**Model HFC Regulation**

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

[ADOPT NEW OR AMEND] sections [X, X, X, X, X, X] of [STATE CODE OF REGULATIONS] to read as follows:

# Subarticle X. Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Chillers, Aerosol Propellants, and Foam End-Uses

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# § 1. Purpose.

1. The purpose of this subarticle is to reduce hydrofluorocarbon emissions by adopting specific United States Significant New Alternatives Policy Program prohibitions for certain substances in stationary refrigeration, chillers, aerosol propellants, and foam end-uses.
2. This subarticle is designed to support Connecticut greenhouse gas emissions reductions reflecting Connecticut’s participation in the United States Climate Alliance, a bipartisan coalition of governors of [17] states and territories committed to greenhouse gas reductions consistent with the goals of the Paris Agreement of 2015.
3. [IF APPLICABLE, ADD STATE’S OWN HFC REDUCTION GOAL HERE.]

NOTE: Authority and References: [LIST STATE’S AUTHORITY TO BE USED HERE].

# § 2. Applicability.

This subarticle applies to any person who sells, installs, uses, or enters into commerce, in the State of Connecticut, any substance in end-uses listed in Table 1 of section 4 of this subarticle.

NOTE: Authority and References: [LIST STATE’S AUTHORITY TO BE USED HERE].

# § 3. Definitions.

1. For the purposes of this subarticle, the following definitions shall apply:

*“Aerosol Product”* means a pressurized spray system that dispenses product ingredients by means of a propellant contained in a product or a product's container, or by means of a mechanically induced force. “Aerosol Product” does not include “Pump Spray.”

*“Aerosol Propellant”* means a compressed gas that serves to dispense the contents of an aerosol container when the pressure is released.

*“Air Conditioning Equipment”* means chillers, both centrifugal chillers and positive displacement chillers, intended for comfort cooling of occupied spaces.

*“Blowing Agent”* or *“Foam Blowing Agent”* or *“Foam Expansion Agent”* or *“Foaming Agent”* means a substance 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 typically are 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.

*“Centrifugal Chiller”* means cooling equipment using a refrigerant vapor-compression cycle to chill a secondary heat transfer fluid, typically water, which circulates in a building to provide cooling. A centrifugal chiller contains a centrifugal compressor that operates by using the centrifugal force applied to an air mass to achieve compression. Centrifugal chiller in this definition is a chiller intended for comfort cooling and does not include cooling for industrial process cooling and refrigeration.

*“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).

*“Cold Storage Warehouse”* means a cooled facility designed to store meat, produce, dairy products, or other perishable goods.

*“Combination Cooler Refrigeration Product”* means any [cooler](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=68c6bd0004225aeaed39aa4db998c4df&term_occur=3&term_src=Title:10:Chapter:II:Subchapter:D:Part:430:Subpart:A:430.2)-refrigerator, [cooler](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=68c6bd0004225aeaed39aa4db998c4df&term_occur=4&term_src=Title:10:Chapter:II:Subchapter:D:Part:430:Subpart:A:430.2)-refrigerator-freezer, or [cooler](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=68c6bd0004225aeaed39aa4db998c4df&term_occur=5&term_src=Title:10:Chapter:II:Subchapter:D:Part:430:Subpart:A:430.2)-freezer.

*“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.

*“Consumer Refrigeration Product”* means a refrigerator, refrigerator-freezer, freezer, or miscellaneous refrigeration product. Refrigerated volumes of consumer refrigeration products are determined as prescribed by 10 CFR, Part 430, Subpart B, Appendix A to Subpart B of Part 430 “Uniform Test Method for Measuring the Energy Consumption of Refrigerators, Refrigerator-Freezers, and Miscellaneous Refrigeration Products.” Operating temperatures of consumer refrigeration products are determined as prescribed in 10 CFR Part 429, “Certification, Compliance, and Enforcement for Consumer Products and Commercial and Industrial Equipment” sections 429.14(d)(2) and 429.61(d)(2).

*“Cooler”* means a cabinet, used with one or more doors, that has a source of refrigeration capable of operating on single-phase, alternating current and is capable of maintaining compartment temperatures either:

1. No lower than 39 °F (3.9 °C); or
2. In a range that extends no lower than 37 °F (2.8 °C) but at least as high as 60 °F (15.6 °C).

