

# Certificate of Analysis

## Standard Reference Material 727

### Rubidium Chloride

### Intermediate Purity

This intermediate-purity material is issued primarily for the assay of dilute solutions of rubidium-85 or rubidium-87 by isotopic dilution. The material is somewhat hygroscopic, absorbing approximately 0.6 percent moisture in a 75-percent relative humidity at room temperature, but can be dried to the original weight by placing in a desiccator over freshly exposed  $P_2O_5$  for twenty-four hours. The material should therefore be stored with a desiccant such as  $P_2O_5$ .

The ratio of rubidium-85 to rubidium-87, determined by thermal emission mass spectrometry, is uniformly within a part in a thousand of the reference material number eleven formerly distributed by the National Bureau of Standards. An absolute ratio has not been determined, but is planned to be included in a final certificate.

The halides have been determined coulometrically with silver to be 8.27029 milliequivalents per gram (vacuum corrected) on 12 samples dried two hours at  $110^\circ C$ . Flame emission spectrometry indicates lithium,  $<0.2 \mu g/g$ ; sodium,  $2.3 \mu g/g$ ; potassium,  $420 \mu g/g$ ; and cesium,  $24 \mu g/g$ . Emission spectrographic examination indicates, in addition, calcium,  $<10 \mu g/g$ ; magnesium,  $<10 \mu g/g$ ; silicon,  $<10 \mu g/g$ ; aluminum, detection questionable; and that the major element is rubidium.

From the data given above, the assay is computed to be 99.87 percent rubidium chloride. Combination of the error terms for the various analyses used in the assay of this material indicates that a pooled uncertainty statement of 0.1 percent is at least as large as the 95-percent confidence level for the assay of any one sample exceeding 100 mg in weight.

Analysts: Drying tests, E. R. Deardorff; mass spectrometry, E. L. Garner; coulometric assay, George Marinenko; flame spectrometry, T. C. Rains; emission spectrographic, E. K. Hubbard.