

DRAFT Meeting Minutes  
Wednesday, January 20, 2021  
HFC Extruded Polystyrene Boardstock Compliance Date Work Group  
Electronic-only Meeting on GoToWebinar

Members Present: Jessica Olson, Schuyler Pulleyn, Ming Xie, Lisa Massaro, Paul Lewandowski, and Frank Rambo.

Members Absent: Walton Shepherd.

Other Attendees: John Szymanski, Christina Theodoridi (attending as alternate for Walton Shepherd), Tanisha Edwards, Jean-Francois Côté, Justin Koscher, Chris Nolen, Walter Reiter, Narissa Turner, Stephen Wieroniey, Michael Dowd, Gary Graham, and Amy Kasper.

The meeting convened at 11:05 a.m. and adjourned at 1:30 p.m.

1. **Introductions and Meeting Logistics** [Michael Dowd, DEQ]. Mr. Dowd welcomed the attending members, acknowledged the non-member attendees, and introduced the DEQ staff members attending the meeting. He informed the attendees that while this group is a public body subject to the Virginia Freedom of Information Act (FOIA), it is an informal working group and will not be accepting questions from the public during the meeting. FOIA also requires that communication between more than two members of the public body concerning the business of the public body be open to public participation, so members should route all such communications through DEQ for distribution to the group. Mr. Dowd presented the agenda for the meeting (Attachment 1) and reviewed how the meeting would proceed.
2. **Introductions** [Michael Dowd, DEQ]. Mr. Dowd asked the Work Group members to introduce themselves, and they did so. A list of Work Group members (Attachment 2) had been distributed to the members prior to the meeting.
3. **Introductory Remarks** [Michael Dowd, DEQ]. Mr. Dowd presented the 2020 General Assembly budget language, as amended during the 2020 Special Session I (Attachment 3).
  - a. Mr. Dowd emphasized that:
    - i. The hydrofluorocarbon (HFC) prohibitions required for regulation in the budget language are restricted to those specific HFCs and those specific end uses included in Appendices U and V of 40 CFR Part 82, Subpart G;
    - ii. The versions of those appendices to be included in the Virginia regulation are fixed in time (as of January 3, 2017);
    - iii. The regulatory process to be used is exempt from the Administrative Process Act but not exempt from FOIA requirements;
    - iv. The amended language requires the Board to solicit input from a working group of XPS boardstock manufacturers and other relevant stakeholders in order to determine a feasible compliance date for those products.
    - v. The budget language requires the State Air Pollution Control Board (the Board) to adopt a regulation to be effective no later than July 1, 2021; and
    - vi. DEQ has no preconceived notions on a compliance date and believes the simpler the regulation, the better, especially due to the short time frame required in the budget language. DEQ is soliciting input from the work

group on both a recommended compliance date and recommendations concerning the structure of the regulation.

- b. Mr. Dowd reviewed the necessary timeline and milestones for the regulation and the work group:
  - i. The regulation must be effective July 1, 2021.
  - ii. DEQ must present a regulatory proposal to the Board at the April 23, 2021 Board meeting.
  - iii. The next (and probably final) meeting of the work group will be on February 17, 2021. Member comments and input will be discussed at that meeting and may be tested for consensus.
  - iv. Group members must submit member comments and recommendations to DEQ no later than February 9, 2021 in order to allow for distribution and consideration prior to the February work group meeting.

4. **Discussion** [Michael Dowd, DEQ and members].

- a. The member from Kingspan Insulation, LLC provided a verbal summary of the Kingspan letter and attachment provided to the group prior to the meeting (Attachment 4). Kingspan asks that Virginia to wait to see what the federal regulations say before DEQ decides on a regulation. The AIM Act requires EPA to propose a regulation soon.
- b. The group generally agreed that simplicity in the regulation is best.
- c. A member suggested that the Board adopt the SNAP Rules and push the dates in the rules to 2022. DEQ is encouraged to have uniformity with the SNAP Rules and with what other states are doing.
- d. The group generally does not feel that the budget language prohibits manufacture of products to be sold outside of Virginia. Some members requested more clarity on what “enter into commerce” means.
- e. There could be an option to exempt Kingspan’s operations and leave it open until EPA acts. The budget language requires us to contemplate a date but not to set one.
- f. There will be 12 states with HFC regulations in effect by the end of 2022 for products with HFC-134a. Stakeholders encourage DEQ to use similar language to the US Climate Alliance (USCA) model rule.
- g. Labeling and reporting requirements are the best way to ensure the regulation is enforced. Requests were made that DEQ standardize labeling and reporting requirements as much as possible. DEQ needs to double check its regulatory authority on labeling and reporting.
- h. DEQ should include the state preemptions included in the AIM Act.
- i. The DEQ HFC regulations must go into effect on July 21, 2021, but compliance with the prohibitions could take effect in later – even 2022. Industry members suggested a 12 to 18 month lead time for supply chain conversion. Six months should be the absolute minimum due to timeline for plant conversions.
- j. Suggestion of developing the regulation and then following that up with a DEQ guidance document which will go through public comment.

