

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Food and Drug Administration

# Food Process Filing for Acidified Method (Form FDA 2541e)

**Note:** There are separate process filing forms for each of the following: Food Process Filing for Low-Acid Retorted Method (Form FDA 2541d); Food Process Filing for Acidified Method (Form FDA 2541e); Food Process Filing for Water Activity/Formulation Control Method (Form FDA 2541f); and Food Process Filing for Low-Acid Aseptic Systems (Form FDA 2541g).

**USE FDA INSTRUCTIONS ENTITLED "Instructions for Paper Submission of Form FDA 2541e (Food Process Filing for Acidified Method)"**

**FDA USE ONLY** Date Received by FDA: \_\_/\_\_/\_\_\_\_ (MM/DD/YYYY)

Food Canning Establishment (FCE) Number (Enter number assigned by FDA)

Submission Identifier (SID) (YYYY-MM-DD/SSS)

20\_\_-\_\_-\_\_/\_\_\_\_

### A. Product Information

**Note: Section A.1 (Food Product Group) requests optional information.**

**1. (Optional) Select one Food Product Group. If there is no single best Food Product Group that applies, select Other.**

- Aquaculture Seafood (e.g., farming of aquatic organisms including fish, mollusks, crustaceans, etc.)
- Baby Food (infant/junior foods including infant formula)
- Bakery Products (canned brown bread, bakery glazes)

**Beans, Corn, or Peas**

- Beans or Peas - Dry or Mature Soaked
- Beans, Corn, Peas - Fresh Succulent

**Berry/Citrus/Core Fruit**

- Berry/Citrus/Core Fruit
- Berry/Citrus/Core Fruit as a Jam, Jelly, Preserve, Drink, Syrup, Topping

- Beverage Base
- Breakfast Foods (liquid form – ready-to-eat, such as porridge, gruel)
- Cheese (does not include soy cheese or imitation dairy)
- Cocoa
- Coffee/Teas (excluding herbal and botanical teas)
- Crustacean (e.g., crab, shrimp, lobster, etc.)
- Dairy (milk-based)
- Dietary Supplement and/or herbal and botanical teas
- Dressings/Condiments (e.g., salad dressing, chutney, salsa, pepper sauce, etc.)
- Engineered Seafood (e.g., shelf-stable imitation crab, surimi, etc.)
- Fishery (finfish)
- Fishery (other aquatic (e.g., alligator, cuttlefish, frog legs, squid, etc.))

**Fruit as a Vegetable**

- Fruit as a Vegetable (e.g., eggplant, pumpkin, etc.)
- Fruit as a Vegetable Juice or Drink (e.g., eggplant juice, pumpkin juice, etc.)

**A.1 (Food Product Group) (Continued)**

- Fungi (e.g., mushrooms, pleurotus, truffles, etc.)
- Gelatin, Pudding Filling for Pies, Pie Filling (liquid form ready-to-eat such as apple pie filling, etc.)
- Gravies/Sauces (spaghetti sauce, mushroom gravy)
- Imitation Dairy (includes soy-based products)

**Imitation/Pit/Mixed/Subtropical Fruit**

- Imitation/Pit/Mixed/Subtropical Fruit
- Imitation/Pit/Mixed/Subtropical Fruit as a Jam, Jelly, Preserve, Drink, Syrup, Topping

**Leafy/Stem Vegetables**

- Leafy/Stem Vegetable
- Leafy/Stem Vegetable as a Juice or Drink (e.g., spinach juice, etc.)

- Meal Replacement/Medical Foods (e.g., supplemental liquid nutrition, etc.)
- Meat Products (Exotic Meat (emu, elk, etc.))
- Mixed Fishery (e.g., seafood salad, etc.)

**Mixed Vegetables**

- Mixed Vegetables (e.g., carrots and peas, etc.)
- Mixed Vegetables as a Juice or Drink (e.g., carrot and green bean juice, etc.)

- Multiple Food (one container with a separate compartment for each product item (e.g., lasagna dinner, chop suey dinner, etc.))
- Noodle/Pasta
- Nut Spread and Nut Topping
- Other Vegetables
- Pet Food (e.g., dog/cat food, etc.)
- Rice, Wheat, Oat or Grain (liquid form – ready-to-eat such as grits)

**Root and Tuber Vegetables**

- Root/Tuber Vegetables (e.g., carrots, leeks, potatoes, etc.)
- Root/Tuber Vegetables as a Juice or Drink (e.g., carrot juice, etc.)