*“Cooler Compartment”* means a refrigerated compartment designed exclusively for wine or other beverages within a consumer refrigeration product that is capable of maintaining compartment temperatures either;

(1) No lower than 39 °F (3.9 °C); or

(2) In a range that extends no lower than 37 °F (2.8 °C) but at least as high as 60 °F (15.6 °C).

*“Cooler-freezer*” means a cabinet, used with one or more doors, that has a source of refrigeration that requires single-phase, alternating current electric energy input only, and consists of two or more compartments, including at least one cooler compartment, where the remaining compartment(s) are capable of maintaining compartment temperatures at 0 °F (−17.8 °C) or below.

*“Cooler-refrigerator”* means a cabinet, used with one or more doors, that has a source of refrigeration that requires single-phase, alternating current electric energy input only, and consists of two or more compartments, including at least one cooler compartment, where:

1. At least one of the remaining compartments is not a cooler compartment and is capable of maintaining compartment temperatures above 32 °F (0 °C) and below 39 °F (3.9 °C);
2. The cabinet may also include a compartment capable of maintaining compartment temperatures below 32 °F (0 °C); but
3. The cabinet does not provide a separate low temperature compartment capable of maintaining compartment temperatures below 8 °F (−13.3 °C).

*“Cooler-refrigerator-freezer”* means a cabinet, used with one or more doors, that has a source of refrigeration that requires single-phase, alternating current electric energy input only, and consists of three or more compartments, including at least one cooler compartment, where:

1. At least one of the remaining compartments is not a cooler compartment and is capable of maintaining compartment temperatures above 32 °F (0 °C) and below 39 °F (3.9 °C); and
2. At least one other compartment is capable of maintaining compartment temperatures below 8 °F (−13.3 °C) and may be adjusted by the user to a temperature of 0 °F (−17.8 °C) or below.

*“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, including but not limited to those listed in Table 1 of section 4 of this subarticle.

*“Executive Officer”* means the Commissioner of the Department of Energy and Environmental Protection or his or her delegate.

*“Flexible Polyurethane”* means a non-rigid synthetic foam containing polymers of urethane radicals 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 (CO2), methane (CH4), nitrous oxide (N2O), nitrogen trifluoride (NF3) sulfur hexafluoride (SF6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and other fluorinated gases.

*“Freezer”* means a cabinet, used with one or more doors, that has a source of refrigeration that requires single-phase, alternating current electric energy input only and is capable of maintaining compartment temperatures of 0 °F (−17.8 °C) or below. It does not include any refrigerated cabinet that consists solely of an automatic ice maker and an ice storage bin arranged so that operation of the automatic icemaker fills the bin to its capacity. However, the term does not include:

1. Any product that does not include a compressor and condenser unit as an integral part of the cabinet assembly; or
2. Any miscellaneous refrigeration product that must comply with an applicable miscellaneous refrigeration product energy conservation standard.

*“Household Refrigerators and Freezers”* means a consumer refrigeration product that is a refrigerator, refrigerator-freezer, freezer, or miscellaneous refrigeration product. For the purposes of this regulation, “household refrigerators and freezers” do not include “household refrigerators and freezers - compact”, or “household refrigerators and freezers - built-in.”

*“Household Refrigerators and Freezers Compact”* means any refrigerator, refrigerator-freezer or freezer with a total refrigerated volume of less than 7.75 cubic feet (220 liters).

*“Household Refrigerators and Freezers - Built-in”* means any refrigerator, refrigerator-freezer or freezer with 7.75 cubic feet or greater total volume and 24 inches or less depth not including doors, handles, and custom front panels; with sides which are not finished and not designed to be visible after installation; and that is designed, intended, and marketed exclusively to be:

1. Installed totally encased by cabinetry or panels that are attached during installation;
2. Securely fastened to adjacent cabinetry, walls or floor; and
3. Equipped with an integral factory-finished face or accept a custom front panel.

*“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 a synthetic self-skinning foam containing polymers of urethane radicals, including but not limited to that used in car steering wheels, dashboards, and shoe soles.

