

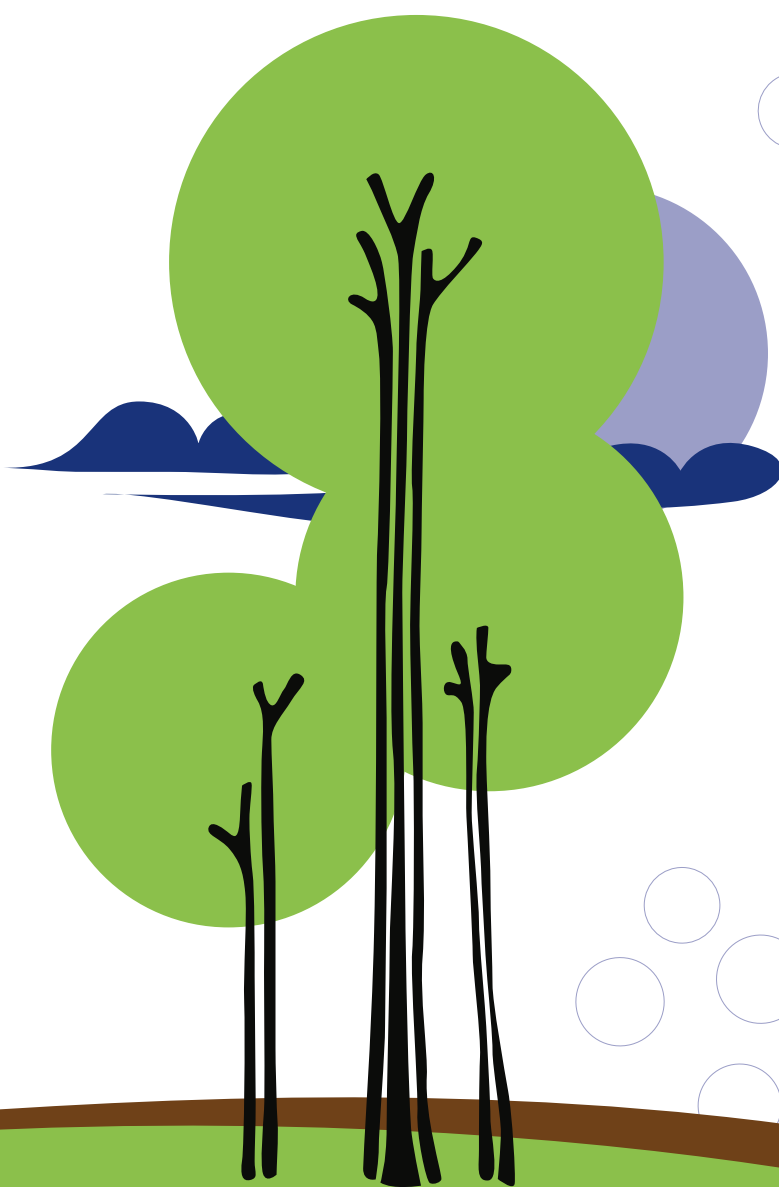
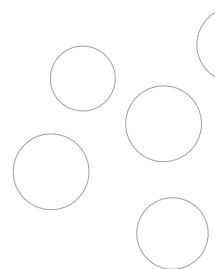
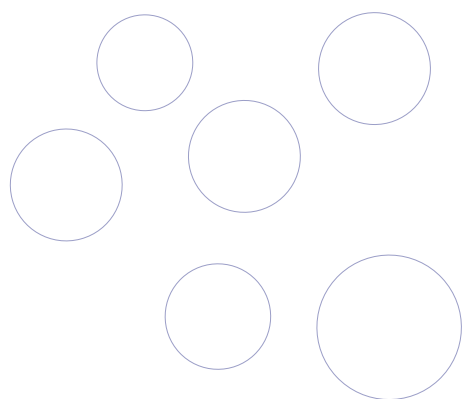


ielab

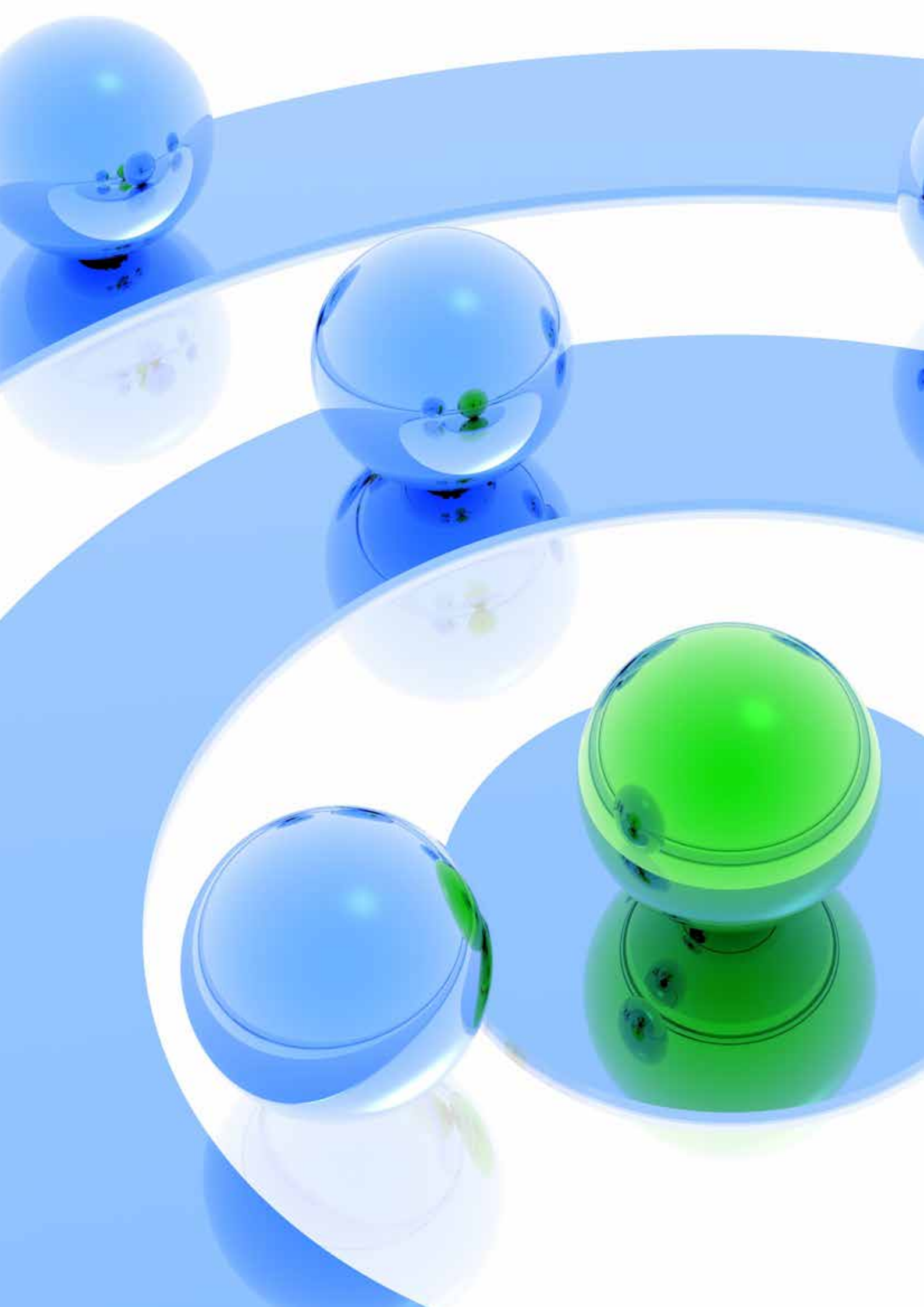
Making quality control easy

PROFICIENCY
TESTING SCHEMES

2019



Issue October 2018



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ielab: committed with Quality Control

ielab is an international company dedicated to provide products and services for the implementation of quality in testing laboratories.

Taking the Quality as the main reference, together with the independence and the response to the technological needs that have arisen in the course of our work, we have been adapting our resources and expanding our services. Our commitment to quality and efficiency are demonstrated by the certification of all our activities in accordance with ISO 900, our accreditation in accordance with ISO / IEC 17043 as a Proficiency Testing Schemes provider and our accreditation under ISO Guide 34 as a Reference Material Producer.

ielab's international Proficiency Testing Schemes are a prestigious instrument to evaluate, compare and improve the quality of the results of environmental testing laboratories, with more than 1,200 participants worldwide.

