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VIA ELECTRONIC MAIL AND U.S. MAIL

Docket No. EPA-HQ-OAR-2021-0643

Mr. Michael S. Regan, Administrator
Mail Code 1101A
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
Regan.Michael@epa.gov

Re: SEMI's Follow-Up to Petition for Reconsideration of EPA's "Phasedown of Hydrofluorocarbons: Restrictions on the Use of Certain Hydrofluorocarbons under the American Innovation and Manufacturing Act of 2020; Final Rule," 88 Fed. Reg. 73098 (Oct. 24, 2023)

Dear Administrator Regan:

Semiconductor Equipment and Materials International ("SEMI") appreciates the time EPA staff have devoted to meeting with us to consider responses to SEMI's petition for reconsideration of EPA's final rule titled "Phasedown of Hydrofluorocarbons: Restrictions on the Use of Certain Hydrofluorocarbons under the American Innovation and Manufacturing Act of 2020," 88 Fed. Reg. 73098 (Oct. 24, 2023) ("Technology Transitions Rule" or "the Rule"). SEMI writes today to memorialize its "ask" for resolution of the petition.

I. BACKGROUND

SEMI is a not-for-profit trade association that represents the leading companies engaged in the semiconductor manufacturing and related equipment ("SMRE") industry. SEMI represents more than 400 member companies in the United States reflecting the full range of the U.S. semiconductor industry, including semiconductor IP suppliers, device manufacturers, semiconductor and related equipment manufacturers, materials producers, and subcomponent suppliers. SEMI member companies are the foundation of the $2 trillion electronics industry, and this vital supply chain supports 350,000 high-skill and high-wage jobs across the United States. SEMI's member companies rely on the use of hydrofluorocarbon ("HFC")- based industrial process refrigeration ("IPR") equipment that is subject to the Rule.

Semiconductor manufacturing in the United States is expected to experience rapid growth in coming years due to the following factors: (1) rapid growth in the use of semiconductors

throughout the economy; (2) increased semiconductor fabrication in the United States to meet this growth; and (3) increased process complexity to fabricate advanced semiconductors. Semiconductors play a fundamental enabling role in technological innovation throughout the economy, ranging from information and communications technology to clean energy and transportation to health care. Major growth areas of the economy – including electric and autonomous vehicles, the Internet of Things (IoT), clean energy and smart grid, artificial intelligence, remote work and school, telemedicine, and others – are all enabled by semiconductor technology. As the use of semiconductors becomes integrated in an increasing number of products throughout the economy, semiconductor sales and manufacturing growth are expected to grow rapidly. According to a report by the Boston Consulting Group and SIA, growth in global semiconductor demand is projected to require a 56 percent increase in manufacturing capacity over the next 10 years.[1] A number of U.S. policies have been adopted to ensure that a significant portion of that capacity is located in the United States. **The expected growth in manufacturing capacity (both inside the United States and outside of it) will significantly add to the supply chain uncertainty associated with the current timelines in the Rule, because it will exacerbate the pressure on the IPR equipment supply chain to provide significant quantities of compliant equipment over a short period of time.**

The semiconductor industry uses IPR equipment (with and without a chiller) for multiple manufacturing steps in the fabrication, assembly, and testing of devices. The use of IPR equipment directly affects numerous semiconductor manufacturing process steps. IPR equipment is used for both process equipment chiller purposes and process-related environmental controls (i.e. air temperature and humidity controls). There are several considerations which are unique to the semiconductor industry that results in significant challenges with respect to the IRP transition schedule:

- Degree of complexity: The creation of very complex devices with nanometer-scale features requires very precise controls including extremely narrow temperature tolerances -- down to a fraction of a degree (0.1-±0.05°C) for some applications. Even small variations in temperature control can have significant impact on device features, product functionality, and product yields. IPR supporting temperature and ambient control of semiconductor process equipment must be extremely precise and repeatable. Precise control is required to realize process performance (e.g. uniform application of photoresist coatings). In short, minute fluctuations in temperature control can have significant yield impacts requiring a level of control that is unique to the semiconductor industry.
- Degree of Integration: IPR equipment is integrated in complex ways within semiconductor facilities, including densely packed fab & sub-fab layouts that require a high degree of integration of equipment and facility infrastructure. This layout presents challenges with floor space limitations and facility fire code evaluations, which may require safety and insurance related modifications. Equipment that uses alternative refrigerants may require additional floor space, which may not be available. Also, due to very narrow design margins and the complexity of manufacturing processes, end-to-end testing is required to verify conformance which results in lengthy qualification timelines and iterative enhancements to meet end process requirements. IPR solutions that involve the use of new equipment can only

