

PT.76

The Youden plot as a tool for the evaluation of interlaboratory comparison studies aiming the certification of reference material

Moreira EG¹, Vasconcelos MBA¹, Maihara VA¹, Catharino MGM¹, Saiki M¹

¹Instituto de Pesquisas Energéticas e Nucleares - Centro do Reator de Pesquisas

The Youden plot is a graphical means to evaluate interlaboratory comparison results and it is used when each participant laboratory presents two results for the same sample or results for two different samples. It is a simple but effective method for comparing the variability between laboratories, but also within each laboratory. With its aid, it is possible to check if there are repeatability problems within laboratories (within-laboratory variation) and if there are laboratories whose results are considered extreme and therefore likely to be eliminated in the study (between-laboratory variation). The Youden plot may be used as a preliminary tool in projects aiming the certification of new reference materials. This study presents the application of Youden plots to the results of an interlaboratory comparison designed for the characterization of the mass fraction of 36 elements in a mussel reference material produced in Brazil. This reference material was planned as a

quality assurance tool for element biomonitoring studies along the Brazilian seashore. Element mass fractions were determined by seventeen laboratories and the following analytical techniques were applied: Neutron Activation Analysis (NAA), Atomic Absorption Spectrometry (AAS), Inductively Coupled Plasma Optical Emission Spectrometry (ICP OES), Inductively Coupled Plasma Mass Spectrometry (ICP-MS), X-Ray Fluorescence (XRF), and Alpha Spectrometry (α -ESP).

The 8Th

INTERNATIONAL CONFERENCE
ON THE ANALYSIS OF GEOLOGICAL
AND ENVIRONMENTAL MATERIALS

16-20 SEPTEMBER 2012
BÚZIOS, RIO DE JANEIRO, BRAZIL



GEOANALYSIS
BRAZIL 2012

BR PETROBRAS