*“Low-Temperature”* means equipment that maintains food or beverages at temperatures at or below 32°F (0 °C).

*“Medium-Temperature”* means equipment that maintains food or beverages at temperatures above 32°F (0 °C).

*“Metered Dose Inhaler,”* or *“Medical Dose Inhaler,”* or *“MDI”* means a device that delivers a measured amount of medication as a mist that a patient can inhale, typically used for bronchodilation to treat symptoms of asthma, chronic obstructive pulmonary disease (COPD), chronic bronchitis, emphysema, and other respiratory illnesses. An MDI consists of a pressurized canister of medication in a case with a mouthpiece.

*“Miscellaneous Refrigeration Product”* means a consumer refrigeration product other than a refrigerator, refrigerator-freezer, or freezer; and which includes coolers and combination cooler refrigeration products.

*“Motor-bearing”* means air conditioning equipment and refrigeration equipment containing motorized parts. This includes compressors, condensers, and evaporators.

*“New Chiller”* means any centrifugal chiller or positive displacement chiller that is:

* 1. First installed using new or used components; or
  2. Modified such that it is:
     1. Expanded after the date at which this subarticle becomes effective, to handle an expanded cooling load by the addition of components in which the capacity of the system is increased, including refrigerant lines, evaporators, compressors, condensers, and other components; or
     2. 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 chiller system.

*“New Cold Storage Warehouse”* means any cold storage warehouse that is:

1. First built using new or used components; or
2. Existing where the previous refrigeration equipment is replaced by new refrigeration equipment; or
3. Expanded after the date at which this subarticle becomes effective, to handle an expanded cooling load by the addition of components in which the capacity of the system is increased, including refrigerant lines, evaporators, compressors, condensers, and other components; or
4. 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.

*“New Refrigeration or Air Conditioning Equipment”* means any refrigeration or air conditioning equipment that is:

1. First installed using new or used components; or
2. Modified such that it is:
3. Expanded after the date at which this subarticle becomes effective, to handle an expanded cooling load by the addition of components in which the capacity of the system is increased, including refrigerant lines, evaporators, compressors, condensers, and other components; or
4. 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 or air conditioning 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.

*“Polyolefin”* means foam sheets and tubes made of polyolefin.

*“Polystyrene Extruded Boardstock and Billet (XPS)”* means a foam formed from polymers of styrene and produced on extruding machines in the form of continuous foam slabs which can be cut and shaped into panels used for roofing, walls, flooring, and pipes.

*“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.

*“Positive Displacement Chiller”* means cooling equipment using a refrigerant vapor-compression cycle to chill a secondary heat transfer fluid, typically water, which circulates throughout a building to provide cooling. Screw, scroll, and reciprocating chillers are types of positive displacement chillers. Positive displacement chiller in this definition is a chiller intended for comfort cooling and does not include cooling for industrial process cooling and refrigeration.

*“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:

1. Combining ingredients, mixing, or preparing them at the proper temperature;
2. Functioning as a holding tank to deliver the product at the desired temperature;
3. Delivering chilled ingredients for the processing, mixing and preparation.
4. Using a refrigerant in a heat pump, or utilize waste heat from the cooling system to provide hot beverages.
5. Providing 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 in 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, smoothies, and whipped cream.

*“Refrigeration”* means the process to move heat from one region to another to create a cooled region via a vapor compression cycle.

*“Refrigerator”* means a cabinet, used with one or more doors, that has a source of refrigeration that requires single-phase, alternating current electric energy input only and is capable of maintaining compartment temperatures above 32 °F (0 °C) and below 39 °F (3.9 °C. A refrigerator may include a compartment capable of maintaining compartment temperatures below 32 °F (0 °C), but does not provide a separate low temperature compartment capable of maintaining compartment temperatures below 8 °F (−13.3 °C). However, the term does not include:

1. Any product that does not include a compressor and condenser unit as an integral part of the cabinet assembly;
2. A cooler; or
3. Any miscellaneous refrigeration product that must comply with an applicable miscellaneous refrigeration product energy conservation standard.