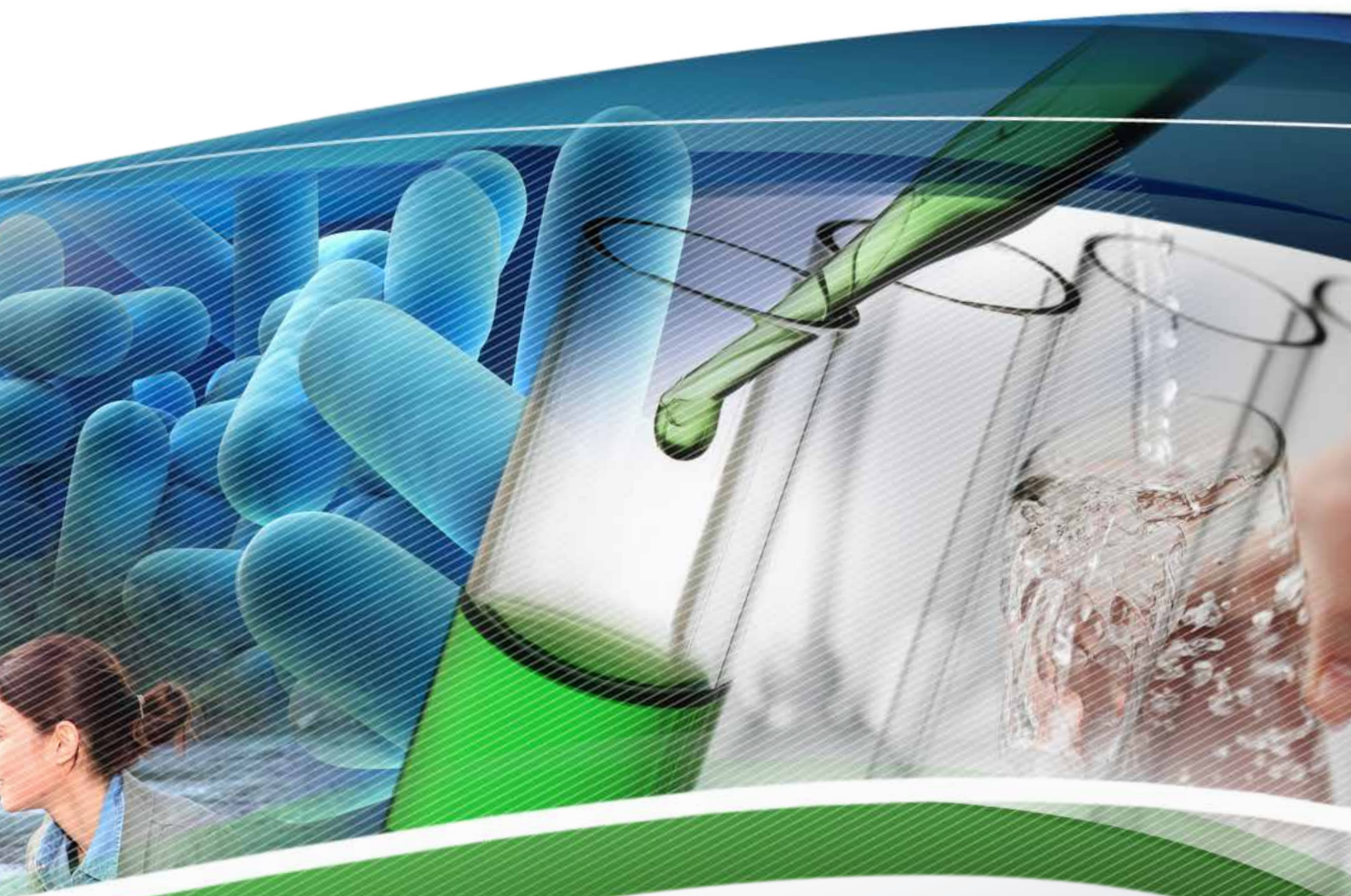
Besides the Proficiency Tests presented in this catalogue, **ielab** offers reference materials, diagnostic systems and consulting services that facilitate quality control tasks in the laboratory.



Objectives of Proficiency Testing Schemes

Proficiency Testing Schemes consist in the organization, development and evaluation of tests (of the same item or similar items) by several laboratories, according to predefined conditions.

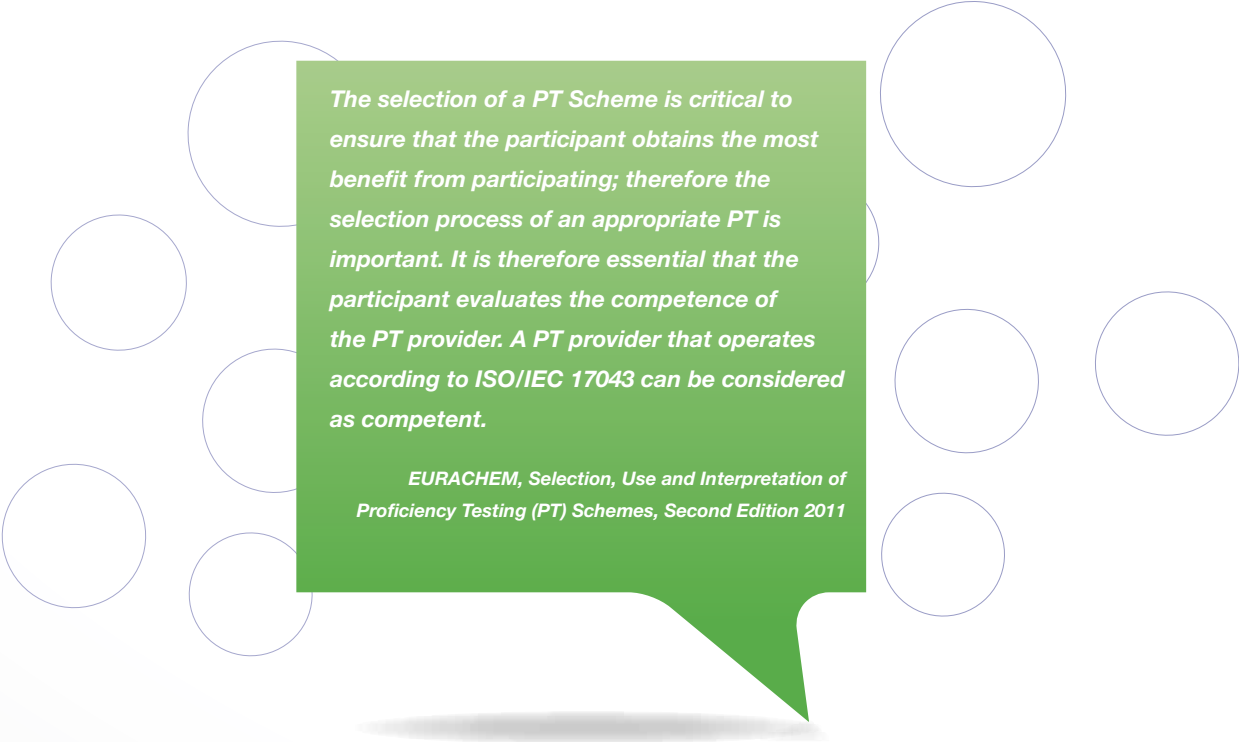
Proficiency Testing Schemes (also known as “Intercomparisons”) are organized at all levels of science, but the objectives, protocols and participants may vary. In certification assays, measurements are used to assign values to reference materials and evaluate their validity for their use in specific test procedures. Validation studies of methods (collaborative trials) are used for the characterization of methods. If the aim is to use intercomparisons to assess the effectiveness of a laboratory for testing or measuring, it is called a proficiency test (PT).



Who should participate in Proficiency Testing Schemes?

ISO 17025 states: “The laboratory shall have procedures for quality control for monitoring the validity of tests and calibrations performed” and includes participation in intercomparison programs between the basic tools for quality assurance, so participation in intercomparison programs is essential for all accredited laboratory according to the standard. Confidence that a testing laboratory produces consistently reliable results is essential for users of its services. Therefore accreditation authorities expect from accredited laboratories regular and successful participation in intercomparison programs.

In addition, any laboratory that needs to demonstrate the quality of its analytical results in an independent way should participate in Proficiency Testing Schemes, since the quality of the analytical results is directly linked to the quality of service / product, to the market credibility and brand image.



The selection of a PT Scheme is critical to ensure that the participant obtains the most benefit from participating; therefore the selection process of an appropriate PT is important. It is therefore essential that the participant evaluates the competence of the PT provider. A PT provider that operates according to ISO/IEC 17043 can be considered as competent.

EURACHEM, Selection, Use and Interpretation of Proficiency Testing (PT) Schemes, Second Edition 2011

Benefits of participating in Proficiency Testing Schemes

Participation in Proficiency Testing Schemes is an essential tool to demonstrate the technical competence of the laboratory and it allows to:

- Compare own results with those obtained by other laboratories.
- Confirm the correct initial validation of a method.
- Use the data obtained from participation in Proficiency Testing Schemes for validation of measurement methods.
- Determine systematic errors.
- Improve the test method used.
- Learn from the methods used by other laboratories.
- Monitor the accuracy and precision of the method.
- Encourage collaboration between laboratories.
- Demonstrate technical competence against third parties.



Why choose ielab as your Proficiency Test Provider?

- Applied statistical studies have high significance, since the number of participants is high, with more than 1,200 participants from 53 countries.
- As a provider accredited by ENAC according to ISO / IEC 17043, compliance with the requirements of this standard is objectively demonstrated.
- Access to a wide range of schemes with a single supplier.
- Quick results reports delivery.
- Specialized technical support and extensive experience in quality control and in the organization of Proficiency Testing Schemes.
- Service capacity and continuous improvement, adapting our offer to the needs of the participants, including new tools and systems that improve and upgrade the services offered.
- Access to all general benefits that regular participation in Proficiency Testing Schemes brings.
- The large number and diversity of participants, both regarding the types of laboratories and their countries of origin, increases the robustness of the schemes, thanks to the different methodologies and techniques employed, which allows to make intercomparison studies between in the round reports.

Who participates in ielab's Proficiency Tests?

Our customers can be found among public and private independent laboratories and inspection bodies, laboratories of agrofood industries, pharmaceutical companies, cosmetic, chemical, petrochemical, drinking water supply companies, waste water treatment plants, etc. Participants also include research centers and universities, health authorities and agencies, municipalities and regulators.

We currently manage more than 1,200 participants from 53 countries and in 25 different schemes.

