

Technical description

04/2018

| TECHNICAL DESCRIPTION | |
|---|---|
| Product | Syrup obtained by concentrating 100% natural raw sap, or "maple water." Extraction of maple sap, concentration by osmosis and boiling to a sugar density of 66 °Brix. |
| Advantages | 100% pure product, harvested exclusively from Canadian forests. No added preservatives. Natural product and from renewable sources. Maple industry means Quebec and Canadian forests are protected. |
| Potential certifications | Organic. Kosher. To be confirmed by each producer. |
| Origin | Quebec, Canada. |
| Declaration in the list of ingredients | Maple syrup. |
| Codes | Provided by the processor. |
| Compliance | Meets the requirements of the Règlement sur les aliments [Food regulations] (P-29, r. 1) administered by the Ministry of Agriculture, Fisheries and Food of Quebec; the Règlement des producteurs acéricoles sur les normes de qualité et le classement [Maple Syrup producer regulations on quality standards and classification] (chapter M-35.1, r. 18) administered by the Federation of Quebec Maple Syrup Producers; and the Maple Products Regulations (C.R.C., c.289) administered by the Canadian Food Inspection Agency. |
| Commercial sterility | Yes, by heat treatment (canning). |
| GMOs | None. |
| Pesticides | No pesticide residue Maple syrup production does not require the use of products such as antibiotics, antiparasitics, pesticides, herbicides, growth promoters or similar. The risk of finding residues of these substances in maple syrup is therefore practically zero, in line with the recommendations in force in Quebec. |
| Allergens | None added at the sugar bush. |
| Colour classes | According to regulations in force, maple syrup colour classes are determined by the degree of light transmission at a wavelength of 560 nm according to the following scale: Golden, Delicate Taste (between 100 and 75%*); Amber, Rich Taste (between 74.9 and 50%); Dark, Robust Taste (between 49.9 and 25%); Very Dark, Strong Taste (between 24.9 and 0%). The analysis is made using a spectrophotometer and is a common optical technique used in maple syrup production. * The percentages refer to the syrup as light transmission. |

| COMPOSITION | |
|--------------------|--------------------|
| Ingredients | Maple syrup. |
| Brix | 66.0 to 68.9 °Brix |
| pH | 5.5 to 8.0 |

| SPECIFICATIONS | |
|--------------------------------|--|
| Organoleptic properties | Syrupy liquid ranging in colour from light to dark depending on its class. Has a characteristic maple flavour and taste. Free of foreign flavours or odours. |
| Sweetness | 0.6 (sucrose = 1) 0.91 (glucose = 1) |



Analysis

DETAILED PHYSICOCHEMICAL ANALYSIS

| | Average | Number of samples | Minimum | Maximum | Method |
|---|---------|-------------------|---------|---------|-----------------------|
| Total solids (%) | 66.8 | 21 | 66.4 | 68.9 | AOAC, vacuum, 70 °C |
| Soluble solids (° Brix) | 66.6 | 21 | 66.2 | 67.3 | Refractometer |
| Water activity | 0.848 | 21 | 0.841 | 0.855 | AW meter |
| Dextrose equivalent | 2 | 21 | 0 | 14 | Titrimetry |
| Transmittance at 560 nm (%) | 55.46 | 612 | 2.85 | 87.80 | Spectrophotometer |
| Colour classes | | | | | |
| Golden, Delicate Taste ($\geq 75\%$) | 79.82 | 81 | 75.10 | 87.80 | |
| Amber, Rich Taste ($< 75\%$ and $\geq 50\%$) | 61.73 | 318 | 50.05 | 74.85 | |
| Dark, Robust Taste ($< 50\%$ and $\geq 25\%$) | 40.85 | 176 | 25.30 | 49.90 | |
| Very Dark, Strong Taste ($< 25\%$) | 17.75 | 37 | 2.85 | 24.80 | |
| Density (g/ml) | | | | | |
| 25 °C | 1.33 | 21 | 1.32 | 1.33 | Densimeter |
| 4 °C | 1.34 | 21 | 1.33 | 1.35 | Densimeter |
| -20 °C | 1.35 | 21 | 1.35 | 1.35 | Densimeter |
| Viscosity (Cp) | | | | | Brookfield viscometer |
| 25 °C | 135 | 21 | 120 | 182 | SC4-31, 60 rpm |
| 4 °C | 618 | 21 | 519 | 880 | SC4-31, 12 rpm |
| -20 °C | 3,668 | 21 | 2,909 | 5,409 | SC4-31, 3 rpm |

