



**DEPARTMENT OF THE TREASURY
ALCOHOL AND TOBACCO TAX AND TRADE BUREAU
SCIENTIFIC SERVICES DIVISION
WASHINGTON, DC 20220**

OFFICIAL METHOD — SSD:TM:401

Calories in Flavored Wines

Scope and Application

This method is used to determine the calorie content of flavored wines. TTB Procedure 2004–1 requires that all Alcohol Facts Labels include a statement of average analysis for calories, fat, carbohydrate, and protein.

This method is designed to determine the calorie content of flavored wines consistent with the FDA food nutrition labeling regulation found at 21 CFR 101.9. Flavored wines may contain naturally occurring or added sugars, flavors, organic acids (especially citric acid), colors, artificial sweeteners, and preservatives. The bulk of the calories will be due to alcohol, total carbohydrates by difference, and protein. All other additives are negligible.

Organic acids have heats of combustion that range from 2–3 kcal/gram. The Atwater factor for citric acid is 2.5 cal/gram. For acetic acid it is 3.5 cal/gram, malic acid is 2.4, tartaric acid is 2.0, and so forth. To account for a wide variety of carbohydrates in a simple and straightforward manner, we, along with FDA, have settled on the factor of 2.4 cal/gram for all carbohydrates other than sugar carbohydrates as a reasonable assessment of their contribution to the total caloric content. This is consistent with AOAC OMA 979.07.

Sugars are defined in 21 CFR 101.9 as the sum of all free mono- and disaccharides.

Fat is not expected in flavored wines. There is no TTB Official Method or AOAC OMA for fat in flavored wines. Where fat is claimed, use the label claim to determine the contribution from fat content.

Regulatory Tolerances

The tolerance limits established by TTB Procedure 2004-1 are as follows:

The statement of caloric content on labels or in advertisements for alcohol beverages will be considered acceptable as long as the caloric content, as determined by TTB analysis, is within the tolerance +5 and -10 calories of the labeled or advertised caloric content. For example, a label or advertisement showing 96 calories will be

acceptable if TTB analysis of the product shows a caloric content between 86 and 101 calories.

Equipment

The equipment required is determined by the methods used to determine alcohol, fat, carbohydrate, sugar, and protein content.

Reagents, Sample Preparation and Handling

The reagents, sample preparation, and handling required are determined by the methods used to determine alcohol, fat, carbohydrate, sugar, and protein content.

Procedures

1. Determine A, the alcohol content of the flavored wine product using AOAC OMA 983.13. Convert to units of g/100mL.
2. Determine TC, the carbohydrate content using TTB Official Method SSD:TM:405. Convert to units of g/100mL.
3. Determine P, the protein content using TTB Official Method SSD:TM:505. Convert to units of % by weight (g/100mL).
4. Determine S, the sugar content in the sample using TTB Official Method SSD:TM:301. Convert to units of g/100mL.

Quality Control

The quality control measures required are determined by the methods used to determine alcohol, fat, carbohydrate, sugar, and protein content.

Calculations

$$\text{Calories/5 oz serving} = 1.48 \times [(6.9 \times A) + (4 \times S) + (2.4 \times (TC - S)) + (4 \times P) + (9 \times F)]$$

Where: 5 oz serving = 148 mL.

A = alcohol % by weight.

S = sum of sugars.

TC = total carbohydrate.

P = protein.

F = fat.

Reporting Results

Report calories to the nearest whole number, i.e. XX/5 fl.oz.

Safety Notes

None.

References

- *TTB Official Method SSD:TM:301*, Residual Sugars in Alcohol Beverages by HPLC
- TTB Procedure 2004–1.
- ATF Ruling 80–3.
- 21 CFR 101.9.
- A. L. Merrill and B. K. Watt, “Energy Value of Foods—Basis and Derivation,” USDA Handbook 74; (Available online at: <http://www.nal.usda.gov/fnic/foodcomp/Data/Classics/ah74.pdf>).
- Official Methods of Analysis, 17th Edition, 2002; Horowitz; AOAC International, Maryland.