



FIRST CONTINENTAL
INTERNATIONAL

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Mr. Dominic Mancini
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Dear Dominic,

We very much appreciate the efforts by you of the OMB and the EPA for the policy- and rulemaking of the AIM Act. We understand your main job is to consider the budget development and execution, so we especially appreciate your attention to protect both the economy and the environment here, so they can each thrive during the HFC phase-down schedule.

We support this HFC phase-down entirely and hope to bring attention to specific approaches in the rulemaking process that we believe will ensure the protection of small and medium companies, American jobs, and the consumer products they represent.

There are more than 30 kinds of HFCs and HFC blends, that can range in GWP from 14,800 to 1,000 normally. However, HFC-152a in particular is invaluable to the propellant industry as a step-down product because of its very low-GWP of 124, which is the main reason why the demand and consumption of HFC-152a has been increasing faster and faster. To sustain the small, medium, and large companies now relying on this product, it would be best if 2017 through 2019 was referred to for market participation. It would also be a great help to American companies and all consumers if HFC-152a was considered for an extra allowance to encourage the switch to low-GWP products and meet long-term environmental goals.

It should be noted that there is only one US manufacturer of HFC-152a, and in fact, they import HFC-152a themselves, to keep up with demand. Therefore, importing this material is highly necessary for the survival of the industry. Also, three US companies boast of a new material that can take its place, in the form of HFOs. What they fail to mention is that these materials are several times more expensive than HFC-152a, the cost of which will place a burden on US companies and inevitably the consumers, because of increased costs of consumer products, and lower revenues for companies that would make even more small companies close down altogether.

Alternatively, the refrigerant industry would benefit from using earlier years (2011-2016) to calculate allowance, due to certain bad actors. In particular, iGas and their affiliates, owned by a single individual and backed investments from the Chinese government, threaten to “game the system”. Beginning in 2016, this company skyrocketed their imports of refrigerants such as HFC-125 and HFC-32, by importing undervalued material from their own parent company to dump

the material into the United States and steal American's market share. iGas admits to taking 50% of the aftermarket refrigerant market within just 2.5 years, after incorporation in 2018.

We are offering some alternative plans with regards to allocation to protect American jobs, consumer interests, and responsible companies, as well as to rid this industry from foreign influences. We ask that you of the OMB look into these matters and help protect America's interests first.

1. Propellant Industry: Use Recent Years:

The propellant industry in North America is massive, and growing. Between foam blowing agents and aerosol propellants, of which HFC-152a is used for both, it is worth well over \$700 million USD. The propellant industry has very unique characteristics, including an ongoing track record of even, organic growth and an emphasis on low-GWP product innovation. These factors necessitate referencing the latest years 2017-2019 to calculate allowance for the propellant industry, since this will save industries and American jobs from a devastating lack of supply and high prices.

In particular, HFC-152a is an excellent representation of the propellant industry's promise and has one of the lowest GWPs of 124. There are several reasons why sustaining the supply of the propellant industry and HFC-152a by using recent years' is so important, such as:

A. Growing Demand in Personal Care/Medical Industry:

HFC-152a is incredibly important to many industries including personal care, cosmetics, dusters, and more within the highly lucrative aerosol and market in the U.S. This is a vastly growing market that is very commonly found in the bathrooms, offices, and homes of every American citizen. Another important future application of 152a is in metered-dose inhalers (MDI). HFC-152a is currently being tested by several pharmaceutical companies to replace high-GWP propellants in them like HFC-134a and -227ea.

Like the innovation for use in MDIs, HFC-152a usage has evolved out of necessity over the past decade due to changes in policy encouraging the use of low-GWP products. For this reason, there is a stark difference in the demand for HFC-152a in 2011 compared to 2019. For instance, it was only 2010 when HCFCs were substituted by HFCs in some applications. By looking at 2011-2013, there would not have been enough time for the data to best represent the final, settled usage rates. Therefore, using the years 2017-2019 to calculate allowances will accurately represent HFC-152a usage, and these growing industries and their American workers can be protected.

