Title 26
DEPARTMENT OF THE ENVIRONMENT
Subtitle 11 AIR QUALITY
Chapter 33 Prohibitions on Use of Certain Hydrofluorocarbons in Aerosol Propellants, Chillers, Foam, and Stationary Refrigeration End-Uses
For Discussion Only
Authority: Environment Article, §§ 1-404, 2-103, 2-301 – 303, 2-1202 and 2-1205Annotated Code of Maryland

.01 Applicability
This chapter applies to any person who sells, offers for sale, installs, uses, or introduces into commerce in the State, any substance for use in an end-use listed in Regulation .03 of this chapter.

.02 Definitions
A. In this chapter, the following terms have the meaning indicated.

B. Terms Defined.
(1) “Aerosol Propellant” means a compressed gas that serves to dispense the contents of an aerosol container when the pressure is released.
(2) “Air Conditioning Equipment” means chillers, both centrifugal chillers and positive displacement chillers, intended for comfort cooling of occupied spaces.
(3) “Bunstock” or “bun stock” means a large solid box-like structure formed during the production of polystyrene insulation.
(4) “Capital Cost” means an expense incurred in the production of goods or in rendering services, including the cost of engineering, purchase, and installation of components or systems, and instrumentation, and contractor and construction fees.
(5) Centrifugal Chiller.
(a) “Centrifugal chiller” means air conditioning equipment that utilizes a centrifugal compressor in a vapor-compression refrigeration cycle typically used for commercial comfort air conditioning.
(b) “Centrifugal chiller” does not include cooling for industrial process cooling and refrigeration.
(6) “Cold Storage Warehouse” means a cooled facility designed to store meat, produce, dairy products, and other products that are delivered to other locations for sale to the ultimate consumer.
(7) “Component” means:
(a) A part of a refrigeration system, including condensing units, compressors, condensers, evaporators, and instrumentation, and contractor and construction fees;
(b) All of a refrigeration system’s connections and subassemblies, without which the refrigeration system will not properly function or will be subject to failures.
(8) “Cumulatively Replaced” means the addition of or change in multiple components within a three-year period.
(9) “Effective Date” or “Effective Date of Prohibition” means the date of manufacture after which the prohibitions provided in Table 1 of this chapter go into effect.
(10) “End-use” means processes or classes of specific applications within industry sectors, including those listed in Table 1 of this chapter.

(11) “Flexible Polyurethane” means a non-rigid synthetic foam containing polymers of urethane radicals including, that used in furniture, bedding, chair cushions, and shoe soles.

(12) “Foam” or “Foam Blowing Agent” means a product or substance used to produce the product with a cellular structure formed via a foaming process in a variety of materials that undergo hardening or phase transition, such as polymers and plastics.

(13) "Household Refrigerators and Freezers.

(a) “Household Refrigerators and Freezers” means refrigerators, refrigerator-freezers, freezers, and miscellaneous household refrigeration appliances intended for residential use.

(b) “Household Refrigerators and Freezers” does not include “household refrigerators and freezers - compact”, or “household refrigerators and freezers - built-in.”

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

(15) Household Refrigerators and Freezers – Built-in.

(a) “Household Refrigerators and Freezers - Built-in” means any refrigerator, refrigerator-freezer or freezer intended for residential use with 7.75 cubic feet or greater total volume and 24 inches or less depth not including doors, handles, and custom front panels,

(b) “Household Refrigerators and Freezers - Built-in” contain sides which are not finished and not designed to be visible after installation, and

(c) “Household Refrigerators and Freezers - Built-in” are designed, intended, and marketed exclusively to be:

(i) Installed totally encased by cabinetry or panels that are attached during installation;

(ii) Securely fastened to adjacent cabinetry, walls or floor; and

(iii) Equipped with an integral factory-finished face or accept a custom front panel.

(16) "Hydrofluorocarbons" means a class of greenhouse gases that are saturated organic compounds containing hydrogen, fluorine, and carbon.

(17) “Integral Skin Polyurethane” means a synthetic self-skinning foam containing polymers of urethane radicals, such as that used in car steering wheels, dashboards, and shoe soles.

(18) MDI.

(a) “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,

(b) “MDI” consists of a pressurized canister of medication in a case with a mouthpiece, and (c) “MDI” means “Metered Dose Inhaler” or “Medical Dose Inhaler.”

(19) “Miscellaneous Residential Refrigeration Appliance” means a residential refrigeration appliance smaller than a refrigerator, refrigerator-freezer, or freezer; and
which includes coolers, cooler compartments, and combination cooler refrigeration or cooler freezer products.

