Available P by Laboratory Resin Extraction

Materials
- AG 1-X8 Resin, chloride, 20-50 dry mesh
- Nylon small mesh fabric (stockings); non-dyed
- 0.5 mol/L NaHCO₃
- 0.5 mol/L HCl
- 250mL HDPE bottles
- shaker
- autoanalyzer cups
- funnels & rack
- Whatman No.1 papers
- Potassium Phosphate (KH₂PO₄)

Standard Preparation:
1. One day before, make stock standard solution (50 µg P/mL): 0.2195 g oven-dried primary standard-grade KH₂PO₄ dissolved in 1000mL DI water. Store in HDPE bottle.
2. Make P solution standards fresh daily from stock solution.

Resin Bag Preparation:
1. Prepare resin bags by cutting a knee-high stocking into thirds. Tie a knot at one end of the bag.
2. Weigh 4-g of dry-weight equivalent resin into each bag. Close bag by tying a knot at the open end of the bag.
3. Convert the anion resin to the bicarbonate form by shaking bags for 10 minutes in three successive 100-mL 0.5 mol/L NaHCO₃ solutions, rinsing with DI water between each NaHCO₃ equilibration.
4. Rinse bags thoroughly in DI water and shake dry.

Use of Bags for P-extraction:
1. Place 100-mL DI water and 10-g of soil in a 250-mL HDPE bottle along with one resin bag, cap bottle lightly, and shake gently on shaker for 18 hours (overnight).
2. Remove bags, rinse thoroughly in DI water, and shake bags dry.
3. Cut bags open and place bags plus resin in clean 250-mL HDPE bottles with 100 mL of 0.5 mol/L HCl and extract for 1 hour. CO₂ will outgas, so extracting bottles will need to be uncapped periodically to release trapped CO₂ (especially for the first 15 minutes)
4. Prepare standards by shaking bags in 100mL of the solution standards and extracting using the same procedure as described for soil solutions.

References:
Robertson et al., 1999. Standard Soil Methods for Long-Term Ecological Research (117-120)