

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 5/16 inches openings, to serve as support for the glass tubes.
2. Heat Tubes: Pyrex glass tubes 9 inches in length and 1 1/4 inches in diameter with test tube bottom and the upper end flanged and reinforced slightly. At a point 3/4 of an inch below the top, the diameter is enlarged to 1 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 (E-16).

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.