



ENERGY STAR® Program Requirements Product Specification for Water Coolers

Eligibility Criteria Final Draft Version 2.0

Following is the **Final Draft Version 2.0** product specification for ENERGY STAR qualified 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.
 - a. Cold Only Units: Units that dispense cold water only.
 - b. Hot and Cold Units: Units that dispense both hot and cold water. Some units may also offer room-temperature water.
 - c. Cook and Cold Units: Units that dispense both cold and room-temperature water.
- B. Water Source:
 - a. Bottle-type: A bottle or reservoir supplies water to the water cooler.
 - b. Bottom Loading: A bottle-type water cooler where the water source is installed below the faucet(s) and thus the water source is not gravity fed into the water cooler.
 - c. Point of Use (POU): The water cooler is connected to a pressurized water source.
 - d. Conversion-type Water Cooler: A unit that ships as either Bottle-type or POU and includes a conversion kit intended to convert the Water Cooler from a Bottle-type unit to a POU unit or to convert a POU unit to a Bottle-type unit.
- C. Water Storage:
 - a. Storage: Thermally conditioned water is stored in a tank in the water cooler and is available instantaneously.
 - b. On Demand: The water cooler heats water as it is requested, which typically takes a few minutes to deliver.
- D. Compartment-type Water Cooler: A water cooler which, in addition to the primary function of cooling and dispensing potable water, includes a refrigerated compartment with or without provisions for making ice.
- E. 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.

F. 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 was formerly 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. Detailed steps can be found in Sections 6.2 and 6.3 of the ENERGY STAR Water Cooler Test Method.
- c. On Mode Water Draw Performance (OMP): A metric for water draw performance that compares the energy delivered and energy consumed by the water cooler. The calculation for OMP can be found in Section 7.6 of the ENERGY STAR Water Cooler Test Method.

2) **Scope:**

- A. Included Products: Products that meet the definition of a water cooler as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B.
- 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 units with a water source other than bottled or tap water (POU) are not eligible.

3) **Qualification Criteria:**

- A. Energy and Water Consumption Requirements:

Table 1: Energy-Efficiency Criteria for ENERGY STAR Qualified Water Coolers	
Water Cooler Category	Qualification Levels
On Mode with No Water Draw	
Cold only and Cook and Cold units	≤ 0.16 kWh/day
Cold only and Cook and Cold units – Bottom Loading	≤ 0.16 kWh/day
Hot and Cold units – Storage-type*	≤ 0.87 kWh/day
Hot and Cold units – On Demand	≤ 0.18 kWh/day

**Note: POU, dry storage compartment, and bottled water coolers are included in this category.*

Note: Several stakeholders continue to be concerned that the 0.81 kWh/year limit proposed for Hot and Cold – Storage-type units in the previous Draft 2 specification would be more challenging for models intended for commercial and/or leasing installations compared to models sold at retail. The comments submitted to EPA suggest that these models are designed for more frequent use and therefore, require different components and temperature settings to meet consumer needs. In response to these concerns, EPA conducted a more in-depth analysis of the ENERGY STAR Qualified Product List and confirmed that a significantly smaller population of brands and models typically leased comply with this limit, compared to brands sold at retail.

Note cont. Based on this analysis and subsequent stakeholder discussions, a 0.87 kWh/day limit is now proposed, which represents approximately 25% of EPA's dataset and provides consumers with greater choice in manufacturer and brand within this channel. The overall compliance rate is approximately 28%. EPA believes that this Final Draft offers consumers sufficient choice of product type, manufacturer, and brand regardless of distribution channel.

In the previous Draft 2 specification, EPA encouraged stakeholders to comment, and provide supporting data, on several items: (1) impact of higher flow rate on energy consumption; (2) data on Hot and Cold – On Demand units that justifies levels to be similar to the Cook and Cold limit of 0.16 kWh/day; (3) data on Cold only and Cook and Cold units – Bottom Loading water coolers that justifies a separate performance level for these product types; and (4) data that supports an allowance for water coolers that include a dedicated refrigerated compartment. To date, EPA has not received any additional information regarding these topics. EPA may consider these issues in the future but will not be making additional changes to the Version 2.0 specification at this time.

EPA also encouraged stakeholders interested in an allowance for energy saving devices to provide data on the energy savings associated with these features. Specifically, EPA was interested in seeing the delta savings in watts that would suggest a value in their usage. To date, EPA has not received any data supporting the inclusion of an allowance and several stakeholders expressed support of its removal from the specification. Therefore, EPA has removed the energy saving device allowance in this Final Draft specification.

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.

4) Test Requirements:

- A. A representative model shall be selected for testing per the following requirements:
 - a. For qualification 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 qualification 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 qualification.

Table 2: Test Methods for ENERGY STAR Qualification	
ENERGY STAR Requirement	Test Method Reference
On Mode with No Water Draw	ENERGY STAR Test Method for Water Coolers (Rev. March-2013)

Notes on Test Method: (1) In Section 4.O, the Water Cooler Test Method (Rev. March-2013) requires that the dispensed water temperature be confirmed based on the initial temperature value recorded

during the On Mode with Water Draw test. Because the On Mode with Water Draw Test is not required for ENERGY STAR qualification, dispensed water temperature may be confirmed as follows, “The temperatures shall be measured before conducting the On Mode with No Water Draw test when the respective function, compressor, or heater element turns on.” (2) Section 5.3.A.3 of the Water Cooler Test Method states that the UUT shall be stabilized with the heater switch in the off position, where applicable. The heater switch should then be enabled prior to the start of testing outlined in Section 6.1. The heater switch may be enabled at any time during the 12 hour stabilization period, but shall complete at least one heating cycle before the start of testing.

Note: A clarification to the ENERGY STAR Test Method has been added immediately below Table 2: Test Methods regarding confirmation of dispensed water temperature and UUT stabilization for the On Mode with No Water Draw procedure.

- 5) Effective Date:** The ENERGY STAR Water Cooler Specification shall take effect on February 1, 2014. 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.

Note: EPA intends to finalize the Version 2.0 specification by the end of April. The effective date proposed above allows manufacturers approximately 9 months to work with certification bodies and update product literature, as needed, to comply with the new requirements.

Several stakeholders expressed concern with the Version 2.0 effective date and removal of models that do not meet the new requirements from the ENERGY STAR QPL. Since many water coolers are leased under contract, the concern is with regards to water coolers that met the Version 1.3 criteria at the time of manufacture and entry into contract but do not meet the new Version 2.0 requirements. A request was made to allow customers easy access to the older Version 1.3 QPL so that they may confirm that their particular water cooler product model was ENERGY STAR at the time of placement. In practice, EPA does archive the final QPL under the previous version of each specification on the website, which seems to meet this need. However, as explained in Section 6 below, ENERGY STAR qualification is not granted for the life of the product. As of February 1, 2014, manufacturers and distributors may only promote water cooler models as ENERGY STAR qualified if they meet the Version 2.0 criteria.

- 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 qualification is not automatically granted for the life of a product model.