

option entirely. Since the new definition for water-heating dishwashers in this final rule clarifies the testing procedure for those models, the Department believes that it is appropriate to retain the option to test a dishwasher using cold water. The Department does not wish to restrict manufacturers from developing a dishwasher that heats cold water (nominal 50 °F) as long as it can meet the testing requirements.

#### Retain Testing Voltage of 115 Volts

The September 2002 NOPR proposed changing the testing voltage from 115 volts within 2 percent of the nameplate frequency to 120 volts  $\pm 2$  percent to be consistent with manufacturers' instructions which specify 120 volts in the installation procedures. AHAM commented that although this change was potentially a good one, at this time, it would endanger the compliance of minimally compliant models. While AHAM conceptually supported a test voltage revision to 120 volts  $\pm 2$  percent, it was concerned with the impact of this proposed change on the ratings of all dishwashers, especially on minimally compliant models. AHAM explained that since wattage use increases based on the square of the voltage, the tested power consumption could increase by 3 to 5 percent. Therefore, to avoid triggering the statutory requirement that the applicable energy conservation standard (presently 2.174 kWh per cycle maximum) be amended, AHAM recommended that DOE retain the existing voltage ranges. (AHAM No. 30FF at 4) OOE also recommended keeping 115 volts for the time being and suggested that DOE examine this issue in more detail when developing a new efficiency standard. (OOE No. 36 at 3)

The Department agrees that it would be more appropriate to address this change during a standards rulemaking at a future time, since it would alter the power consumption of all models and potentially impact compliance. The Department is therefore retaining the 115 volt specification in section 2.2.1 of the test procedure. In order to make the test procedure instructions more clear and precise, DOE is rewriting the existing tolerance "within two percent of 115 volts" as "115 volts  $\pm 2$  percent," and the existing tolerance in section 2.2.2 as "240 volts  $\pm 2$  percent." This wording change does not change in any way the meaning or effect of the existing tolerance.

#### Reword Definition of Drying Energy, $E_D$

In testing two soil-sensing dishwashers using the proposed test procedure, NIST found that more

detailed instructions were necessary to complete the determination of the drying energy,  $E_D$ , for soil-sensing dishwashers. NIST observed that while the new test procedure required testing soil-sensing dishwashers with three different soil levels, it did not specify how to compile the drying energy from the heavy response, medium response, and light response. Although there was no negative comment on this issue at the October 22nd public hearing or in written comments in response to the September 2002 NOPR, DOE is correcting this omission by defining the drying energy,  $E_D$ , for soil-sensing dishwashers as the mathematical average of the three soil level tests. This approach compiles the results of three tests to represent the normal cycle for a soil-sensing dishwasher and is consistent with the procedure for calculating representative machine energy and water consumption values. For non-soil-sensing dishwashers, the procedure is unchanged. The instructions for determining the  $E_D$  for soil-sensing and non-soil-sensing dishwashers are in section 5.2 of this rule.

The Department also determined that an additional clarification was necessary regarding the definition of the drying energy,  $E_D$ , that the NOPR described as "the energy consumed after the normal cycle is interrupted to eliminate the power-dry portion of the cycle." 67 FR 56241. The definition provides instructions on when to begin recording the drying energy: at the point separating the truncated normal cycle from the normal cycle. 67 FR 56241. Rather than representing the energy consumed by the drying portion of the cycle, the Department was concerned that use of the word "eliminate" could inaccurately suggest that the drying cycle is stopped entirely, resulting in zero drying energy. Because DOE's intent is to capture the drying energy for the normal cycle, the Department concluded that the definition should clearly state that  $E_D$  is the energy consumed using the power-dry feature. With this non-substantive clarification, the Department believes the revised definition will clearly instruct manufacturers or private labelers to measure the energy consumed during the drying cycle, correcting an oversight in the computation method for drying energy presented in the September 2002 NOPR. The revised definition, located in section 430.23 (c)(1)(i) of the test procedure, specifies  $E_D$  as the drying energy consumed after the termination of the last rinse option.

Reword Calculation of the Number of Standby Hours Per Year,  $H_s$ , and Duration of Wash Cycle,  $L$

The test procedures for both soil-sensing, non-soil-sensing dishwashers calculate the number of standby hours per year,  $H_s$ , by subtracting the number of hours that the dishwasher is in use from the total number of hours per year. The estimated usage value is the product of the representative average number of use cycles per year,  $N$ , (215 in this final rule), and the average duration of the test wash cycle,  $L$ . In a written comment, OOE called attention to an inconsistency in the way that the manufacturers calculated the duration of the normal wash cycle for determining the number of standby hours. It stated that the computation proposed in the September 2002 NOPR for the number of standby hours was inconsistent with the method of calculating annual energy use because it multiplied the number of cycles times the normal cycle time to get the number of hours the dishwasher was operating and did not take into account any use of the truncated normal cycle. 67 FR 56244. OOE recommended "that the treatment of normal cycle time be consistent with normal cycle energy use computations—namely, that half of the normal cycles be *with* heated drying, and half *without*. It would be *highly* inappropriate to be inconsistent in this regard." (OOE No. 36 at 4, emphasis in original)

Although this change was not discussed at the hearing, the Department believes this suggested change corrects an oversight in the NOPR concerning the computation method for standby power. Not making this change would result in a slight overestimation of the annual wash time because the use of the truncated normal cycle shortens the wash time. By more accurately dividing the time spent in a wash cycle and the time spent in standby mode (for both conventional and soil-sensing dishwashers), DOE is making the calculation consistent with the current method of averaging the normal and truncated normal cycle values. Therefore, the Department has changed the definition of " $L$ " in section 5.6 of this final rule in response to this comment to improve the accuracy in estimating the duration of the wash cycle.

In written comments after the public hearing, AHAM requested that DOE change the words "sensor medium cycle" to "sensor medium response" in the definition of  $L$ . (AHAM No. 33 at 10) The Department will make this change which is consistent with the