

## Liquid Glucose

[8027-56-3].

### DEFINITION

Liquid Glucose is a product obtained by the incomplete hydrolysis of starch. It consists chiefly of dextrose, dextrans, maltose, and water.

### IDENTIFICATION

- **A.** It meets the requirements in the Assay for Reducing Sugars (Dextrose Equivalent).

### ASSAY

#### Change to read:

#### • REDUCING SUGARS (DEXTROSE EQUIVALENT)

**Methylene blue solution:** 10 mg/mL

**Standard solution:** 6 mg/mL of USP Dextrose RS

**Sample solution:** Transfer a quantity of Liquid Glucose, equivalent to about 3.0 g of reducing sugars (dextrose equivalent), to a 500-mL volumetric flask, and dilute with water to volume.

#### Analysis

**Samples:** *Standard solution* and *Sample solution*

Transfer 25.0-mL portions of alkaline cupric tartrate TS to each of two boiling flasks. Bring the contents of one flask to boiling within about 2 min while titrating with *Standard solution* to within 0.5 mL of the anticipated endpoint. Boil gently for 2 min. Continue to boil gently, add 2 drops of *Methylene blue solution*, and complete the titration within 1 min by adding the *Standard solution* dropwise or in small increments until the blue color disappears, determined by viewing against a white background in daylight or under equivalent illumination. If more than 0.5 mL of the titrant was required after the addition of the indicator, repeat the titration, adding the necessary volume of titrant before adding the indicator. Bring the contents of the second flask to boiling, and similarly titrate with the *Sample solution*.

Calculate the dextrose equivalent, on the anhydrous basis, taken:

$$\text{Result} = (C_s / C_u) \times (V_s / V_u) \times [1 / (1 - 0.01 \times A)] \times 100$$

$C_s$  = concentration of USP Dextrose RS in the *Standard solution* (mg/mL)

$C_u$  = concentration of  $\blacktriangle$ Liquid Glucose $\blacktriangle$  (ERR 1-Jun-2019) in the *Sample solution* (mg/mL)

$V_s$  = *Titrant* volume consumed by the *Standard solution* (mL)

$V_u$  = *Titrant* volume consumed by the *Sample solution* (mL)

A = percentage of water in the Liquid Glucose taken

**Acceptance criteria:** 90%–110% of the labeled value on the anhydrous basis

### IMPURITIES

- **RESIDUE ON IGNITION** (281): NMT 0.5%

- **SULFITE**

**Sample solution:** 5 g in 50 mL of water

**Analysis:** To the *Sample solution* add 0.2 mL of 0.1 N iodine, then add 0.5 mL of starch TS.

**Acceptance criteria:** A blue color is produced.

- **STARCH**

**Sample solution:** 5 g in 50 mL of water

**Analysis:** Boil the *Sample solution* for 1 min, cool, and add 0.2 mL of 0.1 N iodine.

**Acceptance criteria:** No blue color is produced.

### SPECIFIC TESTS

- **ACIDITY**

**Sample solution:** 5.0 g in 15 mL of water

**Analysis:** To the *Sample solution* add 5 drops of phenolphthalein TS, and titrate with 0.10 N sodium hydroxide.

**Acceptance criteria:** NMT 0.60 mL of 0.10 N sodium hydroxide is required to produce a pink color.

- **WATER DETERMINATION, Method Ia** (921)

**Sample:** 100 mg

**Acceptance criteria:** NMT 21.0%

### ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Preserve in tightly closed containers. No storage requirements specified.
- **LABELING:** Label it to indicate the natural source of starch. Label it to indicate its nominal dextrose equivalent.
- **USP REFERENCE STANDARDS** (11)  
USP Dextrose RS