- k. The Work Group members are asked to submit written comments and examples of labelling and recordkeeping requirements.
  - l. Members emphasized that the regulation is a “phase down” not a “phase out” per the Kigali Amendments.
5. **Discussion Summary** [Amy Kasper, DEQ].
- a. Need more clarity on the term "enter into commerce."
  - b. Need standardized labeling, enforcement, and recordkeeping requirements.
  - c. Consider adopting the SNAP rules and push dates to 2022.
  - d. Consider uniformity with other states’ regulations.
  - e. Consider a requirement that manufacturers offset HFC emissions.
  - f. Consider the effect of supply change conversion and supply chain in setting the compliance date. There is possible consensus that a compliance date 6 to 12 months after the effective date would be appropriate to account for supply chain conversion.
  - g. DEQ might be able to use a guidance document for enforcement, compliance and labeling instead of including them as regulatory requirements.
  - h. Not setting a compliance date in the regulations would default to EPA regulations.
6. **Next Steps** [Michael Dowd, DEQ].
- a. Members submit written comments by close of business February 9, 2021.
  - b. DEQ investigate what “enter into commence” means.
  - c. DEQ check on regulatory authority for including labelling and recordkeeping requirements in the regulation (or enforcement guidance).

A [recording of the meeting](#) is available for review on-line.

Attachments:

1. Meeting Agenda.
2. Work Group Member List.
3. Item 378, 2020 Virginia Acts of Assembly.
4. Email and attachment from Mr. Ming Xie, Kingspan Insulation LLC, January 18, 2021.

Attachment 1

**AGENDA**

**HFC Extruded Polystyrene Boardstock Compliance Date Work Group**

GotoWebinar <https://attendee.gotowebinar.com/register/1318146628217479950>

**January 20, 2020 11 am – 4 pm**

**Moderator:** Mike Dowd, Director - DEQ Air & Renewable Energy Division

**DEQ Staff:** Gary Graham – DEQ Office of Regulatory Affairs  
Amy Kasper – DEQ Office of Air Compliance Coordination

11 am	Welcome and Logistics (Dowd)
11:15 am	Introductory Remarks (Dowd)
11:30 am	Introductions
11:45 am	Discussion
12:30 pm	Break for Lunch
1:00 pm	Resume Discussion
3:30 pm	Meeting Summary and Closing Remarks (Dowd, Kasper)
3:30 pm	Next Steps (Dowd)

**Adjourn**

**COMMONWEALTH OF VIRGINIA  
STATE AIR POLLUTION CONTROL BOARD**

**WORK GROUP  
CONCERNING**

**A HYDROFLUOROCARBON EXTRUDED POLYSTYRENE (XPS) BOARDSTOCK  
COMPLIANCE DATE**

**Panel Facilitator**

Michael Dowd, DEQ

**Relevant Stakeholders**

Jessica Olsen, Honeywell (Alternate: John Szymanski)

Ming Xie, Kingspan Insulation LLC

Lisa Massaro, Dupont

Schuyler Pulleyn, The Chemours Company

Paul Lewandowski, Owens Corning

Frank Rambo, Southern Environmental Law Center

Walton Shepard, National Resources Defense Council (Alternate: Christina Theodoridi)

**DEQ Staff**

Gary Graham, DEQ, Agency Contact

Amy Kasper, DEQ, Staff Support

**ITEM 378 VIRGINIA STATE BUDGET**

B.2. The State Air Pollution Control Board shall adopt regulations to prohibit the sale, lease, rent, installation or entry into commerce in Virginia of any products or equipment that use or will use hydroflouorocarbons for the applications and end uses restricted by Appendix U and Appendix V of Subpart G of 40 C.F.R. Part 82, as those read on January 3, 2017. Notwithstanding the foregoing, such regulations shall not prohibit the use of hydrofluorocarbons in the manufacturing process by extruded polystyrene boardstock and billet manufacturers located in Virginia to produce products for sale and distribution outside of the Commonwealth, until the Board has solicited input from such manufacturers in order to determine and set by regulation a feasible date by which such manufacturers must be required to comply. In developing regulations, the Board shall solicit input from a workgroup of relevant stakeholders assembled by the Department.

