



ENERGY STAR® Program Requirements Product Specification for Commercial Fryers

Eligibility Criteria FINAL DRAFT: Version 2.0

Following is the **FINAL DRAFT** Version 2.0 product specification for ENERGY STAR qualified commercial fryers. A product shall meet all of the identified criteria if it is to earn the ENERGY STAR.

1) **Definitions:** Below are the definitions of the relevant terms in this document.

- A. Commercial Open, Deep-Fat Fryer: An appliance, including a cooking vessel, in which oil is placed to such a depth that the cooking food is essentially supported by displacement of the cooking fluid rather than by the bottom of the vessel. Heat is delivered to the cooking fluid by means of an immersed electric element or band-wrapped vessel (electric fryers), or by heat transfer from gas burners through either the walls of the fryer or through tubes passing through the cooking fluid (gas fryers).
 - a. Standard Fryer: A fryer with a vat that measures ≥ 14 inches and < 18 inches wide, and a shortening capacity ≥ 25 pounds and < 60 pounds.
 - b. Split Vat Fryer: A standard fryer with an internal wall that separates the vat into two equal sides.
 - c. Large Vat Fryer: A fryer with a vat that measures ≥ 18 inches and ≤ 24 inches wide, and a shortening capacity > 50 pounds.
- B. Cooking Energy Efficiency: The quantity of energy input to the food product (i.e., french fries) during the cooking process; expressed as a percentage of the quantity of energy input to the fryer during the heavy-, medium-, and light-load tests. For purposes of this specification, the heavy-load test as defined in ASTM F1361-07 and ASTM F2144-07 will be used as a measurement of cooking energy efficiency.
- C. Idle Energy Rate: The average rate of energy consumed [Btu/h (kJ/h) or kW] by the fryer while "holding" or "idling" the frying medium at the thermostat(s) set point.
- D. Product Family: Variations of one model are offered within a single product line with differences in aesthetics only. Individual models represented by a product family must be based on the same basic engineering design and have the same cooking energy efficiency and idle energy rate. All members of the family must also have the same fry pot size.

2) **Scope:**

- A. Included Products: Products that meet the definition of a Commercial Open Deep-Fat Fryer as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B. Countertop and floor type designs are eligible to qualify for ENERGY STAR.
- B. Excluded Products: Fryers with vats measuring < 14 inches wide, or > 24 inches wide, are not eligible for ENERGY STAR.

3) **Qualification Criteria:**

- A. Determining Fry Pot Size: The frying area shall be measured at the fryer's maximum fill-line. The frypot width is considered to be the distance between the inner side walls of the frypot. The dimensions for split vat fryers shall be considered to be twice the width of one side. For kettle

fryers, the frying area shall be measured at the fryer's maximum fill-line using the diameter of the cylinder and determined by the inner walls.

Note: Guidance regarding the measurement of fry pot length has been removed since product classification (i.e., standard versus large vat) is determined only by width and shortening capacity. EPA also included similar guidance specific to the cylindrical fry pot found in kettle fryers.

B. Cooking Energy Efficiency and Idle Energy Rate Requirements – Standard and Split Vat Fryers

Table 1: Energy Efficiency Requirements for Standard Open Deep-Fat Gas Fryers	
Heavy-Load Cooking Energy Efficiency	$\geq 50\%$
Idle Energy Rate	$\leq 9,000$ Btu/hr

Table 2: Energy Efficiency Requirements for Standard Open Deep-Fat Electric Fryers	
Heavy-Load Cooking Energy Efficiency	$\geq 80\%$
Idle Energy Rate	≤ 1000 watts

C. Cooking Energy Efficiency and Idle Energy Rate Requirements – Large Vat Fryers

Table 3: Energy Efficiency Requirements for Large Vat Open Deep-Fat Gas Fryers	
Heavy-Load Cooking Energy Efficiency	$\geq 50\%$
Idle Energy Rate	$\leq 12,000$ Btu/hr

Table 4: Energy Efficiency Requirements for Large Vat Open Deep-Fat Electric Fryers	
Heavy-Load Cooking Energy Efficiency	$\geq 80\%$
Idle Energy Rate	$\leq 1,100$ watts

D. Significant Digits and Rounding:

- All calculations shall be carried out with directly measured (unrounded) values.
- Unless otherwise specified, compliance with specification limits shall be evaluated using directly measured or calculated values without any benefit from rounding.
- Directly measured or calculated values that are submitted for reporting on the ENERGY STAR website shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.

Note: Provided above are slightly modified rounding principles based on several questions and requests received over the last several months regarding this requirement.

4) **Test Criteria:**

A. Representative Models shall be selected for testing per the following requirements:

- For qualification of an individual product model, the representative model shall be equivalent to that which is intended to be marketed and labeled as ENERGY STAR.
- For qualification of a product family, any model within that product family can be tested and serve as the representative model.

- 1 B. When testing commercial fryers, the following test methods shall be used to determine ENERGY
2 STAR qualification:
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Table 5: Test Methods for ENERGY STAR Qualification	
ENERGY STAR Requirement	Test Method Reference
Cooking Energy Efficiency	ASTM Standard F1361-07, <i>Test Method for the Performance of Open Deep Fat Fryers (standard fryers)</i> OR ASTM Standard F2144-07, <i>Test Method for Performance of Large Open Vat Fryers (large vat fryers)</i>
Idle Energy Rate	

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5 **5) Effective Date:** The ENERGY STAR Commercial Fryer specification shall take effect on **April 15,**
6 **2011.** To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in
7 effect on the model's date of manufacture. The date of manufacture is specific to each unit and is the
8 date on which a unit is considered to be completely assembled
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10 **Note:** Starting April 15th, manufacturers may begin submitting large vat fryers for ENERGY STAR
11 qualification. Please note that to earn ENERGY STAR qualification manufacturers must have their
12 products third-party certified by an EPA-recognized Certification Body (CB) to the Version 2.0
13 requirements.
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15 As of August 1, 2011 all **previously qualified** standard fryers (i.e., prior to January 1, 2011) seeking
16 ENERGY STAR qualification must be third-party certified by an EPA-recognized CB to remain ENERGY
17 STAR qualified and labeled. EPA received some concern regarding this requirement as re-testing could be
18 very expensive for manufacturers. However, since the testing and performance requirements are not
19 changing for standard fryers, third-party CBs have the option of accepting test results from an EPA-
20 recognized test laboratory without re-testing the product. This should reduce the cost burden on the
21 manufacturers.
22

23 All manufacturers are encouraged to contact EPA-recognized laboratories and CBs now to prepare for
24 certification of their products. For more information, including FAQs and a list of EPA-recognized
25 laboratories and CBs, visit www.energystar.gov/3rdpartycert.
26

- 27 **6) Future Specification Revisions:** EPA reserves the right to change the specification should
28 technological and/or market changes affect its usefulness to consumers, industry, or the environment.
29 In keeping with current policy, revisions to the specification are arrived at through industry
30 discussions. Please note that ENERGY STAR qualification is not automatically granted for the life of
31 the product model.
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