

California Air Resources Board

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

Staff Report: Initial Statement of Reasons

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Executive Summary

The California Air Resources Board (CARB) adopted the Regulation for Small Containers of Automotive Refrigerant (Small Container Regulation, or Regulation) in January 2009 as an early action measure under Assembly Bill 32¹ (CARB, 2010). The Regulation mandated both a self-sealing valve on every small container of automotive refrigerant (small container) and labels providing information on both proper Motor Vehicle Air Conditioning (MVAC) charging practices and refrigerant handling to prevent refrigerant misuse. Additionally, the Regulation included a manufacturer-administered deposit, return, and recycling program. The Regulation required that retailers of small containers of automotive refrigerant (retailers) collect a refundable \$10 deposit per small container at time of sale. After using the refrigerant, the consumer is expected to return the used container with its receipt to the retailer within 90 days of purchase to receive a full refund of the deposit.

In 2016, CARB amended the Regulation to clarify the procedures for handling and spending container deposits collected by retailers but not claimed by a consumer (unclaimed deposits), in response to ambiguity in the original regulation (CARB, 2016). This ambiguity led to retailers keeping any unclaimed deposits. The 2016 amendments mandated the transfer of unclaimed container deposits to the container manufacturer, or its designee. In addition, the 2016 amendments included direction on how unclaimed deposits may be spent. The 2016 amendments also eliminated the provision for adjusting the deposit, which became fixed at \$10, and required additional language on container labels.

As part of program implementation, staff evaluated the effectiveness of the deposit and return program as well as the historical spending of the unclaimed deposits. Annual reporting data shows that after implementation of the original regulation, the refrigerant left in the container upon return is approximately 4 percent. In addition, despite funds spent on education and outreach programs with the aim of increasing the return rate, it stayed constant at approximately 66 percent. Consequently, the deposit and return program only achieves 0.02 MMTCO₂e in emission reductions annually versus the 0.16 MMTCO₂e originally estimated.

Summary of the Proposed Amendments

Staff is proposing amendments (collectively, Proposed Amendments) to the Regulation covering four main areas: (1) removal of the deposit and return program, (2) phase-in of requirements for reclaimed refrigerant in new small 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 Certification Procedures. The Proposed Amendments are expected to achieve slightly greater GHG emission reductions while reducing costs to do-it-yourselfers, the primary consumers of small containers. Approximately 40 percent of container sales occur in Disadvantaged Communities (DACs). In addition, the Proposed Amendments focus the expenditure of unclaimed deposits towards projects that will reduce greenhouse gas emissions and increase the supply of reclaimed refrigerant that can be used in the small containers. Overall, the

¹ AB 32 (Nuñez, Stat. 2006 Ch. 488); Health & Saf. Code §§ 38501 to 38599.

Proposed Amendments decrease costs to consumers, particularly those in DACs, achieve slighter greater GHG reductions, and incentivize the reclamation of refrigerant.

The Staff Report describes the Proposed Amendments and their rationale. It also presents staff analysis of impacts associated with the implementation of the Proposed Amendments, including economic and environmental impacts as well as costs. The proposed text of the regulatory amendment is set forth in Appendix A and the amended Certification Procedures in Appendix B.

Expected Emission Benefits

The emission reductions from the original Regulation were primarily expected to occur through two key regulatory requirements: a mandatory self-sealing valve and a deposit and return program (CARB, 2008a). CARB expected emission reductions of 22 percent of the volume of each container attributable to the recycling program. After review of container sales and return data collected in the last decade, staff determined that the deposit and return program is less effective than initially estimated. The container heel, the amount of refrigerant left in the container at end-of-life, is approximately 4 percent, lower than the 22 percent originally anticipated. In addition, staff initially estimated a 95 percent container return rate, while actual container return data shows that approximately 66 percent of containers are returned for recycling. The current emission reductions from container heel recovery are estimated to be 0.02 MMTCO_{2e} in 2021, lower than the originally projected 0.16 MMTCO_{2e} due to the lower than anticipated container heel and return rate. The container manufacturers' designee launched a paid media campaign using the unclaimed deposits. The goal was to improve the return rate to achieve additional emission reductions in line with the option to use unclaimed deposits on education and outreach programs. However, no improvement to the return rate was observed.

The Proposed Amendments would require the use of reclaimed refrigerant in small containers in phases starting in 2025. The use of reclaimed refrigerant in small container manufacturing is expected to increase demand for reclaimed refrigerant, leading to increased recovery and recycling of refrigerants such as HFC-134a. In addition, the revisions to the expenditure of unclaimed deposits are proposed to be limited to repairing MVAC systems or projects that increase the availability of reclaimed refrigerant in California.

Since HFC-134a has a relatively high Global Warming Potential value of 1,430, reducing its emissions helps meet CARB's emission reductions targets (Forster, et al., 2007), outlined in Senate Bill 1383 (SB 1383)², Senate Bill 32 (SB 32)³, and Assembly Bill 1279 (AB 1279).⁴ AB 1279 declares the policy of the state both to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter, and to ensure that by 2045, statewide anthropogenic greenhouse gas emissions are reduced to at least 85 percent below the 1990 levels. CARB's 2022 Scoping Plan lays out a path to achieve these goals (CARB, 2022). The year of 2045 was

² SB 1383 (Lara, Stat. 2016, Ch. 395); Health & Saf. Code §§ 39730.5 through 39730.8, and Public Resources Code §§ 42652 through 42654.

³ SB 32 (Pavley, Stat. 2016, Ch. 249); Health & Saf. Code § 38566.

⁴ AB 1279 (Muratsuchi, Stat. 2022 Ch. 337); Health & Saf. Code § 38562.2.

chosen in the Staff Report in line with CARB's 2022 Scoping Plan sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier.

Staff analyzed both the United States Environmental Protection Agency's (U.S. EPA) summary of reclamation availability trends and independently estimated the quantity of HFCs potentially recoverable from retired U.S. equipment at end-of-life. Based on this analysis, staff foresees sufficient reclaimed refrigerant supply to meet the reclaimed refrigerant requirements in the Proposed Amendments (U.S. EPA, 2022a; ICF, 2021). This conclusion is supported by analysis from the Environmental Investigative Agency (EIA, 2022). The amount of recoverable HFCs is currently increasing as more HFC-containing equipment nears its end-of-life.

In addition to the above provisions, the Proposed Amendments would refine procedures and parameters for spending unclaimed deposits and directly link their spending to HFC emission reductions from MVAC or recovery and reclamation of refrigerant or foams with a GWP value greater than 150. All unclaimed deposits would be required to 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 SB 32, SB 1383, and AB 1279.

Staff received support for the removal of the deposit and return program during the amendment process. Staff considered two alternatives: 1) no amendments with business as usual and 2) a ban on the sales of small containers of automotive refrigerant in California. Staff concludes that the Proposed Amendments are technically sound and cost effective and would not result in any significant adverse impact on the environment. Staff analysis indicates that the removal of the deposit and return program would save Californians from paying an extra \$10 with each container purchase, providing savings to all communities, with DACs receiving the greatest cost savings benefit. Staff estimates that the total cost to comply with the Proposed Amendments may be up to \$45.5 million from 2025 to 2045 or \$2.2 million per year. This cost includes both the price differential of reclaimed refrigerant and additional reporting requirements. In addition, staff estimates that the Social Cost of Carbon, or the financial benefit from avoided harms associated with emission reductions, ranges between \$77 and \$341 million depending on the discount rates (i.e., 5 percent, 3 percent, or 2.5 percent) used, by 2045 due to the Proposed Amendments.

Staff recommends that the Board approve and adopt the Proposed Amendments to the Regulation for Small Containers of Automotive Refrigerant. The Proposed Amendments would reduce GHG emissions pursuant to SB 32, SB 1383, and AB 1279 through the gradual phase-in of reclaimed refrigerant over time. Additionally, the Proposed Amendments would remove the deposit and return program and provide savings to the public, with DACs receiving the greatest cost savings benefit.

I. Introduction and Background

In January 2009, the California Air Resources Board (CARB) approved the adoption of the Regulation for Small Containers of Automotive Refrigerant (hereinafter “Small Container Regulation” or “Regulation”) as an early action measure for Assembly Bill 32 (AB 32)⁵. The Regulation reduces greenhouse gas (GHG) emissions associated with do-it-yourself (DIY) recharging of motor vehicle air conditioning (MVAC) systems (CARB, 2010). The Regulation established requirements applicable to containers that hold between 2 ounces and 2 pounds of any automotive refrigerant with a global warming potential (GWP)⁶ greater than 150. The Regulation became effective on March 10, 2010.

HFC-134a, a hydrofluorocarbon (HFC), has been the predominant refrigerant used in MVAC systems manufactured since 1994 (U.S. EPA, 2023). HFC-134a is not an ozone-depleting substance but is a potent short-lived climate pollutant with a global warming impact 1,430 times greater than that of carbon dioxide (Forster, et al., 2007). A single 12-ounce container of HFC-134a vented to the atmosphere is equivalent to 1,000 pounds of carbon dioxide (CO₂), or the equivalent of the emissions generated from an automobile burning 50 gallons of gasoline. A lower GWP refrigerant, HFO-1234yf, a hydrofluoroolefin (HFO), is being introduced into new vehicles, but for the near future HFC-134a will remain in widespread use in MVAC systems. Small containers of automotive refrigerant are an economical way for consumers to recharge MVAC systems, but emissions from their use must be reduced to help CARB meet statutory mandates under SB 32, SB 1383, and AB 1279.

The Regulation is comprised of three main provisions. First, it requires that small containers of automotive refrigerant be equipped with a self-sealing valve and labels containing information to promote consumer education of proper MVAC charging practices and to prevent misuse of refrigerant. Second, it establishes a manufacturer administered deposit, return, and recycling program. Third, it mandates that any deposits unclaimed by consumers (unclaimed deposits) be used to increase the container return rate through an education and outreach program. Manufacturers of small containers of automotive refrigerant (container manufacturers) must apply to CARB to certify their products for sale in California with information and data demonstrating compliance with the Regulation.

In 2016, CARB amended the Regulation with three additional provisions. First, clarifying language was added that requires retailers of small containers of automotive refrigerant (retailers) to transfer any unclaimed deposits to the container manufacturer or a designee of its choosing. Second, it allows unclaimed deposits to be spent on projects, programs, or measures that reduce GHG emissions. Third, it fixes the consumer deposit at \$10.

Based on data obtained from annual reporting from manufacturers, retailers, and distributors of small containers of automotive refrigerant, staff determined that the quantity of refrigerant remaining in small containers upon return (the container heel) is approximately 4 percent, lower than the initial projection of 22 percent, shown in Table 1 below. As a result, the container return program’s contribution to emission reductions is lower than initially

⁵ AB 32 (Nuñez, Stat. 2006 Ch. 488); Health & Saf. Code §§ 38501 to 38599.

⁶ Global warming potential is the relative warming of a greenhouse gas over a specified period as compared to Carbon Dioxide (GWP of 1). GWP allows for the conversion of different greenhouse gas emissions into the same emissions unit, Carbon Dioxide (CO₂) equivalents.

estimated. The current container heel average annual emission reductions are estimated to be 0.02 MMTCO_{2e} in 2021, lower than the originally projected average annual emission reductions of 0.16 MMTCO_{2e}.