International Presence

ielab, in its expansion strategy, it is committed to a model of marketing of their products based in a network of specialized distributors, who have been selected for their:

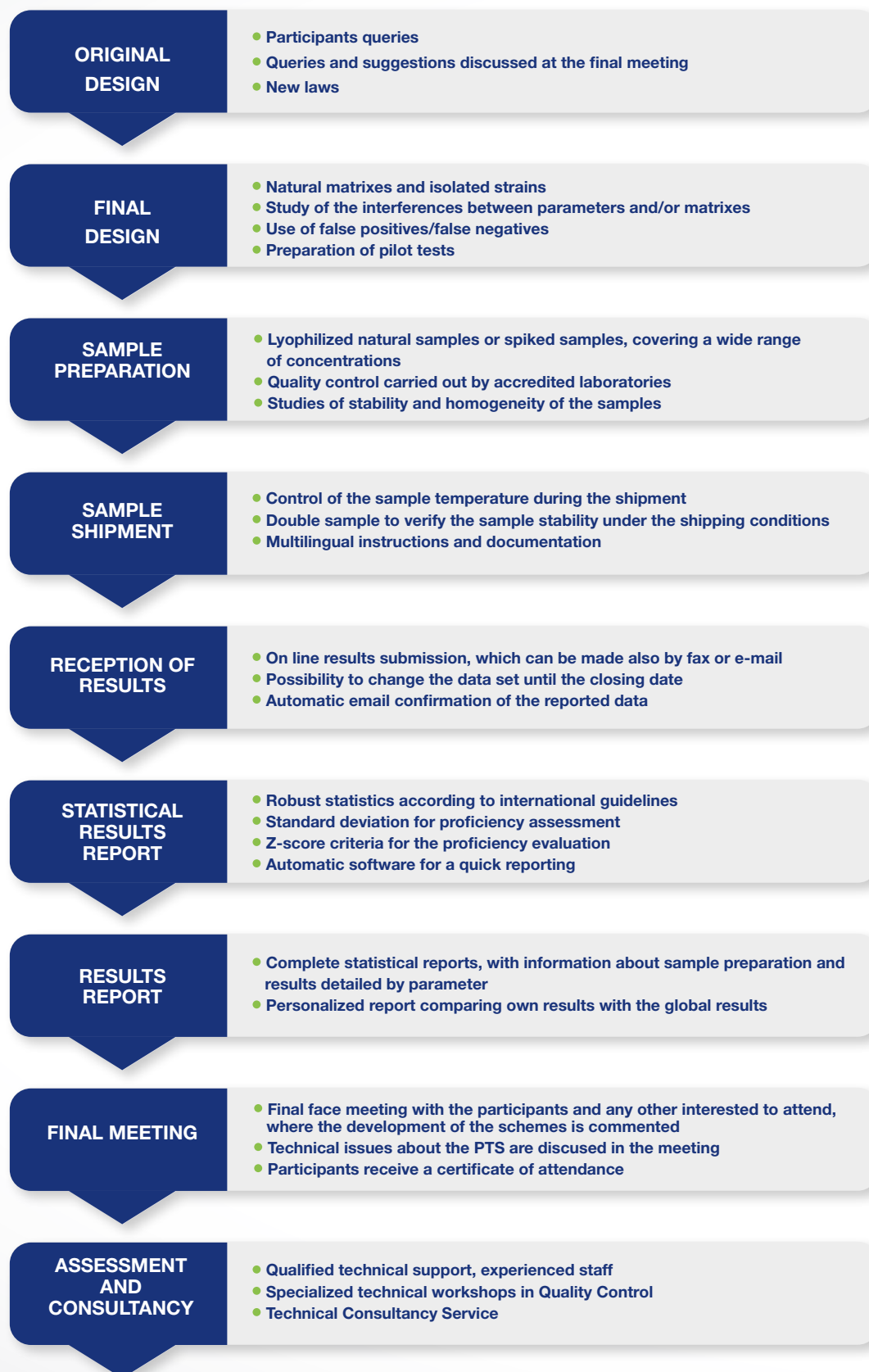
- Proximity to customers for an proper assistance
- Extensive knowledge of their customer's needs
- Broad experience in the sector

You can find further information about our distributors in the website **www.ielab.es**



ielab International presence. Customers = ● Distributors = ●

Main features of ielab Proficiency Testing Schemes



Information management system

WEB

ielab's website displays an specific area to manage the Proficiency Testing Schemes, where you can register, access to technical documentation, send the results, get the reports of the statistical studies and the participation certificates, download raw data in an Excel format, change your participation code, etc.

The advantages of using this application include:

- Quotations can be requested
- The participant can prepare a price quotation by itself
- Registration to Proficiency Testing Schemes
- Allows direct payment of the participation costs
- Private management of the participation code, keeping confidentiality so that the results are confidential even for the provider
- The participant has unlimited access to its information
- On line results reporting, allowing modifications until the established closing date
- Automatic email confirmation of the data registered by the participant in the database
- Traceability of the data
- Encrypted database
- Downloadable participation certificates
- Download of the results of each scheme in an Excel format.
- Access to the procedures and other technical documentation
- Access to results reports
- Availability of the presentations of the technical conferences to be downloaded



The screenshot shows the ielab website's registration interface. It features a sidebar with a menu of options including 'Cuentas nuevas', 'Cuentas existentes', 'Cuentas administrativas', 'Cuentas de usuarios', 'Cuentas de resultados', 'Cuentas de informes', 'Cuentas de certificados', 'Cuentas de estadísticas', 'Cuentas de datos', 'Cuentas de participantes', 'Cuentas de proveedores', 'Cuentas de clientes', 'Cuentas de socios', 'Cuentas de colaboradores', 'Cuentas de asesores', 'Cuentas de expertos', 'Cuentas de investigadores', 'Cuentas de científicos', 'Cuentas de académicos', 'Cuentas de profesionales', 'Cuentas de técnicos', 'Cuentas de operarios', 'Cuentas de personal', 'Cuentas de voluntarios', 'Cuentas de estudiantes', 'Cuentas de investigadores en formación', 'Cuentas de investigadores en prácticas', 'Cuentas de investigadores en posgrado', 'Cuentas de investigadores en doctorado', 'Cuentas de investigadores en predoctoral', 'Cuentas de investigadores en posdoctoral', 'Cuentas de investigadores en predoctoral', 'Cuentas de investigadores en posdoctoral', 'Cuentas de investigadores en predoctoral', 'Cuentas de investigadores en posdoctoral'. The main content area contains a registration form with fields for 'Nombre de usuario', 'Contraseña', 'Correo electrónico', 'Nombre completo', 'Dirección', 'País', 'Código postal', 'Teléfono', 'Fax', 'Web', 'Logo', 'Descripción', 'Sector', 'Actividad', 'Servicios', 'Contacto', 'Observaciones'. Below the form, there is a section for 'Información del usuario' with fields for 'Nombre', 'Apellido', 'Correo electrónico', 'Teléfono', 'Fax', 'Web', 'Logo', 'Descripción', 'Sector', 'Actividad', 'Servicios', 'Contacto', 'Observaciones'. At the bottom, there is a section for 'Información del laboratorio participante' with fields for 'Nombre', 'Apellido', 'Correo electrónico', 'Teléfono', 'Fax', 'Web', 'Logo', 'Descripción', 'Sector', 'Actividad', 'Servicios', 'Contacto', 'Observaciones'.



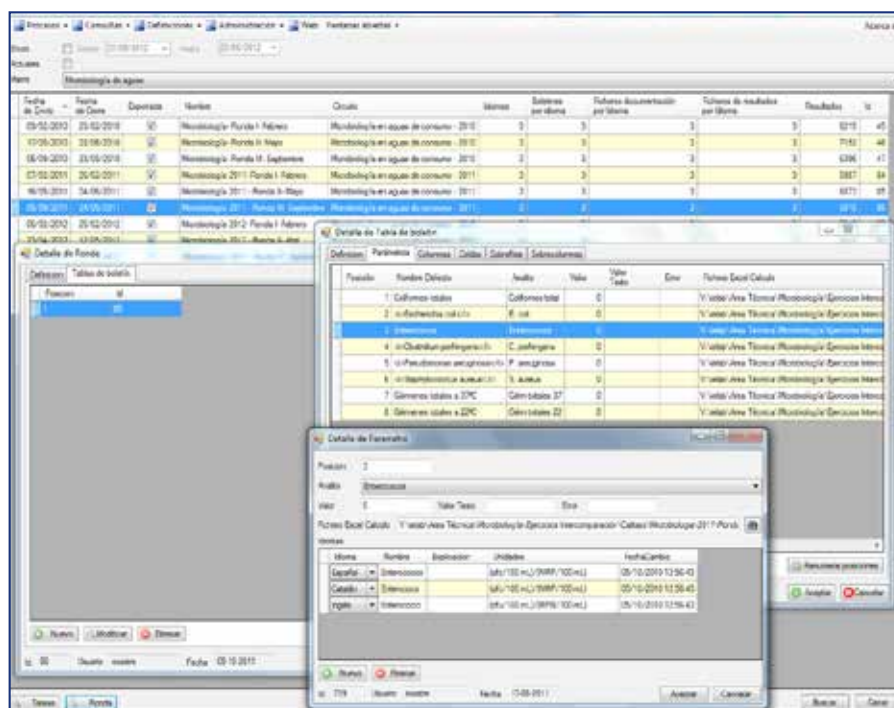
The screenshot shows a participation certificate from ielab. The certificate is titled 'CERTIFICATE OF PARTICIPATION' and states 'ielab certifies that ACME COMPANY LABS Inc. Has participated in the following Proficiency Testing Schemes:'. The certificate lists the following information:

Round/s	Lab code
Legionella PCR 2011 - Round I March	1234
Legionella PCR 2011 - Round II May	1234
Legionella PCR 2011 - Round III August	1234

The certificate also includes the signature of Guillermo Pascual Gisbert, Jefe and General Director.

PTAS / Proficiency Testing Assessment Software

Informatic application for the management of the Proficiency Tests, customers data, technical documentation, PTS plan and design, statistical data, etc. Linked with our SAP invoicing system for a better agility in the management of all phases of the Proficiency Testing Schemes.

