ACIDITY (Paste)

PRINCIPLE

Acidity of the sample is determined by titration with sodium hydroxide to a phenolphthalein indicator end point after thorough gelatinization to free acids which are otherwise not titratable. Since many acids contribute to acidity of the sample, the value is reported as milliequivalents of acid per unit sample weight.

SCOPE

The method is applicable to all gelatinizable starch products.

REAGENTS

1. Sodium Hydroxide Solution, 0.1 *N*: Standard
2. Phenolphthalein Indicator, 1%

PROCEDURE

If necessary grind sample completely through a laboratory cutting mill to 20 mesh or finer, taking precautions to prevent significant loss of moisture, and mix thoroughly.

Weigh 10 g (± 0.1 g) of sample, add to 300 mL of purified water in a suitable container (Note 1) at room temperature, and mix thoroughly. Bring to a boil on a hot plate or over an open flame in approximately 15 minutes, stirring occasionally, and boil for 10 minutes. Remove from heat source, add 1 mL of phenolphthalein indicator and titrate immediately with standard 0.1 *N* sodium hydroxide solution to the first permanent pink color (Note 2).

CALCULATION

$$\text{Acidity (Meq/g, as is)} = \frac{\text{mL 0.1 } N \text{ NaOH}}{10\text{ g} \times 10}$$

NOTES AND PRECAUTIONS

ACIDITY (Paste) — continued

1. Purified water (distilled, deionized, or reverse osmosis water) for sample preparation shall be of such quality that 200 mL will require not more than 0.05 mL of 0.1 *N* acid or base to obtain the methyl red or phenolphthalein indicator end points, respectively.

2. Alternatively, the solution may be titrated electrometrically, in which case a pH value of 8.3 is taken as the end point.

METHOD HISTORY

Corn Starch (Unmodified), Acidity (Paste) (B-4), Date of Acceptance 5-23-1959, Revised 10-08-2009.