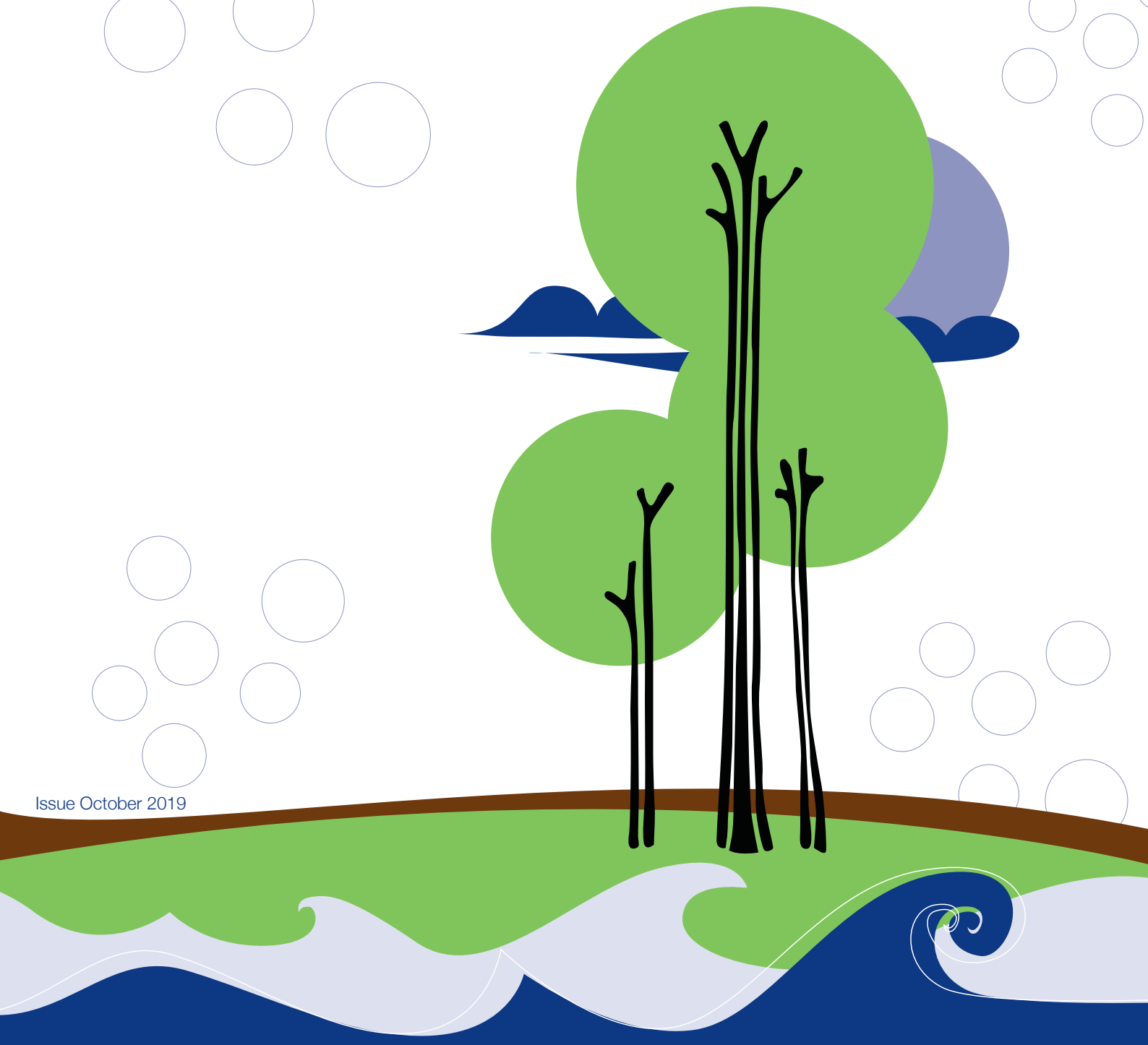
ielab

Making quality control easy

PROFICIENCY TESTING SCHEMES 2020



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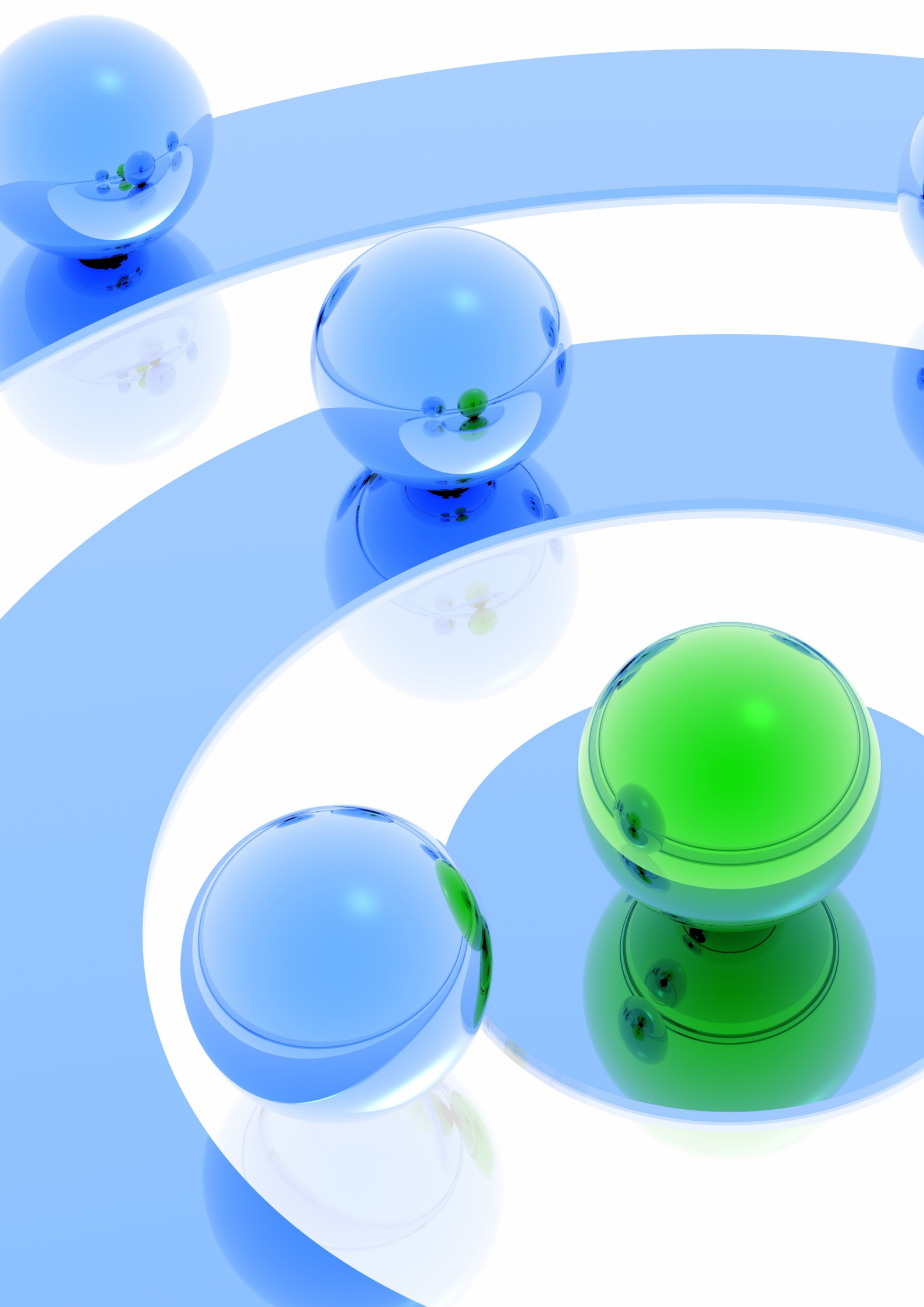


Making quality control easy

Index

ENAC
INTERCOMPARACIONES
Nº 2/PPI007

ielab: commited 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 17034 standard 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 1,450 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 1,450 participants from 75 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.
- Holding an annual meeting with the participating laboratories, where the development of the rounds is discussed, and topics of interest are presented. Attendees at this technical day receive a certificated of attendance.
- Possibility to download through the website of the certificates of participation for each of the PT Schemes in which it has participated.

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 have managed more than 1,450 participants from 75 countries and currently we offer 23 different PT 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

ORIGINAL DESIGN

- Participants queries
- Queries and suggestions discussed at the final meeting
- New laws

FINAL DESIGN

- Natural matrixes and isolated strains
- Study of the interferences between parameters and/or matrixes
- Use of false positives/false negatives
- Preparation of pilot tests

SAMPLE PREPARATION