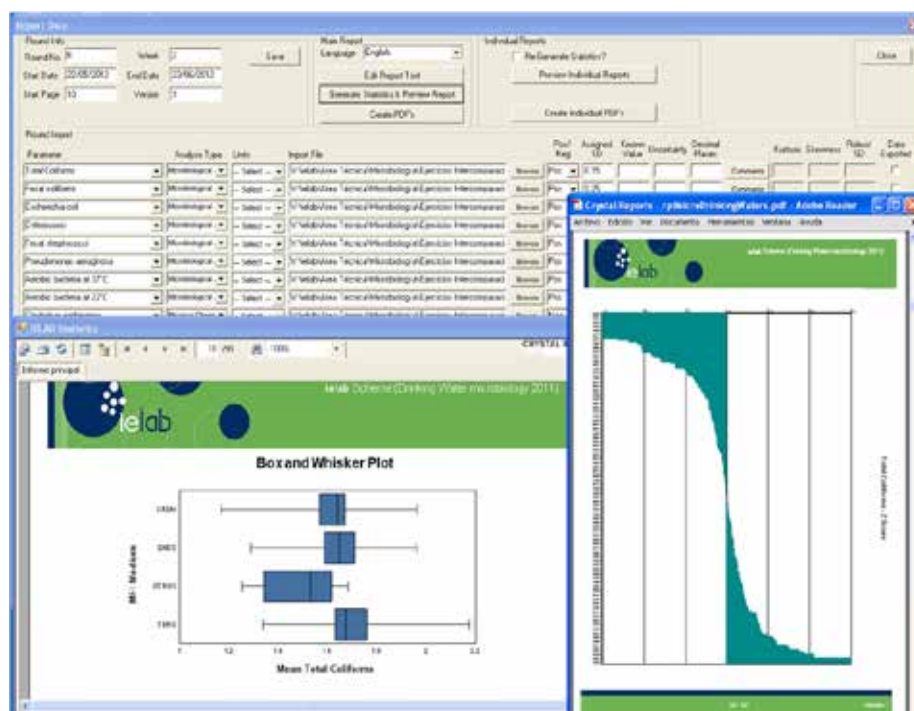


Benefits obtained thanks to PTAS:

- The participant types the results himself/herself, avoiding potential transcription mistakes.
- Automatic generation of data files containing the submitted results.
- Reported Results can be complemented or modified at any moment until the deadline.
- A copy of the own submitted Results Data Sheet can be printed out.
- Confirmation email is automatically sent to the participant as a proof of receipt and archive of the results.
- Results are identified only by the participant's code, in order to guarantee confidentiality.
- Download of the file with the results submitted by all participants (raw data), that allows each participant to make their own statistical studies.
- Other support documents for the round and about the results are available to be downloaded. Also Round Reports and Participation Certificates.

RPTAS / Reports for Proficiency Testing Assessment Software

Informatic taylor-made system, based on our specific requirements for faster and automatic processing of statistical studies and reports, both general and personalized.



Thanks to RPTAS, the PTS management will be improved in several ways:

- Reduction of delivery time of reports.
- Automatic processing of the results to reduce miscalculations.
- Increased reliability at analyzing results, as it is an automatic process and follows a uniform protocol to elaborate the statistical report.
- Custom reporting, comparing the analytical results of each participant with the global results of the round.
- Historical archive of results, reports and parameters per round. This gives the availability to download past round reports and results.
- Access to “raw data” of the results of all participants (encoded to maintain confidentiality) in editable format (spreadsheet) so that the participants can perform their own additional statistical studies.

How to participate in ielab's Proficiency Tests?

Join our website (www.ielab.es), and click the tab at the bottom of the screen: "PTS ACCESS" *

For the new season 2019 our recent participants will receive a link which will enable them to access directly ielab website for registrations. There they will find a pre-loaded registration on the basis of their latest selection, and it can be easily confirmed or modified at will with just a few clics.

Besides, all our customers can register by logging in as usual with their user and password. We recommend you to check your contact data and update them if needed.

If you are a new customer who never worked with us before, you can proceed to the registration through the link "new customer".

Go to the option of the menu "Registration". You will find a table with all the tests offered. Please choose the ones of your interest (with the button "Add").

If you wish to undo any selection, press "Delete".

By clicking "Accept" you will obtain a quotation of the selected, named "Pre-registration" (P.O.)

To confirm your P.O. you must click "Save". A message that informs that the registration has been made satisfactorily will be shown, together with the necessary information to make the payment.

Besides, you will receive an email with a summary of the purchased. Please, make always sure that you receive it and that the data shown correspond to what you want.

* You can also do the registration process by e-mail or fax. You can find the registration form in the current Price List document or contact us at comercial@ielab.es to request it.

ielab Proficiency Testing Schemes: 2019 offer overview



POTABLE WATER

Physical-chemical A
Physical-chemical B
Physical-chemical C
Microbiology



CONTINENTAL WATER

Raw water
Microbiology



WASTE WATER

Physical-chemical
Microbiology
Reclaimed water



SEA WATER

Physical-chemical and Micro-
biological parameters



ATMOSPHERIC POLLUTION

Stack emissions



SOLIDS

Sludges: Physical-chemical
Sludges: Microbiology
Soils: Physical-chemical
Solids in Waste Water



LEGIONELLA

Culture isolation
Polymerase Chain Reaction
(PCR)



BACTERIOPHAGES

Bacteriophages



BOTTLED WATER

Bottled Water



SWIMMING POOL WATER

Swimming Pool Water



IN SITU ANALYSIS AND SAMPLING

In situ analysis and sampling: Physical-chemical - Alicante
In situ analysis- Madrid
Sampling: Microbiology - Alicante

POTABLE WATER

Within the matrix “Potable water” can be included those waters that originate in the different water supplies for human consumption and for household. These waters must fulfil the legal considerations on the potability of water based on the acceptable thresholds of a series of compounds or substances. In Europe the legal concept of the quality of water intended for human consumption is based on the European Directive 98/83/EC and its national

transpositions in the different European Union countries.



Overall, the different standards understand as potable water the one that fulfils a number of organoleptic and physico-chemical characteristics, related to undesirable substances, toxic substances, microbiology and radioactivity.

Maximum allowable values for a number of parameters are established which correspond to the minimum permissible quality in potable water.

POTABLE WATER: PHYSICAL-CHEMICAL A /REF. 990001/

ROUND I

WEEK 9
25th February

Aluminium;
Ammonium;
Antimony;
Bicarbonates;
Cadmium;
Conductivity at 20°C;
Magnesium;
Manganese;
Nitrates;
Sodium.

ROUND II

WEEK 23
3rd June

Arsenic;
Chlorides;
Colour;
Iron;
Mercury;
Nitrites;
Oxidability;
pH;
Potassium;
Selenium.

ROUND III

WEEK 38
16th September

Calcium;
Combined Chlorine;
Residual Chlorine;
Total Chlorine;
Copper;
Chromium;
Fluorides;
Nickel;
Lead;
Sulphates;
Turbidity.

Metals will be determined as “total metals”.

Samples will be dispatched preferably on the Monday of the stated week.

POTABLE WATER



POTABLE WATER: PHYSICAL-CHEMICAL B /REF. 990002/

ROUND I

WEEK 9
25th February

Aldrin;
Aluminium;
Ametryn;
Ammonium;
Antimony;
Atrazine;
Benzo-a-pyrene;
Benzo-b-fluoranthene;
Bicarbonates;
Bromodichlorometane;
Cadmium;
Conductivity at 20°C;
Dibromochloromethane;
1,2-dichloroethane;
Dieldrin;
Magnesium;
Manganese;
Nitrates;
Sodium;
1,1,1-trichloroethane.

ROUND II

WEEK 23
3rd June

Alpha-endosulfan;
Arsenic;
Benzene;
Benzo-g,h,i-perylene;
Bromoform;
Chloroform;
Chlorides;
Colour;
Heptachlor;
Iron;
Indeno-1,2,3-c,d-pyrene;
Mercury;
Nitrites;
Oxidability;
pH;
Potassium;
Propazine;
Selenium;
Terbutylazine;
Toluene.

ROUND III

WEEK 38
16th September

Benzo-k-fluoranthene;
Beta-endosulfan;
Calcium;
Combined chlorine;
Free residual chlorine;
Total chlorine;
Copper;
Chromium;
4,4'-DDE;
Ethylbenzene;
Fluoranthene;
Fluorides;
Heptachlor epoxide;
Nickel;
o-Xylene;
Lead;
Simazine;
Sulphates;
Tetrachloroethene;
Trichloroethene;
Turbidity.

Metals will be determined as "total metals".

Samples will be dispatched preferably on the Monday of the stated week.

POTABLE WATER



POTABLE WATER: PHYSICAL-CHEMICAL C /REF. 990003/

ROUND I

WEEK 7
11th February

Barium;
Beryllium;
Bicarbonates;
Calcium;
COT*;
Hardness;
Dry residue;
Vanadium.

ROUND II

WEEK 37
9th September

Anionic surfactants;
Boron;
Cobalt;
Total cyanides;
Total phosphorus;
Magnesium;
Kjeldahl nitrogen;
Silver;
Silica (Silicon dioxide);
Vinyl Chloride*.

Metals will be determined as "total metals".



POTABLE WATER: MICROBIOLOGY /REF. 990019/

ROUND I

WEEK 7
11th February

Clostridium perfringens;
Faecal coliforms;
Total coliforms;
Enterococci;
Escherichia coli;
Aerobic bacteria at 22°C;
Aerobic bacteria at 37°C;
Salmonella spp.

