

Poster

## EVALUATION OF PHYSICAL-CHEMICAL TESTS USING CONTROL CHARTS



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### ABSTRACT

Nowadays, the market demands are increasing in what respect the quality of the products, their price and their availability. To ensure a good participation in the market, companies need the implementation of a good Quality Management System strengthening it and making it more competitive. Thus, the analytical laboratory must ensure the quality of their essays to reduce or remove errors and, to prevent them indeed. The accreditation ISO 17025:2005 establish the general requirements for the competence of testing and calibration laboratories. Certifying used methods; it makes laboratories to have a work structure perfectly documented so to ensure the quality of the obtained data. The most important element on data collection is the selection of the characteristics in study and the site identification or control stages. Therefore, control chart (UNE-ISO 7870-1) is an essential tool of statistical process control. It constitutes a graphic exposition of the obtained data, which will allow making a visual evaluation of the method variability. Thereby, the aim of this study is to generate a control chart that represents the data collected to be analyzed over time. The tests to be studied are carried out on food and water. Nutritional elements such as protein, fat, ash, moisture and sugars are determined in foods, which include meats, fish and cereals. Regarding to water, a distinction is made between continental, consumption and wastewater and parameters such as conductivity, pH and turbidity are analyzed. The analysis of reference materials on a regular basis is included in the evaluation of each method. After evaluating the graphics, the results confirmed the stability of all certified assays, assuring the quality of the product and the reliability of the laboratory certified methods.

### REFERENCES

- ISO 7870-1:2014. Control charts – Part I: General guidelines.  
ISO 17025:2005. Evaluación de la conformidad. Requisitos generales para la competencia de los laboratorios.  
Riu, J. (2005). Gráficos de control de shewhart, 1–8.  
Thompson, M., & Wood, R. (1995). Harmonized guidelines for internal quality control in analytical chemistry laboratories (Technical Report). Pure and Applied Chemistry, 67(4), 649–666.