

How to Use DrinkCalc

Basic Instructions for Filling the Excel Calculator

© 2026 – DrinkCalc – Premium v1.5

What DrinkCalc Is

Overview

DrinkCalc is a professional Excel-based beverage formulation tool.

Enter your ingredients and dosages, and it automatically calculates:

- °Brix, acidity & density
- Batch-scaled quantities (kg)
- Post-water volume (auto-balanced)
- Syrup composition & properties
- Pasteurization units

Ready for development or production use.

Beverage Calculator & Application Sheet

DrinkCalc™

Application Recipe & Project Details

Date: 20/09/2025

Beverage Description:
Developer:
Project Name:
Project Number:
Market Reference:
Company:
Packaging:
Filling Type:
Recipe ID:
Version: Derived from

Syrup Ratio & Batch Size Calculation

Batch Size (L): 5000
Syrup Dosage (mL/L Final Drink): 200
Syrup-to-Water Ratio: 1:4
Carbonation Level (g/L CO₂, if applicable): 0.0 0.00atm
Concentration levels are intended to be achieved in the final drink. The calculated sugar ratio may not be suitable to reach the desired carbonation level when it depends on the concentration of the water.

Process Water Type

Order #	Ingredient	Dosage (g/L)	Unit	Water (g/L)	Brix (refractometer)	Total Acidity (g/L)	Density (g/mL)	kg	Liters	Brix-Sum	Acid-Sum
0	PRE-WATER (REVERSE OSMOSIS)	100	25	0.00	0.00	0.00	0.9971	100.00	100.29	0.00	0.00
99	CARBONATED POST-WATER (MINERAL)	323.51	42	17.85	0.00	0.00	0.9971	323.51	325.93	0.00	-0.19

Master Application Recipe (g/L in Final Beverage)

Order #	Ingredient	Dosage (g/L)	Unit	Water (g/L)	Brix (refractometer)	Total Acidity (g/L)	Density (g/mL)	kg	Liters	Brix-Sum	Acid-Sum
1	SUCROSE WHITE CRYSTALS	100.000	20	0.00	100.00	0.00	1.5870	100.000	63.012	10000.00	0.00
2	CARBONHYDROXYMETHYLCELLULOSE (CMC) (E466)	0.500	4	0.00	95.00	0.00	1.6000	0.500	0.063	9.50	0.00
3	CITRIC ACID ANHYDROUS (E330) - Powder	1.000	5	0.00	33.00	100.00	1.4550	1.000	0.491	33.00	100.00
4	SODIUM BENZOATE (E211) - Powder	0.150	21	0.00	100.00	0.00	1.4400	0.150	0.104	16.20	0.00
5											
6											
7											
8											
9											
10											

Final Beverage Results

Final Brix (°Bx): 9.27
Final Acidity (g/100g as CAA): 0.936
Final Density (g/mL at 20°C): 1.0241
Add Sugar (as solid): 0.00
Beverage Brix after Inversion (°Bx): 9.27
The measured degree of Brix has been converted, based on the assumed sugar added as a separate ingredient.

Syrup Ingredients List (Selected Batch Size)

Order #	Ingredient	Addition Rate (kg per selected)	Raw Material Number	Water (g/L)	Brix (refractometer, 20°C)	Total Acidity (g/100g as CAA)	Density (g/mL at 20°C)	kg	Liters	Brix-Sum	Acid-Sum
0	PRE-WATER (REVERSE OSMOSIS)	100.000	25	0	0.00	0.00	0.9971	100.000	100.291	0.00	0.00
1	SUCROSE WHITE CRYSTALS	500.000	20	0	100.00	0.00	1.5870	500.000	315.060	50000.00	0.00
2	HYDROXYMETHYLCELLULOSE (HMC) (E466) - P	0.500	4	0	95.00	0.00	1.6000	0.500	0.313	47.50	0.00
3	CITRIC ACID ANHYDROUS (E330) - Powder	1.000	5	0	33.00	100.00	1.4550	1.000	2.002	440.00	100.00
4	SODIUM BENZOATE (E211) - Powder	0.750	21	0	100.00	0.00	1.4400	0.750	0.521	81.00	0.00
5											
6											
7											
8											
9											
10											
99	CARBONATED POST-WATER (MINERAL)	511	42	17.85	0.00	0.00	0.9971	511	511	0	-0.12
Sum		1182						1182	1000		

[1] Note: For the Post-water calculation, it is assumed - 1 kg to convert raw material between actual water density at 20°C to 1.000 g/mL. This simplification does not affect the recipe composition or ingredient dosages.

