

COLOR (% Transmittance)

PRINCIPLE

When white light passes through a colored solution, certain bands of the spectrum are absorbed, allowing the transmitted portion to impart the visual effect of color. The 390 wavelength corresponds to yellow-green visual color. The intensity of this transmitted light at a fixed wavelength can be measured on a spectrophotometer, using water as a reference. The % transmittance is then reported as the color.

SCOPE

This method is applicable to all corn syrups and hydrolyzates.

EQUIPMENT AND REAGENTS

1. Spectrophotometer: Single or double beam, capable of measuring at 390 nm and designed to hold 4 cm path length cells.
2. Matched Spectrophotometer Cells: 4 cm × 1 cm silica cells

PROCEDURE

Balance the spectrophotometer to 100% transmittance with purified water.

Weigh 50 g (± 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 the sample to be tested into a 4 cm spectrophotometer cell (Notes 1 and 2). Measure the % transmittance at 390 nm and report this percentage as the color.

COLOR (% Transmittance) — continued

NOTES AND PRECAUTIONS

1. Make sure the cells are clean and free of fingerprints. Unclean cells can affect the results. Align the cells in the holder so that the markings for each cell are facing the same direction.
2. 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 (%Transmittance) (E-19), Date of Acceptance 2-27-1996.