and with more than half of samples supplied as cocoa powder, the AXIO Chocolate Scheme (QCS) is specifically designed to meet the industry’s particular demands – and provide our global network of laboratories with confidence in the measurement and accuracy of their results.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Analytes per Round
PT-CT-710	Grated chocolate	2 x 25g	Detection of *Salmonella* species	3
PT-CT-713	Cocoa powder	10g	Total aerobic mesophilic count; Enumeration of Enterococci; Enterobacteriaceae; Coliforms; Yeast; Mould	2
PT-CT-714	Cocoa powder	25g	Detection of *Salmonella* species	2
PT-CT-715	Chocolate	150g	Water activity; Moisture; Energy; Fat; Saturates; Total nitrogen; Carbohydrate; Total sugars; Fructose; Glucose; Sucrose; Salt (from sodium); Sodium; Butyric acid; Theobromine; Total dietary fibre; Lactose	3
PT-CT-716	Cocoa powder	150g	Energy; Fat; Saturates; Total nitrogen; Carbohydrate; Total sugars; Fructose; Glucose; Sucrose; Salt (from sodium); Sodium; Ash; Moisture; Theobromine; Caffeine; pH	3
PT-CT-717	Chocolate	10g	Total aerobic mesophilic count; Enumeration of Enterococci; Enterobacteriaceae; Coliforms; Yeast; Mould	2
PT-CT-718	Cocoa powder	10g	Total Arsenic; Cadmium; Lead	2
PT-CT-719	Chocolate	20g	Cadmium	1
PT-CT-720	Cocoa powder	Vial + 375g	Detection of *Salmonella* species	1

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Analytes per Round
ENHANCED PT-CT-719	Dark Chocolate	20g	Lead; Iron; Calcium; Chromium	2

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Animal Feed

AFPS

“Constantly evolving to meet new industry challenges”

Animal feed is tightly regulated, not least because many animals and their products are ultimately destined for consumption by humans.

The AXIO Animal Feed Scheme (AFPS) offers a broad range of samples and analytes to help testing laboratories establish a comprehensive quality system, maintain high analytical standards, and avoid costly product recalls (such as when animal feed contamination reaches the human food chain).

Additional samples are frequently added to the range, such as those for the analysis of fusarium mycotoxins in oats and maize that link to those in our Food Chemistry scheme. Our range of matrices is also extensive – from cattle – and fish-feed to silage and pet food.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-AF-02	Animal feed	125g	Arsenic; Cadmium; Calcium; Chloride; Chromium; Cobalt; Copper; Iron; Lead; Magnesium; Manganese; Mercury; Phosphorus; Potassium; Selenium; Sodium; Zinc	4
PT-AF-05	Animal feed	125g	Aflatoxins B1; B2; G1; G2; Total Aflatoxins; Ochratoxin A	2
PT-AF-06AF	Simulated animal feed	25g	Detection of *Salmonella* species	2
PT-AF-06KB	Petfood kibble	25g + 10ml vial	Detection of *Salmonella* species	1
PT-AF-07AF	Simulated animal feed	10g	Total viable count Enumeration of Enterobacteriaceae; Coliforms; *Escherichia coli*; Lactic acid bacteria	2
PT-AF-07KB	Petfood kibble	10g + 10ml vial	Total viable count; Enumeration of Enterobacteriaceae; Coliforms; *Escherichia coli*; Lactic acid bacteria	1
PT-AF-08	Premix	125g	Arsenic; Cadmium; Calcium; Chloride; Chromium; Cobalt; Copper; Iron; Lead; Magnesium; Manganese; Mercury; Phosphorus; Potassium; Selenium; Sodium; Zinc	1
PT-AF-09	Wet Pet Food	125g	Moisture; Crude protein; Crude fat; Crude ash; Ash insoluble in hydrochloric acid; Sugars; Crude fibre; Starch; pH	1
PT-AF-10	Simulated animal feed	10g	Enumeration of *Clostridium perfringens* *Clostridium* species; Sulphite-reducing Clostridia; Total anaerobic count	2
PT-AF-11	Simulated animal feed	25g	Detection of *Listeria monocytogenes*; *Listeria* species	2
PT-AF-13	Fish feed	125g	Energy; Moisture; Crude protein; Crude fat; Crude ash; Crude fibre; pH	1
PT-AF-14	Silage	125g	Moisture; Crude protein; Crude fat; Crude ash; Crude fibre; Starch	1
PT-AF-15	Simulated animal feed	10g	Enumeration of coagulase positive staphylococci; *Bacillus cereus*; Yeast; Mould	2
PT-AF-18	Copra oil	50g	Peroxide value; Butylated hydroxyanisole (BHA); Butylated hydroxytoluene (BHT)	1
PT-AF-19	Oats	125g	Fumonisin B1; Fumonisin B2; T-2; HT-2	1
PT-AF-20	Maize oil	50ml	Deoxynivalenol (DON); Zearalenone (ZON)	1

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Analytes per Round
ENHANCED PT-AF-01	Animal feed	125g	Calorific value	4

★ PRODUCT HIGHLIGHT

PT-AF-01 - Proximate Analysis

This proficiency test is for the nutritional analysis of commercial animal feed foodstuff, typically used in the farming industry. Examples would include cattle, pig and poultry feed. The aim is to cover analytes and tests required to ensure these products are fit for use and compliant with legislation.

12 analytes in one sample

4 rounds per year

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Shiga Toxin *E.coli*

STEC

“Helping your laboratory detect the ‘Big Six’ – and more”

Most *E.coli* strains are harmless and can live in the human gut without any issues. However, Shiga toxin-producing *E.coli* (STEC) strains can cause serious illness, and therefore testing for them in foods that may be at risk of contamination is a common requirement around the world.

The AXIO Proficiency Testing STEC Scheme includes all of the most common internationally tested STEC serovars. Unlike other proficiency testing providers, we provide real STEC strains for O26, O45, O103, O111, O121 and O145 – known as ‘the big six’ in the USA – as well as O157:H7. Testing includes detection and identification of the STEC present in the samples.

Participating in the STEC scheme also enables laboratories performing microbiological analysis of meat, food, and dairy products to monitor their performance and compare it with that of their peers. Additionally, we aim to provide information to participants on technical issues and methodologies relating to these types of testing.

Please note that this product is shipped as UN2814, for which many countries have special import requirements. You must ensure that you are able to receive UN2814 and have any necessary permits prior to submitting an application. Please also contact your LGC office to confirm shipping ability to your facility, then complete the following documents: BIS-711 form (Statement by Ultimate Consignee and Purchaser) and the UN2814 Export Questionnaire (see ‘Scheme Documents’ section on the STEC scheme page). The completed documents must be sent to ptcustomerservices@lgcgroup.com to enable the export of the materials to your facility. Finally, please be aware that the last order date for each round is six weeks prior to the round’s dispatch date.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-SC-01D	Milk Powder	2 x pellets + 2 x 25g	Detection of *E.coli* O157; Detection of STEC (O26, O45, O103, O111, O121, O145, O157); Identification of STEC serovar (O26, O45, O103, O111, O121, O145, O157)	4
PT-SC-01M	Powdered beef	2 x pellets + 2 x 25g	Detection of *E.coli* O157; Detection of STEC (O26, O45, O103, O111, O121, O145, O157); Identification of STEC serovar (O26, O45, O103, O111, O121, O145, O157)	4
PT-SC-02M	Powdered beef	2 x pellets + 2 x 375g	Detection of *E.coli* O157; Detection of STEC (O26, O45, O103, O111, O121, O145, O157); Identification of STEC serovar (O26, O45, O103, O111, O121, O145, O157)	1

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Gelatine

QGS

“Suitable for all industries testing gelatine”

The extensive use of gelatine in industries such as food, pharmaceuticals, cosmetics, photography and printing presents analytical laboratories with chemical, physical, and microbiological challenges.

AXIO Proficiency Testing’s Quality in Gelatine Scheme (QGS) was developed with the help of the Gelatine Manufacturers of Europe (GME) trade body, and is suitable for use by any laboratory involved in testing gelatine. The scheme provides test materials in gelatine and gelatine hydrolysate matrices that represent a realistic challenge for laboratories, with relevant chemical, physical, and microbial tests.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-GL-601	Gelatine	25g	Detection of *Salmonella* species	3
PT-GL-602	Gelatine	10g	Total aerobic mesophilic count; Detection of Coliforms; *Escherichia coli*; Enterobacteriaceae	3
PT-GL-603	Gelatine	10g	Detection of *Clostridium perfringens*; Enumeration of Sulphite-reducing bacteria	3
PT-GL-604	Gelatine	10g	Detection of Staphylococcus aureus	3
PT-GL-605	Gelatine	10g	Enumeration of mesophilic anaerobic spores	3
PT-GL-606	Gelatine	100g	Ash; Gel strength (Bloom); Isoelectric point; Moisture; pH; Viscosity	3

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
NEW PT-GL-607	Yeast and mould	10g	Enumeration of yeast and mould	1

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Beverage Schemes

AXIO Proficiency Testing has a comprehensive range of schemes for the beverage industry covering all aspects of production, from raw materials to finished products. Our beverage schemes cover routine and advanced analysis performed by many laboratories in the alcoholic and non-alcoholic sectors.

Ensuring the highest quality and consistency for global brands ultimately depends upon the quality of the laboratory results as the basis for key decisions about product quality and safety. By participating in our global proficiency testing schemes, you are provided with a truly independent assessment of measurement quality, providing confidence in the accuracy of your results and, ultimately, the quality of your product.

Schemes available

Brewing Analytes
BAPS

Alcoholic Drinks
DAPS

Malt Analytes
MAPS

Soft Drinks & Fruit Juice
QBS

Sugars
SUPS

NEW Beverage PT sample for 2024

Sample Code	Sample Name	Analytes	Rounds per year
PT-BA-09	Stout ale for Chemical Analysis	Alcohol by Volume; Original Gravity; Original Extract; Apparent Gravity; Present Gravity; Attenuation Limit; Remainder; Acidity; Bitterness; Colour; pH; Carbon Dioxide; Total Diacetyl; Total VDK; Turbidity; Foam stability (HRV)	6
PT-BV-528	Polyphenols in tea beverage	Total polyphenols	1

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Brewing Analytes

BAPS

“Supporting micro-breweries and global brands since 1989”

A long-standing partnership between LGC AXIO Proficiency Testing and Campden BRI, our Brewing Analytes Scheme (BAPS) aims to promote quality in the measurement of chemical, microbiological and sensory analytes in beer. Having begun in 1989, BAPS is our second-longest-running proficiency testing programme, and supports the testing and quality systems of many of the world’s key breweries.

Wherever they are in the world, consumers of beers expect their drinks to consistently look and taste the same. Brewers continuously aim to meet those high expectations, but maintaining and confirming the quality and reliability of a given product is challenging for both the production facilities and quality control laboratories.

Microbiological test materials supplied to laboratories participating in BAPS contain organisms typically encountered in the brewing industry – and help assess factors such as the identity of organisms, lactic acid bacteria count and wild yeast count. Meanwhile our chemical samples support fundamental analyses including alcohol content, colour, pH, bitterness and carbon dioxide, as well as sugar and sulfur dioxide, and specialised alcohol-free, low alcohol and gluten testing.

Participation in BAPS can provide laboratories with the confidence that their results are meaningful and accurate – which in turn helps to ensure consistency in beer quality, as well as brand integrity.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-BA-01B	Ale (Bitter)	4 x cans/ bottles 440ml or greater	Chemical analysis of a range of key brewing analytes that are routinely analysed in the brewing industry	4
PT-BA-01L	Lager	4 x cans/ bottles 440ml or greater	Chemical analysis of a range of key brewing analytes that are routinely analysed in the brewing industry	12
PT-BA-02L	Lager	4 x cans/ bottles 440ml or greater	Chemical analysis of a range of additional analytes that complement those provided by sample 1L/B.	12
PT-BA-03	Ale	1 x can/bottle 330ml or greater	Chemical analysis (ABV; Bitterness; Colour; Tetra iso-acids; Free Diacetyl; Total Diacetyl; Free 2,3-Pentanedione; Total VDK)	12
PT-BA-04	Lyophilised test material	2 x 10ml	Total aerobic microbial count; Total anaerobic microbial count; Total aerobic bacterial count; Identity of Organism; Enumeration of wild yeast; lactic acid bacteria	6
PT-BA-05	Lager/ale (Bitter)	4 x cans/ bottles 440ml or greater	Evaluation of aroma and taste characteristics by sensory panels	12
PT-BA-07A	Alcohol free beer	1 x can/bottle 330ml or greater	Chemical analysis (ABV; Apparent gravity; Bitterness; Colour; pH)	2
PT-BA-07B	Low alcohol beer	1 x can/bottle 330ml or greater	Chemical analysis (ABV; Apparent gravity; Bitterness; Colour; pH)	2
PT-BA-08.	Gluten free beer	2 x cans/ bottles 330ml or greater	Low level gluten beer for Chemical Analysis	2

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
NEW PT-BA-09	Stout ale for Chemical Analysis	4 x cans/ bottles 440ml or greater	Alcohol by Volume; Original Gravity; Original Extract; Apparent Gravity (Present Gravity); Present Gravity; Attenuation Limit; Remainder (PG – Attenuation Limit); Acidity; Bitterness (factor = 50); Colour @ 430 nm; pH; Carbon Dioxide; Total Diacetyl; Total VDK; Turbidity; Foam stability (HRV)	6

★ PRODUCT HIGHLIGHT

PT-BA-04 - Level 4 Microbiology

Enumeration and identification of beer-specific microorganisms.

150-250 participants per round.

6 rounds per year

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Alcoholic Drinks

DAPS

“From whisky to wine, DAPS helps to ensure consistency, safety and quality”

The AXIO Alcoholic Drinks Scheme (DAPS) covers a wide range of alcohol-containing products – including whisky, dark and light spirits, cream and non-cream liqueurs, wines, ciders, fruit-based alcoholic beverages, and ready-to-drink cocktails.

Whilst alcohol content testing remains key for many laboratories, DAPS features many other types of analysis that affect the flavour and safety of alcoholic drinks – including sugars, gravity, original gravity, colour, higher alcohols, ethyl carbamate, NDMA, cask extractives and fatty acid esters. The scheme encompasses heavily-regulated products like whisky, and the specialised testing required for drinks such as cider and wine.

Successful participation in DAPS can help safeguard your laboratory’s analytical performance and deliver consistently safe and high-quality drinks, as well as protecting brand value and customer loyalty.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-DP-A1	Fermented wort	500ml	Alcohol; Final Gravity; Original Gravity; pH; Residual Fermentable Sugars; Residual Gravity	4
PT-DP-A2	Simulated wort	250ml	Alcohol; Final Gravity; Original Gravity; pH; Residual Fermentable Sugars; Residual Gravity	4
PT-DP-B1	Scotch whisky	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 2-Phenethyl Acetate; 2-Phenethyl Ethanol; 3-Methylbutanol; 5-Hydroxymethyl-2-furfural; Acetal; Acetaldehyde; Actual Alcoholic Strength; Apparent Alcoholic Strength; Calcium; Chill Difference; Colour; Coniferaldehyde; Copper; Density (20°C); Ellagic Acid; Ethyl acetate; Ethyl carbamate; Ethyl Decanoate; Ethyl Dodecanoate; Ethyl Hexadecanoate; Ethyl hexanoate; Ethyl Octanoate; Ethyl Tetradecanoate; Ethyl-9-Hexadecenoate; Fixed Acidity; Fructose; Furfural; Gallic Acid; Glucose; Iron; Iso-Amyl Acetate; Isobutanol; Magnesium; Methanol; n-Butanol; n-Propanol; Nitrosodimethylamine; pH; Potassium; Refractive Index (20°C); Scopoletin; Sinapaldehyde; Sodium; Specific gravity (20°C); Sucrose; Syringaldehyde; Syringic Acid; Total Acidity; Total Solids; Total sugars; Turbidity (Haze); Vanillic Acid; Vanillin	4
PT-DP-B2-A	Bourbon	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 3-Methylbutanol; Acetal; Acetaldehyde; Acetic Acid; Actual Alcoholic Strength; Apparent Alcoholic Strength; Calcium; Colour; Copper; Ethyl acetate; Fixed Acidity; Fructose; Furfural; Glucose; Iron; Iso-Amyl Acetate; Iso-Butanol; Magnesium; Methanol; n-Butanol; n-Propanol; NDMA; pH; Potassium; Sodium; Sucrose; Total Acidity; Total sugars; Turbidity (Haze)	1
PT-DP-B2-B	Dark Rum	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 3-Methylbutanol; Acetal; Acetaldehyde; Acetic Acid; Actual Alcoholic Strength; Apparent Alcoholic Strength; Calcium; Colour; Copper; Ethyl acetate; Fixed Acidity; Fructose; Furfural; Glucose; Iron; Iso-Amyl Acetate; Iso-Butanol; Magnesium; Methanol; n-Butanol; n-Propanol; NDMA; pH; Potassium; Sodium; Sucrose; Total Acidity; Total sugars; Turbidity (Haze)	1
PT-DP-B2-C	Brandy	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 3-Methylbutanol; Acetal; Acetaldehyde; Acetic Acid; Actual Alcoholic Strength; Apparent Alcoholic Strength; Calcium; Colour; Copper; Ethyl acetate; Fixed Acidity; Fructose; Furfural; Glucose; Iron; Iso-Amyl Acetate; Iso-Butanol; Magnesium; Methanol; n-Butanol; n-Propanol; NDMA; pH; Potassium; Sodium; Sucrose; Total Acidity; Total sugars; Turbidity (Haze)	1
PT-DP-B2-D	Irish Whisky	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 3-Methylbutanol; Acetal; Acetaldehyde; Acetic Acid; Actual Alcoholic Strength; Apparent Alcoholic Strength; Calcium; Colour; Copper; Ethyl acetate; Fixed Acidity; Fructose; Furfural; Glucose; Iron; Iso-Amyl Acetate; Iso-Butanol; Magnesium; Methanol; n-Butanol; n-Propanol; NDMA; pH; Potassium; Sodium; Sucrose; Total Acidity; Total sugars; Turbidity (Haze)	1
PT-DP-B3-A	Gin	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 3-Methylbutanol; Acetal; Acetaldehyde; Acetic Acid; Actual Alcoholic Strength; Apparent Alcoholic Strength; Calcium; Colour; Copper; Ethyl acetate; Fixed Acidity; Fructose; Furfural; Glucose; Iron; Iso-Amyl Acetate; Iso-Butanol; Linalool; Magnesium; Methanol; n-Butanol; n-Propanol; NDMA; pH; Potassium; Refractive Index (20°C); Sodium; Specific gravity (20°C); Sucrose; Terpinene-4-ol (gin only); Total Acidity; Total sugars; Turbidity	1

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-DP-B3-B	Vodka	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 3-Methylbutanol; Acetal; Acetaldehyde; Acetic Acid; Actual Alcoholic Strength; Apparent Alcoholic Strength; Calcium; Colour; Copper; Ethyl acetate; Fixed Acidity; Fructose; Furfural; Glucose; Iron; Iso-Amyl Acetate; Iso-Butanol; Linalool; Magnesium; Methanol; n-Butanol; n-Propanol; NDMA; pH; Potassium; Refractive Index (20°C); Sodium; Specific gravity (20°C); Sucrose; Terpinene-4-ol (gin only); Total Acidity; Total sugars; Turbidity	2
PT-DP-B3-C	White Rum	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 3-Methylbutanol; Acetal; Acetaldehyde; Acetic Acid; Actual Alcoholic Strength; Apparent Alcoholic Strength; Calcium; Colour; Copper; Ethyl acetate; Fixed Acidity; Fructose; Furfural; Glucose; Iron; Iso-Amyl Acetate; Iso-Butanol; Linalool; Magnesium; Methanol; n-Butanol; n-Propanol; NDMA; pH; Potassium; Refractive Index (20°C); Sodium; Specific gravity (20°C); Sucrose; Terpinene-4-ol (gin only); Total Acidity; Total sugars; Turbidity	1
PT-DP-B4	Simulated spirit	250ml	Actual Alcoholic Strength; Apparent Alcoholic Strength; Citric Acid; Ethyl carbamate; Fructose; Glucose; Glycerol; Maltose; Nitrosodimethylamine; pH; Propylene glycol; Sucrose; Total sugars	4
PT-DP-B5	Non chill filtered whisky	100ml	2-Phenethyl Acetate; 2-Phenethyl Ethanol; Ethyl Decanoate; Ethyl Dodecanoate; Ethyl Hexadecanoate; Ethyl hexanoate; Ethyl Linoleate; Ethyl Linolenate; Ethyl Octadecanoate' Ethyl Octanoate; Ethyl Oleate; Ethyl Tetradecanoate; Ethyl-9-Hexadecenoate	2
PT-DP-C1	Ciders	2 bottles or cans	Actual Alcoholic Strength; Carbon Dioxide; Colour; Haze; pH; Specific Gravity; Total Acidity; Total Sulfur Dioxide; Volatile Acidity	4
PT-DP-D1	White or Rosé wine	500ml	Actual Alcoholic Strength; Ascorbic acid (Vitamin C); Citric Acid; Colour; Copper; Free Sulfur dioxide; Fructose; Glucose; Iron; Lactic acid; Malic Acid; pH; Reducing Sugars; Sorbic Acid (as free acid); Specific Gravity; Total Acidity; Total Sulfur dioxide; Volatile Acidity	4
PT-DP-D2	Red wine	500ml	Actual Alcoholic Strength; Ascorbic acid (Vitamin C); Citric Acid; Colour; Copper; Free Sulfur dioxide; Fructose; Glucose; Iron; Lactic acid; Malic Acid; pH; Reducing Sugars; Sorbic Acid (as free acid); Specific Gravity; Total Acidity; Total Sulfur dioxide; Volatile Acidity	4
PT-DP-E1	Ready to drink	2 bottles or cans	Actual Alcoholic Strength; Ascorbic acid (Vitamin C); Benzoic acid; Carbon Dioxide; Citric Acid; Colour absorbance: Density (20°C); Dissolved Oxygen; pH; Refractive Index (20°C); Sorbic Acid (as free acid); Specific Gravity; Total Acidity; Total Brix; Total sugars; Volatile Acidity	4
PT-DP-E2	Liqueur	300ml	2 + 3 Methylbutanol; 2-Methylbutanol; 3-Methylbutanol; Acetal; Acetaldehyde; Actual Alcoholic Strength; Ethyl acetate; Furfural; Iso-Amyl Acetate; Isobutanol; Methanol; n-Butanol; n-Propanol; pH; Residue; Specific Gravity; Total Acidity; Total Brix; Volatile Acidity	4
PT-DP-E3	Cream liqueur	300ml	2 + 3 Methylbutanol; Actual Alcoholic Strength; Furfural; Isobutanol; pH; Refractive Index (20°C); Residue; Specific Gravity; Total Brix; Total Solids	2

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Download Scheme Description

Malt Analytes

MAPS

“Enabling accurate analysis of a complex product”

A complex ingredient, malt is at the heart of the distilling and brewing processes: providing most of the sugars and complex carbohydrates that produce alcohol and flavour in the final product.