MICROBIOLOGICAL ANALYSIS AFTER 18 MONTHS COMMERCIAL STERILITY

| MICROBIOLOGY | Result | Analysis method |
|--|--------------|------------------|
| Yeasts (CFU/g) | <5 | MFHPB-22 |
| Molds (CFU/g) | <5 | MFHPB-22 |
| Aerobic mesophilic bacteria (CFU/g) | <150 | MFHPB-18 |
| Pseudomonas aeruginosa (CFU/g) | <10 | ILMA-017 |
| Bacillus cereus (CFU/g) | <25 | MFLP-42 |
| Total coliforms (CFU/g) | <10 | MFHPB-34 |
| Clostridium spp (CFU/g) | Not detected | ILMA-61/MFHPB-23 |
| Staphylococcus aureus (CFU/g) | <10 | MFLP-21 |



Nutritional Values

| NUTRIENTS | Typical values for 100 g (75 ml) | | | | |
|---------------------|----------------------------------|------------------------|---------|---------|---------|
| | Average | Number of observations | Minimum | Maximum | Method |
| CARBOHYDRATES | | | | | |
| Sucrose (g) | 64.18 | 491 | 60.75 | 67.67 | HPLC-RI |
| Glucose (g) | 0.11 | 458 | BQL* | 0.39 | HPLC-RI |
| Fructose (g) | 0.14 | 581 | BQL* | 0.67 | HPLC-RI |
| Total sugar (g) | 65.89 | 497 | 62.47 | 69.04 | HPLC-RI |
| Complex sugars (g) | 1.35 | 471 | 0.467 | 2.27 | HPLC-RI |
| Total carbohydrates | 67.24 g | | | | |

| MINERALS | Typical values for 100 g (75 ml) | | | | |
|----------------|----------------------------------|------------------------|---------|---------|--------|
| | Average | Number of observations | Minimum | Maximum | Method |
| Aluminum (mg) | 0.48 | 446 | BQL* | 2.88 | ICP-MS |
| Calcium (mg) | 78.53 | 1112 | 11.32 | 166.0 | ICP-MS |
| Copper (mg) | 0.19 | 424 | BQL* | 0.99 | ICP-MS |
| Iron (mg) | 0.44 | 453 | BQL* | 2.16 | ICP-MS |
| Magnesium (mg) | 20.22 | 1151 | 1.02 | 37.98 | ICP-MS |
| Manganese (mg) | 2.05 | 1159 | 0.03 | 6.0 | ICP-MS |
| Potassium (mg) | 240.42 | 586 | 97.31 | 396.03 | ICP-MS |
| Selenium (mg) | BQL* | 391 | BQL* | BQL* | ICP-MS |
| Sodium (mg) | 1.44 | 511 | BQL* | 9 | ICP-MS |
| Zinc (mg) | 0.44 | 1058 | BQL* | 1.21 | ICP-MS |
| Total minerals | 344.21 mg | | | | |

| VITAMINS | Typical values for 100 g (75 ml) | | | | |
|-----------------|----------------------------------|------------------------|---------|---------|----------|
| | Average | Number of observations | Minimum | Maximum | Method |
| Niacin (mg) | 0.21 | 551 | BQL* | 0.56 | HPLC-DAD |
| Riboflavin (mg) | 0.44 | 532 | 0.03 | 1.25 | HPLC-DAD |
| Thiamin (mg) | 0.07 | 90 | 0.02 | 0.60 | HPLC-DAD |
| Total vitamins | 0.72 mg | | | | |

| AMINO ACIDS | Typical values for 100 g (75 ml) | | | | |
|---------------------------|----------------------------------|------------------------|---------|---------|---------|
| | Average | Number of observations | Minimum | Maximum | Method |
| Arginine + Threonine (mg) | 45.15 | 496 | BQL* | 93.21 | HPLC-FL |
| Leucine (mg) | 1.67 | 472 | BQL* | 7.30 | HPLC-FL |
| Proline (mg) | 44.61 | 474 | 10.38 | 81.05 | HPLC-FL |
| Histidine (mg) | 0.83 | 472 | BQL* | 2.37 | HPLC-FL |
| Total amino acids | 92.26 mg | | | | |

* BQL = Below Quantifiable Limit



Nutritional Values (cont'd.)

