

## Carnot Dish - Artichoke, Broccoli and Cheese Frittata

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*Frittata's have become a staple of our Carnot cuisine. They are calorie controlled and easy to portion control, very filling, and can be stored for months.*

*This Frittata has a Cal-Index of 1.07 and a slice that weighs 238g has 254 calories/slice*

### Recipe Rationale

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Quiches taste great, but quiches have a 500 calorie crust and often other ingredients added to enhance the flavor (cream, extra cheese and butter) and are just loaded with calories. Frittata's do not have a crust and can be made so they are both calorie controlled and portion controlled, yet taste just as good as any quiche; And if made with ingredients we recommend most “eaters” prefer any Carnot Frittata over a flavor enhanced quiche. Once made, a Frittata can be divided into eight servings, placed in refrigerator and eaten for lunch or dinner. However, the slices can be frozen in vacuum bags and kept for many months with no loss of flavor. The frozen slice can be placed in a suitcase or brief case for lunch at work. You can heat in microwave or toaster oven. These Frittata's always end up with a Cal-Index of 1.0 to 1.3 no matter what you add (e.g. can add ham, crab meat, in place of artichokes) as long as you stick to cheese and other portions, and use buttermilk or yogurt with the eggs. The artichokes are Sous Vide, (see Artichoke Heart Sous Vide), but can substitute canned artichoke bottoms, hearts or steamed artichoke hearts. My wife and I live on these during the week, and often make 2-3 12” Frittata’s at a time. I prefer to make them in a 12 inch deep dish over 10-inch pie dish, or you can use the mirepoix sauté pan itself as a dish.

## *The Recipe Tear Sheet*

### **Step 1: Sauté The Mirepoix;**

- 1 cup (100g) chopped shallots or sweet onions.
- 1 cup (100g) chopped celery.
- 8 (30g) crushed and chopped cloves of Garlic.
- 1 (75g) cup sliced mushrooms.
- Spray can of olive oil, I use Trader Joe's olive oil spray
- 1/4 tsp (5g) clarified butter (ghee) or butter.
- Pinch Millard salt (1/3 baking soda 2/3 Koser salt) or just Koser salt

Start with 3 sprays of olive oil plus dab of ghee in 10" or 12" sauté pan, turn to high heat wait pan until starts to smoke. Put in chopped shallots at first sign of smoke, and immediately sprinkle with Millard salt. When shallots start to brown, (1-2 mins) add celery and turn down heat if smoking. When celery starts to clear add mushrooms and garlic. Continue until mushrooms are soft (1-2 mins). Spray Frittata dish with olive oil and wipe so nothing will stick to bottom. Pour cooked mirepoix into the dish and spread out so looks like a crust.

### **Step 2: The Core Ingredients, Artichokes and Broccoli:**

- 2-3 (460g) cups of Artichoke hearts - Sous Vide, or fresh steamed or canned bottoms.
- 2-3 (200g) cups steamed broccoli florets.
- 1/4 cup (100g) crumbled goat cheese.
- Herbs - 8-12 fresh basil leaves, or fresh tarragon

Place the herbs (basil or tarragon) over the mirepoix in the dish. It is OK to be generous with this herb cover - adds depth to final flavor. Place bite size artichoke hearts and broccoli florets, on top of the herb cover so entire dish is full. Add the goat cheese sprinkled over the core. Mix in herbs again on top and in between core.

### **Step 3: The Egg and Cheese Filling:**

- 8 eggs (400g) cracked and added to blender.
- 1/2 (122g) cup buttermilk.
- 1/2 cup (75g) sharp cheddar cheese diced.
- 1/4 cup (50g) parmesan cheese shaved or flaked.
- 1 tsp (5g) ground nutmeg.
- 1/2 tsp (5g) kosher salt.

Place ingredients in blender, and blend on low speed until cheese is incorporated into liquid. Pour into Frittata dish to cover core. Add thinly sliced tomatoes and mushrooms as decorative top. Place in 350 degree convection oven for 45 minutes. Test center with tooth pick to make sure firm. Take out of oven and let cool before cutting, use sharp knife for cutting into eight servings.

*The Recipe Ingredient Matrix ([Download](#))*

|                              | Cal-Index   | Grams       | Calories    |   |
|------------------------------|-------------|-------------|-------------|---|
| <b>Frittata Totals</b>       | <b>1.07</b> | <b>1901</b> | <b>2031</b> | 12 Inch dish, 10" dish is 25-30% reduced.       |
| <b>Frittata/Slice Totals</b> | <b>1.07</b> | <b>238</b>  | <b>254</b>  | 8 slices per dish. 10" dish slice is ~ 180 Cals |