3. The regulations adopted by the State Air Pollution Control Board to initially implement the provisions of this item this shall be exempt from Chapter 40 of Title 2.2, Code of Virginia, and shall become effective no later than July 1, 2021...

Attachment 4

From: **Ming Xie** <[ming.xie@kingspan.com](mailto:ming.xie@kingspan.com)>  
Date: Mon, Jan 18, 2021 at 8:00 PM  
Subject: Kingspan Comments to Department of Environmental Quality  
Hydrofluorocarbon Stakeholder Workgroup  
To: Dowd, Michael <[michael.dowd@deq.virginia.gov](mailto:michael.dowd@deq.virginia.gov)>, [gary.graham@deq.virginia.gov](mailto:gary.graham@deq.virginia.gov)  
<[gary.graham@deq.virginia.gov](mailto:gary.graham@deq.virginia.gov)>, [todd.alonzo@deq.virginia.gov](mailto:todd.alonzo@deq.virginia.gov)  
<[todd.alonzo@deq.virginia.gov](mailto:todd.alonzo@deq.virginia.gov)>  
CC: Nolen, Christopher R. <[cnolen@mcquirewoods.com](mailto:cnolen@mcquirewoods.com)>

Hello Michael, Gary and Todd:

Hope you are doing well.

I would like to submit Kingspan's comment in advance of the upcoming stakeholder workgroup meeting.

Kingspan believes that it is imperative that Virginia based manufacturers such as Kingspan not disadvantaged compared to its competitors outside of Common Wealth, as a result of the new HFC regulation. Given the current situation that EPA is expected to release information on how HFC will be regulated under the structure outlined by AIM Act, Virginia should strive to be consistent with federal programs and withhold effort to set a specific sunset date until more information becomes available.

Kingspan would also like express its gratitude to VA government's effort to work with Kingspan to maintain our competitiveness in the marketplace.

Please feel free to reach out if you have any questions that I can help to answer.

Ming Xie

Dir. Business Development  
Kingspan Insulation LLC  
404-403-5290

Kingspan Insulation LLC  
2100 RiverEdge Parkway, Suite 175  
Atlanta, Georgia 30328  
[www.kingspaninsulation.us](http://www.kingspaninsulation.us)  
[www.kingspaninsulation.ca](http://www.kingspaninsulation.ca)

## **Introduction**

These comments are submitted in anticipation of the work group being convened by the Virginia Department of Environmental Quality in response to language contained in Item 378 of Chapter 1289 of the 2020 Acts of Assembly, as amended by Chapter 56 of the 2020 Acts of Assembly, Special Session I (the “state budget”).

Item 378 of the state budget directs the State Air Pollution Control Board to adopt regulations to “prohibit the sale, lease, rent, installation or entry into commerce in Virginia of any products or equipment that use or will use hydrofluorocarbons for the applications and end uses restricted by Appendix U and Appendix V of Subpart G of 40 C.F.R. Part 82, as those read on January 3, 2017.”

Hydrofluorocarbons (HFCs) are commonly used as refrigerants, aerosols and blowing agents for XPS and Polyurethane foam insulation products. HFCs are used in many products, including XPS foam insulation. The use of HFCs, in blended form, in the XPS and polyurethane foam insulation manufacturing process provides the resulting insulation product with high thermal efficiency, as required by International Building Codes. Current federal law allows the use of HFCs in this manufacturing process.

Item 378 also provides that the regulations adopted by the Air Pollution Control Board “shall not prohibit the use of hydrofluorocarbons in the manufacturing process by extruded polystyrene boardstock and billet manufacturers located in Virginia to produce products for sale and distribution outside of the Commonwealth, until the Board has solicited input from such manufacturers in order to determine and set by regulation a feasible date by which such manufacturers must be required to comply. In developing regulations, the Board shall solicit input from a workgroup of relevant stakeholders assembled by the Department.”

The purpose of this document is to provide the DEQ with context and perspective from Kingspan Insulation, a leading manufacturer of XPS in North America whose only manufacturing facility is located in the Commonwealth of Virginia. While the original HFC ban in Item 378 was not solely aimed at the manufacturing of XPS foam insulation, Kingspan’s Insulation’s manufacturing of such product in Virginia is severely affected by the proposed ban in the budget language.

