

# APPENDIX A

## Proposed Regulation: Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration and Foam End-Uses

California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4

[Note: Subarticles 4 and 5 would be amended as indicated. The proposed amendments to existing text are shown in underline to indicate addition and ~~strikeout~~ to show deletions from the existing regulatory text. All other portions of the article remain unchanged.]

**Subarticle 4.** ~~[RESERVED]~~ Small Containers of Automotive Refrigerant

~~Subarticle 5.~~ ~~Small Containers of Automotive Refrigerant~~

\*\*\*

Adopt new sections 95371, 95372, 95373, 95374, 95375, 95376, and 95377, Article 4, Subarticle 5, Chapter 1, Division 3, Title 17, California Code of Regulations to read as follows:

**Subarticle 5.** **Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration and Foam End-Uses**

**§ 95371. Purpose.**

(a) The purpose of this subarticle is to reduce hydrofluorocarbon emissions by adopting specific United States Significant New Alternatives Policy Program (SNAP) prohibitions for certain substitutes in refrigeration and foam end-uses.

(b) This subarticle is designed to support California's progress toward the 2030 greenhouse gas reduction targets identified in Health and Safety Code sections 38500 et seq., hydrofluorocarbon emissions reduction targets identified in Health and Safety Code section 39730.5, and in the Short Lived Climate Pollutant Strategy developed pursuant to Health and Safety Code sections 39730 and 39730.5.

NOTE: Authority: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730, 39730.5, and 41511, Health and Safety Code. Reference: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730, 39730.5, and 41511, Health and Safety Code.

**§ 95372. Applicability.**

This subarticle applies to any person who sells, installs, uses, or enters into commerce, in the State of California, any substitute in end-uses listed in Table 1, section 95374, of this subarticle.

NOTE: Authority: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730.5, and 41511, Health and Safety Code. Reference: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730, 39730.5, and 41511, Health and Safety Code.

**§ 95373. Definitions.**

(a) For the purposes of this subarticle, the following definitions shall apply:

*“Blowing Agent”* or *“Foam Blowing Agent”* or *“Foam Expansion Agent”* or *“Foaming Agent”* is a substance which is capable of producing a cellular structure via a foaming process in a variety of materials that undergo hardening or phase transition, such as polymers and plastics. Blowing agents are typically applied when the blown material is in a liquid stage.

*“Capital Cost”* means an expense incurred in the production of goods or in rendering services, including but not limited to the cost of engineering, purchase, and installation of components or systems, and instrumentation, and contractor and construction fees.

*“Class I Substance”* means any ozone-depleting compound defined in the Clean Air Act, as amended, 42 U.S.C. § 7671(3) (effective November 15, 1990).

*“Class II Substance”* means any ozone-depleting compound defined in the Clean Air Act, as amended, 42 U.S.C. § 7671(4) (effective November 15, 1990).

*“Component”* means a part of a refrigeration system, including but not limited to condensing units, compressors, condensers, evaporators, and receivers; and all of its connections and subassemblies, without which the refrigeration system will not properly function or will be subject to failures.

*“Cumulative Replacement”* means the addition of or change in multiple components within a three-year period.

*“End-use”* means processes or classes of specific applications within industry sectors, such as those listed in Table 1, section 95374 of this subarticle.

*“Executive Officer”* means the Executive Officer of the California Air Resources Board or his or her delegate.

*“Flexible Polyurethane”* means polyurethane foam including but not limited to that used in furniture, bedding, chair cushions, and shoe soles.

*“Foam System”* means a multipart liquid material that expands when mixed to form a solid or flexible substance in which thin films of material separate pockets of gas.

*“Greenhouse Gas”* or *“GHG”* means carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), nitrogen trifluoride (NF<sub>3</sub>) sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and other fluorinated gases.

*“Hydrofluorocarbon”* or *“HFC”* means a class of GHGs which are saturated organic compounds containing hydrogen, fluorine, and carbon; primarily used as refrigerants, foam blowing agents, aerosol propellants, solvents, and fire suppressants.

*“Integral Skin Polyurethane”* means polyurethane foam, including but not limited to that used in car steering wheels, dashboards, and shoe soles.

