

Geneva Auto Show: Debate about danger of 1234yf continues
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At a dedicated press conference, the German NGO Deutsche Umwelthilfe has warned against the deadly risks of the proposed refrigerant alternative HFO-1234yf for drivers and rescue personnel. Chemical maker Honeywell, the media, and the German Environment Agency reacted promptly.

At a side event to the Geneva Auto Show, held on 4 March, the German NGO Deutsche Umwelthilfe (DUH) and former Head of Department of the Federal Environment Agency (UBA), Dr. Axel Friedrich again strongly warned against the use of the flammable and "highly toxic chemical cocktail" HFO-1234yf, proposed as a refrigerant alternative for Mobile Air Conditioning (MAC) systems before 2011. Presenting a video with an accident simulation showing that 1234yf ignites quickly and burns steadily with a large flame, DUH drew attention to the fact that the burning refrigerant would release the toxic substance hydrogen fluoride that could be life threatening in low concentrations. When transmitted through the air, the normal humidity would thus be sufficient for hydrogen fluoride to develop highly toxic hydrofluoric acid. When in contact with human tissue during inhalation, this would lead to severe internal burns even in smallest concentrations, according to Dr. Axel Friedrich. As an average car air conditioning system contains about 600 grams of refrigerant, and one kilogram of 1234yf can generate 700 grams of hydrofluoric acid, the consequences of accidents involving several cars would be "almost unimaginable".

It would therefore be "shameful how parts of the automobile and chemical industries unabashedly play with the safety and ultimately even with the lives of people, only so as not to miss out on this lucrative global market," Friedrich continued in a press release issued on this occasion.

Chemical industry: HFO1234yf without "any significant risks"

A public affairs consultancy, sent from Brussels to defend the chemical industry's interests, questioned the credibility of the DUH tests, referring to own results that found 1234yf to pose "no significant safety concerns". This, however, is in sharp contrast with chemical maker Honeywell's own safety fact sheets categorizing 1234yf as an "extremely flammable gas", warning against hydrogen fluoride in case of an accident, and advising all rescue personnel to wear protective clothing and a gas mask.

The argument that other independent testing authorities had not been able to replicate the DUH tests was strongly rejected by Dr. Friedrich who referred to

internal tests done by several German carmakers shortly after the DUH tests that had led to similarly alarming results. The second long-held argument that the flames colour would be an indication for a fire not involving the refrigerant gas was equally invalidated by the DUH as a normal result of mixing lubricant and effluent gas, as it would normally occur in an accident where the refrigerant hose was being ripped off.

Shortly after the DUH tests in late 2008, Honeywell had threatened to sue the organisation should they publish the test results. After talks held between the two sides, Honeywell refrained from taking legal steps – according to DUH another proof that no factual error could be found and that all tests were performed under real life conditions: "There is silence in the forest because Honeywell apparently realized one cannot hold the bearer of the bad news responsible for the terrifying results," DUH CEO Jürgen Resch commented.

Media: Risks for drivers & Role of Insurance Companies

The animated debate was closely followed by several media representatives interested to learn more about the safety risks posed by HFO1234yf for the consumer. Questions arose about the development and effect of hydrofluoric acid with and without water, and the amount needed to threaten the lives of humans and animals. Another question addressed the involvement of insurance companies when faced with a flammable and toxic refrigerant in cars. As no flammability and test results have yet been made public, the real risks cannot be evaluated, Friedrich responded.

UBA: Delay of CO2 puts competitiveness of European auto industry at risk

As a reaction to the DUH press conference and Honeywell's claims, a press release by the German Environment Agency urged the automotive industry to accelerate the serial introduction of CO2, a non-flammable and non-toxic alternative with proven efficiency. Referring to the current economic crisis the automotive industry is facing, UBA President Dr. Andreas Troge criticised the lacking market availability of climate-friendly MAC systems, and therefore lost opportunities to drive climate protection through technological innovation.

"A further delay [of CO2] would mean to accept losing expert knowledge and business opportunities. This weakens the international position of the European automobile and supplying industry," Troge stated.

After the German automobile industry (VDA) clearly committed to CO2 (R744) in autumn 2008, the industry would now need to walk the talk and support the supplying industry in bringing CO2 Technology to market. The UBA is already

using a vehicle equipped with R744 MAC (see earlier article). Especially for next-generation hybrid and full electric vehicles, CO₂ would be the only viable alternative to not only cool but also to heat the vehicle during winter.