- Lyophilized natural samples or spiked samples, covering a wide range of concentrations
- Quality control carried out by accredited laboratories
- Studies of stability and homogeneity of the samples

SAMPLE SHIPMENT

- Control of the sample temperature during the shipment
- Double sample to verify the sample stability under the shipping conditions for microbiological rounds
- Multilingual instructions and documentation

RECEPTION OF RESULTS

- On line results submission, which can be made also by e-mail
- Possibility to change the data set until the closing date
- Automatic email confirmation of the reported data

STATISTICAL RESULTS REPORT

- Robust statistics according to international guidelines
- Standard deviation for proficiency assessment
- Z-score criteria for the proficiency evaluation
- Automatic software for a quick reporting

RESULTS REPORT

- Complete statistical reports, with information about sample preparation and results detailed by parameter
- Personalized report comparing own results with the global results

FINAL MEETING

- Final face meeting with the participants and any other interested to attend, where the development of the schemes is commented
- Technical issues about the PTS are discused in the meeting
- Participants receive a certificate of attendance

ASSESSMENT AND CONSULTANCY

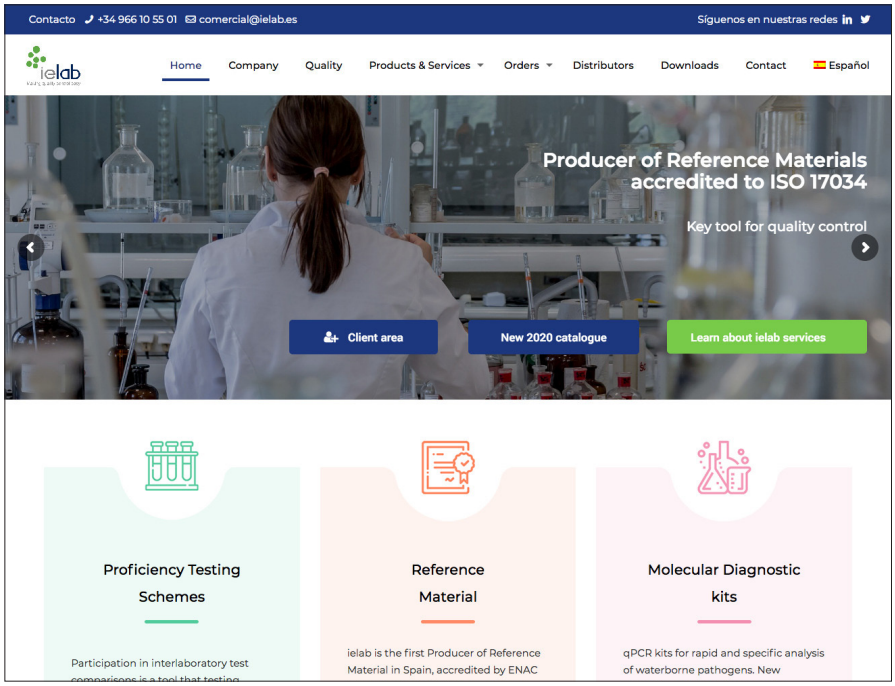
- Qualified technical support, experienced staff
- Specialized technical workshops in Quality Control
- Technical Consultancy Service

