

Development of a Process for the Purification of Mo-99 Obtained by Irradiation of Uranium Solutions

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ABSTRACT

During the period 2008-2011, INVAP developed a process for the production of Mo-99 from a low enrichment uranyl nitrate solution, similar to those that would be obtained from a solution nuclear reactor.

The work was performed for B&W and included different and sequential phases of increasing complexity and radioactive inventory. It encompassed the theoretical study of the operational conditions for the separation process, definition of the working plan and the experimental separation and purification of Mo-99 in representative scaled down experiments.

The results of this experimental program can be summarized as: obtainment of information from the irradiation of solutions, search/design/testing of adsorbents and separation stage, and demonstration of the purification process.

The entire process has demonstrated the feasibility of producing high activity, high purity, Mo-99 as a precursor for Tc-99m, meeting the required pharmaceutical specification.