Since the demand in the propellant industry is growing quickly, HFC-152a's role is even more important since its very low-GWP of 124 will allow it to satisfy the growing demand, while simultaneously decreasing CO₂ eq and enduring through the phase-down.

Consumer goods such as hair sprays, deodorants, air fresheners, dusters, and mosquito repellents are fast-growing users of 152a, and these industries will realize their full potential and create jobs if HFC-152a allowance is maximized by using the years 2017-2019!

B. Limited Domestic Supply of HFC-152a

There is only one domestic producer of HFC-152a, whose production capacity cannot meet the demands of the US on its own. In fact, the domestic manufacturer had begun importing HFC-152a themselves more than 15 years ago, to satisfy their own supply needs and the demands of the US. For instance, the domestic source can produce only 20,000 MT annually, while just one factory in China can produce 50,000 MT annually. So, if an insufficient allowance is given for HFC-152a, the lack of supply would severely impact both the large domestic supplier/importer, as well as the alternative small and medium importers.

Especially throughout the phase-down of the AIM Act, users of high-GWP HFCs will innovate towards the low-cost and low-GWP benefits of HFC-152a to maintain their normal production demands at a minimum exchange value level. If alternative sources are not given the resources to import enough goods, then these existing and new users of HFC-152a would be deprived of a diverse supply pool or enough supply at all!

As a result, prices for propellants will skyrocket, and American business will be lost to foreign producers. This would shut down companies and jobs, and create high prices for everyday personal and household products to the average American consumer! This can all be avoided by referring to recent years' data 2017-2019 for the propellant industry, accounting for this upward propellant trajectory. These details are referenced from our public comments to the EPA under First Continental International.

C. Acetylene HFC-152a; Safer, Less Costly, & Needs Import

The advantages realized from HFC-152a produced abroad are not only lower costs but also a safer production process. By ensuring enough propellant allowance exists, it will keep imported HFC-152a well-distributed and Americans can receive those benefits.

In comparison, the domestic manufacturing process uses a chloride-based process, which requires vinyl chloride as the main raw material. This is a carcinogenic chemical regulated under Clean Air Act. Also, the domestic supplier uses twice as much energy, and produces harmful byproducts such as hydrochloric acid which is known to create acid rain.

Alternatively, the much safer acetylene process is used abroad, which uses safer raw materials, less energy, and has no hazardous by-products. For this reason, it is much less costly, and sale prices can remain reasonably low in the market. It is this benefit that can ensure continued innovation and prolific use within the US. Not only will this sustain American industries for decades well after the phase-down is complete because of how low the GWP of HFC-152a is, but it will also invest in the sustainability of our environment!

By using recent years 2017-2019 for the propellant industry, importers and the domestic producer will have to room to continue competing for American business in a Buyer's market. The all-important American innovators and job creators will be given the upper hand because the plentiful allowance will keep prices low and encourage new businesses to emerge. Finally, we

repeat this will all be sustainable for many years throughout and after the phase-down because of HFC-152a's extremely low-GWP.

2. No Viable Replacements for HFC-152a:

There is no viable alternative for HFC-152a, and a lack of allowance would restrict end users who are unable to use another propellant. While HFOs are touted as the next-generation refrigerants and propellants, they are costly, perform worse, and involve unsafe components and byproducts. Only 3 companies (Chemours, Honeywell, Arkema) hold the vast majority of production patents as well. This suggests HFO sales are bound for an oligopoly, and the way to combat this is to keep the supply of HFC-152a intact with enough allowance.

A. HFOs are Higher Cost and Less Safe

The specific grade HFO-1234ze is promoted as an alternative to HFC-152a, however it is not viable in terms of cost, performance, and harmful byproducts:

i. Harmful Byproducts of HFOs

Our table shows that 3.3 MT of hydrochloric acid (HCl) are produced as a byproduct for every 1 MT of HFO-1234ze. Also, there is a large amount of the carcinogen vinyl chloride needed as a raw material in the production process. In order to ensure there is no leftover vinyl chloride in the end product, the producer uses a scrubbing process to eliminate the carcinogen. This is a tedious and very expensive step that cannot be avoided. If there is any error to the scrubbing process, the potential for disaster is very high.

