

Industry Comment	EPA Response
Section 1: Definitions	
<p>The definition for "undercounter machine" includes a maximum height of 36". When NSF determines cycle times for undercounter machines, they consider them as "front opening type". There are some undercounter machines that are taller and approved by NSF as an undercounter. How does the height affect the energy rating?</p>	<p>Where available, EPA has used the definitions developed by NSF for the different dishwasher types, providing additional clarification as needed. However, NSF does not provide a definition for undercounter machines. Since undercounter machines are allowed a higher water consumption under the proposed ENERGY STAR specification, it is important to be able to draw a clear line between this and other types of equipment. EPA proposed maximum height as a way to distinguish undercounter machines from others. Based on this comment, it appears that this may not be an adequate way to separate undercounters from others. EPA would appreciate other concrete suggestions for the undercounter definition that will serve to precisely distinguish them from other machines types.</p>
<p>EPA should change "single door type" to "door type" to avoid confusion regarding the number of doors allowed on the machine.</p>	<p>This change will be made to the door type machine definition in the next draft of this specification.</p>
<p>EPA should provide examples of "hooded wash compartments" referenced in the definition for stationary rack, single tank, door type machines.</p>	<p>It is EPA's understanding that the terms "hood type" and "door type" are used interchangeably to describe the same machine. "Hood type" machines simply allow for the entire "hood" over the wash/rinse compartment to be raised when loading dishes, as opposed the opening to be limited to the door. There are a few manufacturers who market these machines as "hood type" and in the interest of being inclusive, EPA included this term in the definition. However, to avoid confusion, EPA is inclined to replace "hooded wash compartment" with "hood type" in the next draft of this specification.</p>
<p>By definition if an auxiliary rinse section is used, the machine will be a multiple tank machine. The reference to "auxiliary rinse section" should be removed from the definition for single tank conveyor.</p>	<p>The reference to "auxiliary rinse section" will be removed from the single tank conveyor definition in the next draft of this specification.</p>
<p>In the definition for multiple tank conveyor, EPA should limit the number of wash and rinse tanks to one of each so there will be no confusion regarding the NSF-specified temperatures for the water in these tanks. In addition, auxiliary rinse is the same as pumped rinse so the reference to auxiliary rinse section can be deleted.</p>	<p>The purpose of the Definitions section is to identify which product types are covered by the specification and to differentiate between these product types based on differences in engineering design and usage patterns. It is EPA's understanding that the majority of "multiple tank" machines have two heated tanks; one for washing and the other for rinsing. However, many of these machines also have pre-wash tanks and could be inadvertently excluded from ENERGY STAR based on the definition proposed by this stakeholder. Instead, EPA would like to propose the following new multiple tank definition to exclude flight type conveyors but allow all other multiple tank machines to qualify: "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 one or more pre-washing sections before the washing section."</p>

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Section 2: Qualifying Products	
EPA should consider flight type machines, which offer a wide variance in water consumption and can use as much as 600 gallons an hour. Although these machine types represent a small portion of the market they are responsible for a larger portion of energy and water consumption devoted to commercial warewashing.	EPA recognizes the impact that flight type machines have on total water consumption within this sector. With this first version of the specification, EPA addresses the majority of the commercial dishwasher market. Flight type machines are a small segment of the market and are custom-built to the site making it difficult to develop an ENERGY STAR specification, therefore this version does not include flight types. EPA may consider addressing flight type machines under subsequent versions of the specification based on industry interest, available performance data, and a clear methodology for addressing the custom-built nature of flight type machines.
EPA should consider flight type and glassware machines in future versions of the specification and include a note to that effect in this version of the specification.	In the next draft of this specification, a statement will be added to Section 2: Qualifying Products that EPA may consider expanding the specification to additional product categories based on manufacturer interest, available performance data, and ease of implementation.
