Making the 1000 ppm Nitrate Standard

Lab Guide

Task

Make the 1000 ppm stock nitrate-nitrogen standard for the quality control procedure using KNO_3 (potassium nitrate).

What You Need

- ❑ Potassium nitrate (KNO_3)
- ❑ 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 KNO_3 (potassium nitrate) in an oven for 24 hours at 105 degrees C.
3. Measure 3.6 g of KNO_3
4. Dissolve 3.6 g of KNO_3 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 ($CHCl_3$). To preserve a stock nitrate standard add 1 mL of chloroform to 500 mL of stock nitrate solution.

Note: To calculate nitrate-nitrogen (NO_3^--N), take into account the molecular composition of KNO_3 (the ratio of the molecular weight of N to NO_3 is 0.138): 7200 mg/L KNO_3 x 0.138 = 1000 mg/L nitrate nitrogen solution.