California Air Resources Board

Public Hearing to Consider the Proposed Amendments to the Regulation for Small Containers of Automotive Refrigerant

Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response

Public Hearing Date: October 26, 2023
Agenda Item No.: 23-9-3

Table of Contents

I. General

This rulemaking amends the Regulation for Small Containers of Automotive Refrigerant (Cal. Code Regs., Tit. 17, §§ 95360 – 95370), which was adopted by the California Air Resources Board (CARB or Board) on January 22, 2009, and became effective on March 10, 2010, and amended on April 22, 2016. The Staff Report: Initial Statement of Reasons for Rulemaking (Staff Report), entitled "Public Hearing to Consider the Proposed Amendments to the Regulation for Small Containers of Automotive Refrigerant,"[1] released July 3, 2023, is incorporated by reference herein. The Staff Report contained a description of the rationale for the proposed amendments to the Regulation for Small Containers of Automotive Refrigerant (Proposed Amendments). On July 3, 2023, all references relied upon and identified in the Staff Report were made available to the public.

As explained in the Staff Report, the Proposed Amendments are expected to achieve slightly greater greenhouse gas (GHG) emission reductions from Hydrofluorocarbon (HFC)-134a while reducing costs to the do-it-yourself (DIY) repair community, who are the primary consumers of small containers of automotive refrigerant. The Proposed Amendments will also benefit Disadvantaged Communities (DAC) where approximately 40% of container sales occur. In addition, the Proposed Amendments focus expenditure of unclaimed deposits towards projects that will reduce GHG emissions and increase the supply of reclaimed refrigerant that can be used in small containers.

The Proposed Amendments cover four main areas: (1) removal of the deposit and return program, (2) phase-in of requirements for reclaimed refrigerant in new containers, (3) modification and clarification of associated provisions related to both the sell-through and reporting requirements, and (4) refinement of procedures and parameters for spending unclaimed deposits. The Proposed Amendments also include minor changes to the container Certification Procedures. The Proposed Amendments would require container retailers, distributors, and manufacturers to remove the deposit and return program on January 1, 2025. The phase-in of the reclaimed refrigerant requirement for newly manufactured small containers of automotive refrigerant would start in 2025 with 25%, move up to 50% in 2026, and end at 100% from 2027 onwards. Additionally, all unclaimed deposits must be spent by January 1, 2030, which would allow these emission reductions to be realized as soon as possible. This date also aligns with the near-term emission reduction goals set by Senate Bill (SB) 32,[2] SB 1383,[3] and Assembly Bill (AB) 1279.[4]

On July 3, 2023, CARB posted the "Notice of Public Hearing" (45-Day) and Staff Report on CARB's *website* (*https://ww2.arb.ca.gov/rulemaking/2023/smallcontainer2023*) for public review and comment with a 45-day comment period that started on July 7, 2023, through August 21, 2023. During this 45-day comment period, the Board received five written comments.

On October 26, 2023, CARB held a public hearing to consider the Proposed Amendments. The Board received one additional written comment and five oral comments from the public.

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[1] CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Regulation for Small Containers of Automotive Refrigerant (July 3, 2023), https://ww2.arb.ca.gov/rulemaking/2023/smallcontainer2023.
[2] SB 32 (Pavley, Stat. 2016, Ch. 249); Health & Saf. Code § 38566.
[3] SB 1383 (Lara, Stat. 2016, Ch. 395); Health & Saf. Code §§ 39730.5 through 39730.8; and Public Resources Code §§ 42652 through 42654.
[4] AB 1279 (Muratsuchi, Stat. 2022, Ch. 337); Health & Saf. Code § 38562.2.

After considering staff's presentation of the Proposed Amendments, all public comments received and staff's response to the comments, the Board adopted Resolution 23-21 and approved the Proposed Amendments.

Resolution 23-21 directed the Executive Officer to determine if additional conforming modifications to the regulations were appropriate. If so, the Executive Officer was directed to make the modified regulations (with the modifications clearly identified) and any additional documents or information relied upon available for a supplemental 15- day public comment period. The Executive Officer was directed to consider any comments on the modifications received during any supplemental 15-day public comment period. The Executive Officer was then authorized to: either (1) adopt the modified regulation as it was made available for public comment, with any appropriate additional modifications; or (2) make all additional modifications available for public comment for a period of at least 15 days and present the regulations to the Board for further consideration, if warranted.

This Final Statement of Reasons (FSOR) contains a summary of the comments received during the formal comment periods of the rulemaking process on the Proposed Amendments and staff responses to those comments.

Mandates and Fiscal Impacts to Local Governments and School Districts

The Board has determined that this regulatory action will not result in a mandate to any local agency or school district the costs of which are reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

Consideration of Alternatives

For the reasons set forth in the Staff Report, in staff's comments and responses at the hearing, and in this FSOR, the Board determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed, or would be as effective and less burdensome to affected private persons, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law than the action taken by the Board.

