

5/28/2021

To the California Air and Resources Board,

On behalf Research Products Corporation, we write to you to provide comments on the modified text of the proposed HFC 2020 regulations.

Based in Madison, Wis., Research Products Corporation (RPC) was founded in 1938 and is an established industry leader in residential and commercial indoor air quality, in addition to humidity control for controlled environmental agriculture. Our brands include Aprilaire, which provides residential solutions that include humidifiers, dehumidifiers, thermostats, air purifiers, and ventilation; DriSteem, which designs and manufacturers humification systems for the commercial market; and Anden, which provides environmental control solutions (inc. humidifiers and dehumidifiers) built for commercial and industrial agricultural applications. RPC and its 800 employees work through a large network of certified professionals nationwide. As a company, we are strongly supportive of the CARB's mission to improve air quality and lower green-house gas emissions.

While we are principally supportive of the proposed regulations, **we wish to communicate concerns with the proposed regulations as they apply to residential whole-home dehumidifiers.**

Generally, we agree with the Notice of Public Availability that AC units for which the codes already permit the use of A2L refrigerants and those where compliant solutions already exist should comply with the requirements by 2023. **However, we urge the CARB to differentiate between "portable" dehumidifiers and "whole-home" dehumidifiers and follow the compliance deadlines for similar AC units because:**

- A) While the California Building Code does not prohibit the installation of small whole-home dehumidifiers with an A2L refrigerant, the EPA only recently published SNAP 23 permitting the use of A2L refrigerants in this application. By not delaying the implementation date for whole-home dehumidifiers, CARB's regulation would burden dehumidifier manufacturers as compared with small central AC units manufacturers.
- B) There are currently no compliant units in the market; and
- C) A rushed transition to develop new products using A2L refrigerants may sacrifice energy efficiency.

Dehumidifier Definitions

We are highly supportive of the CARB’s incorporation of the Federal DOE definition of “Dehumidifier.” This ensures consistency between federal and state definitions and simplifies the interpretation of applicable regulations for manufacturers and building inspectors.

However, unlike the DOE, CARB does not presently distinguish between “portable” and “whole-home” dehumidifiers. The DOE, on the other hand, differentiates these units mainly by whether they are designed to be compatible with ducting and/or supply processed air to more than one location in a dehumidified space.¹ We suggest that the CARB adopts the definitions from 10 CFR § 430.2 moving forward.

Codes & SNAP

While the California Codes do presently permit AC equipment and dehumidifiers with a refrigerant charge under 6.6 lbs to be installed in homes², we note that the Federal Government under SNAP 19—published in 2015—only listed flammable refrigerants as acceptable in *room air conditioners* and not in *dehumidifiers*.³ The details of the associated register published in 2015 indicate that the federal government intended to allow only units covered under UL 484⁴—the standard had been updated to accommodate the use of flammable refrigerants. The scope of UL 484 specifically excludes ducted AC units (except PTACs which use ducts to move air from an adjacent room). Further, UL 484 was not the standard used for whole-home dehumidifiers, UL 474 held this privilege historically and did not accommodate for flammable refrigerants at the time.⁵

It was only less than a month ago that the federal government published SNAP 23 rules which permits *central air* conditioners to use flammable refrigerants.⁶ The rule, which takes effect on June 7th, 2021, adopts UL 60335-2-40 which includes all dehumidifiers and HVAC equipment not within the scope of UL 484⁷. Just as the CARB did not oblige small central air conditioner manufacturers to comply by 2023, so to should CARB delay the prohibition date to 2025 for central dehumidifiers (whole-home dehumidifiers).

¹ See 80 FR 45801 “Due to the many similarities between certain portable and whole-home dehumidifiers [...] DOE determined that design features associated with installation, namely the attachment of ducts, are the most reliable method for differentiation.” [\[Link\]](#)

² See CMC 1104.2 Exception #1

³ See SNAP-19, 80 FR 19454 [\[Link\]](#)

⁴ The federal register was specific in calling out UL 484 and not other standards, namely UL 1995, UL 474 and UL 60335-2-40 which did not yet accommodate flammable refrigerants or were not yet completely developed.

⁵ Portable dehumidifiers are transitioning to UL 60335-2-40 from UL 474. However, we are aware that at least one listing agency has loosely interpreted the scope of UL 484 and included some portable dehumidifiers.

