



Caesar Rodney Institute
Center for Energy & Environment
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Lisa Vest
Public Hearing Officer
State of Delaware – DNREC
89 Kings Highway
Dover, DE 19901
e-mail: Lisa.vest@Delaware.gov

4/14/20

Dear Ms. Vest;

I am submitting comments regarding DNREC's **1151 Prohibitions on Use of Certain Hydrofluorocarbons in Specific End-Uses** printed in the Delaware Register 4/1/20, regarding the banning of HFC refrigerants in new refrigeration equipment, air conditioners, foam, or aerosol after a specified date.

The regulation, and accompanying Regulatory Impact Statement (RIS) are deeply flawed, and the regulation should be withdrawn. The justifications for the regulation fail review:

- 1) The language of the regulation is based on an Environmental Protection Agency (EPA) Significant New Alternatives Policy (SNAP) regulation from 2015 that has been overturned by the U.S Court of Appeals for the District of Columbia¹, and was repealed in 2018. The regulation is not in force, and cannot serve as a basis for the Delaware regulation.
- 2) The RIS provides additional support for the regulation from the Kigali Amendment of the Montreal Protocol. The Kigali Amendment has never been sent to the U.S. Senate for Advice & Consent and has no force of law as the United States is not a participating country.
- 3) The RIS also states the regulation aligns with the State of Delaware Greenhouse Gas emissions reduction goals of 26-28% by 2025, from 2005 levels. As shown in detail below, Delaware has already exceeded the goal in 2019, and compliance requires no further action.

The underlying concept behind the regulation is a new type of refrigerant, hydrofluoroolefins (HFO), with a lower global warming potential, will replace hydrofluorocarbon (HFC) refrigerants. Two companies share the patent rights on HFO, Honeywell International, Inc., and Chemours Company, LLC. These companies lobbied for the Kigali Amendment, lobbied for the SNAP regulation, and now lobby for this proposed regulation to create a monopoly for their patent protected HFO product line that sells for up to ten to fifteen times the price of HFC's. But don't take my word for it. In declining an appeal for reconsideration of the decision overturning the EPA regulation, Court of Appeals Judge Brett Kavanaugh wrote of the appellants, Honeywell International, Inc., and Chemours Company, LLC:

“Industry intervenors are rent-seekers trying to use the government to foreclose their competitors' products”, and intervenor “arguments mask their true interest in this case, which is to have government choose market winners and losers, thereby stifling competition”

The RIS states there will be no significant compliance cost. We will show that is not true. The RIS also overstates the importance of emissions savings from the regulation. By any measure the proposed



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regulation has no justification, is an unnecessary burden on homeowners, and businesses, and even if carried through, will have no significant impact on global warming.

Cost burden

There will likely be a major cost impact of switching from HFC to HFO. HFC can be purchased for \$3 to \$4 a pound, while HFO sells for \$60 to \$65 a pound based on an internet search, and a U.S. Department of Energy report, “Refrigerants: Market Trends and Supply Chain Assessment”². Grand View Research³ estimated US fluorocarbon refrigerant use at 123,000 tons in 2019. The current price premium for HFO’s is over \$55 per pound, or \$110,000/ton. That cost differential between HFC and HFO yields \$13.5 billion a year in added cost to U.S. households, motorists, and businesses that rely on air conditioning and refrigeration. For example, higher refrigerant cost will add about \$100 per new car, and for new air conditioning equipment, or repair. As stated in the RIS, Delaware’s population is 0.3-percent of the U.S. population, so the scaled cost of just the higher refrigerant cost is \$40.5 million a year. Even at higher volumes, the U.S. DOE price differential forecast remains at \$35/pound, a potential annual cost to Delawareans of \$26 million a year.

Because HFO refrigerants are flammable while HFC is not, refrigeration and air conditioning repair mechanics will need new required refrigerant recycling equipment. According to the US Bureau of Labor Statistics⁴ there were 332,900 air conditioning and refrigeration mechanics and installers in 2016. Car dealers I have talked to are reporting recycling equipment cost is ranging from \$5,000 to \$9,000 each. So, otherwise un-needed recycling equipment cost may place a one-time \$2.3 billion burden on the economy. Using the same scaling factor as above, the one-time cost for recycling equipment in Delaware may be about \$7 million.