Furthermore, the power consumed to produce 1 MT of HFO-1234ze is 4 times as much as HFC-152a. Based on the power generation this will multiply the cost and potential for pollution. This will translate to further costs to HFO producers, and pricing inflexibility to the market.

Table 1: HFC-152a & HFO-1234ze Production Comparison

HFC Product	Production	Annual Capacity	Chemical Reaction	Raw Materials per MT	Power, kWh/MT	By-products per MT
HFC-152a 1,1-difluoroethane	Acetylene process product handled by FCI	50,000 MT	1) CH=CH (Acetylene) +2HF -> CH3-CHF2	Acetylene: 0.394 MT HF: 0.606 MT	Around 200-500	HF 0.06 MT
HFO-1234ze Cis-1,3,3,3-tetrafluoropropene	ShanDong HuaAn New Material Co. Ltd.	2,000 MT	1) Vinyl Chloride + CCl4 -> CCl3-CH2-CHCl2 (HCC-240fa)	Vinyl Chloride: 0.55 MT CCl4: 1.35 MT HF: 0.7 MT	Around 2,000	HCl: 3.34 MT

			2) CCl ₃ -CH ₂ -CHCl ₂ (HCC-240fa) + 4HF -> HFO-1234ze+5HCL			
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ii. Extremely High Price of HFO's

HFOs can be 5-8 times the price of HFC-152a. This is a level that would absolutely be felt by manufacturers and consumers alike on everyday products, and we know it cannot be brought down. For instance, the carcinogen scrubbing step in HFO-1234ze production is very costly. As a result, future pricing improvements from economies of scale or other ways will simply not be possible. It will materially increase the base price of every consumer or professional aerosol product in America.

The price difference between HFOs and HFC-152a would cause domestic manufacturers of hair/body sprays, dusters, and more to be priced out of the global market by foreign competitors and could result in a loss of 500,000 jobs. Consumers would pay more for staple products or be forced to shop foreign for reasonable prices.

iii. HFC-152a's Stronger Performance

HFC-152a performs well in formulations by offering excellent spray pattern from optimized vapor pressure, which is 74 psi at 68°F, while HFO-1234ze is 62 psi at 68°F. This difference means products with HFC-152a require less material to have the same effect; about 10%. The two times lower molecular weight of HFC-152a compared to HFO-1234ze also helps use accordingly less material to achieve the same spraying effect. This difference also influences spray pattern and would mean the difference between a formidable product or a faulty one.

Any change to HFOs would necessitate expensive retrofitting on equipment and packaging for manufacturers who have already strove for economic and environmental responsibility by incorporating HFC-152a. As a result, American companies would be at a further disadvantage from compounding material and equipment costs.

3. Refrigerant Industry: Early Years for Allowance is Best

The refrigerant industry is by far the largest consumer of HFCs, totaling over \$1.5 Billion dollars USD. Now, over 50% of the aftermarket refrigerant industry in the US has been stolen by a Chinese SOE-backed company iGas! This is an extremely harmful blow to American companies whose market has quickly been halved by their unfair practices.

While the propellant industry has specific needs that would be best met by using recent years' data for calculating allowance, the refrigerant industry has the opposite dilemma. Using any years 2011-2016 for the refrigerant industry would be best, since after that point, iGas and

affiliates began dumping material into the market at undervalued prices, and stealing the market share from American industry. Now, there is a risk of rewarding their bad behavior, and letting them destroy the American refrigerant industry further! Our table below illustrates this import history:

Table 2. Yearly Imports of HFC-32 and -125 by iGas and affiliates:

Year	Imports of HFC-32 (in MT)	Imports of HFC-125 (in MT)
2014	135	146
2015	56	0
2016	90	319
2017	3,531	3,657
2018	8,921	11,055
2019	8,049	7,458
2020	10,468	5,428