Information management system

ielab has several systems for information management, including:

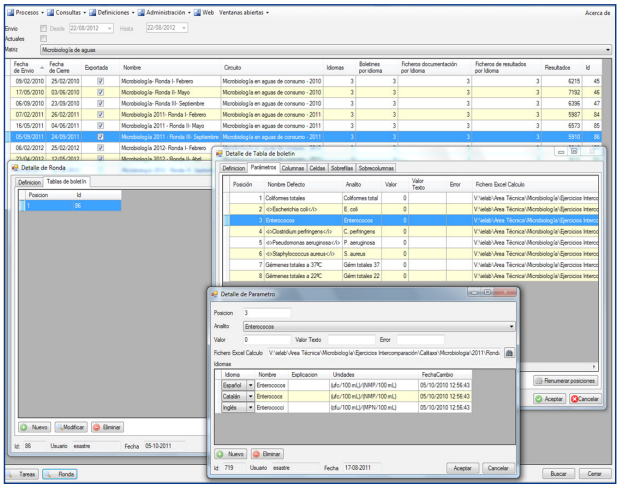
NEW WEBSITE / www.ielab.es

With an innovative design and easy application from where you can make offers / budgets, register, access technical documents, send results, download round reports, as well as certificates of participation, download the raw data of the results in Excel format, personal data management and participation code, etc.



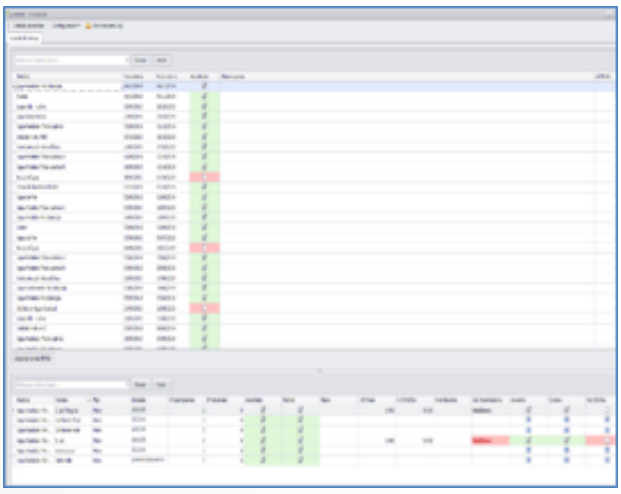
PTAS / Proficiency Testing Assessment Software

It is a customized application for the management of the Proficiency Tests, customers data, technical documentation, design and planning rounds, statistical data of participation, etc. linked with our invoicing system (SAP) for a better agility in the management of all phases of the Proficiency Testing Schemes.



New computer software (SMOKE)

An informatic taylor-made system, based on our specific requirements for faster and automatic processing of statistical studies and reports, both general and personalized. This application will reduce the delivery times of reports, automatic processing and archive historical of results, reports and parameters.



How to participate in ielab's Proficiency Tests?

Join our website (www.ielab.es), and in the up of the screen, you will find the CLIENT AREA button.

REGISTRATION

For the new season 2020 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 clicks.

Besides, all our customers can register by logging in as usual with their current user and password. We recommend you 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 "Clients Registration".

INSCRIPTION*

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".

CONFIRMATION

By clicking "Accept" you will obtain a quotation of the selected, named "Pre-registration/ quotation" (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 and allows as an option to make the payment of the contracted rounds by credit card at the time of registration, if the client so prefers.

CHECKING

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.

* If you prefer, you can also do the registration process by our e-mail: **comercial@ielab.es**

ielab Proficiency Testing Schemes: 2020 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 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 physical-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.

ENAC INTERCOMPARACIONES Nº 2/PPI007

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

ROUND I	ROUND II	ROUND III
WEEK 9 24th February	WEEK 23 1st June	WEEK 38 14th September
Aluminium; Ammonium; Antimony; Bicarbonates; Cadmium; Conductivity at 20°C; Magnesium; Manganese; Nitrates; Sodium.	Arsenic; Chlorides; Colour; Iron; Mercury; Nitrites; Oxidability; pH; Potassium; Selenium.	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

ENAC INTERCOMPARACIONES Nº 2/PPI007

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

ROUND I	ROUND II	ROUND III
WEEK 9 24th February	WEEK 23 1st June	WEEK 38 14th September
Aldrin; Aluminium; Ametryn; Ammonium; Antimony; Atrazine; Benzo-a-pyrene; Benzo-b-fluoranthene; Bicarbonates; Bromodichlorometane; Cadmium; Conductivity at 20ºC; Dibromochloromethane; 1,2-dichloroethane; Dieldrin; Magnesium; Manganese; Nitrates; Sodium; 1,1,1-trichloroethane.	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.	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
10th February

Barium;
Beryllium;
Bicarbonates;
Calcium;
Total organic carbon (COT)*;
Hardness;
Dry residue;
Vanadium.