Staff considered the following alternatives:

1. Alternative 1. No Change

Staff finds the Proposed Amendments are more appropriate than the no action alternative. The Proposed Amendments would require the use of reclaimed refrigerant in future sales of small containers and reduce costs to Californians by removing the deposit and return program. The current deposit and return program achieves minor emission reductions of 0.02 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) annually while disproportionately burdening Disadvantaged Communities. The emission loss due to the removal of the deposit and return program would be offset by the emission reductions of the proposed reclaimed refrigerant requirements. In addition, this alternative would continue to accrue approximately $5.5 million in unclaimed deposits annually, of which approximately $1.8 million are from Disadvantaged Communities.

Staff rejects this alternative. This alternative would continue to achieve emission reductions through the self-sealing valve and deposit and return program. However, the Proposed Amendments achieve 2.9 $MMTCO_2e$, more reductions of GHG between 2025 and 2045 than Alternative 1. In addition, Alternative 1 imposes greater costs on businesses and consumers than the Proposed Amendments, so it is not as effective in achieving the purposes of the regulation or less burdensome than the Proposed Amendments. Also, any expected emission benefits from Alternative 1 would come at a higher cost to California residents. There would be a total cost of $59.5 million as unclaimed deposits relative to the $45.5 million cost of the Proposed Amendments from 2025 to 2045.

2. Alternative 2. Container Ban

Alternative 2 is a ban on the sale of small containers of automotive refrigerant in California. This alternative would require all motor vehicle air conditioning (MVAC) servicing to be done by professional technicians. This alternative was considered in the initial development of the Regulation in 2009 but was rejected due to the economic impact on the DIY community living in DACs. Staff revisited this alternative and estimated the emission and economic benefits.

Under the assumption that all vehicles with leaky MVAC systems are repaired by professional technicians, there would be estimated emission reductions of 7.6 $MMTCO_2e$ cumulatively by 2045, which should be considered the upper bound of emission reductions as some DIY consumers may choose to forgo MVAC repair.

Under the container ban alternative, consumer costs would be affected mainly by the difference between the cost of professional repairs and the cost of DIY repairs. DIY recharges are estimated to occur at a rate of once per year at a cost of approximately $39 or 1.3 containers, the average number of containers used by a consumer to fully charge their system. Staff estimates that professional diagnosis, repairs, and recharges cost $650 in 2008, which, adjusting for inflation, would be $926 in 2023. The number of vehicles affected (12 million) is calculated by taking the number of container sales estimated from 2025 to 2045 (15.7 million) and dividing by 1.3 containers per vehicle. Multiplying the cost difference ($887) between DIY and professional repair by the number of affected vehicles (12 million) results in a total cost increase of $10.6 billion. Consumers may choose to forego vehicle air conditioning due to the high repair cost, which could lead to health impacts from increased exposure to heat.

Staff rejects this alternative. While it would achieve emission reductions by ensuring proper MVAC repair and refrigerant recovery by technicians, it would have a significantly higher cost to consumers.

II. Modifications Made to the Original Proposal

No substantive modifications were made to the Proposed Amendments. Non-substantive modifications are identified below.

Non-Substantial Modifications

Subsequent to the October 26, 2023, public hearing and approval of the Proposed Amendments via Resolution 23-21, staff identified the following additional non-substantive changes to the regulation:

Final Regulation Order

- Section 95361: "Certified Reclaimed Refrigerant:" Updated citation of Title 40, Code of Federal Regulations, Part 82, Subpart F, Appendix A (Specifications for Refrigerants) to be consistent with other CFR citations across the regulatory text.
- Section 95361: "Certified Reclaimed Refrigerant:" Added minor heading formatting changes (e.g., "(1)" and "(2)") to make the originally proposed language easier to read. Added the word "and" for improved syntax and grammar; this is a non-substantial change since our regulatory text above newly formatted subsections (1) and (2) states, "meets all of the following conditions," clearly shows that these provisions were always meant to operate together.
- Section 95361: "Recovery and Reclamation:" Updated citation of Title 40, Code of Federal Regulations, Part 82, § 82.164 to be consistent with other CFR citations across the regulatory text.
- Section 95363: Added in the word "Reserved." This change was marked in the proposed regulatory text released for the 45-day public comment period; however, this specific change was not mentioned in the Staff Report. The Staff Report explained that the current CCR language in section 95363 would be moved but did not explain CARB's intent to keep this section reserved for future use instead of being repealed with this rulemaking.
- Section 95365(a): Added the word "small" to be consistent with other references to "small containers of automotive refrigerant."
- Sections 95367(a)(11) and 95267(b)(3): For consistency, added an email location where the regulated entities must submit their reports. This is also consistent with the location for the new reporting requirements under section 95367.2. This is the email location is where regulated entities have already been sending their reports since the process was modernized in 2017.
- Section 95367.2(d): Broke up a long sentence into two and added clarifying words to bridge the new transition and improve syntax Any additional language is purely for syntax and does not alter the requirements of the provision.
- Section 95367.2(d): Added the word "of" to improve syntax and clarity.
- Sections 95369(f)(2) and 95369(f)(3): Combined these two sections and removed vague language to provide additional clarity and context without changing the requirements of the provision.
- Sections 95369(f)(2) and 95369(f)(3): Changed references from section 95366.1, subsections (a), (b), and (c), to reference section 95366.2, which fixes an erroneous error. Section 95366.1 does not have subsections (a), (b), and (c), and the current section 95366.1 has no relevance to the recordkeeping requirements. On the other hand, the following section, 95366.2, not only has subparts (a), (b), and (c), but is also relevant to meeting compliance that is referenced in section 95369(f) and was the originally intended section for proposed changes. Additionally, since section 95366.2 only has subsections (a), (b), and (c), the references to each subsection were dropped since the subsections are unnecessary and their removal improves clarity and context.

