Honeywell

October 29, 2013

Chair Mary Nichols
California Air Resources Board

Re: Comments regarding ARB Scoping Plan actions to promote the use of low Global Warming Potential (GWP) blowing agents

Dear Chair Nichols:

We commend ARB for promoting the use of low-GWP blowing agents in California within the current ARB Scoping Plan. Honeywell agrees with ARB, as stated in the Scoping Plan, that there are a number of commercially available alternatives to cost effectively replace existing use of high-GWP blowing agents in California. Honeywell has consistently helped manufacturers replace ozone-depleting and global warming substances and is a recognized leader in developing high-performance blowing agent technology for closed-cell spray polyurethane foam insulation, extruded polystyrene board insulation and advanced energy efficient refrigerants.

Today in California, high-GWP foam blowing agents incorporated into polyurethane and polystyrene foams are installed every day onto roofs, wall cavities of unfinished walls, against the interior side of sheathing, and through holes drilled in sheathing or drywall to insulate new and existing buildings. The predominant foam technologies used to insulate buildings and reduce energy usage utilize high-GWP gases such as HFC-134a (or R-134a), HFC-365mfc, or HFC-245fa with each being up to 1,200 times more effective at trapping atmospheric heat than carbon dioxide. For example, one twenty-four ounce can of R-134a has the equivalent GWP of one ton of carbon dioxide, roughly equivalent to the emissions from a car driven from Los Angeles to New York.

As you know, a new generation of gases and liquids have been developed called Hydrofluoroolefins (HFOs) that can replace HFC-134a, HFC-365mfc and HFC-245fa which are commonly used today. These new technologies have better characteristics for reducing climate impacts with no apparent compromise on performance. Examples of these include HFO-1233zd(E) and HFO-1234ze(E) produced by Honeywell and branded under our Solstice line of products. These alternatives have GWP values of 1 or less and have multiple uses in foam insulation as well as aerosol applications such as dusters and tire inflators among others. These cost effective, safe and commercially available

alternatives are readily available and can reduce the GWP impact of existing products by more than 100X. In fact, users of this emerging technology have found it cost effective with realized increases in energy efficiency performance, improvements in material properties and no significant equipment or processing changes.

With California leading a number of new initiatives to support greater energy efficiency in school buildings (Proposition 39), in existing Buildings (AB 758-Skinner) and now in the ARB Scoping Plan, low-GWP products should be promoted to ensure state GHG reduction measures are making *net* GHG reductions over the long term. A key opportunity for GHG reductions within California is to encourage the replacement of 134a, HFC-365mfc and HFC-245fa for use in insulating foam applications and propellant applications. As mentioned in the existing Scoping Plan, low-GWP alternatives to foam blowing agents are readily available and are gaining acceptance globally. For example, 1233zd(E) is currently being used in construction and appliance applications in the US, Japan, and next year in even China. Similarly, 1234ze (E) is currently being used in polystyrene, foam and aerosol applications.

Thank you for your consideration and please contact me at +1 (973) 455-4187 if I can provide any more details regarding the use, promotion and availability of alternative low-GWP blowing agents and other technologies.

Sincerely,

Sanjeev Rastogi

Sanjeev Rastogi
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Honeywell Performance Materials and Technologies