The development of refrigeration equipment compatible with alternative refrigerants is likely to add cost to the equipment procurement. The cost differential may fade with time as economies of scale kick in. However, DNREC recognizes the cost of equipment in its “Coolswitch” program. The program offers up to 50-percent of new, or retrofit system costs for commercial refrigeration systems. Equipment costs will rise for air conditioning, and residential systems as well that will not receive subsidies.

Greenhouse Gas Savings

The RIS estimates 120,000 metric tons of equivalent carbon dioxide savings in 2030. The Coolswitch program values savings at \$25/ton, so the value of the savings is \$3 million a year compared to a potential \$26 million a year in higher refrigerant cost. Calculations have been made that eliminating all carbon dioxide emissions in the United States would reduce global temperatures 0.2 degrees C in 2100⁵. The prorated savings of the proposed regulation would therefore amount to 4 one-hundred thousandths of a degree, essentially zero. The savings are likely exaggerated as most of the HFC refrigerant in refrigeration and cooling equipment is recycled, and does not reach the atmosphere. In addition, equipment manufacturers are moving to lower global warming potential refrigerants anyway⁶.



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Delaware carbon dioxide emission goals have already been met

The U. S. Energy Information Agency data for CO₂ emissions by sector from DE⁷ from 2005 to 2017, shows emissions fell from 16.7 million metric tons from 2005, to 12.3 in 2017. Most of the reduction was in the electricity sector falling from 6.5 million metric tons to 2.9. The transportation sector fell from 5.2 million metric tons to 4.7. The EPA just released the 2019 Auto industry emission report showing MPG improved from 24.9 MPG in 2017 to an estimated 25.5 in 2019, or a 2.4% improvement⁸. RGGI COATS⁹ shows Delaware emissions fell to just 2.0 million tons in 2019. So total CO₂ emissions were likely about 11.3 million metric tons in 2019, a 32% reduction from 2005.

Conclusion

This regulation fails on every count, and should be withdrawn. DNREC claims the basis for the regulation in a treaty that has never been approved, an EPA regulation that has been repealed, and a carbon dioxide emission reduction goal from the Governor that has already been met. Potential annual costs exceed benefits by nine times. The goals in the regulation will likely be met by competitive market forces without the regulation. Finally, even if the regulation works as DNREC expects, it will have essentially zero impact on global warming.

David T. Stevenson
Director, Center for Energy & Environment
e-mail: DavidStevenson@CaesarRodney.org
Phone: 302-236-2050

Notes:

- 1) On August 8, 2017 the US District Court of Appeals for the District of Columbia case 15-1328 (Mexichem Fluor Inc. v. Environmental Protection Agency). Intervenors request for a re-hearing or an en banc review of the decision was denied on 10/18/2017 with several comments, [https://www.cadc.uscourts.gov/internet/opinions.nsf/3EDC3D4817D618CF8525817600508EF4/\\$file/15-1328-1687707.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/3EDC3D4817D618CF8525817600508EF4/$file/15-1328-1687707.pdf)
- 2) U.S Department of Energy report, “Refrigerants: Market Trends and Supply Chain Assessment”, page 43, <https://www.nrel.gov/docs/fy20osti/70207.pdf>
- 3) Grandview Research, “Refrigerant Industry Insights”, <https://www.grandviewresearch.com/industry-analysis/refrigerant-market>
- 4) US Department of Energy, Energy Efficiency and Renewable Energy, “Appliance and Equipment Standards”, https://www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=48&action=viewlive
- 5) Heritage Foundation, “Methods and Parameters Used to Establish the Social Cost of Carbon”, Kevin D. Dayaratna, PhD, Feb. 24,2017, <https://docs.house.gov/meetings/SY/SY18/20170228/105632/HHRG-115-SY18-Wstate-DayaratnaK-20170228.pdf>
- 6) Clean Energy Manufacturing Analysis Center, “Refrigerants: Market Trends and Supply Chain Assessment”, Feb., 2020, <https://www.nrel.gov/docs/fy20osti/70207.pdf>
- 7) U.S. Energy Information Agency, Carbon dioxide emissions by year by state, <https://www.eia.gov/environment/emissions/state/>
- 8) U.S. Environmental Protection Agency, Automotive Trends Report 2019, <https://www.epa.gov/automotive-trends>
- 9) RGGI COATS, <https://www.rggi.org/allowance-tracking/rggi-coats>

April 16, 2020

Lisa Vest,
Hearing Officer, DNREC
89 Kings Highway, Dover, DE, 19901
Via email to DNRECHearingComments@delaware.gov

RE: Delaware Regulation Proposal 7, DE Admin Code 1151 – Prohibition on use of certain Hydrofluorocarbons in Specific End Uses, response to the Technical Document published April 2020

Dear Hearing Officer and DNREC Staff,

The undersigned companies are producers and suppliers of hydrofluorocarbons (HFCs) and the next generation of low global warming potential (GWP) solutions, as well as manufacturers of construction insulation foams and foam systems. All of us support the State's goals to reduce greenhouse gas (GHG) emissions and the products we make help advance that goal by significantly reducing the amount of energy used to heat and cool residential, commercial and industrial buildings.