*“Refrigerator-freezer”* means Refrigerator-freezer means a cabinet, used with one or more doors, that has a source of refrigeration that requires single-phase, alternating current electric energy input only and consists of two or more compartments where at least one of the compartments is capable of maintaining compartment temperatures above 32 °F (0 °C) and below 39 °F (3.9 °C), and at least one other compartment is capable of maintaining compartment temperatures of 8 °F (−13.3 °C) and may be adjusted by the user to a temperature of 0 °F (−17.8 °C) or below. However, the term does not include:

1. Any product that does not include a compressor and condenser unit as an integral part of the cabinet assembly; or
2. Any miscellaneous refrigeration product that must comply with an applicable miscellaneous refrigeration product energy conservation standard.

*“Refrigeration Equipment”* means any stationary device that is designed to contain and use refrigerant gas, including any device listed in Table 1 of Section 4 with sub-section headings “Cold Storage Warehouses,” “Retail Food Refrigeration,” “Residential Refrigeration Appliances,” and “Vending Machines.” 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 compressor(s), condenser(s), and receiver(s) assembled into a single unit, which may be 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.

*“Rigid Polyurethane Appliance Foam”* means polyurethane insulation foam in domestic refrigerators and freezers.

*“Rigid Polyurethane Commercial Refrigeration and Sandwich Panels”* means polyurethane insulation for use in walls and doors, including that used for commercial refrigeration equipment, and used in doors, including garage doors.

*“Rigid Polyurethane High-pressure Two-component Spray Foam”* means a foam product that is pressurized 800-1600 pounds per square inch (psi) during manufacture; sold in pressurized containers as two parts (i.e., A-side and B-side); and is blown and applied in situ using high-pressure pumps to propel the foam components, and may use liquid blowing agents without an additional propellant. It is sprayed onto a surface in the location where it is to be used, either in new building construction or when adding insulation to an existing building and includes insulation for roofing, walls, doors, and other construction uses, as well as foam for building breakers for pipelines.

*“Rigid Polyurethane Low-pressure Two-component Spray Foam”* means a foam product that is pressurized to less than 250 psi during manufacture; sold in pressurized containers as two parts (i.e., A-side and B-side); and are typically applied in situ relying upon a gaseous foam blowing agent that also serves as a propellant so pumps typically are not needed. It is sprayed onto a surface in the location where it is to be used, either in new building construction or when adding insulation to an existing building and includes insulation for roofing, walls, doors, and other construction uses, and is used for air sealing of buildings.

*“Rigid Polyurethane Marine Flotation Foam”* means buoyancy or flotation foam used in boat and ship manufacturing for both structural and flotation purposes.

*“Rigid Polyurethane One-component Foam Sealants”* means a foam packaged in aerosol cans that is applied in situ using a gaseous foam blowing agent that is also the propellant for the aerosol formulation. It is typically used by consumers and home improvement contractors in order to seal cracks and leaks in a residence.

*“Rigid Polyurethane Slabstock and Other”* means a rigid closed-cell foam containing polymers of urethane radicals formed into slabstock insulation for panels and pipes.

*“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, residing 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 operating at that facility a total of at least 90 days each year.

*“Substance”* means any chemical, product substitute, or alternative manufacturing process, whether new or retrofit, intended for use in the end-uses listed in Table 1, section 4 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 compound or any substance, including but not limited to utilization in a manufacturing process or product in Connecticut, consumption by the end-user in the State of Connecticut, or in intermediate applications in the State of Connecticut, such as formulation or packaging for other subsequent applications.

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

~~NOTE: Authority and References: [LIST STATE’S AUTHORITY TO BE USED HERE].~~

# § 4. List of Prohibited Substances.

(a) The following table lists prohibited substances in specific end-uses, the effective date of prohibition, and specific exemptions for acceptable uses.