ROUND II

WEEK 37
7th 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;
Cultivable microorganisms at 22ºC;
Cultivable microorganisms at 37ºC;
Salmonella spp.

ROUND II

WEEK 22
27th May

Clostridium perfringens;
Faecal coliforms;
Total coliforms;
Enterococci;
Escherichia coli;
Pseudomonas aeruginosa;
Cultivable microorganisms at 22ºC;
Cultivable microorganisms at 37ºC;
Faecal estreptococci.

ROUND III

WEEK 37
9th September

Sulphite-reducing clostridia;
Clostridium perfringens;
Total coliforms;
Enterococci;
Escherichia coli;
Pseudomonas aeruginosa;
Staphylococcus aureus;
Cultivable microorganisms at 22ºC;
Cultivable microorganisms at 37ºC.

* 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 19
4th May

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

CONTINENTAL WATER: MICROBIOLOGY /REF. 990022/

ENAC INTERCOMPARACIONES Nº 2/PPI007

ROUND I

WEEK 8
17th February

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

ROUND II

WEEK 23
1st 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	ROUND II	ROUND III
WEEK 6 3rd February	WEEK 20 11th May	WEEK 40 28th September
Aluminium; Ammonium; Chlorides; Chromium; Biological oxygen demand (BO_5D); Chemical oxygen demand (COD); Fluorides; Nitrates; Suspended solids; Toxicity.	Anionic surfactants; Cadmium; Total organic carbon (TOC); Chromium VI; Biological oxygen demand (BO_5D); Chemical oxygen demand (COD); Total phosphorus; Orthophosphates; Suspended solids; Zinc.	Boron; Conductivity at 20°C; Biological oxygen demand (BO_5D); Chemical oxygen demand (COD); Iron; Kjeldahl nitrogen; Total nitrogen; pH; Lead; Suspended solids.

RECLAIMED WATER /REF. 990005/

ROUND I	ROUND II
WEEK 14 30th March	WEEK 39 21st September
Boron; *Escherichia coli*; *Legionella pneumophila*; *Legionella* spp.; Intestinal nematodes; Suspended solids; Total phosphorus; Turbidity*.	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

ENAC INTERCOMPARACIONES Nº 2/PPI007

WASTE WATER: MICROBIOLOGY /REF. 990014/

ROUND I	ROUND II	ROUND III
WEEK 6 3rd February	WEEK 20 11th May	WEEK 43 19th October
Clostridium perfringens; Faecal coliforms; Total coliforms; Enterococci; *Escherichia coli;* *Salmonella* spp.	*Clostridium perfringens*; Faecal coliforms; Total coliforms; Enterococci; *Escherichia coli;* *Salmonella* spp.	*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 Communitary 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.

ENAC INTERCOMPARACIONES Nº 2/PP1007

SEA WATER /REF. 990000/

ROUND I	ROUND II
WEEK 25 15th June	WEEK 36 31st August
Ammonium; Arsenic; Cadmium; Total coliforms; Enterococci; *Escherichia coli*; Nickel; Nitrates; pH; Turbidity.	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.

ENAC INTERCOMPARACIONES Nº 2/PPI007

STACK EMISSIONS /REF. 990008/

ROUND I

WEEK 10
2nd March

Filter:
Arsenic;
Cobalt;
Manganese;
Nickel;
Vanadium.

Impinger solution:
Hydrofluoric acid (HF);
Antimony;
Arsenic;
Cadmium;
Copper.

ROUND II

WEEK 21
18th May

Filter:
Antimony;
Cadmium;
Chromium;
Tin;
Mercury.

Impinger solution:
Hydrochloric acid (HCl);
Chromium;
Manganese;
Lead;
Vanadium.

ROUND III

WEEK 39
21st September

Filter:
Copper;
Lead;
Selenium;
Thallium;
Zinc.

Impinger solution:
Cobalt;
Sulphur dioxide (SO_2);
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.

ENAC INTERCOMPARACIONES Nº 2/PPI007

SOILS: PHYSICAL-CHEMICAL /REF. 990017/

ROUND I

WEEK 43
19th 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	ROUND II
WEEK 13 23rd March	WEEK 36 31st August
Arsenic; Cadmium; Copper; Chromium; Iron; Kjeldahl nitrogen; Manganese; Mercury; Nickel; pH; Lead; Zinc.	Aluminium; Cadmium; Copper; Conductivity at 20ºC; Chromium; Total phosphorus; Total Organic Matter; Mercury; Nickel; Lead; Zinc.

SLUDGES: MICROBIOLOGY /REF. 990027/

ROUND I
WEEK 10 2nd 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

ENAC INTERCOMPARACIONES Nº 2/PPI007

SOLIDS IN WASTE WATER /REF. 990016/

ROUND I	ROUND II
WEEK 8 17th February	WEEK 22 25th May
Dissolved solids at 105ºC*; Suspended solids; Fixed suspended solids*; Volatile suspended solids*; Settleable solids*; Total solids at 105ºC*; Fixed total solids*; Volatile total solids*.	Dissolved solids at 105ºC*; Suspended solids; Fixed suspended solids*; Volatile suspended solids*; Settleable solids*; Total solids at 105ºC*; 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.

