Ferrate treatment

1. Measure 8 L of sample and transfer into the reactor.
2. Add 8 ml of 1 M Boric acid buffer (pH = 6.2 or 7.5), adjust the pH to 6.2 or 7.5.
3. Add K_2FeO_4: 40 mg (25 uM) or 80 mg (50 uM) into the 8 L sample, adjust the pH to 6.2 or 7.5.
4. Measure the decay of ferrate with ABTS (19 mL sample added to premixed 5 mL acetate buffer plus 1 mL ABTS) for calculating ferrate CT value.
5. After about 1.5 hour, save sample for chlorination, TOC, Mn, and Fe measurement;
6. Fractionate the sample, save sample after GF/F for TOC, Fe and Mn measurement;
7. Save sample after UF for TOC, Fe, and Mn measurement.
8. Measure six 1-L volumes of ferrate treated samples and transfer each to a 1L beaker. Add 0, 1, 2, 3, 4, 5 mL of 1g/L ferric chloride, respectively, into the six beakers. Fast mixing (200 rpm) for 1 min, and slow mixing (20 rpm) for 10 min.

   Note: Adjust the pH to 5.5 as fast as possible after adding ferric chloride (while fast mixing).
9. After coagulation, take some sample from each of the six beakers, after GF/F, measure UV_{254}. Select the best ferric dose, and use this beaker for further experiments.
10. Save sample (after coagulation) for TOC, Fe, Mn measurement.
11. Fractionate the sample, save sample after GF/F for Chlorination, TOC, Fe, and Mn measurement.
12. Save sample after UF for TOC, Fe and Mn measurement.

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