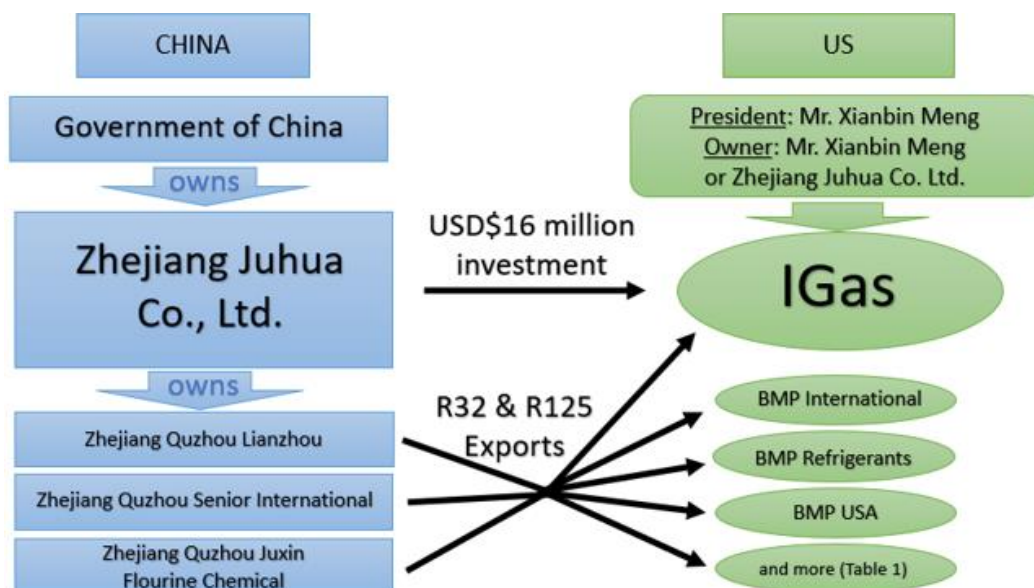
We know from personal conversations with several companies in the refrigerant industry that they would actually prefer recent years (2017-2019) as well. However, the huge and unfair emergence from iGas and affiliates since 2016 has forced the refrigerant industry to advocate for earlier years (2011-2016) as a way of limiting iGas' allowance.

In their comment to the EPA, iGas themselves admit to the alarming fact that they gained 50% share of the aftermarket refrigerant industry after only 2 years of incorporation in the US since 2018. This rapid gain in market share was achieved at the expense of American businesses, due to several reasons including:

- foreign government interference and financial support,
- unbelievably undervalued imports,
- huge import volumes, and stockpile of goods.

As shown in our chart below, iGas and their affiliates have received a huge amount of money from a Chinese state-owned enterprise, who likely has majority ownership in the firm. There is a huge amount of assets owned by Zhejiang Juhua, upwards of USD\$90 million, and showing net profits of USD\$11 million.

Table 3. Ownership and Investment – iGas and Affiliates



A. Undervalued Imports by iGas and Affiliates

In March 2020, Arkema specifically calls out iGas and its affiliate BMP as circumventing an antidumping duty for refrigerant blend R410a. iGas is accused of bringing in the component refrigerants R32 and R125 at undervalued prices and blending them domestically into the tariffed product before dumping into the American market. The imports of the iGas even says themselves that their “entry into the refrigerant market has driven down refrigerant prices.” This is an indirect way of admitting to crashing the market price, and destabilizing US suppliers.

By using publicly available bills of lading and import values, the undervalued imports can be seen here by iGas and affiliates highlighted in yellow, compared to other market players, in the tables below:

Table 4: HFC-32 Import Pricing Comparison

Arrival	Shipper	Consignee	Weight (kg)	Country	Incoter m	Price per kg
7/28/2018	ZHEJIANG QUZHOU LIANZHOU*	IGAS	111,499.03	China	FOB	\$2.55
8/5/2018	ZHEJIANG QUZHOU LIANZHOU*	IGAS	134,498.92	China	FOB	\$2.78
9/17/2018	ZHEJIANG QUZHOU LIANZHOU*	IGAS	222,998.07	China	FOB	\$2.66
10/7/2018	ZHEJIANG QUZHOU LIANZHOU*	IGAS	44,599.52	China	FOB	\$2.50
*This is only one of three export branches also shipping undervalued imports to iGas and affiliates.						
5/4/2018	ZIBO FEIYUAN CHEMICAL	AGAS AMERICA	30,000.00	China	FOB	\$4.70

