ITAK

PROFICIENCY TEST PLAN FOR IRON ORE ANALYSIS

2026

Ensaios de Proficiência
ABNT NBR
ISO/IEC 17043

PEP 0021

ACCREDITATION

ITAK – Instituto de Tecnologia August Kekulé is an ABNT NBR ISO / IEC 17043 Proficiency Testing provider accredited by "Coordenação Geral de Acreditação do Inmetro (Cgcre)", for the following PTs: Iron Ore, Gold Ore, Copper Ore and Concentrates, Nickel Ore, Silver, Ferroniobium, Phosphate Rock and Phosphate Concentrate, and Bauxite.

We aim to provide continuous improvement practices in performing chemical analyses worldwide to our customers.

The project will continue in 2026, promoting five (5) rounds and inviting the laboratories of such markets to join the group of participants.

BENEFITS

Besides being an impartial tool for assessing laboratory performance, participation in proficiency tests has several benefits, such as:

- ✓ Adherence to one of the requirements of **ISO / IEC 17025** for companies already Accredited or searching for accreditation on this ISO standard or other quality systems.
- ✓ Increased metrological reliability of the results obtained by the laboratory from their levels of precision and accuracy.
- ✓ Comparison with other industry laboratories and find improvement opportunities to increase performance level (benchmarking).
- ✓ The opportunity for evaluation and comparison of methodologies, seeking one that best suits the level of accuracy required for specific parameters and levels.
- ✓ Awareness of the type of deviations that may be made by the laboratory (systematic or random), guiding actions to eliminate/minimize them.
- ✓ Identify staff training needs; and/or normalization or improvement of analytical methods.

CONFIDENTIALITY

All information regarding Proficiency Test participants is treated as confidential and proprietary to the client. The only public information available in each round's report is the names of the participants. A confidentiality agreement with ITAK binds individuals who have access to this information.

When required by law or authorized by contractual commitments, ITAK will disclose confidential information, and the affected participant will be notified of such disclosures, except if prohibited by law.

If ITAK receives information about the participant from sources other than the participant, such as a complainant or regulatory authority, ITAK will ensure that this information remains confidential. The identity of these sources will also be kept confidential and not disclosed to the participant unless the source agrees to share that information.

According to the confidentiality protocol implemented by ITAK, laboratories are assigned distinct numerical codes. Each participant is granted access exclusively to their code, effectively preventing any possibility of collusion among participants. In case of any suspected collusion, the Program's coordination team will conduct a thorough investigation and take appropriate action.

The report for each round includes a list of participants, excluding lab codes to maintain confidentiality. By confirming participation, the laboratory agrees to have your name included in the report. If you prefer not to have your name mentioned, please inform us via email interlab@itak.com.br.

Participating laboratories understand and agree that ITAK may utilize their reported results for the characterization of reference materials used as test items in the Proficiency Tests. Confidentiality will always be maintained.

STATISTICAL TREATMENT

If this Proficiency Test uses a Statistical model with designated values and Standard deviation from Certified Reference Materials, a minimum number of participants is not required.

If the Proficiency Test uses a Statistical model with Consensus values, a minimum of six participants is required.

If the Proficiency Test uses a Statistical model that involves Consensus values from expert participants after removing outliers, a minimum of three participants is required for evaluation.

According to the results of accurate assessments, the performance of the participants can be classified as satisfactory, unsatisfactory, or questionable for each evaluated parameter.

If the participant does not provide complete data for evaluation for some specific analyses, the report will be issued as “insufficient data”.

Each statistical technique has its use limit and is conditioned by the number of participants who report numerically valid results and are approved in the Evaluation and Treatment Outliers.

SAMPLES AND ANALYSES

Each round will consist of 10 samples referring to two reference materials of different concentrations (05 sachets containing 8 g each), totalling 10 sachets per round.

