ENERGY STAR® Program Requirements for Commercial Dishwashers

Partner Commitments

Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified commercial dishwashers. The ENERGY STAR Partner must adhere to the following program requirements:

- comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on commercial dishwashers and specifying the testing criteria for commercial dishwashers. EPA may, at its discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at EPA's request;

- comply with current ENERGY STAR Identity Guidelines, describing how the ENERGY STAR marks and name may be used. Partner is responsible for adhering to these guidelines and for ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance;

- qualify at least one ENERGY STAR commercial dishwasher within one year of activating the commercial dishwashers' portion of the agreement. When Partner qualifies the product, it must meet the specification (e.g., Tier 1 or 2) in effect at that time;

- provide clear and consistent labeling of ENERGY STAR qualified commercial dishwashers. The ENERGY STAR mark must be clearly displayed on the top/front of the product, in product literature (i.e., user manuals, spec sheets, etc.), on product packaging, and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed;

- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying commercial dishwasher models. Once the Partner submits its first list of ENERGY STAR qualified commercial dishwashers, the Partner will be listed as an ENERGY STAR Partner. Partner must provide annual updates in order to remain on the list of participating product manufacturers;

- provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total number of ENERGY STAR qualified commercial dishwashers shipped (in units by model) or an equivalent measurement as agreed to in advance by EPA and Partner. Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g., capacity, size, speed, or other as relevant), total unit shipments for each model in its product line, and percent of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted to EPA, preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third party. The data will be used by EPA only for program evaluation purposes and will be closely controlled. If requested under the Freedom of Information Act (FOIA), EPA will argue that the data is exempt. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;

- notify EPA of a change in the designated responsible party or contacts for commercial dishwashers within 30 days.

Performance for Special Distinction

In order to receive additional recognition and/or support from EPA for its efforts within the Partnership, the ENERGY STAR Partner may consider the following voluntary measures and should keep EPA informed on the progress of these efforts:

- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR mark for buildings;

- purchase ENERGY STAR qualified products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR qualified product information to employees for use when purchasing products for their homes;

- ensure the power management feature is enabled on all ENERGY STAR qualified monitors in use in company facilities, particularly upon installation and after service is performed;

- provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR qualified product models;

- feature the ENERGY STAR mark(s) on Partner Web site and in other promotional materials. If information concerning ENERGY STAR is provided on the Partner Web site as specified by the ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources section on the ENERGY STAR Web site at www.energystar.gov), EPA may provide links where appropriate to the Partner Web site;

- provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, communicate, and/or promote Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR Web pages, etc. The plan may be as simple as providing a list of planned activities or planned milestones that Partner would like EPA to be aware of. For example, activities may include: (1) increase the availability of ENERGY STAR labeled products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrate the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) provide information to users (via the Web site and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products, and (4) build awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event;

- provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message.

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Eligibility Criteria

Below is the **Version 1.1** product specification for ENERGY STAR qualified commercial dishwashers. A product must 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. Dishwashing Machine: A machine designed to clean and sanitize plates, glasses, cups, bowls, utensils, and trays by applying sprays of detergent solution (with or without blasting media granules) and a sanitizing final rinse.

   B. Under Counter Dishwasher: A machine with an overall height 38 inches or less, in which a rack of dishes remains stationary within the machine while being subjected to sequential wash and rinse sprays, and is designed to be installed under food preparation workspaces. Under counter dishwashers can be either chemical or hot water sanitizing, with an internal booster heater for the latter. For purposes of this specification, only those machines designed for wash cycles of 10 minutes or less can qualify for ENERGY STAR.

   C. Stationary Rack, Single Tank, Door Type Dishwasher: A machine in which a rack of dishes remains stationary within the machine while subjected to sequential wash and rinse sprays. This definition also applies to machines in which the rack revolves on an axis during the wash and rinse cycles. Subcategories of stationary door type machines include: single and multiple wash tank, double rack, pot, pan and utensil washers, chemical dump type and hooded wash compartment ("hood type"). Stationary rack, single tank, door type models are covered by this specification and can be either chemical or hot water sanitizing, with an internal or external booster heater for the latter.

   D. Single Tank Conveyor Dishwasher: A warewashing machine that employs a conveyor or similar mechanism to carry dishes through a series of wash and rinse sprays within the machine. Specifically, a single tank conveyor machine has a tank for wash water followed by a final sanitizing rinse and does not have a pumped rinse tank. This type of machine may include a pre-washing section before the washing section. Single tank conveyor dishwashers can be either chemical or hot water sanitizing, with an internal or external booster heater for the latter.

   E. Multiple Tank Conveyor Dishwasher: A conveyor type machine that has one or more tanks for wash water and one or more tanks for pumped rinse water, followed by a final sanitizing rinse. This type of machine may include one or more pre-washing sections before the washing section. Multiple tank conveyor dishwashers can be either chemical or hot water sanitizing, with an internal or external booster heater for the latter.

   F. Hot Water Sanitizing (High Temp) Machine: A warewashing machine that applies potable hot water to the surfaces of wares to achieve sanitization.

   G. Chemical Sanitizing (Low Temp) Machine: A warewashing machine that applies potable water and a chemical sanitizing solution to the surfaces of wares to achieve sanitization.