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**A.1 (Food Product Group) (Continued)**

- Shelled Egg     Shellfish (e.g., clams, mussels, oysters, etc.)     Soup  
 Sweet Goods/Dessert (liquid form – ready-to-eat, such as pudding)  
 Vegetable Protein Products (e.g., imitation meat analog)

**Vine/Other Fruit**

- Vine/Other Fruit  
 Vine/Other Fruit as a Jam, Jelly, Preserve, Drink, Syrup, Topping  
  
 Wine Cooler  
 Other (**Specify below**)

**2. Enter Product Name** (e.g., salsa (mild, medium, hot), artichokes (marinated), peppers (red or green), etc.).

**3. What is the form of the product? (Select all that are applicable)**

- Chunks (e.g., chunks, nuggets, etc.)     Cut     Diced     Filet     French cut  
 Liquid (i.e., all liquid no solids)     On the Cob     Paste/Puree     Pieces  
 Round/Spheres     Shredded/Julienne     Sliced (e.g., slices, quarters, strips, etc.)  
 Spears/Stalks     Whole  
 Other (**Enter product form**)

**4. What is the packing medium? (Select all that are applicable)**

- Brine     Cream/Sauce/Gravy     Oil     Solid (no packing medium)  
 Syrup     Water     None  
 Other (**Enter packing medium**)

**Continue to Section B.**

**B. Governing Regulation: (Select one)**

1.  **Acidified (Product is an acidified food and is governed by 21 CFR 108.25 and 21 CFR Part 114)**
2.  **Voluntary (The processor has concluded that the product is not an acidified food. The processor is voluntarily submitting process information about the product to facilitate FDA determinations regarding the regulatory status of the product.)** If you select this choice, attach documentation to support the determination that the product is not an acidified food such as a list of ingredients with the pH and weight % of each ingredient and the finished equilibrium pH. If the product appears to be a fermented food, include a detailed process flow diagram of fermentation processes, including the pH at each step.  
**(Attach document. Provide name or a brief description of attachment below.)**

**Continue to Section C.**

**C. Container Type (Select one)**

**Note: If the product is not packaged in one of the container types identified below, select Other.**

1.  Aluminum/Tinplate/Steel Can
- a) What is the shape of the container? (**Select one**)
- Cylindrical     Oval     Rectangular  
 Irregular (**Attach a picture or schematic. Provide name or a brief description of attachment below.**)
- Other (**Attach a picture or schematic. Provide name or a brief description of attachment below.**)
- b) How many pieces are used to construct the container? (**Select one or more choices, as applicable**)
- i.  2-pieces – Do you use perforated divider plates?     Yes     No  
ii.  3-pieces – Do you use perforated divider plates?     Yes     No
- How is the side seam sealed? (**Select one**)
- Cemented     Welded
2.  Ceramic/Glass
- a) What is the shape of the container? (**Select one**)
- Cylindrical     Rectangular  
 Irregular (**Attach a picture or schematic. Provide name or a brief description of attachment below.**)
- Other (**Attach a picture or schematic. Provide name or a brief description of attachment below.**)
- b) Do you use perforated divider plates?     Yes     No
- c) Is overpressure used during the processing of the product to maintain container integrity?
- Yes (*Continue to c.i*)     No (*If using a Process Mode of: Batch Agitating, Hydrostatic Retort, or Still Retort; continue to c.ii-c.iv; otherwise, continue to Section D*).
- i. What is the total overpressure used during processing? \_ \_ \_ \_ (enter in pounds per square inch gauge (psig)) (*Continue to Section D*)
- ii. What is the percent (%) headspace? \_ \_ \_ \_
- iii. What is the minimum initial temperature? \_ \_ \_ \_ (enter in Fahrenheit)
- iv. What is the vacuum? \_ \_ \_ \_ (enter in inches of mercury (Hg))

**C. Container Type (Continued)**

3.  Flexible Pouch

a) What is the shape of the container? **(Select one)**

Flat pouch     Gable top     Gable top/side gusseted     Gusseted

Irregular **(Attach a picture or schematic. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

Other **(Attach a picture or schematic. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

b) Is the container physically restricted during the processing of the product to control container thickness?

Yes (Continue to b.i)     No (Continue to c)

i.  Racks

Other **(Attach a picture. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

c) Is overpressure used during the processing of the product to control container thickness?

Yes (Continue to c.i)     No (Continue to d)

i. What is the total overpressure used during processing? \_\_\_ . \_\_\_ (enter in pounds per square inch gauge (psig))

d) What is the maximum thickness during retort processing?

\_\_\_ . \_\_\_ (enter in inches)     Not Applicable

e) What is the maximum residual air? \_\_\_ (enter in cubic centimeters)     Not Applicable

4.  Retortable Paperboard Carton

a) What is the shape of the container? **(Select one)**     Rectangular

Other **(Attach a picture or schematic. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

b) Is the container physically restricted during the processing of the product to control container thickness?

