



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

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OFFICE OF  
AIR AND RADIATION

W. Eric Dell, Esquire  
Senior Vice President, External Affairs  
National Automatic Merchandising Association  
20 North Wacker Drive, Suite 3500  
Chicago, Illinois 60606

Dear Mr. Dell:

This letter is to follow up on the August 17, 2017 meeting held with the Stratospheric Protection Division concerning the petition you submitted on behalf of the National Automatic Merchandising Association on July 21, 2017. Your petition was filed pursuant to Section 612(d) of the Clean Air Act and 40 CFR 82.184(b)(1). It requests that the U.S. Environmental Protection Agency (EPA) extend the acceptability of certain refrigerants for vending machines for three years, i.e., from January 1, 2019 to January 1, 2022. We appreciate the information you provided during the August 17 meeting as well as the information contained in the email from Jason S. Eberstein on September 8, 2017. In addition to those questions we discussed in the meeting, we have included below some additional clarifying questions. Your prompt response and additional information will allow us to continue our review of your petition.

1. Please provide additional information regarding your members' experience testing and utilizing R-290 in vending machines.
  - a. Have any models using R-290 been produced, displayed, and/or put into use? If so, please indicate the locations, when the equipment was first displayed and/or put into use, and if that equipment remains in place today.
  - b. Do these models meet the Department of Energy (DOE) energy conservation standards and if not, are there plans to increase energy efficiency?
  - c. How and where were such models produced? What actions would be required, and how much time would be needed, for those manufacturers to modify their current production methods and increase production to meet current demand?
  - d. Do your members' have knowledge and experience of the use of R-290 or other hydrocarbons in refrigeration equipment other than vending machines? If so, could you identify whether there are components from such equipment that may be used in vending machines or what must be done to redesign such components for use in vending machines?

2. Can you provide additional information regarding the statement in your petition that there are some readily available components using R-290?
  - a. What components for R-290 are readily available?
  - b. What components for R-290 are not available? When would these be expected to become available? What will not be available by 2019?
  - c. Can you describe the function of the two components mentioned in your petition—vend motors and vending machine controllers—in more detail and how the use of R-290 might affect the testing and verification of them?
3. Please explain how NAMA determined the basis for a 3-year extension in the change of status date, from 2019 to 2022. How was this date calculated? For example, how did it account for alternatives evaluation, equipment testing and certification, modifications at manufacturing facilities based on product types? Can the market transition sooner?
4. Please provide additional information regarding your members' experience testing and utilizing R-744 in vending machines and other products they make or purchase.
  - a. Approximately how many such units were produced/purchased by your members? Are they still in operation and if so, in which countries?
  - b. Which compressor manufacturer(s) offered R-744 compressors for vending machines in the past? Which was the last one that will be ceasing production, as mentioned in the September 8, 2017 email?
  - c. Were there any performance-based or technical reasons why components or vending machines using R-744 are no longer being produced?
5. Please provide additional information regarding any experience evaluating or using R-450A, R-513A, or other blends containing hydrofluoroolefins (HFOs).
  - a. Have your members conducted component or model tests with such refrigerants?
  - b. The September 8, 2017 email indicated HFOs cost approximately \$14 per pound. Was this the cost of the HFO itself and if so, which one(s) (e.g., HFO-1234yf or HFO-1234ze(E))? Or was this the cost of a blend containing an HFO and if so, which one(s) (e.g. R-450A or R-513A)?
  - c. What steps would be required to test and approve compressors and other components for R-450A or R-513A? What steps would then be required to design and certify products and begin the manufacturing process? How long would these steps take?
6. Besides HFC-134a, are any of the other 19 refrigerants that are changing status to unacceptable used in manufacturing vending machines, such as R-404A?
7. Can you explain in more detail how the language from UL 541 Standard Supplement A6.2.3 ("UL 541") as quoted in your petition affects today's use of R-290?
  - a. Your petition indicates that discussions with UL are on-going. Can you describe the discussions to date? What is the process and timeframe for concluding such discussions?
  - b. Our understanding is that anyone can request a modification to a UL standard at any time. Has this been done or do you know of any plans to do so?
  - c. You describe UL 541 requirements regarding locations where "vending machine[s] having a flammable refrigerant shall not be intended for use" as "particularly burdensome." Why is this so? How would manufacturers and installers implement this requirement if the UL Standard is not changed by your requested 2022 change of status date?



- d. Are there different standards that are used for vending machines exported or placed in non-U.S. markets? What are those standards? How are they alike or different from UL 541? Do they have the same requirements limiting intended use of vending machines employing a flammable refrigerant? Have those standards addressed your concerns and if so how were those concerns resolved?

If you wish to claim any of the information submitted in response to the requests above as confidential business information (CBI), please provide two copies of your response: a public version with all CBI removed, and a copy for EPA containing the confidential information (include identification of the information to be treated as confidential and the reason for confidentiality). Information claimed as confidential will be disclosed by EPA only to the extent, and by means of the procedures, set forth in 40 CFR Part 2 Subpart B. If no such claim accompanies the information, it may be made available to the public without further notice.

Your responses to these questions will inform our review of this petition. The information can be submitted via electronic mail or hard copy. If you have questions about your petition, please contact Cindy Newberg, Acting Director of the Stratospheric Protection Division at 202-343-9729 or [newberg.cindy@epa.gov](mailto:newberg.cindy@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Reid P. Harvey". The signature is fluid and cursive, with the first name "Reid" being the most prominent.

Reid P. Harvey, Acting Director  
Office of Atmospheric Programs