Analysis of amino acids and the construction of a neutron database using neutron spectrometry in the Argonauta reactor

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The neutron spectrometry at IEN-CNEN-RJ was developed from the 70's for the purpose of analyzing materials used in nuclear reactors as a technique for quality control of materials at nuclear level as a complement to conventional physical-chemical analyzes. From the year 2000 also began measures of biological materials

IEN-CNEN-RJ beginning of the millennium

At this stage, research was started with biological materials in function of the government's requirements, of returning research to the poor areas of society. A project of neutron cross-section measurements for amino acid analysis, in partnership with the IPPMG (Institute of Pediatrics, UFRJ) [1, 2, 3, 4] was elaborated.

The IEN Neutron Database for Amino Acid and Auxiliary Molecules

In 2010, after a number of publications, a database of all essential and non-essential amino acids was constructed, including also molecular data and auxiliary molecular groups [5, 6]. This database allows the qualification of the amino acids provided by the pharmaceutical industry and there is forecast for use in the qualification of proteins and enzymes. A more recent study, on a new and unprecedented method for amino acid analysis [7], can achieve more precise results than those obtained with the current database.

The possibilities of applications of this new method in the petroleum area being studied.

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