Yes (Continue to b.i)     No (Continue to c)

i.  Racks

Other **(Attach a picture. Provide name or brief description of attachment below.)**

\_\_\_\_\_

**C. Container Type: 4. Retortable Paperboard Carton (Continued)**

c) Is overpressure used during the processing of the product to control container thickness?

Yes (Continue to c.i)     No (Continue to d)

i. What is the total overpressure used during processing? \_\_\_ . \_\_\_ (enter in pounds per square inch gauge (psig))

d) What is the maximum thickness during retort processing?

\_\_\_ . \_\_\_ (enter in inches)     Not Applicable

e) What is the maximum residual air? \_\_\_ (enter in cubic centimeters)     Not Applicable

5.  Rigid Container (industrial size)

a) What is the shape of the container? **(Select one)**     Cylindrical     Rectangular

Other **(Attach a picture or schematic. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

b) What kind of rigid container is used? **(Select the description that best applies to the container (i.e., drum, pail, or tote) and select the material that makes up that container)**

Drum (Large industrial cylinder container) **(Select one)**

Aluminum/Steel     Fiberboard     Plastic

Other **(Enter material)**

\_\_\_\_\_

Pail **(Select one)**

Aluminum/Steel     Fiberboard     Plastic

Other **(Enter material)**

\_\_\_\_\_

Tote (Large industrial rectangular container) **(Select one)**

Aluminum/Steel     Fiberboard     Plastic

Other **(Enter material)**

\_\_\_\_\_

Other **(Enter rigid container)**

\_\_\_\_\_

**(Attach a picture or schematic. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

**C. Container Type (Continued)**

6.  Semi-Rigid

a) What is the shape of the container? **(Select one)**

Bowl     Cylindrical     Oval     Rectangular     Tray

Irregular **(Attach a picture or schematic. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

Other **(Attach a picture or schematic. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

b) Is this a compartmentalized container?

Yes    How many compartments? \_\_     No

c) What is the predominant material used to make the body of the container? **(Select one)**

HDPE (high-density polyethylene)     HDPP (high-density polypropylene)

Paperboard     PET (polyethylene terephthalate)

Other **(Enter material)**

\_\_\_\_\_

d) What is the predominant material used to make the lid of the container? **(Select one)**

Aluminum/Steel     HDPE (high-density polyethylene)

HDPP (high-density polypropylene)     Nylon

PET (polyethylene terephthalate)

Not Applicable

Other **(Enter material)**

\_\_\_\_\_

e) How is the lid sealed to the body of the container? **(Select one)**

Double Seam     Heat Seal     Induction Weld     Press Twist

Snap On     Threaded Closure     Ultrasonic Seal

Not Applicable

Other **(Enter seal type)**

\_\_\_\_\_

**C. Container Type: 6. Semi-Rigid (Continued)**

f) Is the container physically restricted during the processing of the product to control container thickness?

Yes **(Continue to f.i)**     No **(Continue to g)**

i.  Racks

Other **(Attach a picture. Provide name or a brief description of attachment below.)**

\_\_\_\_\_

g) Is overpressure used during the processing of the product to control container thickness?

Yes **(Continue to g.i)**     No **(Continue to h)**

i. What is the total overpressure used during processing? \_\_.\_\_. (enter in pounds per square inch gauge (psig))

h) What is the maximum thickness during retort processing?

\_\_ . \_\_ (enter in inches)     Not Applicable

i) What is the maximum residual air? \_\_\_\_. (enter in cubic centimeters)     Not Applicable

7.  Other **(Enter container type)**

\_\_\_\_\_

a) Attach schematic or picture of container. **(Provide name or a brief description of attachment below.)**

\_\_\_\_\_

b) Specify the material that, based on weight, is the predominant material used to make the container stock. This is the material that constitutes the highest weight value of the container stock.

\_\_\_\_\_

c) Specify the material that, based on weight, is the predominant material used to make the lid stock. This is the material that constitutes the highest weight value of the lid stock. If the container does not have a lid, specify Not Applicable.

\_\_\_\_\_

d) Specify the method used to seal the lid to the body of the container. If the container does not have a lid, specify Not Applicable.

