ENERGY STAR® Program Requirements Product Specification for Water Coolers

Eligibility Criteria Draft 2 Version 3.0

Following is the Draft 2 Version 3.0 product specification for ENERGY STAR certified water coolers. A product shall 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. Water Cooler: A freestanding device that consumes energy to cool and/or heat potable water. Products that have dispensing functions such as sparkling, alkaline, or flavored water, in addition to cold and hot water will also be recognized by the classification below.

   a. Cold Only Units: Units that dispense cold water only.

   b. Cook and Cold Units: Units that dispense both cold and room-temperature water.

   c. Hot and Cold Units: Units that dispense both hot and cold water.

   d. Hot, Cook, and Cold Units: Units that dispense hot, cold, and room-temperature water.

B. Water Source:

   a. Bottle: A bottle or reservoir supplies water to the water cooler.

   b. Point of Use (POU): The water cooler is connected to a pressurized water source.

   c. Conversion-type Water Cooler: A unit that ships as either Bottle-source or POU and includes a conversion kit intended to convert the Water Cooler from a Bottle-source unit to a POU unit or to convert a POU unit to a Bottle-source unit.

C. Water Conditioning:

   a. Conditioned Storage: Hot and cold thermally conditioned water is stored in tanks located within the body of the water cooler. The conditioned water is available instantaneously.

   b. On Demand Heating: The unit heats water as it is requested (i.e., without a hot water storage tank), which typically takes a few minutes to deliver. On demand units use storage tanks to condition and provide cold water only.

D. Product Family: A group of product models that (1) are manufactured by the same manufacturer, (2) use the same primary energy source, and (3) have electrical characteristics that are essentially identical, and which do not have any differing physical or functional characteristics that affect energy consumption.

E. High Capacity Water Cooler: A water cooler with a cold-water dispenser capacity of at least 0.61 gallons per hour, as measures per ANSI/ASHRAE Standard 18. For units that also provide hot water, the unit must have a hot-water dispenser capacity of at least 45 exact 6 oz. cups per hour, as rated per ANSI/ASHRAE Standard 18. These products provide adequate capacity for offices or other high-traffic installations.

F. Low Capacity Water Cooler: A water cooler with a cold-water dispenser capacity of 0.61 gallons per hour, or a hot-water capacity that is less than 45 exact 6 oz. cups per hour, as measured per ANSI/ASHRAE Standard 18. These products provide adequate conditioned water for residential and other low-traffic installations while offering improved energy savings.

Note: EPA added the definitions above for low capacity and high capacity water coolers to reflect stakeholder comments that certain units offer higher dispensed amounts of cold and hot water per-hour and that the high capacity units make up a large proportion of sales. The definitions above were set based on industry recommendations. The capacity units of measurement proposed above are in alignment with the measurements from ANSI/ASHRAE Standard 18, although EPA notes that these can easily be translated into parallel metrics if a consistent gallons per hour metric for both hot and cold water capacity is preferred. EPA appreciates any feedback on the proposed definitions or units of measurement.

G. Test Modes:

a. On Mode with No Water Draw: A test that records the 24-hour energy consumption of a water cooler with no water drawn during the test period. This test is also known as “Standby”.

b. On Mode with Water Draw: A test that records the energy delivered in a water draw and the subsequent energy consumed while recovering from that water draw.

- Section 6.2. On Mode with Water Draw – All Unit Types Test cold water draw in Conditioned Storage units and On Demand units, and test hot water draw in Conditioned Storage units,
- Section 6.3. On Mode with Water Draw – On Demand Units Only Test hot water draw in On Demand units.
- Section 7.6. On Mode Water Draw Performance (OMP): A metric for water draw performance that compares the energy delivered and energy consumed by the water cooler.

2) Scope:

A. Included Products: Products that meet the definition of a water cooler as specified herein are eligible for ENERGY STAR certification, with the exception of products listed in Section 2.B. Products with additional dispensing features including sparkling, alkaline, or flavored water, are also included in the scope of this specification.

B. Excluded Products: Units that provide pressurized water and are not free standing (i.e., wall mounted, under sink, or otherwise building integrated) are not eligible for ENERGY STAR. Air-source units and other units with a water source other than bottled or tap water (POU) are not eligible. Units with provisions for making, storing and dispensing small amounts of ice and units that are primarily ice makers that have a water dispensing function, or that meet the definition of an Automatic Commercial Ice Maker (ACIM) as defined by the ENERGY STAR Product Specification for that category, are not eligible for the water cooler product category.

3) Certification Criteria:

A. Energy Efficiency Requirements:

Table 1: Energy-Efficiency Criteria for Certified Water Coolers

Product Type	Conditioning Method	Capacity	On Mode with No Water Draw (kWh/day)	OMP for Cold Water Draw	OMP for Hot Water Draw
Cold Only & Cook and Cold units	Conditioned Storage	All	≤ 0.16	Reported	N/A
Hot and Cold & Hot, Cook, and Cold Units	Conditioned Storage	Low-Capacity	≤ 0.68	Reported	Reported
		High-Capacity	≤ 0.80	Reported	Reported
Hot and Cold & Hot, Cook, and Cold Units	On Demand Heating	All	≤ 0.18	Reported	Reported

Note: The Draft 1 specification originally proposed a level of 0.70 kWh/day for Hot, Cook, and Cold Conditioned Storage type units. Some commenters expressed concern that this level was not stringent enough and proposed a level of 0.68 kWh/day. Several commenters alternatively expressed concern that the levels proposed in the Draft 1 specification for Hot, Cook, and Cold Conditioned Storage type units are too stringent and would exclude high-capacity water coolers that are intended for commercial use, and proposed a level of 0.80 kWh/day. Discussions with these stakeholders indicated that high capacity units with standby energy consumption above 0.80 kWh/day represent a majority of sales in this category, and that the Draft 1 level would result in a much lower market share for these units than targeted for an ENERGY STAR specification.