[1] https://www.semiconductors.org/turning-the-tide-for-semiconductor-manufacturing-in-the-u-s/.

be ramped into high volume manufacturing on completion of iterative design, validation, and qualification activities and the IPR system must be tuned and matched with other equipment and process chemistries. Based on these challenges, there is no clear path to A2L or CO2 implementation within current timelines. The current state-of-art designs need further improvements and qualification to be adopted for high volume manufacturing-viable solutions.

- Custom Engineered Solutions: Semiconductor manufacturing equipment is custom engineered and there are limitations on availability of components and equipment able to meet challenging requirements. Equipment manufacturers have noted application-specific concerns, including the current lack commercially available options that meet very precise temperature and humidity control requirements and a lack of viable pathways to enable compliant solutions, particularly in the -30C to -50C range.

EPA proposed its Technology Transitions Rule on December 15, 2022. 87 Fed. Reg. 76738. SEMI submitted comments to the docket describing the unique and varied challenges that the semiconductor industry would face as a result of the rule's restrictions on certain chillers and IPR equipment used by the industry. *See* Comments of SEMI on Proposed Rule and Advanced Notice of Proposed Rulemaking, Docket ID No. EPA-HQ-OAR-2021-0643-0182 (Jan. 30, 2023). After the Rule was finalized, SEMI submitted both a petition for judicial review in court, Case No. 23-1344 (D.C. Cir.), and a petition for reconsideration with EPA. Docket ID No. EPA-HQ-OAR-2021-0643-0236 (Dec. 22, 2023).

SEMI's members will be directly affected by the Rule's restrictions on the specialized chillers and non-chiller IPR equipment that are required in the highly sophisticated semiconductor manufacturing process. SEMI members' critical SMRE operations are at risk of business disruptions due to production stoppage and supply chain disruptions that may result from the restrictions in the Rule. Specifically, SEMI has received information from chiller manufacturers stating that the supply chain will not be ready to meet commercial demands and the Rule's performance specifications by the applicable compliance date, and that 2030 is a more realistic compliance date given the projected commercial availability of low-Global Warming Potential (GWP) equipment. Additionally, SEMI members have significant concerns about the lack of technical data available on the performance of low-GWP IPR equipment, the potential risks for integrating chiller and IPR equipment with existing equipment and fab infrastructure, and the potential challenges associated with servicing and repairing both legacy and new equipment covered by the Rule. Accordingly, SEMI requests that EPA:

- Extend the compliance deadlines for small and medium-sized chillers used by the SMRE industry to 2030;
- Develop and incorporate into the Rule a formal review process to evaluate supply chain readiness three years in advance of the 2030 deadline, and agree to extend compliance deadlines if the SMRE industry is unable to meet the deadlines due to supply chain constraints identified in the review;
- Issue a guidance document clarifying temperature and installation requirements for chillers used by the SMRE industry.

SEMI describes in more detail each of these requests below and has attached its suggested revisions to the regulation as Attachment A.

II. EPA SHOULD EXTEND THE COMPLIANCE DEADLINES FOR SMALL AND MEDIUM-SIZED CHILLERS USED BY THE SEMICONDUCTOR INDUSTRY TO 2030

One primary concern is the significant uncertainty associated with the absence of existing low-GWP chiller and non-chiller refrigeration technology for our applications that is both (a) compliant with the GWP mandates that will take effect in 2026 and 2028, and (b) compatible with the existing and "in-flight" (i.e., planned but not yet operational) tool and production facility envelopes. There is a risk of facility and production line downtime associated with these new requirements which could arise if, for example, it is not possible to source sufficient legacy equipment for replacement purposes and there is a need to install new equipment that conforms with the new GWP limits but does not function as a drop-in replacement for our installed base of production equipment or already planned in-flight facilities.