Table 1. Estimated Container Sales, Returns, Return Rates, and Container Heel in 2011-2021

Year	Sales	Returns	Return Rate (%)	Container Heel (%)
2011	1,047,128	719,294	69%	1.2%
2012	1,115,325	814,821	73%	1.6%
2013	1,163,810	801,322	69%	2.3%
2014	1,292,914	854,146	66%	4.3%
2015	1,293,124	848,185	66%	2.7%
2016	1,365,435	931,007	68%	2.0%
2017	1,504,696	959,355	64%	5.2%
2018	1,423,215	889,953	63%	5.3%
2019	1,307,966	859,558	66%	6.8%
2020	1,703,759	1,029,037	60%	4.1%
2021	1,590,450	926,861	58%	3.1%
Average	1,346,166	875,776	66%	3.6%

In response to the regulatory requirements, the manufacturers’ designee launched an enhanced education program (EEP), starting midway through 2018 and lasting through 2020 with the aim of increasing the return rate. The EEP included a paid media campaign with social media and digital outreach and established container return centers located in several major cities in California. However, small container return rates showed little change due to the education and outreach program, as shown in Table 1. Due to the low GHG emission reductions from container heel recovery, unchanged return rates, and financial impacts to do-it-yourselfers (DIYers), staff is proposing to remove the deposit and return program.

In addition, staff is proposing the requirement that reclaimed refrigerant be used in the manufacturing of small containers sold in California to compensate for the emission reductions currently achieved by the deposit and return program. Finally, revisions to the expenditure of unclaimed deposits will be aimed at decreasing MVAC leaks and increase recovery and reclaim in California.

The Proposed Amendments include changes to the regulatory text and the Certification Procedures. The Staff Report describes the Proposed Amendments and the rationale for each amendment as well as staff’s analysis of impacts associated with the Proposed Amendments, including costs and economic and environmental impacts. The text of the regulatory amendment is set forth in Appendix A and the new Certification Procedures in Appendix B.

These amendments will help CARB achieve GHG emission reductions of 40 percent below 1990 emissions levels by 2030 per SB 32⁷, a 40 percent reduction of HFC emissions below

⁷ SB 32 (Pavley, Stat. 2016, Ch. 249); Health & Saf. Code § 38566.

2013 levels by 2030 per SB 1383⁸, as well as at least 85 percent below the 1990 levels by 2045 per AB 1279.⁹ AB 1279 encompasses the requirements of SB 1383 and SB 32 and sets more stringent targets for GHG emission reductions including HFC-134a.

International and National Context

The international community has recognized the importance of reducing HFC emissions to alleviate the worst impacts of global warming. As such, over 140 countries have signed the Kigali Amendment to the Montreal Protocol, which phases out the production of HFCs over time. The United States signed the Kigali Amendment in 2022 and is classified alongside other developed countries with high per capita usage of substances targeted by the protocol. Consequently, it has more stringent reduction targets than developing countries (Ozone Secretariat, 2019).

Several jurisdictions have prohibited the sale of small containers of automotive refrigerant. The European Union enacted a market prohibition, effective July 4, 2007, targeting “non-refillable containers for fluorinated greenhouse gases used to service, maintain or fill refrigeration, air conditioning or heat-pump equipment” which would include small containers of automotive refrigerant (OJEU, 2014). The governments of Australia and Canada also prohibit the use of non-refillable containers of refrigerant (Australian Government, 2021; Government of Canada, 2022). Within the United States, the states of Vermont and Washington have prohibited the sale of small containers of automotive refrigerant (Vermont State Assembly, 2022; Washington State Legislature, 2021). However, small containers of automotive refrigerant are available in most states in the United States, Mexico, and likely in nations that have not specifically prohibited them because of their low costs.

An important part of refrigerant emission prevention is recovery at the end-of-life of the appliance. According to a recent report, only 18 percent of potentially recoverable refrigerant is recovered annually in the United States while the recovery rates are much higher in the United Kingdom (60-95 percent, depending on end use), Australia (47-67 percent), and Japan (above 50 percent) (EIA, 2022). This indicates that there are untapped sources of refrigerant readily available for reclamation.

In 2020, Congress enacted the American Innovation and Manufacturing Act (AIM Act)¹⁰. It directs the United States Environmental Protection Agency (U.S. EPA) to reduce HFC emissions by phasing down production and consumption of HFCs, maximizing reclamation and minimizing releases of HFCs from equipment, and facilitating the transition from HFCs to next-generation technologies through sector-based restrictions (U.S. EPA, 2022b). The AIM Act phases down the production and consumption of HFCs to 15 percent of their baseline levels in a stepwise manner by 2036 through an allowance, allocation, and trading program. This incentivizes industry to seek out reclaimed refrigerant sources to meet demand. As the phase-down increases, the supply of virgin (newly manufactured) HFC-134a will be limited, likely leading to an increase in HFC-134a recovery. Staff concluded that the reclaimed refrigerant in future small containers of automotive refrigerant will most likely come from a

⁸ SB 1383 (Lara, Stat. 2016, Ch. 395); Health & Saf. Code §§ 39730.5 through 39730.8, and Public Resources Code §§ 42652 through 42654.

⁹ AB 1279 (Muratsuchi, Stat. 2022 Ch. 337); Health & Saf. Code § 38562.2.

¹⁰ American Innovation and Manufacturing Act of 2020, 42 U.S.C. § 7675 (Pub. L. No.116-260, div. S, § 103, 134 Stat.2255 (2255)).

variety of recoverable sources as shown in Figure 1 below (ICF, 2021).

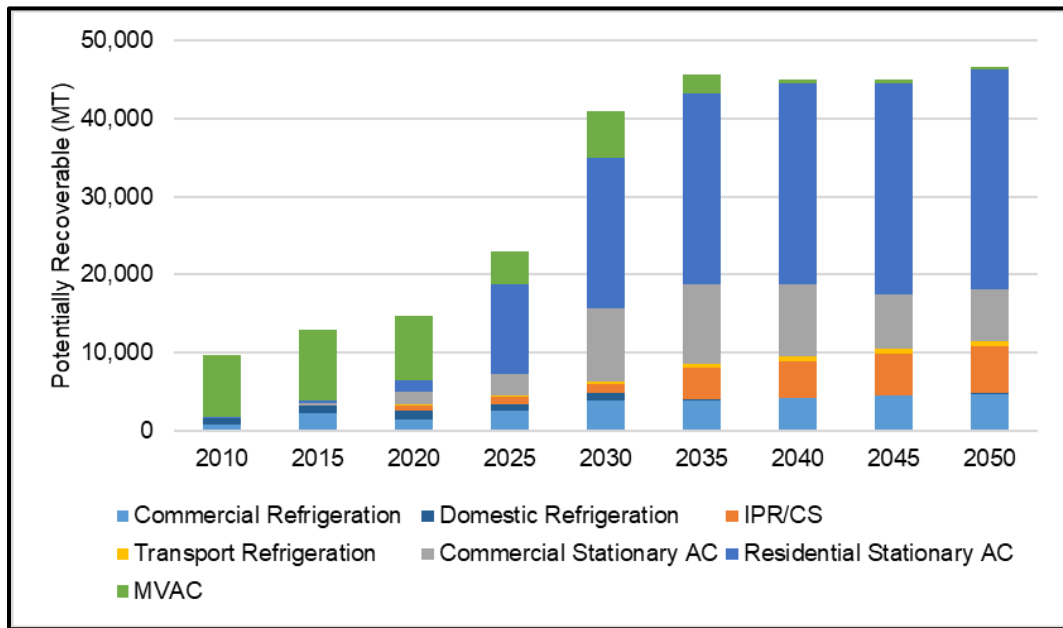


Figure 1. Potentially Recoverable HFCs from Retired U.S. Equipment at End-of-Life

II. The Problem that the Proposal is Intended to Address

Based on container heel data and return rates, as shown in **Table 1**, staff has determined that the current regulation does not achieve projected emission reductions. The deposit and return program produced lower emission reductions than initially projected. The self-sealing valve reduces service loss emissions to near zero by capturing refrigerant that would be vented to the atmosphere and allowing DIYers to store a used, non-empty container for future use. This results in lower container heels when consumers return containers for recycling.

The requirements associated with the deposit and return program come at an increased cost to end users. Staff reviewed container sales and return data provided by the top four retailers of small containers, accounting for greater than 95 percent of total sales from 2017 to 2020 and determined that approximately 40 percent of small containers are purchased from retail locations located in Disadvantaged Communities (DACs). An average of \$5.5 million in unclaimed deposits are collected annually. Due to lower-than-expected emission reductions from container heel recovery, high program costs, and impacts on DACs, staff is proposing that CARB remove the deposit and return program.

A different refrigerant, HFO-1234yf, is increasingly used in the manufacturing of new MVAC systems, replacing HFC-134a. HFO-1234yf has a GWP of less than 1, significantly lower than that of HFC-134a (Myhre, et al., 2013). Consequently, the sale of small containers of HFC-134a will fall as the number of vehicles using the refrigerant decreases. To account for the limited window of opportunity to reduce these emissions, it is important to amend the current regulation in a timely fashion. Staff is proposing to require the use of reclaimed refrigerant in future container manufacturing and to remove the existing deposit and return

program in order to achieve slightly greater emission reductions in a more cost-effective manner.

III. The Specific Purpose and Rationale of Each Adoption, Amendment, or Repeal

In this chapter, staff provides a brief summary of the provisions in the Proposed Amendments, including the rationale for staff's determination that each amendment is: (1) reasonably necessary to carry out the purpose of the statutes or other provisions of law that the action is implementing, interpreting, or making specific; and (2) reasonably necessary to address the problem for which the regulation is proposed.

A. Minor Changes Applicable to Multiple Sections

The proposed changes in this section update text that does not alter current requirements under the Regulation.

1. CARB Acronym Change

Purpose

Staff is proposing to amend the Regulation to change all references of "ARB" to "CARB."

Rationale

Several years ago, CARB changed reference of itself from the "Air Resources Board" to the "California Air Resources Board." Staff is proposing to amend the language to affect references to the older acronym. This minor change would affect sections 95361, 95362, 95365, 95366, 95367, and 95369 of the Regulation Order as well as sections 1, 2.1(E), 2.3(A), and 2.4(D) of the new Certification Procedures for Small Containers of Automotive Refrigerant.

2. Uniformity for "Small Containers of Automotive Refrigerant"

Purpose

Under the *Definitions* section in 95361, there are two separate, yet identical definitions. The first definition is "'automotive refrigerant in a small container' [which] means automotive refrigerant packaged in a container holding more than 2 ounces and less than 2 pounds of automotive refrigerant by weight." The second definition is "'small container' or 'small container of automotive refrigerant' [which] has the same meaning as 'automotive refrigerant in a small container...'" Staff is proposing to amend the Regulation to combine the two definitions by removing any reference to the phrase "automotive refrigerant in a small container" and moving its original definition to the definition for "'small container' or 'small container of automotive refrigerant.'"

Rationale

Since the two definitions "automotive refrigerant in a small container" and "small container or small container of automotive refrigerant" have identical meanings, one should be removed to avoid redundancy. Aligning the definition to a single term that is common with

stakeholders and consumers would provide additional regulatory clarity. In changing references of “automotive refrigerant in a small container” to “small containers of automotive refrigerant,” minor changes are proposed to sections 95360, 95361, 95362, 95364, and 95366, as well as sections 2.3(B), 2.3(C), 2.4(A), 2.4(A)(6), and 2.4(A)(7) of the new Certification Procedures for Small Containers of Automotive Refrigerant.

3. Dates Certification Procedure Were Last Amended

Purpose

Staff is proposing a minor correction to the date the Certification Procedures were last amended in sections 95365(c) and 95366(e) from January 5, 2010, to January 17, 2017.

