Iron and TIBC in Serum- Serum iron and total iron-binding capacity (TIBC) are measured by a modification of the automated AAII-25 colorimetric method, which is based on the procedures of Giovaniello et al. (1) and of Ramsey (2). The method has been modified further to be performed on an Alpkem RFA (rapid-flow analysis) system. Iron is quantitated by measuring the intensity of the violet complex formed in the reaction between ferrozine and $Fe^{++}$ in Ph 4.7 acetate buffer at 562 nm. Thiourea is added to ++ complex $Cu^{++}$, which can also bind with ferrozine and yield falsely elevated iron values. In TIBC tests, serum is mixed with 400 µg/dL iron solution to saturate the iron-binding sites of the serum transferrin molecules. Magnesium carbonate is used to remove excess iron. Centrifugation is used to precipitate the magnesium carbonate, and the supernatant is measured for iron content.

1. Giovaniello TJ, Bendetto G, Palmer DW, Peters T. Fully and semiautomated methods for the determination of serum iron and total iron-binding capacity. J Lab Clin Med 1968; 71:874.
2. Ramsey WNM. The determination of the total iron-binding capacity of serum. Clin Chem Acta 1957; 2:221.

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