Meeting demanding specifications laid down by brewers and distillers is critical to any maltster’s business, and depends greatly on the quality of the malting barley. Accurate laboratory analysis is therefore essential, since it will ultimately decide if the malt is suitable for use in production.

LGC AXIO Proficiency Testing has designed the Malt Analytes Scheme (MAPS) to help your laboratory meet the specific challenges associated with malts. MAPS supports European Brewing Convention (EBC), American Society of Brewing Chemists (ASBC), and Institute of Brewing and Distilling (IBD) methods, and also provides a wide spectrum of samples – including raw and malted barleys, dark and crystal malts, plus malted wheat and other cereals. Specialised samples and target analytes include high diastatic power malt and potential contaminants (mycotoxins, NDMA).

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-MP-01	Malt	2 x 1000ml	Brewers and distiller malt for chemical analysis	12
PT-MP-02	Barley	1 x 1000ml	Barley for chemical analysis	12
PT-MP-03	Malt flour	2 x 100g	Malt flour for mycotoxin analysis (Ochratoxin A; Deoxynivalenol)	4
PT-MP-04A	Black Malt	1 x 300ml	Black malt for chemical analysis (Moisture; Colour)	2
PT-MP-04B	Crystal malt	1 x 300ml	Crystal malt for chemical analysis (Moisture; Colour; Degrees of crystallisation)	2
PT-MP-05	Malt flour	1 x 200g	Malt flour for NDMA analysis	2
PT-MP-06	Malt	1 x 1000ml	High diastatic power malt for chemical analysis	2
PT-MP-07	Wheat	1 x 1000ml	Malted wheat for chemical analysis	2

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Soft Drinks & Fruit Juice

QBS

“Meeting the needs of microbiologists and chemists in the soft drinks sector”

The soft drinks and fruit juice industry faces considerable challenges in meeting expectations that products comply with exacting standards around the world. Contamination from microorganisms, chemicals, and foreign matter can all compromise product quality – and lead to ‘out-of-specification’ products that result in product disposal, lost production and considerable associated costs.

The LGC AXIO Proficiency Testing Quality in Beverages Scheme (QBS) is tailored to support the needs of chemists and microbiologists working on the compliance, safety, and quality of soft drinks, fruit juices, and carbonated drinks.

Covering nutritional, elemental and vitamin analysis in addition to quality and microbiology, the QBS scheme features a wide range of samples designed to help your laboratory ensure that products are manufactured to the highest standards.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-BV-500	Fruit juice	1 x vial of lyophilised material; 1 x 10ml primary diluent; 1 x 90ml secondary diluent	Total aerobic mesophilic count; Enumeration of Yeast; Mould; Lactic acid bacteria; Detection of *Escherichia coli*	4
PT-BV-501	Soft drink	1 x vial of lyophilised material; 1 x 10ml primary diluent; 1 x 90ml secondary diluent	Total aerobic mesophilic count; Enumeration of Yeast; Mould; Lactic acid bacteria; Detection of *Escherichia coli*	4
PT-BV-505	Filtration	1 x vial of lyophilised material (diluent not supplied)	Total aerobic mesophilic count; Enumeration of Yeast; Mould; Lactic acid bacteria; Detection of *Escherichia coli*	2
PT-BV-506	Lyophilised test material	1 x vial of lyophilised material (diluent not supplied)	Enumeration of Thermophilic acidophilic bacteria (*Alicyclobacillus* spp); Detection of Guaiacol producing thermophilic acidophilic bacteria	1
PT-BV-507	Fruit juice	1 x vial of lyophilised material; 1 x 100ml simulated fruit juice	Detection of *Salmonella* species; *Listeria monocytogenes*; *Escherichia coli* O157	1
PT-BV-510	Fruit juice	125ml	Brix; Acidity (as Citric Acid Monohydrate); pH; Fructose; Glucose; Calcium; Phosphorus; Potassium; Magnesium; Sodium	4
PT-BV-514	Liquid test material	100ml	Ascorbic Acid (Vitamin C)	2
PT-BV-515	Carbonated drinks	2 x 330ml	Brix; Acidity (as Citric Acid Monohydrate); pH; Carbon Dioxide; Fructose; Glucose; Sucrose	4
PT-BV-516	Carbonated drinks	2 x 250ml	Sample A: Benzoic Acid; Caffeine; Sulfur Dioxide (Free and Total); Sorbic Acid (as free acid); Phosphoric Acid Sample B: Acesulfame K; Aspartame; Cyclamic acid (as free acid); Saccharin (as free imide); Sucralose	4

★ PRODUCT HIGHLIGHT

PT-BV-517 - Dilutable/Ready to Drink

A real-world PT sample that focuses on undiluted and diluted non-alcoholic soft drinks. These samples aim to cover both sugar and non-sugar-based drinks and the analytes are again extensive. All routine areas from acidity (related to both taste and shelf life) to preservatives, sugars, sweeteners and other additives found in such products (e.g. caffeine) are included. Most of the analytes are covered by legal limits – hence the importance of the testing.

4 rounds per year

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-BV-517	Dilutable and ready to drink materials	2 x 250ml	Sample A: Acidity (as Citric Acid Monohydrate); Benzoic Acid; Brix; Caffeine; Sulfur Dioxide (Free and Total); pH; Sorbic Acid (as free acid) Sample B: Acesulfame K; Aspartame; Cyclamic acid (as free acid); Fructose; Glucose; Saccharin (as free imide); Sucrose; Sucralose	4
PT-BV-518	Fruit juice	100ml	Antimony; Arsenic; Cadmium; Iron; Lead; Tin; Zinc	1
PT-BV-519	Soft drink	100ml	Antimony; Arsenic; Cadmium; Iron; Lead; Tin; Zinc; Calcium; Phosphorus; Potassium; Magnesium; Sodium; Aluminium; Manganese; Copper; Selenium	1
PT-BV-520	Apple juice	60ml	Patulin (corrected for recovery)	1
PT-BV-521	Soft drink	250ml	Nicotinamide (Vitamin B3); Pantothenic acid (Vitamin B5); Pyridoxine (Vitamin B6); Cyanocobalamin (Vitamin B12); Ascorbic acid (Vitamin C); DL-α-Tocopherol (Vitamin E); Riboflavin (Vitamin B2)	1
PT-BV-522	Soft drink	125ml	Total steviol glycosides; Rebaudioside A	1
PT-BV-524	Liquid test material	2 x 500ml	Carbon dioxide; Conductivity (20˚); pH; Dry residue (180˚); Calcium; Magnesium; Potassium; Sodium; Bicarbonate; Chloride; Sulfate; Total Hardness; Total Dissolved solids	4
PT-BV-525	Smoothie	250ml	Energy; Fat; Saturates; Carbohydrate; Total Sugars; Fructose; Sucrose; Protein; Salt; Sodium; Dietary Fibre; pH	1
PT-BV-526	Energy drink	1 x bottle or can	Energy; Carbohydrate; Total Sugars; Fructose; Sucrose; Salt; Sodium; pH; Caffeine; Taurine	1
PT-BV-527	Powdered beverage	250ml	Vitamin E; Vitamin A	1

Sample Code	Sample Name	Quantity of Matrix	Analytes	Number of Rounds
ENHANCED PT-BV-500	Microbiological Quality Fruit Juice	Lyophilised test material plus 90ml Simulated Fruit Juice diluent and 10ml primary diluent	Total acidophilic flora	4
ENHANCED PT-BV-501	Microbiological Quality Soft Drink	Lyophilised test material plus 90ml Simulated Soft Drink diluent and 10ml primary diluent	Total acidophilic flora	4
ENHANCED PT-BV-505	Microbiological Quality Filtration	Lyophilised test material plus 90ml Simulated Soft Drink diluent and 10ml primary diluent	Total acidophilic flora	2
NEW PT-BV-528	Polyphenols in tea beverage	250ml Liquid test material	Total polyphenols	1

The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

Sugars
SUPS

“Supporting international trade in sugar”

Monitoring sugar quality is crucial to many industries, since it is central to improving the texture, flavour, longevity, consistency and other key characteristics of countless products.

The AXIO Sugar Scheme (SUPS) incorporates a range of samples that support both microbiological and chemical testing. To support chemistry labs, we collaborate with the International Commission for Uniform Methods of Sugar Analysis (ICUMSA), which provides robust, internationally validated methods of analysis to aid the trade in sugar and sugar products. AXIO also developed a number of samples to assist our microbiology network with their analysis of yeasts, moulds, mesophilic aerobic microorganisms and other bacteria that may affect sugar quality.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-PC-01	Cane or beet sugar	300ml	Colour; Turbidity; Ash; Reflectance grade	12
PT-PC-02	Cane or beet sugar	200g	Arsenic; Lead; Copper; Iron; Cadmium; Mercury	2
PT-PC-03	Cane or beet sugar	300ml	Sulfur dioxide; Reducing sugars; Polarisation	4
PT-PC-04	Cane or beet sugar	500ml	Sediment (insoluble)	4
PT-PC-05	Molasses	200g of molasses	Sucrose; Reducing sugars; pH; Dry substance; Sulfated ash; Fermentable sugars; Colour; Total sugar as invert sugar (TSAI);Total sugar as reducing sugar (TSRS)	2
PT-SM-06	Lyophilised test material	10ml vial	Total aerobic mesophilic count Enumeration of Yeast; Mould; Osmophilic yeast; Osmophilic; mould	2
PT-PC-07	Raw sugar	500g	Ash; Colour; Dextran; Moisture; Polarisation; Reducing sugars; Starch	2
PT-SM-08	Lyophilised test material	10ml vial	Enumeration of Thermophilic acidophilic bacteria; (*Alicyclobacillus* spp) Detection of Guaiacol producing thermophilic acidophilic; bacteria	2
PT-PC-10	Cane or beet sugar	75g	Moisture	2

Water & Environmental Schemes

Access to clean, safe water is something that many of us are able to take for granted. Ensuring the quality of our water supplies relies upon the analysis performed by laboratories worldwide to prevent potentially harmful chemicals and microorganisms from entering the distribution networks. AXIO Proficiency Testing has a range of water and environmental schemes that provide the opportunity to monitor laboratory quality on a global scale.

Our AQUACHECK scheme is one of the most comprehensive water chemistry schemes available, and our QWAS scheme is the world's largest water microbiology scheme.

Schemes available

Water Chemistry
AQUACHECK

Water Microbiology
QWAS

Air & Stacks Emissions
AIR

Hygiene Surface Monitoring
HYGIENE

Contaminated Land
CONTEST

Cryptosporidium
CRYPTS

NEW Water & Environmental PT sample for 2024

Sample Code	Sample Name	Analytes	Rounds per year
PT-AQ-04A	Dissolved Metals in Surface Water	Iron, Manganese, Copper, Aluminium, Zinc, Barium, Boron, Strontium, Lithium	2
PT-AQ-68	Estrogens in surface water	17-β Estradiol, Estrone	1
PT-AQ-69	Free Chlorine in Waste Water	Free Chlorine	2
PT-CN-31	UBM Barge	Heavy metals	1

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Water Chemistry

AQUACHECK

“In continuous operation since 1985, and still industry-leading...”

The LGC AXIO AQUACHECK Scheme is an industry-leading, global programme that has been in continuous operation since 1985 – providing an extensive range of test materials for the analysis of major inorganic and organic analytes, metals, phenols, organochlorine pesticides, and many other chemical compounds found in water.

Each water source requires regular analysis to determine its safety and suitability for use, and more than 8,000 laboratories around the world choose AQUACHECK because of the extremely broad choice of water types, samples and analytes it provides. Encompassing potable, surface, ground, waste, effluent sludge, recreational, and marine waters – as well as around 100 samples and approximately 1,000 analytes – AQUACHECK can provide any laboratory that analyses water with a sample to meet its needs.

Participation in AQUACHECK not only enables laboratories to identify problems before they affect water safety and quality but it also gives independent confirmation that they are producing accurate and meaningful results.

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Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-01A	Higher salinity potable water	Sodium; Magnesium; Chloride; Sulfate; pH at 20- 25 Degrees Celcius; Conductivity (20 Degrees Celcius); Total organic carbon (TOC); Total Dissolved Solids	5
PT-AQ-01H	Hard water	Calcium; Magnesium; Total Hardness; Alkalinity; Potassium; Sodium; Chloride; Sulfate; Fluoride; Conductivity (20 Degrees Celcius); Kjeldahl Nitrogen; Total Phosphorus; Barium	5
PT-AQ-1HP	Hard water	Calcium; Magnesium; Total Hardness; Alkalinity;; Potassium; Sodium; Chloride; Sulfate; Fluoride;; Conductivity (20 Degrees Celcius); Kjeldahl Nitrogen; Total; Phosphorus; Barium	2
PT-AQ-01S	Soft water	Calcium; Magnesium; Total Hardness; Alkalinity; Potassium; Sodium; Chloride; Sulfate; Fluoride; Conductivity (20 Degrees Celcius); Kjeldahl Nitrogen; Total Phosphorus; Barium	5
PT-AQ-1SP	Soft water	Calcium; Magnesium; Total Hardness; Alkalinity; Potassium; Sodium; Chloride; Sulfate; Fluoride; Conductivity (20 Degrees Celcius); Kjeldahl Nitrogen; Total Phosphorus; Barium	2
PT-AQ-02A	Poorly buffered waters	pH at 20-25 Degrees Celcius; Low; pH at 20-25 Degrees Celcius; High	3
PT-AQ-02H	Soft water	Total oxidised nitrogen (TON); Silicate; Nitrite; Ammonia; Soluble reactive phosphorus (PO4); pH at 20-25 Degrees Celcius; Conductivity (20 Degrees Celcius); Colour; Permanganate index (PI); Total Cyanide; Free Cyanide; Nitrate; Total Dissolved Solids	5
PT-AQ-02S	Potable hard water	Total oxidised nitrogen (TON); Silicate; Nitrite;;Ammonia; Soluble reactive phosphorus (PO4); pH at 20-25 Degrees Celcius; Conductivity (20 Degrees Celcius); Colour; Permanganate index (PI); Total Cyanide; Free Cyanide; Nitrate; Total Dissolved Solids	5
PT-AQ-03	Spiking solution	BOD (5 day); COD; Suspended solids; Methylene blue active substances (MBAS); Non-ionic surfactants; Dissolved organic carbon; Turbidity	5
PT-AQ-03A	Spiking solution	Bromide; Bromate; Chlorate (low level); Chlorite (low level); Chlorate (high level); Chlorite (high level)	5
PT-AQ-03B	Clean water	Free Chlorine	5
PT-AQ-03C	Clean water	Total Chlorine	5
PT-AQ-04	Natural water	Iron; Manganese; Copper; Aluminium; Zinc; Silver; Barium; Boron; Strontium; Lithium	5
PT-AQ-04G	Groundwater	Iron; Manganese; Copper; Aluminium; Zinc; Silver;;Barium; Boron; Strontium; Lithium	5
PT-AQ-05	Natural water	Cadmium; Lead; Nickel; Selenium; Arsenic; Antimony; Mercury; Cobalt; Vanadium; Chromium; Molybdenum; Tin; Beryllium; Titanium	5

Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-05A	Clean water	Arsenic; Selenium; Antimony; Tin	3
PT-AQ-05B	Clean water	Cadmium; Copper; Total Chromium; Lead; Nickel;;Zinc; Vanadium; Mercury	5
PT-AQ-05C	Clean water	Chromium (VI)	3
PT-AQ-05G	Clean water	Cadmium; Lead; Nickel; Selenium; Arsenic; Antimony; Mercury; Cobalt; Vanadium; Chromium; Molybdenum; Tin; Beryllium; Titanium; Lanthanum	5
PT-AQ-06A	Groundwater	Chloroform; Bromodichloromethane; Dibromochloromethane; Bromoform; Trichloroethene; Tetrachloroethene; Carbon Tetrachloride; 1,2 Dichloroethane	5
PT-AQ-06B	Groundwater	Phenol; 2-Chlorophenol; 4-Chlorophenol; 3-Bromophenol; 2,4-Dichlorophenol; 2,4,6-Trichlorophenol; Pentachlorophenol; 2,5-Dimethylphenol; 3,5-Dimethylphenol; 2-Methylphenol (o-cresol); 3-Methylphenol (m-cresol); 4-Methylphenol (p-cresol); Total monosubstituted methylphenols; 4-Chloro-3-methylphenol; 2,6-Dichlorophenol; 2,4,5-Trichlorophenol; 2,4-Dimethylphenol; Nonylphenol	5
PT-AQ-06C	Groundwater	Benzene; Toluene; Ethylbenzene; Styrene; o-Xylene; m-Xylene; p-Xylene; Total xylene; m-+ p-Xylene; 1,2,4-trimethylbenzene; MTBE (methyl tert-butyl ether)	5
PT-AQ-07A	Groundwater	Aldrin; alpha-Endosulfan; alpha-HCH; beta-Endosulfan; beta-HCH; Cis-chlordane; delta-HCH; Dieldrin; Endosulfan-sulfate; Endrin; Endrin-aldehyde; Heptachlor; Heptachlor epoxide; Hexachlorobenzene; Lindane (Gamma HCH); Methoxychlor; o,p'-DDD (TDE); o,p'-DDE; o,p-DDT; p,p'-DDD; p,p'-DDE; p,p'-DDT; Pendimethalin; Pentachlorobenzene; Trans-chlordane; Trifluralin	5
PT-AQ-07B	Groundwater	Hexachlorobutadiene; Carbon Tetrachloride; Tetrachloroethene; 1,2,4-Trichlorobenzene; Trichloroethene; 1,1,1-Trichloroethane; 1,3,5 Trichlorobenzene; 1,2,3-Trichlorobenzene; 1,2-Dichloroethane; Chloroform	5
PT-AQ-07C	Groundwater	Fluoranthene; Benzo(b)fluoranthene; Benzo(k)fluoranthene; Benz(a)pyrene; Benzo(ghi)perylene; Indeno(1,2,3-cd)pyrene Acenaphthene; Acenaphthylene; Anthracene; Benz(a)anthracene; Chrysene; Dibenz(ah) anthracene; Fluorene; Naphthalene; Perylene; Phenanthrene; Pyrene	5
PT-AQ-07D	Groundwater	PCB (28); PCB (52); PCB (101); PCB (118); PCB (138); PCB (153); PCB (180); PCB (149); PCB (170)	5
PT-AQ-08	Groundwater	2,4,5-T; 2,4,5-TP (Fenoprop); 2,4-D; 2,4-DB; Dicamba; 2,3,6-TBA; Picloram; Clopyralid; Fluroxypyr; Benazolin; Mecoprop; Dichlorprop; Quinmerac; MCPA; MCPB; Triclopyr; Bentazone; Bromoxynil; Dichlobenil; Ioxynil; Metaldehyde; Alachlor; Metazachlor; Propachlor;;S-metolachlor; Flufenacet; Propyzamide; Asulam; Chloridazon; Napropamide; Glyphosate; AMPA	5

Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-08B	Groundwater	Isoproturon; Diuron; Linuron; Chlortoluron; Monuron; Chloroxuron; Metoxuron; Monolinuron; Methabenzthiazuron; Iodosulfuron methyl; Mesosulfuron methyl; Metsulfuron methyl; Thifensulfuron methyl; Tribenuron methyl; Diflufenican; Bromacil; Simazine; Atrazine; Propazine; Cyanazine; Trietazine; Prometryn;Terbutryn; Ametryn; Desethylatrazine; Desisopropylatrazine;Terbuthylazine; Cyromazine; Carbetamide; Pirimicarb; Carbofuran; Methiocarb;; Prosulfocarb; Metamitron; Metribuzin; Florasulam	5
PT-AQ-09	Groundwater	Azinphos-methyl; Azinphos-ethyl; Dichlorvos; Fenitrothion; Malathion; Mevinphos; Chlorfenvinphos; Diazinon; Fenthion; Parathion-ethyl; Parathion-methyl; Chlorpyrifos;; Cypermethrin; Propetamphos; Dimethoate; Ethion; Carbophenothion; Demeton; Demeton-O; Demeton-S; Dioxathion; Disulfoton; Ethoprophos; Famphur;;Fenchlorphos; Fonofos; Phorate; Phosmet; Terbufos; Tetrachlorvinphos	5
PT-AQ-10	Spiking solution	Total oxidised nitrogen (TON); Nitrate; Nitrite; Ammonia; Silicate; Soluble Reactive Phosphorus (PO4); Chloride; Total Cyanide; Kjeldahl Nitrogen; Free Cyanide; Total Nitrogen; Total Phosphorus	5
PT-AQ-11	Spiking solution	BOD (5 day); COD; Suspended solids; Methylene blue active substances (MBAS); Dissolved/Total organic carbon; Turbidity; Non-ionic surfactants	5
PT-AQ-12	Synthetic effluent	Antimony; Arsenic; Aluminium; Chromium; Beryllium; Iron; Manganese; Cadmium; Copper; Lead; Nickel; Zinc; Mercury; Selenium; Molybdenum; Tellurium; Uranium; Titanium	5

★ PRODUCT HIGHLIGHT

PT-AQ-02H - Nutrients and Others - Hard Water

PT-AQ-02H contains a suite of 7 spikes, a pH sample, and a hard surface water matrix: perfect for the environmental industry. The testing analytes also characterise the water and are important for assessing, amongst other things, the potential for eutrophication. Analytical problems can vary with the hardness of the water sample which is why the AQUACHECK PT Scheme offers both hard and soft water samples. Customers can select either water type (hard or soft) and matrices (raw or treated waters).