Rationale

After CARB amended the regulation in 2016, a few references to the date the Certification Procedures were last amended were not updated from the old date of January 5, 2010, to the most recent date of January 17, 2017. Staff is proposing to amend this language in sections 95365 and 95366.

4. Section Title Name Updates

Purpose

Staff is proposing to amend the language to slightly modify the titles to sections 95364, 95364.1, and new section 95364.2. Each section title will add the phrase “Phase I,” “Phase II,” and “Phase III,” respectively.

Rationale

Staff is proposing to add a new section, 95364.2, which would add new product sell-through language for small containers of automotive refrigerant manufactured before the effective date of the Proposed Amendments. The introduction of different phases, respectively, would better distinguish the proposed product sell-through language from the previous two sections (95364 and 95364.1) that also discuss product sell-through.

5. Authority Cited for Each Section

Purpose

In each section of the Regulation, staff proposes to add an authority citation for Health and Safety Code (Health & Saf. Code) sections 38505, 38562.2, and 38566. Health & Saf. Code § 38566 directs CARB to reduce statewide greenhouse gas emissions by at least 40 percent below the statewide greenhouse gas emissions limit by December 31, 2030. Health & Saf. Code § 38562.2 declares that the policy of the state is to achieve and maintain net negative greenhouse gas emissions by 2045, or earlier, and to ensure that statewide anthropogenic greenhouse gas emissions are reduced to at least 85 percent below the 1990 levels by 2045. Additionally, staff is correcting the citation for Health and Safety Code (Health & Saf. Code § 38505). This section is referenced in each section of the Regulation, but the actual citation was previously missing.

Rationale

Both Health & Saf. Code §§ 38562.2 and 38566 are appropriate authority because the Regulation aims to reduce greenhouse gas emissions. This section of the Health & Saf. Code § 38566 was added in 2019, and the section of the Health & Saf. Code § was added in 2022, both after the approval of the current Regulation. Additionally, staff is correcting the omission of Health & Saf. Code section 38505 from the citation for each section of the Regulation. Staff is proposing to amend this language in sections 95360, 95361, 95362, 95364, 95364.1, 95365, 95366, 95367, 95368, 95369 and 95370.

B. Section 95360. Applicability

1. Section 95360(a)

Purpose

This section establishes who is subject to the Regulation. Staff is proposing to amend the regulation to remove “except as otherwise provided in sections 95363 or 95364.”

Rationale

The reference to section 95364 is for a specific application of the rule and is not necessary for the “Applicability” section. The Applicability section of a regulation, when setting exemptions, should set strict parameters regarding whom the rule applies to and who is exempt from the rule.

2. Section 95360(b)

Purpose

Staff is proposing to add this new section and move the exemption language for refrigerants using a low GWP in section 95363 to this new section 95360(b) under “Applicability.”

Rationale

Section 95363 contains exemption language and moving it to the “Applicability” section of the regulation helps to clarify that it acts as a blanket exemption to the entirety of the Regulation, and not an exemption to part of the regulation. Furthermore, its reference is no longer needed.

C. Section 95361. Definitions

Purpose

This section sets forth definitions for the terms used in the Regulation for Small Containers of Automotive Refrigerant. Staff is proposing to amend the regulation to add additional definitions and modify some existing definitions. Staff is also proposing to remove the sequencing of each definition for ease in case of future amendments.

Rationale

The Proposed Amendments are needed to establish definitions for end-use categories that were not previously defined and to establish definitions for compliance pathways. For all

definitions, changes/additions are necessary for the regulated community to understand the scope of the requirements and whether their end-use is included.

1. "Appliance"

Purpose

The Proposed Amendments add a definition for "appliance," which is identical to the definition found in the California Code of Regulations, tit. 17, section 95382(a)(5).

Rationale

The term "appliance" is generally used to refer to any device that contains and uses a refrigerant. The definition is necessary to help identify where used refrigerant can be recovered and reclaimed from. Additionally, the definition is consistent with the definition for "appliance" with another CARB rule for the management of refrigerants from stationary sources.

2. "Automotive Refrigerant in a Small Container"

Purpose

The Proposed Amendments remove the definition for "automotive refrigerant in a small container."

Rationale

The term "automotive refrigerant in a small container" has the same meaning as the term "small container" or "small container of automotive refrigerant" in the current Regulation. For uniformity and to simplify the Regulation, the term "automotive refrigerant in a small container" is being removed and replaced with "small container of automotive refrigerant."

3. "Breached Container"

Purpose

The Proposed Amendments modify the definition of a "breached container" to add the word "breached" to the definition.

Rationale

The current Regulation uses the word "breached" when referring to breached containers. This modification will provide clarity that "breached" or "breached container" will have the same meaning.

4. "Certified Reclaimed Refrigerant"

Purpose

The Proposed Amendments add a definition for "certified reclaimed refrigerant" which means previously used and recovered refrigerant that has been reclaimed for resale. The

definition further requires the certified reclaimed refrigerant to contain zero percent virgin refrigerant.

Rationale

The term “certified reclaimed refrigerant” is necessary to support the requirement to use reclaimed refrigerant in small containers of automotive refrigerant. This definition is necessary to characterize and represent what certified reclaimed refrigerant is, define its parameters, and align with the U.S. EPA definition. This definition is similar to the definition found in California Code of Regulations, tit. 17, section 95373(a), except for two differences. First, the virgin allowance is zero percent for the Proposed Amendments instead of 15 percent. Second, the requirements that appear in the definition of “certified reclaimed refrigerant” under section 95373(a)(2) and 95373(a)(3) are not in the definition for “certified reclaimed refrigerant,” but instead have been placed in the recordkeeping requirements under section 95369(f) of the Proposed Amendments.

5. “Foam”

Purpose

The Proposed Amendments add a definition for “foam,” which is identical to the definition found in the California Code of Regulations, tit. 17, section 95373(a).

Rationale

The term “foam” is necessary to support the requirement for spending unclaimed deposits to permit their use in the reclamation of foams. Additionally, the definition is consistent with the definition for “foam” with another CARB rule for the prohibitions of certain hydrofluorocarbons in certain end-uses.

6. “Non-Profit Organization”

Purpose

The Proposed Amendments add a definition for “non-profit organization.”

Rationale

The term “non-profit organization” generally means a business that is recognized by the Internal Revenue Service (IRS) because it furthers a social cause or provides a public benefit. The definition is necessary to define what type of entities a manufacturer of small containers of automotive refrigerant may choose to designate to receive and administer the unclaimed deposits.

7. "Reclaim"

Purpose

The Proposed Amendments modify the definition of "reclaim" by updating the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) 700¹¹ standards to the most recent edition.

Rationale

The updated standards are necessary to align with current and commonplace industry standards.

8. "Recover"

Purpose

The Proposed Amendments modify the definition of "recover" to remove the word "automotive" and add "...previously operational appliance and store it in an external container."

Rationale

The changes to the term "recover" support the updated requirements for spending unclaimed deposits by expanding the scope of the definition to include the recovery of refrigerants not just from automobiles, but also from previously operational appliances that used refrigerants.

9. "Recovery and Reclamation"

Purpose

The Proposed Amendments add a definition for "recovery and reclamation."

Rationale

The term "recovery and reclamation" is necessary to distinguish between the acts of recovery and reclamation of refrigerants to comply with the reclaimed refrigerant requirement and the use of unclaimed deposits to support further recovery and reclamation efforts that go above and beyond what current regulations require.

10. "Refrigerant Reclaimer"

Purpose

The Proposed Amendments add a definition for "refrigerant reclaimer."

¹¹ This standard specifies acceptable levels of contaminants (purity requirements) for fluorocarbon, hydrocarbon, and carbon dioxide refrigerants regardless of source and lists acceptable test methods.

Rationale

The term “refrigerant reclaimer” is necessary to establish the new reporting and recordkeeping requirements for manufacturers of small containers of automotive refrigerant. The proposed amendments will require manufacturers to state the amounts of certified reclaimed refrigerant that was procured, and to identify each reclaimer that supplied the certified reclaimed refrigerant.

11. “Small Container” or “Small Container of Automotive Refrigerant”

Purpose

The Proposed Amendments modify the definition for “small container” or “small container of automotive refrigerant.”

Rationale

As discussed above in the rationale for the changes to the term “automotive refrigerant in a small container,” the term “small container” or “small container of automotive refrigerant” will be the universal term moving forward. The previous definition for “automotive refrigerant in a small container” will be moved here.

12. “Unclaimed Deposits”

Purpose

The Proposed Amendments add a definition for “unclaimed deposits.”

Rationale

The term “unclaimed deposits” is used to refer to deposits that are collected from consumers of small containers of automotive refrigerant, and subsequently not claimed by the consumer. This definition is necessary to have a simple term to describe the amount of money that manufacturers will be tasked with spending on section 95367.2 of the Proposed Amendments.

13. “Use”

Purpose

The Proposed Amendments add a definition for “use,” which is identical to the definition found in the California Code of Regulations, tit. 17, section 95373(a).

Rationale

The term “use” helps provide clarity to the certified reclaimed refrigerant requirement for manufacturers of small containers of automotive refrigerant by clarifying that the certified reclaimed refrigerant must be utilized in the small containers. Additionally, the definition is consistent with the definition for “use” with another CARB rule for the prohibitions of certain hydrofluorocarbons in certain end-uses. This rule also contains a reclaimed refrigerant requirement, and though the primary refrigerant used in each rule is different, it is imperative for CARB to keep consistency between the two rules on the “use” of reclaimed refrigerant in each rule’s respective product.

D. Section 95362. Certification Procedures for Small Containers of Automotive Refrigerant

This section establishes the procedures for obtaining product certification, set forth by reference in the “Certification Procedures for Small Containers of Automotive Refrigerant” as well as the effective dates for each change in the Certification Procedures.

1. Section 95362(c)

Purpose

This section outlines the current set of Certification Procedures that staff is proposing to end on December 31, 2024.

Rationale

The proposed changes are necessary to align with the same date staff is proposing to remove the deposit and return program for small containers of automotive refrigerant.

2. Section 95362(d)

Purpose

This is a new section that would incorporate new specific criteria for obtaining product certifications that would begin on January 1, 2025.

Rationale

As discussed in the previous chapter for 95362(c), the current Certification Procedures will end of December 31, 2024. These would be replaced with these new Certification Procedures, which take into account the removal of the deposit and return program.

3. Section 95362(e)

Purpose

The original provisions of section 95362(d) would be moved to the new section 95362(e).

Rationale

This is a non-substantive modification to allow for the requirement in sections 95362(c) and 95362(d) to stay together for clarity.

E. Section 95363. Exemption for Low GWP Value Refrigerants

Purpose

As discussed above, staff proposes to remove this section in its entirety and move it to the “Applicability” section under 95360. Staff proposes to remove further references to section 95363, which occur in sections 95360, 95362, and 95366.

Rationale

This is a non-substantive modification that clarifies that no provision of the Regulation applies to low-GWP refrigerants as opposed to providing a specific exemption for a subpart of the Regulation.

F. Section 95364.2. Manufacturing of Products with Modified Labels (Phase III)

Purpose

Staff is proposing a new section that permits manufacturers to sell small containers of automotive refrigerant that were manufactured before January 1, 2025.

Rationale

The Proposed Amendments are necessary to clarify that manufacturers are permitted to sell their existing inventory of small containers of automotive refrigerant. Section 95366.1, which is discussed in greater detail below, would still require manufacturers to use a certain amount of reclaimed refrigerant in small containers of automotive refrigerant based on their sales in California during this sell-through period.

G. Section 95365. Container Disposal or Destruction

1. Section 95365(a)

Purpose

This section prohibits any person from disposing of or destroying any containers of automotive refrigerant unless it is performed in accordance with the Regulation. Staff proposes to end this requirement for any small container purchased before January 1, 2025.