Certification Procedures for Small Containers of Automotive Refrigerant

- Subsection 2.1(E): In the second paragraph, removed erroneous space after "Test Procedure for Leaks from Small Containers of Automotive Refrigerant" and directly before the proceeding comma, for improved punctuation.

- Subsection 2.2(C): Removed a duplicate and erroneous paragraph from this subsection since this paragraph was meant for and already appears in subsection 2.2(D).
- Subsections 3.4-3.6: Removed erroneous underline/strikeout from these subsection numbers as originally released on July 3, 2023. These subsection numbers are not changing per the Proposed Amendments.

The above-described modifications constitute non-substantial changes to the regulatory text because they more accurately reflect the numbering of a section, or correct spelling/formatting, and/or address grammatical errors, but do not materially alter the requirements or conditions of the proposed rulemaking action.

III. Documents Incorporated by Reference

The regulation and the incorporated certification procedures, test procedures, or other documents adopted by the Executive Officer incorporate by reference the following documents:

- Title 40 of the Code of Federal Regulations (CFR) Part 82, Subpart F, Appendix A: Specifications for Refrigerants (July 1, 2022). Incorporated in section 95361.
- Title 40 of Code of Federal Regulations, Part 82, §82.164, adopted on July 30, 1992, as last amended on November 18, 2016. Incorporated in section 95361.
- Air-Conditioning, Heating, & Refrigeration Institute (AHRI) Standard 700: 2019 Standard for Specifications for Refrigerants (2019). Incorporated in section 95361.
- Certification Procedures for Small Containers of Automotive Refrigerant, adopted on July 20, 2009, as last amended on October 26, 2023. Incorporated in section 95362(d).

The above-listed certification procedure is being amended by this regulation and thus the amendment date would be the date that the regulation is adopted by CARB.

These documents were incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to publish them in the California Code of Regulations. In addition, some of the documents are copyrighted, and cannot be reprinted or distributed without violating the licensing agreements. The documents are lengthy and highly technical test methods and engineering documents that would add unnecessary additional volume to the regulation. Distribution to all recipients of the California Code of Regulations is not needed because the interested audience for these documents is limited to the technical staff at a portion of reporting facilities, most of whom are already familiar with these methods and documents. Also, the incorporated documents were made available by CARB upon request during the rulemaking action and will continue to be available in the future. The documents are also available from college and public libraries or may be purchased directly from the publishers.

IV. Summary of Comments and Agency Responses

Written comments were received during the 45-day comment period in response to the October 26, 2023, public hearing notice, and written and oral comments were presented at the Board Hearing. Listed below are the organizations and individuals that provided comments during the 45-day comment period:

Table 1. Written Comments Received During the 45-Day Comment Period

Commenter, Date	Affiliation	Commentor Code
Kristen Taddonio, 7-24-2023	Institute of Governance & Sustainable Development (IGSD)	45-1
Christina Starr, 8-18-2023	Environmental Investigation Agency (EIA)	45-2
Daniel Chandler and Janet Cox, 8-20-2023	350 Humboldt and Climate Action California	45-3
Nicholas B. Georges, 8-21-2023	Household & Commercial Products Association (HCPA)	45-4
Douglas Raymond and Mary Metzner, 8-21-2023	National Aerosol Association (NAA)	45-5

Table 2. Comments posted during the Board Hearing and Oral Comments Presented at the Board Hearing

Commenter, Date	Affiliation	Commentor Code
Mike Armstrong, 10-26-2023	A-Gas	BH-1
Stephen Rosenblum, 10-26-2023	Climate Action California	BH-2
Beth Porter, 10-26-2023	Environmental Investigation Agency (EIA)	BH-3
Alex Hillbrand, 10-26-2023	Natural Resources Defense Council (NRDC)	BH-4
Doug Kobold, 10-26-2023	California Product Stewardship Council	BH-5

Comment Summaries and Responses

A summary of comments on the Proposed Amendments received during the initial 45-day comment period and at the Board Hearing are categorized and listed by commenter code. Multiple part comments have been separated into individual comments and categorized based on subject matter.

