



April 4, 2007

Rebecca Duff
ICF International

Subject: Comments on Draft 2 Commercial Dishwasher Specification

Dear Ms. Duff,

Thank you for providing a copy of the latest draft Energy Star specification for commercial dishwashers. In general, we support the draft and look forward to seeing it officially released. Due to the comments noted below, we feel it would be in everyone's best interest to conduct another stakeholders meeting at NRA next month.

Please consider the following specific comments:

1. Idle Energy Limits for Multiple Tank Machines - The idle energy rate limits of 2.0 kW for high temp and 1.6 kW for low temp, multiple tank conveyor machines are identical to the limits for single tank conveyor machines. This should be reconsidered since a single tank machine has one tank heater at approximately 15 kW while a multiple tank machine has two tank heaters with about 25 kW total. Therefore the idle energy rate limit for multiple tank machines should be incrementally higher than single tank machines. Please note – a prewash tank is not heated and should not be counted when determining if a machine is single or multiple tank.
2. Rack Length - The actual rack length for commercial dishwashers in the US is 19-3/4 in. by 19-3/4 in. even though the common term is 20 by 20 in. There should be a footnote in the definition of rack length that identifies which figure to use so that there is consistency between results. Using an example, the difference is shown below:

$$\text{GPR} = \frac{(\text{GPH}) \times (\text{RL})}{(\text{CS}) \times 60} = \frac{128 \times 20/12}{5.6 \times 60} = 0.6349$$

$$\text{GPR} = \frac{(\text{GPH}) \times (\text{RL})}{(\text{CS}) \times 60} = \frac{128 \times 19.75/12}{5.6 \times 60} = 0.6269$$

3. Rounding – In the example above, the Gal/rack calculation of 0.6269 could be rounded up to 0.63 which would be over the limit in the specification. However, if there are only two significant digits, the result would be truncated to 0.62 which would meet the spec. Again, a notation should be included in the calculations for consistency.

4. The calculations for dishwasher racks per hour included in the draft specification do not mention rounding. NSF has historically truncated the fractional remainder since there can't be a portion of a rack washed. Although it will not likely have a great affect on the results, a note should be included. A sample of the calculations are as follows:

Per NSF:

<u>Model</u>	<u>RL</u>	<u>GPM</u>	<u>GPH</u>	<u>CS</u>
C44A	20x20	2.1	128	5.6

$$\text{(RPH)} = \frac{\text{(CS)} \times 60}{\text{(RL)}} = \frac{5.6 \times 60}{19.75/12} = 204.15$$

Empirical RPH:

$$\text{GPR} = \frac{\text{(GPH)}}{\text{(RPH)}} = \frac{128}{204.15} = .6269$$

Truncated RPH:

$$\text{GPR} = \frac{\text{(GPH)}}{\text{(RPH)}} = \frac{128}{204} = .6274$$

Thank you for the opportunity to comment on the second draft. If you have any questions regarding this letter, please don't hesitate to call.

Sincerely,

Joel F. Hipp
Warewash Agency Approval Engineer
(937) 332-2836
fax (937) 332-2624

copies to:

M. Kohler-NSF
Z. Michael
R. Schmeltz-EPA
D. Zabrowski-FSTC
File Comments draft 2-Hobart