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HFC-134a, no sustainable refrigerant

The amount of HFC-134a leaking to the atmosphere in 2004 alone equals the total amount of all HFC-134a produced until 2000, a new study finds. Carmakers at the SAE event were thus urged to choose a sustainable new refrigerant.

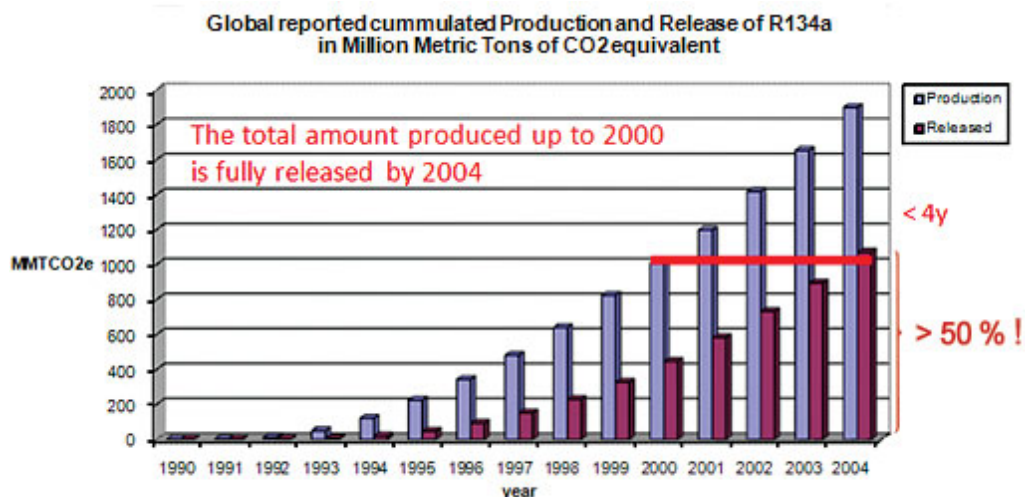
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While producing a certain amount of a toxic, ozone depleting or high global warming refrigerant today, 50% of it is already released into the atmosphere with all associated environmental and health risks. Frank Wolf, from Obrist Engineering, transmitted this key message at the SAE Alternate Refrigerant Symposium held last week in Phoenix, USA. Speaking in front of 250 global experts, Wolf presented a recent study made by the chemical industry proving that, as HFC-134a air conditioning systems worldwide are getting older, the refrigerant leakage is increasing steadily, accelerating climate change.

HFC-134a leakage will increase

The study shows that in 2004, the amount of produced HFC-134a was equivalent to nearly 2,000 million metric tons. In the same year the total amount of HFC-134a produced back in 2000 – around 1,000 million metric tons of CO₂ equivalents – was already completely released to the atmosphere. This release equals more than 50% of the production (see graph). Moreover, the total produced amount in 2004 is the same as four times the annual emissions of California, or 20% the annual US emissions.

Despite continuous efforts from manufacturers to limit the refrigerant leakage through better servicing or tighter components, the leakage of HFC-134a will still increase, the study shows. Although better engineering may slow down the release of refrigerants, it will never completely halt this process.



Source: AFEAS Alternative Fluorocarbons Acceptability Study

New chemical blends no long-term solution

Given that the same problem applies to any other refrigerant, it would be irresponsible to opt for a refrigerant that could have negative long-term environmental and health effects, Obrist argues. Most of the proposed non-natural alternatives still pose questions regarding their future decomposition in the atmosphere, toxicity, or global warming potential.

"It would be a deliberately committed crime against mankind to choose a next refrigerant having issues with ozone depletion, high indirect global warming potential, toxicity or its decomposition products," Frank Wolf states.

Unique opportunity to make a difference

As carmakers will be choosing a next-generation refrigerant for MAC soon, Obrist is urging the industry for the use of CO₂ (R744) that could cut direct emissions down to zero while not posing any risk regarding toxicity, ozone depletion, or future decomposition products.

More information:



[Obrist Engineering - Presentation 17 July \(852 KB\)](#)

[AFEAS Study: Production and Release of HFC-134a](#)

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