A. Support for the Proposed Amendments

Staff received broad support from a range of organizations and community members and made no changes based on the comments received. These comments are supportive of the

process, stakeholder engagement, or actions in the rulemaking. The following comments support the objectives and goals of the Proposed Amendments: 45-1, 45-2, 45-4, 45-5, BH-1, BH-3, BH-4, and BH-5.

(1) Commenter 45-1: "I support the proposed rules to require reclaimed refrigerant in MVAC small cans that contain a refrigerant with a GWP over 150."

(2) Commenters 45-2 and BH-3: Both commenters from the Environmental Investigation Agency support the reclaimed refrigerant requirements for new small containers as well as the proposal to use any remaining unclaimed deposits from the deposit and return program to reduce refrigerant emissions by repairing leaks in MVAC systems and encouraging the recovery and reclamation of refrigerants and foams.

(3) Commenter 45-4: "HCPA supports CARB's decision to determine each manufacturer's percentage requirement of pounds of certified reclaimed refrigerant based on the prior calendar year's total aggregate amount of pounds of refrigerant entered into California."
"HCPA would also like to express our support for the removal of the container deposit and return program."

(4) Commenter 45-5: Supports the reclaimed refrigerant requirement and removal of the deposit and return program.

(5) Commenter BH-1: Supports the objectives of the Proposed Amendments to increase reclamation rates." As a single component HFC it's also one of the easiest of the refrigerants to clean." "In fact, there's probably enough… product in the circuit to bring this program forward by one year if California so chooses."

(6) Commenter BH-4: "NRDC is pleased to support the proposed amendments. Small containers of automotive refrigerant are a significant source of HFC emissions that harm the climate, which is a key reason that CARB has an existing program on them. The amendments proposed today removing the deposit program that's currently in place are a good idea, as the expected climate benefits from the deposit program have not fully materialized and have placed a cost burden on disadvantaged communities."

(7) Commenter BH-5: "I applaud the staff for adding the requirement to reuse reclaimed refrigerant."

Master Agency Response: No changes were made in response to these comments. Staff appreciates the supportive comments.

B. Removal of Deposit and Return Program

(8) Commenter 45-3: "**…**it is inadequate to suggest that the procedures in place for the last 13 years to deal with the "heel" of the cans are no longer necessary. Return to the manufacturer for extraction of the remaining refrigerant is still the only prudent course."

Agency Response: No changes were made in response to this comment. Staff's analysis indicates that the deposit and return program is not as effective as expected due to the low container heel, low return rate, and high cost to consumers, which led

to the proposed removal of the deposit and return program. The proposed reclaimed refrigerant requirements in the manufacturing of small containers sold in California would compensate for the emission reductions currently achieved by the deposit and return program.

(9) Commenters 45-3 and BH-5: With the removal of the deposit and return program, small containers would be incorrectly disposed of, not taking into account the costs to local waste disposal facilities that will need to treat it as household hazardous waste.

Agency Response: No changes were made in response to these comments. A recent aquatic toxicity laboratory study indicates that HFC-134a does not meet the criteria to be considered household hazardous waste so used containers of automotive refrigerant may be disposed of as normal household waste. Additionally, due to the low return rate, approximately one-third of small containers end up at local waste disposal facilities.

(10) Commenters 45-3 and BH-5: The Staff Report inadequately addresses what would happen to refrigerant remaining in the container at the time of disposal without the deposit and return program. The deposit and return program should continue to collect containers and recover any remaining refrigerant.

Agency Response: No changes were made in response to these comments. Without the deposit and return program, the primary method to dispose of the used containers of automotive refrigerant is the local household recycling bin, which is managed by a local waste management facility under the guidance developed by the California Department of Resources Recycling and Recovery (CalRecycle). According to CalRecycle, the empty containers can be treated as any other metal container and put in the recycling bin. Non-empty used containers will be handled by a local recycling facility using appropriate recycling options. Moreover, the proposed requirements of reclaimed refrigerant use in future small containers of automotive refrigerant would compensate for the emission reductions currently achieved by the deposit and return program.

(11) Commenter BH-2: “I think the Board here is admitting failure on its program to reduce the use of R134 small cans.”

