

COLOR STABILITY

PRINCIPLE

Corn syrups gain color when aged under normal storage conditions. An indication of the color stability can be obtained by measuring the color gain when a sample is heated 1 hour in a boiling water bath.

SCOPE

The method is applicable to corn syrups.

SPECIAL APPARATUS

1. Bath: A boiling water bath heated by a perforated spiral steam coil located at the bottom is preferred. An overflow drain should be located 1 inch below the top to provide a constant level. Steam condensation will maintain liquid level. Bath height should be at least 9 inches to permit glass tubes to be immersed to a depth of 7 inches. Bath diameter should be sufficiently large to accommodate several glass tubes simultaneously. The bath should be covered with a metal plate containing several $1 \frac{5}{16}$ inches openings, to serve as support for the glass tubes.
2. Heat Tubes: Pyrex glass tubes 9 inches in length and $1 \frac{1}{4}$ inches in diameter with test tube bottom and the upper end flanged and reinforced slightly. At a point $\frac{3}{4}$ of an inch below the top, the diameter is enlarged to $1 \frac{3}{8}$ inches so that the tube is self-supporting in the bath cover. Each tube is equipped with a Bunsen valve attached with rubber stopper.

PROCEDURE

Heat water bath to boiling and maintain at boiling point with steam. Fill glass tube with syrup sample to a depth of 7 inches. Cover with Bunsen valve, place in boiling water bath and hold for 1 hour. Remove sample and tube and cool to room temperature in a cold running water bath. Transfer sample to a 2×4 cm cuvette.

Determine color of heated sample by the Spectrophotometric Method (CO.200).

COLOR STABILITY — continued

Determine color of unheated sample in the same manner.

CALCULATION

Report color increase due to heating 1 hour in the boiling water bath (Note 1).

NOTES AND PRECAUTIONS

1. The term referred to as "Heat Color" in the industry is the total color of the heated sample.

METHOD HISTORY

Corn Syrup, Color Stability (E-20), Date of Acceptance 11-08-1954, Revised 4-28-1987.