

APPENDIX D-8
Preparation Procedure for DTPA-Extractable Fe and Mn:
Method ASA 17-4.3

DTPA Extraction of Soils for Fe and Mn
ASA 17-4.3

Reagent:

DTPA Extraction Solution (0.005M DTPA, 0.01M Calcium Chloride, 0.1M TEA)

1. Add 600 ml deionized water to a 1 liter volumetric flask.
2. Add 14.9 g TEA (Triethanolamine) and dissolve (add 16.5 ml if liquid form used).
3. Add 1.970 g of diethylene triamine pentaacetic acid and dissolve.
4. Add 1.470 g of calcium chloride and dissolve.
5. Bring volume to about 970 ml with deionized water.
6. Transfer to a beaker and adjust to pH of 7.3 with 6N HCl (about 13 ml required).
7. Return to volumetric flask and bring to volume.

Procedure:

1. Place 10 g dry soil in 125 ml Erlenmeyer flask.
2. Add 20 ml of DTPA extracting solution.
3. Shake for 2 hours on an oscillating shaker on low setting (180/min).
4. Filter extract through previously folded Whatman 42 filter paper into a 50 ml Erlenmeyer flask.
5. Submit the filtrates for analysis of iron and manganese by inductively coupled plasma (ICP), atomic absorption, or spectrometric methods.

References:

“Availability Indices,” Section 17-4.3 in *Methods of Soil Analysis, Part 2, Chemical and Microbiological Properties*, Second Edition, A. L. Page Editor, American Society of Agronomy, Inc. 1982