(20) “New” means:
(a) Products or equipment that are manufactured after the effective date of this chapter;
(b) Products or equipment first installed for an intended purpose with new or used components;
(c) Products or equipment expanded by the addition of components to increase system capacity; or
(d) Products or equipment replaced or cumulatively replaced such that the capital cost of replacement exceeds 50% of the capital cost of replacing the whole system.

(21) “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.

(22) “Phenolic Insulation Board” means phenolic insulation including that used for roofing and walls.

(23) “Polyolefin” means foam sheets and tubes made of polyolefin.

(24) “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.

(a) “Polystyrene Extruded Sheet” means polystyrene foam including that used for packaging and buoyancy or floatation.
(b) “Polystyrene Extruded Sheet” 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.

(26) Positive Displacement Chiller.
(a) “Positive Displacement Chiller” means vapor compression cycle chillers that use positive displacement compressors, typically used for commercial comfort air conditioning.
(b) “Positive Displacement Chiller” does not include cooling for industrial process cooling and refrigeration.

(27) “Refrigerant” or “Refrigerant Gas” means any substance, including blends and mixtures, which is used for heat transfer purposes.

(28) Refrigerated Food Processing and Dispensing Equipment.
(a) “Refrigerated Food Processing and Dispensing Equipment” means retail food refrigeration equipment that is designed to process food and beverages dispensed via a nozzle that are intended for immediate or near-immediate consumption, including chilled and frozen beverages, ice cream, and whipped cream.
(b) “Refrigerated Food Processing and Dispensing Equipment” does not include water coolers, or units designed solely to cool and dispense water.

(29) “Refrigeration Equipment” means any stationary device that is designed to contain and use refrigerant gas, including commercial refrigeration equipment, household refrigeration equipment, and cold storage warehouses.

(30) “Remote Condensing Units” means retail refrigeration equipment or units that:
(a) Have a central condensing portion, and other parts of the system, located outside the space or area cooled by an evaporator;
(b) May consist of compressor(s), condenser(s), and receiver(s) assembled into a single unit, which may be located external to the sales area; and
(c) 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.

(31) Residential use.
(a) “Residential use” means use by a private individual of a substance, or a product containing the substance, in or around a permanent or temporary household, during recreation, or for any personal use or enjoyment.
(b) “Residential use” does not include use within a household for commercial or medical application.
(c) “Residential use” does not include use in automobiles, watercraft, or aircraft.
(32) “Retail Food Refrigeration” or “Commercial Refrigeration” means equipment designed to store and display chilled or frozen goods for commercial sale including stand-alone units, refrigerated food processing and dispensing equipment, remote condensing units, supermarket systems, and vending machines.
(33) “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.
(34) “Rigid Polyurethane and Polyisocyanurate Laminated Boardstock” means laminated board insulation made with polyurethane or polyisocyanurate foam, including that used for roofing and walls.
(35) “Rigid Polyurethane Appliance Foam” means polyurethane insulation foam in household appliances.
(36) “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.
(37) “Rigid Polyurethane High-pressure Two-component Spray Foam” means a foam product that:
(a) Is pressurized 800-1600 pounds per square inch (psi) during manufacture;
(b) Is sold in pressurized containers as two parts (i.e., A-side and B-side);
(c) Is blown and applied in situ using high-pressure pumps to propel the foam components; and
(d) May use liquid blowing agents without an additional propellant.
(38) “Rigid Polyurethane Low-pressure Two-component Spray Foam” means a foam product that:
(a) Is pressurized to less than 250 psi during manufacture;
(b) Is sold in pressurized containers as two parts (i.e., A-side and B-side); and
(c) Is typically applied in situ relying upon a gaseous foam blowing agent that also serves as a propellant so pumps typically are not needed.
(39) “Rigid Polyurethane Marine Flotation Foam” means buoyancy or flotation foam used in boat and ship manufacturing for both structural and flotation purposes.
(40) “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.

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

(42) Stand-alone Unit means retail 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; and all are fully charged with refrigerant at the factory and typically requires only an electricity supply to begin operation.

(43) “Stand-alone Low-Temperature Unit” means a stand-alone unit that maintains food or beverages at temperatures at or below 32°F (0 °C).

(44) “Stand-alone Medium-Temperature Unit” means a stand-alone unit that maintains food or beverages at temperatures above 32°F (0 °C).

(45) “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 of this chapter.