Syrup Results

Packaging Size (mL): 250
Syrup Brix (°Bx): 42.69
Final Acidity (g/100g as CAA): 0.42
Final Density (g/mL at 20°C): 1.1871
Dosage per Packaging Unit (mL): 59.00
Dosage per Packaging Unit (g): 59.35
pH (measured): 0.00

These actual values results and processing instructions have been prepared with due care and are intended only as a guide for commercial use. The user is responsible for verifying the data for accuracy and compliance in their specific application. DrinkCalc makes no guarantee regarding the accuracy, completeness, or reliability of the information provided. There is no liability for any damages or losses arising from the use of the information provided. The user is responsible for verifying the data for accuracy and compliance in their specific application. DrinkCalc makes no guarantee regarding the accuracy, completeness, or reliability of the information provided. There is no liability for any damages or losses arising from the use of the information provided.

DrinkCalc does not warrant for the absence of adulteration or contamination that occurs when stored in water. Calculations assume additive substances. For beverage production up to 2500L, this value is generally for practical use, particularly when final volume is adjusted by topping up from water. For beverage production exceeding 2500L, or when water is added by calculated volume rather than by topping up to a target volume, users are advised to apply corrections based on actual alcohol/water addition from 100% or 100% to ensure accurate density, brix, and volume calculations.

Processing Parameters			Processing notes
Flash Pasteurization	Tunnel Pasteurization	Homogenization Treatment	
Temperature (°C): 90.00	Temperature (°C): 72.00	Pressure (bar):	
Time (s): 20.00	Time (min): 15.00	Temperature (°C):	
Pasteurization Unit (PU): 5.00	Pasteurization Unit (PU, ref. 60°C): 6.41		

Notes

Date:

Structure of the Workbook

1

DrinkCalc

The main calculator sheet where you build your recipe.

- Select ingredients from dropdowns
- Enter dosages (g/L) and batch size
- Enter the initial amount of water, enabling post-water calculation
- Auto-calculates °Brix, acidity & density
- Scales syrup batch to your production volume
- Built-in pasteurization calculators

Beverage Calculator & Application Sheet

DrinkCalc™

Application Recipe & Project Details

Beverage Description

Developer

Project Name

Project Number

Market Reference

Company

Packaging

Filling Type

Recipe ID

Version

Date

28/09/2025

Syrup Ratio & Batch Size Calculation

Batch Size (L)

5000

Syrup Dosage (mL/L Final Drink)

200

Syrup-to-Water Ratio

1+4

Make sure that the selected syrup ratio allows proper dissolution of critical ingredients; otherwise, the ratio should be decreased

Carbonation Level (g/L CO₂, if applicable)

0.0

0.00 vol.

Carbonation Levels are intended to be achieved in the final drink. The selected syrup ratio may not be suitable to reach the desired carbonation level when it depends on the carbonation of the water.

Process Water Type

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaC	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
0	PRE-WATER (REVERSE OSMOSIS)	100	38	0.00	0.00	0.00	0.9971	100.00	100.29	0.00	0.00
99	CARBONATED POST-WATER (MINERAL)	833.51	42	17.85	0.00	0.00	0.9971	833.51	835.93	0.00	-0.19

Master Application Recipe (g/L in Final Beverage)

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaC	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
1	SUCROSE WHITE CRYSTALS	100.000	30	0.00	100.00	0.00	1.5870	100.000	63.012	10000.00	0.00
2	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powd	0.100	4	0.00	95.00	0.00	1.6000	0.100	0.063	9.50	0.00
3	CITRIC ACID ANHYDROUS (E330) – Powder	1.000	6	0.00	88.00	100.00	1.6650	1.000	0.601	88.00	100.00
4	SODIUM BENZOATE (E211) – Powder	0.150	21	0.00	108.00	0.00	1.4400	0.150	0.104	16.20	0.00
5											
6											
7											
8											
9											
10											