ROUND II

WEEK 22
27th May

Clostridium perfringens;
Faecal coliforms;
Total coliforms;
Enterococci;
Escherichia coli;
Pseudomonas aeruginosa;
Aerobic bacteria at 22°C;
Aerobic bacteria at 37°C;
Faecal estreptococci.

ROUND III

WEEK 37
9th September

Sulphite-reducing clostridia;
Clostridium perfringens;
Total coliforms;
Enterococci;
Escherichia coli;
Pseudomonas aeruginosa;
Staphylococcus aureus;
Aerobic bacteria at 22°C;
Aerobic bacteria at 37°C.

* Parameter not included in our accreditation by ENAC.

Samples will be dispatched preferably on the Monday of the stated week.

CONTINENTAL WATER

Continental water can be defined as those that come from rivers, streams, ponds, pools, lakes, canals, reservoirs and other natural or artificial, fresh, brackish or salted, public or private water bodies found on land. Usually, permanent water bodies are found on the surface or underground.

Generally the tests performed in this type of matrix are ultimately aimed at establishing

a framework for the protection of such water so as stated in the Water Framework Directive (WFD, Directive 2000/60/EC) will enable the prevention of further deterioration and the protection and improvement of the related aquatic and terrestrial ecosystems; promote sustainable uses of water; enable the protection and improvement of the aquatic environment; reduce groundwater pollution and relieve the impact of floods and droughts.



CONTINENTAL WATER

RAW WATER /REF. 990018/

ROUND I

WEEK 15

8th April

Acrylamide*;
Bromates*;
Bromides*;
Chlorates*;
Chlorites*;
Total organic carbon (TOC)*;
Geosmin*;
2-methylisoborneol (MIB)*;
Microcystines*.



CONTINENTAL WATER: MICROBIOLOGY /REF. 990022/

ROUND I

WEEK 8

18th February

Faecal coliforms;
Total coliforms;
Enterococci;
Escherichia coli;
Pseudomonas aeruginosa;
Salmonella spp.;
Staphylococcus aureus.

ROUND II

WEEK 23

3rd June

Faecal coliforms;
Total coliforms;
Enterococci;
Escherichia coli;
Pseudomonas aeruginosa;
Salmonella spp.;
Staphylococcus aureus.

* Parameter not included in our accreditation by ENAC.

Samples will be dispatched preferably on the Monday of the stated week.

WASTE WATER

Waste water is water of varying composition from many sources: domestic, municipal, industrial, agricultural, etc. and for that reason it has been degraded or altered in its original quality.



The discharges in to the integrated sanitation system (ISS), in accordance with the Directive 91/271/CEE can be classified as follows:

- *Domestic waste water:* those from housing and general services areas, product of human metabolism and domestic activities.
- *Industrial waste waters:* all waste water discharged from places used for carrying on any trade or industry, other than domestic sewage or storm water runoff.
- *Urban waste water:* domestic wastewater or its mixture with industrial waste water and / or storm water runoff.

All of them are usually collected in a collecting system and sent through a terrestrial emissary to a WWTP (Waste Water Treatment Plant). The aforementioned Directive 91/271/CEE establishes the parameters, limits or the reduction level that the treatment process must achieve.

In discharge authorizations (either to sanitation systems or to public domain) the parameters and limits of application are defined, depending on the raw materials, production process and quality requirements of the receiving environment. It will take into account compliance with the limits for priority and preferential substances in Directive 2008/105/EC. These parameters include mainly organic substances, cyanides, fluorides and metals.

According to the normative which establishes the legal framework for the reuse of treated water, reclaimed water is defined as: *"The treated waste water that has undergone a treatment process additional or complementary that allows to achieve the quality for their intended use"*. This legislation establishes permitted uses, the frequency and quality criteria of this type of waste water.



WASTE WATER



WASTE WATER: PHYSICAL-CHEMICAL /REF. 990004/

ROUND I

WEEK 6
4th February

Aluminium;
Ammonium;
Chlorides;
Chromium;
Biological oxygen demand (BO₅D);
Chemical oxygen demand (COD);
Fluorides;
Nitrates;
Suspended solids;
Toxicity.

ROUND II

WEEK 20
13th May

Anionic surfactants;
Cadmium;
Total organic carbon (TOC);
Chromium VI;
Biological oxygen demand (BO₅D);
Chemical oxygen demand (COD);
Total phosphorus;
Orthophosphates;
Suspended solids;
Zinc.

ROUND III

WEEK 40
30th September

Boron;
Conductivity at 20°C;
Biological oxygen demand (BO₅D);
Chemical oxygen demand (COD);
Iron;
Kjeldahl nitrogen;
Total nitrogen;
pH;
Lead;
Suspended solids.



RECLAIMED WATER /REF. 990005/

ROUND I

WEEK 14
1st April

Boron;
Escherichia coli;
Legionella pneumophila;
Legionella spp.;
Intestinal nematodes;
Suspended solids;
Total phosphorus;
Turbidity*.

ROUND II

WEEK 39
23rd September

Cadmium;
Escherichia coli;
Legionella pneumophila;
Legionella spp.;
Intestinal nematodes;
Nitrates;
Total nitrogen;
SAR* (Sodium Adsorption Ratio).

* Parameter not included in our accreditation by ENAC.
Samples will be dispatched preferably on the Monday of the stated week.

WASTE WATER



WASTE WATER: MICROBIOLOGY /REF. 990014/

ROUND I

WEEK 6
4th February

Clostridium perfringens;
Faecal coliforms;
Total coliforms;
Enterococci;
Escherichia coli;
Salmonella spp.

ROUND II

WEEK 20
13th May

Clostridium perfringens;
Faecal coliforms;
Total coliforms;
Enterococci;
Escherichia coli;
Salmonella spp.

ROUND III

WEEK 42
14th October

Clostridium perfringens;
Faecal coliforms;
Total coliforms;
Enterococci;
Escherichia coli;
Salmonella spp.

Samples will be dispatched preferably on the Monday of the stated week.

SEA WATER

Sea water is marine water, with a wide variety of minerals that confers a high saline percentage (between 35 and 38‰).

The sea water control is especially important in bathing areas. The Directive 2006/7/EC of 15 February 2006 concerning the quality management of bathing water, collects the new scientific and technical specifications and enables a more consistent legal framework both with the current needs and with the advances and the progress in recent years regarding bathing waters.

There are also various international networks focused on the Control and Quality Monitoring of Coastal Water whose main goal is to have an intervention tool, in order to provide information on the evolution of water and aquatic ecosystems quality by using of biological, hydromorphological and physical-chemical indicators, so that can achieve

the fundamental guiding documents can be achieved in order to:

- Plan and manage coastal marine aquatic ecosystems.
- Comply with the requirements of the Water Framework Directive by establishing a Community framework for the action in the field of water policy (characterization, typification and delimitation of water bodies).
- Meet different programs for the assessment and control of pollution in different regions.
- Generating information for European Directives relating to water quality.
- Meet different programs to reduce pollution.
- Provide support for scientific investigation.



SEA WATER /REF. 990000/

ROUND I

WEEK 25
17th June

Ammonium;
Arsenic;
Cadmium;
Total coliforms;
Enterococci;
Escherichia coli;
Nickel;
Nitrates;
pH;
Turbidity.

ROUND II

WEEK 36
2nd September

Antimony;
Total coliforms;
Enterococci;
Escherichia coli;
Mercury;
Kjeldahl nitrogen;
Orthophosphates;
Lead;
Salinity.

Samples will be dispatched preferably on the Monday of the stated week.

ATMOSPHERIC POLLUTION

Industrial combustion and other kind of processes are susceptible to produce various contaminants which have been demonstrated or can be harmful to health and the environment.

At the request of environmental agencies and regulation bodies, industries must therefore measure emissions from its chimneys. Control of these emissions permits to manage its environmental impact, demonstrating compliance with established legislative limits and avoiding penalties and adverse publicity.

European legislation (Directive 96/61/EC and 2008/1/EC version) states that emissions of static points as chimneys must be controlled

so as to prevent or reduce such emissions and analytical controls are intended to control these emissions.

The material used in this scheme is similar to that usually found in laboratories for such tests and consists of two types of supports, filters and impinger solutions. In the first case, all possible contaminations related to particles are studied and in the impinger solutions those pollutants in gaseous state are collected.

The preparation and testing of the parameters of these schemes are based on appropriate international standards which are periodically reviewed in order to provide a scheme according to the needs of laboratories.



STACK EMISSIONS /REF. 990008/

ROUND I

WEEK 10
4th March

Filter:

Arsenic;
Cobalt;
Manganese;
Nickel;
Vanadium.

Impinger solution:

Hydrofluoric acid (HF);
Antimony;
Arsenic;
Cadmium;
Copper.

ROUND II

WEEK 21
20th May

Filter:

Antimony;
Cadmium;
Chromium;
Tin;
Mercury.

Impinger solution:

Hydrochloric acid (HCl);
Chromium;
Manganese;
Lead;
Vanadium.

ROUND III

WEEK 39
23rd September

Filter:

Copper;
Lead;
Selenium;
Thallium;
Zinc.

Impinger solution:

Cobalt;
Sulphur dioxide (SO₂);
Tin;
Nickel;
Zinc.

Samples will be dispatched preferably on the Monday of the stated week.

SOLIDS

Sludges and soils, with totally different physical-chemical characteristics are included in this group of schemes.

A sludge, also called mud, is defined as a semisolid residue which is produced, decanted or settled during a water treatment. They are generated in the septic tank of houses, shopping malls, offices or industries, or produced in a water treatment plant, as well as control units of atmospheric emissions.

A soil is the uppermost layer of Earth's crust, which results of the decomposition of rocks by sudden temperature changes and by the

action of the water, wind and living beings. The chemical composition and physical structure of the soil at a certain location are determined by the type of geological material that originates, by the vegetal cover, by the time that weathering has acted, by topography and by artificial changes resulting from human activities.