| NUTRIENTS | Typical values for 100 g (75 ml) | | | | |
|----------------------------|----------------------------------|------------------------|---------|---------|---------|
| | Average | Number of observations | Minimum | Maximum | Method |
| ORGANIC ACIDS | | | | | |
| Acetic (mg) | 25.41 | 451 | 3.68 | 56.15 | HPLC-UV |
| Citric (mg) | 26.16 | 106 | 11.57 | 46.57 | HPLC-UV |
| Fumaric (mg) | 6.03 | 443 | 1.44 | 18.04 | HPLC-UV |
| Gluconic (mg) | 10.80 | 397 | BQL* | 30.01 | HPLC-UV |
| Lactic (mg) | 10.45 | 470 | BQL* | 25.35 | HPLC-UV |
| Malic (mg) | 459.93 | 489 | 172.33 | 768.41 | HPLC-UV |
| Oxalic (mg) | 1.07 | 325 | BQL* | 2.72 | HPLC-UV |
| Pyruvic (mg) | 15.12 | 494 | BQL* | 56.48 | HPLC-UV |
| Quinic (mg) | 7.46 | 316 | BQL* | 20.73 | HPLC-UV |
| Shikimic (mg) | BQL* | 312 | BQL* | BQL* | HPLC-UV |
| Succinic (mg) | 18.03 | 458 | 4.44 | 39.44 | HPLC-UV |
| Tartaric (mg) | BQL* | 257 | BQL* | 0.16 | HPLC-UV |
| Total organic acids | 580.46 mg | | | | |

| ANTIOXIDANT | Average | Number of observations | Minimum | Maximum | Method |
|--|-----------------------|------------------------|---------|---------|--------|
| Antioxidant capacity | | | | | |
| All classes combined | 590.89 µmol TE | 45 | 312 | 1,566 | ORAC |
| Colour classes | | | | | |
| Golden, Delicate Taste (≥75%) (µmol TE) | 391 | 9 | 312 | 472 | ORAC |
| Amber, Rich Taste (<75% et ≥50%) (µmol TE) | 469 | 23 | 317 | 756 | ORAC |
| Dark, Robust Taste (<50% et ≥25%) (µmol TE) | 750 | 8 | 620 | 915 | ORAC |
| Very Dark, Strong Taste (<25%) (µmol TE) | 1,260 | 5 | 796 | 1,566 | ORAC |

* BQL = Below Quantifiable Limit



Nutritional Values (cont'd.)

| NUTRIENTS | Typical values for 100 g (75 ml) | | | | |
|--|----------------------------------|------------------------|---------|---------|--------------------------------|
| | Average | Number of observations | Minimum | Maximum | Method |
| POLYPHENOLS 67 phenolic compounds counted to date | | | | | |
| All classes combined | 97.7 mg | 481 | 34.0 | 212.4 | Folin-Ciocalteu and UFLC-MS/MS |
| Colour classes | | | | | |
| Golden, Delicate Taste (≥75%) (mg) | 64.5 | 60 | 34.0 | 173.3 | Folin-Ciocalteu and UFLC-MS/MS |
| Amber, Rich Taste (<75% et ≥50%) (mg) | 87.8 | 253 | 40.8 | 199.1 | Folin-Ciocalteu and UFLC-MS/MS |
| Dark, Robust Taste (<50% et ≥25%) (mg) | 118.3 | 135 | 48.8 | 212.4 | Folin-Ciocalteu and UFLC-MS/MS |
| Very Dark, Strong Taste (<25%) (mg) | 150.7 | 33 | 71.0 | 210.9 | Folin-Ciocalteu and UFLC-MS/MS |

| PHYTOHORMONES | Average | Number of observations | Minimum | Maximum | Method |
|----------------------------|------------------|------------------------|---------|---------|----------------|
| Absciscic acid ABA (µg) | 16.64 | 88 | 2.15 | 84.51 | UPLC/ESI-MS/MS |
| Phaseic acid PA (µg) | 183.33 | 88 | 64.22 | 786.33 | UPLC/ESI-MS/MS |
| Other phytohormones (µg) | 95.26 | 88 | 51.87 | 164.14 | UPLC/ESI-MS/MS |
| Total phytohormones | 295.23 µg | | | | |

| ENERGY VALUE | Average | Number of observations | Minimum | Maximum | Method |
|--------------|--------------------|------------------------|---------|---------|--------------|
| | 268.96 kcal | | | | Calculations |



Nutrition Facts Tables

CANADA

GENERAL INFORMATION

Nutrition Facts tables may change depending on use:

- If the product is for industrial use, packagers must use the Nutrition Facts table for 100 g
- If the product is for consumers, packagers must use the Nutrition Facts table for 80 g

These tables are presented for information purposes only.