Rationale

Since consumers would no longer be required to return their small containers of automotive refrigerant to the retailer from where they purchased, the requirement to not dispose of used containers would no longer be needed. As discussed in Chapter I (Introduction and Background), the remaining container heel is significantly lower than initially expected. Additionally, HFC-134a is no longer considered toxic according to criteria posed by the California Department of Toxic Substances Control, as discussed in Chapter VI (Environmental Analysis). These combined findings reduce the environmental burden of disposing of small containers while allowing CARB to achieve emission reductions by mandating the use of reclaimed refrigerant.

2. Section 95365(b)

Proposal

This section, in part, requires all persons to return small containers of automotive refrigerant that contain any quantity of refrigerant and was purchased before January 1, 2025, to the retailer, the manufacturer, or the manufacturer's designated recovery facility. Staff proposes to end this requirement for any small containers purchased before January 1, 2025.

Rationale

As discussed in the changes to section 95366.1, retailers would no longer be required to collect a deposit on sales of small containers of automotive refrigerant starting on January 1, 2025. That would necessitate removing the requirement in this section that consumers return all small containers of automotive refrigerant purchased on or after January 1, 2025.

3. Section 95365(c)

Proposal

This section requires refrigerant recovery facilities to be registered with CARB as described in the "Certification Procedures for Small Containers of Automotive Refrigerant." Staff proposes to end this requirement on January 1, 2025.

Rationale

The new "Certification Procedures for Small Containers of Automotive Refrigerant" that is being proposed alongside these regulatory amendments removes all requirements and references to recovery facilities. Therefore, beginning January 1, 2025, the provisions of this section will no longer be required. Additionally, staff is proposing to correct the date the "Certification Procedures for Small Containers of Automotive Refrigerant" were last amended for clarity as well as allowing manufacturers to identify to correct set of Certification Procedures to follow until January 1, 2025.

H. Section 95366. Container Deposit and Return Program Requirements

1. Section 95366(b)(8)

Purpose

This section summarizes the deposit and return requirements for both retailers and manufacturers of small containers of automotive refrigerant. Staff is proposing that manufacturers, or their designee, must exhaust all unclaimed deposits they have accrued no later than January 1, 2030.

Rationale

The Proposed Amendment is necessary to better align the use of unclaimed deposits with CARB's greenhouse gas reduction targets. Presently, unclaimed deposits are accruing at a faster rate than they are being spent. To incentivize their timely use, it is necessary to have a deadline for when the unclaimed deposit funds must be exhausted. As discussed in Chapter IV (Benefits Anticipated from the Regulatory Action), staff chose the date of January 1, 2030, to align with CARB's emission reductions goals set out in SB 32, SB 1383, and AB 1279 as well as aligning with CARB's 2022 Scoping Plan (CARB, 2022).

I. Section 95366.1. Expiration of Deposit and Reclaimed Refrigerant Requirements

Purpose

This section is added and removes all provisions of section 95366 only for small containers of automotive refrigerant sold on and after January 1, 2025.

Rationale

The Proposed Amendments are necessary to phase out the deposit and return program for small containers of automotive refrigerant. This would be accomplished by removing the collection of a deposit, whether by a retailer to a consumer, or by a manufacturer to a retailer or distributor. Staff is proposing to end these provisions on January 1, 2025.

Staff is not proposing to remove the provisions of 95366 for small containers of automotive refrigerant sold before January 1, 2025. The reasoning for this is twofold. First, staff anticipates that during the 2025 calendar year, deposits collected before January 1, 2025, will continue to be returned after that date for containers purchased up until December 31, 2024. The principle applies to reporting by retailers, distributors, and manufacturers, which would continue during the phasedown and end after the deposit program is removed. The second reason pertains to the handling and processing of unclaimed deposits that are collected from small containers of automotive refrigerant sold before January 1, 2025. Staff anticipates that these funds will continue to be managed by manufacturers, or their designee, in accordance with the provisions of section 95366, until January 1, 2030.

J. Section 95366.2. Reclaimed Refrigerant Requirements

Purpose

This section is proposed to be added and sets the parameters for the reclaimed refrigerant requirement for manufacturers of small containers of automotive refrigerant that are manufactured on or after January 1, 2025. This new section would establish reclaimed refrigerant requirements for manufacturers and reclaimers.

Rationale

The Proposed Amendments are necessary to achieve greenhouse gas reductions necessary to meet CARB's climate goals under SB 32, SB 1383, and AB 1279 as well as align with CARB's 2022 Scoping Plan (CARB, 2022). It would offset emission increases due to the removal of the deposit and return program.

1. Section 95366.2(a)

Purpose

This new section would mandate the use of reclaimed refrigerant in small containers of automotive refrigerant beginning on January 1, 2025.

Rationale

This section would create the requirement for manufacturers to use "certified reclaimed refrigerant" in small containers of automotive refrigerant. The requirements for "certified

reclaimed refrigerant” would help ensure California is realizing the expected emission reductions by setting strict parameters that reclaimed refrigerant used for small containers of automotive refrigerant must first be recovered from a previously operational appliance. Additionally, the date of January 1, 2025, was chosen to coincide with the termination of the deposit and return program, which will end on the same day.

2. Section 95366.2(b)

Purpose

The table proposed in this new section “lists the minimum percentage of the total aggregate weight in pounds of certified reclaimed refrigerant that is required by manufacturers to charge in small containers of automotive refrigerant for each calendar year and their respective dates.”

Rationale

Staff proposes a phase-in requirement for manufacturers by initially requiring a certain percentage of the total aggregate amount of certified reclaimed refrigerant for each calendar year. In 2025, each manufacturer must use 25 percent of the aggregate amount of pounds of certified reclaimed refrigerant used the previous year in California. This percentage increases to 50 percent and 100 percent for 2026 and 2027, respectively. In consultation with stakeholders, staff determined that the proposed reclaimed refrigerant requirements would quickly ramp up the phase-in to capture emission reductions while a significant portion of vehicles still use HFC-134a.

3. Section 95366.2(c)

Purpose

This new section proposes that each manufacturer’s percentage requirement of certified reclaimed refrigerant is determined by the total aggregate amount of pounds of refrigerant in small containers of automotive refrigerant that entered into California during the prior calendar year.

Rationale

Staff proposes that the percentage requirements will be determined based on the prior calendar year’s total aggregate amount of pounds of refrigerant in small containers of automotive refrigerant that each manufacturer entered into commerce in California. Manufacturers expressed concerns about the ability to procure large quantities of certified reclaimed refrigerant on short notice as opposed to virgin refrigerant. Having certainty on the amount of reclaimed refrigerant needed at the beginning of the year would provide additional time to procure that refrigerant. As such, staff proposes to allow manufacturers to calculate the amount of certified reclaimed refrigerant based on prior years’ sales to provide sufficient time to procure the necessary certified reclaimed refrigerant. Under the current regulation, manufacturers are already required to report small container sales into California every March 1, which provides them a readily available option for calculating this number.

K. Section 95367. Recycling Reporting Requirements

Purpose

This section specifies the proposed reporting requirements for retailers, distributors, manufacturers, and recyclers of small containers of automotive refrigerant.

Rationale

The Proposed Amendments are necessary to ensure that manufacturers comply with the new certified reclaimed refrigerant provisions of the rule while phasing out older reporting requirements that address the deposit and return program.

1. Section 95367(a)(1) and Section 95367(a)(2)

Purpose

Staff is proposing to separate the reporting requirements for retailers contained entirely in section 95367(a)(1) into two separate sections: one for retailer container sales and the other for retailer container returns.

Rationale

This change would help facilitate the phasedown of container return reporting requirements for retailers that are proposed under section 95367.1. After separating the prior requirements of 95367(a) into two sections for container sales and container returns, section 95367.1 will remove the reporting requirements for retailer container returns.

2. Section 95367(a)(3)

Purpose

The original provisions of section 95376(a)(2) would be moved to the new section 95367(a)(3).

Rationale

This is a non-substantive modification to allow for the requirement in sections 95367(a)(1) and 95367(a)(2) to stay together for clarity.

3. Section 95367(a)(4) and Section 95367(a)(5)

Purpose

Staff is proposing to separate the reporting requirements for manufacturers contained entirely in section 95367(a)(3) into two separate sections: one for manufacturer container sales and the other for manufacturer container returns.

Rationale

This change would help facilitate the phasedown of container return reporting requirements for manufacturers that are proposed under section 95367.1. After separating the prior requirements of 95367(3) into two sections for container sales and container returns, section 95367.1 would remove the reporting requirements for manufacturer container returns.

4. Section 95367(a)(6) – Section 95367(a)(9)

Purpose

The original provisions of sections 95376(a)(4), 95367(a)(5), 95367(a)(6), and 95367(a)(7) would be moved to the new sections 95376(a)(6), 95367(a)(7), 95367(a)(8), and 95367(a)(9), respectively.

Rationale

This is a non-substantive modification to allow for the requirement in sections 95376(a)(6), 95367(a)(7), 95367(a)(8), and 95367(a)(9), to stay together for clarity.

5. Section 95367(a)(10)

Purpose

Staff is proposing to add a requirement that all submitted reports must be accompanied by an attestation that all reported information is true, accurate, and complete.

Rationale

It is important that regulated entities supply CARB with information that is complete, accurate, and true because CARB necessarily relies upon such information to ensure that the emission benefits of the Proposed Amendments occur, to identify compliant and non-compliant entities, and, if necessary, to expeditiously initiate actions against non-compliant entities to ensure that all regulated entities are complying with the requirements in an even-handed manner. The fundamental premise underlying the attestation requirement is that requirement will provide greater assurance that a regulated entity will submit truthful and accurate information than if the attestation requirement was absent from the regulation. That requirement is fundamentally intended to deter regulated entities from intentionally reporting false or inaccurate data and will at a minimum induce regulated parties to more carefully review information before submitting it to CARB, which will ultimately ensure CARB receives truthful, accurate, and complete information needed to implement and effectively enforce the Proposed Amendments.

6. Section 95367(b)

Purpose

Staff proposes new reporting requirements for manufacturers regarding their use of reclaimed refrigerant that would require “[t]he amount of certified reclaimed refrigerant, in pounds, received and charged into small containers...reported by each refrigerant, for each reclaimer or other outlet, for each month and as totals for each reporting period.” Like other reporting requirements in this Regulation, reports would be due annually March 1 and would cover the prior calendar year.

Rationale

The reporting requirements would be necessary for CARB to enforce the regulation. It is critical that manufacturers report how much certified reclaimed refrigerant is charged into small containers of automotive refrigerant so staff can cross reference with the manufacturer’s reported sales to verify compliance. Additionally, with manufacturers

reporting the reclaimer who provided the certified reclaimed refrigerant, staff would be able to verify and cross-reference the initial source of the certified reclaimed refrigerant and be able to request further records, if needed. The March 1 date was chosen for consistency in order to match the same deadline that all other reporting entities currently have under the Regulation.

L. Section 95367.1. Expiration of Returned Containers for Recycling Reporting Requirements

Purpose

This section is proposed to be added and would remove the provisions of section 95367, which requires reporting for returns of small containers of automotive refrigerant and the amount of refrigerant recovered from returned small containers of automotive refrigerant. Staff is proposing to end provisions of sections 95367(a)(2), 95367(a)(5), 95367(a)(6), and 95367(a)(9) for small containers of automotive refrigerant sold on and after January 1, 2025.