While we have invested heavily, and continue to invest, in the HFC substitutes, we are very concerned about a small subset of HFC applications that will be affected by the proposed regulation, as a large portion of the regulated community will not be able to meet the proposed HFC ban dates because of technical, safety or commercial reasons, as well as the closures related to COVID-19.

Specifically, we are requesting a modest extension, to 1/1/22, of the effective HFC ban date for the following 3 construction foam products (see Appendix A):

- XPS Boardstock and Billet
- Low Pressure two Component Polyurethane Spray Foam
- High Pressure two Component Polyurethane Spray Foam

The underlying issue is the ability to adopt the new technology in the short time allowed by the current proposal (several months), which is much shorter than was allowed by the three states that have already implemented similar measures (CA, WA and VT all allowed over 1.5 years). Unlike in the majority of HFC uses, foams technology adoption must be carried out facility by facility, and requires 12-18 months of implementation time. Without this extension, the number of construction foam products available in Delaware will be severely restricted (with some not available at all), which will result in higher prices for consumers and businesses alike at the time when the economy can least afford it due to the effects of COVID-19.

Accommodating our request will have no effect on Delaware's ability to meet its goals of reducing its HFC emissions and/or the total GHG emissions.

Finally, we are seeking to correct and complete some of the information contained in the Technical Support Document as well as to add a clarifying section 6.1.2.2.

Details and justifications of our position are outlined below and in the following pages.

Detailed explanation of the coalition's request:

- Construction foams consist of 15-20 components on average, one of which is the HFC-based blowing agent and/or propellant. When it is replaced, the rest of the formulation needs to be adjusted to ensure the same level of performance, service life and compatibility with the other components and equipment. From a safety standpoint, the new formulations represent a significant change that requires new extensive flammability testing for the personal safety of residents and workers that work or live in the structures where the foam is installed. Passing these fire and physical performance tests is difficult and may require multiple re-formulations and tests. The process involves extensive testing in the lab and at customer locations, customer acceptance of new products and updates of specifications.
- All significant changes to formulations require multiple building code certification approvals by code officials. Products must be manufactured with a code official witnessing the production and that material is then shipped for certification testing to their 3rd party sites. The multiple types of tests required take significant time and funding and varies for the specific end-use of the product, and often on the state in which it is used.
- When there is a change in the safety rating (a number of HFC replacements are flammable), the processing equipment and the building in which the manufacturing process occurs must be properly rated and permitted. If changes are needed, they require time and substantial investment.
- In addition to the technical/safety issues, commercial issues must be resolved – availability of the new ingredients, storage requirements, transportation requirements, supply agreements.
- At least 12 months are needed to address the above issues, more if flammability needs to be addressed.
- If the ban dates of 2021 are adopted, there will be limited or no supply in some of the foam categories which will force users to either bring them from the neighboring states where they are allowed or use products from other categories. Either way, construction foams and energy efficiency in buildings will be more expensive.
- COVID-19 related issues are having a further impeding effect on efforts to comply with the proposed 1/21 end use date. Lab/code accreditation testing facilities are closed, manufacturing, site upgrades, and supply chain activities are on hold and will struggle to keep up once activity returns to normal.

Specific foam issues:

- XPS foam: the components currently approved to replace HFC are flammable and will require serious investment in upgrading manufacturing facilities. Foam manufacturers have their own grids to supply each state, and must upgrade them to handle the new flammable components. XPS foam is large and bulky and shipping it across the country is cost-prohibitive; their complex supply chain updates began with those states that started regulatory programs prior to 2020.
- Low Pressure two Component Spray Foam: requires both a gaseous blowing agent and a liquid blowing agent in a pressurized cylinder, currently available solutions are flammable which the U.N. Technology and Economic Assessment Panel recognizes is not a safe or viable alternative to non-flammable options. There remain significant concerns with optimizing the stability of the formulations for the proper shelf life required for distribution and use.

