Iron-55

Water

The sample is pre-concentrated by evaporation and the resulting residue is dissolved in a mineral acid.

Solids

An aliquot of the solid sample is digested in a mixture of mineral acids.

Iron is separated from the resulting solution by solvent extraction using di-isopropyl ether. The purified iron fraction is decolourized, and the iron-55 content is measured by liquid scintillation counting. Iron-55 of known activity concentration is used to determine the counting efficiency. Stable iron, measured by inductively-coupled-plasma mass spectrometry, is used to monitor the chemical recovery.