Rationale

The Proposed Amendments are necessary to phase out the reporting requirements associated with the deposit and return program for small containers of automotive refrigerant. This would be accomplished by removing the reporting for any container of automotive refrigerant sold on or after January 1, 2025, while preserving the provisions regarding sales of small containers of automotive refrigerant and the maintenance of unclaimed deposits.

M. Section 95367.2. Use of Unclaimed Deposits

Purpose

This section is proposed to be added to further clarify how expenditure programs for unclaimed deposits shall be implemented starting on January 1, 2025.

Rationale

The Proposed Amendments are necessary to set parameters on how unclaimed deposits would be spent in order to ensure that funding directly leads to further emission reductions.

1. Section 95367.2(a)

Purpose

This section would list the activities or projects that proceeds from unclaimed deposits must be spent on. Staff is proposing that these include motor vehicle air conditioning repair or recovery and reclamation of refrigerants or foams with a GWP value greater than 150. Furthermore, staff is defining "recovery and reclamation" specifically for this section.

Rationale

This section would be necessary to verify that funding is directly related to emission reductions that have a nexus with the type of emissions that are associated with small containers of automotive refrigerants and the use of certified reclaimed refrigerant. Through

extensive research, staff have identified two areas that meet the nexus requirement and will provide emission reductions above and beyond what is already required by current regulations.

2. Section 95367.2(b)

Purpose

This section would cap the administrative costs associated with spending and implementing the unclaimed deposits. Staff is proposing a cap of 5 percent of total spending on administrative costs annually unless the exceedance is approved in advance by the Executive Officer. In order to receive approval from the Executive Officer, the manufacturer or its designee would be required to justify the request by identifying both the programs it plans to establish in accordance with 95367.2(a) and the accounting of administrative costs.

Rationale

This section would be necessary to cap any administrative costs to a reasonable amount. Manufacturers or their designee would retain the flexibility to request additional administrative funding if needed. The May 1 date was chosen to match the same date that is required for manufacturers to submit their proposed spending plans and accounting for previous years under section 95367 of the current Regulation. In providing 45 days for review, staff sought to balance enough time for review of the proposal while recognizing the urgency to complete the review as fast as possible to not cause significant delays to the start date of any proposed project.

3. Section 95367.2(c)

Purpose

This section would set the requirements for every entity that a manufacturer would elect to select as designee to administer and spend the unclaimed deposits. Staff is proposing that the designee must be a non-profit organization that demonstrates the capability to efficiently implement and monitor activities specified in section 95367.2(a).

Rationale

This section would be necessary to set the requirements for a manufacturer to select a designee to administer and spend the unclaimed deposits. This ensures that manufacturers are selecting designees that have the experience necessary to meet the obligations required in the previous section 95367.2(a).

4. Section 95367.2(d)

Purpose

This section would set the requirements for a manufacturer to request authority from the Executive Officer to select a designee to administer and spend the unclaimed deposits. In order to receive approval from the Executive Officer, the manufacturer, would be required to justify the request by identifying the proposed designee, providing the technical qualifications and experience of the staff persons overseeing the program, a description how

the designee meets the requirements in section 95367.2(c), and prior experience the designee has in implementing greenhouse gas reduction programs.

Rationale

This section would be necessary to provide the criteria and the procedures for a manufacturer to seek approval from CARB for the use of a designee and the process for CARB to approve such a request. This would ensure that unclaimed deposits are spent on appropriate projects and in a timely fashion. The required information is necessary to allow CARB's Executive Officer to determine whether a proposed designee can support the activities under proposed section 95367.2(a). As described in section 95367.2(b), the May 1 date was chosen to match the same date when manufacturers would submit their proposed spending plans and accounting for previous years under section 95367 of the current Regulation. The reoccurring May 1 date also permits CARB's Executive Officer to review designees that are chosen multiple years in a row to review prior performance. Finally, staff chose 45 days to match the same review time period for a request for additional administrative fees.

5. Section 95367(e)

Purpose

This section would set the requirements for the revocation of a designee once approved. Staff is proposing to allow the Executive Officer to revoke the designee if it is determined that the information provided by the manufacturer in section 95367.2(d) in its request to use a designee no longer accurately represents its capabilities, or the designee is incapable of implementing and monitoring the activities or combination of activities specified in section 95367.2(a).

Rationale

This section would be necessary to provide CARB the flexibility to revoke a designee once approved. This would provide CARB the flexibility to remove a designee that cannot or is not capable of fulfilling its requirements under the manufacturers' proposed plan in the event that such a scenario should arise. Staff chose 45 days to match the same review time period to match other requests under section 95367.2, including a request to appoint a designee and a request for additional administrative fees.

N. Section 95368. Enforcement

1. Section 95368(d)

Purpose

This section specifies the enforcement mechanisms available for violations of the Regulation. Staff is proposing to update the date of the Certification Procedures to the date the Proposed Amendments are adopted by the Board.

Rationale

The Proposed Amendments are necessary to reference the most recent Certification Procedures, to the proposed regulatory text.

O. Section 95369. Recordkeeping Requirements

1. Section 95369(f)

Purpose

This section specifies the recordkeeping requirements for retailers, distributors, manufacturers, and recyclers of small containers of automotive refrigerant. Staff is proposing new recordkeeping requirements for manufacturers to comply with the new reclaimed refrigerant requirements. Additionally, previous sections 95369(f), 95369(g), and 95369(h), will be renamed to sections 95369(g), 95369(h), and 95369(i), respectively.

Rationale

The Proposed Amendments are necessary for CARB to enforce the Regulation. It would provide flexibility by allowing CARB to request the information while reducing the regulatory burden on manufacturers by not requiring this information to be submitted and reported each year. As stated in the Recycling Reporting Requirements Section (95367), CARB would need additional tools to ensure compliance. The ability to request documentation showing both that the reclaimed refrigerant meets necessary specifications and that the certified reclaimed refrigerant charged into containers was properly sourced from a reclaimer would be necessary to ensure compliance. The types of documents laid out in this section would assist manufacturers in knowing what recordkeeping is required for compliance with the reclaimed refrigerant requirement. Finally, as discussed previously under the definition for “certified reclaimed refrigerant” in section 95361, these additions will align the requirements for certified reclaimed refrigerant to match those found in California Code of Regulations, tit. 17, section 95373(a).

2. Section 95367(g) – Section 95367(i)

Purpose

The original provisions of sections 95376(f), 95367(g), and 95367(h), would be moved to the new sections 95376(g), 95367(h), and 95367(i), respectively.

Rationale

This is a non-substantive modification to allow for the requirement in sections 95376(g), 95367(h), and 95367(i), to stay together for clarity.

CARB Certification Procedure – Certification Procedures for Small Containers of Automotive Refrigerant

P. Section 2. Certification Requirements

Purpose

This section lists the requirements for the self-sealing valve, leakage rate, recovery facility, labeling, and education for small containers of automotive refrigerant sold in California. Staff is proposing new certification criteria that would take effect starting January 1, 2025. While all the language in the proposed Certification Procedures is considered “new language,” to

provide clarity, staff will only highlight differences between the current Certification Procedures and the proposed Certification Procedures. Staff is proposing to remove several requirements for labeling and education while removing in its entirety the recovery facility requirements.

Rationale

The Proposed Amendments are necessary to align the Certification Procedures for Small Containers of Automotive Refrigerant with the removal of the deposit and return program.

1. Section 2.2

Purpose

This section requires manufacturers to identify and register a recovery facility with CARB for the recovery of refrigerant from small containers of automotive refrigerant. Staff is proposing to remove this section in its entirety.

Rationale

With the proposed removal of the deposit and return program, there would be no reason to require manufacturers to identify and register a recovery facility with CARB.

2. Section 2.3

Purpose

This section lists the labeling requirements for small containers of automotive refrigerant sold in California. Staff is proposing to renumber this section to 2.2 and to remove language stating: "It is illegal to destroy or discard this container or its contents;" "Return for \$10 refund;" "\$10 refundable deposit, if returned within 90 days of purchase;" and "Refundable Deposit."

Rationale

With the proposed removal of the deposit and return program, the need to have related language on the container informing consumers of the \$10 dollar deposit and encouraging container return would no longer exist. Additionally, removing this language from containers would avoid confusing consumers. Finally, this change would also help reduce the regulatory burden on manufacturers as containers have limited space for labeling.

3. Section 2.4

Purpose

This section lists the education requirements for small containers of automotive refrigerant sold in California. Staff is proposing to renumber this section to 2.3, remove education requirements about the components of the container deposit and return program, and permit the use of a Quick Response (QR) code on brochures and display placards. The addition of QR codes would allow consumers to quickly scan the information and access a website while reducing the regulatory burden on retailers and manufacturers.

Rationale

New technologies, such as QR Codes, have become more common since this Regulation was first implemented. Permitting the use of QR codes for educational material on manufacturer produced brochures and in-store display placards would help align the Regulation with common technologies, reduce regulatory burdens, and reduce the printing of excess material. This technology is readily available, supported by stakeholders, and is commonplace for most retail stores.

IV. Benefits Anticipated from the Regulatory Action, Including the Benefits or Goals Provided in the Authorizing Statute

CARB maintains a California-specific fluorinated gas (F-gas) inventory as part of the statewide GHG Emission Inventory used to estimate emissions and track California's progress in reducing GHG emissions. To determine the baseline scenario for the economic and emission analysis, staff used California's F-gas inventory and the 2020 Department of Finance population forecasts. The Proposed Amendments and alternative scenarios result in economic and emission changes relative to the baseline scenario. The projected years, up to 2045, are in line with CARB's 2022 Scoping Plan (CARB, 2022).

CARB estimates annual HFC emissions to be 16.5 MMTCO_{2e} in 2013, the baseline year for the SB 1383 target (CARB, 2022). The estimated impact of CARB's existing rules and federal programs is a reduction in HFC emissions to approximately 10 MMTCO_{2e} annually, which would meet the 40 percent reduction below 2013 levels target by 2030, as mandated by SB 1383 (CARB, 2022).

The requirements for reclaimed refrigerant in the Proposed Amendments are expected to reduce HFC emissions by 1.6 and 3.3 MMTCO_{2e} cumulatively by 2030 and 2045, respectively. The Proposed Amendments will further CARB's goal to achieve the 2030 or 2045 climate goals set by SB 1383 SB 32, and AB 1279.

Furthermore, staff anticipates that the additional procedures and parameters for spending unclaimed deposits in the Proposed Amendments would lead to increased emission reductions. The Proposed Amendments would require that the unclaimed deposits be spent on specific activities or projects that have a direct nexus with the type of emissions that are associated with small containers of automotive refrigerants and the use of certified reclaimed refrigerant. Since these activities or projects have yet to be identified, it is not possible for staff to identify their potential emission reductions. Additionally, the Proposed Amendments would refine procedures and parameters for spending unclaimed deposits on activities or projects that directly link to MVAC emission reductions as well as recovery and reclamation of refrigerant or foams with a GWP value greater than 150. The unclaimed deposits must be spent in totality by January 1, 2030, which will assist in meeting the 2030 or 2045 emission reductions targets of SB 1383, SB 32, and AB 1279.

The use of reclaimed refrigerant provides emission benefits over virgin refrigerant by bypassing the need for raw materials and reducing the energy required to produce a given amount of refrigerant (Yasaka, Karkour, Shobatake, Itsubo, & Yakushiji, 2023). These benefits are modest in the scope of this report, but large-scale reclamation rather than destruction of refrigerant after recovery will provide tangible emission benefits.

The Social Cost of Carbon allows CARB to provide monetary estimates of the damages that would be avoided by reducing GHG emissions under the Proposed Amendments. Staff used annual reports submitted by manufacturers, distributors, and retailers to determine the economic and emission impacts and benefits. The following sections describe the emissions benefit methodology and their results.