There are approximately 150 participants per round. Due to the popularity of this sample, we have introduced a new sample PT-AQ-02HP, specific to potable water.

5 rounds per year

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Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-12C	Synthetic Wastewater	Chromium (VI)	5
PT-AQ-13	Sewage sludge	Arsenic; Cadmium; Chromium; Copper; Lead; Mercury; Molybdenum; Nickel; Vanadium; Zinc; Selenium; Total boron; Fluoride; Total nitrogen; Total phosphorus; Total potassium; Cobalt; Iron; Manganese; Total carbon; Total Sulphur	5
PT-AQ-14	Agricultural soil	Arsenic; Cadmium; Chromium; Copper; Lead; Mercury; Molybdenum; Nickel; Vanadium; Zinc; Selenium; Total boron; Water extractable boron;; Fluoride; Total nitrogen; Total phosphorus; Total potassium; Cobalt; Iron; Manganese; Total solids; Loss on ignition; pH at 20-25 Degrees Celcius; Extractable phosphorus; Extraction of potassium; Extraction of magnesium; Extraction of sodium; Organic carbon content; Conductivity; Carbonate content	5
PT-AQ-15	Settleable solids	Settleable solids	4
PT-AQ-16	Sewage sludge	pH at 20-25 Degrees Celcius; Settled chemical oxygen demand (COD); Total COD; Suspended Solids; Conductivity (20 Degrees Celcius); Total dissolved solids; Non filterable COD; Salinity	5
PT-AQ-17A	Wastewater	pH at 20-25 Degrees Celcius; Settled chemical oxygen demand (COD); Total COD; Suspended Solids; Conductivity (20 Degrees Celcius); Total dissolved solids; Non filterable COD; Salinity	5
PT-AQ-17B	Industrial wastewater	Total Phenol; Cyanide; Sulfate	5
PT-AQ-17C	Industrial wastewater	Aluminium; Antimony; Arsenic; Barium; Boron; Beryllium; Cadmium; Chromium; Cobalt; Copper; Iron; Lead; Manganese; Molybdenum; Mercury; Nickel; Selenium; Silver; Tin; Vanadium; Zinc; Titanium	5
PT-AQ-17D	Industrial wastewater	Ammonia; Soluble Reactive Phosphorus (PO4); Total Phosphorus; Total Nitrogen	5
PT-AQ-18A	Synthetic effluent	Chloroform	5
PT-AQ-18B	Synthetic effluent	Phenol; 2-Chlorophenol; 4-Chlorophenol; 3-Bromophenol; 2,4-Dichlorophenol; 2,4,6-Trichlorophenol; Pentachlorophenol; 2,5-Dimethylphenol; 3,5-Dimethylphenol;; 2-Methylphenol (o-cresol); 3-Methylphenol (mcresol); 4-Methylphenol (p-cresol); Total monosubstituted methylphenols; 4-Chloro-3-methylphenol; 2,6-Dichlorophenol; 2,4,5-Trichlorophenol; 2,4-Dimethylphenol; Nonylphenol	3
PT-AQ-18C	Synthetic effluent	Benzene; Toluene; Ethylbenzene; Styrene; o-Xylene; m-Xylene; p-Xylene; Total xylene; m-+ p-Xylene	5

Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-19A	Synthetic effluent	Endrin; Dieldrin; Aldrin; p,p’-DDT; o,p-DDT; p,p’-DDE; o,p’-DDE; p,p’-DDD; o,p’-DDD (TDE); Alpha Hexachlorocyclohexane (HCH); Beta Hexachlorocyclohexane (HCH);; Delta Hexachlorocyclohexane (HCH); Lindane (Gamma HCH); Trifluralin; Alpha endosulphan; Beta endosulphan; Hexachlorobenzene; Heptachlor; Heptachlor epoxide; Pentachlorobenzene; Pendimethalin; Cischlordane; Trans-chlordane; Methoxychlor; Endosulfan Sulfate; Endrin Aldehyde	5
PT-AQ-19B	Synthetic effluent	Hexachlorobutadiene; Carbon Tetrachloride; Tetrachloroethene; 1,2,4-Trichlorobenzene; Trichloroethene; 1,1,1-Trichloroethane; 1,3,5-Trichlorobenzene; 1,2,3-Trichlorobenzene; 1,2-Dichloroethane; Chloroform	5
PT-AQ-19C	Synthetic effluent	Fluoranthene; Benzo(b)fluoranthene; Benzo(k)fluoranthene; Benz(a)pyrene; Benzo(ghi)perylene; Indeno(1,2,3-cd)pyrene; Acenaphthene; Acenaphthylene; Anthracene; Benz(a)anthracene; Chrysene; Dibenz(ah) anthracene; Fluorene; Naphthalene; Perylene; Phenanthrene; Pyrene	5
PT-AQ-19D	Synthetic effluent	PCB (28); PCB (52); PCB (101); PCB (118); PCB (138); PCB (153); PCB (180); PCB (149); PCB (170)	5
PT-AQ-20	Synthetic effluent	2,4,5-T; 2,4,5-TP (Fenoprop); 2,4-D; 2,4-DB; Dicamba; 2,3,6-TBA; Clopyralid; Fluroxypyr; Benazolin; Mecoprop; Dichlorprop; MCPA; MCPB; Triclopyr; Bentazone; Bromoxynil; Dichlobenil; Ioxynil; Metaldehyde; Metazachlor; Propachlor; Propyzamide; Glyphosate; AMPA	5
PT-AQ-20B	Synthetic effluent	Isoproturon; Diuron; Linuron; Chlortoluron; Monuron; Methabenzthiazuron; Diflufenican; Bromacil; Simazine; Atrazine; Propazine; Cyanazine; Trietazine; Prometryn; Terbutryn; Ametryn; Carbetamide; Pirimicarb; Metamitron	5

Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-21	Synthetic effluent	Azinphos-methyl; Azinphos-ethyl; Dichlorvos; Fenitrothion; Malathion; Mevinphos; Chlorfenvinphos; Diazinon; Fenthion; Parathion-ethyl; Parathion-methyl; Chlorpyrifos; Cypermethrin; Propetamphos; Ethion; Carbophenothion*; Demeton; Demeton-O; Demeton-S; Dioxathion; Disulfoton; Dimethoate; Ethoprophos; Famphur; Fenchlorphos; Fonofos; Phorate; Phosmet; Terbufos; Tetrachlorvinphos	5
PT-AQ-22	Clean water	Ten organic analytes are provided for qualitative identification.	5
PT-AQ-22A	Clean water	Six organic analytes are provided for qualitative identification. This sample is designed to test the ability of laboratories to identify organic compounds via purge and trap GCMS analysis.	3
PT-AQ-23	Mineral oil in wastewater	Volume of sample provided; Total Hydrocarbons C10-C40 by GC Analysis; Total Hydrocarbons C10; C40 by IR Analysis; Total Hydrocarbons C10; C40 by Gravimetric Analysis	5
PT-AQ-24	Oil and Grease in water	Volume of sample provided; Total Oil and Grease	5
PT-AQ-25	Clean water	The intent of this sample is to test the ability of laboratories to detect and identify an unknown contaminant in surface/potable waters.	5
PT-AQ-26	Spiking solution	PFOS; PFOA	3
PT-AQ-27	Waste water	AOX	3
PT-AQ-28	Spiking solution	Formaldehyde	3
PT-AQ-29	Spiking solution	COD; high; COD; low	3
PT-AQ-2HP	Potable hard water	Total oxidised nitrogen (TON); Silicate; Nitrite; Ammonia; Soluble reactive phosphorus (PO4); pH at 20-25 Degrees Celcius; Conductivity (20 Degrees Celcius); Colour; Permanganate index (PI); Total Cyanide; Free Cyanide; Nitrate; Total Dissolved Solids	2
PT-AQ-2SP	Potable hard water	Total oxidised nitrogen (TON); Silicate; Nitrite; Ammonia; Soluble reactive phosphorus (PO4); pH at 20-25 Degrees Celcius; Conductivity (20 Degrees Celcius); Colour; Permanganate index (PI); Total Cyanide; Free Cyanide; Nitrate; Total Dissolved Solids	2
PT-AQ-30	Clean water	Gross Alpha as 239-Plutonium; Gross Alpha as 241-Americium; Gross Alpha as 230-Thorium; Gross Beta as 40-Potassium; Gross Beta as 137-Caesium; Gross Beta as 90-Strontium	5
PT-AQ-31	Clean water	Aqueous Tritium	5
PT-AQ-32	Wastewater	Total sulfide	5
PT-AQ-33	Clean water	Chlorophyll a	3
PT-AQ-34A	Water Framework Directive	Cadmium; Lead; Mercury; Nickel	1
PT-AQ-34B	Water Framework Directive	FAtrazine; Diuron; Isoproturon; Simazine	1
PT-AQ-34C	Water Framework Directive	Alachlor; Chlorfenvinphos; Chlorpyrifos	1
PT-AQ-34D	Water Framework Directive	4-n Pentylphenol; 4-n Hexylphenol; 4-n Heptylphenol; 4 tert-Octylphenol; 4-n-Nonylphenol; Pentachlorophenol; Bisphenol A	3

The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-34E	Water Framework Directive	Endosulphan; Hexachlorobenzene; Hexachlorocyclohexane; Pentachlorobenzene; Trifluralin; Hexachlorobutadiene	1
PT-AQ-34F	Water Framework Directive	Benz(a)pyrene; Benzo(b)fluoranthene; Benzo(ghi)perylene; Benzo(k)fluoranthene; Indeno(123-cd)pyrene; Anthracene; Fluoranthene	1
PT-AQ-34G	Water Framework Directive	Tributyltin compounds	1
PT-AQ-34H	Water Framework Directive	1,2-Dichloroethane; Dichloromethane; Trichlorobenzenes; Trichloromethane	1
PT-AQ-34I	Water Framework Directive	2,4,4-Tribromodiphenylether (BDE 28); 2,2,4,4,5-Pentabromodiphenylether (BDE 99);2,2,4,4,5,6-Hexabromodiphenylether (BDE 154)	1
PT-AQ-34J	Water Framework Directive	DEHP; Benzene; Naphthalene	1
PT-AQ-35	Spiking solution	COD; BOD	3
PT-AQ-36	Spiking solution	TFN; TON	3
PT-AQ-37	Spiking solution	Acrylamide	3
PT-AQ-38	Spiking solution	UV absorption	2
PT-AQ-39	Spiking solution	Geosmin; Methyl isoborneol	2
PT-AQ-40	Spiking solution	Carbendazim; Chlorothalonil; Fenpropimorph;Flutriafol; Epoxyconazole; Flusilazole; Cyproconazole;Tebuconazole; Azoxystrobin; Boscalid; Kresoxymmethyl; Cyprodinil; Propiconazole; Prothioconazole	2
PT-AQ-41	Spiking solution	Microcystin-LR; Microcystin-YR; Microcystin-RR;Total Microcystin	3
PT-AQ-42	Clean water	Plutonium-239; Uranium-234; Uranium-235; Uranium-238; Total Uranium	2
PT-AQ-43	Clean water	Triclosan	2
PT-AQ-44	Clean water	Monochloroacetic acid; Dichloroacetic acid; Trichloroacetic acid; Monobromoacetic acid; Dibromoacetic acid; Tribromoacetic acid; Bromochloroacetic acid; Bromodichloroacetic acid; Dibromochloroacetic acid; 2,2-Dichloropropionic acid	4

★ PRODUCT HIGHLIGHT

PT-AQ-03 - Non-Specific Determinands

This sample is suitable for water companies, bottled water producers and water for food users as it covers tests used to regulate water quality within the water industry. The testing covered is associated with general quality characteristics important for water supply and production.

150-200 participants per round

5 rounds per year

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Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-50	Ecotoxicology	Daphnia Magna 48hr EC50; Daphnia Magna 24hr EC50; Vibrio Fischeri 30 minute IC50 (ISO 11348-3); Other 30 minute luminescent bacteria IC50 tests; 15 minute luminescent bacteria IC50 tests; Freshwater algae growth inhibition test (Pseudokirschneriella subcapitata)	5
PT-AQ-51	Waste water	Bifenthrin; Cyfluthrin; Cypermethrin; Flumethrin; cisPermethrin; trans-Permethri	2
PT-AQ-52	Clean water	Benzo(a)pyrene; Fluoranthene; Cypermethrin; PFOS; PFOA	2
PT-AQ-53	Clean water	Simazine; Atrazine; Terbutryn; Alachlor; Diclofol; Bifenox; Quinoxyfen	1
PT-AQ-55	Clean water	Bromomethane; 1,2-Dibromo-3-chloropropane; 1,4-Dichlorobenzene; 1,2-Dichloropropane; cis-1,3-Dichloropropene; trans-1,3-Dichloropropene; 1,2-Dibromoethane; 1,2,3-Trichloropropane	1
PT-AQ-56	Clean water	Dichlorvos; Fenitrothion; Malathion; Chlorfenvinphos; Diazinon; Chlorpyrifos; Hexachlorobutadiene; 1,2,3-Trichlorobenzene; 1,2,4-Trichlorobenzene; 1,3,5-Trichlorobenzene	1
PT-AQ-57	Clean water	Ibuprofen; Propranolol; Ofloxacin; Oxytetracycline; Salicylic acid; Fluoxetine; Diclofenac; Naproxen	1
PT-AQ-58	Clean water	Endrin; Dieldrin; Aldrin; Alpha Hexachlorocyclohexane; Beta Hexachlorocyclohexane; Delta; Hexachlorocyclohexane; Lindane (Gamma HCH); Trifluralin; Alpha Endosulphan; Beta Endosulphan; Hexachlorobenzene; Heptachlor; Heptachlor epoxide; Pentachlorobenzene; Pendimethalin	1
PT-AQ-59	Clean water	Calcium; Magnesium; Potassium; Sodium; Bicarbonate; Chloride; Sulfate; Nitrate; pH; TDS/Dry Residue	2
PT-AQ-60	Waste water	Ammonia; COD; Conductivity (20 Degrees Celcius); Nitrate; Nitrite;;Orthophosphate; pH at 20-25 Degrees Celcius; Total arsenic; Total copper; Total mercury; Total cadmium; Total lead; Total nickel; Turbidity	2
PT-AQ-61	Marine water	Total oxidised nitrogen (TON); Nitrate; Total Phosphorus; Potassium; Sulfate; Magnesium; Calcium; Alkalinity; Ammonia; Total Nitrogen; Orthophosphate; pH at 20-25 Degrees Celcius; Conductivity (20 Degrees Celcius); Silicate; Total Dissolved Solids	2
PT-AQ-62	Marine water	Arsenic; Boron; Cadmium; Copper; Iron; Manganese;;Molybdenum; Strontium; Zinc; Barium; Lithium; Sodium; Sulfur; Nickel; Cobalt; Lead; Selenium	1
PT-AQ-63	Waste water	Acetate; Iodide	1
PT-AQ-64	Waste water	Trichloromethane; Bromodichloromethane; Dibromodichloromethane; Tribromomethane; Total trihalomethanes (TTHM); pH at 20-25 Degrees Celcius; Total organic carbon (TOC); Total Alkalinity; Total Hardness; Total Dissolved Solids	1

Sample Code	Matrix	Analytes	Rounds per year
PT-AQ-65	Clean water	1,3,5-Trinitrobenzene;1,3-Dinitrobenzene;2,4-Dinitrotoluene; 2,6-Dinitrotoluene; 2-Amino4,6-dinitrotoluene; 2-Nitrotoluene; 3-Nitrotoluene; 4-Amino-2,6-dinitrotoluene; 4-Nitrotoluene; Diphenylamine; Nitrobenzene; PETN;(Pentaerythritol tetranitrate); HMX (Octogen)	1
PT-AQ-66	Groundwater	Clothianidin; Imidacloprid; Thiamethoxam; Acetamiprid; Thiacloprid	1
PT-AQ-67	Groundwater	1 x 1L groundwater sample; 1 x 1ml spiking solution	3

Sample Code	Sample Name	Format	Analytes	Rounds per year
NEW PT-AQ-04A	Dissolved Metals in Surface Water	500ml	Iron, Manganese, Copper, Aluminium, Zinc, Barium, Boron, Strontium, Lithium	2
ENHANCED PT-AQ-39	Geosmin & MIB	1L	Anisole; TCA (2,4,6-Trichloroanisole); TBA (2,4,6-Tribromoanisole)	2
NEW PT-AQ-68	Estrogens in surface water	1L + spike	17-β Estradiol, Estrone	1
NEW PT-AQ-69	Free Chlorine in Waste Water	500ml + spike	Free Chlorine	2

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Water Microbiology

QWAS

“Samples targeting many different water types”

The QWAS Water Microbiology Scheme from LGC AXIO Proficiency Testing is the world’s largest water microbiology programme, trusted by more than 1,000 participating laboratories globally. Established in 2002, it offers a comprehensive choice of samples – aimed at potable, process, mineral, effluent sludge, industrial, surface/waste/bathing, recreational, sea, dialysis and waste waters. In addition, QWAS features our best-selling PT-WT-412 sample for the enumeration of *E.coli*, coliforms, and Enterococci (faecal streptococci).

As well as helping laboratories ensure water safety, and comply with testing regulations in a wide range of countries and regions, successful participation in QWAS can provide laboratories with confidence in their results and the equipment they use.