(46) “Supermarket Systems” means multiplex or centralized retail food refrigeration equipment systems designed to cool or refrigerate, which operate with racks of compressors installed in a machinery room and which includes both direct and indirect systems.

(47) Use.

(a) “Use” means any utilization of a compound or any substance, including utilization in a manufacturing process or product in the State, consumption by the end-user in the State, or in intermediate applications in the State, such as formulation or packaging for other subsequent applications.

(b) “Use” excludes residential use.

(c) “Use” includes manufacturing for the purpose of residential use.

(48) “Vending Machines” means self-contained commercial food refrigeration equipment that dispense goods and must be kept cold or frozen.

.03 List of Prohibited Substances.

A. The following table lists prohibited substances in specific end-uses and the applicable effective date of prohibition, unless an exemption is provided for in §§C and D of this regulation. The prohibitions do not apply to specific end-uses manufactured prior to an applicable effective date.

B. Table 1.

**End-Use Category: Aerosol Propellants**

<table>
<thead>
<tr>
<th>End-Use</th>
<th>Prohibited Substances</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerosol Propellants</td>
<td>HFC-125, HFC-134a, HFC-227ea and blends of HFC-227ea and HFC-134a</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
</tbody>
</table>
### End-Use Category: Air Conditioning

<table>
<thead>
<tr>
<th>End-Use</th>
<th>Prohibited Substances</th>
<th>Effective Date</th>
</tr>
</thead>
</table>

### End-Use Category: Refrigeration

<table>
<thead>
<tr>
<th>End-Use</th>
<th>Prohibited Substances</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Substances</td>
<td>Compliance Dates</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Stand-Alone Units (Retrofit)</td>
<td>R-404A, R-507A</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
</tbody>
</table>
## Vending Machines

<table>
<thead>
<tr>
<th>End-Use Description</th>
<th>Prohibited Substances</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Retrofit)</td>
<td>R-404A, R-507A</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
</tbody>
</table>

## End-Use Category: Foams

<table>
<thead>
<tr>
<th>End-Use</th>
<th>Prohibited Substances</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rigid Polyurethane and Polyisocyanurate Laminated Boardstock</td>
<td>HFC-134a, HFC-245fa, HFC-365mfc and blends thereof</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
<tr>
<td>Flexible Polyurethane</td>
<td>HFC-134a, HFC-245fa, HFC-365mfc and blends thereof</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
<tr>
<td>Integral Skin Polyurethane</td>
<td>HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, Formacel Z-6</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
<tr>
<td>Polystyrene Extruded Sheet</td>
<td>HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, Formacel Z-6</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
<tr>
<td>Phenolic Insulation Board and Bunstock</td>
<td>HFC-143a, HFC-134a, HFC-245fa, HFC-365mfc and blends thereof</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
<tr>
<td>Rigid Polyurethane Slabstock and Other</td>
<td>HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, Formacel Z-6</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
<tr>
<td>Rigid Polyurethane Appliance Foam</td>
<td>HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, Formacel Z-6</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
<tr>
<td>Rigid Polyurethane Commercial Refrigeration and Sandwich Panels</td>
<td>HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, Formacel Z-6</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
<tr>
<td>Polyolefin</td>
<td>HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, Formacel Z-6</td>
<td>January 1, 2021 or September 1, 2021</td>
</tr>
</tbody>
</table>
C. The following table list exemptions to the prohibitions in §B of this regulation.

<table>
<thead>
<tr>
<th>End-Use Category</th>
<th>Prohibited Substances</th>
<th>Acceptable Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerosol Propellants</td>
<td>HFC-134a</td>
<td>Cleaning products for removal of grease, flux and other soils from electrical equipment; refrigerant flushes; products for sensitivity testing of smoke detectors; lubricants and freeze sprays for electrical equipment or electronics; sprays for aircraft maintenance; sprays containing corrosion preventive compounds used in the maintenance of aircraft, electrical equipment or electronics, or military equipment; pesticides for use near electrical wires, in aircraft, in total release insecticide foggers, or in certified organic use pesticides for which EPA has specifically disallowed all other lower-GWP propellants; mold release agents and mold cleaners; lubricants and cleaners for spinnerettes for synthetic fabrics;</td>
</tr>
</tbody>
</table>
duster sprays specifically for removal of dust from photographic negatives, semiconductor chips, specimens under electron microscopes, and energized electrical equipment; adhesives and sealants in large canisters; document preservation sprays; FDA-approved MDIs for medical purposes; wound care sprays; topical coolant sprays for pain relief; and products for removing bandage adhesives from skin.