A. Emission Benefits Methodology

From 2019 to 2021, refrigerant equivalent to 0.02 MMTCO_{2e} was recovered from returned containers annually and is considered business as usual (BAU) for the existing regulation in this analysis.

To estimate emissions, staff determined how much refrigerant is consumed in HFC-134a MVAC systems annually in California. Multiple factors were considered including passenger vehicle population, annual sales data from small container manufacturers and retailers, estimated number of vehicles at end-of-life, and market penetration of new HFO-1234yf MVAC systems replacing HFC-134a MVAC systems. Staff calculated the annual HFC-134a refrigerant demand by multiplying the number of containers sold by 12 ounces, the typical amount of refrigerant weight per container. The annual HFC-134a demand is then divided by the passenger vehicle population to determine the average refrigerant use per vehicle. The average HFC-134a use per vehicles is multiplied by the number of vehicles using HFC-134a for each year through 2045. This gives the amount of HFC-134a used in small containers in each year, which is then multiplied by the required percentage of HFC-134a that must be reclaimed, giving projected reclaimed refrigerant usage.

Staff recognizes that reclaimed refrigerant has emissions associated with its use, and discounting is necessary in order to take this into account. To be conservative, staff estimates emission reductions to be 50 percent of HFC-134a reclaimed for use in small containers. This 50 percent rate is specific to the application of small containers and the resulting estimated emission reductions should be considered the lower bound of expected emission reductions. HFC-134a is a pure refrigerant, making it significantly easier to recover and reclaim to specification than other refrigerants, most of which are refrigerant blends. Additionally, this rule would mandate the use of "certified reclaimed refrigerant", which is defined as reclaimed refrigerant that uses a zero percent virgin allowance. This analysis is conservative and additional research would more accurately quantify the benefits of reclaimed refrigerant.

The difference in emission reductions between the Proposed Amendments for each year and the existing regulation (average emission reductions from 2019 to 2021) are considered the emission benefits. Emission benefits would increase when the reclaimed refrigerant requirements are phased in from 2025 to 2027 and would steadily decrease from 2028 onwards as demand for HFC134-a in MVAC systems falls due to the increasing prevalence of new HFO-1234yf MVAC systems. Table 2 shows projected emission reductions and benefits through 2045 that would result from the Proposed Amendments. Cumulative emission reductions and benefits would reach an estimated 3.3 MMTCO_{2e} and 2.9 MMTCO_{2e}, respectively by 2045.

Table 2. Emission Reductions and Benefits from Proposed Amendments Compared to the Existing Regulation

Year	Projected Emission Reductions (MMTCO ₂ e)	Projected Emission Benefits (MMTCO ₂ e)
Existing Regulation	0.02	
2025	0.11	0.09
2026	0.20	0.19
2027	0.38	0.36
2028	0.34	0.32
2029	0.31	0.29
2030	0.27	0.25
2031	0.24	0.22
2032	0.21	0.19
2033	0.19	0.17
2034	0.16	0.14
2035	0.14	0.12
2036	0.12	0.10
2037	0.11	0.09
2038	0.09	0.07
2039	0.08	0.06
2040	0.07	0.05
2041	0.06	0.04
2042	0.06	0.04
2043	0.05	0.03
2044	0.05	0.03
2045	0.04	0.02
Total (2025-2045)	3.28	2.88

B. Social Cost of Carbon Benefits

The Social Cost of Carbon (SC-CO₂) for a given year is an estimate, in dollars, of the present discounted value of the future damage caused by a 1-metric ton increase in carbon dioxide emissions into the atmosphere in that year, or equivalently, the benefits of reducing CO₂ emissions by the same amount in that year. The SC-CO₂ is intended to provide a comprehensive measure of the net damages that is, the monetized value of the net impacts from global climate change that result from an additional ton of CO₂. These damages include, but are not limited to, changes in net agricultural productivity, energy use, human health, property damage from increased flood risk, as well as nonmarket damages, such as the services that natural ecosystems provide to society.

The SC-CO₂ is year specific and highly sensitive to the rate used to discount the value of the damages in the future due to CO₂. The SC-CO₂ increases over time as systems become more stressed from the aggregate impacts of climate change and future emissions cause incrementally larger damages. A higher discount rate decreases the value today of future environmental damages. This analysis uses the Interagency Working Group (IWG) standardized range of discount rates from 2.5 to 5 percent to represent varying valuation of

future damages. Table 3 presents the range of IWG SC-CO₂ values used in California’s regulatory assessments such as the 2022 Scoping Plan (CARB, 2022; IWGSCGG, 2016).

Table 3. Social Cost of Carbon in 2025-2045 by Different Discount Rate (2021\$ Per Metric Ton)

Year	Discount Rate		
	5%	3%	2.5%
2025	\$19	\$63	\$93
2026	\$19	\$64	\$94
2027	\$21	\$66	\$96
2028	\$21	\$67	\$97
2029	\$21	\$67	\$98
2030	\$22	\$68	\$100
2031	\$22	\$70	\$101
2032	\$23	\$71	\$103
2033	\$23	\$72	\$104
2034	\$25	\$74	\$105
2035	\$25	\$75	\$107
2036	\$26	\$77	\$108
2037	\$26	\$78	\$111
2038	\$27	\$79	\$112
2039	\$27	\$81	\$114
2040	\$29	\$82	\$115
2041	\$29	\$83	\$116
2042	\$30	\$83	\$118
2043	\$30	\$85	\$119
2044	\$31	\$86	\$120
2045	\$31	\$88	\$122

The total avoided SC-CO₂ (\$) in a given year is the emission reductions (MTCO_{2e}) for that year multiplied by the SC-CO₂ (\$/MTCO_{2e}) of that year. The annual emission reductions from the Proposed Amendments are shown in Table 4 below. The total benefits range between \$77 million and \$341 million cumulatively for 2025 through 2045, based on different discount rates.

The SC-CO₂ estimates discussed above are calculated utilizing the social cost of atmospheric release of CO₂ and most likely represent a lower bound for the damages caused by venting HFC-134a. This is due to HFC-134a being 1,430 times more potent at trapping heat than carbon dioxide.

Table 4. Avoided Social Cost of CO₂ with Different Discount Rates (Million 2021\$)

Year	Projected Emission Reductions (MMTCO ₂ e)	Discount Rate		
		5%	3%	2.5%
2025	0.11	\$2	\$7	\$10
2026	0.20	\$4	\$13	\$20
2027	0.38	\$8	\$25	\$37
2028	0.34	\$7	\$23	\$34
2029	0.31	\$7	\$21	\$30
2030	0.27	\$6	\$19	\$28
2031	0.24	\$6	\$17	\$25
2032	0.21	\$5	\$15	\$22
2033	0.19	\$5	\$14	\$20
2034	0.16	\$4	\$12	\$17
2035	0.14	\$4	\$11	\$15
2036	0.12	\$3	\$10	\$14
2037	0.11	\$3	\$8	\$12
2038	0.09	\$3	\$7	\$10
2039	0.08	\$2	\$7	\$9
2040	0.07	\$2	\$6	\$8
2041	0.06	\$2	\$5	\$7
2042	0.06	\$2	\$5	\$7
2043	0.05	\$2	\$4	\$6
2044	0.05	\$1	\$4	\$5
2045	0.04	\$1	\$4	\$5
Total	3.28	\$77	\$237	\$341

V. Air Quality

There are no direct air quality health benefits that can be quantified from the GHG reductions from the Proposed Amendments. However, climate change poses a disproportionate impact on sensitive age groups, people with pre-existing health conditions, as well as DACs (Bedsworth, Cayan, Franco, Fisher, & Zaija, 2019). For example, global warming or higher temperatures lead to an increase in the formation of ground-level ozone, a criteria air pollutant (Knowlton, Rotkin-Ellman, Geballe, Max, & Solomon, 2011). In addition, the number of extreme heat days is increasing. Illnesses and deaths from extreme heat events will likely increase, causing heatstroke and other heat-related illnesses (OEHHA, 2022).

Millions of residents who live in DACs across the State have experienced a combination of higher vulnerability to adverse health effects from air pollution and higher exposure to pollution sources than residents who don't live in DACs. These communities are also more vulnerable to the health effects of climate change. For these residents, actions to reduce GHG emissions are even more critical. Individuals and communities that are at a social and financial disadvantage are less able to deal with stresses caused by climate change such as high temperatures and wildfires, and they are more likely to suffer physical and psychological harm.

VI. Environmental Analysis

A. Introduction

This chapter provides the basis for staff's determination that the Proposed Amendments are exempt from the requirements of the California Environmental Quality Act (CEQA). A brief explanation of this determination is provided in Section B below. CARB's regulatory program, which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality, has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of CEQA (Cal. Code Regs., tit. 14 § 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. CARB, as a lead agency, prepares a substitute environmental document (referred to as an "Environmental Analysis" or "EA") as part of the Staff Report to comply with CEQA (Cal. Code Regs., tit. 17 §§ 60000-60008). If the Proposed Amendments are finalized, a Notice of Exemption will be filed with the Office of the Secretary for the Natural Resources Agency for public inspection.

B. Analysis

Staff has determined that the Proposed Amendments are exempt from CEQA under the "general rule" or "common sense" exemption (Cal. Code Regs., tit. 14, § 15061(b)(3)). The commonsense exemption states a project is exempt from CEQA if "[t]he activity is covered by the common sense exemption that CEQA applies only to projects, which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA."

Staff has determined that the Proposed Amendments are categorically exempt from CEQA under the "Class 8" exemption (Cal. Code Regs., tit. 14, § 15308) because they are an action taken by a regulatory agency for the protection of the environment; and because it can be seen with certainty that there is no possibility that the Proposed Amendments may have a significant effect on the environment (as described in CEQA Guidelines §15061(b)(3) for "common sense" exemptions).

The Proposed Amendments would require reclaimed refrigerant to be used in small containers of automotive refrigerant in phases, starting in 2025, to compensate for the GHG emission reductions from the current regulation, as discussed in Chapter IV. The proposed action constitutes an action taken by a regulatory agency, as authorized by state law, to assure the maintenance, restoration, enhancement, or protection of the environment, as contemplated by the "Class 8" exemption.

During the 2016 amendment process, the deposit and return program was proposed to be removed, but a concern was raised about household hazardous waste (HHW) issues associated with any HFC-134a remaining in used containers upon disposal. A review of Safety Data Sheets (SDS, formerly known as Material Safety Data Sheet) for small containers provided by container manufacturers indicate that HFC-134a passed most of the HHW criteria (e.g., flammability and a series of toxicities) except for its aquatic toxicity. That is, the existing aquatic toxicity Lethal Concentration 50 (LC₅₀) of 450 mg/L failed to pass the HHW

threshold criteria of 500 mg/L posed by the California Department of Toxic Substances Control¹². The LC₅₀ is the concentration of a chemical in water that kills 50 percent of the test specimens during the observation period. In general, the smaller the LC₅₀ is for a given chemical, the more toxic it is. A close review of the limited information regarding HFC-134a's aquatic toxicity determination by several toxicologists concluded that the methodology was flawed. DTSC's test procedures were not followed, as the testing container was closed, and the data was unpublished, meaning the details of the test conditions are unknown. Staff suggested another aquatic toxicity be done in accordance with established protocol.