Agency Response: No changes were made in response to this comment. Staff acknowledges the deposit and return program did not achieve the originally anticipated emission reduction targets in decreasing the use of the HFC-134a in small containers. To address this issue, the Proposed Amendments include subsidizing professional MVAC leak repair costs for low income consumers which will help reduce the use of small containers. The regulation was also more successful than predicted on the self-sealing valve.

(12) Commenter BH-5: “My concern is around removal of the deposit system because right now that is a huge incentive to get these canisters back. And without that, … these containers are going to end up in the recycle bin or the trash bin.” “The recovery rate of the used canisters will drop significantly, most likely to 25% or less…”

Agency Response: No changes were made in response to this comment. Staff's analysis indicates that the deposit and return program did not achieve its originally anticipated goals due to the low container heel, low return rate, and the high cost to consumers.

(13) Commenter BH-5: "CARB staff identified the number of unclaimed deposits as a significant problem with the program. There does not appear to be clarity as to the actual issues related to consumers getting their deposits back. Like the current Lead Acid Battery deposit/core charge system, there may be issues related to retention of receipts by the consumer, which would be proof to the retailer that the replacement battery was actually purchased at that retailer and the deposit/core charge was paid. There are simple solutions to this receipt retention issue for refrigerant canisters, such as a sticker being applied by the specific retailer at the point-of-sale that identifies that retailer. This could reassure the retailer that the deposit had been paid at their retail establishment and that the deposit could be returned to the consumer."

Agency Response: No changes were made in response to this comment. Staff has worked with container manufacturers or their designee to consider various options including a bounty system to increase the return rate. This included a series of community events to accept used containers without a receipt and return the deposit to consumers to improve return rates. No significant increase in container return rate was observed.

C. Reclaimed Refrigerant Requirement

(14) Commenter 45-1: "CARB may wish to consider methods to assure that reclaimed refrigerant is not simply virgin refrigerant charged into and then immediately recovered from a large system for purposes of counting it as 'reclaim.'"

Agency Response: No changes were made in response to this comment. The Proposed Amendments require that all submitted reports be accompanied by an attestation that the information is true, accurate, and complete, which would include the amount of reclaimed refrigerant purchased and from which entities. Additionally, container manufacturers are required to report annually to CARB the amount of reclaimed refrigerant used to charge small containers and the reclaimer the manufacturer sourced the reclaimed refrigerant from. The relatively small number of container manufacturers and reclaimers nationwide facilitates the ability for CARB to audit or inspect facilities to ensure compliance.

(15) Commenter 45-3: "The use of reclaimed refrigerants in small cans does not constitute an emissions reduction at all. The small cans will still leak with just as much damage to the atmosphere as before. Banning small cans or requiring refrigerant of much lower GWP are the only ways to reduce small can emissions."

Agency Response: No changes were made in response to this comment. Staff disagrees with the commenters' assertion that using reclaimed refrigerant has no environmental benefit over virgin refrigerant. Staff used the best estimates based on the available literature, subject matter experts, and submitted reports, which demonstrate that the use of reclaimed refrigerant would help achieve at least a 50% reduction in HFC-134a emissions compared to the use of virgin refrigerant. Staff believes this to be a conservative estimate and is based on the following:

- Increasing the recovery and reclamation of HFC-134a reduces the demand for new refrigerants, thereby reducing the manufacturing of virgin refrigerants.
- Reclaimed refrigerant also has reduced energy and raw material requirements associated with its production, leading to emission reductions.
- It is important to note that this estimate does not include any estimated emission reduction benefits from the use of unclaimed deposits towards motor vehicle air conditioning repair or the recovery and reclamation of refrigerants and foams. These two programs are expected to reduce future demand for small containers of automotive refrigerant while promoting the use of reclaimed refrigerant.
- Moving forward, staff will consider further research towards the life-cycle analysis of refrigerants to better quantify the emission reductions realized through the recovery and reclamation of refrigerants.

(16) Commenters 45-4 and 45-5: Both commenters have concerns about the availability and supply of certified reclaimed HFC-134a. While still supportive of the reclaimed refrigerant requirement, each commenter submitted an alternative timeline for reclaimed refrigerant in small containers, starting at a lower percentage of reclaimed refrigerant required but ending at 100% in 2030.

Agency Response: No changes were made in response to these comments. Staff has communicated with many affected stakeholders before and throughout the rulemaking process. Based on the U.S. Environmental Protection Agency's (U.S. EPA) summary of reclaimed refrigerant availability, the estimated amount of reclaimed HFC-134a was around 1.8 million pounds (lbs) annually from 2017 to 2021. The reclaimed refrigerant supply is projected to increase due to the American Innovation and Manufacturing (AIM) Act's[5] refrigerant production and consumption allowances, which became effective in December 2020. Staff estimates that approximately 10 million lbs of reclaimed HFC-134a are needed from 2025-2045 with the need demand peaking at 1.2 million lbs in 2027 and decreasing in tandem with the number of HFC-134a vehicles on the road. Along with the AIM Act and SB 1206, the Proposed Amendments will promote the recovery and reclamation of HFC-134a.