- High Pressure two Component Spray Foam: requires a liquid blowing agent. Nonflammable solutions are available, but require at least 12 months to ensure users can process formulation changes and required testing. Safety concerns include optimizing the stability of the formulations for the proper shelf life required for distribution and use.
- Appendix A explains specific foam differences relying on the most recent information developed by the Foams Technical Options Committee (FTOC) of the Montreal Protocol.

Impact on Delaware’s ability to meet its GHG and HFC emission goals

According to the DNREC Technical Support Document (TDS, April 2020) HFC emissions will represent 4.5% of all GHG emissions in DE by 2025, while HFC emissions from foam will account for ~ 3% of the total HFC emissions (estimated from graph in Fig 3 of TDS). The three foam applications concerned by this request represent less than 25% of all foam use¹ – i.e. less than 0.75% of total HFC emissions and ~0.034% or less of the total annual GHG emissions in the state in 2021. Once installed, the HFC leakage rate from these foams is <1% per year. Therefore, an extension until 2022 will have a negligible effect on 2021 HFC/GHG emissions, and no effect on the State’s ability to meet its HFC emission reduction goal of 20% by 2030, the GHG emission reduction goal of 26-28% by 2025, the HFC emissions reductions from foams goal of 54% by 2025 or any other GHG/HFC emission reduction goal in 2022 and beyond.

Correction of the information in the Technical Support Document

On page 44 of the Technical Document dated April 2020, the Department staff replied to a similar request made by Arkema as follows: *“The Department has acknowledged Arkema’s request, however it believes that the proposed timeline is still appropriate as it offers enough lead-time from the intended schedule of the vacated EPA SNAP rules (effective dates prior to January 2019 for all 4 foam end-uses). EPA’s analyses to justify an earlier prohibition date included technical and economic considerations for the availability of lower GWP alternatives for these end-uses.”*

This response relies on incorrect and incomplete information, specifically:

- None of the effective dates for the foams in question were before 2019. In the vacated SNAP Rules these foams were scheduled to be banned in 2020 and 2021, 5-6 years after the Rules were published.
- A number of technical challenges with HFC replacements in these foams were identified since the SNAP Rules were published, most notably flammability. The justifications originally used by EPA to set these dates are now outdated.

Request to add a section

We hereby request to add the following section in order to provide consistency with future US EPA listings and other states:

6.1.2.2 The Department shall expeditiously modify the regulation to add the blend if the two above conditions are accurately established in the federal register.

¹ 23.7%, See Appendix B

Coordination with other US Climate Alliance States:

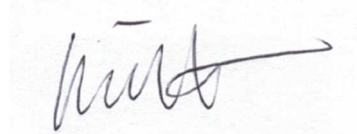
We have voiced the same concern with a number of other states currently working on adopting similar HFC measures. Two of them – HI and ME – have pending legislation that would move the end date to 2022, others are considering our proposal. Most of the ten USCA states that have not yet announced any specific HFC actions will most likely have to adopt later dates by default. Delaware will not be alone in setting the dates for these foams at 1/1/22.

We are ready to meet with you or your staff to answer any questions or provide further details. Please reach out to any of the undersigned.

Sincerely,



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Allen Karpman
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allen.karpman@arkema.com



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Foam technologies are vastly different

High-pressure spray foam



U.S. Spray Foam Rentals: Foam Equipment ...
sprayfoamrentals.com



Two-component low-pressure spray foam (2K-LP SPF)



Extruded Polystyrene (XPS)



Overview of Progress and Challenges Related to Blowing Agent Transitions

The major blowing agent transitions being driven by regulation currently are those in Article 5 parties resulting from Decision XIX/6 and being funded under national HCFC Phase-out Management Plans (HPMPs). First phase HPMP implementation is generally running smoothly, although there have been delays in the initiation of some plans owing to the significant administration involved. Since Decision XIX/6 requires a "worst first" approach, the phase-out of HCFC-141b has been particularly targeted over the period covered by this report. This has been broadly successful within larger enterprises where the critical mass of the operation is sufficient to justify investment in hydrocarbon technologies, often with individual enterprises often willing to co-fund the investment where the funding thresholds available under the Multilateral Fund have been insufficient.