The SMRE industry's specialized manufacturing processes and the uniquely long fab development lifecycle necessitate extending the Rule's compliance deadlines for small and medium-sized chillers where the temperature of the fluid exiting the chiller is greater than −22 °F (−30 °C) using a regulated substance from 2026 to 2030. EPA should further extend the deadline for IPR chillers where the temperature of the fluid exiting the chiller is greater than or equal to −50 °C (−58 °F) and less than or equal to −30 °C (−22 °F) from 2028 to 2030. Our assessment, taking into account information provided by SEMI members' main suppliers, is that specialized SMRE suppliers will be unable to manufacture safe and compliant equipment with enough lead time for this equipment to be commercially available for production or import before the 2026 and 2028 compliance deadlines. The chillers and specialized IPR equipment used by the SMRE industry are highly sophisticated and cannot be sourced and stockpiled in sufficient quantities necessary to run existing and in-flight production facilities. (We anticipate that we will have additional information from one or more suppliers to provide to you in the near future, and will supplement this submission accordingly.)

Furthermore, if smoke and fire containment is necessary to support installation of the equipment due to use of low-GWP flammable refrigerants – as we believe will be the case – there will be substantial redesign and construction requirements, with concomitant downtime and lost production, in addition to additional costs that will vary depending on installation. The lack of drop-in replacements, and the challenges associated with stockpiling legacy chillers and non-chiller refrigeration equipment at sufficient volumes, could therefore lead to business disruptions at currently operating facilities, which could in turn affect the domestic chip supply chain.

Reconfiguration of semiconductor facilities to accommodate chillers and non-chiller refrigeration equipment that use low-GWP refrigerants will require additional testing to ensure compliance with both applicable safety standards and chip manufacturer performance standards. Assessments, component- and system-level qualification, and certification at the chiller and IPR equipment level will be required. These assessments could in turn affect facility-level safety requirements (such as ventilation and fire life safety controls) and certifications, which in turn could require new tool configurations. There are numerous other additional systemic adjustments

that will likely be required to accommodate chillers and non-chiller refrigeration equipment that use low-GWP refrigerants, such as layout changes due to increased IPR chiller and other IPR equipment's volume and footprint increase. Additional expected costs and impacts to the semiconductor industry are set forth in SEMI's Petition for Reconsideration.

The Rule's considerable implications for the SMRE supply chain, the industry's uniquely complex and specialized equipment, and the attestations from suppliers that compliant chillers and IPR equipment will not be available with enough time to allow the SMRE industry to comply with the Rule weigh in favor of EPA extending the compliance deadlines associated with small and medium-sized chillers. SEMI requests that EPA extend the applicable compliance deadline from 2026 or 2028 to 2030 – and incorporate a formal supply chain feasibility assessment as described below (see Section III below), to give the industry a meaningful opportunity to comply with the Rule's requirements.

III. EPA SHOULD DEVELOP A FORMAL SUPPLY CHAIN REVIEW PROCESS TO ASSURE THAT THE SEMICONDUCTOR INDUSTRY CAN FEASIBLY MEET REVISED COMPLIANCE DEADLINES

In addition to the deadline extension, given the significant uncertainty surrounding supply chain readiness for compliant equipment we request that EPA develop a formal review process to take into account any unforeseen delays that may impact the SMRE industry's ability to comply with the revised deadline. Specifically, SEMI requests that the Rule provide that EPA will perform a formal evaluation of the availability of compliant equipment and the feasibility of the SMRE industry installing that equipment, particularly in existing and in-flight fabs, in 2027, three years before the compliance deadline's effectiveness date. SEMI requests that EPA formally codify this feasibility review process via a rulemaking, as it has done in other regulatory programs.

A. A SUPPLY CHAIN FEASIBILITY REVIEW STEP IS NECESSARY

With the entire U.S. semiconductor industry needing to transition to comply with the Final Rule at the same time, any disruptions in the supply chain could result in massive costs and the failure to meet the standards which could cause SEMI members to shutter their fabrication facilities.