*“New Refrigeration Equipment”* means:

(1) Any refrigeration equipment that is first installed using new or used components; or

(2) Any refrigeration equipment that is modified such that it is:

(i) Expanded after the date at which this subarticle becomes effective, to handle an expanded cooling load by the addition of components in which the full charge of the system is increased, including refrigerant lines, evaporators, compressors, condensers, and other components; or

(ii) Replaced or cumulatively replaced after the date at which this subarticle becomes effective, such that the capital cost of replacing or cumulatively replacing components exceeds 50 percent of the capital cost of replacing the entire refrigeration system.

*“Person”* means any individual, firm, association, organization, manufacturer, distributor, partnership, business trust, corporation, limited liability company, company, state, or local governmental agency or public district.

*“Phenolic Insulation Board and Bunstock”* means phenolic insulation including but not limited to that used for roofing and walls. Bunstock or bun stock is a large solid box-like structure formed during the production of polystyrene insulation.

*“Polystyrene Extruded Sheet”* means polystyrene foam including that used for packaging and buoyancy or floatation. It is also made into food-service items, including hinged polystyrene containers (for "take-out" from restaurants); food trays (meat and poultry) plates, bowls, and retail egg containers.

*“Refrigerant”* or *“Refrigerant Gas”* means any substance, including blends and mixtures, which is a compound or gas used in vapor compression cycle refrigeration that is used for heat transfer purposes and provides a cooling effect.

*“Refrigerated Food Processing and Dispensing Equipment”* means equipment that dispenses and/or processes a variety of food and beverage products by either combining ingredients, mixing or preparing them at the proper temperature, or by function as a holding tank to deliver the product at the desired temperature or to deliver chilled ingredients for the processing, mixing and preparation. Some may use a refrigerant in a heat pump, or utilize waste heat from the cooling system to provide hot beverages. Some may also provide heating functions to melt or dislodge ice or for sanitation purposes. This equipment can be self-contained or connected by piping to a dedicated condensing unit located elsewhere. Equipment within this end-use category include but are not limited to: chilled and frozen beverages (carbonated and non-carbonated, alcoholic and nonalcoholic); frozen custards, gelato, ice cream, Italian ice, sorbets and yogurts; milkshakes, “slushies” and smoothies, and whipped cream.

*“Refrigeration”* means the use of a refrigerant gas to mechanically move heat from one region to another to create a cooled region via a vapor compression cycle.

*“Refrigeration Equipment”* means any stationary device that is designed to contain and use refrigerant gas, including any device listed in Section 95374, Table 1. For a device with multiple circuits, each independent circuit is considered a separate article of equipment.

*“Remote Condensing Units”* means refrigeration equipment or units that have a central condensing portion and may consist of one (and sometimes two) compressor(s), one condenser, and one receiver assembled into a single unit, which is normally located external to the sales area. The condensing portion (and often other parts of the system) is located outside the space or area cooled by the evaporator. Remote condensing units are commonly installed in convenience stores, specialty shops (e.g., bakeries, butcher shops), supermarkets, restaurants, and other locations where food is stored, served, or sold.

*“Retail Food Refrigeration”* or *“Commercial Refrigeration”* means equipment designed to store and display chilled or frozen goods for commercial sale. This end-use includes the following categories of equipment: stand-alone units (equipment), refrigerated food processing and dispensing units (equipment), remote condensing units, and supermarket systems.

*“Retrofit”* means the replacement of the refrigerant used in refrigeration equipment with a different refrigerant, and any related changes to the refrigeration equipment required to maintain its operation and reliability following refrigerant replacement.

*“Rigid Polyurethane and Polyisocyanurate Laminated Boardstock”* means laminated board insulation made with polyurethane or polyisocyanurate foam, including that used for roofing and walls. This does not include the following end-use categories: rigid polyurethane appliance foam, rigid polyurethane commercial refrigeration and sandwich panels, rigid polyurethane marine flotation foam, rigid polyurethane spray foam, and rigid polyurethane one-component foam sealants.

*“Stand-alone Units or Equipment”* means refrigerators, freezers, and reach-in coolers (either open or with doors) where all refrigeration components are integrated and, for the smallest types, the refrigeration circuit is entirely brazed or welded. These systems are fully charged with refrigerant at the factory and typically require only an electricity supply to begin operation.

*“Stationary”* means the system is (i) installed in a building, structure, or facility; (ii) attached to a foundation, or if not attached, will reside at the same location for more than twelve consecutive months; or (iii) located intermittently at the same facility for at least two consecutive years and operates at that facility a total of at least 90 days each year.