Format must be confirmed for your packaging.

Consult a specialist to ensure compliance with Food and Drug Regulations (c.r.c., c.870).

MAPLE SYRUP 100 g

Nutrition Facts Valeur nutritive

pour 100 g
Per 100 g

| Calories 270 | % valeur quotidienne* |
|---------------------------------------|-----------------------|
| Lipides / Fat 0 g | 0 % |
| saturés / Saturated 0 g | 0 % |
| + trans / Trans 0 g | 0 % |
| Glucides / Carbohydrate 67 g | |
| Fibres / Fibre 0 g | 0 % |
| Sucres / Sugars 66 g | 66 % |
| Protéines / Protein 0 g | |
| Cholestérol / Cholesterol 0 mg | |
| Sodium 0 mg | 0 % |
| Potassium 250 mg | 5 % |
| Calcium 75 mg | 6 % |
| Fer / Iron 0,4 mg | 2 % |
| Thiamine 0,075 mg | 6 % |
| Riboflavine / Riboflavin 0,45 mg | 35 % |
| Niacine / Niacin 0,2 mg | 1 % |
| Magnésium / Magnesium 20 mg | 5 % |
| Zinc 0,4 mg | 4 % |
| Cuivre / Copper 0,19 mg | 21 % |
| Manganèse / Manganese 2,05 mg | 89 % |

* 5% ou moins c'est **peu**. 15% ou plus c'est **beaucoup**
* 5% or less is **a little**. 15% or more is **a lot**

Nutrition Facts Valeur nutritive

pour 100 g
Per 100 g

| Calories 270 | % valeur quotidienne* |
|-------------------------------------|-----------------------|
| Lipides / Fat 0 g | 0 % |
| Glucides / Carbohydrate 67 g | |
| Sucres / Sugars 66 g | 66 % |
| Protéines / Protein 0 g | |
| Potassium 250 mg | 5 % |
| Calcium 75 mg | 6 % |
| Fer / Iron 0,4 mg | 2 % |
| Riboflavine / Riboflavin 0,45 mg | 35 % |
| Cuivre / Copper 0,19 mg | 21 % |
| Manganèse / Manganese 2,05 mg | 89 % |

Source négligeable de lipides saturés, lipides trans, cholestérol, sodium et fibres.

Not a significant source of saturated fat, trans fat, cholesterol, sodium or fibre.

* 5% ou moins c'est **peu**. 15% ou plus c'est **beaucoup**
* 5% or less is **a little**. 15% or more is **a lot**

MAPLE SYRUP 80 g

Nutrition Facts Valeur nutritive

pour 1/4 tasse (60 ml)
Per 1/4 cup (60 ml)

| Calories 220 | % valeur quotidienne* |
|---------------------------------------|-----------------------|
| Lipides / Fat 0 g | 0 % |
| saturés / Saturated 0 g | 0 % |
| + trans / Trans 0 g | 0 % |
| Glucides / Carbohydrate 54 g | |
| Fibres / Fibre 0 g | 0 % |
| Sucres / Sugars 53 g | 53 % |
| Protéines / Protein 0 g | |
| Cholestérol / Cholesterol 0 mg | |
| Sodium 0 mg | 0 % |
| Potassium 200 mg | 4 % |
| Calcium 75 mg | 6 % |
| Fer / Iron 0,4 mg | 2 % |
| Thiamine 0,05 mg | 4 % |
| Riboflavine / Riboflavin 0,35 mg | 27 % |
| Niacine / Niacin 0,2 mg | 1 % |
| Magnésium / Magnesium 15 mg | 4 % |
| Zinc 0,3 mg | 3 % |
| Cuivre / Copper 0,15 mg | 17 % |
| Manganèse / Manganese 1,65 mg | 72 % |

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* 5% or less is **a little**. 15% or more is **a lot**

Nutrition Facts Valeur nutritive

pour 1/4 tasse (60 ml)
Per 1/4 cup (60 ml)

| Calories 220 | % valeur quotidienne* |
|-------------------------------------|-----------------------|
| Lipides / Fat 0 g | 0 % |
| Glucides / Carbohydrate 54 g | |
| Sucres / Sugars 53 g | 53 % |
| Protéines / Protein 0 g | |
| Potassium 200 mg | 4 % |
| Calcium 75 mg | 6 % |
| Fer / Iron 0,4 mg | 2 % |
| Riboflavine / Riboflavin 0,35 mg | 27 % |
| Cuivre / Copper 0,15 mg | 17 % |
| Manganèse / Manganese 1,65 mg | 72 % |

Source négligeable de lipides saturés, lipides trans, cholestérol, sodium et fibres.

