



Ingredient Technical Brief

8th Annual Ocean Spray Cranberries, Inc. Student Product Development Competition

Cranberries: Cranberries are the sound, mature berries obtained from the commonly cultivated cranberry plant (Genus/species - *Vaccinium macrocarpon*). Cranberries are often graded for the size requirements

Storage/Usage directions: Store at 0-32F until ready to use.

Frozen Cranberry Specifications	
Form	Frozen Whole Cranberries
Flavor, Aroma & Color	Normal odor & flavor, free from off notes; Red varieties are typical cranberry red; uniform, bright distribution of red, pink, and white fruit.
Size	98% of the berries must have a diameter of 9/32" min.

Nutritional Analysis Frozen Cranberries Per 100 g unrounded

Calories	47.81
Calories from Fat	0 g
Total Carbohydrates	10.39 g
Total Sugars	4.10 g
Added Sugars	0 g
Dietary Fiber	4.46 g
Protein	0.55 g
Total Fat	0.45 g
Saturated Fat	0 g
Trans Fat	0 g
Moisture	88.21 g
Vitamin A	0.0 mg
Vitamin C	18.20 mg
Calcium	10.0 mg
Magnesium	6.00 mg
Phosphorus	10.30 mg
Potassium	73.0 mg
Sodium	3.0 mg



Cranberry Seeds:

Cranberry Seeds are obtained from sound, mature berries of the commonly cultivated cranberry plant (Genus/species - *Vaccinium macrocarpon*). Cranberry seeds are prepared by the mechanical separation of the wholesome cranberry pulp and then dried to specific moisture. No additives, preservatives, or other processing aids are added. See more seed info here:

<https://www.oceanspray.com/en/Ingredients/Products/Cranberry-Seeds>

Storage/Usage directions: Stored Ambient.

Cranberry Seeds Specifications	
% Moisture	< 7.0
Water Activity	< 0.60
Particle Size	≤ 12 mesh
Appearance, Aroma, & Flavor	Characteristic deep red cranberry color; mild cranberry flavor & clean fruity aroma with no off-flavors or odors

Nutritional Analysis Cranberry Seeds

Per 100 g

Calories	212.66
Calories from Fat	104.76
Total Carbohydrates	58.90 g
Available Carbohydrates	3.03 g
Total Sugars	2.28 g
Added Sugars	0 g
Total Dietary Fiber	55.87 g
Soluble Fiber	4.56 g
Insoluble Fiber	51.30 g
Protein	21.66 g
Total Fat	11.64 g
Polyunsaturated Fat	17.71 g
Monounsaturated Fat	2.61 g
Saturated Fat	0.82 g
Trans Fat	0.0 g
Moisture	5.56 g
Ash	2.24 g
Vitamin E	2.02 mg
Calcium	179.25 mg
Magnesium	185.67 mg
Potassium	495.67 mg
Sodium	4.19 mg



Presscake

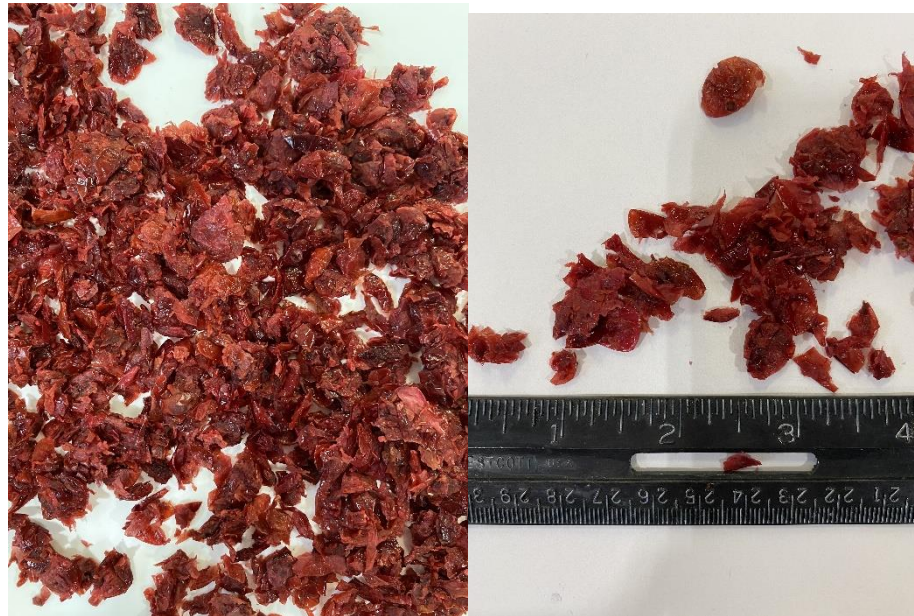
Cranberry “Presscake” is a byproduct of the sweetened and dried cranberry (SDC) manufacturing process. The product is collected from sizing, grading, and electronic sorting of Cranberry fruit which is then extracted via a proprietary process and partially dewatered via a screw press process. The presscake mainly contains small pieces of cranberries with some skin and seeds, and therefore it can be used as a source of fiber, polyphenols, or pectin.