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Sample Code	Sample Name	Analytes	Rounds per year
PT-WT-412	Potable water	Total aerobic count at 22 & 37 Degrees Celsius; Enumeration of *Escherichia coli*; Coliforms; Enterococci (faecal; streptococci)	10
PT-WT-413	Potable water	Enumeration of *Clostridium perfringens*; sulphite-reducing; Clostridia; sulphite-reducing Clostridia spores ONLY; *Pseudomonas aeruginosa*; Yeast; Mould (total); Yeast; Mould; Detection of sulphite-reducing Clostridia	10
PT-WT-414	Process water	Total aerobic count; Enumeration of *Pseudomonas* species; *Pseudomonas aeruginosa*; Yeast; Mould (total); Yeast; Mould	4
PT-WT-416	Effluent sludge	Detection of *Salmonella* species; Enumeration of *Escherichia coli*	4
PT-WT-417	Environmental water	Enumeration of Legionella pneumophila by PCR or culture; (membrane filtration or direct count); Detection of Legionella pneumophila; Identification of Legionella pneumophila	4
PT-WT-418	Environmental water	Enumeration of Legionella species by PCR or culture (membrane filtration or direct count); Detection of Legionella species; Identification of Legionella species	4
PT-WT-419	Bathing, recreational and surface water	Enumeration of total coliforms; faecal coliforms; *Escherichia coli*; Enterococci (faecal streptococci); Detection of *Salmonella* species	4
PT-WT-420	Mineral water	Total aerobic count at 22°C; Total aerobic count at 37°C; Enumeration of *Escherichia coli*; Enterococci (faecal streptococci); *Pseudomonas aeruginosa*	2
PT-WT-421	Bathing, recreational and surface water	Enumeration of coagulase positive staphylococci; *Staphylococcus* species; sulphite-reducing Clostridia; *Clostridium perfringens*; Total aerobic count	4
PT-WT-422	Sea water	Enumeration of total coliforms; faecal coliforms; *Escherichia coli*; Enterococci (faecal streptococci); Detection of *Salmonella* species	2
PT-WT-423	Potable water	Detection of Legionella species (low level); Enumeration of Legionella species by culture	3
PT-WT-424	Mineral water	Detection of coagulase positive staphylococci; sulphite-reducing; Clostridia; sulphite-reducing Clostridia spores ONLY	2
PT-WT-425	Potable water	Detection of *Escherichia coli*; Coliforms; Enterococci (faecal; streptococci)	2
PT-WT-426	Water	Identification of unknown organism	1
PT-WT-427	Water	Colony count and calculation of number of microorganisms	2
PT-WT-429	Dialysis water	Total aerobic count @ 17-23˚C	1
PT-WT-431	Water	Detection of Somatic coliphages; Optional quantification of Somatic coliphages	1

★ PRODUCT HIGHLIGHT

PT-WT-412 - Potable Water Indicator Combination

The most popular AXIO PT sample. Compare your lab results for Total aerobic count at 22°C, and Total aerobic count at 37°C, *Escherichia coli*, coliforms and Enterococci with those from 200-400 participants around the world.

10 rounds per year

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Air & Stacks Emissions

AIR

“Supporting a wide range of air quality testing”

Many modern activities create air pollutants with known, or suspected, harmful effects on human health and the environment.

The LGC AXIO Air and Stacks Emissions Scheme (AIR) was developed 10 years ago in partnership with the UK Health and Safety Executive (HSE) – and is operated by LGC AXIO with support from HSE technical testing and monitoring experts. AIR combines the two organisations’ scientific and production prowess in multiple areas of air monitoring, providing an integrated solution for all laboratories undertaking sample analysis. Participating in AIR also supports a laboratory’s quality system by providing external and independent assessment of its performance in conducting specific tests or measurements.

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Download Scheme Description

Sample Code	Matrix	Analytes	Rounds per year
PT-AR-01	25 mm Cellulose acetate (Workplace air)	Cadmium; Chromium; Cobalt; Copper; Iron; Manganese; Nickel; Lead; Zinc	4
PT-AR-01-A	37 mm Cellulose acetate (Workplace air)	Cadmium; Chromium; Cobalt; Copper; Iron; Manganese; Nickel; Lead; Zinc	2
PT-AR-01-B	37 mm Cellulose acetate (Workplace air)	Cadmium; Chromium; Cobalt; Copper; Iron; Manganese; Nickel; Lead; Zinc	4
PT-AR-01-C	25 mm Cellulose acetate (Workplace air)	Cadmium; Chromium; Cobalt; Copper; Iron; Manganese; Nickel; Lead; Zinc	2
PT-AR-02	Quartz PVC filter 25mm diameter (Workplace air)	Cadmium; Chromium; Cobalt; Copper; Iron; Manganese; Nickel; Lead; Zinc	2
PT-AR-02-FTIR	Quartz PVC filter 25mm diameter (Workplace air)	Respirable grade quartz by FTIR (by direct analysis of filters supplied)	2
PT-AR-02I	Quartz PVC filter 25mm diameter (Workplace air)	Respirable grade quartz by either XRD or FTIR (by indirect analysis, i.e. by ashing and redeposition onto analytical filter or by KBr disc)	2
PT-AR-03	Dust on glass fibre filter 25mm diameter (Workplace air)	Dust by gravimetry (mass of solids)	2
PT-AR-04	Dust on glass fibre filter 37mm diameter (Workplace air)	Dust by gravimetry (mass of solids)	2
PT-AR-05	Charcoal filled glass sorbent tubes (Workplace air)	Benzene; Toluene; Xylene; Ethyl benzene	4
PT-AR-06	Charcoal filled glass sorbent tubes (Workplace air)	1,1-Trichloroethane; n-Hexane; n-Butyl acetate; Tetrachloroethene; Trichloroethylene	4
PT-AR-07	Tenax TA filled sorbent tubes (Ambient)	Benzene; Toluene; Xylene; Ethyl benzene	4
PT-AR-08	Glass fibre filter 25mm diameter (Workplace air)	Formaldehyde; Acetaldehyde	4
PT-AR-09	spiked NaOH treated Millipore PVDF filters 25 mm Ø	Chromium (VI)	2
PT-AR-10A	bulk welding fume sample	Chromium; Cobalt; Copper; Iron; Manganese; Nickel; Zinc	1
PT-AR-10B	bulk lead-containing dust sample	Lead	1
PT-AR-11	Palmes-type diffusion tubes (Ambient)	Nitrogen dioxide (as nitrite)	4
PT-AR-12	Tenax TA filled sorbent tubes (Ambient)	Benzene; Toluene; Xylene; Ethyl benzene	4
PT-AR-12A.	Carbopack X filled sorbent tubes	Benzene; Toluene; Xylene; Ethyl benzene	2
PT-AR-13	Quartz fibre filter 47mm diameter (Ambient air)	Antimony; Arsenic, Cadmium; Nickel; Lead	2
PT-AR-14	Quartz fibre filter 47mm diameter (Ambient air)	Chloride; Nitrate, Sulfate	2
PT-AR-16	Quartz fibre filter 47mm diameter (Ambient air)	Elemental carbon	1
PT-AR-17	Quartz fibre filter 47mm diameter (Ambient air)	Dust by gravimetry (mass of solids)	2
PT-AR-18	Cellulose ester filter 37mm diameter	Beryllium	2
PT-AR-21	Tenax TA filled sorbent tubes (Ambient)	Benzene; n-Hexane; Toluene; Butyl acetate; MIBK; p-Xylene; Diacetyl#; Phenol; 124-TMB; Limonene; 4-PCH; Dodecane; Styrene	2
PT-AR-22	Tenax TA filled sorbent tubes (Ambient)	Qualitative determination of VOCs including alcohol, aliphatic, aromatic, ester, halocarbon and terpene compounds	2
PT-AR-31	Impinger solution (Stack emissions)	Volume; Mercury	2
PT-AR-32	Impinger solution (Stack emissions)	Volume; Mercury	2
PT-AR-33	Metals impinger solution (Stack emissions)	Volume, Sb, Cd, Co, Mn; Volume, As, Cr, Cu, Pb, Ni, Tl; Volume, Sb, Cd, Co, Mn, Ni, Volume, As, Cr, Cu, Pb, Se	4

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Sample Code	Matrix	Analytes	Rounds per year
PT-AR-34	Impinger solution (Stack emissions)	Volume; Sulfur dioxide	2
PT-AR-35	Impinger solution (Stack emissions)	Volume; Hydrogen fluoride	2
PT-AR-36	Impinger solution (Stack emissions)	Volume; Hydrogen chloride	2
PT-AR-37	Impinger solution (Stack emissions)	Volume; Ammonia	2
PT-AR-38	Metals and fly ash on quartz filter 47mm diameter (Stack emissions)	AR062 – As, Cr, Cu, Pb, Ni, V; AR063 – Sb, Cd, Co, Mn, Se, Tl; AR065 – As, Cr, Cu, Pb, Ni, Tl; AR066 – Sb, Cd, Co, Mn, Se, V	4
PT-AR-39	Dust rinsing solution (Stack emissions)	Total solids	2
PT-AR-40	Dust on glass fibre filter 47mm diameter (Stack emissions)	Dust analysis (mass of solids)	2

★ PRODUCT HIGHLIGHT

PT-AR-08 - Formaldehyde

Formaldehyde can be found in the atmosphere from several sources, both natural (e.g. forest fires) and from manufacturing. The levels in the air are required to be monitored as high or long-term exposure can cause health issues. The current UK workplace exposure limit (WEL) for formaldehyde is two parts per million (2ppm), time weighted average over eight hours. The short-term limit (averaged over ten minutes) is 2ppm.

50-70 participants per round

4 rounds per year

The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

Hygiene Surface Monitoring

HYGIENE

“A comprehensive range of microbial test materials and analytes”

The AXIO HYGIENE Scheme has been developed for laboratories that perform microbial testing of environmental monitoring samples.

Environmental monitoring of workplaces such as laboratories, clean rooms, factory production lines and offices helps ensure that these environments are free from harmful microorganisms, and that cleaning practices are effective. Samples may take the form of swabs, sponges or contact plates that test the presence of microorganisms on surfaces, whilst filters or settle plates are used to test for microorganisms in air.

The HYGIENE scheme offers a comprehensive range of test materials and analytes, including total microbial counts and pathogens, as well as yeast and mould.

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Sample Code	Matrix	Analytes	Rounds per year
PT-HY-01	Plastic surface, a lyophilised tablet and 5ml diluent	Total aerobic mesophilic count; Enumeration of Yeast; Mould; Yeast and Mould; Enterobacteriaceae; Coliforms; *Escherichia coli*	3
PT-HY-02	Plastic surface, a lyophilised tablet and 5ml diluent	Detection of *Listeria* species; *Listeria monocytogenes*; *Salmonella* species	3
PT-HY-03	Plastic surface, a lyophilised tablet and 5ml diluent	Total aerobic mesophilic count; Identification of organism	3
PT-HY-05	Lyophilised tablet	ATP	2
PT-HY-06	Plastic surface, a lyophilised tablet and 5ml diluent	Enumeration of Yeast; Mould; Yeast and Mould	1
PT-HY-07	Plastic surface, a lyophilised tablet and 5ml diluent	Enumeration of Staphylococcus aureus	1
PT-HY-09	Air filter testing	Total viable count; Enumeration of Yeast; Mould; Yeast and Mould	2
PT-HY-10	Lyophilised test material	Enumeration of Yeast; Mould; Yeast and Mould; Enterobacteriaceae; Coliforms; *Escherichia coli*; Total aerobic mesophilic count	2
PT-HY-11	Lyophilised test material	Detection of *Listeria* species; *Listeria monocytogenes*; *Salmonella* species; *E.coli* O157	2
PT-HY-12	Surface testing using contact plate	Enumeration of Enterobacteriaceae	1
PT-HY-13	Sponge	Detection of *Salmonella* species	1
PT-HY-14	Sponge	Detection of *Listeria* species; *Listeria monocytogenes*	1

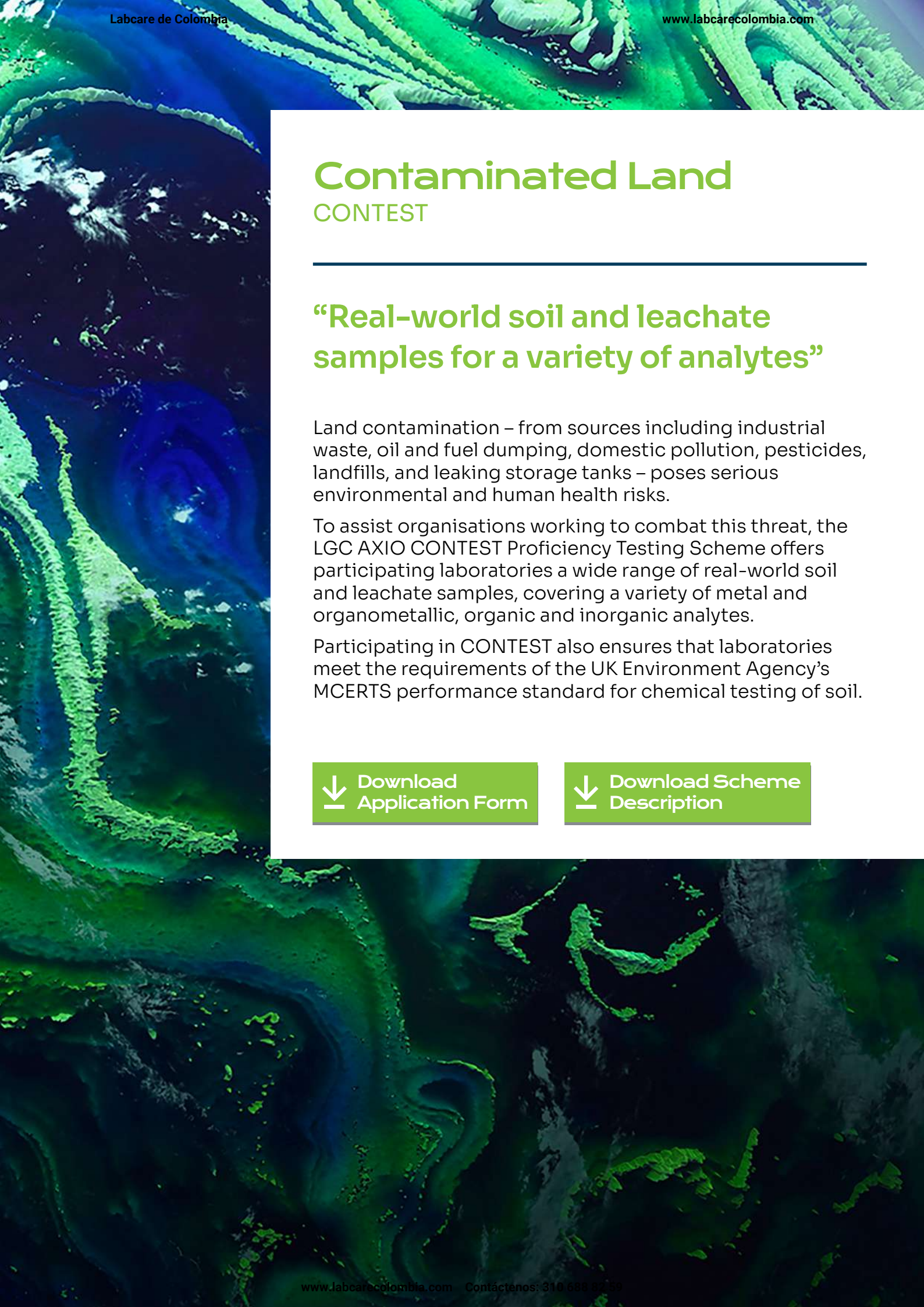
★ PRODUCT HIGHLIGHT

PT-HY-01 - Surface Swabbing (Indicators)

Environmental monitoring is a preventive approach that aims to monitor the hygiene of processing areas. Enumeration of specific germs gives an indication of the sanitary conditions of the environment. PT-HY-01 is designed for the enumeration of the most commonly used indicators (TVC, Enterobacteriaceae, coliforms, E.coli and yeast and mould) .

200+ participants on average

3 rounds per year



Contaminated Land
CONTEST

“Real-world soil and leachate samples for a variety of analytes”

Land contamination – from sources including industrial waste, oil and fuel dumping, domestic pollution, pesticides, landfills, and leaking storage tanks – poses serious environmental and human health risks.

To assist organisations working to combat this threat, the LGC AXIO CONTEST Proficiency Testing Scheme offers participating laboratories a wide range of real-world soil and leachate samples, covering a variety of metal and organometallic, organic and inorganic analytes.

Participating in CONTEST also ensures that laboratories meet the requirements of the UK Environment Agency’s MCERTS performance standard for chemical testing of soil.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Rounds per year
PT-CN-1a	Standard solution	8ml	Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Iron; Lead; Manganese; Molybdenum; Nickel; Thallium; Tin; Vanadium; Zinc	5
PT-CN-1b	Standard solution	8ml	Antimony; Arsenic; Selenium	5
PT-CN-1c	Standard solution	8ml	Mercury	5
PT-CN-2	Solution of soil extract	60ml	Antimony; Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Iron; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Thallium; Tin; Vanadium; Zinc	5
PT-CN-3a	Soil (prepared)	30g	Antimony; Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Iron; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Thallium; Tin; Vanadium; Zinc; Chromium (VI)	5
PT-CN-3b	Soil (prepared)	150g	Ammonia; Complex Cyanide; Free Cyanide; Total Cyanide; Dry Matter; Loss on Ignition; pH; Thiocyanate; Total sulfate; Easily liberated sulfide; Water soluble boron; Water soluble chloride; Water soluble fluoride; Water soluble sulfate; Total Sulfur	5
PT-CN-3c	Soil (prepared) Spiking solution	70g 1ml	Acenaphthene; Acenaphthylene; Anthracene; Benz(a)anthracene; Benzo(b)fluoranthene; Benzo(k) fluoranthene; Benzo(b/k)fluoranthene (sum); Benzo(ghi)perylene; Benz(a)pyrene; Chrysene; Dibenz(ah)anthracene; Fluoranthene; Fluorene; Indeno(123-cd)pyrene; Naphthalene; Phenanthrene, Pyrene; Total PAH; Phenols; Cresols; Xylenols; Distillable phenolic substances; PCB (28); PCB (52); PCB (101); PCB (118); PCB (138); PCB (153), PCB (180); Elemental sulfur; Total organic carbon; TPH (C10-C40 inclusive); TPH Aliphatic >C10-C12; TPH Aliphatic >C12-C16; TPH Aliphatic >C16-C21; TPH Aliphatic >C21- C35; TPH Aliphatic >C35-C40; TPH Aromatic >EC10-EC12; TPH Aromatic >EC12-EC16; TPH Aromatic >EC16-EC21; TPH Aromatic >EC21-EC35; TPH Aromatic >EC35-EC40; PCB (77)	5
PT-CN-5	Standard solution	2ml	Acenaphthene; Acenaphthylene; Anthracene; Benz(a)anthracene; Benzo(b)fluoranthene; Benzo(k) fluoranthene; Benzo(b/k)fluoranthene (sum); Benzo(ghi)perylene; Benz(a)pyrene; Chrysene; Dibenz(ah)anthracene; Fluoranthene; Fluorene; Indeno(123-cd)pyrene; Naphthalene; Phenanthrene, Pyrene	5
PT-CN-6	Standard solution	60ml	Total cyanide	5
PT-CN-7a	Standard solution	60ml	Monohydric phenols	5
PT-CN-7b	Standard solution	2 x 2ml	Total phenols (sum of phenol, cresols and xylenols); Total Cresols; Total Xylenols; Phenol	5
PT-CN-8	Standard solution	60ml	Total sulfate	5
PT-CN-10	Standard solution	60ml	Water soluble boron	5
PT-CN-11	Standard solution	2ml	PCB (28); PCB (52); PCB (101); PCB (118); PCB (138); PCB (153); PCB (180)	5
PT-CN-12	Standard solution	60ml	Easily liberated sulfide	5
PT-CN-13	Standard solution	60ml	Chromium (VI)	5
PT-CN-14a	Standard solution	2ml	TPH, Range C10 – C40 (inclusive)	5
PT-CN-14b	Standard solution	2ml	TPH, Aliphatic ≤C6; TPH, Aliphatic >C6-C8; TPH, Aliphatic >C8-C10; TPH, Aromatic C6; TPH, Aromatic >C6-C8; TPH, Aromatic >C8-C10	5