While we accept that it is not feasible to set an ENERGY STAR criteria due to the customized nature of flight type machines, we recommend that EPA provide guidance to consumers on how to consider energy and water performance when ordering such a piece of equipment. We believe that EPA is in a unique position to do this through its marketing capabilities to increase consumer awareness through education.	EPA may consider highlighting some best practices or other helpful guidance to consider when purchasing and operating a commercial dishwasher on the ENERGY STAR Web site, as appropriate. However, EPA does not plan to make specific suggestions regarding water and/or energy efficiency for those products not covered by the ENERGY STAR specification.
All machines seeking ENERGY STAR qualification should be listed with NSF as a prerequisite. This will ensure that the units will sanitize and remove soil properly.	Requiring listing to NSF would exclude other certification bodies that are capable of performing the NSF-3 test procedure and certifying machines. However, EPA will consider including a requirement in the next draft of this specification that every machine be certified to NSF-3, which will ensure that sanitation and soil removal are properly addressed without eliminating other testing organizations from the qualification process.
Section 3: Performance Specification	
Was there any consideration given to the correlation between idle energy and rack capacity? For example, a unit could have an idle energy rate of 30% less than another machine and wash 50% less racks per hour. Even though the idle energy rate would seem to be less, the energy used to wash a rack of dishes would be more.	The idle energy rate proposed in this specification is based on a limited set of data. Through the ENERGY STAR qualifying product reporting process, EPA will be able to acquire a more robust dataset including data on rack capacity. We will then be able to make an educated evaluation as to whether there is a correlation between idle energy and rack capacity and if so, adjust our specification accordingly.
Idle energy limits for multiple tank machines should be reconsidered to adjust for total volume of the tank(s).	The idle energy rate proposed in this specification is based on a limited set of data. Through the ENERGY STAR qualifying product reporting process, EPA will be able to acquire a more robust dataset including data on tank volume. We will then be able to make an educated evaluation as to whether the idle energy requirements should be adjusted based on total tank volume.

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<p>While we accept that the idle energy levels are based on a small subset of data, EPA should review the appropriateness of the proposed idle energy levels in the near future when more data is made available through the ENERGY STAR qualification process.</p>	<p>Through the ENERGY STAR qualifying product reporting process, EPA will be able to acquire a more robust idle dataset which will indicate if there is a need to revise the levels. Within the next two years, EPA will revisit the idle energy levels to determine if the requirements need to be adjusted.</p>
<p>The efficiency requirements look realistic with the exception of the 1.16 GPR requirement for single tank, door type, low temp models. Achieving 1.16 GPR is rare and therefore, the consumption rate considered more often as low for batch-type equipment is 1.2 GPR. The industry has been trying to accomplish GPR ratings on low temp batch type machines that are closer in performance to high temp machines. However, there is a performance threshold for batch-type designs and pushing that threshold could result in loss of function and unhappy customers. EPA should reconsider this number.</p>	<p>The performance levels presented in the Draft 2 specification for door type machines recognize the most energy and water efficient products regardless of technology. When the levels for door type, low-temp models were proposed in Draft 2, approximately 25% of models listed in the NSF database met the 1.16 GPR requirement. However, EPA has since revisited the dataset to determine whether it was representative of models currently being sold in the marketplace. Through this additional research EPA found that only 18% of models actually being sold could meet the proposed ENERGY STAR requirements in this category. EPA has reevaluated and has determined that the top 25% of models is better represented at 1.18 GPR. Four manufacturers offer low-temp models at this level, which indicates that there are several technology options (non proprietary) available to reach this level of water efficiency performance. This follows ENERGY STAR's practice of representing approximately the top quartile of available models when the specification is set, thereby serving as a target for manufacturers when redesigning their machines. Initially EPA questioned whether to allow batch-type or fill and dump machines to qualify as ENERGY STAR due to their inherently more water intensive design. However, EPA also recognizes the prevalence of fill and dump machines in the marketplace and by considering a new proposal to set the level at 1.18 GPR, only the most energy and water efficient machines will be allowed to qualify.</p>
