



Jason Thomas
Director, Regulatory Affairs
HVAC Americas
O 317-240-5246
C 317-518-5629

May 28th, 2021

Elizabeth Scheele
California Air Resource Board
1001 I Street,
Sacramento, California 95814
Submission: <https://www.arb.ca.gov/lispub/comm/bclist.php>

RE: Proposed Amendments to the Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Chillers, Aerosols-Propellants and Foam End-Uses

Dear Ms. Scheele,

Carrier provides fire safety, security, building automation, heating, ventilation, air conditioning and refrigeration systems and services to promote integrated, high performance buildings that are safer, smarter and more sustainable. Carrier is the founder of the modern HVAC industry and operates across the globe. Our range of products includes unitary residential and commercial products, including ducted and ductless HVAC, transport refrigeration products, chillers, and related building services.

To maximize environmental benefit, Carrier believes modifications are needed to the proposed amendments. Carrier urges CARB to allow the optional early action credit for product that is sold in states other than California, to remove the limitation that certified reclaim under the R4 program cannot be counted in other programs, and to eliminate the potential for chillers to use refrigerant higher than 750 GWP in air conditioning applications.

Carrier recommends updating Section §95376(a)(4)(C) to provide Optional Early Action Credit for use of Refrigerant with a GWP less than 750 in new equipment entering in commerce in any state prior to January 1, 2025.

Equipment using refrigerants below 750 GWP have less environmental impact than products that contain 90% virgin and 10% reclaim R410A. The effective GWP of the R410A unit is approximately 2.5 times greater at 1900 GWP. For this reason, Carrier strongly supports CARB providing credit for the early introduction of products with refrigerant below 750 GWP. Unfortunately, in California, the building code is not on schedule to allow them into commerce until late in 2024. Carrier believes CARB can still drive early introduction by providing manufacturers with credit for product introduced in other states where building codes are



Jason Thomas

Director, Regulatory Affairs

HVAC Americas

O 317-240-5246

C 317-518-5629

complete. Providing the credit for other states would help manufacturers incentivize consumers and contractors to create demand, which would not exist otherwise. Carrier respectfully suggest CARB modify the proposed amendment to provide Optional Early Action Credit for use of Refrigerant with a GWP less than 750 in new equipment entering in commerce in any state prior to January 1, 2025.

Carrier recommends Section §95376(c)(2)(C)6 should be removed as it may create unexpected hurdles for manufacturer compliance and does not promote actions that have environmental benefit.

This section states, “An attestation, certifying under penalty of perjury, signed and dated by a responsible official with authority, that under the R4 Program, the certified reclaimed refrigerant is not being purchased, used, or counted to comply with any other government requirement(s), private or voluntary program(s), or any other credit(s) or incentive(s).” Carrier does not understand the intended purpose of this requirement. First, if other government entities propose rules requiring a certain level of reclaimed refrigerants, it would increase demand for reclaim refrigerant that could exceed the supply. Thus, manufacturers could be forced to decide which programs they will comply with and which they would not. Second, including private or voluntary programs in this section further strains supply and disincentivizes manufacturers, reclaimers, and other stakeholders from creating programs that promote the use of reclaim because of the potential for non-compliance. While this language may eliminate the small risk of double counting, it creates a greater risk of reducing overall environmental benefit by limiting recovery and reclaim programs. Carrier does not believe this supports CARB’s stated goal to increase the amount of reclaim used in the market, and therefore, should remove this from the regulation.

Carrier believes the chilled leaving fluid temperatures in Table 3 of section §95374(c) should be modified to reduce the potential for chillers with higher GWP refrigerant be used in air conditioning applications.

It has come to Carrier’s attention that the proposed definitions of specific end-uses are confusing and creates the opportunity for chillers with higher GWP refrigerants to be placed into commerce. In Table 3 the specific end-use definitions for the air-conditioning (AC) and industrial process refrigeration (IPR) chillers should be modified to eliminate this confusion. “Chilled fluid temperature leaving the evaporator” is not a standard definition that can be used to define chiller application. The term fluid is too broad and can refer to a gas or liquid. Carrier recommends CARB modify to “the chilled liquid temperature leaving the chiller”. The term fluid



Jason Thomas
 Director, Regulatory Affairs
 HVAC Americas
 O 317-240-5246
 C 317-518-5629

has recently been changed to liquid in ASHRAE 90.1, and Carrier recommends CARB do the same. Also, the definition should be changed to reference the liquid leaving the chiller instead of leaving the evaporator. Leaving the evaporator implies the refrigerant temperature, which can vary based on the type of refrigerant and the refrigerant state leaving the evaporator. Making these changes will eliminate this confusion.

In addition, using the temperatures proposed in Table 3 to delineate the specific end-uses creates an opportunity for IPR chillers with R-134a to be used in typical air-conditioning chiller applications. To solve this risk, Carrier respectfully suggests modifying the temperatures for each specific end-use. The table below summarizes these recommendations:

<u>Chillers – Air-conditioning, Industrial Process Refrigeration</u>			
Chillers	Chillers (new) designed for a chilled liquid temperature leaving the chiller at temperatures > +10F (-12C)	Refrigerants with GWP of 750 or greater	Prohibited as of January 1, 2024
<u>Chillers – Industrial Process Refrigeration</u>			
Chillers	Chillers (new) designed for a chilled liquid temperature leaving the chiller at temperatures ≤ +10F (-12C) and > -10F (-23C)	Refrigerants with GWP of 1500 or greater	Prohibited as of January 1, 2024
Chillers	Chillers (new) designed for a chilled liquid temperature leaving the chiller at temperatures ≤ -10F (-23C) and > -58F (-50C)	Refrigerants with GWP of 2200 or greater	Prohibited as of January 1, 2024



Jason Thomas

Director, Regulatory Affairs

HVAC Americas

O 317-240-5246

C 317-518-5629

In closing, Carrier appreciates the opportunity to provide these comments and move towards finalizing this regulation. Making the changes suggested in this letter can improve the environmental effectiveness of this regulation and achieve its purpose with more certainty. Therefore, Carrier strongly urges CARB to consider them. If you have questions regarding our suggestions, please reach out to me for further discussion.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Jason Thomas".

Jason Thomas

Director, Regulatory Affairs

Carrier

CC: Matt Thornblad, Director of Government Relations

CC: Todd Nolte, Sr. Director of Product and Regulatory