



ENERGY STAR[®] Program Requirements Product Specification for Dehumidifiers

Eligibility Criteria FINAL DRAFT: Version 3.0

Following is the **FINAL DRAFT Version 3.0** product specification for ENERGY STAR qualified dehumidifiers. 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. **Dehumidifier:** A self-contained, electrically operated, and mechanically refrigerated enclosed assembly consisting of: (a) a refrigerated surface (evaporator) that condenses moisture from the atmosphere; (b) a refrigerating system, including an electric motor; (c) an air-circulating fan; and (d) means for collecting or disposing of the condensate¹.
 - a. **Stand Alone:** Portable unit designed to provide dehumidification within the confined living space where it is placed and plugged into an electrical outlet.
 - b. **Whole House:** Unit designed to be incorporated into the home's HVAC system, or installed with its own duct system, providing dehumidification for all conditioned spaces within the building enclosure.
- B. **Capacity²:** A measure of the ability of a dehumidifier to remove moisture from its surrounding atmosphere, measured in pints collected per 24 hours of continuous operation. Capacity shall be measured according to the test standard referenced in Section 4, below.
- C. **Energy Factor (EF)²:** A measure of energy efficiency of a dehumidifier calculated by dividing the water removed from the air by the energy consumed, measured in liters per kilowatt hour (L/kWh). EF shall be calculated according to the test standard referenced in Section 4, below.
- D. **Basic Model Group¹:** All units of a given type of product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.

Note: For purposes of harmonizing with the U.S. Department of Energy (DOE) minimum standards, EPA has revised the definitions of Dehumidifier and Basic Model Group to be exactly same as the definitions provided in the DOE test procedure (10 CFR Part 430).

2) Scope:

- A. **Included Products:** Products that meet the definition of a dehumidifier as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B. Stand alone and whole house units with capacities measuring less than or equal to 185 U.S. pints (87.5 liters) are eligible for ENERGY STAR.
- B. **Excluded Products:** Dehumidifiers with daily water-removal capacities greater than 185 U.S. pints (87.5 liters) are not eligible for ENERGY STAR.

¹ 10 CFR Subpart A of Part 430

² 10 CFR Appendix X to Subpart B of Part 430

3) **Qualification Criteria:**

- A. Energy Efficiency Requirements: To qualify for ENERGY STAR, dehumidifiers shall meet the EF requirements provided in Table 1, below.

Table 1: Performance Criteria for ENERGY STAR Qualified Dehumidifiers

Product Capacity (Pints/Day)	Energy Factor Under Test Conditions (L/kWh)
< 75	≥ 1.85
75 ≤ 185	≥ 2.80

Note: For units less than 75 pints/day, EPA received concerns that the larger capacity units are not as cost effective when used to remove smaller amounts of moisture, for example, 30 to 35 pints/day. In consideration of this scenario and based on its payback analysis, EPA proposes to lower its EF to 1.85 from 1.90. EPA believes that the proposed new efficiency of 1.85 EF provides a better payback and might provide the incentive for the smaller capacity unit market to move towards higher efficiencies. EPA continues to reiterate that higher capacity units with humidistat control offer consumers a cost effective option. The humidistat control allows dehumidifier units to meet the capacity need (full load or part load) according to the humidity changes in the living space.

B. Other Requirements:

Qualifying units shall be equipped with an adjustable humidistat control or shall require a remote humidistat control to operate.

C. Significant Digits and Rounding:

- a. All calculations shall be carried out with directly measured (unrounded) values.
- b. Unless otherwise specified, compliance with specification limits shall be evaluated using directly measured or calculated values without any benefit from rounding.
- c. Directly measured or calculated values that are submitted for reporting on the ENERGY STAR website shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.

4) **Test Requirements:**

- A. Units shall be selected for testing per the sampling requirements defined in 10 CFR 429.36, Subpart B.
- B. When testing dehumidifiers, the following test methods shall be used to determine ENERGY STAR qualification:

Table 2: Test Methods for ENERGY STAR Qualification

ENERGY STAR Requirement	Test Method Reference
Capacity and Energy Factor	10 CFR Appendix X to Subpart B of Part 430

- 5) **Effective Date:** This ENERGY STAR Dehumidifier Specification shall take effect on **October 1, 2012**. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the 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 qualification is not automatically granted for the life of a product model.