Final Beverage Results

Final Brix (°Bx)

9.77

Final Acidity (g/100 g as CAA)

0.096

Final Density (g/mL at 20 °C)

1.0348

Added sugar (as solids)

0.00

Beverage Brix after Inversion (°Bx)

9.77

Optional use of citric acid anhydrous to adjust acidity in case of high water alkalinity: *****

An inversion degree of 66.7% has been considered, based on the amount of sugar added as a separate ingredient.

Structure of the Workbook

2

Ingredients Database

Your ingredient reference library.

- 46 pre-loaded ingredients with Brix, acidity, density & alkalinity
- Add your own custom ingredients
- Properties auto-populate in the calculator
- Includes a Flavor Brix Calculator (Refractive Index to °Bx)

Ingredient	Raw Material Number	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.1)	Density (g/mL at 20 °C)	Water Alkalinity as ppm CaCO ₃ (only fill in water rows)
ACESULFAME K (E950) – Powder	1	86.00	0.00	1.8100	
ASPARTAME (E951) – Powder	2	120.00	0.00	1.3500	
CALCIUM LACTATE (E327) – Powder	3	80.00	0.00	1.4900	
CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	4	95.00	0.00	1.6000	
CITRIC ACID 50% (E330) – Liquid	5	43.50	50.00	1.2476	
CITRIC ACID ANHYDROUS (E330) – Powder	6	88.00	100.00	1.6650	
CITRIC ACID MONOHYDRATE (E330) – Powder	7	80.00	91.43	1.5420	
DEXTROSE MONOHYDRATE – Powder	8	91.00	0.00	1.5620	
ETHANOL 96°	9	19.80	0.00	0.8050	
FRUCTOSE SYRUP 69 BX	10	68.65	0.00	1.3680	
GLUCURONOLACTONE – Powder	11	99.00	0.00	1.7600	
GUM ARABIC (E414) – Powder	12	100.00	0.00	1.6000	
INVERT SUGAR SYRUP 72 BX	13	71.60	0.00	1.3560	
LACTIC ACID 70% (E270) – Liquid	14	66.00	50.00	1.2000	
MAGNESIUM HYDROXCARBONATE – Powder	15	99.00	-144.00	2.7300	
MALIC ACID CRYST (E296) – Powder	16	80.00	96.00	1.6010	
PECTIN (E440) – Powder	17	99.00	0.00	1.5000	
PHOSPHORIC ACID 75% (E338) – Liquid	18	49.00	97.98	1.5700	
PHOSPHORIC 85% (E338) – Liquid	19	55.00	111.01	1.6850	
POTASSIUM SORBATE (E202) – Powder	20	100.00	0.00	1.3600	
SODIUM BENZOATE (E211) – Powder	21	108.00	0.00	1.4400	
SODIUM CHLORIDE – Powder	22	110.00	0.00	2.1700	
SODIUM CYCLAMATE (E952) – Powder	23	99.00	0.00	1.3200	
SODIUM SACCHARIN (E954) – Powder	24	112.00	0.00	0.8200	

3

A clean, print-ready output sheet.

- Auto-generated A4 recipe summary
- All values are formula-linked — no manual entry
- Export to PDF via File → Export
- Share with production or QA

DrinkCalc™ – Precise beverage calculations made simple

How to Fill the DrinkCalc Sheet

Process Water Type

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaCO ₃	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.2)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
0	PRE-WATER (REVERSE OSMOSIS)	100	38	0.00	0.00	0.00	0.9971	100.00	100.29	0.00	0.00
99	CARBONATED POST-WATER (MINERAL)	833.51	42	17.85	0.00	0.00	0.9971	833.51	835.93	0.00	-0.19

Master Application Recipe (g/L in Final Beverage)