⁶ “SNAP 23” 86 FR 24446 [\[Link\]](#)

⁷ *Id.*

Product Design Timelines

Though flammable refrigerants have recently been allowed in central AC systems, there is no guarantee that products will be available and ready for their use. Home appliance development time varies by organization, but the product development lifecycle will typically range from 1.5 to 5 years depending on the type of product, scale of the firm, and scope of the necessary facility modifications and approvals (such as upgrading fire systems and any necessary local approvals required to do so). Meeting the current proposed 2023 requirement might over-compress schedules and be difficult if not impossible for manufacturers not currently producing units that use an A2L refrigerant.

Adding to the complexity is the effect COVID-19 has had on component availability, lead times and production staffing. Finally, all new products will have to be safety certified and have performance independently tested/verified; each of these endeavors can easily take 3-4 months under normal circumstances.

Consumer Choices

We note that we may not be the only ones who interpreted the SNAP 19 and SNAP 23 regulations in this fashion—we do not believe there currently exists whole-home dehumidifiers using a flammable refrigerant in the state of California or in the United States.⁸ The CARB proposal would therefore leave consumers with little (if any) choices and builders would likely need to look to foreign sources to supply dehumidifiers. Alternatively, manufacturers may race to stockpile products produced in 2022, which would counter the CARB's goal.

Energy Efficiency

The US EPA and DOE jointly administer the Energy Star program for Dehumidifiers which requires whole-home dehumidifiers with a case volume below 8.0 ft³ to have an Integrated Energy Factor over 2.09L/kWh.⁹ This is roughly 18% more efficient than the minimum 1.77L/kWh requirement for dehumidifiers. There currently exists no whole-home units that use a refrigerant other than R-410a that are Energy Star compliant. Asking manufacturers to comply with the 2023 deadline risks eliminating all energy efficient models from the marketplace and driving greenhouse gas emissions through the use of less efficient products.

⁸ Whole-home dehumidifiers from Honeywell, Ultra-Aire, Carrier, Lennox Alor Air, Santa-Fe, Basement Systems, Seaira Global, BaseAire use R-410A.

⁹ Energy Star Program Requirement for Dehumidifiers, EPA. [[Link](#)]



Proposed Language

We propose the following changes to the text to conform with the request above. **Bold text signifies an addition.** Underlined text signifies text which the Board has added. ~~Strikethrough signifies a deletion we are requesting.~~

“Other Air-conditioning” or “Other Air-conditioning Equipment” means any residential or non-residential air-conditioning equipment or air-conditioning system not otherwise defined as room air conditioner, wall air conditioner, window air conditioner, packaged terminal air conditioner (PTAC), packaged terminal heat pump (PTHP), portable air conditioner, residential **portable** dehumidifier, or variable refrigerant flow (VRF) system.

Whole-home dehumidifier means a dehumidifier designed to be installed with ducting to deliver return process air to its inlet and to supply dehumidified process air from its outlet to one or more locations in the dehumidified space. See 10 CFR § 430.2.

Residential Portable dehumidifier means a residential dehumidifier designed to operate within the dehumidified space without the attachment of additional ducting, although means may be provided for optional duct attachment. Portable dehumidifiers do not include whole-home dehumidifiers. See 10 C.F.R. § 430.2 with the addition of the word “residential”.

Table 3

<u>Air-conditioning Equipment</u>	<u>Room/wall/window air-conditioning equipment, PTACs, PTHPs, portable air-conditioning equipment, and residential portable dehumidifiers (new)</u>	<u>Refrigerants with a GWP of 750 or greater</u>	<u>Prohibited as of January 1, 2023</u>
<u>Air-conditioning Equipment</u>	<u>Other Air conditioning (new) equipment, residential and nonresidential and whole-home dehumidifiers¹⁰</u>	<u>Refrigerants with a GWP of 750 or greater</u>	<u>Prohibited as of January 1, 2025</u>

¹⁰ This addition is not strictly necessary because the definition of Other Air Conditioning Equipment encompasses whole-home dehumidifiers. The definition of whole-home dehumidifier may also not be strictly necessary but is added to explicitly differentiate portables from whole-home units.



In closing, we would like to thank the CARB for accepting our comments. We hope that the proposed text may be modified to accommodate the whole-home dehumidification market.

Jerry McNerney

Jerry McNerney
Director of Indoor Air Quality
jerry.mcnerney@aprilair.com

Scott Grefsheim

Scott Grefsheim
Product Line Manager - Dehumidification
scott.grefsheim@aprilair.com

Pierre Harfouche

Pierre Harfouche
Codes & Regulatory Engineer
Pierre.Harfouche@aprilair.com