As noted above, the Final Rule could significantly affect production capacities and capabilities of semiconductor chips in existing semiconductor facilities, already planned semiconductor facilities, and future builds. SEMI's members do not yet have planned adjustments in site layout and permitting to enable low-GWP refrigerants. Multiple options are under assessment, but for some applications no solution has yet been identified. And, for options that *have* been identified, they have not been tested or qualified on the applicable semiconductor manufacturing processes – a process that could take as long as 3 or 4 years in order for the chiller manufacturer to (1) qualify the chiller with applicable electrical product safety and other standards; (2) then qualify the chiller with the manufacturer of the SMRE tool into which the chiller will be incorporated; and (3) then finally to qualify the modified tool with the end user (the device manufacturer). The timeline for qualifications of products that contain novel or relatively untested next-generation refrigerants (as opposed to legacy refrigerants with a long

history of success) adds further uncertainty and risk. Anticipated impacts include updates to IPR racks and floor layouts to accommodate dimensional differences, possible addition of ventilation and leak detection equipment, and possible electric changes due to increased power consumption.

Given the potential scope of the Rule's impacts on the SMRE industry and the time that it will take to assess next steps, SEMI requests that EPA assess the readiness of the SMRE equipment supply chain three years before the compliance date is effective and provide a formal mechanism to extend the compliance date if this review demonstrates that the supply chain cannot adequately accommodate compliant equipment.

B. EPA HAS USED FEASIBILITY ASSESSMENTS TO EXTEND COMPLIANCE DEADLINES IN OTHER REGULATORY PROGRAMS

SEMI identifies below an example of a regulatory scheme where EPA has analyzed a regulated entity or regulated industry's ability to comply with a regulation and provided a mechanism for extending compliance dates accordingly. EPA should include such a provision here.

In EPA's recently-finalized Greenhouse Gas ("GHG") Heavy Duty Phase 3 Regulations, which establish more stringent greenhouse gas emissions limits for heavy-duty vehicles, EPA committed to monitoring the major elements relating to heavy-duty zero-emission vehicle charging and refueling infrastructure and to issue periodic status reports on the availability of this infrastructure in the years after the final rule is effective because a "[l]ack of such infrastructure may present challenges for vehicle manufacturers' ability to comply with future EPA GHG standards" for manufacturers whose compliance strategy involves increasing the sale of zero-emissions vehicles.[2] EPA anticipates that these reports will be informed by data from industry stakeholders and if those reports demonstrate that the industry cannot feasibly comply by the applicable deadlines, EPA stated that it would take appropriate action, including initiating a future rulemaking to consider modifications to the compliance date in a subsequent rulemaking.[3]

Indeed, the argument for revisiting the compliance deadline in our case is much stronger than in the Phase 3 context. Entities regulated by EPA's Phase 3 GHG Standards have multiple compliance pathways available to them and are not required to select a pathway that will hinge on the availability of charging and refueling infrastructure. EPA nevertheless plans to monitor the available infrastructure and relevant market conditions to determine the industry's ability to comply with mobile source emission standards for entities that select this pathway.[4]

By contrast, the Technology Transition Rule only has one compliance pathway: installing low-GWP equipment by the compliance date. Accordingly, we request that EPA expressly commit, in the preamble to a rule that establishes an extended compliance schedule for our

[2] *See* 89 Fed. Reg. 29440, 29841 (March 29, 2024) ("Final Rule: Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3").
[3] *Id.*
[4] *Id.*

sector, that it will monitor the availability of low-GWP equipment for the semiconductor industry and conduct future rulemakings to extend relevant compliance deadlines if it determines that an adequate supply of compliant equipment is not available to the SMRE industry.

IV. EPA SHOULD ISSUE A GUIDANCE DOCUMENT CLARIFYING TEMPERATURE AND INSTALLATION REQUIREMENTS FOR THE SEMICONDUCTOR INDUSTRY

SEMI requests that EPA issue a guidance document to clarify some of the key questions that SEMI members have that will impact their compliance strategies. While this guidance document will alleviate some of the regulatory uncertainty surrounding the rule, it is not by itself sufficient to account for the burdens faced by the SMRE industry. This guidance document should be issued in conjunction with, not instead of, the rulemaking described above.

A. EPA Should Clarify that Temperature Restrictions are Based On Temperature "As Designed" and not "As Operated"

SEMI requests that EPA issue a guidance document clarifying that the limitations on semiconductor IPR equipment are based on temperature "as designed" as opposed to operating temperature. This clarification is necessary because semiconductor chillers and IPR equipment are used interchangeably across multiple products and recipes, and the temperature use conditions fluctuate accordingly. Basing restrictions on the "as designed" temperature for our sector will allow the SMRE industry to continue to have flexibility to operate its equipment as needed. Basing the restriction on the operating temperature requires the use of multiple manufacturing tools to complete the same process and therefore may lead to an increased emissions footprint. Moreover, regulating the equipment based on its operating temperature renders the equipment subject to different compliance dates, which will create confusion for SEMI members.

