ENERGY STAR® Program Requirements
Product Specification for Commercial Fryers

Eligibility Criteria
Version 2.0

Following is the 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 >12 inches and < 18 inches wide, and a shortening capacity > 25 pounds and < 65 pounds.

   b. Large Vat Fryer: A fryer with a vat that measures > 18 inches and < 24 inches wide, and a shortening capacity > 50 pounds.

   c. Split Vat Fryer: A standard or large vat fryer with an internal wall that separates the vat into two equal sides.

   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 F2144-09 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 < 12 inches wide, or > 24 inches wide, are not eligible for ENERGY STAR.

3) Qualification Criteria:

A. <u>Determining Fry Pot Size</u>: 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.

B. <u>Cooking Energy Efficiency and Idle Energy Rate Requirements – Standard Fryers</u>

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	$\leq$ 1000 watts

C. <u>Cooking Energy Efficiency and Idle Energy Rate Requirements – Large Vat Fryers</u>

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

Note: Split-vat cooking energy efficiency and idle rate performance shall be measured with both sides operating.

D. <u>Significant Digits and Rounding</u>:

   a. All calculations shall be carried out with directly measured (unrounded) values.

   b. Unless otherwise specified, compliance with specification limits shall be evaluated using directly measured or calculated values without any benefit from rounding.

   c. 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.

4) Test Criteria:

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

   a. 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.

b. For qualification of a product family, any model within that product family can be tested and serve as the representative model.

B. When testing commercial fryers, the following test methods shall be used to determine ENERGY STAR qualification:

Table 5: Test Methods for ENERGY STAR Qualification	
ENERGY STAR Requirement	**Test Method Reference**
Cooking Energy Efficiency	ASTM Standard F1361-07, *Test Method for the Performance of Open Deep Fat Fryers (standard fryers)*
Idle Energy Rate	***OR***
	ASTM Standard F2144-09, *Test Method for Performance of Large Open Vat Fryers* (*large vat fryers*)

5) **Effective Date:** The ENERGY STAR Commercial Fryer specification shall take effect on **April 22, 2011**. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the model's date of manufacture. The date of manufacture is specific to each unit and is the date on which a unit is considered to be completely assembled

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