SOILS: PHYSICAL-CHEMICAL /REF. 990017/

ROUND I

WEEK 42
14th October

Arsenic;
Cadmium;
Calcium;
Conductivity at 20°C;
Copper;
Chromium;
Iron;
Magnesium;
Manganese;
Mercury;
Nickel;
Lead;
pH;
Potassium;
Total phosphorus;
Sodium;
Zinc.

Samples will be dispatched preferably on the Monday of the stated week.

SOLIDS



SLUDGES: PHYSICAL-CHEMICAL /REF. 990013/

ROUND I

WEEK 13
25th March

Arsenic;
Cadmium;
Copper;
Chromium;
Iron;
Kjeldahl nitrogen;
Manganese;
Mercury;
Nickel;
pH;
Lead;
Zinc.

ROUND II

WEEK 36
2nd September

Aluminium;
Cadmium;
Copper;
Conductivity at 20°C;
Chromium;
Total phosphorus;
Total Organic Matter;
Mercury;
Nickel;
Lead;
Zinc.

SLUDGES: MICROBIOLOGY /REF. 990027/

ROUND I

WEEK 10
4th March

*Clostridium perfringens**;
Total coliforms*;
Enterococci*;
*Escherichia coli**;
Salmonella spp.*

* Parameter not included in our accreditation by ENAC.

Samples will be dispatched preferably on the Monday of the stated week.

SOLIDS



SOLIDS IN WASTE WATER /REF. 990016/

ROUND I

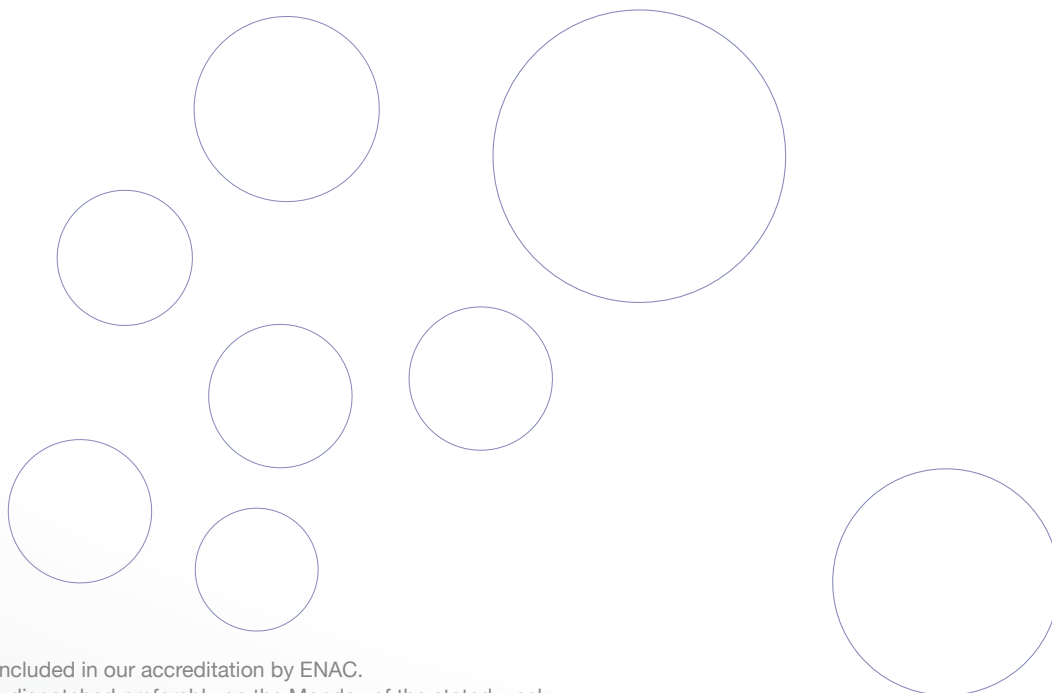
WEEK 8
18th February

Dissolved solids at 105°C*;
Suspended solids;
Fixed suspended solids*;
Volatile suspended solids*;
Settleable solids*;
Total solids at 105°C*;
Fixed total solids*;
Volatile total solids*.

ROUND II

WEEK 22
27th May

Dissolved solids at 105°C*;
Suspended solids;
Fixed suspended solids*;
Volatile suspended solids*;
Settleable solids*;
Total solids at 105°C*;
Fixed total solids*;
Volatile total solids*.



* Parameter not included in our accreditation by ENAC.
Samples will be dispatched preferably on the Monday of the stated week.

LEGIONELLA

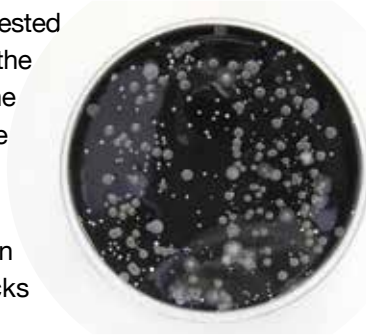
Of all the environmental pathogens, *Legionella* and particularly *Legionella pneumophila* species is one of the most studied organisms due to its impact in large communities, and therefore its importance for public health and the enormous social and economic impact.

In all current laws and regulations on legionellosis prevention, *Legionella* testing is contemplated as one of the most important preventive methods, establishing culture isolation based on the ISO 11731 standard as the reference method. **ielab's** *Legionella*-culture scheme simulates natural samples to be tested by these methods to assess the analytical performance of the laboratory and the recovery rate of the used method.

However, culture isolation presents different drawbacks

such as time-to-results that can be up to 10-12 days. But, in many cases, due to the need for rapid results, methods based on amplification of nucleic acids, primarily DNA amplification by the polymerase chain reaction (PCR) have been described as valid and useful tools for the *Legionella* detection.

The main advantages of PCR are its high speed, as it provides results in hours, its high specificity and sensitivity, low detection limit and the possibility of quantifying the level of organism investigated by "real-time" PCR (qPCR).



ielab's *Legionella*-PCR samples contain inactivated cells allowing assessing both the efficiency and performance in the analytical phases of concentration, DNA extraction / purification and amplification.



LEGIONELLA



LEGIONELLA - CULTURE /REF. 990020/

ROUND I

WEEK 11
11th March

Legionella spp.;
Legionella pneumophila.

2 Samples.

ROUND II

WEEK 21
20th May

Legionella spp.;
Legionella pneumophila.

2 Samples.

ROUND III

WEEK 40
30th September

Legionella spp.;
Legionella pneumophila.

2 Samples.



LEGIONELLA - PCR /REF. 990012/

ROUND I

WEEK 11
11th March

Legionella spp.;
Legionella pneumophila.

3 Samples.

Samples will be dispatched preferably on the Monday of the stated week.

BACTERIOPHAGES

Historically, microbiology control has been mainly done through bacterial indicators, but currently viral indicators are trending in quality control of water, biosolids and food. In the last decade, many regulations have been created in different countries to drive these viral controls and bacteriophages, viruses infecting bacteria, have been proposed as viral indicators.

Bacteriophages as viral indicators are providing complementary advantages to bacterial indicators because they are present in the environment in a way similar to bacterial indicators, usually persist longer in it and provide information about viral pathogens which are not properly represented by studying only bacterial indicators. Issues such as resuscitation or recovery of injured bacteriophages do not seem to occur. This is an advantage when clear effects of the treatment process need to be evaluated and certified.

Somatic coliphages are bacteriophages of enteric origin that infect *Escherichia coli* through cell surface receptors.

F-specific coliphages, also named sexual coliphages or male-specific bacteriophages,

infect bacteria through the sex pili, which are coded by the F plasmid which was first detected in *Escherichia coli* K12. Hfr *E. coli* strains such as C3000 were firstly used for this purpose, but these strains also detect high numbers of somatic coliphages. Later, strains *Escherichia coli* HS (*E. coli* Famp) and *Salmonella enterica* serovar *Typhimurium* (usually reported as *Salmonella Typhimurium* WG49) were tailored and selected as host strains in the standardized methods to detect F-specific bacteriophages.

The presence of both somatic and F-specific coliphages in a water sample usually indicates pollution by human or animal faeces or by wastewater containing these excreta. They thus provide a relatively rapid and simple method for faecal pollution detection, and their resistance in water and food tends to resemble that of human enteric viruses more closely than faecal bacteria, commonly used as water or food quality indicators.

Both somatic and F-specific coliphages are included in water, wastewater, biosolid and food guidelines and regulations complementing the use of bacterial indicators such as *E. coli* and enterococci.

BACTERIOPHAGES /REF. 992512/

ROUND I

WEEK 24
10th June

Somatic bacteriophages*;
F-specific bacteriophages*.

2 Samples.

ROUND II

WEEK 38
16th September

Somatic bacteriophages*;
F-specific bacteriophages*.

2 Samples.

* Parameter not included in our accreditation by ENAC.

BOTTLED WATER

This type of water is packed at the foot of the spring under aseptic conditions to protect its original purity and maintain its composition in minerals and its properties unchanged. For their classification as “Natural Mineral Water” they must pass a long administrative file and numerous analytical controls, in order to demonstrate that they meet the requirements es-

tablished for this type of water. In this sense, there are European Directives, complemented by national legislation regulating the quality of this type of water.

In this Scheme, the main indicators and microbiological pathogens used to evaluate the microbiological quality of this type of water are included.



BOTTLED WATER /REF. 990037/

ROUND I

WEEK 9
25th February

Total coliforms;
Escherichia coli;
Sulphite-reducing clostridia;
Clostridium perfringens;
Total aerobic count at 22°C;
Total aerobic count at 37°C;
Pseudomonas aeruginosa.