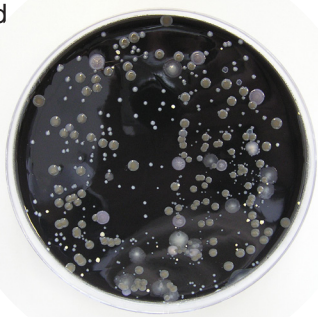
LEGIONELLA

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
9th March

Sample A:
Legionella spp.;
Legionella pneumophila.

Sample B:
Legionella spp.;
Legionella pneumophila.

ROUND II

WEEK 21
18th May

Sample A:
Legionella spp.;
Legionella pneumophila.

Sample B:
Legionella spp.;
Legionella pneumophila;
Cultivable microorganisms at 22ºC.

NEW

ROUND III

WEEK 40
28th September

Sample A:
Legionella spp.;
Legionella pneumophila.

Sample B:
Legionella spp.;
Legionella pneumophila.

LEGIONELLA - PCR /REF. 990012/

ROUND I

WEEK 11
9th 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
8th June

Somatic bacteriophages*;
F-specific bacteriophages*.

2 Samples. Matrix: Potable water.

ROUND II

WEEK 38
14th September

Somatic bacteriophages*;
F-specific bacteriophages*.

2 Samples. Matrix: Waste water.

* 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 established 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.

ENAC INTERCOMPARACIONES Nº 2/PPI007

BOTTLED WATER /REF. 990037/

ROUND I

WEEK 9
24th February

Total coliforms;
Escherichia coli;
Sulphite-reducing clostridia;
Clostridium perfringens;
Cultivable microorganisms at 22°C;
Cultivable microorganisms 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 influenced 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.

ENAC INTERCOMPARACIONES Nº 2/PPI007

SWIMMING POOL WATER /REF. 990038/

ROUND I

WEEK 19
4th May

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.

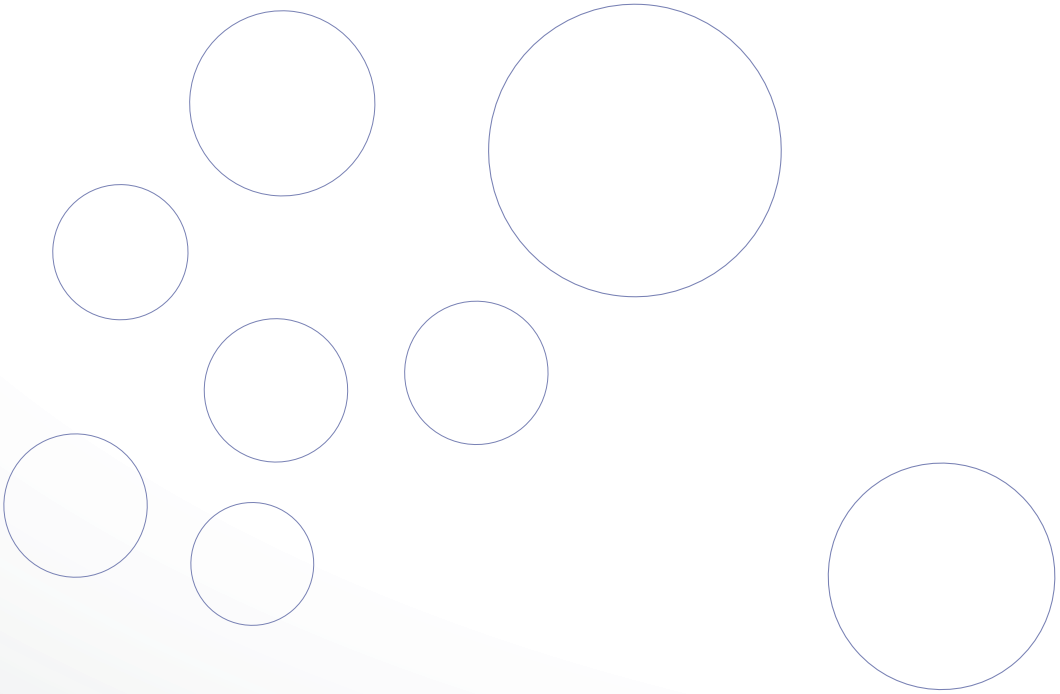
The matrices and parameters in which the sampling will be carried out, both physical-chemical and microbiological, will be defined in the instructions of the PT Scheme.

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.



ENAC INTERCOMPARACIONES Nº 2/PPI007

IN SITU ANALYSIS AND SAMPLING: PHYSICAL-CHEMICAL

/REF. 990023 y 990025/

ALICANTE

WEEK 21
21st May

***IN SITU* ANALYSIS**

Continental water:
Conductivity at 20ºC;
Dissolved oxigen;
pH;
Temperature.

Waste water:
Discharge*;
Conductivity at 20ºC;
Dissolved oxigen;
pH;
Temperature.

Sea water:
Conductivity at 20ºC;
Dissolved oxigen;
pH;
Temperature.

SAMPLING:
PHYSICAL-CHEMICAL*

MADRID

WEEK 42
15th October

Continental water
Conductivity at 20ºC;
Dissolved oxigen;
pH;
Temperature.

Waste water:
Discharge*;
Conductivity at 20ºC;
Dissolved oxigen;
pH;
Temperature.

