



January 16, 2017

Electronic delivery via CARB comment portal

Ms. Pamela Gupta, Manager
Greenhouse Gas Reduction Strategy Section
Research Division
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Arkema Comments on the Revised Proposed SLCP Reduction Strategy

Dear Ms. Gupta,

Arkema is a diversified chemicals manufacturer operating industrial and research and development facilities around the world. In the United States, Arkema and its subsidiaries operate 34 facilities employing over 3,000 people in California and 18 other states. Arkema makes advanced coatings, high performance materials, and specialty industrial chemicals, including HFCs and low GWP HFOs.

Arkema commends ARB staff on revising its SLCP Reduction Strategy by taking into account the global HFC supply phasedown agreement achieved with the Kigali Amendment to the Montreal Protocol. Arkema shares ARB's belief that the most effective means of reducing any potential future climate change contribution of HFCs are those that are global in nature, and we believe that ARB's efforts should be considered in the context of their contribution to an effective, cohesive global approach.

Arkema also appreciates ARB's commitment to an effective process of stakeholder consultation and in that spirit we are providing the following comments:

1. Arkema encourages ARB to account for energy efficiency in assessing any potential emissions reductions from its strategy. The vast majority, possibly as much as 95%, of greenhouse gas emissions related to HVAC equipment comes from the energy necessary to operate it—not from the refrigerant. While energy generation in California may be producing less carbon emissions per unit, our data indicates that it is still 70% of the national average. Even in California, then, the carbon emissions from generating the electricity necessary to run HVAC equipment significantly outweigh the carbon emissions from the refrigerant itself.
2. In the revised document, under "High-GWP Refrigerant Prohibitions in New Stationary Systems", there is a new exemption for "small HFC/HFO central charge (with GWP less than 1500) used in hybrid refrigeration such as secondary loop and cascade systems". This is not consistent with the US EPA's SNAP rule for supermarket systems where the limit is 2630. More importantly, at Low Temperature, R-407A with a GWP of 2107 outperforms refrigerants with GWPs less than 1500, including R-134a and HFC/HFO blends such as R-448A (for reference see the presentation by Emerson at their E360 forum <http://www.emerson.com/resource/blob/151198/5cc5a7257e8324c27b6562b2bc97b3d0/understanding-applications-alternate-refrigerants-bonear-hopson-021516-final-data.pdf>). Putting the

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GWP at less than 2630 would allow the more energy efficient refrigerant (R-407A) to be used, and align the strategy with the EPA SNAP regulation for supermarket refrigeration, thus avoiding California-only rules.

3. We believe that using the term “natural refrigerants” to describe hydrocarbons, carbon dioxide and ammonia is misleading and creates an unfair advantage for these products in the minds of consumers. These chemicals are just as synthetic as HFCs and HFOs, and result in greenhouse gas emissions over their lifecycle. A more appropriate term to describe them would be, for example, “non-fluorinated refrigerants”.
4. Ease of implementation and compliance are important parameters that can significantly affect the degree of success of the SLCP Reduction Strategy. The majority of HVAC equipment affected by the Strategy is not manufactured in California and will be brought in with or without the refrigerant. Consideration should be given to the discriminatory effect this would have on interstate commerce, as well as the adverse effects on both California businesses in this segment and consumers.
5. Refrigerant management can be a significant source of emission reductions through minimizing leaks from existing equipment. In November 2016, the US EPA finalized its rule to extend provisions of Section 608 of the Clean Air Act to HFCs, as the industry had been requesting. Arkema encourages ARB to evaluate the potential impacts of, and to identify and adopt policies that will reduce emissions through proper refrigerant management.

In conclusion, Arkema looks forward to working with ARB and hopes that the final policy measure adopted by ARB will give consideration to the following factors:

- Technical feasibility,
- Ease of implementation and compliance,
- Anticipated environmental impact from efficiency losses,
- Anticipated economic impacts on consumers, small businesses (including contractors, distributors and retailers), and industry,
- Implementation of a Refrigerant Management program to control emissions from existing equipment.

Thank you in advance for your consideration of our comments. Please do not hesitate to contact me at (786) 765-6134 if you need any additional information.

Sincerely,



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