Not a significant source of saturated fat, trans fat, cholesterol, sodium or fibre.

* 5% ou moins c'est **peu**. 15% ou plus c'est **beaucoup**
* 5% or less is **a little**. 15% or more is **a lot**



Potential Claims in Canada

(In accordance with new Health Canada standards)

- Nutrient content claims are based on rounded values as per the new Food and Drug Regulations, Article B.01.401 (1.2) “The percentage of the daily value for a mineral nutrient shown in the nutrition facts table for a prepackaged product in accordance with subsection (1) shall be established on the basis of the amount, by weight, of the mineral nutrient per serving of stated size for the product, rounded off in the applicable manner set out in column 4 of the table to this section.”
- Claims are based on the sizes of reference. As such, the reference amount for any syrup, including maple syrup, must be 60 ml.

Legende:

RA: Reference Amount

MM: Metric Measurement

HM: Home Measurement

| Products Category | Reference Amount (RA) | A. Criteria to determine the serving of stated size for multiple serving prepackaged products | B. Units for expressing the serving of stated size for multiple serving prepackaged products HM (MM) |
|---|-----------------------|--|--|
| Syrups used as toppings, such as pancake syrups, maple syrup, fruit syrups, and ice cream sundae syrups | 60 ml | <ul style="list-style-type: none"> • MM: RA • HM: 4 tablespoons or 1/4 cup | 4 tbsp (60 ml) 1/4 cup (60 ml) |

Source: Food and Drug Regulations

VITAMINS AND MINERALS

| | Content by Reference Amount and Stated Size of 60 ml (80 g)* | | Vitamin and Mineral Claims |
|------------|--|-----|--------------------------------|
| Calcium | 75 mg | 6% | Source of calcium |
| Riboflavin | 0.35 mg | 27% | Excellent source of riboflavin |
| Copper | 0.15 mg | 17% | Good source of copper |
| Manganese | 1.65 mg | 72% | Excellent source of manganese |



Potential Claims in Canada (cont'd.)

(In accordance with new Health Canada standards)

POLYPHENOLS

Only quantitative statements are permitted (as in the table below), and only outside of the NFT. Note that words such as “contains” are not permitted.

| Quantitative Statements Listed Outside of NFT |
|--|
| 78.19 mg of polyphenols per Stated Serving Size of 60 ml (80 g)* |

Notes:

- The data used correspond to the URI findings LESS outliers, based on the quantity obtained for the median and calculated for 80 g (60 ml).
- There is currently no recommended daily intake of polyphenols.



Packaging - Varies by Manufacturer

Storage and Shelf Life

Room temperature if airtight; once opened, cover and store in the refrigerator or freezer to prevent evaporation.

More than 2 years at room temperature.

Freezing

Possible.

Copyright

The information contained in this sheet is provided for information purposes only and is the result of generic analyses of maple syrup conducted by external laboratories based on current knowledge. However, it is important to remember that the product may vary depending on numerous factors, conditions and harvests. This sheet is a practical guide and as such shall not, in any case, be considered a legal opinion on the matter, and the Federation of Quebec Maple Syrup Producers makes no commitment in this regard. You are strongly advised to consult a lawyer for a legal opinion regarding labelling rules. Although the information contained in this sheet was obtained from reliable sources and the Federation of Quebec Maple Syrup Producers has every reason to believe it accurate, its accuracy and completeness are not guaranteed and it is intentionally presented in a summarized, generalized manner. The Federation of Quebec Maple Syrup Producers makes no guarantee or representation either explicit or implicit regarding the accuracy, integrity or usefulness of this sheet, and disclaims all liability resulting from its use or the information contained herein. Anyone who chooses to use this sheet in any way whatsoever, to rely on it or to make a decision based on its contents assumes full responsibility for such choice. It is important to remember that claims and statements must be based on facts and must not be false, misleading, deceptive or likely to create an erroneous impression, as required in paragraph 5(1) of Canada's Food and Drugs Act and article 7 of the Consumer Packaging and Labelling Act.