Please note that the presscake is the byproduct of the initial cranberry processing stage and therefore **has not received any treatment to control microbial hazards**. If you are using presscake as the upcycled ingredient in your product, **you must provide a CCP in your hazard analysis** and must ensure that the finished product receives a treatment to control and eliminate the microbial hazard. The CCP must be verified and monitored **to ensure the product's safety** for consumption in the final round.

Storage condition and temperature control:

The presscake will be shipped frozen and must be kept frozen (<32°F). It must be thawed at refrigeration temperature (35-40°F) before use.

Presscake Specifications	
°Brix (@ 20°C)	0.5 – 2.0
Titrateable Acidity (% w/w as citric)	0.15 – 0.60
Moisture Content (% w/w)	65 - 85
Form	Shredded cranberry hulls
Flavor, Aroma & Color	Normal odor & flavor, free from off notes; Pink to red characteristics of the variety



Nutritional Analysis Presscake
Per 100 g unrounded

Calories	137
Calories from Fat	13.1
Total Carbohydrates	27.7 g
Total Sugars	< 0.1 g
Added Sugars	0 g
Dietary Fiber	21.2 g
Protein	3.30 g
Total Fat	1.46 g
Saturated Fat	0.18 g
Trans Fat	0 g
Moisture	67.4 g
Vitamin A	0.0 mg
Vitamin C	6.0 mg
Calcium	13.3 mg
Magnesium	14.2 mg
Phosphorus	52.7 mg
Potassium	42.5 mg
Sodium	< 1.95 mg

Sauce Tailings

Cranberry Sauce “Tailings” are a byproduct of the cranberry sauce manufacturing process. Tailings are collected after the pectin extraction and cooking step of canned cranberry sauce. The sauce is pushed through a screen and what does not make it through the screen become tailings. The tailings mainly contain very small pieces of cranberry skins and seeds. Therefore may be used as a source of fiber or polyphenols.



Please note that the tailings **have not received a validated treatment to control microbial hazards**. If you are using tailings as the upcycled ingredient in your product, **you must provide a CCP in your hazard analysis** and must ensure that the finished product receives a treatment to control and eliminate the microbial hazard. The CCP must be verified and monitored **to ensure the product's safety** for consumption in the final round.

Storage condition and temperature control:

The tailings will be shipped frozen and must be kept frozen (<32°F). It must be thawed at refrigeration temperature (35-40°F) before use.

Tailings Specifications	
°Brix (@ 20°C)	7 (+/- 2)
Titrateable Acidity (% w/w as citric)	0.61 (+/- 1)
Moisture Content (% w/w)	56.52 (+/- 2)
Form	screened cranberry hulls
Flavor, Aroma & Color	Normal odor & flavor, free from off notes; Pink to red characteristics of the variety

Nutritional Analysis Tailings
Per 100 g unrounded

Calories	169.71
Calories from Fat	23.67g
Total Carbohydrates	36.51
Total Sugars	2.8g
Added Sugars	0
Dietary Fiber	31.2g
Protein	3.99g
Total Fat	2.63g
Saturated Fat	0.293g
Trans Fat	0
Moisture	56.52g
Vitamin A	-
Vitamin C	-
Calcium	31.90mg
Magnesium	32mg
Phosphorus	90.50mg
Potassium	129mg
Sodium	0



Mash Equivalent Concentrate

Cranberry juice concentrate is a viscous red liquid prepared from the extracted, depectinized, and filtered juice of sound, clean cranberries (*Vaccinium macrocarpon*).