It is imperative to Kingspan Insulation that whatever regulation is adopted, it maintains a level competitive playing field and supports a safe and orderly transition from HFCs to acceptable alternatives.

## **Kingspan’s Virginia Presence and Operations**

- Kingspan Group is a global leader in insulation and building envelope solutions for high performance, low carbon buildings. Its mission is to accelerate a net zero emissions future with the wellbeing of people and planet at its heart.



***Kingspan Insulation LLC***  
***Comments to Department of Environmental Quality***  
***Hydrofluorocarbon Stakeholder Workgroup***  
01/19/21

- The manufacturing site in Winchester, Virginia has operated continuously since 1980 and is where the Kingspan Insulation division manufactures its products for all of the North American market.
- The Winchester plant is home to four (4) Extruded Polystyrene (XPS) production lines, manufacturing a wide range of XPS building products.
- In 2017, working with Virginia’s Economic Development Partnership and local partners, Kingspan Group invested an additional \$26 million at the Winchester plant to expand manufacturing capacity of XPS foam insulation and other products. The expansion resulted in an additional fifteen (15) full time positions. Governor McAuliffe came to the plant in 2017 to officially commission the new manufacturing line.
- Kingspan uses a HFC-134a blend as a blowing agent to produce the XPS insulation product manufactured on two (2) of the four (4) lines at the Winchester plant. The two (2) production lines where a blowing agent containing a 134a blend is used are Kingspan’s largest, highest capacity production lines.
- The insulation products produced at the Winchester plant are primarily sold to customers outside of Virginia.
- The Winchester plant currently employs 130+ local team members.

**About XPS Foam Insulation**

- XPS manufacturers use HFCs as a blowing agent in the manufacturing process to produce XPS foam insulation in order to provide high thermal efficiency, as required by International Building Codes.
- XPS foam is a rigid, cellular foam insulation product with high thermal efficiency (R-value), excellent moisture resistance, and high compressive strength. It is mold, mildew, and corrosion resistant, has superior long-term performance characteristics, and provides resistance to many forms of wear, which make it an ideal choice for sustainable construction.
- Kingspan uses HFC-134a in a blend as its blowing agent. By using a blend, the GWP of the blowing agent mixture is less than 550, as opposed to 1430 of HFC-134a in its raw form.
- XPS foam insulation is a closed cell foam, which encapsulates the insulating gases such as HFC-134a within the cell wall to provide the long term thermal insulation required for building applications. Therefore, only small amount of HFC-134a is released to the ambient air during the manufacturing, transport, installation and long lifespan of the products.

## **Federal Activity on HFCs**

### **U.S. EPA's Significant New Alternatives Policy Program**

- Currently, HFCs are allowed to be used in a variety of industries and are currently being used in the manufacture of XPS foam insulation. The reference to the January 3, 2017 Appendices in the language in Item 378 of the state budget is a reference to action taken by the U.S. Environmental Protection Agency (EPA) in a 2015 rule (SNAP 16) that banned HFCs effective in 2021.
- At the time the EPA rule was promulgated, the agency believed that cost effective alternatives to HFCs would be prevalent in the marketplace by 2021. That rule was vacated, in part, by the D.C. Circuit Court of Appeals in 2017. Because that rule was vacated in part, the continued use of HFCs that were covered by the EPA rule is still allowed to some extent.
- In June of 2020, after the HFC language in the Virginia state budget was adopted, the EPA published notice of a proposed rule listing substitutes under the Significant New Alternatives Policy Program (“SNAP 23”).<sup>1</sup> Included in this rulemaking, EPA proposed to list three blends containing HFC–134a as acceptable blowing agents in extruded polystyrene: Boardstock and billet (XPS).

Specifically, the EPA stated in the proposed rule:<sup>2</sup>

EPA is proposing to list three specific blends of HFC–134a as acceptable in XPS. These blends have higher GWPs and are otherwise comparable or lower in risk than other alternatives listed as acceptable; however, EPA is taking this action **because the Agency believes that other acceptable alternatives are not generally available for most needs under this end-use.**

[...]

In order for substitutes to be available in this end-use, they must be capable of blowing foam that meets the technical needs of XPS products including density and ability to meet testing requirements of building codes and standards, such as for thermal efficiency, compressive strength, and flame and smoke generation.

[...]

