

37.1.37

AOAC Official Method 942.15
Acidity (Titratable) of Fruit Products
First Action 1942

A. Indicator Method
—Final Action 1965

Titratable acidity can be expressed conventionally in g acid per 100 g or per 100 mL product, as appropriate, by using the factor appropriate to the acid; for malic acid use 0.067 as factor; oxalic acid, 0.045; citric acid monohydrate, 0.070; tartaric acid, 0.075; sulfuric acid, 0.049; acetic acid, 0.060; lactic acid, 0.090.

(a) *Colorless or slightly colored solutions.*—Dilute to ca 250 mL with neutralized or recently boiled H₂O, 10 g prepared juice, 920.149(a) (see 37.1.07), or 25 mL prepared solution, 920.149(b) or (c) (see 37.1.07). Titrate with 0.1M alkali, using 0.3 mL phenolphthalein for each 100 mL solution being titrated, to pink persisting 30 s. Report as mL 0.1M alkali/100 g or 100 mL original material.

(b) *Highly colored solutions.*—Dilute test sample of known weight with neutralized H₂O and titrate to just before end point with 0.1M alkali, using 0.3 mL phenolphthalein for each 100 mL solution being titrated. Transfer measured volume (2 or 3 mL) of solution into ca 20 mL neutral H₂O in small beaker. (In this extra dilution, color of fruit juice becomes so pale that phenolphthalein color is easily seen.) If test shows that end point is not reached, pour extra diluted portion back into original solution, add more alkali, and continue titration to end point. By comparing dilutions in small beakers, differences produced by few drops 0.1M alkali can be easily observed.

B. Glass Electrode Method
—Final Action 1980

Before use, check apparatus with standard buffer solutions, 964.24 (see A.1.04) and Table 964.24 (see A.1.04). Rinse glass electrode in H₂O several times until reading is ca pH 6. Immerse electrodes in test sample contained in beaker. (Test sample should titrate 10–50 mL 0.1M NaOH and be contained in initial volume of 100–200 mL.) Stir moderately. Add alkali quite rapidly until near pH 6. Then add alkali slowly to pH 7. After pH 7 is reached, finish titration by adding 0.1M alkali 4 drops at time, and record total volume and pH reading after each addition. (Add whole drops, so that fraction of drop does not remain on buret tip.) Continue titration ≥4 drops beyond pH 8.1, and interpolate data for titration corresponding to pH 8.1. pH values used for interpolation should lie in range 8.10 ± 0.2.

[Notes: (1) Always keep glass electrode covered with H₂O when not in use. (2) If strongly acid cleaning solutions are used, electrode requires several h to come to equilibrium on standing in H₂O. (3) If electrode and stirrer are wiped lightly with piece of filter paper before insertion into standard buffer, same solution may be used for several checks on instrument.]

References: JAOAC 25, 412(1942); 28, 507(1945); 71, 86(1988).

37.1.38

AOAC Official Method 925.34
Acidity (Volatile) of Fruit Products
Steam Distillation Method
First Action 1925
Final Action

Dissolve 10 g test sample, dilute to 25 mL, and steam distil as in 964.08C (see 28.1.30). 1 mL 0.1M alkali = 0.0060 g CH₃COOH.

37.1.39

AOAC Official Method 910.03 *
Tartaric Acid (Total)
In Fruits and Fruit Products

Bitartrate Method
First Action 1910
Final Action
Surplus 1975

See 22.063–22.065, 12th Ed.

Sections 22.063–22.065 were modified as follows: Replace “asbestos pad” with “glass fiber filter.”

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37.1.40

AOAC Official Method 943.03 *
Citric Acid In Fruits
and Fruit Products

Pentabromacetone Method
First Action 1943
Final Action
Surplus 1975

See 22.066–22.069, 12th Ed.

Sections 22.066–22.069 were modified as follows: Replace “asbestos pad” with “glass fiber filter.”

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37.1.41

AOAC Official Method 954.07 *
Malic Acid (Levo- and Inactive)
in Fruits and Fruit Products

Titrimetric Method
First Action 1954
Surplus 1975

See 22.070–22.073, 12th Ed.

37.1.42

AOAC Official Method 957.12 *
Citric and Isocitric Acids
in Fruits and Fruit Products

Chromatographic Method
First Action 1957
Surplus 1975

See 22.074–22.077, 12th Ed.

37.1.43

AOAC Official Method 932.13 *
Levo-Malic Acid
in Fruits and Fruit Products

A. Method I
—First Action
Surplus 1975

See 22.078–22.080, 12th Ed.