THE ALLIANCE FOR CO_2 SOLUTIONS

turning the problem into the solution

Brussels, 4 December 2007

The New York Times

Dear Kevin Cameron

We read with interest your article, **"Greenhouse Villain Could Be a White Knight After All"** (New York Time, 2 December 2007).

We would like to take this opportunity to clarify 3 key points that were raised in the article:

1. **Environmental performance**: As the article reflects, CO_2 used as a refrigerant has the lowest Global Warming potential of all alternatives to HFC134a, reducing the direct emissions of a car air conditioning to zero. Moreover, regarding efficiency, CO_2-based systems outperform chemical substances in over 95% of driving conditions worldwide, which makes it the best option globally. Leading U.S. Automotive suppliers, such as Visteon and Modine, have done extensive research and have overwhelming evidence on this.

2. **Refrigerant's technical challenges**: The high pressure at which CO_2 systems operate in fact imply a number of advantages. The lines and components are more compact and light, which makes the system lighter that the current ones based on HFC-134a (2 kg less for a medium-size vehicles). There are additional benefits of a CO_2-based system for the consumer, such as faster cool-down and easier and cheaper servicing, on top of fuel savings due to higher efficiency. HFC-152a, on the contrary is a flammable substance, according to industry standards by ASHRAE (American Society of Heating, Refrigeration and Air-Conditioning Engineers). To ensure safety of a car air conditioning based on R152a, a secondary loop needs to be integrated, which makes the system more complex and costly. This would also imply an impact on overall efficiency, which would be usually worse than systems based on R134a.

3. **Costs:** The implementation of a new refrigerant will imply an extra cost for the car manufacturers, whichever choice they make. Estimates point to a slightly higher initial extra cost to implement CO_2 compared to chemical substances. However, when taking into account the entire lifecycle of the refrigerant, CO_2 technology is the most cost-effective solution, as the refrigerant itself is cheaper, and there are fuel savings during the operation of the system.,

The introduction of CO_2 technology represents an opportunity for car manufacturers to opt for a long-term sustainable solution worldwide, thereby reducing global greenhouse gas emissions by 1%.

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