SAMPLING: MICROBIOLOGY

/REF. 992513/

ALICANTE

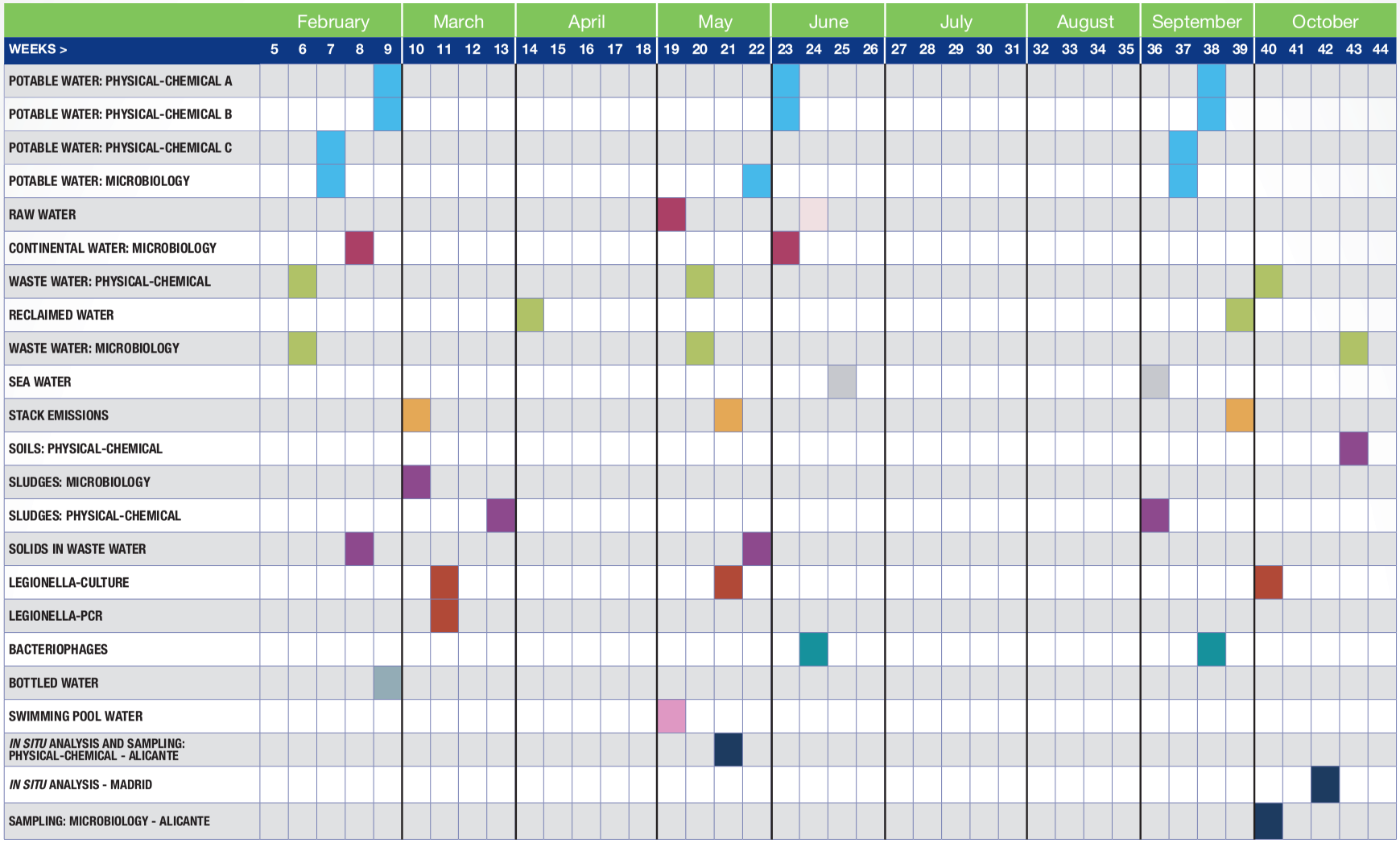
WEEK 40
1st October

SAMPLING:
MICROBIOLOGY*

* Parameter not included in our accreditation by ENAC.

NOTE: The matrices and parameters for the Sampling PT Scheme will be defined in the round instructions.

PROFICIENCY TESTING SCHEMES ANNUAL CALENDAR ielab 2020



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 website. By this way the confidentiality and agility on the data transfer is assured. Alternatively, you can also register by contacting us by e-mail.

The current prices can be consulted in the specific rates document and when you make your registration through the website. The registration fee includes sample preparation, access to the website for data entry and for obtaining results reports and any other document related to the PT Schemes and the certificate of participation. At the final price of the participation, current taxes and fees will be increased, whenever necessary.

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-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?

Samples will be sent to participants by express courier according to the previously established calendar; Samples are preferably sent on Monday.

In the event that the calendar, planning or any of the previously agreed terms cannot be fulfilled, the participants will be informed in writing with the adopted solutions.

Participants will be notified in writing about any change of planning or schedule. If the number of registrations for a PTS round does not reach the minimum required to carry it out, the organization may cancel or delay this round, refunding participants or replacement the registration, so it will be notified in writing about this decision beforehand.

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

Through the sample's preparation process we undertake stability, homogeneity and conservation studies in order to guarantee that samples will remain at an optimum state through sufficient time during all the shipment. In some cases, such as Microbiology PTS, samples may be analyzed even until 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.

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) Can I request a ielab plus sample volume in case it requires my analytical method?

The volume of sample sent by **ielab** is considered enough to analyze in triplicate any parameter according to the most commonly used methodologies. It may happen that your laboratory requires more sample volume; In this case, **ielab** can provide you with an "extra sample" at your request and at an additional cost. You can check this rate by contacting us via e-mail

6/ 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.