5/10/2018	ZIBO FEIYUAN CHEMICAL	AGAS AMERICA	45,000.00	China	FOB	\$4.70
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Table 5. HFC-125 Import Pricing Comparison

Arrival Date	Shipper	Consignee	Weight (kg)	Country of Origin	Incoterm	Price per kg
9/20/2018	ZHEJIANG QUZHOU LIANZHOU*	IGAS	90,000.09	China	FOB	\$3.81
10/10/2018	ZHEJIANG QUZHOU LIANZHOU*	IGAS	90,000.00	China	FOB	\$3.95
2/19/2019	ZHEJIANG QUZHOU LIANZHOU*	IGAS	108,000.00	China	FOB	\$3.38
4/9/2019	ZHEJIANG QUZHOU LIANZHOU*	IGAS	72,000.00	China	FOB	\$3.38
10/21/2019	ZHEJIANG QUZHOU LIANZHOU*	SCALES N STUFF	180,000.00	China	FOB	\$2.54
10/9/2019	ZHEJIANG QUZHOU LIANZHOU*	SCALES N STUFF	180,000.00	China	FOB	\$2.54
*This is only one of three export branches also shipping undervalued imports to iGas and affiliates.						
4/22/2018	ZHEJIANG SANMEI CHEMICAL	AGAS AMERICA	30,000.00	China	FOB	\$7.44
4/22/2018	ZHEJIANG SANMEI CHEMICAL	AGAS AMERICA	15,000.00	China	FOB	\$7.44

As shown in Tables 4 and 5, the price iGas pays is only around 40-60% of the price that all other importers pay, and this extremely low price comes directly from the Chinese state-owned enterprise. If we consider the differences in the market price, times the huge volumes, the money that the Chinese SOE transferred to iGas is extreme, in the hundreds of millions of dollars which will support the creation of their monopoly.

For example, in 2018 they imported 7,458,000 kg of HFC-125, at a price \$5.00/kg lower than market value. We can assume then that the value from this one product, in this one year, is already USD\$37,000,000. This may be a roundabout way the Chinese SOE can invest, or transfer funds, to the US, and should be investigated by the CBP and ITC.

Once again, the most important point is that the shipper who gave iGas extremely low prices is the Chinese SOE Zhejiang Juhua's subsidiaries. It is clear this is an orchestrated effort by the Chinese government to steal the domestic Refrigerant market away from Americans, dominate the supply chain, and have ultimate control on supply and price.

Similar efforts to monopolize industries have been attempted by China before. They succeeded in monopolizing the vitamin industry, but failed to do so with citric acid because an anti-dumping was able to be enforced against them. We must protect American companies and

jobs from this same threat again, this time by cutting off the allowance iGas and affiliates can receive. Once again, referencing years between 2011-2016 for the refrigerant industry would achieve a majority of this elimination, and also a majority of jobs in the US aftermarket refrigerant industry who has already been thieved of 50% of their market.

4. Potential Solutions; Quantity Based Allowance, & Allowance Multiplier

A. Quantity Based Allowance

As a supplier of HFC-152a, we've shared concern for potential unfairness in allocation, due to how relatively low-GWP the product we import is. Despite the high volumes of demand we satisfy, and the amount of organic growth we have worked to gain over the years, our exchange value quantity is on par with some small importers of high-GWP products. What results seems to be a reward to companies importing high-GWP products, and a punishment to companies who have been a part of the switch to more environmentally friendly HFCs.