Sample Code	Matrix	Quantity of Matrix	Analytes	Rounds per year
PT-CN-15	Standard solution	2ml	Benzene; Toluene; Ethylbenzene; o-xylene; m + p-Xylenes	5
PT-CN-16	Standard solution	60ml	Thiocyanate	5
PT-CN-17	Standard solution	60ml	Total fluoride	5
PT-CN-18	Soil (prepared)	200g	Antimony; Arsenic; Barium; Cadmium; Calcium; Chromium; Copper; Iron; Lead; Magnesium; Mercury; Molybdenum; Nickel; Potassium; Selenium; Sodium; Tin; Zinc; Sulfate; Chloride; Fluoride; Nitrate; Boron; Chromium (VI); Phosphate; Ammonia; Free Cyanide; Total Cyanide; Thiocyanate; pH; Conductivity (20°C); COD; TOC/DOC; Phenol Index	5
PT-CN-19	Standard solution	2ml	1,2,3-trichlorobenzene; 1,2,4-trichlorobenzene; 2-Chlorotoluene; 1,2-Dichloroethane; 1,2-Dichloroethene; Dichloromethane; Hexachloro-1,3-butadiene; 1,1,1,2-Tetrachloroethane; 1,1,1-Trichloroethane; Tetrachloromethane; Trichloroethene; Trichloromethane	5
PT-CN-20		2 x 10ml	Standard solution & blank Six semi volatile organic compounds (SVOCs) - Qualitative	5
PT-CN-21	WAC material	200g	CN135, CN137, CN139: Moderate contamination CN136: High contamination CN138: Low contamination Dry Matter Content Ratio; Antimony; Arsenic; Barium; Cadmium; Chromium; Copper; Lead; Mercury; Molybdenum; Nickel; Selenium; Zinc; Sulfate; Chloride; Fluoride; Phenol Index; DOC; Total Dissolved Solids	5
PT-CN-23	Total Hydrocarbons in soil	1 x 1mL standard solution 1 x 30g soil sample	TPH, Aliphatic ≤C6; TPH, Aliphatic >C6-C8; TPH, Aliphatic >C8-C10; TPH, Aromatic C6; TPH, Aromatic >C6-C8; TPH, Aromatic >C8-C10	3
PT-CN-24	Leachate (prepared)	1L	Antimony; Arsenic; Barium; Cadmium; Chromium; Copper; Lead; Mercury; Molybdenum; Nickel; Selenium; Zinc; Sulfate; Chloride; Fluoride; Phenol Index; DOC; Total Dissolved Solids	5
PT-CN-25	VOCs in Soil	1 x 1mL standard solution 1 x 30g soil sample	Acetonitrile; Benzene; Bromobenzene; Bromochloromethane; Bromodichloromethane; Bromoform; Bromomethane; n-Butylbenzene; secButylbenzene; tert-Butylbenzene; Carbon disulfide; Carbon tetrachloride; Chlorobenzene; Chloroethane; Chloroform; Chloromethane; 2-Chlorotoluene; 4-Chlorotoluene; cis-1,2-Dichloroethylene;Dibromochloromethane; 1,2-Dibromo-3-chloropropane;1,2- Dibromoethane; Dibromomethane; 1,2-Dichlorobenzene; 1,3-Dichlorobenzene; 1,4-Dichlorobenzene; Dichlorodifluoromethane; 1,1-Dichloroethane;1,2-Dichloroethane; 1,1-Dichloroethylene; trans-1,2-Dichloroethylene; 1,2- Dichloropropane; 1,3-Dichloropropane; 2,2-Dichloropropane; 1,1-Dichloropropylene; cis-1,3-Dichloropropylene; trans-1,3-Dichloropropylene; Ethylbenzene; Hexachlorobutadiene; Hexachloroethane; Isopropylbenzene; 4- Isopropyltoluene; Methylene chloride; Methyl t-butyl ether; m-Xylene; m&p-Xylene; Naphthalene; Nitrobenzene; n-Propylbenzene; o-Xylene; p-Xylene; Styrene; 1,1,1,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethane; Tetrachloroethylene; Toluene; Total Xylenes; 1,2,3-Trichlorobenzene; 1,2,4-Trichlorobenzene; 1,1,1-Trichloroethane; 1,1,2-Trichloroethane; Trichloroethylene; Trichlorofluoromethane; 1,2,3-Trichloropropane	3

Sample Code	Matrix	Quantity of Matrix	Analytes	Rounds per year
PT-CN-26	Organochlorine Pesticides in soil	1 x 1mL standard solution 1 x 30g soil sample	Endrin; Dieldrin; Aldrin; p,p'-DDT; o,p-DDT; p,p'-DDE; p,p'-DDD; Alpha Hexachlorocyclohexane; Beta Hexachlorocyclohexane; Delta Hexachlorocyclohexane; Lindane (Gamma HCH); Trifluralin; Alpha Endosulphan; Beta Endosulphan; Hexachlorobenzene; Heptachlor; Heptachlor epoxide; Pentachlorobenzene	2
PT-CN-27	LOI FINES	1kg LOI material	Loss on Ignition at 440oC	2
PT-CN-28	Soil Texture	1 x 500g soil	Soil texture	2
PT-CN-29	Incinerator Bottom Ash	1 x approxinately 200g IBA material	Arsenic; Barium; Cadmium; Copper; Iron; Lead; Magnesium; Manganese; Nickel; Potassium; Sodium; Total Chromium; Zinc; pH; Alkali reserve	2
PT-CN-30	Organophosphorus Pesticides in Soil	1 x 1mL standard solution 1 x 30g soil sample	Azinphos-methyl; Azinphos-ethyl; Dichlorvos; Fenitrothion; Malathion; Mevinphos; Chlorfenvinphos; Diazinon;	2

Sample Code	Sample Name	Format	Analytes	Rounds per year
NEW PT-CN-31	UBM BARGE method	5g soil	Arsenic; Cadmium; Lead; Antimony	1

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Cryptosporidium
CRYPTS

"Featuring *Cryptosporidium* slides, suspensions and filters – plus *Giardia* samples"

Cryptosporidium is a parasite found in water that can cause illness in humans, as demonstrated in many recent *Cryptosporidium* outbreaks that have threatened public health. Potable or recreational waters should be treated to remove *Cryptosporidium*; samples are therefore regularly tested through the water industry to ensure that treatment has worked and water supplies are free from *Cryptosporidium*.

Guidelines exist, such as those from the WHO and the EPA, to ensure *Cryptosporidium* doesn't contaminate human water supplies. The AXIO Proficiency Testing CRYPTS Scheme enables participants to show the validity of their methods and results, with samples including slides, suspensions, and filters with *Cryptosporidium* oocysts.

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Sample Code	Sample Name	Analytes	Rounds per year
PT-CY-01	Dynal Slide	Enumeration of *Cryptosporidium* oocysts; Enumeration of other *Cryptosporidium*; Enumeration of Crypto-like bodies; Enumeration of *Giardia*	12
PT-CY-02	Genera Slide	Enumeration of *Cryptosporidium* oocysts Enumeration of other *Cryptosporidium* Enumeration of Crypto-like bodies Enumeration of *Giardia*	12
PT-CY-03	Suspension	Enumeration of *Cryptosporidium* oocysts	12
PT-CY-04	Filta Max Filters	Enumeration of *Cryptosporidium* oocysts	12
PT-CY-05	Xpress Filter	Enumeration of *Cryptosporidium* oocysts	12

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Consumer Safety Schemes

Ensuring products do not harm the consumers who purchase them is a fundamental requirement for business survival and protecting brand value. We rely on manufacturers, suppliers and legislation to keep us safe, and a key part of this is the laboratory analysis performed on products to ensure no harmful chemicals, physical properties or microorganisms are present. Proficiency testing provides independent validation of laboratory quality.

Schemes available

Pharmaceuticals
PHARMASSURE

Cannabis & Related Products
CANNABIS

Cosmetics & Toiletries
COSMETICS

Consumer Safety
TOYTEST

Nickel Migration
NiMS

NEW Consumer Safety PT sample for 2024

Sample Code	Sample Name	Analytes	Rounds per year
PT-CA-13	Mitragynine and 7-hydroxy mitragynine in Kratom	Mitragynine	1
PT-PH-06M	Residue on Ignition	Residue on Ignition	1
PT-TY-21	Hazardous heavy metal analysis in rubber (Cadmium)	Total cadmium	1
PT-TY-22	Nonylphenol in baby textiles	Nonylphenol	1
PT-TY-23	Toy product labelling	Assessment to Toy Safety standard clauses (to be specified)	1
PT-TY-24	Chlorinated paraffins (SCCPs and MCCPs) in consumer testing products and toys	SCCPs	1

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Pharmaceuticals

PHARMASSURE

“An expansive scheme covering much more than just pharmaceuticals”

The AXIO PHARMASSURE Scheme is designed to ensure that pharmaceutical testing laboratories are producing analytical data which is fully compliant with wide-ranging global requirements for pharmaceutical preparations, dietary supplements, multivitamins, E-liquids and medicinal herbs.

Samples provided cover a wide range of analytical techniques – from density and acid/base titration to NMR spectroscopy – and also provide a comprehensive selection of chemical and microbiological analytes, from arsenic to residual solvents to *S.aureus,* and endotoxins to *E.coli*.

Successful participation in PHARMASSURE is recognised as a demonstration of laboratory quality and competency by a range of third parties, customers, regulators and accreditation bodies.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-PH-01	Sample format will depend upon test type	Varying volumes	Acid/Base titration; Density; pH; Melting point; Refractive index; Other titrations, for the determination of: Dipotassium hydrogen phosphate; Sodium bicarbonate; Magnesium; Sodium chloride	4
PT-PH-02A	Sample format will depend upon test type	Varying volumes	HPLC Analysis	2
PT-PH-02B	Powder material	5g sample; 1g matrix	Trace elements	2
PT-PH-02E	Residual Solvents	2g sample; 1ml spike	Residual solvents	2
PT-PH-03	Lyophilised test material	10ml (final test quantity 100ml)	Low-level enumeration; Identification of microorganism; (Intended for membrane filtration)	2
PT-PH-04A	Lyophilised test material	10ml (final test quantity 100ml)	Total aerobic microbial count; Total bacterial count; Detection and/or Enumeration of Staphylococcus aureus; *Escherichia coli*; Biletolerant gram-negative bacteria	2
PT-PH-04B	Lyophilised test material	10ml (final test quantity 100ml)	Detection of *Pseudomonas aeruginosa*; *Burkholderia cepacia* Enumeration of Yeast; Mould; Total yeast and mould, Enumeration; and/or detection of *Candida albicans*	2
PT-PH-05	Lyophilised test material	5 x 5ml (final test quantity 5 x 100ml)	Sterility; Identification of microorganism	4
PT-PH-06A	Sample format will depend upon test type	Varying volumes	Gas Chromatography (GC)	2
PT-PH-06B	Sample format will depend upon test type	Varying volumes	UV	1
PT-PH-06C	Sample format will depend upon test type	250ml	Viscosity	1
PT-PH-06D	Sample format will depend upon test type	Varying volumes	Loss on Drying (LOD)	1
PT-PH-06E	Sample format will depend upon test type	Varying volumes	FTIR	1
PT-PH-06F	Sample format will depend upon test type	Varying volumes	Karl Fischer	2
PT-PH-06G	Sample format will depend upon test type	Varying volumes	TLC	1
PT-PH-06H	Sample format will depend upon test type	60ml	FLAA	1
PT-PH-06I	Sample format will depend upon test type	Varying volumes	Polarimetry	1
PT-PH-06J	Sample format will depend upon test type	Varying volumes	Advanced Titration	1
PT-PH-06K	Sample format will depend upon test type	1g	Nuclear Magnetic Resonance (NMR); Spectrometry	1
PT-PH-07A	Dissolution testing	Varying volumes	Dissolution testing	2
PT-PH-07B	Tablet testing	1 x sample for tablet testing	Tablet testing	1
PT-PH-07C	Tablet testing	10	Uniformity of dosage units	1
PT-PH-08A	Sample format will depend upon test type	125ml	Low level conductivity	1

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-PH-08B	Sample format will depend upon test type	1 x sample for particulate determination in solutions	Particulate determination	1
PT-PH-09	Lyophilised test material	10ml (final test quantity 100ml)	Detection of *Salmonella* sp.	1
PT-PH-10	Medicinal herb	10ml vial + 10g medicinal herb matrix (final test quantity 10g)	Total aerobic microbial count; Detection and/or Enumeration of; *Staphylococcus aureus*; Coliforms; Yeast; Mould; Yeast and Mould	1
PT-PH-11	Solution	4ml	Endotoxins in solutions	2
PT-PH-12	Solution	100ml	Nicotine; Propylene glycol; Glycerol; Density; Refractive index; pH	1
PT-PH-13	Supplement	5g	Ginsenoside-Rb1; Ginsenoside-Rb2; Total ginsenosides	1
PT-PH-14	Supplement	10g	Arsenic; Cadmium; Lead; Mercury	1
PT-PH-15	Supplement	2 x 5g sample	Sildenafil	1
PT-PH-16	Oil or Powder	10ml of oil or 5g of powdered material	Cannabidiol	1
PT-PH-18	Gingko biloba	5g	Quercetin; Kaempferol; Total Aglycones; Total Terpene Lactones; Ginkgolide B	1
PT-PH-20	Multivitamin supplement	30g	Vitamin B1; Vitamin B2; Vitamin B3; Vitamin B5; Vitamin B6; Folic acid; Biotin; Vitamin B12; Vitamin C	1
PT-PH-21	Multielement supplement	15g	Calcium; Zinc; Magnesium; Copper; Manganese; Potassium; Iron; Total Chromium; Selenium; Compliance with labelling	1

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
NEW PT-PH-06M	Pharmaceutical product	Up to 10g	Residue on Ignition	1

Cannabis and Related Products

CANNABIS

“Unique products for a fast-developing testing industry”

With the legalisation of medicinal and recreational cannabis increasing rapidly across the globe, cannabis and hemp are featuring in an ever-wider range of products. Laboratory analysis of these products aims to ensure, amongst other objectives, that the products comply with psychoactive substances regulations, and that contaminants are absent.

The LGC AXIO CANNABIS Scheme offers chemistry samples for testing cannabinoids, terpenes, mycotoxins and elements (including heavy metals) in hemp and cannabis matrices.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-CA-01-A	Hemp oil	10g + Blank	Delta 9-Tetrahydrocannabinol (THC); Cannabidiol (CBD); Cannabidiolic Acid (CBDA); Cannabinol (CBN); Cannabichromene (CBC); Cannabigerol (CBG); Cannabicyclol (CBL); Cannabidivarin (CBDV); Cannabidivarinic acid (CBDVA)	2
PT-CA-04	Simulated dried cannabis plant	10g	Arsenic; Cadmium; Mercury; Lead; Copper; Iron; Manganese; Nickel & Zinc; Calcium; Magnesium; Potassium; Sulphur; Phosphorus	1
PT-CA-10	Cannabis flower	2g	Total Delta 9-Tetrahydrocannabinol (THC); Total Cannabidiol (CBD); Cannabidiolic Acid (CBDA); Cannabinol (CBN); Cannabichromene (CBC); Cannabigerol (CBG); Cannabicyclol (CBL); Total Cannabidivarin (CBDV); Cannabidivarinic acid (CBDVA)	1
PT-CA-11	Cannabis oil	5g	Total Delta 9-Tetrahydrocannabinol (THC; Total Cannabidiol (CBD); Cannabidiolic Acid (CBDA); Cannabinol (CBN); Cannabichromene (CBC); Cannabigerol (CBG); Cannabicyclol (CBL); Total Cannabidivarin (CBDV); Cannabidivarinic acid (CBDVA)	1

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
ENHANCED PT-CA-10	Cannabis flowers	2g	Terpenes	1
NEW PT-CA-13	Kratom	5g	Mitragynine; 7-hydroxy mitragynine	1

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Cosmetics & Toiletries

COSMETICS

“Helping laboratories keep pace with rapid regulatory change”

Going back thousands of years – at least since the ancient Egyptians used toxic lead sulphide in eye make-up – cosmetics have had the potential to contain ingredients which could harm their users. Today, key legislation – such as the US Modernization of Cosmetics Regulation Act (MoCRA) and China’s Cosmetics Supervision and Administration Regulation (CSAR) – has introduced a host of additional safety requirements, as well as a demand for more evidence that products comply.

The LGC AXIO Cosmetics and Toiletries Proficiency Testing Scheme is designed to ensure that analytical laboratories’ chemical, microbiological, and physical analysis keep pace with these global changes – and also provides them with the confidence that their results are meaningful and accurate.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-CS-10A	Powder	Vial + 10g matrix	Detection and/or enumeration of aerobic mesophilicbacteria; Staphylococcus aureus; Enumeration of Enterobacteriaceae; Detection of *Escherichia coli*	2
PT-CS-10B	Powder	Vial + 10g matrix	Enumeration of yeast and mould (total count); Detection of *Candida albicans*; *Burkholderia cepacia*; Detection and/or enumeration of *Pseudomonas aeruginosa*	2
PT-CS-13A	Cream	Vial + 10g matrix	Detection and/or enumeration of aerobic mesophilic bacteria; Staphylococcus aureus; Enumeration of Enterobacteriaceae; Detection of *Escherichia coli*	2
PT-CS-13B	Cream	Vial + 10g matrix	Enumeration of yeast and mould (total count); Detection of *Candida albicans*; *Burkholderia cepacia*; Detection and/or enumeration of *Pseudomonas aeruginosa*	2
PT-CS-16A	Liquid	Vial + 10ml matrix	Detection and/or enumeration of aerobic mesophilic bacteria; Staphylococcus aureus; Enumeration of Enterobacteriaceae; Detection of *Escherichia coli*	2
PT-CS-16B	Liquid	Vial + 10ml matrix	Enumeration of yeast and mould (total count); Detection of *Candida albicans*; *Burkholderia cepacia*; Detection and/or enumeration of *Pseudomonas aeruginosa*	2
PT-CS-19	Lipstick	5g	Cadmium; Chromium; Lead; Nickel; Arsenic; Mercury	2
PT-CS-20	Lip gloss	5g	Cadmium; Chromium; Lead; Nickel; Arsenic; Mercury	1
PT-CS-21	Powder	5g	Cadmium; Chromium; Lead; Nickel; Arsenic; Mercury	1
PT-CS-22	Cream	5ml	Hydroquinone	2
PT-CS-23	Liquid cosmetics	500ml	pH; Viscosity; Density	2
PT-CS-24	Mouthwash sample	125ml	Antimony; Arsenic; Barium; Copper; Fluoride; Mercury; Selenium; Zinc	1
PT-CS-25	Toothpaste sample	25g	Antimony; Arsenic; Barium; Copper; Fluoride; Mercury; Selenium; Zinc	1
PT-CS-27	Cream sample	25ml	Methylparaben; Propylparaben; Butylparaben; Benzoic acid; Sorbic acid	1
PT-CS-28	Liquid or solid soap	100g	Chlorides (as Cl); Free caustic alkali (as NaOH); Free fatty acids (as oleic acid); Matter insoluble in ethanol; Moisture and volatile matter; Total fatty matter content	1
PT-CS-29	Powder detergent	100g	Water insoluble matter; pH (1% aqueous solution at 25˚C); Moisture and volatile matter; Anionic-active matter; Cationic-active matter; Chlorides (as Cl)	1
PT-CS-30	Cream	Vial + 10ml matrix	% reduction in microbial load; % reduction in microbial load; Microbial enumeration (challenge test)	2
PT-CS-31	Mascara	5g	Methylparaben; Propylparaben; Butylparaben; Benzoic acid; Sorbic acid	1
PT-CS-32	Liquid detergent	100ml	Water insoluble matter; pH (1% aqueous solution at 25˚C); Moisture and volatile matter; Anionic-active matter; Cationic-active matter; Chlorides (as Cl); Phosphates	1
PT-CS-33	Liquid hand sanitizer	50ml	Alcohol content	1
PT-CS-34	Face masks	50 x Face masks	Bacterial filtration efficiency (BFE); Differential pressure (Breathability); Microbial cleanliness (Bioburden); Fluid resistance to synthetic blood	1
PT-CS-35	Fragrances	–	Allergenic compounds	1

★ PRODUCT HIGHLIGHT

PT-CS-13B - Microbiological Analysis: Enumeration of Yeast, Mould and Pseudomonas

A sample specifically designed for the cosmetics industry, which allows participants to test for yeast and mould, *Candida albicans*, *Burkholderia cepacia* and *Pseudomonas aeruginosa* in a cosmetics cream matrix. In combination with the 'real' samples, labs can easily determine where improvements may need to be made.

60-120 participants per round, 2 rounds per year

Product Safety

TOYTEST

“Supporting safety testing for toys – and similar consumer goods”

The LGC AXIO TOYTEST Scheme is designed to support laboratories working to ensure that toys – and a wide range of other consumer products – are safe to use.

The scheme is based on European EN71 and US ASTM F963 standards, since most toys made and sold around the world are designed to comply with one or other of those standards. TOYTEST, however, also reaches beyond the toy industry by offering testing in areas that are appropriate to a broad range of other sectors – such as physical, chemical, acoustic, electric, and flammability tests, as well as paper exercises. The broad range of analytes provided include phthalates, bisphenols, tin, and mercury, meaning that TOYTEST is suitable for many different types of laboratories – from manufacturers’ in-house units to compliance bodies such as trading standards departments.

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Sample Code	Matrix	Analytes	Rounds per year
PT-TY-01	Toy product	EN71 Part 1	2
PT-TY-02	Toy product	EN71 Part 2	3
PT-TY-03	EN71 - 3 Standard solution and real material	EN71 Part 3	6
PT-TY-05	Toy material	Azo Dyes (EN14362-1; EN14362-3)	1
PT-TY-07	ASTM F963 Toy product for paper exercise	ASTM F963	2
PT-TY-09	Paint flakes	Total Lead, Total Cadmium, Total Chromium; Total Nickel; Total Tin, Total Mercury	3
PT-TY-10	Section of plastic material plus two test solutions	Phthalates	4
PT-TY-11	Various	Measurement testing (EN71-1; ASTM F963)	2
PT-TY-12	Toy product	Kinetic energy testing (EN71-1; ASTM F963)	2
PT-TY-13	Toy product	Acoustic testing (EN71-1)	2
PT-TY-14	Magnets	Flux testing (EN71-1; ASTM F963)	2
PT-TY-15	Electrical	Electrical testing (EN62115)	1
PT-TY-16	Plastic bead or pellet	Bisphenol A	1
PT-TY-17	Slime	Toy Safety Directive / EN 71-3 - Boron	2
PT-TY-18	Jewellery	Total lead; total cadmium in jewellery (REACH regulation)	1
PT-TY-19	Toy product	Flammability assessment of moulded plastic to US ASTM F963-17, 16 CFR; 1500.44; SRS-013	1

Sample Code	Sample Name	Analytes	Rounds per year
NEW PT-TY-21	Cadmium in rubber	Cadmium	1
NEW PT-TY-22	Nonylphenol in baby textiles	Nonylphenol	1
NEW PT-TY-23	Toy product labelling	Assessment to Toy Safety standard clauses (to be specified)	1
NEW PT-TY-24	Chlorinated paraffins (SCCPs and MCCPs) in consumer testing products and toys	SCCPs; MCCPs	1

★ PRODUCT HIGHLIGHT

PT-TY-03 - EN71-3

PT-TY-03 focuses specifically on the third part of the European toy safety regulations, which are encompassed in EN71. Part 3 addresses the analysis and legal limits set for migratable elements. There are 19 analytes covered in this regulation, organotin compounds and 18 elemental parameters, including Chromium VI. The tests in the regulation are designed to mimic the extraction of these analytes during play, and product types are split into three categories (I, II & III) with different permitted limits for each category. We offer a range of different PT sample types for EN71-3 to cover all the product types routinely tested by consumer safety labs and, in each round, we provide 2 additional 'standard solutions' which are designed to look at the instrumentation side of the analysis. In combination with the 'real' samples, labs can easily determine where improvements may need to be made.