Foams manufactured using other blowing agents, notably extruded polystyrene (XPS), have not typically been part of the first phase of most HPMPs. This is because there are no proven low-GWP alternatives to HCFC-142b/22 currently available. Although CO₂ based technology is prevalent in Europe, it is still not clear whether it is sufficiently versatile for the variety of manufacturing plants operating in Article 5 parties. Other alternatives include hydrocarbons and ethers, but the flammability of these blowing agents is problematic when coupled with polystyrene as brominated flame retardants are also being phased out in some countries. The concern about flammability has increased in Asia since 2010 following a series of major building fires which occurred during the construction of some high-rise buildings. Despite these concerns, investment in XPS manufacturing capacity is increasing in response to demand for inexpensive and effective insulation. This has particularly been the case in Russia, the Middle East and parts of Eastem Europe and North Africa. The current choice of blowing agent in these regions are blends of HFC-134a/HFC-152a which have a GWP of 1430 and 124 respectively. The manufacturing process is typically quite emissive. Blends based on a combination of hydrofluoroolefins (HFOs) and/or hydrochlorofluoroolefins (HCFOs) together with hydrocarbons, ethers or other low GWP blowing agents may ultimately provide a solution for XPS, but the continuing development is causing delay on conversions for some parties.

Two-component Low-pressure spray polyurethane foam (2K-LP SPF) is **not** reviewed by the UN FTOC.

You may confirm this with the co-chair

Helen Walter-Terrinoni helen.a.walter-terrinoni@outlook.com



Extruded Polystyrene Foam

Extruded polystyrene board is unique amongst the foam sectors considered in this report in that it is blown exclusively with gaseous blowing agents. This is a consequence of the extrusion process. Extruded polystyrene (XPS) should not be confused with expanded polystyrene (EPS – also sometimes called 'bead foam') which uses pre-expanded beads of polystyrene containing pentane. EPS has never used ozone depleting substances and is seldom addressed in UNEP Reports for the Montreal Protocol. XPS is used primarily as a building insulation and often competes with PU Boardstock. Its particular competitive advantage is in relation to its moisture resistance, which makes it especially useful for under-floor insulation and cold storage applications. There is another form of XPS known as 'Sheet' which is typically used for non-insulating applications such as leisure products (e.g. surf boards) and packaging materials. XPS sheet exited from CFC use early in the history of the Montreal Protocol and has used hydrocarbons almost exclusively ever since.

Alongside PU Spray Foam, the extruded polystyrene sector represents one of the most challenging technological sectors of the market. CO₂ based technology has been largely adopted in Europe, it remains unsuitable for products with high thermal insulation properties. However, some new developments that allow for better thermal insulation properties like lamination technologies that allow for thicker foams and the use of carbon black or graphite in infrared attenuation technology may increase the number of products that use CO₂ as a blowing agent.

While hydrocarbons have proved uniquely acceptable in Japan, North America production is now based on the use of high-GWP HFCs such as blends of HFC-134a and HFC-152a. Non-insulating XPS foams (e.g. packaging) have largely transitioned to hydrocarbons and CO₂ as a co-blowing agent.

Use of flammable blowing agents are made less likely because of parallel concerns with the brominated flame retardants (e.g. HBCD)³³ that was widely used in XPS and other polystyrene insulating products. Accordingly, the Business-As-Usual scenario is relatively conservative in its outlook for further transition.

There are new developments for XPS alternatives have been discovered since this 2018 FTOC report. A new paper on flammability hazards of HFO-1234ze during processing contains details and multiple additional references: *Comprehensive Evaluation of the Flammability and Ignitability of HFO-1234ze*; R.J. Bellair, L.S. Hood, Process Safety and Environmental Protection, In Press (2019).

Two-component High-pressure spray polyurethane foam:

Polyurethane Spray

Polyurethane spray foam has been used for many years as an efficient means of insulating structures which would be difficult to insulate in other ways, because of shape or location. An example would be that of an insulated road tanker. Another would be the insulation of large flat roofs, which may not be as flat as might be presumed! More recently, however, polyurethane spray foams have emerged as a vital component of renovation strategies for existing buildings. Again, the efficiency and versatility of application, as well as the relative durability and thermal efficiency are all characteristics³⁴, which have contributed to the rapid growth of PU spray foam in both developed and developing regions.