B. EPA Should Clarify that Self-Contained Chillers are "Products" and not "Systems"

SEMI requests that EPA clarify that self-contained equipment used by the SMRE industry are "products" and not "systems" in a guidance document. SEMI members have already been developing their compliance strategies based on the assumption that self-contained equipment are "products" and not "systems" as defined in the Rule. This clarification would be helpful to confirm the industry's existing understanding that in-country self-contained equipment will benefit from the additional 3-year distribution and installation timeline. We appreciate EPA's apparent willingness to provide that additional clarity.

Nevertheless, this guidance is not sufficient to address our concerns above. The extended compliance deadline for installation of such products provides limited utility to our sector because (a) a significant proportion of our supply chain relies on imported equipment; (b) there is no compliant equipment available at the current time; and (c) given the high volumes of equipment that will be required (particularly in light of the anticipated expansion of U.S. semiconductor manufacturing as noted above), we have significant concerns that our sector

would not be able to import sufficient quantities of equipment prior to the importation deadline, even if the technology is available before the import deadline takes effect. The limitations of the 3-year installation window are further complicated by the shelf life of chillers, which is approximately 28 months (but can vary by supplier). As a result, while this clarification helps SEMI members by providing regulatory certainty, it alone is not enough to provide SEMI members with relief and a formal rulemaking to extend the compliance deadlines as noted above is necessary in addition to this guidance.

V. IF DEADLINES ARE EXTENDED, SEMI MEMBERS WILL DEVELOP A VOLUNTARY HFC RECLAMATION PROGRAM

To demonstrate our commitment to emissions reduction in light of our requested deadline extension, SEMI is willing to develop a voluntary HFC reclamation program in which SEMI members could opt into a contract with one or more HFC reclaimers to collect a fixed number of pounds (on a GWP basis) from the SMRE industry or other market participants. This voluntary initiative would allow SEMI members an additional opportunity for further emissions reduction while alleviating market demand for virgin HFC refrigerant materials during the scheduled phasedown process and is consistent with EPA's mandate under subsection (h) of the AIM Act.

VI. CONCLUSION

SEMI supports EPA's goals in reducing greenhouse gas emissions from HFCs and emphasizes that the targeted changes only apply to the SMRE industry which accounts for a *de minimis* amount of overall HFC emissions nationwide.

SEMI appreciates EPA's consideration on this matter and looks forward to continuing to work with EPA on a pathway to compliance with the Technology Transitions Rule. Please contact us with any questions you may have.

Sincerely,

K. Russell LaMotte

Enclosure

cc: Joseph Goffman, Assistant Administrator, Office of Air and Radiation
Cindy Newberg, Director, Stratospheric Protection Division

Attachment A – Proposed Redline of Regulatory Text

§ 84.52 Definitions.

For the terms not defined in this subpart but that are defined in § 84.3, the definitions in § 84.3 shall apply. For the purposes of this subpart:

Blend containing a regulated substance means any mixture that contains one or more regulated substances.

Export means the transport of a product or specified component using a regulated substance from inside the United States or its territories to persons outside the United States or its territories, excluding United States military bases and ships for onboard use.

Exporter means the person who contracts to sell any product or specified component using a regulated substance for export or transfers a product or specified component using a regulated substance to an affiliate in another country.

Importer means any person who imports any product or specified component using or intended for use with a regulated substance into the United States. Importer includes the person primarily liable for the payment of any duties on the merchandise or an authorized agent acting on his or her behalf. The term also includes:

(1) The consignee;

(2) The importer of record;

(3) The actual owner; or

(4) The transferee, if the right to withdraw merchandise from a bonded warehouse has been transferred.

Install means to complete a field-assembled system's circuit, including charging with a full charge, such that the system can function and is ready for use for its intended purpose.

Manufacture means to complete the manufacturing and assembly processes of a product or specified component such that it is ready for initial sale, distribution, or operation.