<table>
<thead>
<tr>
<th>Aerosol Propellants</th>
<th>HFC-227ea and blends of HFC-227ea and HFC-134a</th>
<th>FDA-approved MDIs for medical purposes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Conditioning</td>
<td>HFC–134a</td>
<td>Military marine vessels where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.</td>
</tr>
<tr>
<td>Air Conditioning</td>
<td>HFC-134a and R-404A</td>
<td>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.</td>
</tr>
<tr>
<td>Foams – Except Rigid polyurethane (PU) spray foam</td>
<td>All substances</td>
<td>Military applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements until January 1, 2022.</td>
</tr>
<tr>
<td>Foams – Except Rigid polyurethane (PU) spray foam</td>
<td>All substances</td>
<td>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 until January 1, 2025.</td>
</tr>
<tr>
<td>Rigid polyurethane (PU) two-component spray foam</td>
<td>All substances</td>
<td>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 until January 1, 2025.</td>
</tr>
</tbody>
</table>

D. Except where existing equipment is retrofit, any person who sells, offers for sale, installs, uses, or introduces into commerce in the State, any substance for use or manufactures a product containing such substance in an end-use listed in Regulation .03 of this chapter prior to the effective dates of the prohibitions specified in Table 1 of §B of this regulation is not required to cease use of the prohibited substance after the effective dates specified in Table 1 of §B of this regulation.
.04 General Requirements.
   A. No person may sell, install, use, or introduce into commerce in the State, any listed
   substance for use in any air-conditioning, refrigeration, foam, or aerosol propellant end-
   use listed as prohibited in Regulation .03B of this chapter, unless an exemption is listed
   in Regulation .03C or Regulation .03D of this chapter.
   B. Disclosure Statement. As of the effective date listed in Regulation .03B of this
   chapter, any person who manufactures and sells or introduces into commerce in the State,
   products or equipment in the air-conditioning, refrigeration, foam, or aerosol propellant
   end-uses listed in Regulation .03 of this chapter, must provide a written disclosure to the
   buyer as part of the sales transaction and invoice.
      (1) The required written disclosure must state:
         (a) For Refrigeration and Air Conditioning Equipment:
            (i) “This equipment is prohibited from use in Maryland when used with any
                refrigerant on the List of Prohibited Substances in Regulation .03 of COMAR 26.11.33
                for that specific end-use”; and
            (ii) “This disclosure statement has been reviewed and approved by COMPANY
                 NAME and COMPANY NAME attests, under penalty of perjury, that these statements
                 are true and accurate.”
         (b) For Foam:
            (i) “This foam system is prohibited from use in Maryland when used with any
                foam blowing agent on the List of Prohibited Substances in Regulation .03 of COMAR
                26.11.33 for that specific end-use”; and
            (ii) “This disclosure statement has been reviewed and approved by COMPANY
                 NAME and COMPANY NAME attests, under penalty of perjury, that these statements
                 are true and accurate.”
         (c) For Aerosol Propellants:
            (i) “This product is prohibited from use in Maryland when used with any aerosol
                propellant on the List of Prohibited Substances in Regulation .03 of COMAR 26.11.33
                for that specific end-use”; and
            (ii) “This disclosure statement has been reviewed and approved by COMPANY
                 NAME and COMPANY NAME attests, under penalty of perjury, that these statements
                 are true and accurate.”
      (2) The disclosure statement must remain with the product or equipment while it is
      in use in the State.

.05 Recordkeeping.
   As of the effective date of this chapter, any person who manufactures any product or
   equipment in the end uses listed in Regulation .03 of this chapter, for sale or entry into
   commerce in the State, must maintain for five years and make available, upon request, a
   copy of the following records, where applicable:
   A. Name and address of the person purchasing the equipment or product at the time of
      purchase;
   B. Telephone number and e-mail address of the person purchasing the equipment or
      product at the time of purchase, if provided to the manufacturer;
C. Date of manufacture of the equipment or product.
D. Date of sale of the equipment or product.
E. The refrigerant, aerosol propellant, or foam blowing agent(s) that the equipment or product is designed to use;
F. Where available, the refrigerant, aerosol propellant, or foam blowing agent used in the equipment or product and the full charge capacity;
G. A copy of the disclosure statement or label issued to the buyer or recipient; and
H. Model and Serial Number, where applicable.
   (1) When the affected equipment is part of an assembly without an individual serial number, the serial number of each component must be recorded.
   (2) 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.