6 rounds per year

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Nickel Migration

NiMS

“Specific support for your nickel testing performance”

The release of nickel from jewellery is the most widespread cause of allergic contact dermatitis, which affects up to 20% of the general population. As many ordinary items may contain nickel – including buttons, coins, spectacle frames, watch straps and zips – it can be difficult for sufferers to avoid.

The LGC AXIO Nickel Migration Scheme (NiMS) is designed to assess the performance of laboratories undertaking the determination of nickel release from articles intended to come into direct and prolonged contact with the skin.

The method for this determination is defined in European standard EN 1811, with the tested article suspended in an artificial sweat solution for a period of one week. The concentration of dissolved nickel in the solution is then determined by ICP-MS or a similarly accurate and precise technique. Successful participation in NiMS supports a laboratory’s quality system by providing external and independent assessment of its performance in conducting the measurement of nickel migration.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-NK-01C	Alloy disks, jewellery or other appropriate articles	3 x test articles	Surface area, Nickel release	2

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Clinical Schemes

Within clinical laboratories, testing requirements can often be within a narrow range, and the outcome of the tests, and clinical response, is often critical for patient care. Likewise, within Toxicological and Forensic Drug Testing laboratories, matrices and drug metabolites can be challenging, with the outcome of the testing having potential legal repercussions. Our AXIO schemes, supported by Advisory Groups consisting of members of professional bodies and others experienced in the field, provide laboratories with the confidence in the quality of their tests.

Schemes available

Immunosuppressants
IPT

Therapeutic Drug Monitoring
TDM

Toxicology
TOX

Drugs of Abuse in Urine
DAU

Drugs of Abuse in Fluid
DOF

Drug of Abuse in Hair
DAH

NEW Clinical PT sample for 2024

Sample Code	Sample Name	Analytes	Rounds per year
PT-DH-03+4	Alcohol markers (Ethyl glucuronide) in Hair	Ethyl glucuronide (qualitative and quantitative)	4
PT-TM-PS39	Bupropion and Hydroxybupropion in serum	Bupropion; Hydroxybupropion	4
PT-TM-PS40	Flupentixol in serum	Flupentixol	4
PT-TX-CAN	Quantitative Sample: Cannabinoid Mix	Delta-9-THC	4
PT-TX-TC01	Tricyclic Antidepressant Screening in Human Serum	Drug identification, up to three drugs may be present in the sample, please see the Scheme Description for further details	4

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Immunosuppressants

IPT

“For laboratories that quantify immunosuppressant drugs in blood and plasma”

Immunosuppressant drugs are a class of drugs that suppress, or reduce, the response of the body’s immune system. In addition to being used to prevent organ rejection, they are often used to treat autoimmune disorders such as lupus, psoriasis and rheumatoid arthritis. Regular blood tests are essential for monitoring therapeutic levels and whether dosage changes are needed. To successfully make these informed decisions, laboratories need to demonstrate that drug measurements are reliable, reproducible and accurate.

The AXIO Proficiency Testing Immunosuppressant Scheme (IPT) provides independent performance assessment for laboratories quantifying immunosuppressant drugs in blood and plasma.

The operation of our AXIO IPT scheme is supported by an Advisory Group consisting of members of professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of UK participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-IP-CIC	Human blood	3 x 1ml	Ciclosporin	12
PT-IP-EVE	Human blood	3 x 1ml	Everolimus	6
PT-IP-MPA	Human plasma	2 x 1ml	Mycophenolic acid	6
PT-IP-SIR	Human blood	3 x 1ml	Sirolimus	12
PT-IP-TAC	Human blood	3 x 1ml	Tacrolimus	12

★ PRODUCT HIGHLIGHT

PT-IP-CIC/TAC - Ciclosporin and Tacrolimus

Ciclosporin and Tacrolimus are immunosuppressant drugs that are routinely monitored for therapeutic drug monitoring purposes during patient care. It is vital for patient safety that the concentrations of these substances are within the therapeutic range.

200-250 participants per round

12 rounds per year

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Download Scheme Description

Therapeutic Drug Monitoring

TDM

“Supporting laboratories’ accuracy and performance, within challenging limits”

Therapeutic Drug Monitoring is a measurement of specific drug concentration levels at timed intervals in patients, usually through blood/serum samples. Such monitoring is necessary where control of drug concentrations is required to achieve optimum treatment for the patient, or where there is a narrow range between the therapeutic and toxic levels.

The AXIO Proficiency Testing Therapeutic Drugs Monitoring Scheme (TDM) provides independent performance assessment for the routine quantification of a wide range of anti-epileptic and other therapeutic drugs.

The operation of this scheme is supported by an Advisory Group consisting of members of professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of UK participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-TM-TD1	Therapeutic Drugs mixture	3 x 5ml	Carbamazepine; CBZ-epoxide; Carbamazepine + CBZ-epoxide; Clonazepam; Lamotrigine; Phenytoin; Ethosuximide; Phenobarbitone; Primidone; Valproate; Caffeine; Digoxin; Lithium; Theophylline; Methotrexate; Paracetamol (Acetaminophen); Salicylic Acid; TD-Amikacin; TD-Gentamicin; TD-Tobramycin; TDVancomycin	12
PT-TM-CN1	Clobazam; Norclobazam	2 x 2ml	Clobazam; Norclobazam	12
PT-TM-AE1	Anti-epileptic drugs mixture 1	1 x 4ml	OH-oxcarbazepine; Gabapentin; Tiagabine; Levetiracetam; Pregabalin	12
PT-TM-AE2	Anti-epileptic drugs mixture 2	1 x 4ml	Topiramate; Vigabatrin; Felbamate; Zonisamide; Rufinamide; Lacosamide	12
PT-TM-AE4	Anti-epileptic drugs 4	1 x 2ml	Perampanel	12
PT-TM-AE5	Anti-epileptic drugs 5	1 x 2ml	Brivaracetam	12
PT-TM-CRD	Cardiac mixture	1 x 2ml	Amiodarone; Desethylamiodarone; Flecainide	12
PT-TM-AM1	Analgesic mixture	2 x 5ml	Ibuprofen; Diclofenac; Tramadol	4
PT-TM-SA01	Drugs for the Treatment of substance related disorders	2 x 2ml	Buprenorphine; Norbuprenorphine	12
PT-TM-SA02	Drugs for the Treatment of substance related disorders	2 x 2ml	Methadone; EDDP	12
PT-TM-AH01	Anti-Hypertensive in Urine	2 x 5ml	Drug identification. Up to four drugs may be present in the sample, please see the TDM scheme description for further details	4
PT-TM-PS01	Lyophilised newborn calf serum or human serum	1 x 5ml	Amitriptyline; Nortriptyline	12
PT-TM-PS02	Lyophilised newborn calf serum or human serum	1 x 5ml	Imipramine; Desipramine	12
PT-TM-PS03	Lyophilised newborn calf serum or human serum	1 x 5ml	Clomipramine; Norclomipramine	12
PT-TM-PS04	Lyophilised newborn calf serum or human serum	1 x 5ml	Clozapine; Norclozapine	12
PT-TM-PS05	Lyophilised newborn calf serum or human serum	1 x 5ml	Doxepin; Nordoxepin	4
PT-TM-PS06	Lyophilised newborn calf serum or human serum	1 x 5ml	Fluoxetine; Norfluoxetine	4
PT-TM-PS07	Lyophilised newborn calf serum or human serum	1 x 5ml	Fluphenazine	4
PT-TM-PS08	Lyophilised newborn calf serum or human serum	1 x 5ml	Sertraline; Norsertraline	4
PT-TM-PS09	Lyophilised newborn calf serum or human serum	1 x 5ml	Trimipramine; Nortrimipramine	4
PT-TM-PS10	Lyophilised newborn calf serum or human serum	1 x 5ml	Risperidone; HO-risperidone	4
PT-TM-PS11	Lyophilised newborn calf serum or human serum	1 x 5ml	Mirtazapine; Normirtazapine	4
PT-TM-PS12	Lyophilised newborn calf serum or human serum	1 x 5ml	Maprotiline; Normaprotiline	4
PT-TM-PS13	Lyophilised newborn calf serum or human serum	1 x 5ml	Thioridazine	4
PT-TM-PS14	Lyophilised newborn calf serum or human serum	1 x 5ml	Haloperidol	4

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-TM-PS15	Lyophilised newborn calf serum or human serum	1 x 5ml	Olanzapine	4
PT-TM-PS16	Lyophilised newborn calf serum or human serum	1 x 5ml	Perphenazine	4
PT-TM-PS17	Lyophilised newborn calf serum or human serum	1 x 5ml	Quetiapine; Norquetiapine	4
PT-TM-PS18	Lyophilised newborn calf serum or human serum	1 x 5ml	Citalopram; Norcitalopram	4
PT-TM-PS19	Lyophilised newborn calf serum or human serum	1 x 5ml	Dothiepin; Northiaden	4
PT-TM-PS20	Lyophilised newborn calf serum or human serum	1 x 5ml	Venlafaxine; Norvenlafaxine	4
PT-TM-PS21	Lyophilised newborn calf serum or human serum	1 x 5ml	Paroxetine	4
PT-TM-PS22	Lyophilised newborn calf serum or human serum	1 x 5ml	Fluvoxamine	4
PT-TM-PS23	Lyophilised newborn calf serum or human serum	1 x 5ml	Zuclopenthixol	4
PT-TM-PS24	Lyophilised newborn calf serum or human serum	1 x 5ml	Amisulpride	4
PT-TM-PS25	Lyophilised newborn calf serum or human serum	1 x 5ml	Aripiprazole; Dehydroaripiprazole	4
PT-TM-PS26	Lyophilised newborn calf serum or human serum	1 x 5ml	Ziprasidone	4
PT-TM-PS27	Lyophilised newborn calf serum or human serum	1 x 5ml	Duloxetine	4
PT-TM-PS28	Lyophilised newborn calf serum or human serum	1 x 5ml	Escitalopram	4
PT-TM-PS29	Lyophilised newborn calf serum or human serum	1 x 5ml	Trazodone	4
PT-TM-PS30	Lyophilised newborn calf serum or human serum	1 x 5ml	Sulpiride	4
PT-TM-PS31	Lyophilised newborn calf serum or human serum	1 x 5ml	Chlorpromazine; Norchlorpromazine	4
PT-TM-PS32	Lyophilised newborn calf serum or human serum	1 x 5ml	Mianserin	4
PT-TM-PS33	Lyophilised newborn calf serum or human serum	1 x 5ml	Brexpiprazole	4
PT-TM-PS34	Lyophilised newborn calf serum or human serum	1 x 5ml	Lurasidone	4
PT-TM-PS35	Lyophilised newborn calf serum or human serum	1 x 5ml	Sertindole	4
PT-TM-PS36	Lyophilised newborn calf serum or human serum	1 x 5ml	Iloperidone	4
PT-TM-PS37	Lyophilised newborn calf serum or human serum	1 x 5ml	Vortioxetine	4
PT-TM-PS38	Lyophilised newborn calf serum or human serum	1 x 5ml	Meclobemide	4
PT-TM-PST1	Lyophilised human serum	2 x 5ml	Atomoxetine; Methylphenidate; Ritalinic acid	4
PT-TM-NC01	Lyophilised human urine	2 x 5ml	Nicotine; Cotinine	4

Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-TM-TC01	Lyophilised human serum	2 x 5ml	Drug identification. Up to three drugs may be present in the sample, please see the TDM scheme description for further details	
PT-TM-MT01	Lyophilised human plasma	2 x 2ml	Metanephrine; Normetanephrine; 3-methoxytyramine	12
PT-AT-01	Human serum	1 x 1ml	Gentamicin; Vancomycin	12
PT-AT-02	Human serum	1 x 1ml	Tobramycin	12
PT-AT-03	Human serum	1 x 1ml	Amikacin	12
PT-AT-07	Human serum	1 x 1ml	Teicoplanin	12
PT-AT-AF01	Human serum	1 x 1.7ml	Antifungals	12

Sample Code	Sample Name	Quantity of Matrix	Analytes	Number of Rounds
ENHANCED PT-TM-PS15	Olanzapine/Norolanzapine in serum	1 x 5ml	Olanzapine; Norolanzapine	4
NEW PT-TM-PS39	Bupropion and Hydroxybupropion in serum	1 x 5ml	Bupropion; Hydroxybupropion	4
NEW PT-TM-PS40	Flupentixol in serum	1 x 5ml	Flupentixol	4

★ PRODUCT HIGHLIGHT

PT-TM-TD01 - Therapeutic Drug Mixture

This sample is suitable for laboratories who undertake a large range of Therapeutic Drug Monitoring analysis. It contains 20 analytes including anti-epileptics and antibiotics. These analytes are routinely monitored for patient care.

Approximately 500 participants per round

12 rounds per year

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Toxicology

TOX

“Confidence in the measurement of a range of biological materials”

Toxicological analyses may be undertaken on biological specimens, predominantly blood, serum, and urine. Analyses can be undertaken for a range of substances including prescription and non-prescription drugs, illicit drugs, and alcohol. It is essential for laboratories, clinicians and toxicologists using the data that results are meaningful and accurate.

At AXIO Proficiency Testing, we recognise the importance of ensuring quality in toxicology analyses. This is why we designed the AXIO Toxicology Scheme (TOX) to provide an independent performance assessment of laboratories undertaking clinical and/or forensic toxicological analytical services.

The operation of our TOX scheme is supported by an Advisory Group consisting of members of professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of UK participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-TX-BLD	Human blood	1 x 1.7ml	Ethanol; Paracetamol (Acetaminophen); Salicylic acid; Carboxyhaemoglobin	12
PT-TX-BNZ	Human serum	2 x 4ml	Diazepam; Nordazepam; Temazepam; Oxazepam; Nitrazepam	4
PT-TX-BNZB	Serum	2 x 4ml	Alprazolam; Bromazepam; Clonazepam; Lorazepam; Midazolam; Etizolam	4
PT-TX-CAS	Serum	7ml Serum + 20ml Urine	Participants should report results, toxicological involvement and treatment options	4
PT-TX-GHB	Urine	3 x 2ml	Gammahydroxybutyrate	2
PT-TX-QT	Human blood	2 x 10ml	Participants should report quantitative data on specified analytes	4
PT-TX-SM	Serum	3 x 1.7ml	Ethanol; Paracetamol (Acetaminophen); Salicylic acid	12
PT-TX-TAK	Blood	1 x 1.7ml	Ethanol; Methanol; Isopropylalcohol (IPA); Acetone; Ethylene Glycol	2
PT-TX-TAS	Serum	1 x 1.7ml	Ethanol; Methanol; Isopropylalcohol (IPA); Acetone; Ethylene Glycol	2
PT-TX-URN	Urine	1 x 1.7ml	Ethanol	12
PT-TX-ZMIX	Human serum	2 x 4ml	Zopiclone; Zaleplon; Zolpidem	4

Sample Code	Sample Name	Quantity of Matrix	Analytes	Number of Rounds
NEW PT-TX-CAN	Cannabinoids in Human Serum	2 x 5ml	Delta-9-THC; 11-hydroxy-delta-9-THC; 11-nor-9-carboxydelta-9-THC; Cannabidiol (CBD); Cannabinol (CBN)	4
NEW PT-TX-TC01	Tricyclic Antidepressant Screening in Human Serum	2 x 4ml	Drug identification, up to three drugs may be present in the sample, please see the Scheme Description for further details	4

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Drugs of Abuse in Urine

DAU

“When confidence is key...”

Human urine has been used for many years to detect the presence of illicit drugs. Urine testing may be requested for a variety of reasons, including health care, occupational monitoring, insurance screening, legal and forensic purposes. Errors in tests could have severe consequences, such as dismissal from work or miscarriage of justice.

The AXIO Proficiency Testing Drugs of Abuse in Urine Scheme (DAU) is designed to provide an independent performance assessment of laboratories and clinics that provide routine services for the detection of drugs of abuse in urine. Laboratories and clinics are encouraged to participate in suitable PT/EQA schemes to ensure the highest standard of drug testing is achieved through independent assessment of measurement quality.

The operation of the AXIO DAU scheme is supported by an Advisory Group consisting of members of professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of UK participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

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Sample Code	Matrix	Analytes	Rounds per year
PT-DU-FULL-W	Urine	Full participants will be able to report for the screening only analytes using immunoassay type techniques and individual analytes by chromatography type techniques. Approximately 210 individual analytes are available and are managed by your PORTAL online screening profile. Participants will receive 3 freeze-dried urine samples, each with a volume of 15ml.	4
PT-DU-SCREEN-W	Urine	This is designed for participants who report using immunoassay type techniques, including POCT (point of care testing). Participants will receive 3 freeze-dried urine samples, each with a volume of 15ml. The screening groups are as follows: Please note that it is not possible to report on individual analytes if participating on Screening-only basis.	4

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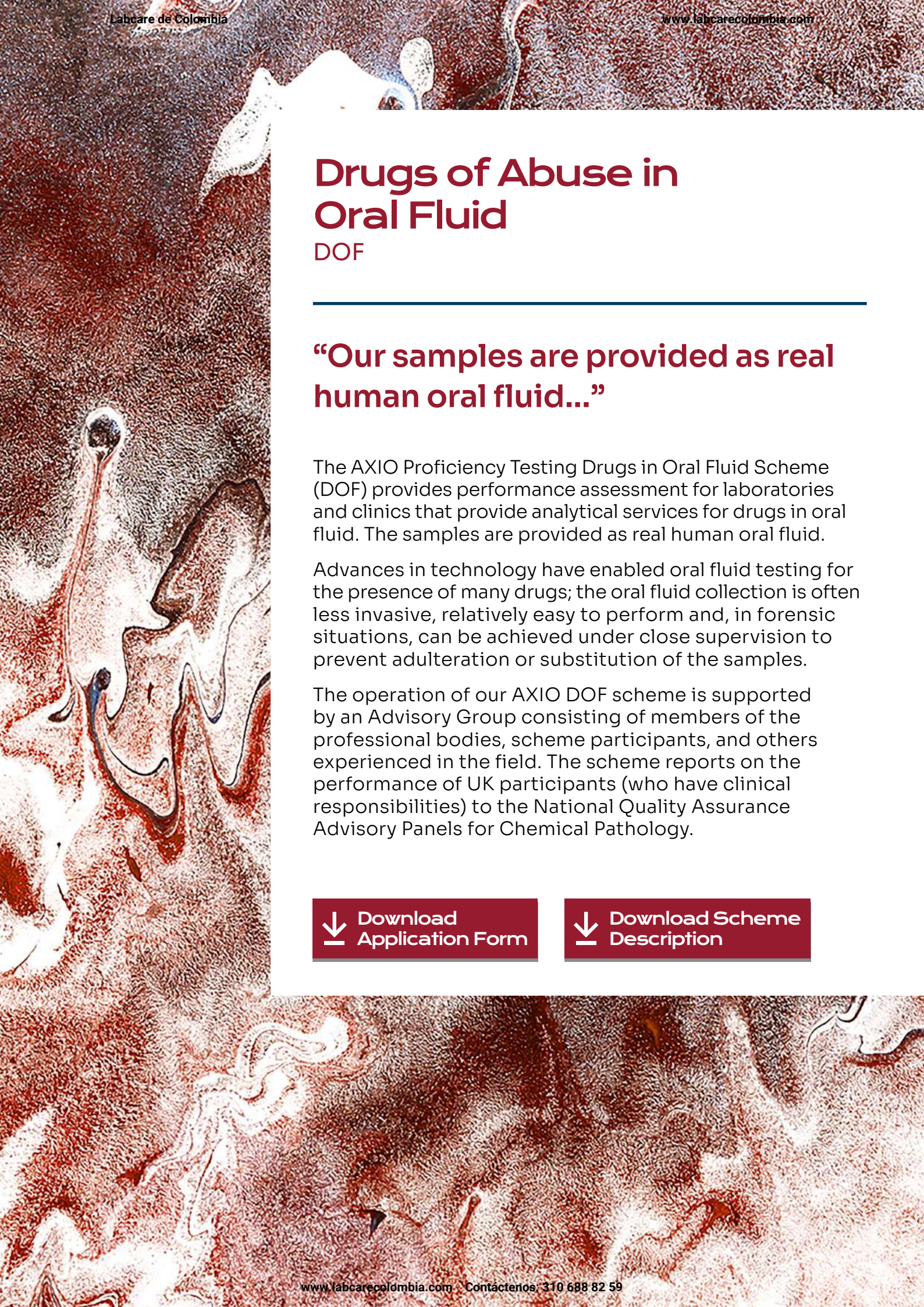

Drugs of Abuse in Oral Fluid

DOF

“Our samples are provided as real human oral fluid...”