| Ingredient                                | Cal-Index   | Grams      | Calories    | Comments   |
|---|-------------|------------|-------------|--|
| <b>Mirepoix (the sautéed base) Totals</b> | <b>0.66</b> | <b>367</b> | <b>243</b>  | <i>Use any sauté pan, 3 spray shots olive oil.</i>                   |
| 1 Shallots, Chopped                       | 0.70        | 125        | 88          | Vidalia Onions work, have Indec of 0.40                              |
| 2 Celery, Raw Chopped                     | 0.15        | 100        | 15          |  |
| 3 Mushrooms, Cultivated                   | 0.21        | 100        | 21          | Any mushroom - Lobster mushrooms are great                           |
| 4 Garlic, Raw                             | 1.49        | 30         | 45          | Cut pressed and chopped  |
| 5 Oil Olive Oil                           | 6.00        | 5          | 30          | 3-4 sprays from spray can, Sauté, Frittata Dish                      |
| 6 Butter, GHEE Clarified                  | 9.00        | 5          | 45          | I small dab in pan is all that's need                                |
| 7 Millard Salt                            | 0.01        | 2          | 0           | Pinch over onions - 2/3 Salt 1/3 Baking Soda                         |
| <b>The Frittata Core Totals</b>           | <b>0.73</b> | <b>762</b> | <b>553</b>  | <i>Place mirepoix in dish and add the core.</i>                      |
| 8 3-4 Artichoke Hearts, SousVide          | 0.46        | 460        | 212         | Brined or frozen hearts, OK not as good                              |
| 9 Broccoli, Boiled Steamed                | 0.35        | 200        | 70          | 20-30 florets  |
| 10 Basil leaves, fresh                    | 0.20        | 2          | 0           | Tarragon leaves also good  |
| 11 Cheese, Goat                           | 2.71        | 100        | 271         | Crumbled over entire core  |
| <b>The Frittata Filling Totals</b>        | <b>1.87</b> | <b>647</b> | <b>1211</b> | <i>Blend the filling in blender pour on the core.</i>                |
| 12 Eggs, 8                                | 1.55        | 400        | 620         | 50g each for 12 inch dish, 6 for 10 inch dish                        |
| 13 Buttermilk, Milk                       | 0.40        | 122        | 49          | Greek Yogurt OK, Cream raises CI to 6.8                              |
| 14 Cheese, Sharp Cheddar                  | 4.29        | 75         | 322         | Cut into small pieces  |
| 15 Cheese, Parmigiano-Reggiano            | 4.40        | 50         | 220         | Flakes or shaved   |
| 16 Spice, Nutmeg Ground 1 tsp.            | 5.28        | 4          | 21          |  |
| 17 Kosher Salt 1/2 tsp                    | 0.00        | 5          | 0           | To taste   |
| <b>The Frittata Topping Totals</b>        | <b>0.19</b> | <b>125</b> | <b>24</b>   | <i>Place in 350F oven 45 mins.</i>                                   |
| 18 Sliced Tomatoes                        | 0.18        | 75         | 14          |  |
| 19 Mushrooms, Cultivated Sliced           | 0.21        | 50         | 11          |  |
| <b>Useful Tools</b>                       |             |            |             |  |
| 20 Vitamix blender                        |             |            |             | Blendtech or other blender OK, must be strong enough to blend cheese |
| 21 350 degree oven                        |             |            |             | Bake on convection 45 mins, center should be firm                    |
| 22 12 inch pie dish                       |             |            |             | 10 inch OK, but reduce ingredients by 25% to 30%                     |
| 23 Sauté Pan, 10" - 12"                   |             |            |             | Carbon Steel, Steel, Aluminum or Stainless.                          |
| <b>Useful Techniques</b>                  |             |            |             |  |
| 24 Sauté mirepoix                         |             |            |             | See Instructions and video   |
| 25 Millard Salt                           |             |            |             | See Instructions and video, 2/3 Sale and 1/3 Baking Soda             |
| 26 Artichoke Hearts, Sous Vide            |             |            |             | See Recipe and video   |

## For the Frittata Mirepoix:

Chop the shallots or onions up roughly, place in prep bowl. Cut celery and and chop eight cloves of crushed garlic and place in second prep bowl. Slice mushrooms into 1/4 inch slices, and place in third prep bowl, half will be used for mirepoix and other half for topping. Make sure you have the Millard salt ready or just use kosher salt.

Millard salt is 2/3 kosher salt and 1/3 baking soda, I keep supply in small pinch bowl. Sauté the

mirepoix (see Carnot Techniques: How to Sauté a Mirepoix). Start by turning heat to high on the the sauté pan and add three or four blasts of olive oil spray (see Techniques: Using Oil Sprays), and add 5g of clarified butter (Ghee). Add onions after pan starts to smoke and immediately sprinkle onions with Millard salt. Cook until they caramelize (clear and brown 2 mins), and then add celery. Cook celery until starts to clear (1.5 mins). Add garlic and mushrooms at the end, and cook until mushrooms are soft. When finished spray the Frittata dish with a few shots of olive oil so nothing sticks, and pour entire mirepoix into bottom of the Frittata dish. Spread it out evenly to form an aromatic "crust".