<p>We believe that the EPA is making a mistake in its means to measure and classify warewashing equipment. The draft states machines will be categorized solely on water consumption and idle energy; normal/peak operating energy consumption will not be factored in. There are many ways to minimize water consumption and idle energy to obtain ENERGY STAR qualification and yet have a piece of machinery that is inefficient from a [total] energy consumption standpoint. We believe normal/peak energy consumption must be taken into account for the ENERGY STAR label to have any merit.</p>	<p>Future versions of this specification for commercial dishwashers will address the energy being used in all modes of operation. However, the ASTM test procedures that seek to provide this more holistic view of machine energy consumption are still under revision. Once these test procedures are finalized, EPA intends to incorporate them into this specification. This will also require revising the specification performance requirements and asking manufacturers to test their products using the new test procedures. At that time new performance requirements will be proposed. EPA anticipates that the revised ASTM test procedures will be finalized within the next year and an additional year or two will be required to build a sufficient database using the new procedures such that a revised ENERGY STAR specification may be developed. Until then, idle energy and the indirect energy savings due to water efficiency, will serve as a good proxy for energy efficiency under this specification.</p>
<p>Idle levels for multiple tank and single tank conveyors should not be identical, as currently written. The idle energy rate for multiple tank machines will be incrementally higher than single tank machines due to the fact that two tank heaters are being considered in the measurement. This assumes that the test procedure does indeed take into consideration both the wash and rinse tank.</p>	<p>Manufacturers testing multiple tank machines are required to measure idle energy for both the wash and rinse tanks, per the ASTM test procedure. In response to this comment, EPA revisited the data provided by manufacturers and found that some of the points represented wash tank idle energy use only. The data now supports manufacturer claims that multiple tank machines will require more energy to heat two tanks. Based on this comment and additional discussions with manufacturers on this topic, EPA is now considering a maximum idle energy level of 2.6 kW for multiple tank, high-temp machines. In addition, EPA is also considering a revision of the idle energy level for multiple tank low-temp machines to 2.0 kW.</p>

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<p>EPA should share the idle energy data that was submitted by manufacturers and used to set the idle energy levels. Industry should be able to comment on the number of data points versus the proposed limits, especially since some machine types that were to be excluded from consideration are now part of the standard.</p>	<p>EPA will share a masked version of the idle energy data with stakeholders for review and comment prior to the May 21 stakeholder meeting. As explained in the Draft 2 document, EPA is proposing levels that seek to initially cap idle energy use while more data can be collected through the ENERGY STAR qualification process.</p>
<p>There is no rationale behind having a lower water consumption requirement for low temp conveyors (0.62 GPR) than for high temp conveyors (0.70 GPR). Low temp machines, by definition consume less energy in operation than high temp machines. Having a lower water consumption requirement for low temp machines artificially penalizes them and could potentially create confusion in the marketplace. For manufacturers that have identical machines for high and low temp use, they would need to meet the lower of the two levels and be forced to carry two different machines as opposed to offering one that meets in both modes of operation. It is suggested that EPA use a 0.70 GPR requirement for both high and low temp conveyors.</p>	<p>EPA based the proposed Draft 2 GPR levels for low-temp and high-temp conveyors on data provided in the NSF database. These levels represent the top 25% of models available in the marketplace. In addition, more than one manufacturer offers models that qualify at these levels. If EPA were to raise the low-temp GPR level to 0.70 then the number of compliant models would be approximately 35%. This does not support ENERGY STAR's practice of representing approximately the top quartile of available models when the specification is set and would not be in line with the requirements of other product types under this specification. Therefore, EPA is inclined to continue requiring low-temp conveyors to meet the proposed 0.62 GPR.</p>