Small container manufacturers, through the Car Care Council, contracted McCampbell Analytical, Inc., a certified aquatic toxicity study lab, to determine the aquatic toxicity threshold for HFC-134a (McCampbell Analytical, Inc., 2021) using DTSC's protocol. This study concluded that LC₅₀ for HFC-134a is >818 mg/L, which is above the DTSC aquatic toxicity threshold of 500 mg/L (McCampbell Analytical, Inc., 2021). The results were shared with and endorsed by DTSC (DTSC, 2021). In addition, the report was shared with the U.S. EPA and uploaded to its ECOTOX database, a comprehensive knowledgebase providing single chemical environmental toxicity data on aquatic and terrestrial species. Small container manufacturers are in the process of updating the ecotoxicity section of SDS for small containers. Based on newly obtained aquatic toxicity data, staff concludes that the Proposed Amendments are not expected to have an adverse effect on water quality and used containers are not considered HHW.

Another concern regarding proper disposal of used containers was raised during the amendment process. Without the deposit and return program, the primary method for consumers to dispose of used containers is their household recycling bin, which is managed by their local waste management facility under guidance developed by the California Department of Resources Recycling and Recovery (CalRecycle). According to CalRecycle, empty containers can be treated as any other metal container and disposed of in consumer recycling bins. Local recycling centers are responsible for implementing appropriate recycling options for non-empty used containers to ensure proper disposal (CalRecycle, 2023). Rerouting these containers would not cause a need to expand any waste or recycling facilities if the deposit and return program ends as the number of used containers of refrigerant is small relative to the number of other containers that are processed for recycling in the same manner.

The Proposed Amendments are designed to protect the environment and staff has determined no substantial evidence indicating that the proposal could adversely affect air quality or result in serious or major disturbances to any other environmental resource area. Further, the proposed action would not result in a significant adverse impact on the physical environment or alter or expand the use of existing public or private structures or facilities. As such, there is no foreseeable possibility that the Proposed Amendments may result in any significant adverse impact on the environment or that any of the exceptions to these exemptions apply (Cal. Code Regs., tit. 14, § 15300.2); therefore, this activity is exempt from CEQA.

¹² Cal. Code Regs. tit. 22, § 66261.24(a)(6)

VII. Environmental Justice

State law defines environmental justice as the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Gov. Code, § 65040.12, subd. (e)(1)). Environmental justice includes, but is not limited to, all of the following: (A) The availability of a healthy environment for all people. (B) The deterrence, reduction, and elimination of pollution burdens for populations and communities experiencing the adverse effects of that pollution, so that the effects of the pollution are not disproportionately borne by those populations and communities. (C) Governmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision making process. (D) At a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions (Gov. Code, § 65040.12, subd. (e)(2)). The Board approved its Environmental Justice Policies and Actions (Policies) on December 13, 2001, to establish a framework for incorporating environmental justice into CARB's programs consistent with the directives of State law. These policies apply to all communities in California but are intended to address the disproportionate environmental exposure burden borne by low-income communities and communities of color. Environmental justice is one of CARB's core values and fundamental to achieving its mission.

The current deposit and return program requires that consumers pay a \$10 deposit with each container purchased. The Proposed Amendments would benefit consumers who purchase small containers by removing the burden of the container deposit. The cost of a professional repair is typically substantially higher than that of using a small container to recharge an MVAC system. DIYers opt to recharge their MVAC systems using small containers multiple times per year instead of a professional repair shop due to the significant cost difference (CARB, 2009).

The impact of the Proposed Amendments on California's DACs is discussed in Appendix C. "Disadvantaged Community" means a census tracts or applicable tribal data designated by the California Environmental Protection Agency for the purposes of SB 535¹³ using the most current version of CalEnviroScreen (California Communities Environmental Health Screening) by the Office of Environmental Health Hazard Assessment (OEHHA). CalEnviroScreen is a mapping tool that helps identify California communities that are most affected by many sources of pollution by assigning a score to each census tract (OEHHA, 2022). Communities that score in the top 25 percent (score 75-100) are considered DACs. Staff analyzed the store-by-store sales and return data provided by four major retailers. This data, collected from 2017 to 2020, covers over 1,500 auto parts stores which accounts for more than 90 percent of small container sales in California. Container sales in each retail location are mapped onto the CalEnviroScreen map and assigned a score corresponding to the census tract they fall in. The retailers are grouped into four categories: 0-25, 25-50, 50-75, and 75-100 (DAC) based on the CalEnviroScreen Score of their census tracts. Approximately 40 percent of containers were sold in DACs from 2017 to 2020, as shown in Figure 2 of Appendix C.

¹³SB 535 (De León Stats. 2012, ch. 830); Health & Saf. Code §§ 39711, 39713, 39715, 39721, and 39723

Staff analysis indicates that there are more small containers sales and returns in DACs than other communities (Figure 2 of Appendix C). Return rates are higher (61-68 percent) in communities with a higher CalEnviroScreen Score (51-100) than those (57-58 percent return rate) in communities with a lower CalEnviroScreen Score (0-50). However, as more total containers are sold in DACs, greater amounts of unclaimed deposits are observed accumulating from DACs. The average amount of unclaimed deposits from DACs (75-100) accumulating each year are approximately \$1.78 million, as shown in Figure 2 below. Staff analysis supports the removal of the deposit and return program as it would provide savings to all California consumers, with those living in DACs receiving the greatest economic benefit.

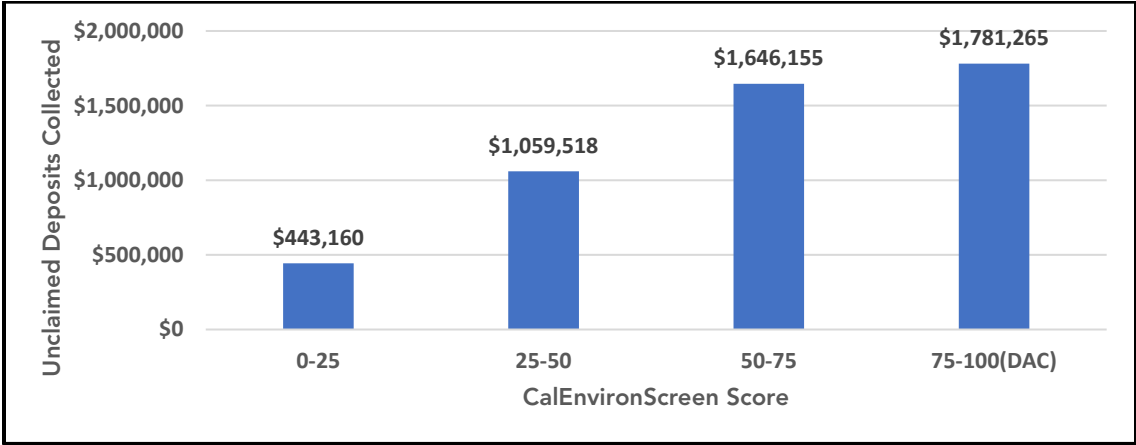


Figure 2. Average Annual Unclaimed Deposits from 2017-2020

VIII. Economic Impacts Assessment

This chapter describes the economic impacts that are anticipated from the implementation of the Proposed Amendments.

The Proposed Amendments would require manufacturers to use reclaimed refrigerant in three phases, starting in 2025, and add new reporting requirements for manufacturers and reclaimers. The Proposed Amendments would also remove the deposit and return program as well as the associated annual reporting and labeling requirements.

Staff’s economic analysis is focused on the estimated costs that may be incurred to comply with the Proposed Amendments, including the proposed reclaimed refrigerant requirements as well as the new annual reporting requirements.

Staff evaluated the estimated cost impacts of the Proposed Amendments on container manufacturers and other associated entities to evaluate the cost-effectiveness of the Proposed Amendments. Because cost-effectiveness is based on cost-per-metric ton of CO₂e reduced, cost-effectiveness information is presented in this metric.

Economic impact analyses are inherently imprecise, given the unpredictable behavior of companies in a highly competitive market for automotive products. While staff has quantified the economic impacts to the extent feasible, some projections are necessarily qualitative, and are based on general observations and facts known about the automotive products industry. This analysis, therefore, serves to provide a general picture of the economic impacts typical

businesses might encounter. Individual companies may experience different impacts than projected.

A. Legal Requirements

Section 11346.2 of the Government Code requires an economic impact assessment for non-major regulations or a standard regulatory impact analysis (SRIA) for major regulations to be included in the Staff Report when proposing to adopt, amend, or repeal a regulation. A major regulation is one that has “an estimated economic impact to business enterprises and individuals located in or doing business in California exceeding \$50 million in any 12-month period between the date the major regulation is estimated to be filed with the Secretary of State through 12 months after the major regulation is estimated to be fully implemented.” Staff has determined that the Proposed Amendments do not meet the major regulation threshold and a SRIA is not required.

For non-major regulations, sections 11346.2 and 11346.3 of the Government Code require state agencies to assess the potential for adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulation. The assessment shall include a consideration of the impact of the Proposed Amendments on California jobs; business expansion, elimination, or creation; the ability of California businesses to compete; and benefits of the regulation to the health and welfare of California residents, worker safety, and the state’s environment.

B. Summary of Economic Impacts

In this section, staff estimates the economic impacts from the implementation of the Proposed Amendments. The analysis focuses on the estimated costs of the reclaimed refrigerant requirement and new reporting costs¹⁴ for manufacturers and reclaimers. The Proposed Amendments do not contain any additional requirements for action on businesses and individuals.

Staff has estimated that the total cost to comply with the Proposed Amendments is approximately \$45.5 million from 2025 to 2045 or \$2.2 million per year. This cost includes both the price differential of reclaimed refrigerant and additional reporting requirements. Table 5 shows the estimated annual cost of the Proposed Amendments. 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 (Energizer, 2022). 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. Through stakeholder engagement, staff received feedback from manufacturers that selling exclusively reclaimed refrigerant in California would be burdensome as it would require additional equipment purchases for segmented processing of refrigerant.

¹⁴ The total annual reporting cost for all manufacturers was included in the Cost for Manufacturers calculations in Table 5, but the total reporting cost of \$1,708 was considered negligible and a separate line item for it was not deemed necessary.

It is important to note that these cost estimates utilize an estimated price increase of reclaimed refrigerant from one manufacturer who claims a cost increase and therefore represents the upper bound to cost estimates (Energizer, 2022). Staff has also received input from a major reclaimer who indicates there is no price differential for reclaimed refrigerant either presently or projected (A-Gas, 2022).

Staff projects a sales decrease of HFC-134a refrigerant 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 (U.S. EPA, 2022c; CARB, 2021). In other words, the increased prevalence of vehicles with HFO-1234yf MVAC systems will decrease the demand for HFC-134a.

Table 5. Estimated Annual Costs

Year	Reclaimed Refrigerant Required	Estimated Refrigerant Sales (lb)	Costs for Manufacturers
2025	25%	1,347,416	\$1,517,551
2026	50%	1,262,918	\$2,843,274
2027	100%	1,162,317	\$5,232,135
2028		1,049,051	\$4,722,438
2029		941,349	\$4,237,779
2030		839,530	\$3,779,593
2031		744,254	\$3,350,851
2032		655,922	\$2,953,357
2033		574,897	\$2,588,745
2034		501,346	\$2,257,765
2035		435,549	\$1,961,679
2036		377,334	\$1,699,711
2037		326,751	\$1,472,088
2038		283,431	\$1,277,148
2039		246,938	\$1,112,929
2040		216,422	\$975,607
2041		191,129	\$861,789
2042		170,224	\$767,716
2043		152,997	\$690,195
2044		138,846	\$626,515
2045	121,938	\$550,429	
Average		559,074	\$2,165,680
Total		11,740,559	\$45,479,289

C. Cost of Compliance

To determine the total cost to comply with the Proposed Amendments, an estimation of the recurring and nonrecurring costs is required. Recurring costs for this analysis are the additional annual reporting for manufacturers and the potential cost increase of reclaimed refrigerant compared to virgin refrigerant. Staff does not anticipate significant nonrecurring costs, as much of the infrastructure to meet the reclaimed refrigerant requirements is already in place, based on discussions with container manufacturers.