7) What is the origin of the samples that are sent?

ielab will prepare natural samples. If an element or microorganism is not present in the natural sample, analytes will be added, or an additional synthetic sample will be prepared. In the case of microbiology, appropriate microorganisms relevant to investigation will be spiked. The corresponding homogeneity and stability studies will be performed according to IUPAC (International Union of Pure and Applied Chemistry) methods and to the standard ISO 13528. **ielab** guarantees the quality of the samples by means of the control and standardization of the production and mixing processes, as well as by **ielab**'s accreditation as a Proficiency Tests Provider following the ISO/IEC 17043. If necessary, any of the activities related to the preparation process of the round can be outsourced to a company that meets the requirements of the PTS provider following the norm ISO 17043.

8/ How are the samples shipped?

The materials used in the Proficiency Testing Schemes are packaged in compliance with the legal requirements regarding transport and under conditions that allow their content to be preserved.

Express courier systems are used, and the samples are accompanied by all transport documentation required by international regulations. However, in some countries, we recommend participants to gather information in advance about the import documents or taxes that may be needed. It is recommended that the final participant be informed of possible import procedures and notify **ielab** any additional instruction or document required in their country regarding such procedures. **ielab** declines the responsibility of the shipment status if it has been retained at the customs office of the destination country.

9/ How should ielab PTS samples be preserved or manipulated?

ielab makes available to participants detailed instructions that clearly specify how each sample should be preserved and / or handled. **ielab** has designed and planned its rounds so that the handling of the samples is a quick and simple process. Sometimes, in some PT schemes, we also include a processing diagram as example of Rapid User's Guide in order to make it easier. This information is also available on our website a few days before the opening of the round.

10/ 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 three weeks after samples are dispatched. Please consider that after the established deadline, results cannot be recorded in the website newsletter.

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 and follow the detailed guidelines in the instructions of each round.

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

As a provider of PT SChemes, **ielab** does not recommend any method of analysis. One of the objectives of proficiency testing is to determine the effectiveness of a laboratory in terms of tests or measurements that are usually performed, but participants can analyze PT Schemes samples using the method they want. 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 can the analytical results be reported?

You must enter with your usual username and password and access the "Open Proficiency Tests / Results submission" section, and the results bulletin will open automatically. In case you are participating in several rounds in progress simultaneously, a drop-down will appear where you must choose the desired round.

After filling out the bulletin, you must press the "Save" button. You should verify that you receive an automatic confirmation e-mail at the e-mail address listed in our database. Once the results are saved, they will be available if you re-enter with your username and password, and you can add or modify them as many times as you wish. If you make any changes, you should

"save" again, and you will receive a confirmation e-mail again. The results bulletin will be available for editing until the established deathline of the round. From then on, the bulletin of results will be blocked, and no modifications can be made.

Alternatively, there are other options to submit results and you can hire this service when you register ("Paper Management Service"). By submitting the results, the participant authorizes **ielab** to allow said results to be used for the commercialization of reference materials.

14/ How should the results submitted be expressed?

The results reported should be expressed in the units indicated in the PT Schemes' round instructions for each parameter and following their guidelines.

Decimal numbers must be typed in according to the settings of each participant's computer, without using thousands separator.

In some cases, the instructions for each round indicate the maximum number of decimal places that should be used to express the results.

15/ What statistical treatment follow the reported results?

The technical and statistical analysis will be carried out according to the IUPAC criteria and to the ISO 13528 standard. For each parameter, its consensus value, its standard deviation and its uncertainty will be calculated (without outlier and statistically incorrect results). In case of added analytes, the known value and the uncertainty will be given. The laboratories are evaluated by the Z-SCORE criteria, using as "standard deviation for proficiency assessment" the current regulation values. If there are no regulation values the international standards, the Horwitz function modified by Thompson or the method reproducibility calculation are used. In the case of microbiology, the "standard deviation for proficiency assessment" will be obtained based on historical Proficiency Testing Schemes results.

16/ What is the type of file of the sent reports?

The reports produced by **ielab** are sent to the participants in pdf file and in the first section, include information regarding to the preparation of the samples, homogeneity and stability studies, values of the standard deviation for proficiency assessment for each parameter. Also, the reports include a second section where the results of the statistical study developed for each parameter are detailed.

17/ What information is detailed in the reports?

For each round a detailed report, including the sample preparation results (homogeneity and stability), tables with the results of all participants, the applied methods (identified with the method number), the statistical analysis and the corresponding graphics is prepared. The report will be available in a term of 15 working days after the receipt of the results. Customized and extra reports for the comparison of results will be prepared. Moreover, specific reports with the agreement of the customer could be prepared on demand and they will have an additional charge. In the event that the number of results for a parameter does not reach the minimum required (10 for microbiological parameters, and 12 for physical-chemical parameters), this parameter will be identified as "out of scope of ENAC Accreditation" in the results report.

18/ How and when will I receive the results report?

The results report is sent to the participants by e-mail in pdf file and within 15 working days after the end of the round, although the implementation of automatically computer systems will allow to reduce these terms progressively.

There is the option to request it to be sent on paper. Consult the existing price surcharges for this method of sending the report ("Paper Management Service").

19/ How can ielab help me when I get an incorrect result?

In case of doubt with any result, you can contact us and **ielab** will give you the most appropriate answer to your circumstances.

20/ How is confidentiality guaranteed?

Participation codes are automatically assigned by the computer system, without the intervention of the provider at the time of registration.

