

7-14-71

# Certificate of Analysis

## Standard Reference Material 945

### Plutonium Metal – Standard Matrix Material

This plutonium metal is issued to provide a source material for the preparation of  $\text{PuO}_2$  to be used as matrix material for the preparation of emission spectroscopy standards. Although it is known to be of high purity, it is not intended to replace SRM 949, as a primary chemical standard. Because of the special use intended for this material, only those chemical analyses involving spectrographic impurities are provided.

This material was prepared and analyzed by the Los Alamos Scientific Laboratory of the University of California, Los Alamos, New Mexico, in collaboration with the National Bureau of Standards.

Each of these SRM's consists of several pieces of metal having a total weight of about 5 grams sealed in a glass tube under a reduced pressure argon atmosphere. The serial number of the SRM and its weight are given on each tube. Weighings are accurate to the nearest 1.0 milligram. Because of the method used to fabricate the material, very small pieces of metal may be separated from the larger pieces in the tube. These small pieces may be left behind unless the tube is carefully washed out, preferably with dilute hydrochloric acid.

This plutonium metal has been prepared from a single lot of material selected because of its low metallic impurity content. The main impurities detected, exclusive of americium, are: tungsten, 80 ppm; silicon, 11 ppm; gallium, 6 ppm; and iron, 3 ppm--with a total detected metallic impurity content of about 105 ppm. The americium resulting from the decay of plutonium-241 is approximately 146 ppm as of September 1971, and should increase less than 150 ppm per year. Impurity determinations indicate that the material is quite homogeneous.

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J. Paul Cali, Chief  
Office of Standard Reference Materials

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