Making the 1000 ppm Nitrate Standard

Lab Guide

Task
Make the 1000 ppm stock nitrate-nitrogen standard for the quality control procedure using KNO₃ (potassium nitrate).

What You Need
- Potassium nitrate (KNO₃)
- Distilled water
- Drying oven
- 500-mL graduated cylinder
- Latex gloves
- 500-mL bottle or jar with lid
- Balance
- Chloroform (optional)
- Goggles

In the Lab
1. Put on gloves and goggles
2. Dry KNO₃ (potassium nitrate) in an oven for 24 hours at 105 degrees C.
3. Measure 3.6 g of KNO₃
4. Dissolve 3.6 g of KNO₃ in 100 mL of distilled water.
5. Pour solution into a 500 mL graduated cylinder. Fill cylinder to the 500 mL line with distilled water.
6. Carefully swirl to mix. (Do not shake).
7. Pour into a jar and label as 1000 mg/L nitrate-nitrogen solution. Put the date on the label.
8. The stock nitrate solution can be preserved for up to six months using chloroform (CHCl₃). To preserve a stock nitrate standard add 1 mL of chloroform to 500 mL of stock nitrate solution.

Note: To calculate nitrate-nitrogen (NO₃⁻-N), take into account the molecular composition of KNO₃ (the ratio of the molecular weight of N to NO₃ is 0.138): 7200 mg/L KNO₃ x 0.138 = 1000 mg/L nitrate nitrogen solution.