D. Methodology

To estimate the costs, staff determined how much refrigerant is consumed annually. Multiple factors are considered, including passenger vehicle population, annual sales data from container manufacturers and retailers, estimated vehicle scrappage, and market penetration of new vehicles with HFO-1234yf MVAC systems.

The on-road vehicle population was estimated through the CARB's EMFAC (short for Emission FACtor) model utilizing EMFAC2021 v1.0.1 Emissions Inventory and Fleet Database (CARB, 2021). The data consists of records collected by the California Department of Motor Vehicles and date back to 2000. The model also provides data on scrappage of vehicles. After establishing the on-road vehicle population, staff applied HFO-1234yf market penetration estimates from the U.S. EPA's 2021 Automotive Trends Reports to determine the number of HFC-134a MVAC systems on the road (U.S. EPA, 2022c). Staff estimated that it takes an average of seven years for a new vehicle to need a MVAC recharge (Zhan, Clodic, Palandre, Temolet, & Riachi, 2013). The total affected vehicle population doesn't include vehicle models less than seven years old or vehicles with HFO-1234yf MVAC systems. The net vehicle population per year includes vehicles ranging from model year 2000 to the model year seven years prior to the year being projected. For instance, in 2025 the vehicle population will consist of model years 2000 to 2018.

In order to project the future costs of reclaimed refrigerant, staff met with manufacturers to discuss possible cost increases due to the Proposed Amendments. One manufacturer brought up that the potential cost increase of reclaimed refrigerant could increase the price of small containers of automotive refrigerant. As a counterpoint, several other stakeholders indicated that they do not expect a price increase of reclaimed refrigerant since the price of reclaimed refrigerant needs to stay competitive with virgin refrigerant. Effects on container consumers and an increase in reclaimed refrigerant pricing are used to evaluate future economic impacts on manufacturers. However, due to the highly speculative nature of refrigerant pricing, current pricing is used to evaluate the regulatory alternatives (i.e., no change and ban), as described in Chapter IX.

E. Potential Impacts on Businesses

Small businesses would not see costs associated with the Proposed Amendments. The small businesses that would be impacted by the Proposed Amendments are individually owned automotive retailers who do not have any additional direct costs or reporting requirements.

Typical businesses impacted by the Proposed Amendments are small container manufacturers, refrigerant reclaimers, and large automotive retailers. Small container manufacturers will see small costs associated with new reporting requirements. Staff estimates reporting will require 12 hours of labor per reporting entity annually. To estimate an hourly cost, staff used the mean wage for the classification of Bookkeeping, Accounting, and Auditing Clerks in California, which is \$24.56 divided by 0.69 to obtain the wage plus benefits for a total cost of \$35.59 per hour. Therefore, total annual reporting costs are \$427.08 per manufacturer, or \$1,708 for all four manufacturers (Bureau of Labor Statistics, 2021).

F. The creation or elimination of jobs within the State of California

Due to the projected increase in demand for reclaimed HFC-134a related to the Proposed Amendments, more jobs may be created in the reclamation industry to meet the demand. There are several in-state reclaimers, one of which is considered a small business so position growth may increase but would be negligible in comparison to the California job market overall.

G. The creation of new business or the elimination of existing businesses within the State of California

The Proposed Amendments would increase the over-the-counter sale of reclaimed refrigerant and decrease the sale of virgin refrigerant. Virgin refrigerant manufacturers that sell to manufacturers of small containers of automotive refrigerant may see a decline in overall sales, but these businesses are not located in California.

H. The expansion of businesses currently doing business within the State of California

Refrigerant recovery businesses located in California are expected to see an increase in reclaimed refrigerant demand and revenue. With the removal of the deposit and return requirements, retailers may see an increase in sales.

I. Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete

The proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

J. The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment

The Proposed Amendments are expected to reduce GHG emissions by 1.6 and 3.3 MMTCO_{2e} cumulatively by 2030 and 2045, respectively. The Social Cost of Carbon benefits range between \$77 million and \$341 million cumulatively for 2025 through 2045. For detailed information on health and emission benefits of the Proposed Amendments, see Chapters IV and V.

There would be a benefit of \$59.5 million as deposits are no longer required to be collected from consumers. These represent the projected unclaimed deposits avoided from 2025 to 2045 as presented in Table 6 below. CARB does not anticipate any cost or benefit to worker safety.

Table 6. Unclaimed Deposits Avoided

Year	Number of Containers	Benefits (millions)
2025	682,691	\$6.8
2026	639,878	\$6.4
2027	588,907	\$5.9
2028	531,519	\$5.3
2029	476,950	\$4.8
2030	425,362	\$4.3
2031	377,089	\$3.8
2032	332,334	\$3.3
2033	291,281	\$2.9
2034	254,015	\$2.5
2035	220,678	\$2.2
2036	191,183	\$1.9
2037	165,554	\$1.7
2038	143,605	\$1.4
2039	125,115	\$1.3
2040	109,654	\$1.1
2041	96,839	\$1.0
2042	86,247	\$0.9
2043	77,518	\$0.8
2044	70,349	\$0.7
2045	61,782	\$0.6
Total	5,948,550	\$59.5

K. Fiscal Impact to Local and State Government

Staff estimated the fiscal impacts of the Proposed Amendments on State and local agencies. These potential fiscal impacts are costs incurred by state agencies to administer, enforce, or comply with the proposal. Staff used the combined state and local sales tax rate of 8.7 percent with 3.9 percent going towards state revenues and 4.8 percent going towards local revenues (CDTFA, 2022; CDTFA, 2023). The state government will see an estimated increase of \$1.7 million and local governments will see an estimated \$2.2 million from 2025 to 2045 due to potential increased sales taxes. Elimination of the container deposit and return program would represent a minimal reduction in workload to CARB staff.

IX. Evaluation of Regulatory Alternatives

Government Code section 11346.2, subdivision (b)(4) requires CARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives. This section discusses alternatives evaluated and provides reasons why these alternatives were not included in the proposal. As explained below, no alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance with the authorizing law.

The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

A. Alternative Considered to the Proposed Regulations

1. Alternative 1. No Change

Staff considered two potential alternatives to the Proposed Amendments, including the no action alternative. 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 small containers to offset the emission reductions from the current Regulation while reducing costs to Californians. The current deposit and return program achieves small emission reductions of 0.02 MMTCO₂e annually while disproportionately burdening DACs. The emission losses due to removal of the deposit and return program would be offset by the benefits 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 DACs.

Additionally, the original regulation estimated that the regulation requirements cost manufacturers \$1 per container to cover the cost of the self-sealing valve (\$0.25) and the deposit and return program (\$0.75) in 2010. Since the self-sealing valve would still be required under the Proposed Amendments, manufacturers would still incur the cost of its implementation. Adjusting for inflation, the deposit and return program costs manufacturers \$1.04 per container or \$1.59 million for 1.53 million containers (Bureau of Labor Statistics, 2023a).

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 MMT CO₂e, more reductions of GHGs between 2025 and 2045 than Alternative 1, and Alternative 1 imposes greater costs 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, these expected emission benefits come at a higher cost to California residents, particularly those living in DACs.

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 MVAC servicing to be done by professional technicians. This alternative was considered during the initial development of the Regulation in 2009 but was rejected due to economic impact on DIYers 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 will be estimated emission reductions of 7.6 MMTCO₂e cumulatively by 2045, which should be considered the upper bound of potential emission reductions from this alternative as some DIYers 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 the cost of approximately \$39 or

1.3 containers (Tremoulet, Riachi Youssel, Palandre, & Clodic, 2008). Staff estimated that professional diagnosis, repairs, and recharges cost approximately \$650 in 2008, which, adjusting for inflation, would be \$926 in 2023 (Bureau of Labor Statistics, 2023b; CARB, 2008b). DACs, which account for approximately 40 percent of small containers purchased, would be most affected as this high cost would add to existing community burdens. 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, this would have a higher cost impact for consumers.

B. Small Business Alternative

Since the initial development of regulation, staff has been aware that Alternative 2 would impact small businesses since there are many small individually owned automotive retailers who carry small containers. Small businesses are unlikely to experience any direct costs associated with the Proposed Amendments. The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

C. Performance Standards in Place of Prescriptive Standards

Government Code section 11346.2(b)(4)(A) requires that when CARB proposes a regulation that would mandate the use of specific technologies or equipment, or prescribe specific actions or procedures, it must consider performance standards as an alternative. The Proposed Amendments are a performance standard since they do not mandate the use of specific technologies or equipment or prescribe specific actions or procedures. Staff concludes that the Proposed Amendments don't specify the refrigerant reclamation sources and technologies, or container manufacturing technologies so is considered a performance standard.

D. Health and Safety Code section 57005 Major Regulation Alternatives

The Proposed Amendments would not result in a total economic impact on state businesses of more than \$10 million in one or more years of implementation. Therefore, this proposal is not a major regulation as defined by Health and Safety Code section 57005.

X. Justification for Adoption of Regulations Different from Federal Regulations Contained in the Code of Federal Regulations

Currently, there are no federal regulations that require reclaimed refrigerant in small containers of automotive refrigerant. However, it is important to note that the Proposed Amendments would align with the Federal AIM Act, as described in Chapter 1, in

incentivizing HFC recovery and increasing the supply of reclaimed refrigerant. The amount of reclaimed HFC-134a necessary to meet the requirements of the Proposed Amendments is small, relative to the amount used in all applications. The Proposed Amendments would align with the AIM Act production phase-down and help serve as a market incentive for reclamation operations alongside the AIM Act's requirements.

XI. Public Process for Development of the Proposed Action (Pre-Regulatory Information)

Consistent with Government Code sections 11346, subdivision (b), and 11346.45, subdivision (a), and with the Board's long-standing practice, staff held public workshops and had other meetings with interested persons during the development of the Proposed Amendments. These informal pre-rulemaking discussions provided staff with useful information that was considered during development of the regulation that is now being proposed for formal public comment.

To facilitate public comment during the pre-rulemaking process, staff requested public input in several ways. Staff held two public workshops to discuss the Proposed Amendments and solicit input. Staff also maintained a web-based subscriber notification process.

On January 5, 2022, staff announced a public workshop and held a virtual webinar on January 20, 2022. Staff posted the workshop notice on the CARB website and notified the affected stakeholders, as well as subscribers to the small container listserv. The workshop announcement included a discussion of staff's Proposed Amendments and 58 stakeholders participated in the workshop.

On April 28, 2022, staff held a technical meeting with small container manufacturers and reclaimers to discuss reclamation related issues. This meeting was held in the form of a webinar. Staff presented and received feedback.

On August 25, 2022, staff announced another public workshop and held a virtual webinar on September 9, 2022. Staff posted the workshop notice on the CARB website and notified affected stakeholders, as well as subscribers to the small container listserv. The workshop included a discussion of updated Proposed Amendments and 35 stakeholders participated in the workshop.

XII. References

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XIII. Appendices

Appendix A-1: Proposed Regulation Order

Appendix A-2: Proposed Regulation Order (Accessible Format)

Appendix B: Certification Procedures

Appendix B-2: Certification Procedures (Accessible Format)

Appendix C: Impacts of Proposed Amendments on Disadvantaged Communities