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaCO ₃	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.2)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
1	SUCROSE WHITE CRYSTALS	100.000	30	0.00	100.00	0.00	1.5870	100.000	63.012	10000.00	0.00
2	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.100	4	0.00	95.00	0.00	1.6000	0.100	0.063	9.50	0.00
3	CITRIC ACID ANHYDROUS (E330) – Powder	1.000	6	0.00	88.00	100.00	1.6650	1.000	0.601	88.00	100.00
4	SODIUM BENZOATE (E211) – Powder	0.150	21	0.00	108.00	0.00	1.4400	0.150	0.104	16.20	0.00
5											
6											
7											
8											
9											
10											

Final Beverage Results

Final Brix (°Bx)	9.77	Optional use of citric acid anhydrous to adjust acidity in case of high water alkalinity: 0.0191 g/L RTD
Final Acidity (g/100 g as CAA)	0.096	
Final Density (g/mL at 20 °C)	1.0348	
Added sugar (as solids)	0.00	
Beverage Brix after Inversion (°Bx)	9.77	An inversion degree of 66.7% has been considered, based on the amount of sugar added as a separate ingredient.

Colored boxes marking editable cells

Protected

Editable

- You **do not** set a target °Brix or acidity.
- Instead, **select ingredients** from dropdown menus and **enter your dosages**.
- DrinkCalc automatically calculates:
 - °Brix (total soluble solids)
 - Titratable acidity (as citric acid anhydrous)
 - Density and ingredient masses
 - Batch-scaled syrup quantities
- To reach a specific °Brix or acidity, **adjust doses iteratively** until the output matches your target.

Step-by-Step Example — Setting Up the Recipe

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 l)	Raw Material Number
0	PRE-WATER (REVERSE OSMOSIS)	100	38
99	CARBONATED POST-WATER (MINERAL)	833.51	42

Master Application Recipe (g/L in Final Beverage)

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 l)	Raw Material Number
1	SUCROSE WHITE CRYSTALS	100.000	30
2	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.100	4
3	CITRIC ACID ANHYDROUS (E330) – Powder	1.000	6
4	SODIUM BENZOATE (E211) – Powder	0.150	21
5	FRUCTOSE SYRUP 69 BX		
6	GLUCURONOLACTONE – Powder		
7	GUM ARABIC (E414) – Powder		
8	INVERT SUGAR SYRUP 72 BX		
9	LACTIC ACID 70% (E270) – Liquid		
10	MAGNESIUM HYDROXIDECARBONATE – Powder		
	MALIC ACID CRYST (E296) – Powder		
	PECTIN (E440) – Powder		
	PHOSPHORIC ACID 75% (E338) – Liquid		
	PHOSPHORIC 85% (E338) – Liquid		
	POTASSIUM SORBATE (E202) – Powder		
	SODIUM BENZOATE (E211) – Powder		

Final Beverage Results

Final Brix (°Bx)	9.77
Final Acidity (g/100 g as CAA)	0.096
Final Density (g/mL at 20 °C)	1.0348
Added sugar (as solids)	0.00
Beverage Brix after Inversion (°Bx)	9.77

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 l)	Raw Material Number
0	PRE-WATER (REVERSE OSMOSIS)	100	38
99	CARBONATED POST-WATER (MINERAL)	833.51	42

Recipe (g/L in Final Beverage)

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 l)	Raw Material Number
1	SUCROSE WHITE CRYSTALS	100.000	30
2	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.100	4
3	CITRIC ACID ANHYDROUS (E330) – Powder	1.000	6
4	SODIUM BENZOATE (E211) – Powder	0.150	21
5			
6			
7			
8			
9			
10			

1 Select ingredients from dropdowns.

2 Enter the dose for each ingredient, including the initial amount of water.

Step-by-Step Example — Reviewing and Adjusting

Process Water Type

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaCO ₃	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.1)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
0	PRE-WATER (REVERSE OSMOSIS)	100	38	0.00	0.00	0.00	0.9971	100.00	100.29	0.00	0.00
99	CARBONATED POST-WATER (MINERAL)	833.51	42	17.85	0.00	0.00	0.9971	833.51	835.93	0.00	-0.19

Master Application Recipe (g/L in Final Beverage)