Based on all of the evidence before the Agency, it now appears that only one of the substitutes that the Agency believed at the time of the 2015 Rule would be available for use in XPS foam as of January 1, 2021 is in fact available and likely could only be used to meet the needs for some portion of the XPS foams market.<sup>54</sup> **The Agency is concerned about ensuring that the needs of the full XPS foams market in the United States can be met.** In addition to a concern that all of the needs of the XPS foams market cannot be

---

<sup>1</sup> 85 Fed. Reg. No. 114 pg. 35,874 (June 12, 2020).

<sup>2</sup> 85 Fed. Reg. No. 114 pg. 35,888 (June 12, 2020).

**Kingspan Insulation LLC**  
**Comments to Department of Environmental Quality**  
**Hydrofluorocarbon Stakeholder Workgroup**  
01/19/21

met, EPA considers it important that the SNAP program not limit the choice of acceptable substitutes to only one option, where possible. For these reasons, EPA is proposing to list additional blowing agent options for XPS that have been proven to work for this end-use.

[Corresponding Footnote 54, “The set of products that may be available to be manufactured with HFC-152a would account for a minority of the current market for XPS.”]

(Emphasis added.)

- In proposing to allow the use of three (3) blends containing HFC-134a, the EPA correctly concluded that other acceptable alternatives are not generally available for most needs under this end use, and has proposed to list as acceptable these blends containing HFC-134a. Although the SNAP 23 process is not final and the three (3) blends have not yet been approved as exceptions, we have every reason to believe they will ultimately be approved under the Biden Administration given the robust administrative record and support within EPA’s Office of Atmospheric Programs.
- Subsequent to publishing the SNAP 23 listing, the EPA also evaluated and issued a Letter of Completion to Kingspan for the blowing agent formulation submitted by Kingspan that partially contains HFC-134a.
  - Kingspan currently uses a blowing agent blend that consists of HFC-134a, Methyl Formate and Cyclopentane. The blend has an estimated GWP less than 550; substantially lower than HFC-134a’s GWP of 1430 in its raw form. Kingspan filed a SNAP Information Notice for this blowing agent with EPA in December 2019. On November 2, 2020, EPA issued a letter of completeness to Kingspan.
  - The proposed SNAP 23 rules added three (3) XPS blowing agent blends, all of which include HFC-134a. Both Methyl Formate and Cyclopentane (a Hydrocarbon) are listed by EPA’s SNAP 20 as acceptable alternatives to HFCs. We expect our blowing agent blend formula to be added to the list of approved formulations through a Notice once the SNAP 23 rule is finalized.

*The AIM Act Amendment to the Federal FY2021 Omnibus Appropriations Bill (a/k/a/ COVID Relief Package)*

- On December 21, 2020, Congress passed the *American Innovation and Manufacturing Act* as part of a massive year-end spending package. The overall objective of the AIM Act is to phasedown hydrofluorocarbon (HFC) production and consumption to 15 percent of the baseline by 2036 and the ability of EPA to restrict the use of HFCs on a sector-by-sector basis.

- The enacted federal legislation regulates HFCs in three ways:
  - It gradually phases down the production and consumption of HFCs over a 15-year period via an allowance allocation and trading program. This is substantially similar to the way ozone-depleting substances were regulated under Title VI.
  - It authorizes EPA to establish standards for the management of HFCs used as refrigerants, such as in equipment servicing and repair, and for the recovery of “used” HFCs for purification and resale, known as reclaim. This allows for a safe and efficient transition out of HFCs.
  - It authorizes EPA to establish sector-based use restrictions, as a way to facilitate transitions to next generation refrigerant technologies. These use restrictions would complement the broader production and consumption phase down, aiding sectors able to transition more quickly out of HFCs and providing more flexibility for those sectors in need of more time to complete the transition.
  
- A more detailed summary of the AIM Act is attached to this document.

#### **Federal Law Should Govern the Phasedown of Kingspan’s Use of HFCs**

- The AIM Act, which received bipartisan support in both chambers of congress, establishes a mandate for EPA to regulate HFCs and phasedown the use of such chemicals in a reasonable timeframe.
- The AIM Act establishes the timetable similar to Kigali Amendment to the Montreal protocol to phase down the production and consumption of HFC by 85% by the year 2036. This phasedown is done in a stepwise fashion that balances the need to reduce the use of HFCs while not completely upending industrial uses that have significant benefits to consumers and, in the case of insulation manufacturers, the environment.
- Kingspan is hopeful that, based on EPA’s understanding of how integral HFCs are as XPS blowing agents, and the minimal impact of their use in this sector, EPA will include this use as part of the residual 15% quota. Nonetheless, EPA may develop a glide path for the eventual phase out of the use of HFC as an XPS blowing agent.
- The federal regulatory landscape will evolve with this grant of authority to the EPA to set up a process for the orderly and significant phase down of HFCs. Given the conclusions reached by the EPA in developing the SNAP 23 rule regarding the lack of acceptable alternatives, EPA arguably has already made the requisite determination needed to grant an “essential use” exception for the manufacturing of XPS foam insulation for a period of time until viable alternatives to HFCs are readily available. See attached AIM Act summary for a discussion of the “essential use” process.