**Table 1: End-use and Prohibited Substances.**

**AEROSOLS - PROPELLANTS**

|  |  |  |
| --- | --- | --- |
| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Aerosol Propellants | HFC-125 | Unacceptable as of January 1, 2019. |
| Aerosol Propellants | HFC-134a | Unacceptable as of January 1, 2019 except for uses listed as acceptable, subject to use conditions. The following uses are acceptable, subject to use conditions: (a) cleaning products for removal of grease, flux and other soils from electrical equipment or electronics; (b) refrigerant flushes; (c) products for sensitivity testing of smoke detectors; (d) sprays containing corrosion preventive compounds used in the maintenance of aircraft, electrical equipment or electronics, or military equipment; (e) duster sprays specifically for removal of dust from photographic negatives, semiconductor chips, and specimens under electron microscopes or for use on energized electrical equipment; (f) adhesives and sealants in large canisters; (g) lubricants and freeze sprays for electrical equipment or electronics; (h) sprays for aircraft maintenance; (i) pesticides for use near electrical wires or in aircraft, in total release insecticide foggers, or in certified organic use pesticides for which EPA has specifically disallowed all other lower-GWP propellants; (j) mold release agents and mold cleaners; (k) lubricants and cleaners for spinnerettes for synthetic fabrics; (l) document preservation sprays; (m) MDIs approved by the Federal Drug Administration (FDA) for medical purposes; (n) wound care sprays; (o) topical coolant sprays for pain relief; and (p) products for removing bandage adhesives from skin. |
| Aerosol Propellants | HFC-227ea and blends of HFC-227ea and HFC‑134a | Unacceptable as of January 1, 2019 except for uses listed as acceptable, subject to use conditions. Acceptable for FDA-approved MDIs for medical purposes. |

**AIR CONDITIONING - CHILLERS**

| **End-Use** | **Prohibited Substances** | **Effective Date** |
| --- | --- | --- |
| Centrifugal chillers (new) | FOR12A, FOR12B, HFC-134a, HFC-227ea, HFC-236fa, HFC245fa, R-125/134a/600a (28.1/70/1.9),  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-423A,  R-424A, R-434A, R438A,  R-507A, RS-44 (2003 composition), and THR-03 | Unacceptable, except as otherwise allowed under a narrowed use limit, as of January 1, 2024. |

**AIR CONDITIONING - CHILLERS (Continued)**

| **End-Use** | **Prohibited Substances** | **Effective Date** |
| --- | --- | --- |
| Centrifugal chillers (new) | HFC-134a for military marine vessels | Acceptable after January 1, 2024, only in military marine vessels where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements. |
| Centrifugal chillers (new) | HFC-134a and R-404A for human-rated spacecraft and related support equipment | Acceptable after January 1, 2024, only in human-rated spacecraft and related support equipment where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements. |
| Positive displacement chillers (new) | FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R125/134a/600a (28.1/70/1.9), 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-424A,  R-434A, R-437A, R438A,  R-507A, RS-44 (2003 composition), SP34E, and THR-03 | Unacceptable as of January 1, 2024, except as otherwise allowed under a narrowed use limit. |
| Positive displacement chillers (new | HFC-134a for military marine vessels | Acceptable after January 1, 2024, only in military marine vessels where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements. |

**AIR CONDITIONING - CHILLERS (Continued)**

| **End-Use** | **Prohibited Substances** | **Effective Date** |
| --- | --- | --- |
| Positive displacement chillers (new) | HFC-134a and R-404A for human-rated spacecraft and related support equipment | Acceptable after January 1, 2024, only in human-rated spacecraft and related support equipment where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements. |

**COLD STORAGE WAREHOUSES**

|  |  |  |
| --- | --- | --- |
| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Cold storage warehouses (new) | HFC‑227ea, R‑125/290/134a/600a (55.0/1.0/42.5/1.5), R404A, R‑407A, R‑407B, R‑410A, R‑410B, R‑417A, R‑421A, R421B, R‑422A, R‑422B, R‑422C, R‑422D, R‑423A, R‑424A, R428A, R‑434A, R‑438A, R‑507A, and RS‑44 (2003 composition) | Unacceptable, as of January 1, 2023. |

**FOAMS**

|  |  |  |
| --- | --- | --- |
| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Rigid Polyurethane and Polyisocyanurate Laminated Boardstock | HFC‑134a, HFC‑245fa, HFC‑365mfc and blends thereof | Unacceptable as of January 1, 2019 except where allowed for narrow use limits.  Narrowed use limits allow for military or space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.  Unacceptable for military related applications as of January 1, 2022.  Unacceptable for space- and aeronautics-related applications as of January 1, 2025. |
| 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 |
| 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 |
| Rigid Polyurethane Slabstock and Other | HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, and Formacel Z-6 |