EPA considered the above feedback from different stakeholders and proposes new categories for high and low capacity water coolers with distinct efficiency criteria. Low capacity water coolers, which have a low per-hour capacity but offer higher energy savings, will have a maximum On Mode with no water draw level of 0.68 kWh/day. EPA estimates that approximately 26% of currently recognized ENERGY STAR products in this category will meet this level. These products offer better energy efficiency, and adequate capacity for installed locations that expect only a smaller number of users per hour.

High capacity water coolers, which have a greater per-hour capacity and are appropriate for high-traffic areas, will have a maximum On Mode with no water draw level of 0.80 kWh/day. EPA estimates that approximately 11% of currently recognized ENERGY STAR products in this category will meet this level. These units provide increased capacity and meet consumer expectations for high traffic installations. Products will be categorized according their hot and cold water capacities, determined per ANSI/ASHRAE 18-2008 (RA 2013) as noted in 3.C.

EPA additionally clarifies that per the guiding principles, ENERGY STAR seeks to identify the top 25% of models available on the market. The above proposed levels recognize the top performing models for each product category and will ensure that ENERGY STAR recognized models will continue to serve the range of consumer needs.

B. Significant Digits and Rounding:

a. All calculations shall be carried out with actual measured or observed values. Only the final result of a calculation shall be rounded. Calculated results shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.

b. Unless otherwise specified, compliance with specification limits shall be evaluated using exact values without any benefit from rounding.

C. Additional Reporting Requirements:

a. Report the cold water capacity per hour, tested per ANSI/ASHRAE 18-2008 (RA 2013), Section 5.7 Capacity Test for Ratings, in gallons per hour.

b. For all hot and cold and hot, cook, and cold units, report the hot water capacity per hour, tested per ANSI/ASHRAE 18-2008 (RA 2013), Section 5.8 Hot-Water-Dispenser Capacity Test, in number of exact 6 fl oz draws per hour.

Note: EPA is adding the reporting requirements (Section 3.C) to record the capacity of ENERGY STAR certified units. Stakeholders have expressed their concerns in comments and discussions with EPA that higher capacity units that have significant consumer demand will be excluded from the specification. This revision proposes that all products will now be designated as high or low capacity and in Section 3.A distinct levels for those categories have been set. The reporting of cold-water capacity and hot-water capacity will determine whether a unit is classified as high capacity or low capacity, per definitions E and F. This information will also be displayed in the ENERGY STAR Product Finder and can help consumers identify which units may be most appropriate for their installed setting.

The metrics above and their units of measurement are as recorded from the ASHRAE 18 test method. EPA appreciates all feedback on the use of these metrics, including whether conversion to a gallons per hour metric in all cases would be clearer to communicate to consumers.

EPA anticipates that these tests are applicable to all products recognized in this specification, including both conditioned storage and on demand heating units. If there are product categories in the scope of this specification that are unable to perform this test, EPA welcomes that feedback.

c. Report the type of refrigerant used in the respective water cooler unit, for example: R-410A, R-134a, R-290, etc.

d. Report the refrigerant charge of the respective water cooler unit, in ounces.

4) Test Requirements:

A. A representative model shall be selected for testing per the following requirements:

a. For certification of an individual product model, the representative model shall be equivalent to that which is intended to be marketed and labeled as ENERGY STAR.

b. For certification of a product family, any model within that product family can be tested and serve as the representative model.

B. When testing water coolers, the following test method shall be used to determine ENERGY STAR certification.

Table 2: Test Method for ENERGY STAR Certification

ENERGY STAR Requirement	Conditioning Method	Test Method Reference
On Mode with No Water Draw	Conditioned Storage and On Demand	ENERGY STAR Test Method for Water Coolers (Rev. May-2013), Sections 6.1 and 7.1
OMP for Cold Water Draw*	Conditioned Storage and On Demand Heating	ENERGY STAR Test Method for Water Coolers (Rev. May-2013), Sections 6.2 and 7.6
OMP for Hot Water Draw*	Conditioned Storage	ENERGY STAR Test Method for Water Coolers (Rev. May-2013), Sections 6.2 and 7.6
	On Demand Heating	ENERGY STAR Test Method for Water Coolers (Rev. May-2013), Sections 6.3 and 7.6
Cold-Water Dispenser Capacity	Conditioned Storage and On Demand Heating	ANSI/ASHRAE 18-2008 (RA 2013) 5. Methods of Testing
Hot-Water Dispenser Capacity	Conditioned Storage and On Demand Heating	ANSI/ASHRAE 18-2008 (RA 2013) 5.8 Hot-Water-Dispenser Capacity Test

* *Note: OMP for Cold Water Draw and OMP for Hot Water Draw are required for reporting only.*

Note: A commenter recommends incorporating draw patterns in the OMP test to distinguish units used in residential and commercial settings. EPA appreciates the information provided and recognizes that units will be used differently in these applications but is not revising the test method to include different draw patterns since OMP with no water draw provides a one-to-one comparison across units. Instead, EPA introduces the low capacity and high capacity categories and reporting requirements per ANSI/ASHRAE 18-2008 (RA 2013). EPA anticipates that high and low capacity units will have different OMP ratings and will continue to monitor and set levels appropriate for those categories.

5) **Effective Date:** This ENERGY STAR Water Cooler Specification shall take effect on a date that is **TBD**. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the model's date of manufacture. The date of manufacture is specific to each unit and is the date on which a unit is considered to be completely assembled.

6) **Future Specification Revisions:** EPA 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 certification is not automatically granted for the life of a product model.