Competitive Disadvantage

- Not following the federal phasedown timeline will single out a Virginia manufacturer of XPS foam insulation and place it at a competitive disadvantage to the four (4) other manufacturers of this product with no appreciable corresponding benefit to the environment.
- The majority of the US states do not regulate the use of HFCs and it is expected they will likely follow the federal rules on phasing down the use of HFCs and provided in the AIM Act.
- Kingspan's competitors in the XPS insulation market all have plants located in states that do not prohibit or regulate HFCs. These competitors have plants located in Georgia, Idaho, Illinois, Missouri, Minnesota, Ohio and Oregon. To our knowledge, none of these states has regulations or statutes that ban HFC in manufacturing.
- Consequently, these competitors will likely operate under the evolving federal regulatory HFC phasedown scheme and not under a more restrictive state regulation. This will allow those competitors to manufacture their XPS foam insulation products at a lower cost as compared to what Kingspan will be required to incur if Virginia prematurely requires Kingspan to use a more expensive and less reliable alternative chemical as its blowing agent in the manufacturing process. Kingspan's competitors will need to move away from HFC-134a to support their ongoing business in states that are restricting the use of HFC-134a, however they will continue using HFC-134a to support their business in states where no restrictions have been passed.
- Kingspan's Winchester plant is its only manufacturing facility to support the North American market. Unlike its competitors that have multiple manufacturing facilities, it cannot shift production of XPS foam insulation to a state that does not regulate HFCs. Without a sufficient timeline to phasedown or out the use of HFCs in a blowing agent blend, Kingspan's Virginia manufacturing plant is placed at a severe competitive disadvantage relative to these other manufacturers of XPS insulation products.

Reasonable Alternatives to HFC Blends Are Not Readily Available

- There are a limited number of commercially available alternatives to replace HFC-134a as a blowing agent in the XPS foam insulation production process. Such alternatives are not widely available, are costly and produce inferior product performance.
  - When selecting a suitable blowing agent, there are many factors to consider in addition to the individualized properties offered by a particular molecule; i.e. solubility of the chemical to the particular resin mix; pressure and temperature of the extruder, which varies from production line to production line; die design; mixing power of the extruder, etc. to name but a few.
  - Therefore, there is no such thing as a universal blowing agent blend that will work for everyone. A manufacturer's blowing agent recipe is a highly individualized and closely guarded trade secret.

**Kingspan Insulation LLC**  
**Comments to Department of Environmental Quality**  
**Hydrofluorocarbon Stakeholder Workgroup**  
01/19/21

- Kingspan Insulation and many of its XPS peers have invested significant resources to identify suitable blowing agent blends using commercially available agents and have yet to find suitable HFC-free options that are economical and offer comparable product performance.
- The HFC alternative that Kingspan is evaluating as a future replacement is a HydroFluoroOlefin (HFO). All current HFO options come at a substantial cost premium, approximately 3x of that of comparable HFC chemicals.
- The HFO option that Kingspan is currently evaluating is more flammable than HFC-134a, therefore, additional engineering control measures will have to be completed in order to begin using large quantities of this chemical. Kingspan is currently in the process of executing several large capital projects in order to modify the production line to adopt the use of a HFO chemical. These projects are experiencing multiple delays due to COVID related traveling restrictions and a shutdown at the equipment supplier's oversea production facility.
- While Kingspan has been working on HFC alternatives for several years, many obstacles and hurdles remain for Kingspan to safely transition to HFC alternatives. These include health, safety, environmental and market dynamic concerns, which will require additional time to safely and successfully address.
- Kingspan is attempting to modify its product formulation and production capability to use HFOs but there are technical issues concerning density, thermal resistance, compressive strength, etc. and solving the technical puzzle that comes with using HFOs cannot be done in a short timeframe. Incorporating HFOs into the production process takes a significant amount of engineering and monetary resources to accomplish.
- There are a limited number of suppliers of HFOs. Most producers, including Kingspan Insulation, become linked to a particular supplier of its chemical feedstock. In the normal course, that creates efficiencies and cost savings, but when there is a significant disruption to the regulatory landscape with little time to adjust, it limits a producer's options to seek cost competitive alternatives which reduces its bargaining power relative to its supplier of feedstock. This situation further exacerbates the ability to produce a product that is competitively priced in the market place.
- If Kingspan was forced to cease the usage of its HFC blowing agent blend while its competitors located in other states are still allowed to use HFC-based blowing agents in the XPS foam insulation product market, Kingspan's product will be at a severe disadvantage on cost and quality factors; making the Winchester operation unsustainable in the immediate future.

