the D_2O; ejected thoria redeposits on the surface of the particles, trapping many of the fission products that had absorbed on the surface[4] 4) Our irradiated slurry had an overpressure of oxygen, contained a palladium catalyst, and was in other ways different from the slurry used by Gardner. However, our slurry is more representative of that expected from an aqueous homogeneous reactor.

To date no method for leaching of fission products from irradiated thoria or urania slurry has been found which does not completely change the properties of the slurry solids or dissolve a prohibitive fraction of the oxide.

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Comment on Doppler Broadened Absorption

Since the paper "Accurate Doppler Broadened Absorption"[1] was printed in the June 1963 issue of Nuclear Science and Engineering, Dr. Joseph J. Devaney of the Los Alamos Scientific Laboratory has written to us about his extensive earlier work[2-8] on this subject. Using essentially the same expression for the Doppler broadening as Eq. (7) of the above paper, Devaney and his collaborators have applied a coded digital computation to U^{238}, Th, Pu^{239}, Pu^{240}, Mo, Hf, W.

We regret our oversight in not having given credit to this very useful work. On the other hand, these reports have not compared the accurate treatment with the more approximate ψ-function method, and, in this sense, our work can be considered to supplement his.

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Effect of Neutron Spectrum on the Branching Ratio of the Ni^{58} (n,p) Co^{58} Reaction

The effect of branching ratio on the thermal neutron absorption corrections for nickel activation measurements has been discussed fully by Martin and Clare[1]. These authors show that an error of ±10% in the branching ratio can produce an error of ±5% in measured fast-neutron doses using nickel activation monitors in a thermal neutron flux of $\sim 10^{14}$ n.cm^{-2} sec.$^{-1}$ and that the error is greater in higher thermal-neutron fluxes. It is, therefore, important to know the effect of neutron-spectrum variation on the branching ratio if nickel is to be used as an accurate fast-neutron dose monitor in different reactor facilities.

The mean branching ratio $\bar{k}$ for a given neutron spectrum is defined by Martin and Clare[1] in terms of the mean neutron activation cross-section of the Ni^{58} (n,p) reaction, $\bar{\sigma}_a$. The product $\bar{k}\,\bar{\sigma}_a$ is the cross section for activation of Ni^{58} to the ground state Co^{58}, and $(1 - \bar{k})\,\bar{\sigma}_a$ is the cross section for activation of Ni^{58} to the isomeric state Co^{58}. Barry[2] measured the activation cross-section for the Ni^{58} (n,p) reaction as a function of neutron energy E, and obtained a value of $\bar{\sigma}_a = (111 \pm 12)mb$ by averaging the results over a 'fission spectrum'. This result is in good agreement with the value obtained by Wright (private communication) of 107 *mb* relative to 65 *mb* for the $S^{32}(n,p)$ reaction by comparison of nickel and sulphur monitors in a hollow fuel element in PLUTO.

Cross[3] has determined the branching ratio as a

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