The AXIO Proficiency Testing Drugs in Oral Fluid Scheme (DOF) provides performance assessment for laboratories and clinics that provide analytical services for drugs in oral fluid. The samples are provided as real human oral fluid.

Advances in technology have enabled oral fluid testing for the presence of many drugs; the oral fluid collection is often less invasive, relatively easy to perform and, in forensic situations, can be achieved under close supervision to prevent adulteration or substitution of the samples.

The operation of our AXIO DOF scheme is supported by an Advisory Group consisting of members of the professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of UK participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

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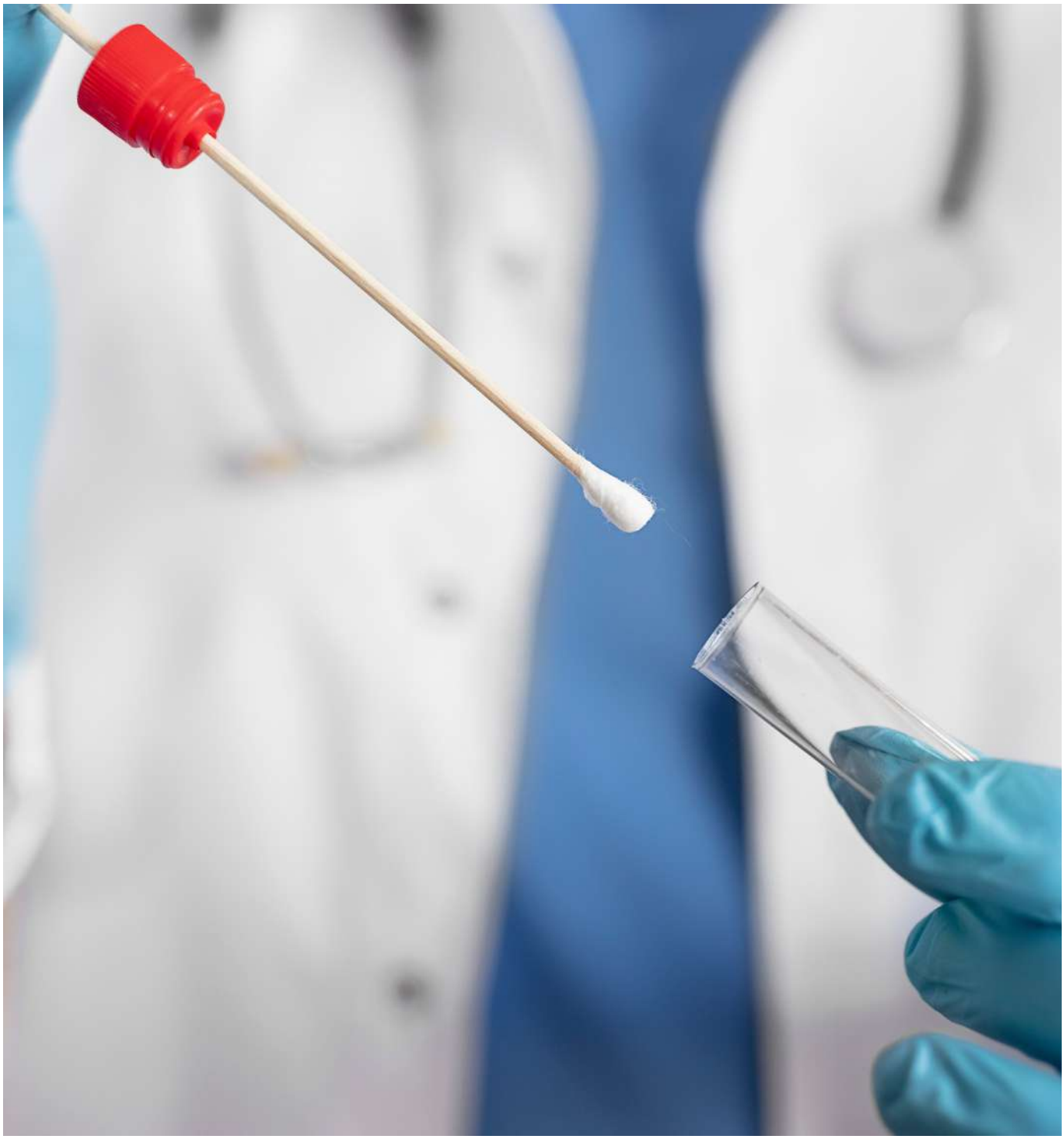
Sample Code	Matrix	Analytes	Rounds per year
PT-DO-OF	Oral fluid	Participants will receive three samples at quarterly intervals with 4 weeks being allowed for drug analysis. The samples consist of 1.7ml volume of oral fluid obtained from volunteers and known drug users. Participants report on the major misused drug groups, reporting to scheme thresholds.	4



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Drugs of Abuse in Hair

DAH

“Our samples consist of real, cut human hair”

Drugs and their metabolites, once ingested, become incorporated in hair. Analysis for these drug residues can provide a useful assessment of an individual’s intake of drugs over a prolonged period of time, as the window of detection for drugs in hair is significantly longer than other samples commonly tested, such as blood, urine, and saliva.

The AXIO Proficiency Testing Drugs of Abuse in Hair Scheme (DAH) is suitable for laboratories performing forensic analysis of hair for drugs of abuse and provides an independent assessment of measurement quality. The test materials that we provide consist of real cut (2–3mm pieces) human hair that has been declared free from common drugs of abuse. The analytes are then incorporated by a method that includes soaking. Drugs (and/or metabolites) from six major classes are included during the scheme year.

The operation of the AXIO DAH scheme is supported by an Advisory Group consisting of members of professional bodies, scheme participants, and others experienced in the field.

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Sample Code	Matrix	Analytes	Rounds per year
PT-DH-01+2	Hair	For the identification and quantification of up to 4 analytes	4

Sample Code	Matrix	Analytes	Rounds per year
NEW PT-DH-03+4	Hair	Ethyl glucuronide (qualitative and quantitative)	4

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Forensic Schemes

AXIO Proficiency Testing provides a growing range of schemes for forensic science, presently dealing mainly with the analysis of explosives residues and Isotope Ratio Mass Spectrometry (IRMS), a specialised technique used to precisely measure small differences in the abundances of isotopes such as 2H/1H, 13C/12C, 15N/14N and 18O/16O.

Customers may also be interested in our clinical schemes dealing with drugs of abuse, such as our hair scheme (DAH), oral fluid scheme (DOF) and urine scheme (DAU).

Schemes available

Forensic Analysis for Explosives
FAE

Forensic Blood Toxicology
QUARTZ

Forensic Isotope Ratio Mass Spectrometry
FIRMS

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Forensic Analysis for Explosives

FAE

“Meet international standards with FAE”

To gain ISO/IEC 17025 and ISO/IEC 17020 accreditation for the analysis of trace explosives and associated chemicals, laboratories need to demonstrate their competent analysis, which is supported by participation in proficiency testing schemes.

LGC AXIO Proficiency Testing works in collaboration with the European Network of Forensic Science Institutes’ (ENFSI) Working Group on Explosives to provide our Forensic Analysis for Explosives Scheme (FAE). Participation in FAE allows laboratories to monitor performance and compare it with that of peers, as required by international standards ISO/IEC 17025 and ISO/IEC 17020.

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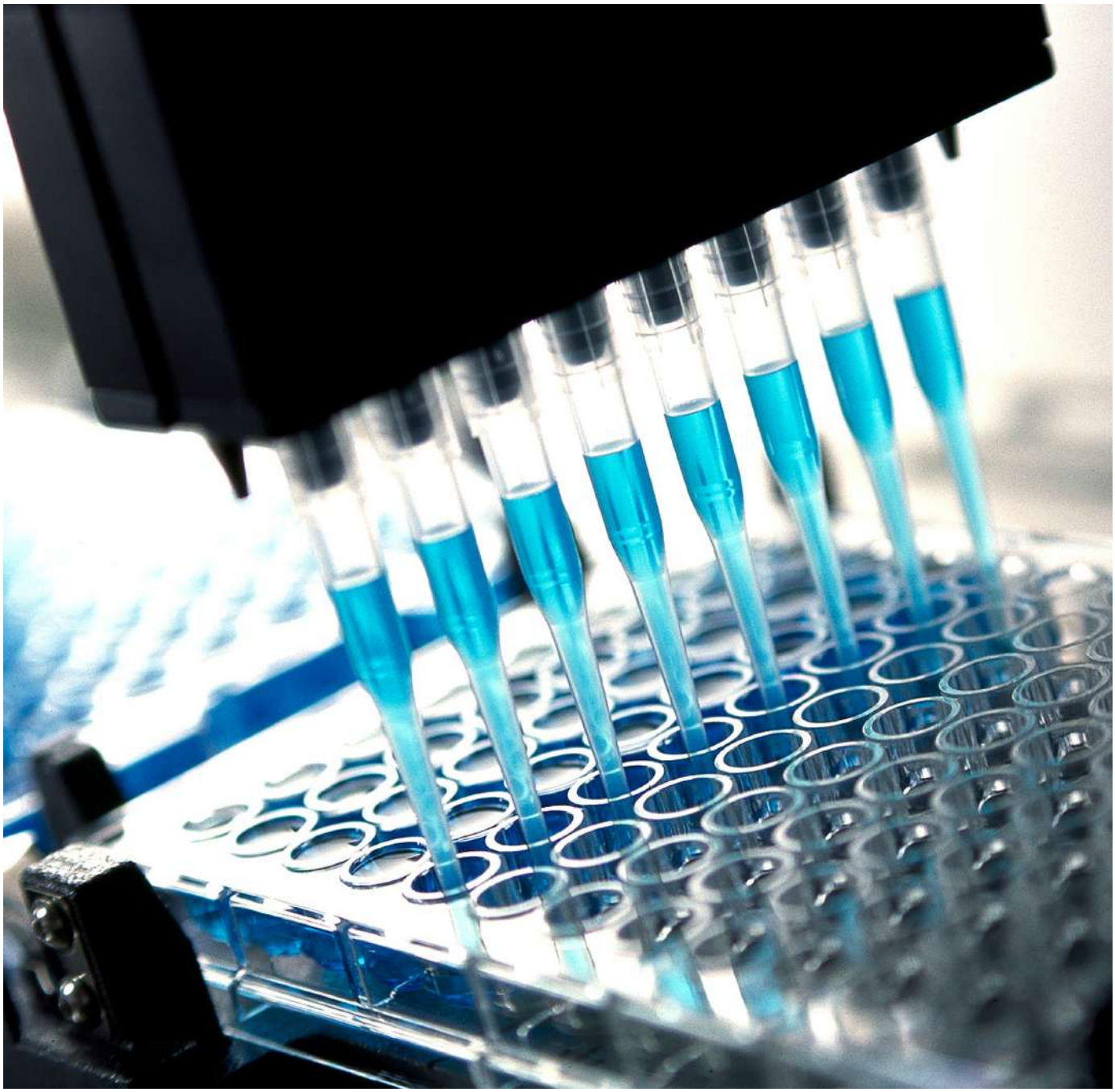
Sample Code	Matrix	Analytes	Rounds per year
PT-FA-ID	Liquid	Participants are provided with a case scenario and samples relating to this scenario. Details of the sample/samples will be supplied when they are distributed. Participants will receive: Samples for analysis and a corresponding Case Scenario. 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 swabbings and solutions for anion and cation analysis.	1



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Forensic Blood Toxicology

QUARTZ

“Choose from test materials to suit you”

The AXIO Proficiency Testing Forensic Blood Toxicology Scheme (QUARTZ) is aimed at laboratories undertaking forensic toxicology and coroners’ work. Test analytes and case scenarios included in the scheme are discussed regularly with the Advisory Group.

The scheme offers the choice of several test materials comprising blood and urine spiked with drugs and metabolites. Case scenarios provided for interpretation include sudden and suspicious deaths, drug-facilitated sexual assaults (DFSA), impaired driving, and other relevant cases.

Participation in QUARTZ will provide independent performance assessment and confidence that results are meaningful and accurate. Consistent satisfactory performance will allow laboratories to demonstrate to third parties, customers, regulators and accreditation bodies the quality of their results.

The operation of our QUARTZ scheme is supported by an Advisory Group consisting of members of the professional bodies, scheme participants, and others experienced in the field.

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Sample Code	Matrix	Quantity of Matrix	Analytes	Number of Rounds
PT-QZ-01+02	Blood	2 x 10ml	Sample 1: Participants will be asked to identify up to 4 drugs relevant to forensic toxicology; Sample 2: Quantification of a known drug (full identity or generic classification)	4
PT-QZ-03A	Blood	10ml	Sample A; Rounds QZ092 and QZ094 Quantification of Morphine; Methadone; Amphetamine; Diazepam	2
PT-QZ-03B	Blood	10ml	Sample B; Rounds QZ093 and QZ095 Quantification of Citalopram; Codeine; Amitriptyline; Tramadol	2
PT-QZ-04	Blood	10ml	Quantification of alcohol and fluoride in a blood sample	2
PT-QZ-05	Paper exercise	-	Interpretation of a case study (with analytical data, and a scenario or witness statement) to determine the potential blood alcohol level at a given time	2
PT-QZ-06	Blood	10ml	Participants are asked to quantify/identify a range of new psychoactive substances; (NPS). Two substances are named and are for quantification and a further two substances are not named and are to be identified by screening (quantification results may also be included)	2
PT-QZ-07	Blood	10ml	Participants are asked to screen for synthetic cannabinoids and identify one of the most common synthetic cannabinoids	2
PT-QZ-08	Urine	10ml	Participants are asked to identify up to 4 drugs or metabolites relevant to forensic toxicology	2
PT-QZ-09	Urine	10ml	A urine sample specifically for New Psychoactive Substance screening and may include synthetic cannabinoids. Up to two substances may be present. No interpretation is required	2
PT-QZ-10A	Blood	10ml	Sample A; Rounds QZ092 and QZ094 Quantification of Oxycodone; Pregabalin; MDMA; Mirtazapine	2
PT-QZ-10B	Blood	10ml	Sample B; Rounds QZ093 and QZ095 Quantification of Loratidine; Gabapentin; Quetiapine; Valproate	2

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Forensic Isotope Ratio Mass Spectrometry

FIRMS

“Supported by the FIRMS Network”

Isotope Ratio Mass Spectrometry (FIRMS) is a specialised technique that precisely measures small differences in the abundances of isotopes such as 2H/1H, 13C/12C, 15N/14N and 18O/16O. Subtle variations to the ‘natural’ abundance of these isotopes may be introduced during biological, chemical, and physical processes.

These changes enable the identification of materials that otherwise may not be differentiated, such that IRMS is used in many fields, including archaeology, medicine, geology, food authenticity, and forensics.

At AXIO Proficiency Testing, we recognise the importance of getting it right. Participation in our AXIO FIRMS scheme helps laboratories demonstrate competence in this analytical technique. The scheme is operated by AXIO Proficiency Testing and is supported by the FIRMS Network, which provides input on the choice of test materials and scheme performance.

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Sample Code	Matrix	Analytes	Rounds per year
PT-FM-01+2	Various products (waxes, oils, plant material, chitin)	01 - δ2H; δ13C; δ18O; δ15N; 02 - δ2H; δ13C; δ18O	1

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Petroleum Schemes

Petroleum products, such as oils and fuels, are tested throughout their lifespan, from the time oil is taken from the ground to beyond the petroleum recyclers. The concentration of contaminants and trace elements is vital in ensuring the quality and performance of oil and petroleum products.

AXIO Proficiency Testing has designed the PT Scheme OIL specifically to assist chemists and engineers working in a refinery and fuel, used oil, and lubricant laboratories to meet regulations.

Schemes available

Oil and Fuels

OIL

Sample Code	Sample Name	Analytes	Rounds per year
PT-OL-02	#2 Diesel fuel - 1 USgal (~3750ml) sample of Fuel	Acid Number; Ash; Base Number; BP distribution; Carbon; Carbon residue; Cloud point; Cold filter plugging point; Colour; Copper corrosion; Copper Filter Plugging Point; Density @ 15°C; Distillation; Fatty acid methyl esters; Flash point; Heat content; High temperature stability; Hydrocarbon Type (Aromatics); Hydrocarbon Type (Olefins); Hydrocarbon Type (Saturates); Lubricity (HFRR) wear scar diameter at 60°C; Nitrogen; Particulate contamination by filtration; Pour point; Sediment; Sulfur content; Viscosity (Kinematic @40°C); Water	1
PT-OL-04	Crude oil - 2 x 1000 ml Rohöl	Acid Number (potentiometric); API Gravity; Asphaltenes; Density @ 15°C; High temperature simulated distillation (HTSD); Iron; Micro carbon residue; Nickel; Pour point; Reid vapor pressure; Relative Density; Salt; Sediment; Total nitrogen; Vanadium; Viscosity (Kinematic @40°C); Water	1
PT-OL-05	Engine oil lubricants - ¾ USgal (~2800 ml) Schmieröl	Acid Number (potentiometric); Ash; Ash sulfated; Barium; Base Number; Calcium; Colour; Demulsibility, emulsion; Demulsibility, oil; Demulsibility, total free water; Demulsibility, water; Density @ 15°C; Evaporating Loss; Flash Point (Closed Cup); Flash point (Open Cup); Gelation index; Gelation Index Temp; HTHS Viscosity @ 150°C; Magnesium; Molybdenum; Nitrogen; Phosphorus; Potassium; Pour point; Saponification value; Shear stability @ 100°C; Silicon; Sodium; Sulfur content; Viscosity (Kinematic @100°C); Viscosity (Kinematic @ 40°C); Viscosity, Low Temperature @ - 25oC; Viscosity, Low Temperature @ 10000 mPa*s (cP); Viscosity, Low Temperature @ 20000 mPa*s (cP); Viscosity, Low Temperature @ 30000 mPa*s (cP); Viscosity, Low Temperature @ 40000 mPa*s (cP); Viscosity, Low Temperature @ 5000 mPa*s (cP); Viscosity, Tapered Bearing @ 150oC; Viscosity, Tapered Plug @ 150oC; Volatility (GC); Water (Procedure A); Water (Procedure B); Water content; Zinc	1
PT-OL-06	Simulated In Service Engine Oil - 1 x 250ml sample of Simulated In Service Engine Oil and 1 x 50ml sample of New Oil	Acid Number; Aluminium; Antimony; Barium; Base Number; Boron; Cadmium; Calcium; Chromium; Copper; Flash Point (Closed Cup); Flash point (Open Cup); FTIR, Fuel Dilution; FTIR, Glycol; FTIR, Nitration (Procedure A); FTIR, Nitration (Procedure B); FTIR, Oxidation (Procedure A); FTIR, Oxidation (Procedure B); FTIR, Phosphate (Procedure A); FTIR, Phosphate (Procedure B); FTIR, Sulfation (Procedure A); FTIR, Sulfation (Procedure B); FTIR, Water; Fuel Dilution; Glycol; Iron; Lead; Magnesium; Manganese; Molybdenum; Nickel; Particle Count Particles/mL > 14 µm (c); Particle Count Particles/mL > 38 µm (c); Particle Count Particles/mL > 4 µm (c); Particle Count Particles/mL > 6 µm (c); Particle Count Particles/mL > 70 µm (c); Pentane Insolubles; Phosphorus; Potassium; Silicon; Silver; Sodium; Tin; Titanium; Vanadium; Viscosity (Kinematic @100°C); Viscosity (Kinematic @40°C); Water content; Zinc	1

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FAQs

About Proficiency Testing

What is proficiency testing?

Proficiency Testing (PT) provides a regular independent assessment of the the technical performance of a laboratory to assure the validity of measurements and tests, which should form part of an overall quality strategy. PT is often referred to as external quality assessment (EQA), especially in the medical/clinical arena.

The practice of testing unknown test materials from an outside source provides an additional, independent, means to assure the quality of laboratory test results.

One of the most common designs for a PT scheme is for the provider to designate specific dates throughout the year when it will send test materials to all participants at the same time.

The test materials, whose expected values are unknown to the subscribers, are analysed by the laboratory staff who return their results to the proficiency testing provider.

The results are reviewed (using statistical techniques described in ISO 13528) to determine acceptable performance levels, and an evaluation is issued to each participant.