Use of HFC Blends As Blowing Agent Not As Harmful As Other Uses Of HFCs

- Kingspan encourages the DEQ to not take a “one size fits all” approach given the broad discretion given to the State Air Pollution Control Board in the budget language. Refrigeration, air-conditioning, and heat-pump applications account for the majority of the HFCs used globally.
- In 2015, the UNEP Ozone Secretariat, in analyzing data from 2012, found that the air-conditioning and refrigeration industry accounted for 86% of the total “GWP-weighted tonnes of CO<sub>2</sub> equivalent” HFCs. Foams, a broad category of which XPS is only a portion, constituted only 7%<sup>3</sup>.
- Kingspan uses HFC-134a in a blend as its blowing agent. By using a blend, the GWP of the blowing agent is less than 550, as opposed to 1430 of HFC-134a in its raw form.

**Kingspan’s Proposed Approach**

1. Extruded Polystyrene (XPS) Billets and Boards manufacturers in the Commonwealth of Virginia should be allowed to continue to use HFC chemical blends for products exported to other states if permitted under Federal laws or regulations.
2. The regulations should allow DEQ to conduct a review annually of the federal regulatory scheme concerning HFCs and HFC blends in order to be consistent with evolving regulatory status; and
3. Provide a minimum of a one (1) year notice prior to implementing a specific date to cease the exemption.

This proposed approach allows Virginia to be consistent with the recently adopted AIM Act which is a major step forward in the phasedown of the use of HFCs in the United States, while at the same time, not placing a Virginia manufacturer at a significant competitive disadvantage to the producers of the same insulation product in other states that do not similarly regulate the use of HFCs.

---

<sup>3</sup> UNEP Ozone Secretariat Workshop on HFC management: technical issues Bangkok, 20 and 21 April 2015 FACT SHEET 2 Overview of HFC Market Sectors page 4. Last viewed on April 21, 2020. Downloadable online at [http://conf.montreal-protocol.org/meeting/workshops/hfc\\_management-02/presession/English/FS%20%20Overview%20of%20HFC%20Markets%20final.pdf](http://conf.montreal-protocol.org/meeting/workshops/hfc_management-02/presession/English/FS%20%20Overview%20of%20HFC%20Markets%20final.pdf)

## **American Innovation and Manufacturing Act Included in 2021 Omnibus**

### **Summary**

On December 21, 2020, Congress passed the *American Innovation and Manufacturing Act* as part of a massive year-end spending package. The overall objective of the AIM Act is to phasedown hydrofluorocarbon (HFC) production and consumption to 15 percent of the baseline by 2035 and the ability of EPA to restrict the use of HFCs on a sector-by-sector basis.

- The bill regulates HFCs in three ways:
  - It gradually phases down the production and consumption of HFCs over a 15-year period via an allowance allocation and trading program. This is substantially similar to the way ozone-depleting substances were regulated under Title VI.
  - It authorizes EPA to establish standards for the management of HFCs used as refrigerants, such as in equipment servicing and repair, and for the recovery of “used” HFCs for purification and resale, known as reclaim. This allows for a safe and efficient transition out of HFCs.
  - It authorizes EPA to establish sector-based use restrictions, as a way to facilitate transitions to next generation refrigerant technologies. These use restrictions would complement the broader production and consumption phase down, aiding sectors able to transition more quickly out of HFCs and providing more flexibility for those sectors in need of more time to complete the transition.

### **Listing of Regulated Substances**

- The legislation authorizes the U.S. Environmental Protection Agency (EPA) to regulate a specific list of approximately 20 HFCs.
- The legislation provides for an “exchange value” for each HFC, which refers to the effective weight of each HFC, for purposes of trades, transfers, and related calculations, since not all HFCs are the same in terms of their manufacture and/or use.
- EPA is granted authority to adjust the values of the exchange values based on newly available scientific information. This allows for harmonization with other HFC-related regulatory programs among the states and internationally.
- EPA is granted authority to add substances that are considered “saturated hydrofluorocarbons” with an exchange value greater than 53. This prevents the development and use of a new HFC not listed in the table solely for purposes of avoiding regulation.



