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8 April 2020

The Honorable John Barrasso
Committee on Environmental and Public Works
410 Dirksen Senate Office Building
Washington, DC 20510-6175

RE: S2754 AIM Act

I am writing on behalf of Iofina Chemical, in **OPPOSITION** to S.2754, aka the American Innovation and Manufacturing Act of 2019. In essence, the bill looks to over time, eliminate the manufacture and use of HFC's (hydrofluorocarbons).

Iofina Chemical is a specialty chemical manufacture of one of the HFC's in this legislation namely CH₃F (aka HFC-41 or methyl fluoride or fluoromethane). Iofina Chemical manufactures this chemical at its facility in Covington, Kentucky. HFC-41 is one of many gases on the list of HFC's that this bill suggests should be replaced. Unlike the other compounds, HFC-41 is NOT used as a refrigerant gas. Other HFC's on the list are typically used as a refrigerant gas in home and business cooling systems. Instead, the vast majority of HFC-41 is used as an etching gas for the semiconductor industry and HFC-41 has minor uses in other chemical syntheses. HFC-41, like the other HFC's, do not contain chlorine and therefore their Ozone Depletion Potential (ODP) is essentially zero (unlike their CFC and HCFC counterparts).

In this legislation (S 2754) these HFC compounds are proposed to be regulated due to the 'Exchange Value' of that gas which presumably is similar to the 100 year Global Warming Potential (GWP) of that gas. The GWP is a relative measurement of how a particular substance would contribute to global warming compared to carbon dioxide. In the table in section 4(a) HFC-41 has a value of 92 which is low compared to other HFC's and other non-HFC's. For comparison, the GWP of Nitrous Oxide is approximately 265 and the total emissions of all fluorinated gases are about half of Nitrous Oxide according to the US EPA. HFC-41 also has a much shorter lifetime in the atmosphere versus Nitrous Oxide (~4 years versus 114 years). In comparison to other HFC's in the table in section 4(a) HFC-41 has a value of below 100. Most of the substances in this group have GWPs over 10x's that of HFC-41. In our opinion, there needs to be some common sense applied as the total production of these substances, their uses, and their individual contributions to global warming should be considered rather than simply treating these as equal.

Additionally, when HFC-41 is used in semiconductor etch applications HFC-41 is placed into a plasma and is destroyed. Therefore, the GWP of HFC-41 is irrelevant as the gas is no longer in this form after use.

Broad regulation in general is bad for the USA economy. If the USA continues to increase regulations this would drive manufacturing facilities and jobs to other areas of the world where regulations are less stringent. Replacement costs and practicality need to be considered before enacting this legislation. For example, the proposed refrigerant gases to replace HFC's in air conditioning applications are known as HFO's (Hydrofluoroolefins). These HFO's are much more expensive per pound (up to 10's more expensive) and would benefit those companies who have patented these replacements. Also, with the



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additional costs for these systems, companies and consumers who use refrigerants in their homes or business would go up significantly as existing residential HVAC units likely cannot use HFO's.

Another question to consider is: would a replacement etchant gas for the semiconductor industry have any positive impact on global warming? The answer is likely not since the gas used in a Plasma Dry etch application is destroyed in the plasma and thus likely replacements will likely create similar byproducts.

Further, language in S2754 is not clear to us. Specifically, the section 6(a) lists several odd baseline dates with respect to regulated substances which aren't clear.

Methyl Fluoride is essential in the production of semiconductor devices in the electronics industry. The phase out of this substance could have a dramatic effect on the ability of these key manufacturers to produce key components that are of benefit to consumers and corporations.

In Summary:

- Unnecessary increases in regulation of the specialty chemical industry in the USA will only serve to force industry to regions with less regulation
- In general, HFC's are not ozone depletors and they vary in Global Warming Potential and should not be treated as a group.
- Some applications for HFC's should be considered before any potential phase out, including those applications outside of the refrigerant industry such as etchant gases for semiconductors
- Specifically, the AIM Act would have a detrimental effect for the semiconductor industry, gas suppliers to this industry, their employees, and the consumers who purchase electronic devices
- If this AIM Act is passed it is likely that consumers and businesses will see much higher cost HVAC and other refrigerant systems, benefiting only a few companies.

To reiterate Iofina Chemical is **OPPOSED** to S2754 as written. If passed as is, where Methyl Fluoride (HFC-41) production would be phased out, it would result in significant job loss for our Company. We would consider removal HFC-41 from this legislation as an alternative or a clearly written exemption of uses of these HFC's (like HFC-41) for non-refrigerant applications as less attractive but acceptable options.

Thank you for your consideration and I can be reached at the number or email below.

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