The evaluation and accompanying statistical data not only capture the laboratory's current performance, but over time allow the quality team to analyse trends and improve the laboratory's long term performance.

Proficiency testing is a key element in the laboratory accreditation process, alongside reference materials, enabling laboratories to monitor the quality of their analytical results as stipulated in ISO/IEC 17025 and ISO 15189.

Why enrol in a proficiency testing scheme?

- Compare your laboratory's results to those of others performing the same test or measurement.
- Demonstrate and identify performance trends.
- Monitor test performance across all of your organisation's laboratories.
- Complement internal check sample programs.
- Demonstrate competency to customers, accreditation bodies and other regulatory bodies.
- Fulfil accreditation requirements.
- Verify methods and instrumentation.
- Manage risk through early warning of potential problems.
- Educate and train staff.
- Check the reasonableness of the laboratory's estimated measurement uncertainty.

About AXIO Proficiency Testing

Which international standards are relevant to AXIO Proficiency Testing schemes?

In terms of stipulating the use of proficiency testing, the main standards are ISO/IEC 17025 - General requirements for the competence of testing and calibration laboratories; and the clinical standard ISO 15189 - Medical laboratories – requirements for quality and competence. All our PT schemes are operated in accordance with the international standard ISO/ IEC 17043. The statistical analysis undertaken is in accordance with the international standard ISO 13528. LGC is accredited by the United Kingdom Accreditation Service (UKAS) for the provision of proficiency testing schemes against ISO/IEC 17043 (No. 0001); a copy of our current scope of accreditation which lists the accredited schemes is available on our website: **lgcstandards.com**

How are your PT schemes organised?

The day-to-day operation of each PT scheme is the responsibility of LGC. Individual schemes are managed by a team of Scheme Coordinators, to cover reporting, customer service and technical functions. For some schemes, external advisors may also be used to provide the full range of relevant knowledge and expertise needed to operate the scheme effectively. A small number of schemes are run in collaboration with other organisations.

Do you use Advisors and Advisory Groups?

Yes, depending upon the PT scheme in question. Advisors are selected on the basis of their technical knowledge and experience of the industry to which the scheme is related. Advisors may be used on an ad-hoc basis and contacted when specific issues need to be addressed.

Alternatively, formal Advisory Groups may be used. Advisory Groups consist of members who may or may not be participants on the scheme but who are experienced in the field of testing covered by the PT scheme.

The composition and terms of reference of each Advisory Group will be agreed on a scheme-by scheme basis.

Do you run PT schemes that are jointly managed?

Yes, some PT schemes are operated jointly with a partner organisation. Where schemes are operated jointly, a Management Committee may be set up to address operational issues for the scheme.

What are the fees for participation?

Fees for participation are reviewed annually and the current fees for each PT scheme are available on application. Payment terms are detailed on the application form and invoice. Participants are advised that delays with payments may result in test materials and/or reports being withheld until payments are made.

There do you source your PT test materials?

The vast majority of test materials are manufactured by LGC. Where this is not possible, test materials are carefully sourced to meet the needs of participants. Wherever practical, test materials will be as similar as possible to those samples routinely tested by participating laboratories. However, in some cases, in order to achieve the required degree of homogeneity and stability, test materials may be in the form of simulated matrices or concentrated spiking solutions. The analyte concentration range of test materials will usually be varied from round to round in order to be realistic and challenging. Details of individual test material types are available in the relevant scheme description.

How is PT test material stability affected by time, distance and temperature?

The test materials are all stable at the stated storage temperatures for at least the period of the PT scheme round. Studies have shown there is no significant difference between results of test materials tested the day after despatch and those tested on the deadline date. There is also no evidence that results are influenced by different climatic conditions of participating countries.

Distance travelled does not affect test material results. We have undertaken studies on a number of our PT test materials comparing the average result according to distance travelled, and no correlations have been found. Stability consideration is an important part of the design and feasibility process for a PT scheme, where transport conditions such as temperature, humidity, pressure, exposure to x-rays etc are taken into account.

About the AXIO Proficiency Testing Process

How do I join a PT scheme?

Participants are advised to take part in the PT scheme(s) that are most fitting to their own area of testing. Where necessary, appropriate staff at AXIO Proficiency Testing can advise on which scheme is most suitable for participants.

For each scheme, a scheme description and application form will be available, containing information about the test materials included in the scheme, and the intended distribution dates. This information is available on our website: **lgcstandards.com/AXIO**

Participants are invited to place orders via our webshop at lgcstandards.com/pt by selecting which test materials they wish to receive in the PT scheme year. Alternatively, it is possible to complete an application form.

Once a completed webshop order or application form is received, an order confirmation will be sent to the participant, confirming the test materials selected and distribution date.

How often do I need to participate?

The frequency that a laboratory needs to participate in proficiency testing depends on a wide range of factors specific to each individual laboratory, such as other quality tools used, the volume of work undertaken and the risk associated to the measurements. Therefore every individual laboratory may have a different need, which is why PT schemes provided by AXIO Proficiency Testing offer flexible participation, although some do have a minimum participation level. Third parties, such as regulatory bodies, may recommend minimum levels of participation. To gain the benefit from trend analysis, participation in a minimum of four rounds over a scheme year is normally recommended.

How are PT test materials packaged and transported?

Test materials are packaged appropriately to protect the contents during transit. The majority of test materials are sent using priority courier. Overseas customers must provide relevant documents to prevent delay in customs such as import permits and may be required to pay import duties locally.

Once packages have been delivered, AXIO Proficiency Testing cannot be held responsible if they subsequently fail to reach the correct personnel or are not stored under the recommended conditions.

Participants are asked to check the contents of packages immediately on receipt and to contact AXIO Proficiency Testing if there are any problems with the condition of the test materials or accompanying documentation.

How do I treat my PT test material?

It is important for laboratories to understand how to get the optimum benefit from PT participation. To do this, a laboratory must participate in an open and honest fashion, being prepared to, on occasion, be evaluated as unsatisfactory. If PT is to achieve its aims, laboratories need to treat the test materials the same as routine test materials, and staff must be encouraged to treat them appropriately and learn from their results in a constructive manner.

Do I have to use specific methods to analyse the PT test materials?

Unless otherwise instructed, participants should analyse the test materials using any method that they feel is appropriate.

Participants are asked to treat the test material in the same way as a routine sample. Participants may be asked to state their method when reporting results. It is important that this information is accurate as results are analysed and reported according to the method stated.

Do I have to report my results within a specific timescale?

Deadlines are specified for the return of results, to ensure the timely issue of assigned values and reports to participants. For each PT scheme a closure date will therefore be specified. For certain tests there may also be a date specified by which examination of the test material is recommended to have been commenced. This is to ensure that sufficient time is available to complete the test and report results in time for the deadline date.

About AXIO Proficiency Testing Schemes

How should I report my results using PORTAL?

For the majority of PT schemes, results are returned through our bespoke electronic reporting software, PORTAL. Once you are ready to report your results, please go to: **portal.lgcstandards.com** You will need to log in using your lab ID, username and password. We advise that prior to using PORTAL you read the user guide which is available at: **portal.lgcstandards.com** select 'help' from the menu.

If you require further assistance please contact our support team:
Tel: **+44 (0)161 762 2500**
Email: **ptsupport@lgcgroup.com**
or your local LGC office.

For some schemes (or parts of a scheme) alternative reporting mechanisms are provided, details of which will be emailed to participants prior to test materials receipt.

It is recommended that results and calculations are checked thoroughly before reporting. Results should be reported clearly, in the format and units detailed in the scheme description. If calculations are used, unless instructed otherwise, the laboratory is to report only the final calculated result.

In general, results of zero should not be reported; results should be reported depending upon the detection limit of the method used, for example, <10. The exception is a small number of parameters, where it may be appropriate to report a result of zero, depending on the measurement scale being used. Results of zero and truncated results, such as < or > cannot often be included in the data analysis and therefore allocated a performance score.

Results will be rounded up or down to the number of reporting decimal places stipulated in the scheme description and may not therefore be identical to your original reported result. The effects of rounding mayalso mean that occasionally percentage totals do not add up exactly to 100%.

Part of the challenge of proficiency testing is the ability to perform calculations and transcribe results correctly. The proficiency testing team cannot interpret or calculate results on participants' behalf. Once submitted and received, results cannot be amended and no changes can be made after the report has been issued. However, if you notice an error in your result before the reporting deadline, this can be corrected using PORTAL until the round closes.

How many results may I submit?

Although it is desirable for participants to submit multiple results in order to compare results between different analysts, methods or instruments, a single laboratory reporting a large number of results could potentially bias the dataset. In order to minimise the effects of bias, AXIO Proficiency Testing therefore limits the number of results participants are able to report. Each participant is able to enter up to 13 different results. Of these results a maximum of 3 results can be 'nominated'. Nominated results are included in the statistical analysis of the dataset whilst non-nominated results are not, however all results will receive z performance scores and assessments as appropriate.

Nominated results must be obtained using different methods, again to minimise the effects of bias.

Further information is available in the PORTAL User Guide and the PORTAL Nominated Results FAQ, both of these documents are available for download from the PORTAL website and further information is available from **ptsupport@lgcgroup.com**

Can my results be included in the report if I've missed the deadline for reporting?

Participants are asked to return results by the given deadline in order to ensure that their results are included in the statistical analysis and the scheme report. Results received after the closure date will not be included in the report.

For PT schemes where a generic report is issued, this is available to all participants subscribing to the round regardless of whether their results were submitted or not.

Are microbiology results obtained from MPN methods comparable to those obtained using plate count methods?

MPN and plate counts are both estimates of the number of microbial cells in the original test material and therefore provided all dilutions and calculations have been performed correctly, results should be comparable.

For QWAS and QMS, comparing MPN results against results obtained from all other methods show no significant differences.

About Reporting & Evaluating Results

How is the assigned value established?

ISO 13528: 'Statistical Methods for use in Proficiency Testing by Interlaboratory Comparisons' sets out how the assigned value and performance assessment criteria can be established and describes the options for the various performance scoring systems.

The assigned value is the value selected as being the best estimate of the 'true value' for the parameter under test. The method used to determine the assigned value may vary depending upon the particular PT scheme and test material and is detailed in the relevant scheme description.

For quantitative tests, where it is appropriate, practicable and technically feasible, the assigned value will be derived through formulation (or occasionally through the use of a certified reference material) to provide metrological traceability; the associated uncertainty of the value can thereforebe estimated. However, in many cases the use of a consensus value is the only practicable and technically feasible approach to use. When the assigned value is determined from the consensus value of participant results, or from expert laboratories, robust statistical methods are used for calculation of the consensus value, the estimated standard uncertainty and the robust standard deviation.

For qualitative tests, participant results are compared against the intended result (assigned value) based on formulation or expert assessment.

For interpretive schemes where the result is subjective rather than quantifiable, a model answer produced by appropriate experts will be published in the report.

For microbiology test materials, all participant results are transformed by converting them to log10 before the statistical analysis is undertaken.

How do I evaluate measurement uncertainty?

The aim when evaluating measurement uncertainty is to combine the effects of all the errors that will influence the measurement result, into a single value. There are many different guides available which provide advice on evaluating measurement uncertainty.

There are two specific guides that are internationally recognised:

- ISO (BIPM, IEC, IFCC, IUPAC, IUPAP and OIML) 'Guide to the Expression of Uncertainty in Measurement'
- EURACHEM/CITAC Guide 'Quantifying Uncertainty in Analytical Measurement' (available at: **www.eurachem.org)**.

Further information on approaches to evaluating measurement uncertainty may also be available from your national accreditation body.

Can I use PT data to estimate my measurement uncertainty?

It is possible, but must be regarded as a very rough estimate, and is not an approach addressed in many guides to evaluating measurement uncertainty. However documents that do address the use of PT data are:

- EURACHEM/CITAC Guide 'Quantifying Uncertainty in Analytical Measurement' (available at **www.eurachem.org**)
- NORDTEST Report TR 537 'Handbook for Calculation of Measurement Uncertainty in Environmental Laboratories'
- ISO 19036 'Microbiology of Food and Animal Feeding Stuffs - Guidelines for the Estimation of Measurement Uncertainty for Quantitative Determinations'.

What is the Standard Deviation for Proficiency Assessment (SDPA)?

The SDPA expresses the acceptable difference between the laboratory result and the assigned value.

An acceptable z performance score represents a result that does not deviate from the assigned value by more than twice the SDPA. The method used to determine the SDPA may vary depending upon the particular PT scheme and test material and is detailed in the relevant scheme description.

A fit for purpose value for SDPA, rather than being derived from participant results, is preferable as this enables z scores to be compared from round to round to demonstrate general trends.

For each scheme, the value of SDPA and the method used to derive it is reported in the scheme description and/or report.

About Reporting & Evaluating Results

What standard deviation for proficiency assessment (SDPA) is used in microbiology PT schemes?

There are many sources of variation in microbiological testing and the SDPA used to assess performance therefore needs to be fit-for-purpose and take all possible sources of variation into account. Fromexperience and historical data, AXIO Proficiency Testing uses a fixed SDPA value of 0.35 log10 for the majority of microbiological tests.

How do I report a 'presumptive' result in microbiology?

Report your result as usual but record in the comments section that the result is 'Presumptive'.

What is the purpose of scoring my result?

Once the assigned value for the parameters under test has been established, participant laboratories are assessed on the difference between their result and the assigned value, with this difference being represented by a performance score called a z score. This provides a simple and consistent measure of performance which is the key to monitoring competence and implementing an improvement programme as required.

How is a z score calculated?

The participant's result, x, is converted into a performance score (z score) using the following formula:

$$z = \frac{(x - X)}{SDPA}$$

Where: X = the assigned value

SDPA = Standard Deviation for Proficiency Assessment

For small data sets, there will be increased uncertainty around the assigned value if derived from a consensus value from participants' results. In such cases, performance scores may not be provided, or may be given for information only.

The z score expresses performance in relation to the assigned value and the standard deviation for proficiency assessment (SDPA). A z score of 2 represents a result that is a distance of 2 x SDPA from the assigned value.

How do I interpret my results?

For quantitative examinations, participant performance is assessed using the z score, and the following interpretation is given to results:

$\|z\| \geq 2.00$	Satisfactory result
$2.00 < \|z\| < 3.00$	Questionable result
$\|z\| \geq 3.00$	Unsatisfactory result

For qualitative examinations or semi-qualitative results, laboratories reporting the assigned result or range of results will be considered correct, and therefore have satisfactory performance.

What are the advantages of using a z score to assess performance?

- Results can be expressed in a form that is easy to interpret and understand.
- Results can be summarised in graphical or tabular form to depict overall performance.
- A z score allows participants to directly compare their own result with others.
- If consistent statistical values are applied, a z score enables participants to monitor and trend their own performance over time.

It is important to interpret any performance score in the full context of the overall results and in the context of a laboratory's own quality control measures.

About Reporting & Evaluating Results

What is the estimated uncertainty of the assigned value?

The assigned value has a standard uncertainty (ux) that depends upon the method used to derive the assigned value. When the assigned value is determined by the consensus of participants' results, the estimated standard uncertainty of the assigned value can be calculated by:

ux = 1.25 x Robust standard deviation/√n

Where n = number of results

When the assigned value is determined by formulation, the standard uncertainty is estimated by the combination of uncertainties of all sources of error, such as gravimetric and volumetric measurements.

If ux is ≥ 0.3 x SDPA, then the uncertainty of the assigned value can be considered negligible and need not be considered in the interpretation of results.

If ux is > 0.3 x SDPA, then the uncertainty of the assigned value is not negligible in relation to the SDPA and so z' (z-prime) performance scores, which take into account the standard uncertainty of the assigned value in their calculation, will be reported in place of z scores.

How is a z' (z-prime) score calculated?

A z' score incorporates the standard uncertainty of the assigned value and is calculated as follows:

$$z' = \frac{(x - X)}{\sqrt{SDPA2 + ux2}}$$

Where x = participant result

X = the assigned value

SDPA = Standard Deviation for Proficiency Assessment

ux = standard uncertainty of the assigned value X

A z' score is interpreted in exactly the same way as a z score, ≥2 is satisfactory, >2 but >3 is questionable and ≥3 is unsatisfactory.

Do you include outlying results due to 'errors and blunders' in the statistical analysis of the data?

Although robust estimators are used in order to minimise the influence of outlying results, extreme results or results that are identifiably invalid should not be included in the statistical analysis of the data. For example, these may be results caused by calculation errors or the use of incorrect units. However, such results can be difficult to identify by the PT provider. For this reason, the robust mean and standard deviation will be calculated in the usual way, but those results that are out of the range of the assigned value ± 5 x SDPA will be excluded and the robust mean and standard deviation will then be recalculated. These recalculated values will be used for the statistical analysis. By removing these 'blunders' from the dataset any influence on the summary statistics is minimised. All results, including excluded results, will be given performance scores.

How can I graphically plot and analyse trends for qualitative results?

Qualitative results are difficult to depict graphically as they are not normally allocated a performance score. However for qualitative results, a correct result could be allocated a performance score of 0 to represent a satisfactory result. A false positive result can be represented by a performance score of + 3, whilst a false negative result can be represented by a performance score of - 3. If plotted graphically over time, this should give a clear visual indicator of performance in qualitative tests.

How will I receive my report?

Following statistical evaluation of the results, the reports will generally be available on the website within 4 to 10 working days of round closure (see specific scheme description). We aim to provide 95% of our reports to participants within 5 working days. Participants will be emailed when the report is available. The content of reports vary from scheme to scheme but include details of the composition of test materials, the assigned values, and tabular and / or graphical representations of participants' results.

About Reporting & Evaluating Results

How do I assess the reproducibility standard deviation from the PT report?

The robust standard deviation provided in the PT report for a specific method can be taken as an estimate of the reproducibility standard deviation for the PT round for that specific method.

Can I have a report that only includes my group laboratories?

Yes, we can produce reports tailored to a customer's specific requirement. There may be an additional charge for administration and computer programming costs.

My results have not been included in the report. Can I calculate my performance score (z or z' score)?

To calculate your performance score please visit: **portal.lgcstandards.com** Select 'submit results from the menu.

About Privacy & Confidentiality

Can you guarantee my laboratory's confidentiality?

In order to ensure confidentiality, participants in all PT schemes are allocated a unique laboratory reference number. This number enables results to be reported without divulging the identities of participant laboratories. Only staff within the proficiency testing team and the laboratory itself will know this number.

How do you prevent collusion and falsification of results?

It defeats the objective of taking part in proficiency testing if participants are not returning genuine results. Certain measures are built into the PT schemes to try and prevent collusion but, ultimately the responsibility rests with each participating laboratory to behave in a professional manner.

About Driving Quality Together

What could be the cause of my poor performance?

A single poor result is not indicative of overall laboratory performance but neither is a single good result. Ideally, PT results should be monitored over time to detect potential bias or repeated unsatisfactory results. There are many possible reasons for a single poor result. It is therefore important to interpret the results from PT schemes within the context of an all round quality assurance programme, including internal quality control, use of validated methods and reference materials. There are numerous potential causes of poor performance in a PT scheme which may include analytical and non-analytical errors.

Analytical errors

- Calibration / instrument problems
- Extraction / clean-up
- Interferences / matrix effects
- Diagnostic kits / reagents
- Analyst / method performance

Non-analytical errors

- Calculation / transcription
- Reporting format / units
- Poor / incorrect storage
- Test material defects

Test materials are subjected to rigorous quality control testing before being distributed to participants, and are unlikely to be the cause of a poor performance score. All possible reasons for a poor performance should be investigated fully in order to identify the most likely cause and to enable action to be taken to prevent recurrence. Repeat test materials are available after every distribution, but it is most important to investigate and understand the reason(s) for the failure, document this fully, and carry out corrective actions before repeating a test.

How can I measure my laboratory's performance over time?

You can do this by trend analysis. A single result simply reflects the performance of the laboratory on the particular day that the test was carried out and therefore gives limited information. Frequent participation in PT schemes over time can give greater insight into long-term performance and can help identify where internal bias may be occurring.

One of the best methods of summarising performance scores over time is graphically as this gives a clear overview and is less prone to misinterpretation than numerical methods. Participants are therefore advised to monitor their PT results over time.

An online trend analysis tool is included in the cost of your PT participation with AXIO Proficiency Testing. The online tool is built into the PORTAL reporting system and allows you to quickly plot your results over a range of rounds and easily download the charts for further circulation.

More information regarding interpretation and trend analysis of proficiency testing results is given in the Eurachem guide on 'Selection, Use and Interpretation of Proficiency Testing (PT) Schemes' (available at **www. eurachem.org**) and ISO 13528.

How can I receive advice and feedback?

Communication with participants will be carried out through PT scheme-related documentation, emails, letters, or through local LGC offices. Open meetings may also be organised and all interested parties invited to attend.

How can I send feedback?

Comments on any aspect of our products and services are welcome either by phone, letter, email or by contacting your local LGC office.

Can I suggest a PT scheme or test material?

We welcome suggestions any time. Please complete the 'Wish list' form on our website: **lgcstandards.com/AXIO**