The samples used in the Proficiency Testing Program are Reference Materials (RMs) with proven homogeneity and stability. RM’s are produced by ITAK following the ISO 9001 Quality Management System and ISO quality protocols (ISO Series Guide 30 to 35) and ISO 17034 - General requirements for the competence of reference materials producers.

It is the participant's responsibility to follow up and clarify the shipment through customs or carrier when it is required. If samples come back to ITAK because of incorrect address information or because the laboratory has not clarified the shipment through customs, ITAK can charge reshipping expenses.

Test items can be shipped by using customer accounts on FedEx, DHL, and UPS carriers.

Along with the samples, it will also send instructions directing the Participating Laboratory on how to treat the samples, carry out the analyses, and report the analytical results.

Any communication about this Proficiency Testing, such as questions, submission of results, technical reports, and certificates of participation, is available through software at pep.itak.com.br for participating laboratories.

In addition to their test results and methodologies, ITAK PT participants should also report the measurement uncertainties of each analyzed parameter (if available). It must be sent as the Standard Uncertainty Combined, without application of any coverage factor, which would make it Expanded Uncertainty. Such data should be reported in specific fields in the ITAK PT Management System.

Invalid analytical results, such as "less than" or "zero", are not amenable to statistical evaluation. Therefore, in these situations, ITAK will not do the participant performance evaluation.

The participating laboratory is required to undertake one (1) independent determination in each sample, preferably in five (05) different days, analyzing a couple a day, employing one or more validated analytical methods. The methods used should be reported with the results. The samples must be analyzed as ordinary routine samples of the laboratory, without any special treatment.

The parameters to be determined in each sample are listed below:

Total Fe, FeO, Al_2O_3, SiO_2, Mn, TiO_2, P, CaO, MgO, K_2O, Na_2O and LOI (Loss On Ignition)

The samples will be sent by the ITAK from João Monlevade / MG, under the guidance of the Participant Laboratory, using an appropriate way to transport them. In case of loss or damage to any test item, ITAK will evaluate the possibility of replacement, which will depend on how it can be transported and the delivery deadline so as not to compromise the schedule.

ANALYTICAL METHODS

The Participant should use their routine procedure in Iron Ore Analyses. ITAK suggests the following analytical methods for this Proficiency Test:

- ✓ **Total Fe:** Fusion and determination by XRF or Acid digestion and Titrimetric Method.
- ✓ **FeO:** Titrimetric Method.
- ✓ **Al_2O_3, Mn, TiO_2, P, CaO, MgO, K_2O, Na_2O:** Fusion and determination by AAS or ICP-OES or XRF.
- ✓ **SiO_2:** Digestion followed by the gravimetric method or Fusion and determination by XRF.
- ✓ **LOI (Loss on Ignition):** Gravimetric Method.

The methods used should be informed by, whenever possible, the standard "Digestion Technique / Instrument Finish" using simplified codes as examples below:

- ✓ Fusion and X-Ray Fluorescence finish: **FUS-XRF.**
- ✓ Pressed Pellet and X-Ray Fluorescence finish: **POP-XRF.**
- ✓ Fusion and ICP-OES finish: **FUS-ICP.**
- ✓ Four acid digestion (HF,HNO_3,$HClO_4$,HCl) and ICP-OES finish: **DIG4AC-ICP**.
- ✓ Acid digestion (HCl) and Titrimetric finish: **DIGAC-TIT.**
- ✓ Four acid digestion (HF,HNO_3,$HClO_4$,HCl) and Atomic Absorption Spectrometry: **DIG4AC-AAS.**
- ✓ Four acid digestion (HF,HNO_3,$HClO_4$,HCl) and Gravimetric finish: **DIG4AC-GRA**.
- ✓ Four acid digestion (HF,HNO_3,$HClO_4$,HCl) and Colorimetric finish: **DIG4AC-COL.**
- ✓ Gravimetric Method: **GRA**.
- ✓ Thermogravimetric Analyse: **TGA.**

SCHEDULE

The proposed schedule is presented in the table below; however, it can be adjusted as required. The official schedule should be checked through the PTP Management System.