Mash Equivalent Concentrate is prepared by the further processing of an aqueous cranberry juice extract through a series of membrane filtrations and evaporation units to fractionate and concentrate the initial juice extract. Mash equivalent is the fraction of juice from these membrane processes that are higher in polyphenolic compounds.

No additives, preservatives, or other processing aids are added.

Single Strength Juice Factor: 6.7°Brix

Storage/Usage directions:

Short Term: 35°F ± 5°F up to 30 days

Long term: Freeze at 0°F ± 10°F if stored >30 days

To thaw: place in a cool water bath for 30 to 60 minutes and shake vigorously before using.

Cranberry Juice Conc. Specifications	
°Brix (@ 20°C)	50 +/- 0.05
Titrateable Acidity (% w/w as citric)	Minimum 12.5
Appearance & Aroma (as a concentrate)	Clear; dark red color; cranberry aroma; sweet and sour taste with strong astringency.
Appearance, Aroma, & Flavor (as Beverage)	Clear; dark red to bright red color; cranberry aroma; sweet and sour taste with moderate astringency.



Total Phenolics, dwb	3.40% +/- 0.25 gallic acid equivalents, dry weight basis
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Nutritional Analysis Cranberry Juice Concentrate Type-ME
Per 100 g- unrounded

Calories	162	kcal
Protein	0.27	g
Carbohydrates	49.33	g
Total Dietary Fiber	2.5	g
Dietary Fiber (2016)	2.5	g
Total Sugars	19.44	g
Added Sugar	0	g
Fat	0	g
Saturated Fat	0	g
Mono Fat	0	g
Poly Fat	0	g
Trans Fatty Acid	0	g
Cholesterol	0	mg
Water	49.33	g
Vitamin C	0	mg
Vitamin D - IU	0	IU
Vitamin D - mcg	0	mcg
Calcium	32.17	mg
Copper	0.11	mg
Iron	1.07	mg

**Permeate
(Type UP)
Concentrate**

Cranberry Juice Conc Type UP is a viscous pink to red liquid prepared from the extracted, depectinized, and filtered juice of sound, clean cranberries (*Vaccinium macrocarpon*).

Permeate is prepared by the further processing of an aqueous cranberry juice extract through a series of membrane filtrations and evaporation units to fractionate and concentrate the initial juice extract. Permeate is the fraction of juice from these membrane processes that are **lower** in polyphenolic compounds.

No additives, preservatives, or other processing aids are added.

Single Strength Juice Factor: 6.7 °Brix

Storage/Usage directions: :

Short Term: 35°F ± 5°F up to 30 days.

Long term: Freeze at 0°F ± 10°F for >30 days

To thaw: place in a cool water bath for 30min-1hr and shake vigorously before



Using.

Cranberry Juice Conc. Type UP Specifications	
°Brix (@ 20°C)	50 +/- 0.05
Titrateable Acidity (% w/w as citric)	15.3 ± 2.3
PAC (% DWB)	≤ 1.2
Haze (NTU @ 7.5 oBx)	≤ 10
Color Intensity	≤ 1.8
Appearance & Aroma (as a concentrate)	Crystal clear, medium red color. Clean, typical cranberry aroma with no off notes.
Appearance, Aroma, & Flavor (as Beverage)	Crystal clear; pink to medium red color; cranberry aroma; sweet and sour taste with low to moderate astringency.

Nutritional Analysis Cranberry Juice Concentrate Type-UP
Per 100 g- unrounded

Calories	155	kcal
Calories from Fat	0	kcal
Calories from SatFat	0	kcal
Protein	0.28	g
Carbohydrates	48.56	g
Dietary Fiber (2016)	0	g
Soluble Fiber (2016)	0	g
Total Sugars	22.12	g
Added Sugar	0	g
Fat	0	g
Saturated Fat	0	g
Mono Fat	0	g
Poly Fat	0	g
Trans Fatty Acid	0	g
Cholesterol	0	mg
Water	50	g
Vitamin A - RAE	0	mcg
Vitamin C	0	mg



Vitamin D - IU	0	IU
Vitamin D - mcg	0	mcg
Calcium	28.6	mg
Copper	0.07	mg
Iron	0.54	mg
Magnesium	21.5	mg
Manganese	0.87	mg
Potassium	519	mg
Sodium	23.8	mg
Zinc	0.23	mg