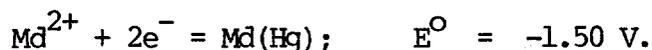


potential of Md is about 10 mV more negative than Fm and that no significant difference is observed upon changing the medium from  $\text{ClO}_4^-$  to  $\text{Cl}^-$ . In citrate solutions, a shift of 90 mV was obtained for Md which is about the same shift seen with Fm and Ba ions in a citrate medium. The slope of the logarithmically transformed wave was 30 mV for Md and Fm.

The electrochemical reaction taking place at a reversible electrode can be deduced from the slope of the polarographic wave. Specifically, the number of electrons exchanged at the electrode, based on the Nernst equation, is obtained from this slope. From the analysis of the polarograms, there were three electrons involved in the electrochemical reduction of the trivalent ions of the elements Am through Es and only two electrons for the reduction of Fm and Md. This implies that  $\text{Md}^{3+}$  was first reduced to  $\text{Md}^{2+}$  before being further reduced to the metal. The III  $\rightarrow$  II reduction step is not detected by this radiopolarographic technique because both the III and II ions are in the solution phase; whereas, the measured parameter is the distribution of the tracer between the aqueous and Hg phase.

These results demonstrate that the electrochemical behavior of Md is very similar to that of Fm and can be summarized in the equation



The half-wave potentials measured by this method include the amalgamation potential of the metal-mercury reaction. The amalgamation potential was estimated to be 0.90 V by using the metal radii as a correlating parameter and interpolating within a series of divalent elements with known amalgamation potentials.<sup>10</sup> This correlation is shown in Fig. 3. The standard electrode potential is then given as -2.40 V for the  $\text{Md}^{2+} + 2e^- = \text{Md}^0$  reaction. The