Each one of **ielab** participants has a 4-digit code that you can change whenever you want and that allows you to identify your results in the report of round. This way the identity is

protected against the other participants and the PTS provider. The code can be changed at any time by the customer.

In the results report only this code is mentioned without including in any case the name or other information of the participant.

21/ Can the results be falsified?

ielab pays special attention to avoid situations of collusion between participants and treats confidentially both the identity of the participants and their results. **ielab** does not publish the names of the laboratories or transfer any type of information from one participant to another, in order to minimize opportunities for connivance and falsification of results.

In the case that **ielab** had well-founded suspicions and evidence about the connivance or falsification of results, it will eliminate the results of the participants involved in the statistical study and these results will not be evaluated with a Z-score.

ielab considers that the participants themselves are responsible for avoiding this type of situations of collusion, connivance and / or falsification of results.

22/ Are ielab PTS accredited?

Our quality system is based on the ISO / IEC 17043 standard, being accredited by ENAC nº 2 / PPI007. The accreditation document, as well as its scope, can be consulted on the **ielab** website (www.ielab.es) and on the ENAC website (www.enac.es).

23/ What are the participation costs?

You can know the current price list in the section “price list” of our website and at the time of registration. For any questions or queries, you can contact us.

24/ Claims and Complaints

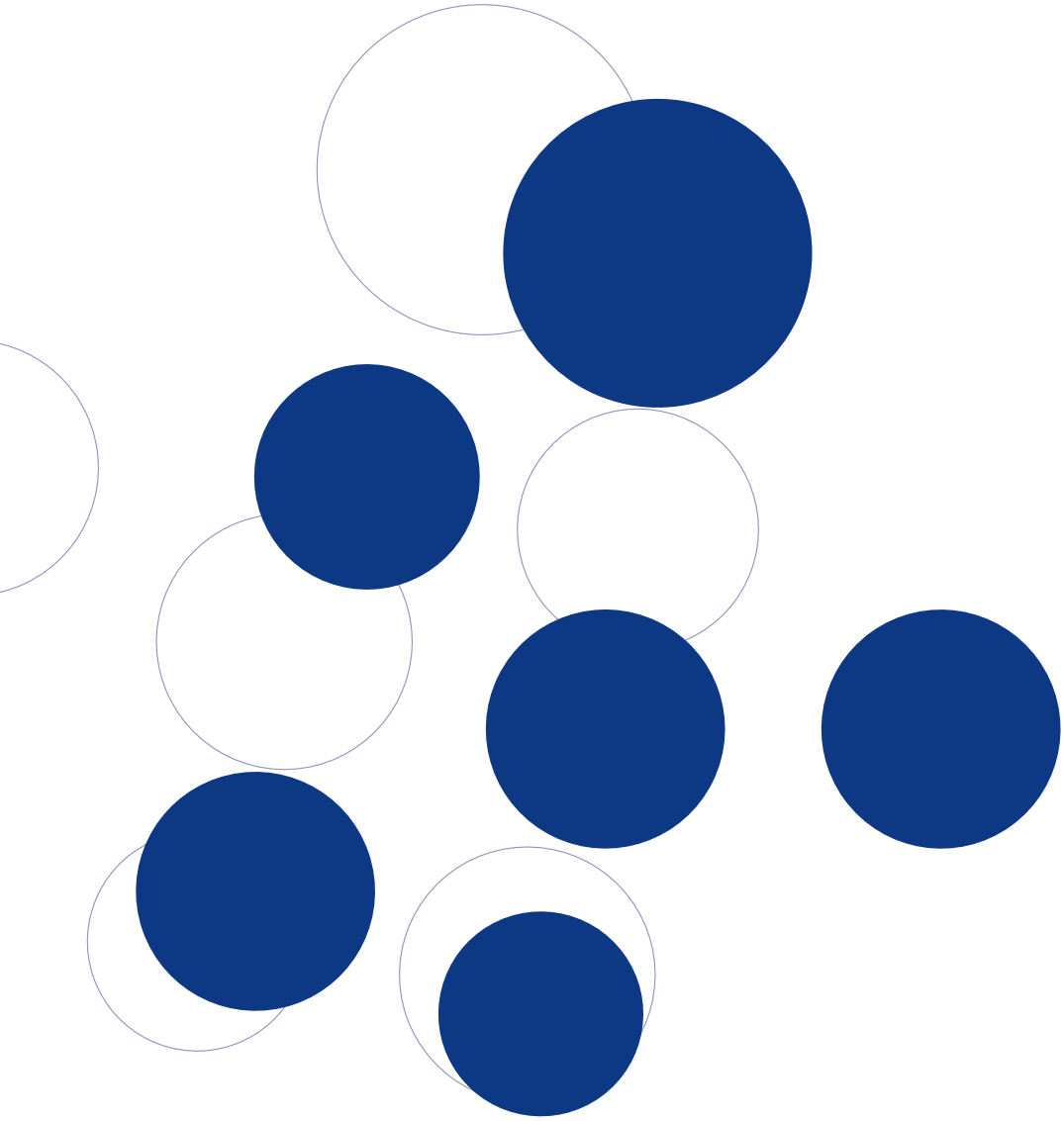
In case that a laboratory does not agree with the evaluation of its results, **ielab** has a process addressed to facilitate participants’ appeal against the assessment of their performance in a proficiency testing schemes, which is available for participants.

Moreover, if the laboratory wants to claim for any of the services provided by **ielab**, he can contact **ielab** by the usual way, preferably by e-mail.

Parameters Index:

Parameters list in alphabetical order and the page/s where they can be found:

Notes



ielab

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