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaCO ₃	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.1)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
1	SUCROSE WHITE CRYSTALS	100.000	30	0.00	100.00	0.00	1.5870	100.000	63.012	10000.00	0.00
2	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.100	4	0.00	95.00	0.00	1.6000	0.100	0.063	9.50	0.00
3	CITRIC ACID ANHYDROUS (E330) – Powder	1.000	6	0.00	88.00	100.00	1.6650	1.000	0.601	88.00	100.00
4	SODIUM BENZOATE (E211) – Powder	0.150	21	0.00	108.00	0.00	1.4400	0.150	0.104	16.20	0.00
5											
6											
7											
8											
9											
10											

Final Beverage Results

Final Brix (°Bx)

0.096

Final Acidity (g/100 g as CAA)

1.0348

Added sugar (as solids)

0.00

Beverage Brix after Inversion (°Bx)

9.77

Optional use of citric acid anhydrous to adjust acidity in case of high water alkalinity: 0.0191 g/L RTD

An inversion degree of 66.7% has been considered, based on the amount of sugar added as a separate ingredient.

3 Adjust doses (sugar, citric acid...) until results match your target (°Brix, acidity...)

Syrup Ingredients List (Selected Batch Size)

Order of Addition	Ingredients	Addition Rate (kg, per selected batch size)	Raw Material Number	Water Alkalinity as ppm CaCO ₃	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.1)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
0	PRE-WATER (REVERSE OSMOSIS)	100.000	38	0	0.00	0.00	0.9971	100.000	100.291	0.00	0.00
1	SUCROSE WHITE CRYSTALS	500.000	30	0	100.00	0.00	1.5870	500.000	315.060	50000.00	0.00
2	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.500	4	0	95.00	0.00	1.6000	0.500	0.313	47.50	0.00
3	CITRIC ACID ANHYDROUS (E330) – Powder	5.000	6	0	88.00	100.00	1.6650	5.000	3.003	440.00	500.00
4	SODIUM BENZOATE (E211) – Powder	0.750	21	0	108.00	0.00	1.4400	0.750	0.521	81.00	0.00
5											
6											
7											
8											
9											
10											
99	CARBONATED POST-WATER (MINERAL)	581	42	17.85	0.00	0.00	0.9971	581	581	0	-0.13
Batch Total		1187						1187	1000		

(*) Note: For the Post-water calculation, 1 L is assumed = 1 kg to ensure exact batch balance. Actual water density at 20 °C is ~0.997–0.998 g/mL. This simplification does not affect the recipe composition or ingredient dosages.

Syrup Results

Packaging Size (mL)

250

Syrup Brix (°Bx)

0.42

Final Acidity (g/100 g as CAA)

1.1871

Dosage per Packaging Unit (mL)

50.00

Dosage per Packaging Unit (g)

59.35

pH (measured)

0.00

4 Review the syrup batch ingredients list according to your Master Recipe setup.

Ingredients Database Sheet

Each ingredient stores: Name, RM Number, °Brix, Acidity, Density, and Water Alkalinity.

Ingredient	Raw Material Number	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.1)	Density (g/mL at 20 °C)	Water Alkalinity as ppm CaCO ₃ (only fill in water row)
SODIUM BENZOATE (E211) – Powder	21	108.00	0.00	1.4400	
SODIUM CHLORIDE – Powder	22	110.00	0.00	2.1700	
SODIUM CYCLAMATE (E952) – Powder	23	99.00	0.00	1.3200	
SODIUM SACCHARIN P (E954) – Powder	24	112.00	0.00	0.8300	
SUCRALOSE (E955) – Powder	25	99.00	0.00	1.5470	
SUCROSE SYRUP 50 °BX	26	50.00	0.00	1.2296	
SUCROSE SYRUP 60 °BX	27	60.00	0.00	1.2865	
SUCROSE SYRUP 65 °BX	28	65.00	0.00	1.3163	
SUCROSE SYRUP 66 °BX	29	66.00	0.00	1.3224	
SUCROSE WHITE CRYSTALS	30	100.00	0.00	1.5870	
TARTARIC ACID (E334) – Powder	31	86.40	85.50	1.7600	
TAURINE – Powder	32	99.00	6.27	1.7340	
TRISODIUM CITRATE (E331) – Powder	33	100.00	0.00	1.7600	
VIT.C - ASCORBIC ACID (E300) – Powder	34	99.00	36.48	1.6500	
XANTHAN GUM (E415) – Powder	35	99.00	0.00	1.5000	
CAFFEINE	36	130	0	1.23	
PRE-WATER (MINERAL)	37	0.00	0.00	0.9971	17.85
PRE-WATER (REVERSE OSMOSIS)	38	0.00	0.00	0.9971	0.00
STILL POST-WATER (MINERAL)	39	0.00	0.00	0.9971	17.85
STILL POST-WATER (REVERSE OSMOSIS)	40	0.00	0.00	0.9971	0.00
CARBONATED POST-WATER (REVERSE OSMOSIS)	41	0.00	0.00	0.9971	0.00
CARBONATED POST-WATER (MINERAL)	42	0.00	0.00	0.9971	17.85
COMPOUND	43				
FLAVOR	44				
NEUTRAL EMULSION (CLOUDIFIER)	45				
FLAVOR EMULSION	46				

