

Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
National Consumer Law Center, on behalf of its low-income clients
Natural Resources Defense Council
Northwest Energy Efficiency Alliance

August 22, 2022

Mr. Bryan Berringer
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Office, EE-5B
1000 Independence Avenue SW
Washington, DC 20585

RE: Docket Number EERE-2019-BT-STD-0043/RIN 1904-AE61: Notification of Availability of Preliminary Technical Support Document for Dehumidifiers

Dear Mr. Berringer:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), National Consumer Law Center, on behalf of its low-income clients (NCLC), Natural Resources Defense Council (NRDC), and Northwest Energy Efficiency Alliance (NEEA) on the preliminary technical support document (PTSD) for dehumidifiers. 87 Fed. Reg. 37240 (June 22, 2022). We appreciate the opportunity to provide input to the Department.

We support DOE's decision to consider R-32 compressors as a design option for dehumidifiers. In the April 2022 notice of proposed rulemaking (NPR) for room air conditioner (AC) standards, DOE noted that the most-efficient single-speed compressors available on the market use R-32 refrigerant. Specifically, DOE found that R-32 compressors are available with efficiencies up to 12.7 Btu/Wh, while the most-efficient R-410a compressors have efficiencies of 10.9 Btu/Wh.¹ In the preliminary analysis for dehumidifiers, DOE noted that although R-32 is accepted for use in room ACs under EPA's Significant New Alternatives Policy (SNAP) program, it is not currently an acceptable refrigerant for dehumidifiers. However, given its acceptance as a refrigerant for use in other light air conditioning equipment, the PTSD notes that DOE believes that it is likely that R-32 will be acceptable for use in dehumidifiers by the time amended standards come into effect. DOE therefore considered R-32 compressors as a design option in the preliminary analysis.²

Given the significant potential efficiency improvement associated with R-32 compressors, we support DOE's decision to consider R-32 compressors as a design option, and we agree that R-32 will likely be acceptable for use in dehumidifiers in the near future. In fact, in July 2022, EPA proposed to list R-32 as acceptable, subject to use conditions, for use in new residential dehumidifiers.³ We therefore believe that it is very likely that R-32 will be allowed to be used in new dehumidifiers well before amended standards for dehumidifiers take effect.

¹ 87 Fed. Reg. 20624. (April 7, 2022).

² <https://www.regulations.gov/document/EERE-2019-BT-STD-0043-0015>. p. 3-31.

³ 87 Fed. Reg. 45517. (July 28, 2022).

We encourage DOE to evaluate at least one intermediate efficiency level between EL 3 and EL 4 for portable dehumidifiers ≤50 pints/day. For Product Classes 1 and 2, which cover portable dehumidifiers with capacities up to 50 pints/day, DOE evaluated four efficiency levels for the preliminary analysis. As shown in Table 1 below, Efficiency Levels 1 through 3 are based on improved compressor efficiency, while Efficiency Level 4 incorporates multiple design options including the highest efficiency compressors (including those using R-32 refrigerant), improved fan motor efficiency, reductions in standby power, and increases in heat exchanger size. The addition of these multiple design options is associated with a large gap in the IEF levels between EL 3 and EL 4. For example, for Product Class 2 (25.01-50.00 pints/day), IEF increases from 2.01 at EL 3 to 2.77 at EL 4.

Table 1. IEF levels associated with each efficiency level and design options added at each efficiency level for Product Classes 1 and 2⁴

Efficiency level (EL)	IEF (L/kWh)		Design options added
	Product Class 1 (25.00 pints/day or less)	Product Class 2 (25.01-50.00 pints/day)	
Baseline	1.30	1.60	--
1	1.4	1.7	Increased compressor efficiency
2	1.57	1.8	Increased compressor efficiency
3	1.7	2.01	Increased compressor efficiency
4	2.47	2.77	Highest-efficiency compressors (including R-32 compressors), improved fan motor efficiency, reduction of standby power, increases to heat exchanger size

We therefore encourage DOE to evaluate at least one intermediate efficiency level between EL 3 and EL 4 for portable dehumidifiers ≤50 pints/day. For example, we believe that it could make sense to evaluate an intermediate efficiency level based on the highest-efficiency compressors. In the April 2022 NOPR for room AC standards, DOE found that for units <8,000 Btu/h, using the most-efficient single-speed compressors (which use R-32) was associated with an increase in room AC efficiency relative to baseline units of 19-25% with an incremental installed cost of less than \$15.⁵ It may also make sense to evaluate an intermediate efficiency level reflecting all design options except for increases in heat exchanger size.

We support DOE’s learning rate methodology. In the PTSD, DOE developed separate learning rates for portable dehumidifiers, whole-home dehumidifiers, and the electronic controls associated with variable-speed blower fans. For electronic controls, DOE derived a price trend based on historical producer price index data on semiconductors.⁶ We would expect that prices of variable-speed blower fans will decline faster than the total price of dehumidifiers, and we therefore support DOE’s learning rate methodology.

⁴ <https://www.regulations.gov/document/EERE-2019-BT-STD-0043-0015>. pp. 5-4, 5-5.

⁵ 87 Fed. Reg. 20649. Tables V.2 and V.4. EL 3 represents the efficiency level based on the most-efficient single-speed compressors.

⁶ <https://www.regulations.gov/document/EERE-2019-BT-STD-0043-0015>. p. 8-13.

Thank you for considering these comments.

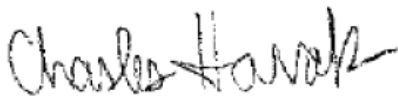
Sincerely,



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