APPENDIX B

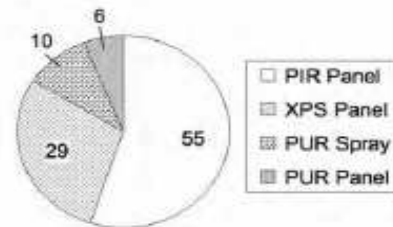


Figure 2.1 Average Building Insulation Foam Consumption in California by Material Fraction (Percentages) (1990-2009) (Caleb 2011)

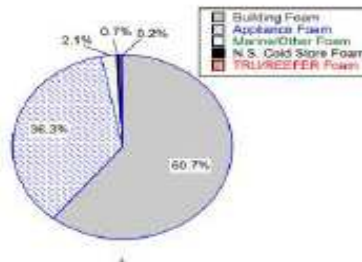


Figure 7. Foam Consumption in California by Application (from Caleb 2011)

Calculations:

Building foam = 60.7% of all foam. XPS + PUR spray = 39% of all building foam.

Therefore XPS+PUR spray represent $0.607 \times 0.39 = 0.237$ (23.7%) of all foam

Emissions of Potent Greenhouse Gases from Appliance and Building Waste in Landfills

Final Report

CARB Agreement Number: 11-308

Principal Investigators:

Nazli Yesiller
James L. Hanson
Jean E. Bogner

Prepared for:

The California Air Resources Board and The California Environmental Protection Agency

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May 31, 2016

RE: Delaware HFCs New Proposed Regulation and Technical Support Document

Messner, Kevin <KMessner@AHAM.org>

Mon 4/20/2020 1:19 PM

To: Rabemiarisao, Ajo (DNREC) <Ajo.Rabemiarisao@delaware.gov>

I noticed that the foam disclosure section does not have the similar mention of safety standards. See suggested edits below to the regs and below that a copy of the safety standard requirement for foam. Let me know if you'd like to discuss.

Except for foam products and equipment with existing labeling required by state building codes and safety standards which contain the information required in subsections 4.2.1.3.1 or 4.2.1.3.2. For foam products, the disclosure or label should include one of the two alternatives (Alternative 1 or Alternative 2) detailed below:

Required labeling includes chemical name or refrigerant number for insulation blowing agent/gas --



APRIL 28, 2017 CAN/CSA-C22.2 NO. 60335-2-24:17 • UL 60335-2-24 25

- the refrigerant number of the refrigerant blend.
 - the chemical name or refrigerant number of the principal component of the insulation blowing gas.
- Refrigerant numbers are given in ISO 817.

From: Rabemiarisao, Ajo (DNREC) <Ajo.Rabemiarisao@delaware.gov>

Sent: Monday, April 20, 2020 10:25 AM

To: Rabemiarisao, Ajo (DNREC) <Ajo.Rabemiarisao@delaware.gov>

Cc: Gray, Valerie A. (DNREC) <Valerie.Gray@delaware.gov>; Wisniewski, Christian (DNREC) <Christian.Wisniewski@delaware.gov>

Subject: Re: Delaware HFCs New Proposed Regulation and Technical Support Document

Dear Stakeholder,

Please find attached the information to access our April 23, 2020, Virtual Public on Delaware's [proposed new HFCs regulation](#).

For more information, please consult our [regulatory website](#).

Don't hesitate to reach out to me if you have any questions,
Best,

Ajo Rabemiarisao,

Environmental Engineer
DNREC - Division of Air Quality
302.324.2083- phone
ajo.rabemiarisao@delaware.gov

Blue Skies Delaware; Clean Air for Life

From: Rabemiarisao, Ajo (DNREC)

Sent: Thursday, April 2, 2020 4:03 PM

To: Rabemiarisao, Ajo (DNREC) <Ajo.Rabemiarisao@delaware.gov>

Cc: Gray, Valerie A. (DNREC) <Valerie.Gray@delaware.gov>; Wisniewski, Christian (DNREC) <Christian.Wisniewski@delaware.gov>

Subject: Delaware HFCs New Proposed Regulation and Technical Support Document

Dear Stakeholder,

This email is to inform you that Delaware's Department of Natural Resources and Environmental Control has published the [proposed new HFCs regulation](#) in the [April 1st Registrar of regulations](#).

We have also updated our [regulatory website](#) to include a link to the April 1st Registrar of regulations, and our Technical Support Documentation (also attached to this email, for your convenience).

Please, don't hesitate to reach out if you have any questions,
Best,

Ajo Rabemiarisao,

Environmental Engineer
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302.324.2083- phone
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Blue Skies Delaware; Clean Air for Life



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4/22/20

Dear Ms. Vest;

I am submitting additional comments regarding DNREC's **1151 Prohibitions on Use of Certain Hydrofluorocarbons in Specific End-Uses** printed in the Delaware Register 4/1/20, regarding the banning of HFC refrigerants in new refrigeration equipment, air conditioners, foam, or aerosol after a specified date.