Product means an item or category of items manufactured from raw or recycled materials which performs a function or task and is functional upon completion of manufacturing. The term includes, but

is not limited to: appliances, foams, fully formulated polyols, self-contained fire suppression devices, aerosols, pressurized dispensers, and wipes.

Retrofit means to upgrade existing equipment where the regulated substance is changed, which—

(1) Includes the conversion of equipment to achieve system compatibility; and

(2) May include changes in lubricants, gaskets, filters, driers, valves, o-rings, or equipment components for that purpose. Examples of equipment subject to retrofit include air-conditioning and refrigeration appliances, fire suppression systems, and foam blowing equipment.

Sector means a broad category of applications including but not limited to: refrigeration, air conditioning and heat pumps; foams; aerosols; chemical manufacturing; cleaning solvents; fire suppression and explosion protection; and semiconductor manufacturing.

Semiconductor manufacturing and related equipment means industrial process refrigeration equipment and chillers used in the manufacture of semiconductors.

Specified component for purposes of equipment in the refrigeration, air conditioning, and heat pump sector means condensing units, condensers, compressors, evaporator units, and evaporators.

Subsector means processes, classes of applications, or specific uses that are related to one another within a single sector or subsector.

Substitute means any substance, blend, or alternative manufacturing process, whether existing or new, that may be used, or is intended for use, in a sector or subsector with a restriction on the use of regulated substances and that has a lower global warming potential than the GWP limit or restricted list of regulated substances and blends in that sector or subsector.

System means an assemblage of separate components that typically are connected and charged in the field with a regulated substance or substitute to perform a function or task.

Use means for any person to take any action with or to a regulated substance, regardless of whether the regulated substance is in bulk, contained within a product, or otherwise, except for the destruction of a regulated substance. Actions include, but are not limited to, the utilization, deployment, sale, distribution, offer for sale or distribution, discharge, incorporation, transformation, or other manipulation.

§ 84.54 Restrictions on the use of hydrofluorocarbons

(a) No person may manufacture or import any product in the following sectors or subsectors that uses a regulated substance as listed in this paragraph:

…

(10) Chillers, when a stand-alone product, as follows:

…

(iii) Effective January 1, 2026, chillers for industrial process refrigeration where the temperature of the fluid exiting the chiller is greater than −22 °F (−30 °C) using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater, except where such chillers are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

(iv) Effective January 1, 2028, chillers for industrial process refrigeration where the temperature of the fluid exiting the chiller is greater than or equal to −50 °C (−58 °F) and less than or equal to −30 °C (−22 °F) using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater, except where such chillers are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

(11) Effective January 1, 2027, self-contained products in data center, information technology equipment facility, and computer room cooling using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater;

(12) Industrial process refrigeration products, other than chillers, as follows:

(i) Effective January 1, 2026, products with a refrigerant charge capacity of 200 pounds or greater and with the refrigerant temperature entering the evaporator higher than −30 °C (−22 °F) using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 150 or greater, except where such products are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

(ii) Effective January 1, 2026, products with a refrigerant charge capacity less than 200 pounds and with the refrigerant temperature entering the evaporator higher than −30 °C (−22 °F), using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 300 or greater, except where such products are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

(iii) Effective January 1, 2028, where the temperature of the refrigerant entering the evaporator is greater than or equal to −50 °C (−58 °F) and is less than or equal to −30 °C (−22 °F), using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater, except where such products are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

…

(b) Effective three years after the dates listed for each subsector in paragraph (a) of this section, no person may sell, distribute, offer for sale or distribution, make available for sale or distribution, purchase or receive for sale or distribution, or attempt to purchase or receive for sale or distribution, or export any product that uses a regulated substance as listed in paragraph (a).