Based on the available reclamation data and in consultation with the reclaimed refrigerant industry, staff finds that there will be an adequate supply of reclaimed refrigerant for small containers of automotive refrigerant. While staff is confident in the supply, a phase-in period is proposed to allow the industry to ramp up supply.

Additionally, HFCs are short-lived climate pollutants, which are powerful climate forcers that have relatively short atmospheric lifetimes. Since their impacts are especially strong over the short term, acting now to reduce their emissions can have an immediate beneficial impact on climate change and public health. Currently, nearly all new vehicle MVAC systems entering the market use hydrofluoroolefin (HFO)-1234yf, a low-GWP refrigerant meant to replace HFC-134a. As HFC-134a begins being phased out, it is necessary to ramp up the reclaimed refrigerant

[5] 42 U.S.C. § 7675, Pub. L. 116-260, § 103.

requirement as soon as possible to maximize potential emission reductions over the long term.

D. Unclaimed Deposits and Spending Plan

(17) Commenter 45-2: "…it is important for CARB to note that funds used for repairing leaks in MVAC systems should not be used for the purchase of replacement refrigerant costs, but for the cost of the system repair, thereby incentivizing the proper repair of systems rather than "gas and go" practices. Such programs should also be targeted towards Disadvantaged Communities, where 40% of small container sales occur as per CARB's Initial Statement of Reasons for this proposal."

Agency Response: No changes were made in response to this comment. Staff will consider this request when implementing the Proposed Amendments. A leak repair subsidy pilot program using unclaimed deposits has launched with a focus on disadvantaged communities.

(18) Commenter 45-3: "…provide financial support to low-income people who might be expected to have difficulty paying for repair of leaks by EPA certified technicians. The state provides means tested rewards, such as SNAP, or compensation for expenses for climate-friendly programs, such as rooftop solar or electric school buses. It can provide support to low-income persons who need assistance in repairing their leaking MVAC systems." The commenter also suggests methods through which the proposed programs would be funded.

Agency Response: No changes were made in response to this comment. The comment is outside the scope of the Proposed Amendments. The manufacturers' designee has started a leak repair subsidy pilot program using unclaimed deposits. Staff will consider these consumer targeting and funding proposals in implementing the Proposed Amendments.

(19) Commenter BH-2: The real solution is to provide a subsidy for users to go to a certified repair facility to have their systems repaired and recharged rather than the use of small cans.

Agency Response: No changes were made in response to this comment. Please see agency response to Comment 17.

E. Emission Benefits

(20) Commenter 45-3: "Missing from the cost-benefit analyses is a computation for the alternative scenario, namely, banning the small cans and thereby reducing substantially R-134a emissions." The commenter also provides their estimates.

Agency Response: No changes were made in response to this comment. Staff respectfully disagrees with this comment. The Staff Report does present an analysis for the container ban scenario which estimates emission reductions of 7.6 $MMTCO_2e$ cumulatively from 2025 to 2045 at a total cost increase of $10.6 billion. This is the upper bound, as stated in the Staff Report since it encompasses all the projected container sales up to 2045.

(21) Commenter 45-3: Staff did not properly account for the environmental and potential health impacts of the do-it-yourself (DIY) use of small containers. "In our view,

"topping up" with small cans is an inappropriate activity with costs to the DIY customer (as well as to the climate). … The staff report never comes to grips with this issue of inappropriate use by DIYers, and the proposed regulations ignore it."

Agency Response: No changes were made in response to this comment. Staff respectfully disagrees with the commenter's assertion. For clarification, California Code of Regulations, Title 17, section 95382(a)(68), defines "topping off" or "topping up" as adding refrigerant to a refrigeration system or appliance in order to bring the system to a full charge. The Proposed Amendments are not expected to change the current behavior or practices of the DIY use of small containers. Currently, DIY users of small containers engage in topping-up and do not attempt to locate and repair leaks which is not good practice. Any environmental or potential health impacts related to emission increases from "topping up" or not repairing leaks are already a part of the existing conditions baseline. The Proposed Amendments would not result in any changes to the baseline.

(22) Commenter 45-3: "One adverse consequence of the proposed removal of the small can deposit, which is mentioned in the staff report but not analyzed in the cost-benefits section is this: 'With the removal of the deposit and return program, retailers may see an increase in sales.' That is, the policy may result in more DIY mishandling of leaks and more emissions of R-134a."