The United States Senate is considering legislation similar to the DNREC regulation, S. 2754 the American Manufacturing and Innovation (AIM) Act. The key point of these new comments is the Regulatory Impact Statement (RIS) submitted along with proposed regulation is hugely deficient, and needs to consider these additional impacts on businesses large and small. Any benefits of the proposed regulation will likely be overwhelmed by the negative impacts. Testimony by businesses that will be negatively impacted by an HFC ban is relevant to the proposed DNREC regulation, and is summarized below. The comments are copied verbatim from a recent article from Ben Lieberman at the Competitive Enterprise Institute in his article titled, "Businesses Critical of Costly Climate Bill Finally Get to Weigh In"¹.

The National Environmental Development Association (NEDA)², represents a range of manufacturers in the aerospace, pharmaceuticals, petrochemicals, and home-care products industries. NEDA commented that many members rely on HFCs in industrial process chillers as well as other equipment. For these companies, the bill would raise repair costs and could necessitate premature replacements with costly systems designed to run on substitutes. NEDA was particularly concerned about the provision allowing the Environmental Protection Agency (EPA) to ban HFC production in as little as four years.

The Industrial Energy Consumers of America (IECA)³, which represents energy-intensive manufacturers, echoed many of these concerns and noted that the replacement equipment designed to run on HFC substitutes is both more expensive and less energy efficient. Thus, the bill would not only raise costs for American manufacturers, but may actually increase their greenhouse gas emissions. IECA further points out that the AIM Act's provisions would put domestic manufacturers at a disadvantage against competitors in nations like China that do not face the same restrictions.

IECA also draws the important distinction between the manufacturers of refrigerants and cooling equipment, who want higher prices and thus stand to gain from the bill, and the larger number of manufacturers who are the users of such equipment and would be harmed by it. The former have loudly supported the bill since its introduction, but the latter have now begun to make their concerns known.

The largest individual company to raise concerns was aerospace giant Boeing⁴. Its comment concedes that substitutes for HFCs are adequate for many applications, but asserts that HFCs are still needed in several



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key on-board applications, including fire extinguishers. Boeing focused on the safety concerns surrounding several substitutes, which, unlike HFCs, are classified as flammable and thus are of limited use in aircraft.

The safety concerns extend to the ground as well. For example, the National Automatic Merchandising Association⁵, which represents the vending machine industry, notes that the use of flammable replacement refrigerants often runs up against building code issues, especially those applicable to public spaces where vending machines are located. Other commenters raised their own flammability concerns.

Motor vehicle air conditioners are also impacted, both the 150 million, and more existing vehicles reliant on HFC-134a, as well as new ones using its replacement. The National Automobile Dealers Association⁶ warns of higher repair costs under the AIM Act. This includes higher HFC prices to fix leaks in current vehicles, higher costs of the replacement refrigerants in new systems, and potentially costly new equipment and time-consuming procedures in the repair process.

Even among manufacturers of air conditioning and refrigeration equipment, there were dissenting voices who found particular provisions poorly drafted or unnecessarily expansive.

The Association of Home Appliance Manufacturers (AHAM)⁷, which represents the makers of most domestic refrigerators and room air conditioners, raised concerns about the wording of the provision that, separate from the restrictions on production of HFCs, also allows the EPA to ban their use in any category of new equipment. AHAM also stated that the bill's HFC restrictions may complicate compliance with other federal regulations impacting the same equipment, particularly the Department of Energy's efficiency standards for appliances.

The Society of Chemical Manufacturers and Affiliates⁸ represents many companies using HFCs for numerous non-refrigerant purposes, and believes the bill needs to be revised to protect them.

Conclusion

It is clear DNREC has missed numerous potential unintended consequences for businesses of its proposed ban on HFC. DNREC should leave regulation of HFC refrigerants to the federal government that can view this with a wider perspective, and in more depth.