\_\_\_\_\_

**Continue to Section D.**

**D. Container Size**

**Note: You are required to complete either D.1 (Dimensions) or D.2 (Volume). You may complete D.2 if you intend to select the thermal process mode in Section G as: 1) High Temperature Short Time (HTST); 2) Hot Fill and Hold; or 3) Steam Jacketed Kettle.**

**If you are completing D.2 because you intend to select HTST, Hot Fill and Hold, or Steam Jacketed Kettle, and if 1) your product is a cheese product under Section A.1, and 2) you have identified "Other" under Section C, you may indicate "Not Applicable" in your response to D.2. In all other circumstances, if you are completing D.2 in accordance with the directions in paragraph 1, you may not select "Not Applicable."**

**For all other circumstances, complete D.1. Section D.3 (net weight) is optional information.**

1. Dimensions:

- a) \_\_\_\_\_ Diameter \_\_\_\_\_ Height **(Use for cylindrical shapes)** (see accompanying instructions for proper coding)
- b) \_\_\_\_\_ Length \_\_\_\_\_ Width \_\_\_\_\_ Height/Thickness **(Use for container shapes other than cylindrical)** (see accompanying instructions for proper coding)

2. Volume: \_\_\_\_\_ **(Select one)**

- Fluid Ounces
- Gallons
- Liters
- Milliliters
- Not Applicable

3. Net Weight **(Optional)**: \_\_\_\_\_ (enter in ounces)

**Submissions for Acidified Foods: Continue to Section E.**

**Voluntary Filing: Stop here and go to the signature section at the bottom of the form.**

**E. Processing Method: Acidification:**

- 1. What is the natural pH of the low-acid ingredient(s) before acidification? \_\_\_\_ . \_\_\_\_
- 2. What is the finished equilibrium pH of the product after acidification? \_\_\_\_ . \_\_\_\_
- 3. What is the maximum time it takes for the product to achieve the finished equilibrium pH of 4.60 or lower? \_\_\_\_
- Minutes  Hours
- 4. Method of Acidification **(Select One)**
- Addition of Acid Foods  Blanch  Direct Batch  Direct In Container
- Immersion
- Other **(Enter acidification method)**

**E. Processing Method: Acidification: (Continued)**

5. Acidifying Agent(s): **(Select all that apply)**

- Acetic Acid  Acid Food(s)  Apple Product(s) (other than vinegar)
- Citric Acid  Fruit Juice(s)  Fumaric Acid  Gluconic Acid
- Hydrochloric Acid  Lactic Acid  Malic Acid  Phosphoric Acid
- Sodium Acid Sulfate  Tamarind Product(s)  Tartaric Acid
- Tomato Product(s)  Vinegars (All Types)  Wine
- Other **(Enter one or more agents not listed)**

6. Microbial Preservative(s) critical to the scheduled process: **(Select all that apply and enter percent concentration(s))**

Microbial Preservative	Concentration (%)
<input type="checkbox"/> Alcohol	_____
<input type="checkbox"/> Ascorbic Acid	_____
<input type="checkbox"/> Benzoic Acid	_____
<input type="checkbox"/> Butylated Hydroxyanisole	_____
<input type="checkbox"/> Butylated Hydroxytoluene	_____
<input type="checkbox"/> Calcium Chloride	_____
<input type="checkbox"/> Calcium Propionate	_____
<input type="checkbox"/> Calcium Sorbate	_____
<input type="checkbox"/> Erythorbic Acid	_____
<input type="checkbox"/> Ethanol	_____
<input type="checkbox"/> Gucono Delta Lactone	_____
<input type="checkbox"/> Polysorbate	_____
<input type="checkbox"/> Potassium Benzoate	_____
<input type="checkbox"/> Potassium Bisulphate	_____
<input type="checkbox"/> Potassium Metabisulphite	_____
<input type="checkbox"/> Potassium Propionate	_____
<input type="checkbox"/> Potassium Sorbate	_____
<input type="checkbox"/> Potassium Sulphite	_____
<input type="checkbox"/> Propylparaben	_____
<input type="checkbox"/> Salt	_____
<input type="checkbox"/> Sodium Benzoate	_____
<input type="checkbox"/> Sodium Bisulphate	_____
<input type="checkbox"/> Sodium Chloride	_____
<input type="checkbox"/> Sodium Erythorbate	_____
<input type="checkbox"/> Sodium Metabisulfite	_____
<input type="checkbox"/> Sodium Polyphosphate	_____
<input type="checkbox"/> Sodium Propionate	_____

*(Continue next page – Microbial Preservative(s))*

**E. Processing Method: 6. Microbial Preservative(s) (Continued)**

Microbial Preservative	Concentration (%)
<input type="checkbox"/> Sodium Sorbate	_____
<input type="checkbox"/> Sodium Sulfite	_____
<input type="checkbox"/> Sorbic Acid	_____
<input type="checkbox"/> Trisodium Citrate	_____
<input type="checkbox"/> Other: (Enter preservative) _____ (Enter preservative) _____ (Enter preservative) _____	
<input type="checkbox"/> None	

Continue to Section F.