### **Monitoring and Reporting**

- EPA is granted authority to require reporting of any production, consumption, import, export, reclaim, destruction, and feedstock usage of HFCs, which is necessary to carry out a regulatory program for HFCs.
- Because some of this information may already be reported to EPA, EPA is granted authority to coordinate and harmonize with existing reporting requirements, to minimize administrative burdens and avoid confusion.

### **Phase Down of Production and Consumption of Regulated Substances**

- The production baseline provisions and percentage reductions are meant to reflect an internationally-recognized standard for HFC production, consumption, and corresponding reduction.
- EPA is directed to utilize an allowance allocation and trading program to administer a production and consumption phase down of HFCs, setting the quantity no later than October 1 of each calendar year, through regulations to be finalized within 270 days of date of enactment.

### **Essential Use Exceptions**

- Essential use exceptions can be granted upon date of enactment.
- In granting an essential use exception, EPA must consider technical achievability, commercial demands, affordability for residential and small business consumers, safety, overall economic costs and environmental impacts as compared to historical trends, whether safe and feasible substitutes are available, and whether the entity seeking the essential use exception is able to secure an adequate supply of HFC in the market.
- The production and consumption used to fulfill an essential use exception are subject to the overall phase down and must be covered by allowances, which will be allocated by EPA solely for purposes of fulfilling essential use exceptions.
- In addition to any other essential use exception EPA may grant, the statute designates the following as statutory or “mandatory” essential use exceptions: propellant in metered-dose inhalers; defense sprays; structural composite preformed polyurethane foam for marine use and trailer use; the etching of semiconductor material or wafers and the cleaning of chemical vapor deposition chambers within the semiconductor manufacturing sector; mission-critical military end uses, such as armored vehicle engine and shipboard fire suppression systems and systems used in deployable and expeditionary applications; and onboard aerospace fire suppression.
- For these statutory essential uses, the amendment directs EPA to allocate allowances to cover production and consumption for these uses, based on projected, current, and historical trends.

### **Domestic Manufacturing**

- The legislation allows for domestic production of HFCs for export to foreign countries.

### **Accelerated Schedule**

- EPA can propose changes to the phase down schedule in response to a petition, and no petition may be granted before 2025.
- In proposing any change to the schedule, EPA must ensure sufficient quantities of HFCs will exist to service any essential use exceptions currently in place
- Any proposed change to the schedule is limited to current consumption levels, based on the prior year's data.

### **Exchange Authority**

- EPA is granted authority to allow trading of HFC production and consumption allowances to facilitate compliance and reduce costs.
- The primary purpose of this language is to ensure (i) exchange values are utilized in the transferring of allowances, (ii) a net total reduction in production and consumption occurs as a result of each transfer, and (iii) transfers occur only between parties with compliance obligations for HFC production and consumption.
- The regulations must be finalized within 270 days of enactment.

### **Management of Regulated Substances**

- EPA is granted authority to establish standards for HFC management, such as equipment servicing and repair, as well as the recovery of "used" HFCs from equipment for purification and resale, known as reclaim.
- Foams are exempt from the provisions of this subsection.

### **Technology Transitions**

- EPA is granted authority to establish standards restricting the use of certain HFCs in certain applications. A person may petition EPA to promulgate a rule restricting a use.
- In reviewing a petition or carrying out a rulemaking restricting the use of a regulated substance in a sector or subsector, EPA is required to consider the best available data, availability of substitutes, overall economic costs and environmental impacts as compared to historic trends, and other criteria such as consumer costs, building codes, appliance efficiency standards, contractor training costs, and other relevant factors, including quantities of HFCs available from reclaim and prior production and import and the time remaining in the phase down period.
- Rules under this subsection cannot take effect before one year from the date the final rule is issued.
- Rules under this subsection also do not apply to applications currently under essential use exceptions or a "retrofit" application or existing equipment – i.e., the use restrictions can only apply to products manufactured after the effective date.

### **International Cooperation**

- This section prohibits the export of HFCs to countries that have not enacted or otherwise imposed an HFC phase down, as a way to support a global transition out of HFCs and into various substitutes and alternatives.

### **Relationship to Other Laws**

- For a five-year period beginning on the date of enactment, state laws involving the management or use of an HFC in the statutory essential uses are preempted, with this period extendable for up to an additional five years.