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Notes:

- 1) Competitive Enterprise Institute, "Businesses Critical of Costly Climate Bill Finally Get to Weigh In", Ben Lieberman, 4/16/20, <https://cei.org/blog/businesses-critical-costly-climate-bill-finally-get-weigh>



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- 2) National Environmental Development Association, testimony on S. 2754,
https://www.epw.senate.gov/public/_cache/files/4/5/45217024-05e4-45cd-9665-0e163325de04/3B1FD568388A38AE5A62B3C8DCA08585.04.08.2020-the-national-environmental-development-association-s-clean-air-project.pdf
- 3) Industrial Energy Consumers of America, testimony on S. 2754,
https://www.epw.senate.gov/public/_cache/files/f/0/f062df04-7f65-4340-8fa8-bd15d12b4fb3/728A2939FE0071C13300D245CAFFEF3F.04.08.2020-industrial-energy-consumers-of-america.pdf
- 4) Boeing, testimony on S. 2754, https://www.epw.senate.gov/public/_cache/files/d/1/d152a591-878f-4a4d-b9c1-dc7121c06eca/9D366FF1E61F7EFFF6A71C37C92924A5.04.03.2020-boeing.pdf
- 5) National Automatic Merchandising Association, testimony on S. 2754,
https://www.epw.senate.gov/public/_cache/files/1/2/12ffb4eb-011c-4272-8789-1d1b45f432d3/D8852D574168E29551E74E5AA3021151.04.08.2020-national-automatic-merchandizing-association.pdf
- 6) The National Automobile Dealers Association, testimony on S. 2754,
https://www.epw.senate.gov/public/_cache/files/8/c/8c4b890f-ce4f-4acb-98df-65f98a200826/86E5F4FADC67F0741210E70A98E9628B.04.08.2020-nada.pdf
- 7) Association of Home Appliance Manufacturers, testimony on S. 2754,
https://www.epw.senate.gov/public/_cache/files/e/c/ec450c3a-f981-402c-ad73-01944f22abfc/6E5C1FEA65A71D2E914BBAA206F5681F.03.25.2020-aham.pdf
- 8) Society of Chemical Manufacturers and Affiliates, testimony on S. 2754,
https://www.epw.senate.gov/public/_cache/files/0/7/07babb1b-b0a8-4324-89b6-6fb26a92b521/23C08FB473FDA9EDD7EA57DF8CFDD4CB.04.08.2020-socma.pdf

April 20, 2020

Ms. Ajo Rabemiarisoa
Environmental Engineer
DNREC - Division of Air Quality

Submitted via comment portal

Re: NAMA Comments to DNREC on HFC Phase Out for the Vending Industry (Docket #2020-R-A-0004)

Dear Ms. Rabemiarisoa:

The National Automatic Merchandising Association (NAMA), representing hundreds of large and small businesses that provide vending, coffee and convenience services to thousands of customers in Delaware each day, appreciates the opportunity to submit the following comments regarding the phase out of HFC refrigerants in the State of Delaware. We are additionally appreciative that Wes Fisher from our staff was able to attend the public workshop held at DNREC on October 8, 2019.

NAMA continues to emphasize that our industry is committed to a transition away from HFCs in a timely, efficient, and business feasible manner, however there are several placement restrictions enforced by standards organizations that necessitate an extension the phase out in vending while the industry works with these organizations to amend these standards. We appreciate DNREC changing the proposed phase out date in vending machines to January 1, 2022 in response to NAMA's position paper submitted to the US Climate Alliance. This date will align with state phase outs in Maryland, New Jersey, Washington, Oregon, Maine, Hawaii, and more states that are beginning the process of HFC regulations.

NAMA therefore supports the proposed HFC regulations phasing out the use of HFCs in Vending Machines in 2022 that has been published to the Delaware Register of Regulations.

Regarding the disclosure requirements currently proposed, we would appreciate further clarification as to which types of labels are acceptable. We believe that the labeling requirements including in the State of Washington's HFC regulation, which points to the Underwriters Laboratories (UL) label already required on commercial equipment, is a good model for this purpose. The Washington regulation states that *"For the refrigerant used in commercial refrigeration equipment: (i) New dedicated label; (ii) UL or equivalent safety label; or (iii) On-product or on-equipment symbol or code; and online disclosure."*

Thank you again for the opportunity to provide comments and thank you for your willingness to accept input from the convenience services industry throughout this process.

Sincerely,



Mike Goscinski
Director, Federal and State Affairs
NAMA

From: Shebik, Ronald <ron.shebik@hussmann.com>
Sent: Thursday, April 23, 2020 6:24 PM
To: Rabemiarisoa, Ajo (DNREC) <Ajo.Rabemiarisoa@delaware.gov>
Subject: RE: April 23 Public Hearing

Hello Ajo

During your presentation on the proposed HFC regulation you mentioned new equipment and retrofit. Does Delaware have definitions for these two terms? For example, what differentiates between new equipment and replacement/servicing?

Thank you,

Ronald Shebik
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