

ABSTRACT

Analytical techniques for the isotope analysis of lead in geological samples have been established at Nuclear and Isotope Geology Laboratory of our Institute. In order to obtain accurate data, rigid control over the laboratory hygiene is to be exercised and the reagents used must be of high purity. Keeping this in mind, an ultra-clean laboratory was mounted and methods were developed for the purification of chemical reagents. The preparation of the reagents by sub-boiling distillation is the subject matter of present study. Reagents such as water, nitric acid and hydrochloric acid were distilled in a quartz still, whereas hydrofluoric acid was prepared in all teflon distillation unit made in our laboratory. The hydrobromic acid was purified using ion exchange columns.

The concentration of lead in the purified reagents was measured by anodic stripping voltammetry and the values compared with commercially available analytical grade and "suprapur" reagents. The comparison showed that the concentration levels in reagents prepared by sub-boiling distillation are less than 1 ppb of lead and these values are lower than those found in commercial ones. This indicates the efficiency of the purification method.