

CHAPTER VI

CONCLUSIONS

The following conclusions are made.

1. The samples prepared by our electrodeposition method are not as good as the standard source but the uniformity achieved is better than that which can be achieved by drying the drop method.

2. The specific activity method used for the determination of the half-lives used in this study will yield better results if the activities and the energies of the emitted alpha particles of the known activity sources and unknown activity sources are approximately equal.

3. The measured absolute activities of the neptunium samples would be more accurate if the masses were more precisely known. However, the value of 1387.01 ± 34.37 disintegrations per minute per microgram observed by our detector yields a half-life of $(2.41 \pm 0.06) \times 10^6$ years for ^{237}Np which is in close agreement with the accepted value of 2.2×10^6 years.

4. Finally, it is indicated that future determination of the half-lives of other radioactive elements by the technique used in this study can be carried out when standard sources of other alpha-particles energies and activities become available so that the better efficiency of the surface barrier detector can be utilized.