Ecolab Inc. Input on Draft 2 Energy Star Specifications for Commercial Dishwashers

Definitions

The proposed changes (see attached mark-up) will provide consistency with the machine definitions used in NSF Standard 3 and in the NSF test methods which determine water consumption and cycle time.

Efficiency Requirements for Qualifying Products

Precision of Water Consumption Requirements

The Water Consumption requirements for all machines should be rounded to single decimal place values (i.e. nearest 1/10 of gallon per rack) due to the relative lack of precision of the test method. For example, one factor in calculating the gallons/rack water consumption value is the measurement of the total machine cycle time. This is done using a stopwatch, and observed values are rounded to the nearest second. A small difference in the measured cycle time results in a large enough difference in the gallons/rack calculated value, making precision to hundredths of a gallon of water impractical.

Water Consumption Requirements for Single Tank Conveyor Machines

There is no rational behind having a lower water consumption requirement for Low Temp machines (0.62 gal/rack) than for High Temp machines (0.70 gal/rack). Low Temp machines, by definition, consume less energy in operation than High Temp machines. Having a lower water consumption requirement than High Temp machines artificially penalizes Low Temp machines and could potentially create confusion in the marketplace. It is common practice in the industry by manufacturers to have identical machines for High Temp and Low Temp conveyors, the only difference being the set point of the wash tank temperature thermostat. This allows manufactures and distributors to optimize their operations by having one machine for both applications. Having two different Energy Star requirements would force manufactures to either have two separate machines (and therefore less operational efficiency), or meet the lower requirement of the two categories. Therefore, it is suggested to have a 0.7 gal/rack requirement for both High and Low Temp conveyor machines.

Idle Energy Consumption

Ecolab requests that there be further open discussion and sharing of the idle energy consumption rates that were submitted for review, with the purpose of understanding how the specifications for Energy Star ratings were determined. The data for idle energy consumption is not currently public knowledge (unlike the NSF water consumption data). We request that the data that was submitted to Energy Star be made public so that we can comment on the number of data points versus the proposed limits, especially since some machine types that were to be excluded from consideration (per the October 17, 2006 conference call), are now part of the standard.

Ensuring Cleaning and Sanitizing Performance

Ecolab suggests that the current cleaning and sanitation performance requirements be further defined to account for actual use conditions in equipment performance testing. Public health standards could be advanced by utilizing representative samples of typical soil loads to measure cleaning and sanitation performance. Moreover, this would help protect the environmental benefits of the Energy Star Program from being inadvertently erased by operators using additional cleaning products, water and/or energy in an effort to meet their customers' dishware and utensil appearance and sanitation expectations.

We propose that Energy Star view the current equipment sanitization testing standards as interim guidance, with the intent of supporting the pending formal request to NSF to revise its cleaning and sanitation standard as to take into account actual use conditions.

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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 in which a rack of dishes remains stationary within the machine while being subjected to sequential wash and rinse sprays, and is generally designed to be installed under food preparation workspaces and be of front loading type. Under counter dishwashers can be either chemical or hot water sanitizing, with an internal booster heater for the latter.

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. Stationary rack, single tank, door type dishwashers 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. This type of machine may include a prewashing section ahead of 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 warewashing machine that employs a conveyor or similar mechanism to carry dishes through a series of wash and rinse sprays within the machine. A conveyor type machine that has one tank for wash water and one tank for pumped rinse water, followed by a final sanitizing rinse. This type of machine may include a pre-washing section 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.

Comment [E1]: Recommend to delete the height requirement. There are no height requirements for "undercounter" machines per NSF. When NSF determines cycle times for "undercounter" machines, they consider them as "front opening type" machines. There are other "front loading type" machines that are taller than 36". There are traditional undercounter machines that are built with integral stands that make them taller than 36". Confusion will exist when a machine is considered by NSF as "front loading", but because of its height, may be considered a "door type" machine by Energy Star.

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Comment [E2]: Change "Single Door Type" to "Door Type" to avoid confusion regarding the number of doors allowed on the machine.

Deleted: Single

Comment [E3]: Please provide examples of current machines which are considered "hooded wash compartment".

Deleted: single

Comment [E4]: This definition is consistent with NSF definition for a single tank conveyor.

Deleted: and does not have a pumped rinse tank

Comment [E5]: By definition, if an auxiliary rinse section is used, the machine will be a "multiple tank" machine.

Deleted: and an auxiliary rinse section between the power rinse and final rinse sections

Comment [E6]: Repeat this line from the "Single Tank Conveyor" definition.

Comment [E7]: Limit the number of wash and pumped rinse tanks to one of each, so there will be no confusion regarding the NSF-specified temperatures for the water in these tanks.

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Comment [E8]: "Auxiliary rinse" is the same as "pumped rinse", so this statement is redundant.

Deleted: and an auxiliary rinse section between the power rinse and final rinse sections

3) Efficiency Requirements for Qualifying Products: Commercial dishwashers must meet the requirements provided below in Table 1 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	≤ 0.9 kW	≤ 1.0 gal/rack	≤ 0.5 kW	≤ 1.70 gal/rack
Stationary Single Tank Door**	≤ 1.0 kW	≤ 0.95 gal/rack	≤ 0.6 kW	≤ 1.16 gal/rack
Single Tank Conveyor	≤ 2.0 kW	≤ 0.70 gal/rack	≤ 1.6 kW	≤ 0.62 gal/rack
Multiple Tank Conveyor	≤ 2.0 kW	≤ 0.54 gal/rack	≤ 1.6 kW	≤ 0.54 gal/rack

** Note: Idle energy rate as measured with door closed.*
*** Note: Includes pot, pan, and utensil machines.*

Comment [E9]: Recommend that the Water Consumption requirement for Low Temp Single Tank Conveyors be changed from 0.62 to 0.7 gal/rack to match the High Temp requirement, as there is no rational for having the Low Temp requirement less than the High Temp requirement.

Comment [E10]: Recommend that water consumption values be rounded to single decimal place. This is a calculated value and the precision of the test method does not justify two place decimal values.

Comment [E11]: The chart should be revised to clarify that the Idle Energy Rates are the "Tank Heater Idle Energy Rate (Doors Open)" as tested according to ASTM F-1920, section 10.9 for conveyor type machines, or ASTM F-1696, section 10.8 for door type and undercounter machines.