Samples will be dispatched preferably on the Monday of the stated week.

SWIMMING POOL WATER

It is very important to preserve the quality of recreational water, such as swimming pools and water parks, as it is essential for public health. Maintaining the pool water in perfect conditions with proper treatment is essential, but it is also essential to perform a correct analysis. This type of water is susceptible to rapid changes in its properties, especially in the case of open pools, where they are influ-

enced by weather changes. Rain or wind with particles that fall into the pool, or days of high heat that produces a strong evaporation, can alter the quality of the water.

The technical-sanitary quality of swimming pools is regulated by different regulations in different countries. This Scheme includes the main indicators and microbiological pathogens used to control the quality of swimming pool water.



SWIMMING POOL WATER /REF. 990038/

ROUND I

WEEK 15
8th April

Faecal coliforms;
Total coliforms;
Escherichia coli;
Faecal streptococci;
Pseudomonas aeruginosa;
Staphylococcus aureus.

Samples will be dispatched preferably on the Monday of the stated week.

IN SITU ANALYSIS

Several Schemes are offered in different cities of Spain. Each participant must be provided with all the necessary material to carry out the test; and therefore the Organizer will not provide or lend any equipment or accessory.

Measurements of more than one probe or equipment per participant will not be accepted in order to ensure the veracity of the consensus value of the round. Each participant may use the method that he or she deems appropriate, there being no limitation on the part of the Organizer, with a maximum of two people per participation. To guarantee confidentiality, each participant is referred to with a code that only he knows.

The technical and statistical analysis will be carried out according to the criteria established by the IUPAC and the EURACHEM-CITAC 2007 standard, in order to ensure the homogeneity and stability of the sample during the round. Subsequently, for each parameter, the consensus value (robust average), its standard deviation and its uncertainty will be calculated. The

participants will be evaluated by the Z-score criterion, using as a “target” standard deviation, the values of the applicable legislation or the modified Horwitz function.

A final report will be drawn up, as for all other schemes provided by ielab, and the delivery time will be one month from the conclusion of the round.

The price indicated in the general price list includes transportation from the meeting point in each city to the rehearsal place and lunch (except in Madrid, where everything will be done during the morning).

A round may be canceled if the meteorology in the corresponding headquarters does not allow its realization, as well as due to other causes beyond the Organizer (transport strike, equipment breakage, etc.).

In the case of not reaching the minimum number of participants needed in a round, the Organizer may relocate that round, after consulting the affected participants.



SAMPLING

Two Schemes will be organized for the Sampling Proficiency Testing schemes, both at the Alicante headquarters. In the case of the scheme designed for physical-chemical parameters, it will be carried out simultaneously to the scheme of in situ analysis. In the price indicated for the scheme in situ, everything related to the sampling scheme is also included.

The physical-chemical scheme will be carried out in the matrices of residual water and continental water, and the objective parameters of the sampling will be defined in the exercise's own instructions. In the case of the microbiological scheme, it will be carried out in the residual water matrix.

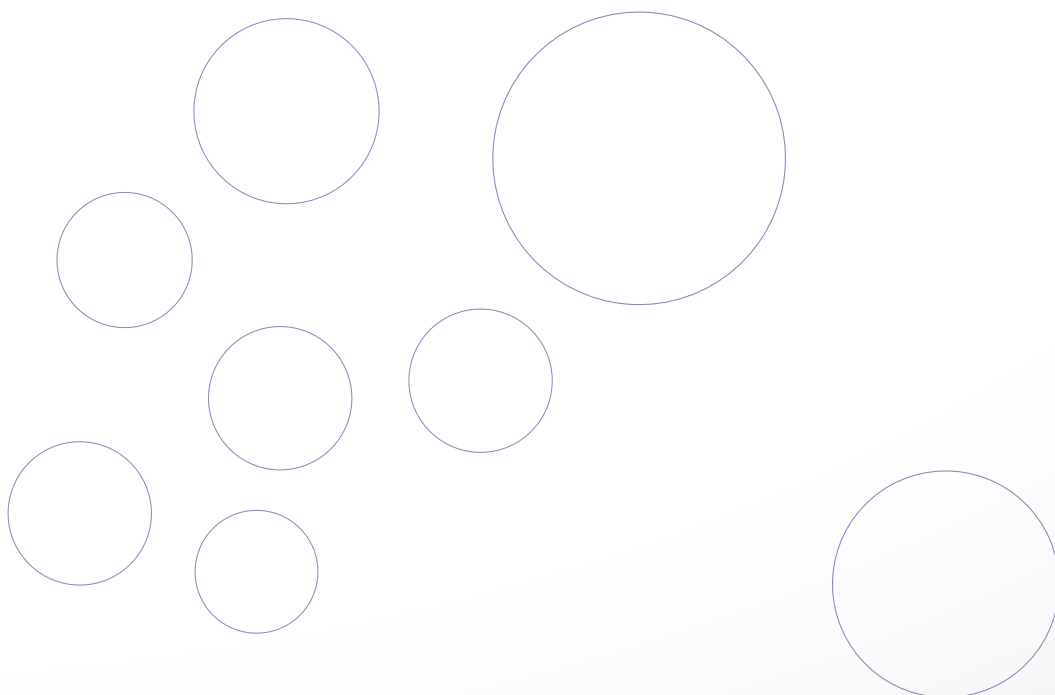
Each participant must bring all the necessary material to carry out the round, so the Organizer will not provide or loan any equipment or accessory to carry out the sampling at each of the points.

A single sampling will be carried out by each participant in each of the matrices offered for

the required parameters, said samples being collected by the Organizer and subsequently analyzed by a single reference laboratory.

Each participant will be able to use the systematics of taking of sample that creates suitable, with the preservatives and the containers that considers suitable and will have a unique code of participation to conserve the confidentiality. The technical and statistical analysis of the data will be carried out according to international standards such as IUPAC and EURACHEM-CITAC together with the sampling rules to ensure the homogeneity and stability of the samples throughout the scheme.

A final report will be elaborated which will include the value of each one of the laboratories for each one of the parameters, together with a consensus value and the standard deviation, being evaluated the laboratories by means of the Z-score criterion.



IN SITU ANALYSIS AND SAMPLING: PHYSICAL-CHEMICAL

/REF. 990023 y 990025/

ALICANTE

WEEK 21
23rd May

IN SITU ANALYSIS

Continental water:

Conductivity at 20°C;
Dissolved oxygen;
pH;
Temperature.

Waste water:

Discharge*;
Conductivity at 20°C;
Dissolved oxygen;
pH;
Temperature.

Sea water:

Conductivity at 20°C;
Dissolved oxygen;
pH;
Temperature.

SAMPLING:
PHYSICAL-CHEMICAL*

MADRID

WEEK 42
17th October

Continental water

Conductivity at 20°C;
Dissolved oxygen;
pH;
Temperature.

Waste water:

Discharge*;
Conductivity at 20°C;
Dissolved oxygen;
pH;
Temperature.

SAMPLING: MICROBIOLOGY

/REF. 992513/

ALICANTE

WEEK 40
2nd October

*Escherichia coli**;
*Enterococci**;
*Clostridium perfringens**;
Total coliforms*.

* Parameter not included in our accreditation by ENAC.

PROFICIENCY TESTING SCHEMES ANNUAL CALENDAR ielab 2019

WEEKS >	February									March				April				May				June				July				August				September				October			
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
POTABLE WATER: PHYSICAL-CHEMICAL A																																									
POTABLE WATER: PHYSICAL-CHEMICAL B																																									
POTABLE WATER: PHYSICAL-CHEMICAL C																																									
POTABLE WATER: MICROBIOLOGY																																									
RAW WATER																																									
CONTINENTAL WATER: MICROBIOLOGY																																									
WASTE WATER: PHYSICAL-CHEMICAL																																									
RECLAIMED WATER																																									
WASTE WATER: MICROBIOLOGY																																									
SEA WATER																																									
STACK EMISSIONS																																									
SOILS: PHYSICAL-CHEMICAL																																									
SLUDGES: MICROBIOLOGY																																									
SLUDGES: PHYSICAL-CHEMICAL																																									
SOLIDS IN WASTE WATER																																									
LEGIONELLA-CULTURE																																									
LEGIONELLA-PCR																																									
BACTERIOPHAGES																																									
BOTTLED WATER																																									
SWIMMING POOL WATER																																									
IN SITU ANALYSIS AND SAMPLING: PHYSICAL-CHEMICAL - ALCANTE																																									
IN SITU ANALYSIS - MADRID																																									
SAMPLING: MICROBIOLOGY - ALCANTE																																									

FAQs / Frequently Asked Questions

1/ How can I register to ielab PTS?

The easiest and safest way to register in our PTS is through our web. Alternatively, you can also register via fax, e-mail or post. Please contact us in that case.

2/ How often should I participate in a Proficiency Testing Scheme?

The frequency of participations depends on various factors specific to each laboratory, as it does with other aspects of quality. The number of samples tested and the risk associated with the tests are very important aspects to be considered. Consequently, each laboratory should establish its own frequency of participation.

Accreditation bodies often offer guidelines about frequency of participation, such as in the documents “EA-2/10. EA Policy for Participation in National and International Proficiency Testing Activities” and “EA-4/18 TA. Guidance on the level and frequency of proficiency testing participation” of EA (European co-operation for Accreditation) or in EURACHEM Guide “Selection, use and interpretation of Proficiency Testing Schemes”.

3/ When are the samples dispatched?

In our PTS Catalogue dates are available for our participants to check. Samples will be dispatched preferably on the Monday of the stated week.

4/ What happens if samples do not arrive to me on the expected day?

