



THE ALLIANCE FOR CO₂ SOLUTIONS

turning the problem into the solution

Brussels, 29th August 2007

Automotive News

Dear Editor,

We read with interest your article, "Heat is on the industry to make auto AC climate-friendly" (Automotive News, 27st August 2007).

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

1. **Fuel Consumption:** Contrary to some quotes in the article, CO₂ systems can significantly reduce the fuel consumption of car air conditioning. Extensive testing since the mid 90's by leading automotive suppliers proves that CO₂ air conditioning technology can be far more efficient than current systems in over 95% of driving conditions worldwide. This holds both for large and small vehicles, in hot and moderate climate conditions, ranging from Japan, India to the US and middle Europe. In fact, the higher pressure of CO₂-based systems means less "work for the engine", as the compressor displacement is much smaller (i.e. 25 ccm compared to over 150 ccm for current HFC MAC systems at equal required cooling capacities).
2. **Toxicity:** EPA argues in your article that CO₂ would be considered a toxic substance. However, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), has rated the natural refrigerant CO₂ as Safety Class A1 (low-toxic, non-flammable) - the highest safety class possible. Hence, even if the entire system charge is released into the passenger compartment, critical CO₂ concentrations are not reached. The design of the systems will obviously include the corresponding safety measures. By contrast, HFC- 152a can decompose into highly toxic HF molecules. Since it is also flammable, a secondary loop would need to be applied, with additional weight and higher fuel consumption compared to current HFC-134a systems.
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 CO₂ compared to chemical blends. However, when taking into account the entire lifecycle of the refrigerant, CO₂ technology is the most cost-effective solution. This is because the refrigerant itself is not only cheaper than competing alternatives, it is also cheaper to service and there are fuel savings during the operation of the system.

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