Agency Response: No changes were made in response to this comment. The commenter refers to a section of the Staff Report that describes the possibility that there may be individuals who are on the margins of needing air conditioning in their vehicles that previously did not purchase a small container because of the deposit program but may purchase a small container in the absence of the deposit program. Although this behavior is possible, it is also speculative for several reasons.

First, the removal of the deposit does not reduce the ultimate actual cost of a small container since, under the existing program, the deposit can be redeemed if the customer returns the used container to the retailer. It is difficult to quantify the overall impact that results from the removal of the deposit program with the potential increase in costs of the containers that would result from the reclaimed refrigerant requirement, which in turn is estimated to increase costs by up to $2.90 per container.[6] If any overall cost savings are realized after the removal of the deposit requirement and the addition of the reclaimed refrigerant requirement, it also remains unknown whether manufacturers will pass these cost savings on to consumers.

Overall, it is also unlikely that sales of HFC-134a refrigerant will increase because HFC-134a is being phased out of use in new vehicles over the coming model years. Staff projects a significant decrease of HFC-134a refrigerant sales by 2045 starting in 2026 due to market penetration of vehicles with HFO-1234yf MVAC systems and the retirement of vehicles at end-of-life with HFC-134a MVAC systems.

Even if sales were to increase, the existing self-sealing valve requirement has proven effective in reducing service loss emissions to near zero by preventing the

[6] CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Regulation for Small Containers of Automotive Refrigerant, Chapter VIII.B, *https://ww2.arb.ca.gov/rulemaking/2023/smallcontainer2023*.

release of refrigerant that would otherwise be vented to the atmosphere. Additional sales would have little or no impact on overall container heel leakage emission rates. Furthermore, the MVAC leak repair incentive program can help reduce the use of small containers or HFC-134 emissions.

(23) Commenter 45-3: The staff analysis overcounts the number of vehicles that would require servicing with small containers. "The staff analysis uses an averaging methodology that obscures possible ways to address the problem. In particular, staff report that 1.53 million cans are sold each year, and do it yourselfers recharge only annually. This ignores the fact that most repairs require more than one can, and many leaking units need recharging more frequently than once a year. So in fact, the number of vehicles recharged with small cans is likely to be much smaller than 1.53 million..." This overcounting of vehicles means that the cost estimate for the container ban alternative is inflated in the Staff Report.

Agency Response: No changes were made in response to this comment. Even with the assumption of the commenter's projections of vehicles, staff notes that the projected costs associated with the container ban scenario would be approximately changed from $10.6 billion to $9.5 billion, which is still significant.

(24) Commenters 45-3 and BH-5: CARB should continue the deposit and return program to continue to recover the refrigerant remaining in used containers, preventing refrigerant emissions.

Agency Response: No changes were made in response to these comments. The lost emission reductions from the recovery of refrigerant from used containers are expected to be minor and would be compensated for by the proposed reclaimed refrigerant requirement. Please see staff response to Comment 15 for more information.

F. Enforceability

(25) Commenter 45-1: "CARB may wish to consider, at the outset, ways to mitigate the potential for misconduct. Online sales and cross-state-border shipments could pose a threat to successful implementation of the reclaimed refrigerant requirements. CARB should coordinate with its enforcement division and/or other authorities within California to develop a robust plan to minimize and mitigate cheating."

Agency Response: No changes were made in response to this comment. CARB works with all regulated industries to ensure those regulated understand what is required under our regulations. In the case of noncompliance, CARB has a robust enforcement program in place for identifying violations of CARB regulations and to resolve noncompliance. Please see staff response to Comment 13 as well as CARB's Enforcement Policy at https://ww2.arb.ca.gov/resources/documents/enforcement-policy.

(26) Commenters 45-2 and BH-3: "**…**EIA recommends the proposed annual reporting and verification requirements to validate the use of reclaimed refrigerant should be strengthened. Such reporting should require audited financial records or third party verification of purchase of the reported quantity of reclaimed refrigerants from a certified reclaimer and/or a statement or attestation by a reclaimer verifying the sale of the reported quantity of reclaimed refrigerants**.**"

Agency Response: No changes were made in response to these comments. Staff proposes that reclaimers and manufacturers must be able to verify that the reclaimed refrigerant they sell or provide meet the regulation's definition of "Certified Reclaimed Refrigerant," including the zero percent virgin allowance.

(27) Commenter 45-1: "…more stringent policies would likely be easier to enforce and yield increased environmental benefits, such as Washington's prohibition on the sale of small cans with refrigerant with a GWP >150…"

Agency Response: No changes were made in response to this comment. Staff considered the container ban alternative, which would require all repairs to be done by licensed mechanics both in the 2009 original regulation development as well as in this amendment but rejected it due to the high cost to California consumers.