<p>The actual rack length for commercial dishwashers in the US is 19 3/4" even though the common term is 20x20". There should be a footnote in the definition of rack length that identifies which figure to use to ensure consistency.</p>	<p>EPA agrees with this comment and is inclined to add a footnote that GPR calculations must use 20x20 rack length for purposes of qualifying for ENERGY STAR. It is important to note that EPA used 20x20 rack length in its calculations to determine the water efficiency requirements for conveyor machines as written in the Draft 2 specification.</p>
<p>EPA should provide further direction regarding rounding for RPH and GPR. A suggestion was made to round to single decimal place values (i.e., nearest 1/10 of GPR).</p>	<p>EPA is inclined to propose the following in the next draft specification: (1) Gallons per rack should be reported with three significant digits and (2) idle energy should be reported to two significant digits. Furthermore, conventional rules for rounding (e.g., round up if the fourth digit is 5 or greater) should be followed.</p>
<p>Section 4: Test Procedures</p>	
<p>For idle testing, units that start by closing the door should have the extra wash and rinse cycle produced included in the idle energy calculation. The propping of the door to prevent this condition is not indicative of real world use.</p>	<p>Idle energy represents the amount of energy needed to maintain tank temperature between wash cycles. Therefore, including the energy used during the wash and rinse cycle would not be indicative of idle energy use. Furthermore, the ASTM test procedure requires the machine to be stabilized following the initial wash and rinse cycle that is triggered once the door is closed. In fact, the door should not be propped to avoid the wash and rinse cycle; rather, the machine should be allowed to go through one complete cycle and stabilize prior to testing idle energy use.</p>

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<p>In real world conditions, the idle test with the door closed is not practiced. While this is desirable for thermal retention, we caution that the test method may want to be expanded to include an open door idle test, which may be more reflective of true idle energy use.</p>	<p>The role of ENERGY STAR is to identify the most energy and water efficient models through the use of credible, consistent, and industry accepted test methods and conditions. It is assumed that performance under closed-door and open-door conditions will yield similar comparative results among products. Where deemed important, real world performance is emulated but the critical requirements of an ENERGY STAR test procedure are reliability, credibility, and repeatability. Operators are expected to follow best practices and actually keep the door closed during idle periods to avoid heat loss to the surrounding kitchen area.</p>
<p>The current cleaning and sanitation performance requirements need to 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. 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 customers' cleaning and sanitation expectations. We propose that EPA view the current equipment sanitation testing standards as interim guidance, with the intent of supporting the pending formal request to NSF to revise its cleaning and sanitation standard to take into account actual use conditions.</p>	<p>EPA would be interested in reviewing and participating in discussions on potential revisions to the current NSF-3 test standard. Protecting the integrity of the ENERGY STAR brand is important to EPA and to the extent that revisions to the NSF-3 test procedure can help to ensure continued sanitation and performance in the field, we support those efforts.</p>
Section 5: Effective Date	
<p>We request that EPA delay the launch of the specification, at a minimum to NRA 2008. At the time of the launch the program should be more inclusive and then more stringent going forward. A delay in the effective date would give all companies time to generate more environmentally friendly appliances.</p>	<p>Since program inception in 1992, ENERGY STAR has represented the top 25% of models in terms of energy performance when the specification is set. EPA has seen tremendous success with this approach in our efforts to drive markets toward higher efficiencies and encourage partners to continue to innovate and introduce new technologies and products that seek to achieve these higher efficiencies. The primary goal of ENERGY STAR is to serve as a differentiator in the marketplace so that end users can identify the most energy and water efficient models. ENERGY STAR rewards those manufacturers who have already invested in efficient technologies and encourages others to follow their lead. Delaying the effective date to allow more models to meet ENERGY STAR requirements does not support these ENERGY STAR guiding principles. Furthermore, there is significant support in the industry to launch the specification at the October NAFEM show. EPA's analysis shows that an adequate number of ENERGY STAR qualified models representing a variety of manufacturers is available now, as final work on the specification is being completed. Therefore EPA is inclined to retain the October 2007 effective date.</p>