*“Substitute”* means any chemical, product substitute, or alternative manufacturing process, whether new or retrofit, intended for use as a replacement for a class I or II compound or substitute listed in Table 1, section 95374 of this subarticle.

*“Supermarket Systems”* means multiplex or centralized systems designed to cool or refrigerate, which operate with racks of compressors installed in a machinery room. Two main design classifications are used: Direct and indirect systems.

(1) *“Direct Systems”* means the refrigerant circulates from the machinery room to the sales area, where it evaporates in display-case heat exchangers, and then returns in vapor phase to the suction headers of the compressor racks. Another direct supermarket design, often referred to as a distributed refrigeration system, uses an array of separate compressor racks located near the display cases rather than having a central compressor rack system.

(2) *“Indirect Systems”* means the system uses a central refrigeration system to cool a secondary fluid that is then circulated throughout the store to the cases. This includes secondary loop systems and cascade refrigeration.

*“Use”* means any utilization of a Class I or Class II ozone-depleting compound or any substitute, including but not limited to utilization in a manufacturing process or product in California, consumption by the end-user in the State of California, or in intermediate applications in the State of California, such as formulation or packaging for other subsequent applications.

“Vending Machines” means self-contained units that dispense goods that must be kept cold or frozen.

NOTE: Authority: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730.5, and 41511, Health and Safety Code. Reference: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730, 39730.5, and 41511, Health and Safety Code.

**§ 95374. List of Prohibited Substitutes.**

(a) The following table lists prohibited substitutes as of their relevant dates:

Table 1: End-use and Prohibited Substitutes.

<b>General End-use</b>	<b>Specific End-use</b>	<b>Substitute</b>	<b>Status and Effective Date</b>
Retail food refrigeration equipment	Supermarket systems (new)	HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	Prohibited as of September 1, 2018
Retail food refrigeration equipment	Supermarket systems (retrofit)	R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	Prohibited as of September 1, 2018
Retail food refrigeration equipment	Remote condensing units (new)	HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	Prohibited as of September 1, 2018
Retail food refrigeration equipment	Remote condensing units (retrofit)	R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	Prohibited as of September 1, 2018

General End-use	Specific End-use	Substitute	Status and Effective Date
Retail food refrigeration equipment	Stand-alone medium-temperature units with a compressor capacity below 2,200 Btu/hr and not containing a flooded evaporator (new)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	Prohibited as of January 1, 2019
Retail food refrigeration equipment	Stand-alone medium-temperature units with a compressor capacity below 2,200 Btu/hr and containing a flooded evaporator (new)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	Prohibited as of January 1, 2020

General End-use	Specific End-use	Substitute	Status and Effective Date
Retail food refrigeration equipment	Stand-alone medium-temperature units with a compressor capacity equal to or greater than 2,200 Btu/hr (new)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	Prohibited as of January 1, 2020
Retail food refrigeration equipment	Stand-alone low-temperature units (new)	HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation)	Prohibited as of January 1, 2020
Retail food refrigeration equipment	Stand-alone units (retrofit)	R-404A, R-507A	Prohibited as of September 1, 2018



General End-use	Specific End-use	Substitute	Status and Effective Date
Vending machines	Vending machines (new)	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-426A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), SP34E	Prohibited as of January 1, 2019
Vending machines	Vending machines (retrofit)	R-404A, R-507A	Prohibited as of September 1, 2018
Retail food refrigeration equipment	Refrigerated food processing and dispensing equipment (new)	HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation)	Prohibited as of January 1, 2021
Foams	Rigid polyurethane and polyisocyanurate laminated boardstock	HFC-134a, HFC-245fa, HFC-365mfc and blends thereof	Prohibited as of September 1, 2018
	Flexible polyurethane	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof	
	Integral skin polyurethane	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, and Formacel Z-6	

General End-use	Specific End-use	Substitute	Status and Effective Date
	Polystyrene extruded sheet	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, and Formacel Z-6	
	Phenolic insulation board and bunstock	HFC-143a, HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof	

NOTE: Authority: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730.5, and 41511, Health and Safety Code. Reference: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730, 39730.5, and 41511, Health and Safety Code.