**FOAMS (Continued)**

|  |  |  |
| --- | --- | --- |
| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Rigid Polyurethane Appliance Foam | HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, and Formacel Z-6 | Unacceptable as of January 1, 2020 except where allowed under narrowed use limit.  Narrowed use limits allow for military or space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.  Unacceptable for military related applications as of January 1, 2022.  Unacceptable for space- and aeronautics-related applications as of January 1, 2025. |
| Rigid Polyurethane Commercial Refrigeration and Sandwich Panels | HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, and Formacel Z-6 |
| Polyolefin | HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6 |
| Rigid Polyurethane Marine Flotation Foam | HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, and Formacel Z-6 |
| Polystyrene Extruded Boardstock and Billet (XPS) | HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel B, and Formacel Z-6 | Unacceptable as of January 1, 2021 except where allowed under narrowed use limit.  Narrowed use limits allow for military or space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.  Unacceptable for military related applications as of January 1, 2022.  Unacceptable for space- and aeronautics-related applications as of January 1, 2025. |

**FOAMS (Continued)**

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| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Rigid polyurethane (PU) high-pressure two-component spray foam | HFC-134a, HFC-245fa, and blends thereof; blends of HFC365mfc with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI | Unacceptable as of January 1, 2020, except where allowed under narrow use limit.  Narrowed use limits allow for military or space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.  Unacceptable for military or space- and aeronautics-related applications as of January 1, 2025.  Closed cell foam products and products containing closed cell foams (in all applications except military or space- and aeronautics-related applications) manufactured on or before January 1, 2020, may be used after that date.  Closed cell foam products and products containing closed cell foams in military or space- and aeronautics-related applications manufactured or before January 1, 2025, may be used after that date. |

**FOAMS (Continued)**

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| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Rigid PU low-pressure two-component spray foam | HFC-134a, HFC-245fa, and blends thereof; blends of HFC365mfc with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI | Unacceptable for all uses as of January 1, 2021, except where allowed under narrow use limit.  Narrowed use limits allow for military or space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.  Unacceptable for military or space- and aeronautics-related applications as of January 1, 2025.  Low pressure two-component spray foam kits manufactured with these substances on or before January 1, 2025, may be used after that date. |
| Rigid PU one-component foam sealants | HFC-134a, HFC-245fa, and blends thereof; blends of HFC365mfc with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI | Unacceptable, as of January 1, 2020.  One-component foam sealant cans manufactured on or before January 1, 2020, may be used after that date. |

**RESIDENTIAL REFRIGERATION APPLIANCES**

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| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Household refrigerators and freezers—compact (new) | FOR12A, FOR12B, HFC‑134a, KDD6, R‑125/290/134a/600a (55.0/1.0/42.5/1.5), R‑404A, R‑407C, R‑407F, R‑410A, R‑410B, R‑417A, R‑421A, R‑421B, R‑422A, R‑422B, R‑422C, R‑422D, R424A, R‑426A, R‑428A, R‑434A, R‑437A, R‑438A, R‑507A, RS24 (2002 formulation), RS‑44 (2003 formulation), SP34E, and THR-03 | Unacceptable as of January 1, 2021. |
| Household refrigerators and freezers—except compact and built-in appliances (new) | FOR12A, FOR12B, HFC‑134a, KDD6, R‑125/290/134a/600a (55.0/1.0/42.5/1.5), R‑404A, R‑407C, R‑407F, R‑410A, R‑410B, R‑417A, R‑421A, R‑421B, R‑422A, R‑422B, R‑422C, R‑422D, R424A, R‑426A, R‑428A, R‑434A, R‑437A, R‑438A, R‑507A, RS24 (2002 formulation), RS‑44 (2003 formulation), SP34E, and THR-03 | Unacceptable as of January 1, 2022. |
| Household refrigerators and freezers—built in appliances (new) | FOR12A, FOR12B, HFC‑134a, KDD6, R‑125/290/134a/600a (55.0/1.0/42.5/1.5), R‑404A, R‑407C, R‑407F, R‑410A, R‑410B, R‑417A, R‑421A, R‑421B, R‑422A, R‑422B, R‑422C, R‑422D, R424A, R‑426A, R‑428A, R‑434A, R‑437A, R‑438A, R‑507A, RS24 (2002 formulation), RS‑44 (2003 formulation), SP34E, and THR-03 | Unacceptable as of January 1, 2023. |