(28) Commenter 45-3: The commenter lays out the reasoning for their preference for the container ban alternative. In addition, they propose an additional alternative not explored in the Staff Report. "If California must choose between an outright ban and the regulations proposed by staff, we believe a ban is preferable. Elimination of the deposit-and-return program may reduce the financial burden on disadvantaged communities (DACs), but it is sure to increase emissions and exacerbate global heating, which generally hurts low-income persons most and worst. On matters of public health California has in general not made exceptions for low-income persons." "There are in fact two refrigerants that peer-reviewed research finds can be used as drop-in replacements for 134 in MVAC systems: R430a with a GWP of 97, and R456a with a GWP half that of R-134a, 687."

Agency Response: No changes were made in response to this comment. Staff considered the container ban alternative which would require all repairs to be done by licensed mechanics both in the 2009 original regulation development as well as in this amendment but rejected it due to the high cost to California consumers. The suggestion for drop-in refrigerant replacements is not specifically directed at the Proposed Amendments. Because this rulemaking only imposes requirements on the sale, use, and disposal of small containers of automotive refrigerant and the use of reclaimed refrigerant, this comment is beyond the scope of the rulemaking.

CARB's understanding is that R430a and R456a have not been approved by U.S. EPA for drop-in replacements as of yet. U.S. EPA is authorized to approve refrigerant products and any recommendations for suggested drop-in replacements would need to go through U.S. EPA's petition process, which can be found here: *https://www.epa.gov/snap/submit-snap-substitute*.

(29) Commenter BH-5: "There are alternative methods to incentivize consumers to return these used products, such as a bounty system, which I also recommended to CARB staff during that workshop that they consider implementing."

Agency Response: No changes were made in response to this comment. Please see staff response to Comment 13.

G. Economic Costs

(30) Commenter 45-3: "The social cost of carbon used in the staff report is projected for 2025 to be $19, $63, or $93, depending on the discount rate. However, these figures became outmoded with new analyses performed in 2022. The EPA has proposed a

current social cost of carbon of $190 using a 2 percent discount rate. The University of Berkeley and Resources for the Future proposed in Nature a social cost of carbon figure of $185 with a 2 percent discount rate. With a 1.5 percent discount rate it would be $308. Given the accelerating damages around the world, a 2 percent discount rate (which discounts future damages in favor of present value) is the maximum that should be used."

Agency Response: No changes were made in response to this comment. U.S. EPA's Oil and Gas Rule proposes using the updated social cost of carbon (SCC) values, but this rule is not yet finalized. The official SCC values used in regulatory analyses at the Federal level are still the Interagency Working Group (IWG) values that were reinstated in 2021. Staff uses these values to be consistent with federal analysis. Staff is aware of the ongoing work on the SCC and supportive of efforts to improve it. CARB will use the updated values in its regulatory analysis when they are finalized.

(31) Commenters 45-4 and 45-5: Both commenters have concerns about an increase in the price of reclaimed HFC-134a as demand increases. This would increase the price of small containers, disproportionately impacting disadvantaged communities.

Agency Response: No changes were made in response to these comments. Individual consumers could see a small cost associated with the switch from virgin to reclaimed HFC-134a for small containers. Staff uses the largest price increase estimate of $4.50 per pound of reclaimed refrigerant provided by a manufacturer for this analysis. If all increased costs are passed on to the consumer, then the total increased cost ($45.5 million) for each container (15.7 million containers) would equate to $2.90 per container.[7] Staff has also received input from a major reclaimer (A-Gas) who indicates there is no price differential for reclaimed refrigerant either presently or projected.

(32) Commenter BH-5: "Most, if not all, recovered canisters will now become the financial burden of local governments through their operation of household hazardous waste (HHW) facilities and temporary collection events. At this time, the volume of canisters received as HHW is low and not a significant financial burden due to low quantities. However, these costs will increase significantly if canisters that were being returned to retailers are now brought to local government operations. As a comparison, single-use one pound propane cylinders cost local governments an average of $5.00 per unit for residual gas recovery and cylinder recycling. This could result in a shift of costs to local governments statewide that would amount to millions of dollars each year."

Agency Response: No changes were made in response to this comment. The commenter's estimated cost is for a propane cylinder which is a household hazardous waste. Small containers of HFC-134a are not hazardous waste. Please see staff response to comments 9 and 10 for more information.

[7] CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Regulation for Small Containers of Automotive Refrigerant, Chapter VIII.B, *https://ww2.arb.ca.gov/rulemaking/2023/smallcontainer2023*.

V. Peer Review

Health and Safety Code section 57004 sets forth requirements for peer review of identified portions of rulemakings proposed by entities within the California Environmental Protection Agency, including CARB. Specifically, the scientific basis or scientific portion of a proposed rule may be subject to this peer review process. CARB determined that the Proposed Amendments did not contain a scientific basis or scientific portion subject to peer review, and thus no peer review as set forth in section 57004 needed to be performed.