If you use butter in place of clarified butter (Ghee), and kosher salt in place of Millard salt the cooking temperature will be significantly reduced and you may not get depth and taste expected from a properly prepared mirepoix. The smoke point for butter is 275F and it becomes bitter and burned tasting above 300F. The smoke point for good olive oil is 400F and for Ghee is 485F. This classic olive oil clarified butter combination has a smoke point of about 430F. You can buy Ghee at many specialty food stores (Trader Joe's

or Whole Foods) as well as on line ([Amazon Ghee](#)) or make it yourself from butter. I use [Organic Purity Farms](#) and a 368g (13oz) jar last for 2 months of daily use. The baking soda in the Millard salt raises the PH of the mirepoix and that in-turn lowers temperature required to caramelize the onions. Again we cover these issues in Carnot Techniques: How to Sauté a Mirepoix.



## For the Frittata Core:

Cut the artichoke hearts into quarters, or if large hearts smaller bite size pieces. The taste will be considerably enhanced if you use Sous Vide artichoke hearts (see Ingredients: How to Sous Vide Artichokes). However fresh artichokes that have been steamed or boiled are a second best, and finally canned artichokes in brine will work. Walmart has the lowest price, and the freshest best quality artichokes I have found anywhere - and they are from a well known California source ([Ocean Mist Farms](#)). We often order a crate of fresh artichokes from [Pezzini Farms](#) when in season, render them all to Sous Vide hearts. If you use canned artichokes, make sure they are NOT in oil, should be canned and in brine. See below. The frozen artichokes are also just OK. But if you want best possible gourmet taste, Sous Vide is number one choice, and fresh steamed is number two. The Broccoli should be cut into bite size florets, steamed so crunchy texture not soft. I use the [T-Fal](#) steamer for set for 17 mins. Fresh basil in the Frittata dish adds nice depth to the dish, can be liberal with fresh leaves on top of mirepoix in the dish. Fresh tarragon also works well, with bit of pepper and salt.



Sous Vide artichoke hearts are cooked in a vacuum bag placed in a 185F water bath for 1.5 hours. They keep in that same bag unrefrigerated for many months. When cooked this way they retain all fiber minerals and vitamins, and have a wonderful nutty flavor that makes this Frittata special and filling. Sous Vide is extra trouble but makes this gourmet cuisine over just another fast meal. Again see Carnot Ingredients: How to Sous Vide Artichokes

Finally, sprinkle half of the goat chess on top of the basil and mirepoix in the Frittata dish. Place the artichokes and broccoli on top of the basil and mirepoix in the dish so not much space - pack it in to make the core. Sprinkle rest of goat cheese over top of the core.

Again, if you plan to use canned artichokes try to find Roland or Reese bottoms in brine, over the quartered in brine variety. Soak them in a bit of lemon juice and citric acid (about 200g water, 25g lemon juice, and 1 g citric acid, 30 minutes) to help remove the salt taste. Don't use artichokes marinated in oil. The frozen artichokes are also OK; I find that Birdseye are not bad, but Trader Joe's frozen brand are always water logged. However if you want best possible artichoke heart nutty taste, Sous Vide is best choice and makes this dish.



## For the Frittata Filling:

Place 8 fresh cracked eggs, yolk and white in blender. Make sure the Cheddar Cheese you use is sharp and cut up into ½ inch pieces. The Parmigiano-Reggiano cheese can be any Parmesan cheese from local store, as long as it is shaved or flaked.

Add both Cheddar and Parmesan cheese to blender, Add ½ cup of buttermilk or greek yogurt and 1 tbs (4g) of nutmeg and blend on low speed, these both have a Cal-Index of 0.50. Nonfat sour cream usually has a Cal-Index of 1.0 and sour cream has a Cal-Index of 2.0 or higher.

Make sure cheese is blended into eggs, and turn up to medium (setting 4 on [Vitamix](#)), with a quick blast on 10 just to add some air to the mixture. Pour the blended ingredients into the Frittata dish over the core.

## For the Topping:

The topping is decorative, can be skipped if your rushed. Cut small 1" tomatoes into very thin slices place on top of Frittata. Use uncooked left over sliced mushrooms from mirepoix and also place on top so balanced and attractive.



## Cooking and Storage:

Place the dish in a 350 degree oven for 45 minutes. Start checking at 30 minutes to make sure center is not soft. Use a toothpick stuck in center to test, should come out clean and Frittata should feel firm. Most home ovens may be off by as much as 25% so can cook in 30 minutes or up to an hour.



After cooked, let cool and slice into 8 divided pieces. The pieces may be placed in a vacuum bag using a low vacuum and kept in refrigerator for 1-2 weeks. Alternatively they can be place in a Sous Vide bath at 131 degrees F for hour and half and kept of 1-2 months un-refrigerated, 3-4 months refrigerated.

The divided slices may be placed on a baking pan, separated so not touching and frozen. Seal the frozen slices in a vacuum bag and place back in freezer. Will keep for 6 months with little loss of flavor.

## Time Saving Tip:

Do the mirepoix in a sauté pan that can go into the oven (carbon steel, steel, stainless steel or aluminum). Skip the Frittata dish and let the pan be the dish. When it comes out of the oven let cool slice, store or eat.