

134 SYNOPSES OF LABORATORY COURSES

Note reading that gives last reaction ; repeat titration, adding standard alkali, at once to this point, then one drop at a time until reaction is no longer visible. Compare with results obtained with tropaolin and dimethyl amidoazobenzol (Töpfer's reagent).

4. Titrate another 10 c.c., using alizarin as indicator.

By use of three indicators, viz. : 1 (2 or 3) and 4, the total acidity, free HCl, half combined HCl, total HCl, acid salts, and organic acids can be calculated.

A. Phenolphthalein gives free HCl *plus* acid salts, *plus* organic acids, *plus* half-combined HCl.

B. Alizarin gives free HCl, acid salts, organic salts.

C. Tropaolin, Töpfer's, and Gunzberg's reagent give free HCl.

Example A=6.4 c.c. B=4.8 c.c. C=3 c.c.

Total acidity—A=64 or 0.23% calculated to HCl.

Free HCl— C=30 or .11%.

Half-combined HCl— A-B=16 or 0.06% calculated to HCl.

Total HCl— C+(A-B)=46 or 0.17% calculated to HCl.

Organic acids and acid salts—B-C=18 or 0.07% calculated to HCl. (See Clinical Chemistry, X.)

Test for lactic acid by Uffelmann's or Thomas' method. If absent, the last calculation represents the acid salts.

(Carbonic acid is always included in total acidity.)