Steps of the Program	1st Round (68th round)	2nd Round (69th round)	3rd Round (70th round)	4th Round (71st round)	5th Round (72nd round)
1- Sending invitations	28/Nov/2025	--	--	--	--
2-Confirmation of participants	30/Jan				
3- Sending samples to the participants	15 Apr	08 Jun	10 Jul	28 Aug	09 Oct
4- Receiving samples by the participant	30 Apr	22 Jun	27 Jul	11 Sep	23 Oct
5- Completion of the Analyses and reporting the results by the participants	**25 May**	**15 Jul**	**19 Aug**	**09 Oct**	**23 Nov**
6- Preparation and delivery of the Performance Report to the participants.	05 Jun	29 Jul	31 Aug	16 Oct	01 Dec
7- Registration of appeals	Up to 10 days after the report is submitted				
8- Reply to appeals	Up to 15 days after the filing of the appeal				

Note: the dates in bold (item 5) must be met to avoid delays in issuing the results, which can compromise the subsequent rounds of the program.
If delays occur, the Program Coordinator must be contacted to assess the possibility of extending the deadline without compromising the schedule or causing loss to the other participants.

If there are unjustified delays, ITAK may close the rounds without the missing results.

For each round, the instructions will be sent along with the samples, containing guidelines on how the laboratory should proceed and specific information about the samples, such as expected levels of the analyte (s).

REQUIREMENTS FOR PARTICIPATION

Laboratories that wish to participate in this Proficiency Test must be legally registered organizations equipped with the necessary technical capabilities and equipment to perform the required chemical analyses and confirm their participation by the deadline specified in the schedule.

PERFORMANCE REPORT

For each round, ITAK will issue a personalized digital Interlaboratory Performance Evaluation Report under confidentiality identification for the internal evaluation of the Participant Laboratory and identify improvement opportunities.

If a participant wishes to obtain a report from another unit within the same business group, they must request it directly from the person in charge or through formal authorization from that individual. Please note that preliminary reports will not be issued.

If required, ITAK may rectify or ratify reports provided that such corrections do not require further statistical processing of data. All rectification generates a new version and a new report number that will replace the previous version when published and communicated.

If required by law, the performance report can be delivered or presented to the Regulatory Entity or Public Prosecutor's Office without the participant's permission and will be formally and previously communicated.

If the performance report cannot be delivered on the scheduled date, the participants will be promptly notified about the possible delay and the new delivery date.

ITAK Interlaboratory Performance Report is accepted as an ISO/IEC 17025 requirement.

APPEAL

The participant in ITAK's Proficiency Test has the right to appeal against the performance evaluation in the Technical Report.

The participants who have doubts or disagree with the performance evaluation must register their appeal in the "Appeals" field in the Proficiency Test Management System.

Meeting a requirement of ABNT NBR ISO/IEC 17043 - Conformity assessment — General requirements for proficiency testing, ITAK has a procedure that manages this process.

INVESTMENT

Request a proposal by email.

ITAK has an attractive discount policy, such as participation of several units of companies belonging to the same economic group, discounts for laboratories' participation in more than one PT, discounts for purchase of ITAK's CRM, etc.
Find out more by contacting us at: interlab@itak.com.br

All customs duties are participants' responsibility.

ITAK must receive the total amount without any deductions, such as bank fees or taxes applied. It is necessary to take them into account before sending us the payment.

SUBCONTRACT ACTIVITIES

For this PT, homogeneity test analyses of Reference Materials used as samples (test items) can be subcontracted from competent laboratories.

All laboratories are evaluated and qualified in the ITAK's Quality Management System for these analyses, providing results with which, after appropriate statistical treatment, the designated values, standard deviations, and uncertainties are obtained for the Proficiency Test.

COORDINATION TEAM

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