**RETAIL FOOD REFRIGERATION**

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| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Supermarket Systems (Retrofit) | R‑404A, R‑407B, R‑421B, R‑422A, R‑422C, R‑422D, R428A, R‑434A, R‑507A | Unacceptable as of January 1, 2019. |
| Supermarket Systems (New) | HFC‑227ea, R‑404A, R‑407B, R‑421B, R‑422A, R‑422C, R‑422D, R‑428A, R‑434A, R‑507A | Unacceptable as of January 1, 2019. |
| Remote Condensing Units (Retrofit) | R‑404A, R‑407B, R‑421B, R‑422A, R‑422C, R‑422D, R428A, R‑434A, R‑507A | Unacceptable as of January 1, 2019. |
| Remote Condensing Units (New) | HFC‑227ea, R‑404A, R‑407B, R‑421B, R‑422A, R‑422C, R‑422D, R‑428A, R‑434A, R‑507A | Unacceptable as of January 1, 2019. |
| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Stand-Alone Units (Retrofit) | R‑404A, R‑507A | Unacceptable as of January 1, 2019. |
| Stand-Alone Medium-Temperature Units with a compressor capacity below 2,200 Btu/hour and not containing a flooded evaporator (New) | FOR12A, FOR12B, HFC‑134a, HFC‑227ea, KDD6, R125/290/134a/600a (55.0/1.0/42.5/1.5), R‑404A, R407A, R‑407B, R‑407C, R‑407F, R‑410A, R‑410B, R417A, R‑421A, R‑421B, R‑422A, R‑422B, R‑422C, R422D, R‑424A, R‑426A, R‑428A, R‑434A, R‑437A, R438A, R‑507A, RS‑24 (2002 formulation), RS‑44 (2003 formulation), SP34E, THR-03 | Unacceptable as of January 1, 2019. |
| Stand-Alone Medium-Temperature Units with a compressor capacity equal to or greater than 2,200 Btu/hour and Stand-Alone Medium-Temperature Units containing a flooded evaporator (New) | FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R125/290/134a/600a (55.0/1.0/42.5/1.5), R‑404A, R407A, R-407B, R‑407C, R‑407F, R‑410A, R‑410B, R417A, R‑421A, R‑421B, R‑422A, R‑422B, R‑422C, R422D, R‑424A, R‑426A, R‑428A, R‑434A, R‑437A, R438A, R-507A, RS‑24 (2002 formulation), RS‑44 (2003 formulation), SP34E, THR‑03 | Unacceptable as of January 1, 2020. |
| 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, R422A, R‑422B, R‑422C, R‑422D, R‑424A, R‑428A, R434A, R‑437A, R‑438A, R‑507A, RS‑44 (2003 formulation) | Unacceptable as of January 1, 2020. |
| Retail food refrigeration – 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, R417A, R‑421A, R‑421B, R‑422A, R‑422B, R‑422C, R‑422D, R424A, R‑428A, R‑434A, R‑437A, R‑438A, R‑507A, RS‑44 (2003 formulation) | Unacceptable as of January 1, 2021. |

**VENDING MACHINES**

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| **End-Use** | **Prohibited Substances** | **Effective Date** |
| Vending Machines (Retrofit) | R‑404A, R‑507A | Unacceptable as of January 1, 2019. |
| Vending Machines (New) | FOR12A, FOR12B, HFC‑134a, KDD6, R125/290/134a/600a (55.0/1.0/42.5/1.5), R‑404A, R407C, R‑410A, R‑410B, R‑417A, R‑421A, R‑422B, R422C, R‑422D, R‑426A, R‑437A, R‑438A, R‑507A, RS‑24 (2002 formulation), SP34E | Unacceptable as of January 1, 2019. |

NOTE: Authority and References: [LIST STATE’S AUTHORITY TO BE USED HERE].