For example, 1 ISO-tank of HFC-236fa is equal to 9,810 exchange value, which is equivalent to about 80 ISO-tanks of HFC-152a (exchange value of 124). When the importer of that 1 HFC-236fa ISO tank experiences the first notch of the phase-down, they won't even be able to import a tank of HFC-236fa again. They would still have several thousand exchange value to play with, and our concern lies in the threat of those companies using their remaining allowance to advantageously encroach on low-GWP material suppliers' business.

In our discussions with the EPA, they had brought up the question of a quantity-based approach, which may prove to be a solution to this dilemma. Ultimately, the goal is to encourage fairness between companies, and not stifle environmentally responsible producers and consumers of HFCs with a relatively smaller allowance. It would be counterintuitive to place huge allowances in the hands of those who are either unable to use it, or unfairly able to capitalize on it through selling allowance or pivoting their business model to low-GWP markets.

B. Allowance Multiplier for HFC-152a Fairness

Another way to ensure fairness and the protection of American jobs would be to assign an allowance multiplier for HFC-152a, so that companies can resume environmentally-friendly innovations. For instance, if HFC-152a producers/consumers were given a bonus allowance, it would represent a larger supply to American innovators who would now have the room to pursue the quickly growing aerosol market without limit. Due to the low-GWP nature of HFC-152a, the market can grow exceedingly far while still remaining within the phase-down limits, ultimately capped at 15%.

Also, as DuPont's comment to the EPA says, the markets for HFC replacements to the HCFC and CFC phase-down are still being developed, which is another element contributing to expected high demand for HFC-152a.

Without enough supply of HFC-152a, those companies would be at risk of closing down, due to price spikes or overall shortage of material. They might be forced to expensively reformulate and invest in new equipment towards a worse-performing, more expensive HFO. Even so, foreign producers of end products would price them out of the market, and those American companies would fail, and jobs would be lost.

An allowance multiplier of 4-5 times for HFC-152a is rooted in the fact that many HFO alternatives are blends, ironically with very high-GWP HFCs. These blends have an average GWP of 500, which is already 4 times the GWP of HFC-152a, at only 124 GWP. Therefore, increasing the allowance of HFC-152a by that much will be evening the amount of exchange value between these competing approaches.

It can be objectively seen that using HFC-152a is better for the economy and environment than any HFO blend, because of the extremely high prices and GWP of the latter. It cannot be sustained indefinitely due to the phase-down's limits, and therefore would be setting companies up for failure in some short years. Please protect American jobs by encouraging the usage of HFC-152a and setting aside enough supply for its cost and job-saving potential to be maximized.

5. Conclusion

The growth of HFC-152a over the past decade necessitates using 2017-2019 as a reference for allowance in the propellant industry. It will ensure that existing players and rapidly growing new entrants can be protected, while encouraging longer-term environmental benefits. It will also give other companies the chance to innovate their products to include HFC-152a, whether from HCFCs/CFCs, or high-GWP HFCs. Using the recent data will represent true demand, and will offer room for these industries to thrive, rather than deprive them of the best propellant available to them.

Using 2011-2013 for the refrigerant industry will also protect the responsible players there, whose best representation lies before 2016, when the unfair import practices of iGas and affiliates occurred. In iGas' own words, they gained 50% market share in 2 years, due to their practices. We greatly appreciate the OMB's help in both protecting and repairing the American aftermarket refrigerant industry from this bad actor's artificial demand/consumption, by ignoring 2017-2019 data for the refrigerant industry.

Aside from using appropriate timelines of data to calculate a split of allowance, there are other solutions we feel would further protect US companies and jobs. For example, one solution can be a quantity-based system, that would eliminate bias against responsible importers of low-GWP HFCs if the current proposed allocation model is implemented.

Lastly, an allowance multiplier for HFC-152a would ensure enough supply exists for American companies to continue innovating towards low-GWP, low-cost, and therefore

marketable end products. Over the next several years, advertised next-generation technologies will still have a GWP of about 500, due to its blended composition! So, American companies will still need HFC-152a to be competitive globally and take full advantage of the rapidly growing demands in the aerosol and propellant market.

We humbly ask that the OMB consider these options and make the best decisions possible for American industries and citizens' jobs while finalizing this rule.

Most sincerely,

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