(c) No person may install any system, nor have any such system be installed through their position as a designer, owner, or operator of that system, in the following sectors or subsectors that uses a regulated substance as listed in this paragraph (c):

…

(5) Effective January 1, 2026, chillers for industrial process refrigeration where the temperature of the fluid exiting the chiller is greater than −22 °F (−30 °C) using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater, except where such chillers are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

(6) Effective January 1, 2028, chillers for industrial process refrigeration where the temperature of the fluid exiting the chiller is greater than or equal to −50 °C (−58 °F) and less than or equal to −30 °C (−22 °F) using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater, except where such chillers are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

…

(10) Industrial process refrigeration systems, other than chiller systems, as follows:

(i) Effective January 1, 2026, systems with a refrigerant charge capacity of 200 pounds or greater and with the refrigerant temperature entering the evaporator higher than −30 °C (−22 °F), that are not the high temperature side of a cascade system, using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 150 or greater, except where such systems are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

(ii) Effective January 1, 2026, systems with a refrigerant charge capacity less than 200 pounds and with the refrigerant temperature entering the evaporator higher than −30 °C (−22 °F), using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 300 or greater, except where such

systems are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

(iii) Effective January 1, 2026, the high temperature side of cascade systems with the refrigerant temperature entering the evaporator higher than −30 °C (−22 °F) using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 300 or greater, except where such systems are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

(iv) Effective January 1, 2028, where the temperature of the refrigerant entering the evaporator is greater than or equal to −50 °C (−58 °F) and is less than or equal to −30 °C (−22 °F), using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater, except where such systems are semiconductor related manufacturing equipment, in which case the effective date is January 1, 2030;

…

(e) The following actions, upon charging the system to full charge, **are considered an installation of a** refrigeration, air conditioning, and heat pump system under paragraph (c) of this section:

(1) Assembling a system for the first time from used or new components;

(2) Increasing the cooling capacity, in BTU per hour, of an existing system; or

(3) Replacing 75 percent or more of evaporators (by number) and 100 percent of the compressor racks, condensers, and connected evaporator loads of an existing system.

(f) Effective upon the dates listed for each subsector in paragraphs (a) and (c) of this section, no person may manufacture, import, sell, distribute, offer for sale or distribution, make available for sale or distribution, purchase or receive for sale or distribution, or attempt to purchase or receive for sale or distribution, or export any product or specified component that is not labeled in accordance with § 84.58.

(g) Every product or system using or intended to use a regulated substance or blend containing a regulated substance that is manufactured, imported, sold, distributed, offered for sale or distribution, made available for sale or distribution, purchased or received for sale or distribution, or attempted to be purchased or received for sale or distribution, or exported in contravention of paragraphs (a) through (f) of this section constitutes a separate violation of this subpart.

(h) No person may provide false, inaccurate, or misleading information to EPA when reporting or providing any communication required under this subpart.

(i) No person may falsely indicate through marketing, packaging, labeling, or other means that a product or specified component uses or is intended to use a regulated substance, blend containing a regulated substance, or substitute that differs from the regulated substance, blend containing a regulated substance, or substitute that is actually used.

(j) Section (k) of the AIM Act states that sections 113, 114, 304, and 307 of the Clean Air Act (42 U.S.C. 7413, 7414, 7604, 7607) shall apply to this section and any rule, rulemaking, or regulation promulgated by the Administrator pursuant to this section as though this section were expressly included in title VI of that Act (42 U.S.C. 7671 *et seq.*). Violation of this part is subject to Federal enforcement and the penalties laid out in section 113 of the Clean Air Act.

§ 84.56 Exemptions.

(a) The regulations under this subpart, including §§ 84.54, 84.58, 84.60, and 84.62, do not apply to:

(1) Equipment in existence in the United States prior to December 27, 2020; and

(2) Any product using a regulated substance or a blend containing a regulated substance, or intended to use a regulated substance or a blend containing a regulated substance, in an application listed at § 84.13(a), for a year or years for which that application receives an application-specific allowance as defined at § 84.3.

(b) The prohibitions on the manufacture, import, sale, distribution, offer for sale or distribution, or export of products in § 84.54(a) and (b) do not apply to components that use, or are intended to use, any regulated substance.

(c) The prohibitions on the sale, distribution, offer for sale or distribution, or export of products in § 84.54(b) do not apply to:

(1) Products after a period of ordinary utilization or operation by a consumer; or

(2) Products within the disposal or recycling chain.

(d) The prohibition on the import of used products in § 84.54(a) does not apply to:

(1) Systems in use by a conveyance in trade travelling into U.S. jurisdiction including refrigeration, air-conditioning, and heat pump systems in operation aboard ships, planes, motor vehicles, and intermodal containers;

(2) Products in the possession of a consumer for personal use; or

(3) Products imported solely for recycling or disposal.