

COLOR, HEATED (% Transmittance)

PRINCIPLE

This test is designed to give an indication of the color stability of a corn syrup sample. This is accomplished by heating the sample in a water bath at 212 °F for exactly 1 hr.

SCOPE

This method is applicable to all corn syrups and corn syrup hydrolyzates.

EQUIPMENT AND REAGENTS

1. Spectrophotometer: Single or double beam, capable of measuring at 390 nm and designed to permit 4 cm path length cells. The 390 wavelength corresponds to yellow-green visual color.
2. Matched Spectrophotometer Cells: 4 cm × 1 cm silica cells
3. Test Tube: 25 mm × 150 mm

PROCEDURE

Fill a 25 mm × 150 mm test tube with undiluted corn syrup and heat in a water bath maintained at 212 °F for exactly 1 hour. (Notes 1, 2 and 3).

Balance the spectrophotometer to 100% transmittance with purified water.

Weigh 50 g (\pm 0.5 g) of syrup into a 250 mL beaker. Add 35 mL of hot purified water. Mix the sample until the syrup is completely dissolved and there are no striations.

Pour a portion of the sample into a 4 cm spectrophotometer cell (Notes 4 and 5).

Measure the % transmittance at 390 nm and report this percentage as the color.

COLOR, HEATED (% Transmittance) — continued**NOTES AND PRECAUTIONS**

1. The syrup in the test should be submersed so the level of syrup in the tube is below the level of the water on the outside of the tube. A low water level can result in falsely high heated color results.
2. Ensure the water or steam bath is maintained at $212\text{ }^{\circ}\text{F} \pm 2\text{ }^{\circ}\text{F}$.
3. If a steam bath is used, make sure the steam is not injected directly onto the test tube.
4. Make sure the cells are clean and free of fingerprints. Unclean cells can affect the results. Align the cells in the holders so that the markings for each cell face the same direction.
5. Make sure there are no air bubbles, specks or striations in the sample — they will reduce transmission of light and give inaccurate results.

METHOD HISTORY

Corn Syrup, Color, Heated (% Transmittance) (E-19a), Date of Acceptance 2-27-1996.