



## Instructions for Catalog # 811

NaturalS™

Revision 092619

### Radioactive Material:

- Radioactive Material – Not for Human Use – Introduction into Foods, Beverages, Cosmetics, Drugs or Medicinals, or Into Products Manufactured for Commercial Distribution is Prohibited – Exempt Quantities Should Not Be Combined.

### Description:

- This standard is packaged in a screw-top glass vial containing at least 10 mL of standard concentrate.
- The concentrate is preserved with nitric acid to  $\text{pH} < 2$ .
- The concentrate also contains non-radioactive barium (10 mg/L).
- The standard should be stored at room temperature.
- The diluted standard will contain the following analytes in the activity ranges shown:

Radium-226 .....	1 – 20 pCi/L
Radium-228 .....	2 – 20 pCi/L
Uranium (Nat).....	2 – 70 pCi/L
Uranium (Nat) mass.....	3 – 104 $\mu\text{g/L}$

### Before you begin:

- This standard is supplied as a concentrate and must be diluted prior to analysis.
- When diluting the concentrate, it is recommended that the diluting solution have an acidic composition comparable to that of the concentrate to ensure analyte stability.
- The standard should be analyzed as soon as possible after the concentrate is diluted.

### Standard Preparation Instructions:

1. Shake the vial well prior to opening.
2. Using clean, dry, class A volumetric glassware, transfer 5.0 mL of the concentrate and dilute the concentrate to a final volume of 4 L with 0.1 M nitric acid solution.
3. If necessary, prepare a second 4 L portion by following steps 1 and 2 above.
4. Mix or shake the diluted standard well prior to analysis.
5. Use your regular preparation and analytical procedures.
6. Decay correct analytical results to the reference date shown on the standard vial.
7. Report your result as pCi/L or  $\mu\text{g/L}$  for mass determinations of uranium for the diluted sample.

### Safety:

- This standard is preserved in a dilute nitric acid solution. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin.
- ERA radiochemistry standards present radiological hazards that vary depending on the particular isotope(s) present. Knowledge of hazards associated with isotopic composition is necessary to prevent laboratory contamination and limit personnel exposure.
- ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Safety Data Sheets (SDS) for all ERA products are available through our website [www.eraqc.com](http://www.eraqc.com).

## **Additional Information for Radioactive Materials:**

### **Handling Radioactive Material**

- Basic radiation principles of time, distance, and shielding should be practiced to minimize radiation exposure (i.e., minimizing the time spent around radioactive material, as well as maximizing the distance and the shielding between persons and the radioactive material).
- Use of radioactive material should be restricted to authorized, responsible persons in authorized areas.
- Activities such as eating, drinking, smoking, or the application of cosmetics should be prohibited in areas of use.
- Gloves and laboratory coats should be worn when working with liquid radioactive material.

### **Use of Radioactive Material**

- Exempt quantity products containing radioactive material should be used only in accordance with these instructions.

### **Storage of Radioactive Material**

- All radioactive materials should be securely stored when not in use.

### **Disposal of Radioactive Material**

- Radioactive materials in exempt quantities can be disposed of in regular waste without regard to their radioactive content (unless the person is specifically licensed).
- Liquid materials disposed in laboratory sinks should be flushed with copious amounts of water.
- Specific licensees (such as laboratory/academic institutions) receiving exempt quantities are subject to the requirements of 10 CFR Part 20, in particular, waste disposal requirements.