Through the samples preparation process we undertake stability, homogeneity and conservation studies in order to guarantee that samples will remain at an optimum state through sufficient time. In some cases, such as Microbiology PTS, samples may be analyzed within the first week after reception date, however we strongly advise to analyze them as soon as they reach you. On the other hand, Physical-Chemical PTS may be analyzed within the period the test is open (15 working days).

In the case of most physical-chemical parameters the analysis period is extended until the results reporting deadline. If any parameter couldn't be tested like this, in the instructions for each round you will find when and how to do it.

5/ How are samples affected by transport time and temperature?

The materials used are stable within the delivery and transport times set.

Stability studies are made simulating shipping conditions and throughout the established test period. There is also a consistent transport control. In those schemes with microbiological parameters, a duplicate of the test samples is delivered to one of the participants, who returns them to **ielab** for verification.

6/ How are the samples shipped?

The materials used in the Proficiency Testing Schemes are shipped according with all the legal requirements and transport conditions to preserve their contents.

Samples are sent through express courier. In some countries, we recommend participants to gather information in advance about the import documents or taxes that may be needed.

7/ How should ielab PTS samples be preserved?

Clear and detailed instructions of how to handle each of the containers will be emailed and available to be downloaded for the participants some days before the scheme is opened (date of samples dispatch).

8/ How should ielab PTS samples be manipulated?

ielab has designed its PTS in order to simplify samples usage, making it an easy and quick process. In some schemes, we also include a graphic Rapid User's Guide in order to make it easier. This information is also available to be downloaded some days before the scheme is opened.

9/ How long do I have to submit the analytical results?

Deadline of each scheme is specified in the instructions given, besides all details are also available on our website. Generally, the deadline to report results is about 18 working days after samples are dispatched. Please take into account that after the deadline it will not be possible to admit any results.

10/ How can the analytical results be reported?

The best and easiest way to do it is through our website. By this way the confidentiality and agility on the data transfer is assured. You should log in with your user and password and then access to "Results submission". You can also do it by fax. For this you should request it at your registration and with the samples you will receive a bulletin for this purpose (please see the surcharges on the price for this kind of service).

11/ Is it compulsory to analyze all the parameters of each sample?

No. Each participant can analyze the parameters he/she considers, specifying all three replicas indicated in the bulletin when reporting.

12/ Is there any mandatory method to be used or I can use the one I usually apply in my lab?

Participants must analyze the PTS samples performing the method they usually use for analyzing routine samples.

It is important for participants to report the method used and the technical specifications as we often also assess the results in relation to the methods used.

13/ How do I submit the results through the website?

You should log in with your user and password and then access to "Results submission". Once there, choose your scheme and round (a drop down list will appear if you are registered into various schemes and they are taking place at that time). A bulletin to be filled in will be displayed.

14/ How do I enter decimal numbers? (web)

Decimal numbers must be typed in according to the settings of each participant's computer.

In the round instructions the appropriate number of decimal places to report the results is detailed.

15/ Once filled in the bulletin, what shall I do with the uploaded results?

Please click on the "save" button that you will find at the bottom of the page. An automatic confirmation e-mail will be sent to you with a summary of your data.

16/ Once results are saved, may I change them? (web)

Once results are saved they are available on line. Please log in and access as explained before. Results may be rectified at any time while a scheme is open (i.e., from the starting date until the deadline), however you must always save them after any new data entered or change made, and await the automatic e-mail, otherwise the results will remain as last time you saved them. Results are available at any moment while a scheme is open, as specified in the instructions. Once reached the deadline, PTAS will automatically block the access and results will be automatically downloaded to our data base.

17/ How are collected results assessed?

ielab, as an ENAC accredited PTS provider according to ISO 17043:2010 standard, fulfills all requirements specified in the ISO 13528 standard "Statistical methods for use in proficiency testing by interlaboratory comparisons", and also according with IUPAC protocol "The international Harmonized Protocol for the Proficiency Testing of Analytical Chemistry Laboratories". Results are assessed under a wide robust statistical study in order to obtain the assigned value.

18/ How is the results report presented?

Reports made by **ielab** are sent to all participants in PDF format. They include two parts:

the first part is related relative to sample preparation and homogeneity and stability studies and values of standard deviation for each one of the parameters; and the second part includes the study applied to each one of the parameters studied.

19/ How will I receive statistical results report?

Results report is sent to all participants by e-mail in PDF format in 15 working days after the closing date of each round.

It may be requested a hard copy of the results report. Please check in our current Terms and Conditions for extra charges on this service (30 € / round). Reports will be posted by registered mail.

20/ How long shall I wait for the results report?

The report will be available in a maximum term of 15 working days after the deadline. However, the introduction of automated systems, such as RPTAS, will progressively reduce this term.

21/ How can ielab help me with an incorrect result?

If you have any doubt about a result, you can communicate with us and **ielab** will give you the most appropriate answer to your circumstances.

22/ How is confidentiality guaranteed?

ielab guarantees results confidentiality to all participants. Each one of **ielab** participants has a 4-digit code automatically assigned when registering. This 4-digit code may be changed at any moment by the participant itself. The

results report only mentions this 4-digit code, therefore avoiding in all cases any identification data of the participant's.

23/ Are ielab PTS accredited?

Our quality system is based on the UNE-EN ISO/IEC 17043 standard being accredited by ENAC n°2/PPI007.

24/ What international norms are relevant for the Proficiency Testing Schemes?

PTS management is based on the norm ISO 17043. Norms ISO 13528 (statistical data management) and IUPAC's protocol are also important.

25/ What are the participation costs?

Please access to "PTS offers and registration" (poner el enlace) and you will be able to make by yourself a quotation according to your needs. You can also find this information in our current "List of Prices, Terms and Conditions" on our website. Otherwise, you can also contact our Sales Department (comercial@ielab.es) and we will be pleased to deal with your request.

26/ Claims and Complaints

ielab has a process addressed to facilitate participants' appeal against the assessment of their performance in a proficiency testing schemes, which is available for participants.

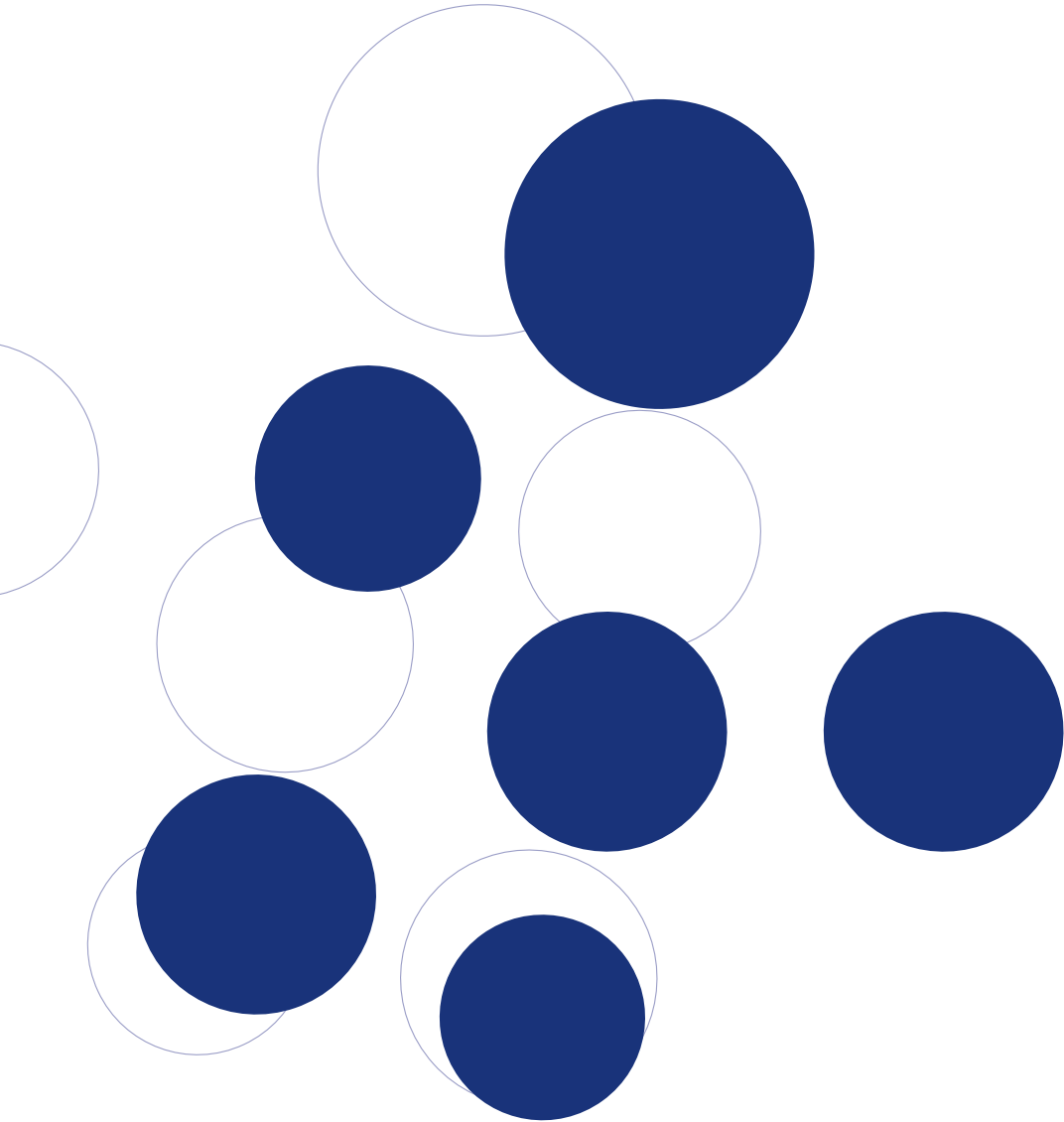
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Notes



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