⏪ ⏩ DrinkCalc Ingredients Database Ready to Print IFU Table Density +

46 pre-loaded ingredients with full physicochemical data.

New ingredients can be added manually if needed.

For water at 20 °C: true density = 0.9982 g/mL (vacuum); apparent density in air = 0.9971 g/mL (value used in DrinkCalc)

FLAVOR BRIX CALCULATOR

Refractive Index: 1.478

Resulting Brix: 75.03

Source: ICUMSA Methods Book, SPS-3: Refractometry and Tables
(International Commission for Uniform Methods of Sugar Analysis).

Includes a Flavor °Brix calculator (Refractive Index to °Brix).

The DrinkCalc sheet automatically pulls data from here, including the alkalinity from your process water.

Enter values from your own compounds or emulsions.

Reviewing the Results – master recipe data and final drink values

Process Water Type

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaCO ₃	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.2)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
0	PRE-WATER (REVERSE OSMOSIS)	100	38	0.00	0.00	0.00	0.9971	100.00	100.29	0.00	0.00
99	CARBONATED POST-WATER (MINERAL)	833.51	42	17.85	0.00	0.00	0.9971	833.51	835.93	0.00	-0.19

Master Application Recipe (g/L in Final Beverage)

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaCO ₃	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.2)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
1	SUCROSE WHITE CRYSTALS	100.000	30	0.00	100.00	0.00	1.5870	100.000	63.012	10000.00	0.00
2	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.100	4	0.00	95.00	0.00	1.6000	0.100	0.063	9.50	0.00
3	CITRIC ACID ANHYDROUS (E330) – Powder	1.000	6	0.00	88.00	100.00	1.6650	1.000	0.601	88.00	100.00
4	SODIUM BENZOATE (E211) – Powder	0.150	21	0.00	108.00	0.00	1.4400	0.150	0.104	16.20	0.00
5											
6											
7											
8											
9											
10											

Final Beverage Results

Final Brix (°Bx)	9.77
Final Acidity (g/100 g as CAA)	0.096
Final Density (g/mL at 20 °C)	1.0348
Added sugar (as solids)	0.00
Beverage Brix after Inversion (°Bx)	9.77

Optional use of citric acid anhydrous to adjust acidity in case of high water alkalinity: 0.0191 g/L RTD

An inversion degree of 66.7% has been considered, based on the amount of sugar added as a separate ingredient.

Reviewing the Results – syrup batch calculation and resulting syrup values

Syrup Ingredients List (Selected Batch Size)

