

# Maple Syrup Standards

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The new Maple Syrup standard is calculated by standardizing in transmission using a glycerol blank and then using the result at 560nm to determine which of 4 grades to report.

(Following is from the USDA website)

## §52.5961 Product description.

Maple syrup is the liquid food derived by concentrating and heat treating sap from the maple tree (*Acer*) as defined in the U.S. Food and Drug Administration (FDA) Standards of Identity for Maple Syrup (21 CFR 168.140) issued under the Federal Food, Drug, and Cosmetic Act. The solids content of the finished maple syrup shall not be less 66 percent by weight (Brix).

## §52.5962 Grades.

(a) U.S. Grade A is the quality of maple syrup that:

- (1) Not more than 68.9 percent solids content by weight (Brix);
- (2) Has good uniform color;
- (3) Has good flavor and odor, and intensity of flavor (maple taste) normally associated with the color class;
- (4) Is free from off flavors and odors considered as damage;
- (5) Is free from cloudiness, turbidity, sediment, and is clean;
- (6) No deviants for damage shall be allowed in Grade A.

(b) Maple syrup for processing (Processing Grade) means any maple syrup that does not meet Grade A requirements, but meets the requirement of Processing Grade for use in the manufacturing of other products. Maple syrup for processing must be packed in containers of 5 gallons or 20 liters or larger. Processing Grade maple syrup cannot be packaged in consumer-size containers for retail sales (containers of less than 5 gallons).

- (1) May be any color class and any light transmittance; and not more than 68.9 percent solids content by weight (Brix);
- (2) May contain off flavors; and odors;
- (3) May have a very strong taste.

(c) Substandard is the quality of maple syrup that fails to meet the requirements of Processing Grade maple syrup.

## §52.5963 Recommended Fill of Container.

The amount that a container is filled is not a requirement since the fill of a container is not a quality factor. It is, however, recommended that each container be filled with United States Standards for Grades of Maple Syrup (March 2, 2015) syrup as full as practicable and that the product occupy at least 90 percent of the volume of the container.

## §52.5964 Color.

General. The color class of maple syrup is determined by:

- (a) The percent of light transmission through the syrup as measured with a spectrophotometer using matched square optical cells having a 10mm light path at a wavelength of 560 nm. The color value is expressed as percent of light transmission as compared to analytical reagent glycerol fixed at 100 percent. Percent transmission is symbolized by "%Tc."
- (b) Any method that provides equivalent results.

When certifying the color of a sample that has been officially drawn and which represents a specific lot of maple syrup, if the number of color deviants exceeds the

acceptance number in the appropriate sampling plan, the lot should be designated as mixed color.

#### §52.5965 Classification Requirements.

(a) "Grade A" classification.

(1) Possesses a good maple flavor (taste) characteristic of the color;

(2) Is clean, free from turbidity or cloudiness, and free from off flavors and odors;

(3) Has good uniform color, which means the syrup color is bright and typical of maple syrup.

"Grade A" Maple syrup has four color and flavor classes

Color classes are associated with specific %Tc values as follows:

Grade A Color Classes Taste Light Transmittance (% Tc)

#### United States Standards for Grades of Maple Syrup (March 2, 2015)

(b) "Processing Grade" classification. Fails to meet the requirements of Grade A, but possesses a fairly good characteristic maple taste and may contain offflavors, but is fairly free of damage, fairly free of turbidity or cloudiness, and is fairly clean.

(c) Substandard classification. Maple syrup that fails to meet the requirements of paragraph (b) of this section shall not be graded above Substandard.

#### §52.5966 Explanation of Terms.

(a) Brix is the percentage by weight concentration of total soluble solids (mainly sugar), of maple syrup when tested with a refractometer calibrated at 68 degrees Fahrenheit and to which any applicable temperature correction has been made; or by any other method which gives equivalent results.

(b) Buddy flavor or buddiness (classified as damage), is a disagreeable flavor characteristic of syrup when sap is collected from maple trees as they come out of dormancy. This flavor can be described as tasting chocolaty to bitter chocolaty.

(c) Clean means that the syrup is free from foreign material such as pieces of bark, soot, dust, or dirt.

(d) Damage means any defects that materially affect the appearance, edibility, or quality of the syrup. Badly scorched syrup, buddy syrup, fermented syrup, or syrup that has any off flavors or odors shall be considered as damage.

(e) Fermentation (classified as damage), means the chemical breakdown of a substance by bacteria, yeasts, molds, or other microorganisms.

(f) Light Transmittance (Tc) means the ability of a liquid to transmit light as determined optically by means of a spectrophotometer.

(g) Off-flavor or off-odor (classified as damage), means any specific and identifiable or unidentifiable flavor or odor defect that is not normally found in Grade A maple syrup. These flavors or odors may be related to natural factors

(e.g., woody or buddy), to manufacturing practices (e.g., burnt, chemical, fermented, scorched), or caused by the presence of any disagreeable flavor or odor that may have developed during handling or storage.

(h) Taste means the intensity of maple flavor. The descriptors for the taste of Grade A Maple Syrup are as follows:

(1) Delicate means mild maple taste.

(2) Rich means a full-bodied maple taste of medium intensity.

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(3) Robust means stronger maple taste than the lighter colors.

(4) Strong means a maple taste that is stronger than robust.

(i) Turbidity or cloudiness means the presence, in the suspension, of fine particles of mineral matter such as malate of lime, niter, sugar sand, calcium malate, or other substance that detract from the clearness of the syrup.

(1) Malate of lime means fine particles of mineral matter in maple syrup.

(2) Sugar sand or niter generally means a harmless gritty substance naturally found in maple syrup, and is often referred to as cloudiness.

(3) Calcium malate results from high calcium and malic acid concentrations in the syrup and is one of the least soluble salts in the syrup.

§52.5967 Determining the Grade of a Lot.

The grade of a lot of maple syrup covered by these standards is determined by the procedures in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Processed Food Products (7 CFR 52.1 through 52.83).

For more information, follow the USDA link below.

<https://www.ams.usda.gov/sites/default/files/media/MapleSyrupStandards.pdf>