**F. Process Source**

1. What is the Process Source?

\_\_\_\_\_  
(Attach support documentation)

2. What is the date of the Process Source Document (mm/dd/yyyy)? \_\_ / \_\_ / \_\_\_\_\_

Continue to Section G.

**G. Process Mode (Select one)**

- 1.  High Temperature Short Time (HTST)
- 2.  Hot Fill and Hold
- 3.  Steam Jacketed Kettle

When process mode 1, 2, or 3 is selected, continue to Section H.

- 4.  Batch Agitating Retort
- 5.  Cold Fill and Hold (Attach support documentation. Provide name or a brief description of attachment below.)  
\_\_\_\_\_
- 6.  Crateless Retort
- 7.  Heating Tunnel - Hot Air, Steam or Water (water cascade, water immersion, water spray)
- 8.  Hydrostatic Retort
- 9.  Sterilmatic
- 10.  Still Retort (Steam or Water)
- 11.  Bath (Steam or Water)
- 12.  Other (Attach support documentation). Provide name or a brief description of attachment below.  
\_\_\_\_\_

When process mode 4-12 is selected, continue to Section I.

**H. Container and Container Closure Treatment: (Complete this section ONLY for Process Modes: 1) High Temperature Short Time (HTST); 2) Hot Fill and Hold; 3) Steam Jacketed Kettle**

Describe how the container, headspace, and interior surface (the surfaces that are in contact with the food) of the container closure are treated. (Select one)

- 1.  Aseptically Filled
  - a) What is the filler name and model?  
\_\_\_\_\_

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- 2.  Heating Tunnel
  - a) What is the process time? \_\_\_:\_\_\_ (Select one)
    - Seconds     Minutes
  - b) What is the temperature in the heating tunnel? \_\_\_\_\_ (enter in Fahrenheit)

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- 3.  Hot Fill and Hold
  - a) What is the temperature of the product in the container at the end of the hold time? \_\_\_\_\_ (enter in Fahrenheit)
    - i. Select one of the container closure treatments.
      - Inversion/Laydown of Container: How long is the product inverted/laid-down? \_\_\_\_\_ (Select one)
        - Seconds     Minutes
      - Steam Flow Closure
      - Other (Enter container closure treatment)  
\_\_\_\_\_
  - What is the exposure time? \_\_\_:\_\_\_ (Select one)
    - Seconds     Minutes

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- 4.  Water spray
  - a) What is the process time? \_\_\_:\_\_\_ (Select one)
    - Seconds     Minutes
  - b) What is the temperature of the water spray? \_\_\_\_\_ (enter in Fahrenheit)

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- 5.  Other (Specify)  
\_\_\_\_\_

Continue to Section I.



**J. Additional Information (Optional)**

Heat Penetration Study (*Attach document. Provide name or a brief description of attachment below.*)

\_\_\_\_\_

Temperature Distribution Study (*Attach document. Provide name or a brief description of attachment below.*)

\_\_\_\_\_

Other (*Attach document. Provide name or a brief description of attachment below.*)

\_\_\_\_\_

Comments:

**Note:** Under the terms and provisions of Title 18, Section 1001, United States Code, in any matter within the jurisdiction of the executive branch of the Government of the United States it is a criminal offense to falsify, conceal, or cover up a material fact; make any materially false, fictitious, or fraudulent statement or representation; or make or use any false writing or document knowing the same to contain any materially false, fictitious, or fraudulent statement or entry.

If your process filing appears to be fabricated, the product on this form will not be in compliance with 21 CFR 108.25(c)(2). A process filing appears fabricated

when it contains parameters that cannot be reconciled with one another, such that the filing does not describe a process that could actually be carried out. If we determine that your process filing appears fabricated, we will delete the filing from our system and notify you. We will not consider you to have complied with 21 CFR 108.25(c)(2) until you submit a completed process filing that does not appear to be fabricated.

Full Name (Please Type or Print)		Signature		
Establishment Name	State or Province	Country (other than U.S.)	Date	Telephone No.



**LACF Contact Information**

For more information, contact the LACF Registration Coordinator by e-mail at LACF@FDA.HHS.GOV or phone: 240-402-2411.

For paper submissions, send completed forms to:

Food and Drug Administration  
LACF Registration Coordinator (HFS-303)  
Center for Food Safety and Applied Nutrition  
5001 Campus Drive  
College Park, MD 20740-3835

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