Order of Addition	Ingredients	Addition Rate (kg, per selected batch size)	Raw Material Number	Water Alkalinity as ppm CaCO ₃	Brix (refractometer, 20 °C)	Total acidity (g/100 g, as CAA, pH 8.1)	Density (g/mL at 20 °C)	kg	Litre	Brix-Sum	Acid-Sum
0	PRE-WATER (REVERSE OSMOSIS)	100.000	38	0	0.00	0.00	0.9971	100.000	100.291	0.00	0.00
1	SUCROSE WHITE CRYSTALS	500.000	30	0	100.00	0.00	1.5870	500.000	315.060	50000.00	0.00
2	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.500	4	0	95.00	0.00	1.6000	0.500	0.313	47.50	0.00
3	CITRIC ACID ANHYDROUS (E330) – Powder	5.000	6	0	88.00	100.00	1.6650	5.000	3.003	440.00	500.00
4	SODIUM BENZOATE (E211) – Powder	0.750	21	0	108.00	0.00	1.4400	0.750	0.521	81.00	0.00
5											
6											
7											
8											
9											
10											
99	CARBONATED POST-WATER (MINERAL)	581	42	17.85	0.00	0.00	0.9971	581	581	0	-0.13
Batch Total		1187						1187	1000		

(*) Note: For the Post-water calculation, 1 L is assumed = 1 kg to ensure exact batch balance. Actual water density at 20 °C is ~0.997–0.998 g/mL. This simplification does not affect the recipe composition or ingredient dosages.

Syrup Results

Packaging Size (mL) 250	Syrup Brix (°Bx)	42.60	pH (measured) 0.00
	Final Acidity (g/100 g as CAA)	0.42	
	Final Density (g/mL at 20 °C)	1.1871	
	Dosage per Packaging Unit (mL)	50.00	
	Dosage per Packaging Unit (g)	59.35	

Built-in Calculation Aids

Three smart helpers built into the DrinkCalc sheet that save time and reduce errors.

1. Batch Size & Syrup Ratio

Enter your batch volume (e.g. 5,000 L) and syrup dosage (e.g. 200 mL/L of final drink).

DrinkCalc automatically computes the syrup-to-water ratio (e.g. 1+4) and scales every ingredient to the selected batch size.

Syrup Ratio & Batch Size Calculation

Batch Size (L)	5000
Syrup Dosage (mL/L Final Drink)	200
Syrup-to-Water Ratio	1+4

2. Water Balance & Alkalinity

Select an initial pre-water quantity — the post-water volume is auto-calculated to complete the batch.

If your process water has alkalinity (ppm CaCO₃), the tool deducts it from final acidity and suggests extra citric acid anhydrous to neutralize it.

Order of Addition	Ingredients	Dosage (g/L or kg per 1000 L)	Raw Material Number	Water Alkalinity as ppm CaCO ₃
0	PRE-WATER (REVERSE OSMOSIS)	100	38	0.00
99	CARBONATED POST-WATER (MINERAL)	833.51	42	17.85

Optional use of citric acid anhydrous to adjust acidity in case of high water alkalinity: 0.0191 g/L RTD

3. Sugar Inversion Forecast

Enter the amount of crystalline sugar added. DrinkCalc estimates the future Brix after a given degree of sucrose inversion (default 66.7%) during the product's shelf life, helping anticipate sweetness changes.

Final Brix (°Bx)	9.77
Final Acidity (g/100 g as CAA)	0.096
Final Density (g/mL at 20 °C)	1.0348
Added sugar (as solids)	100.00
Beverage Brix after Inversion (°Bx)	10.11

Processing Parameters

Built-in pasteurization and homogenization calculators at the bottom of the DrinkCalc sheet.

Flash Pasteurization

For continuous (HTST) treatment of syrups or beverages.

You enter:

- Temperature (°C)
- Time (seconds)

Output:

- Pasteurization Units (PU, ref. 80 °C)

Tunnel Pasteurization

For in-package pasteurization of filled containers.

You enter:

- Temperature (°C)
- Time (minutes)

Output:

- Pasteurization Units (PU, ref. 60 °C)

Homogenization

For recording homogenization parameters used in production.

You enter:

- Pressure (bar)
- Temperature (°C)

Note:

- Included on the Ready to Print summary

The file also includes an IFU Density reference table used internally for syrup density calculations.



Beverage Calculator & Application Sheet

Application Recipe & Project Details

Beverage Description Developer Project Name Project Number Market Reference	Company Packaging Filling Type Recipe ID Version
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Date 28/09/2025

Batch Size (L) 5000

Syrup Dosage (mL/L Final Drink) 200

Syrup-to-Water Ratio 1+4

Carbonation Level (g/L CO₂)

0.0 0.00 vol.

