the three group separation. Effective methods for separating TRU, especially Np, and Tc have been developed [3]. The next section will describe main experimental resuls related to the separation of Tc by denitration with formic acid.

3. Separation of technetium by denitration

Figures 1 and 2 show the precipitation behavior of Tc when the several kinds of synthetic 2 M nitric acid solution containing Tc-95m as pertechnetate were denitrated with formic acid under reflux conditions for 3 h. As shown in Fig.1 the precipitated fraction of Tc in a Mo-Zr solution gradually increased with initial concentration ratio of formic acid to nitric acid, wherease no increase was observed in a Mo-Zr-Te and a Fe-Cr-Ni-Sr-Cs-Ba solutions. These phenomena suggest that the precipitation of Tc might be caused by the coprecipitation of pertechnetate ion along with zirconium molybdate. No increase in the Mo-Zr-Te solution seems to be due to stronger combination of tellurate ion to zirconium molybdate compared with pertechnetate ion.

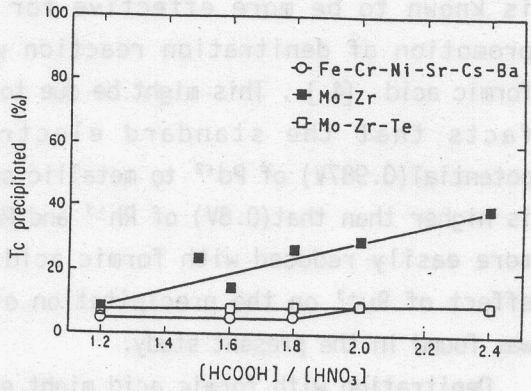

Fig.1 Effect of denitration condition on Tc precipitation

As shown in Fig.2 the precipitation behavior of Tc in a solution containing PGM differed significantly from those in Fig.1. The presence of Rh and Pd extremely increased the precipitation of Tc and its fraction exceeded 90% when the initial concentration ratio of formic acid to nitric acid became higher than 1.8 and the pH of the resultant solution after denitration was over 2.0. The promotion of a denitration reaction is known in the presence of PGM [4] and results in the further decrease of nitric acid concentration. This seems to make it possible to the reductions of Pd and Rh ions to metallic state by formic acid and pertechnetate ion to lower

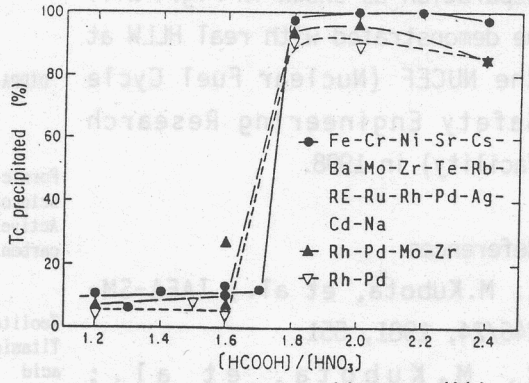

Fig.2 Effect of denitration condition on Tc precipitation