2) Qualifying Products: Commercial dishwashers must meet the definitions provided in Section 1, above, to be eligible for ENERGY STAR. **Note:** Dishwashers that include an optional manual rinse, after the final sanitizing rinse, are in violation of current NSF Standards and are therefore, not eligible for ENERGY STAR. If NSF Standards are revised to address and certify additional rinses then EPA may consider including these product types under the specification. EPA may also consider additional

product categories in future versions of this specification based on industry stakeholder interest, available test procedures and performance data, model differentiation, and ease of implementation.

3) Efficiency Requirements for Qualifying Products: Commercial dishwashers must meet the requirements provided below in Table 1 to qualify as ENERGY STAR. **Machines designed to be interchangeable in the field from high temp to low temp, and vice versa, must be indicated as such on their Qualified Product Information (QPI) form and must meet both the high temp and low temp requirements of Table 1, below, to qualify as ENERGY STAR.**

Table 1: Efficiency Requirements for Commercial Dishwashers				
Machine Type	**High Temp Efficiency Requirements***		**Low Temp Efficiency Requirements***	
	Idle Energy Rate	**Water Consumption**	**Idle Energy Rate**	**Water Consumption**
Under Counter	≤ 0.90 kW	≤ 1.00 gal/rack	≤ 0.5 kW	≤ 1.70 gal/rack
Stationary Single Tank Door**	≤ 1.0 kW	≤ 0.950 gal/rack	≤ 0.6 kW	≤ 1.18 gal/rack
Single Tank Conveyor	≤ 2.0 kW	≤ 0.700 gal/rack	≤ 1.6 kW	≤ 0.790 gal/rack
Multiple Tank Conveyor	≤ 2.6 kW	≤ 0.540 gal/rack	≤ 2.0 kW	≤ 0.540 gal/rack

***** Idle results should represent **tank heater** idle energy rate measured with door closed and rounded to 2 significant digits. Gallons per rack results should be rounded to 3 significant digits.
******Includes pot, pan, and utensil machines.

To determine gallons per rack, manufacturers must use the calculations provided below. These calculations are based on gallons per rack conversions provided in the NSF Products and Service Listing for commercial dishwashers at www.nsf.org. **Note:** Gallons per rack (GPR) should be rounded to 3 significant digits.

Conveyor Type

$$GPR = \frac{GPH \times RL}{CS \times 60}$$

Door Type

$$GPR = \frac{GPH \times (WT + RT + DT + LT)}{3600}$$

Load Time= 5 seconds for straight through door-type dishwashers.
Load Time= 7 seconds for corner door-type dishwashers.
Load Time= 30 seconds for front load/unload dishwashers

Undercounter Type

$$GPR = \frac{GPH \times (WT+RT+DT+LT)}{3600}$$

Load time= 30 seconds for undercounter dishwashers.

WT= Wash Time in seconds.
RT= Rinse time in seconds.
DT= Dwell time in seconds.
RL= Rack length, use 20x20 in.
LT= Load time.
CS= Maximum conveyor speed in feet per minute
GPH= Water use in gallons per hour.

4) Test Criteria: Manufacturers are required to perform tests and self-certify those product models that meet the ENERGY STAR guidelines. The test results must be reported to EPA using the Commercial Dishwasher QPI Form. In measuring water consumption and idle energy rate, partner agrees to use the following test standards:

- **Water Consumption:** NSF/ANSI 3-2007 Standard, *Commercial Warewashing Equipment*

Note: All machines must be certified to NSF/ANSI 3 by a third party laboratory capable of testing to the above referenced test procedure.

- **Idle Energy Rate for Hot Water and Chemical Sanitizing Undercounter and Stationary Rack Single Tank Door-Type Dishwashers:** ASTM Standard F1696, *Standard Test Method for Energy Performance of Single-Rack Hot Water Sanitizing, Door-Type Commercial Dishwashing Machines.*
- **Idle Energy Rate for Hot Water and Chemical Sanitizing Single and Multiple Tank Rack Conveyor Dishwashers**: ASTM Standard F1920, *Standard Test Method for Energy Performance of Rack Conveyor, Hot Water Sanitizing, Commercial Dishwashing Machines.*

Note: Although the titles of the ASTM test procedures listed above specifically call out hot water sanitizing machines the idle energy rate portion is also applicable, and should be used, for chemical sanitizing machines.

5) Effective Date: The date that manufacturers may begin to qualify products as ENERGY STAR will be defined as the *effective date* of the agreement. The ENERGY STAR Commercial Dishwasher Specification shall go into effect on **October 11, 2007**.

6) Future Specification Revisions: ENERGY STAR 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. In the event of a specification revision, please note that the ENERGY STAR qualification is not automatically granted for the life of a product model. To qualify with the energy and water efficiency criteria of ENERGY STAR, a product model must meet the ENERGY STAR specification in effect on the date of manufacture.

ASTM Test Standard Review: ENERGY STAR plans to revisit this specification once the revision processes for ASTM F1696 and ASTM F1920 are complete. These test methods will address energy consumption in various modes of operation as well as water consumption.

Review of Idle Energy Requirements: Within two years of this specification becoming effective, ENERGY STAR will review idle energy data to determine whether the limits provided in Table 1 provide for sufficient differentiation in the marketplace. If it is determined that revisions are needed, EPA will work closely with industry stakeholders to develop appropriate new levels.