**§ 95375. Requirements.**

(a) *Prohibitions.* As of the effective date listed in Table 1, section 95374 of this subarticle, no person may sell, install, use, or enter into commerce, in the State of California, any listed substitute for use in end-uses listed as prohibited in Table 1, section 95374 of this subarticle.

(b) *Exceptions.* The effective date for foam end-uses identified in Table 1, section 95374 of this subarticle is extended to January 1, 2022 for military or space- and aeronautics-related end-uses where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.

(c) *Disclosure and Recordkeeping for Refrigeration End-Use Categories.*

(1) *Disclosure Statement.* As of the effective date of this subarticle, any person who sells or enters into commerce, new refrigeration equipment, in the State of California, must provide a written disclosure to the buyer as part of the sales transaction and invoice. The required written disclosure must state: “*This equipment is designed for use with California compliant refrigerants and may only be used in California with California compliant refrigerants in accordance with California Code of Regulations, title 17, section 95374. This disclosure statement has been reviewed and approved by [THE COMPANY] and [THE COMPANY] attests, under penalty of perjury, that these statements are true and accurate.*”

(2) *Recordkeeping.* As of the effective date of this subarticle, any person who sells or places into commerce, new refrigeration equipment, in the State of California, must

maintain for five years and make available, upon request by the California Air Resources Board's Executive Officer, a copy of the following records:

(A) Name, address, telephone number, and email address of the person purchasing the equipment.

(B) Model and serial number of the equipment. When the affected equipment is part of an assembly without an individual serial number, the serial number of each component must be recorded. If a component or equipment does not have an individual serial number or the serial number is inaccessible after assembly the physical description must be recorded in enough detail for positive identification.

(C) Date of manufacture of the equipment.

(D) Date of sale of the equipment.

(E) The refrigerants which may be legally used in the equipment.

(F) The refrigerant and full charge capacity of the equipment.

(G) The complete invoice containing the disclosure statement.

(d) *Disclosure and Recordkeeping for Foam End-Use Categories.*

(1) *Disclosure Statement.* As of the effective date of this subarticle, any person who manufactures for sale or enters into commerce in the State of California any foam system in an end-use category listed in Table 1, section 95374 of this subarticle, must provide a written disclosure to the buyer as part of the sales transaction and invoice. The required written disclosure must state: "*The blowing agent in this foam system is a California compliant blowing agent in accordance with California Code of Regulations, title 17, section 95374. This disclosure statement has been reviewed and approved by [THE COMPANY] and [THE COMPANY] attests, under penalty of perjury, that these statements are true and accurate.*"

(2) *Recordkeeping.* As of the effective date of this subarticle, any person who sells or places into commerce in the State of California, a foam system in any end-use category as listed in Table 1, section 95374 of this subarticle, must maintain for five years and make available, upon request by the California Air Resources Board's Executive Officer, a copy of the following records:

(A) Name, address, telephone number, and email address of the person purchasing the foam system.

(B) The type of foam end-use category.

- (C) Date of manufacture of the foam system.
- (D) Date of sale of the foam system.
- (E) The blowing agent used in the foam system.
- (F) The complete invoice containing the disclosure statement.

NOTE: Authority: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39607, 39730.5, and 41511, Health and Safety Code. Reference: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730, 39730.5, and 41511, Health and Safety Code.

**§ 95376. Enforcement.**

- (a) Failure to comply with any requirement of this subarticle constitutes a separate violation of this subarticle, including but not limited to failure to retain or produce any records.
- (b) Submitting or producing inaccurate information or record required to be submitted or retained by this subarticle constitutes a separate violation of this subarticle.
- (c) Falsifying any information or record required to be submitted or retained by this subarticle constitutes a separate violation of this subarticle.
- (d) Violations of this subarticle are subject to penalties under the Health and Safety Code section 38580.
- (e) Any violation of this subarticle may be enjoined pursuant to the Health and Safety Code section 41513.

NOTE: Authority: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730.5, and 41511, Health and Safety Code. Reference: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730, 39730.5, and 41511, Health and Safety Code.

**§ 95377. Severability.**

Each part of this subarticle shall be deemed severable, and in the event that any provision of this subarticle is held to be invalid, the remainder of this subarticle shall continue in full force and effect.

NOTE: Authority: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730.5, and 41511, Health and Safety Code. Reference: Sections 38510, 38598, 38560, 38562, 38566, 38580, 39600, 39601, 39730, 39730.5, and 41511, Health and Safety Code.