# § 5. Requirements.

1. *Prohibitions*. No person may sell, install, use, or enter into commerce, in the State of Connecticut, any listed substance for use in any air-conditioning equipment, refrigeration equipment, foam system, or aerosol propellant end-uses listed as prohibited in Table 1 of section 4 of this subarticle.
2. *Disclosure* Statement*.* As of the effective date of this subarticle, any person who manufactures and sells or enters into commerce in the State of Connecticut, new motor bearing equipment, aerosol propellant, or foam end-uses listed in Table 1, must provide a written disclosure to the buyer as part of the sales transaction and invoice.
   1. The required written disclosure must state:

(i) *Refrigeration and Air Conditioning Equipment:* “*This equipment is prohibited from use in Connecticut with any refrigerant on the List of Prohibited Substances in section 4 of this subarticle for that specific end-use, in accordance with [INSERT STATE CODE OF REGULATION SECTION]. 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*.”

(ii) *Foam Systems:* *This foam system is prohibited from use in Connecticut with any blowing agent on the List of Prohibited Substances in section 4 of this subarticle for that specific end-use, in accordance with [INSERT STATE CODE OF REGULATION SECTION]. 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*.”

(iii) *Aerosol* *Propellants:* *This product is prohibited from use in Connecticut with any aerosol propellant on the List of Prohibited Substances in section 4 of this subarticle for that specific end-use, in accordance with [INSERT STATE CODE OF REGULATION SECTION]. 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*.”

* 1. The disclosure statement requirement can be met alternately with a label on the product, equipment, or foam blowing agent to read, “This product is compliant with Connecticut greenhouse gas regulations.” The label shall be displayed on the product, equipment, or foam blowing agent such that it is readily observable without removing or disassembling any portion of the packaging. The label must be in a font size as large as, or larger than the font size of all other words on the Principal Display Panel, excluding the company name, brand name, and logo.
  2. The disclosure statement or label must remain with the air conditioning equipment, refrigeration equipment, aerosol propellant, or foam system while the equipment, aerosol propellant, or foam system is in use in Connecticut.

1. *Recordkeeping*. As of the effective date of this subarticle, any person who manufactures any end use listed in section 4, for sale or entry into commerce in the State of Connecticut, must maintain for five years and make available, upon request by the Connecticut Department of Energy and Environmental Protection a copy of the following records, where applicable:
   * 1. Name, address, telephone number, and email address of the person purchasing the equipment, aerosol propellant, or foam blowing agent, where provided to the manufacturer.
     2. The type of equipment, product, or foam end-use category.
     3. Model and serial number of the equipment, where applicable. 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.
     4. Date of manufacture of the equipment, product, or foam blowing agent.
     5. Date of sale of the equipment, product, or foam blowing agent.
     6. The refrigerants, aerosol propellants, or foam blowing agents that are designed to be used in the equipment, product, or foam end-use categories.
     7. The refrigerants, foam blowing agents, or aerosol propellants used in the end-use categories, where available.
     8. The full charge capacity of the equipment, where applicable.
     9. A copy of the disclosure statement issued to the buyer or recipient.

NOTE: Authority and References: [LIST STATE’S AUTHORITY TO BE USED HERE].

# § 6. Enforcement.

* + - 1. Failure to comply with any requirement of this subarticle, including but not limited to failure to retain or produce any records and failure to provide the disclosure statement, constitutes a separate violation of this subarticle.
      2. Submitting or producing inaccurate information or record required to be submitted or retained by this subarticle constitutes a separate violation of this subarticle.
      3. Falsifying any information or record required to be submitted or retained by this subarticle constitutes a separate violation of this subarticle.
      4. Violations of this subarticle are subject to penalties under the [INSERT ENFORCEMENT AUTHORITY].
      5. Any violation of this subarticle may be enjoined pursuant to [INSERT AUTHORITY TO ENJOIN].

NOTE: Authority and References: [LIST STATE’S AUTHORITY TO BE USED HERE].

# § 7. 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 and References: [LIST STATE’S AUTHORITY TO BE USED HERE].