Order of Addition	Raw Material Number	Ingredients	MASTER RECIPE Dosage (g/L or kg per 1000)	SYRUP BATCH SIZE Addition Rate (kg, per selected batch size)
0	38	PRE-WATER (REVERSE OSMOSIS)	100.000	100.000
1	30	SUCROSE WHITE CRYSTALS	100.000	500.000
2	4	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.100	0.500
3	6	CITRIC ACID ANHYDROUS (E330) – Powder	1.000	5.000
4	21	SODIUM BENZOATE (E211) – Powder	0.150	0.750
5				
6				
7				
8				
9				
10				
99	42	CARBONATED POST-WATER (MINERAL)	833.506	580.813
TOTAL			1187.063	1187.063

Final Beverage Results	
Final Brix (°Bx)	9.77
Final Acidity (g/100 g as CAA)	0.10
Final Rho (g/mL at 20 °C)	1.035
Added sugar (as solids)	0.00

Syrup results	
Syrup Brix (°Bx)	42.60
Final Acidity (g/100 g as CAA)	0.42
Final Density (g/mL at 20 °C)	1.187
Dosage per Packaging Unit (mL)	50.00

Print

Print

Copies: 1

Printer

Canon G4080 series

Offline

Printer Properties

Settings

Print Active Sheets

Only print the active sheets

Pages: 1 to 1

Print One Sided

Only print on one side of the...

Collated

1,2,3 1,2,3 1,2,3

Portrait Orientation

A4

21 cm x 29.7 cm

Custom Margins

Fit Sheet on One Page

Shrink the printout so that it f...

Page Setup

Beverage Calculator & Application Sheet

DrinkCalc

Application Recipe & Project Details

Date: 28/09/2025

Beverage Description

Developer

Project Name

Project Number

Market Reference

Company

Packaging

Filling Type

Recipe ID

Version

Batch Size (L)

5000

Carbonation Level (g/L CO₂)

200

0.0

0.00 vol.

Syrup Dosage (mL/L Final Drink)

Syrup-to-Water Ratio

1+4

Order of Addition	Raw Material Number	Ingredients	MASTER RECIPE Dosage (g/L or kg per 1000(L))	SYRUP BATCH SIZE Addition Rate (kg, per selected batch size)
0	38	PRE-WATER (REVERSE OSMOSIS)	100.000	100.000
1	30	SUCROSE WHITE CRYSTALS	100.000	500.000
2	4	CARBOXYMETHYLCELLULOSE (CMC) (E466) – Powder	0.100	0.500
3	6	CITRIC ACID ANHYDROUS (E330) – Powder	1.000	5.000
4	21	SODIUM BENZOATE (E211) – Powder	0.150	0.750
5				
6				
7				
8				
9				
10				
99	42	CARBONATED POST-WATER (MINERAL)	833.506	580.813
TOTAL			1187.863	1187.863

Final Beverage Results

Syrup results

Final Brix (°Bx)

9.77

Syrup Brix (°Bx)

42.69

Final Acidity (g/100 g as CAA)

0.10

Final Acidity (g/100 g as CAA)

0.42

Final Rho (g/mL at 20 °C)

1.035

Final Density (g/mL at 20 °C)

1.187

Added sugar (as solids)

0.00

Dosage per Packaging Unit (mL)

50.00

Beverage Brix after Inv. (°Bx)

9.77

Dosage per Packaging Unit (g)

39.35

Flash

90.00

Tunnel

72.00

Temp. (°C)

30.00

Pressure (bar)

0

Time (s)

12.00

Temperature (°C)

0

PU, ref. 80 °C & 60 °C

5.00

640.61

pH

0.00

Note

note

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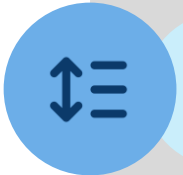
Good Practices



Do not modify protected cells — they contain formulas.



Dosages are in g/L (equivalent to kg per 1000 L of final drink).



Adjust doses iteratively to reach a target °Brix or acidity.



Keep the Ingredients Database updated — you can add new items.



Always review results before using them in production.

THANK YOU!

Feedback is welcome

info@drinkcalc.com