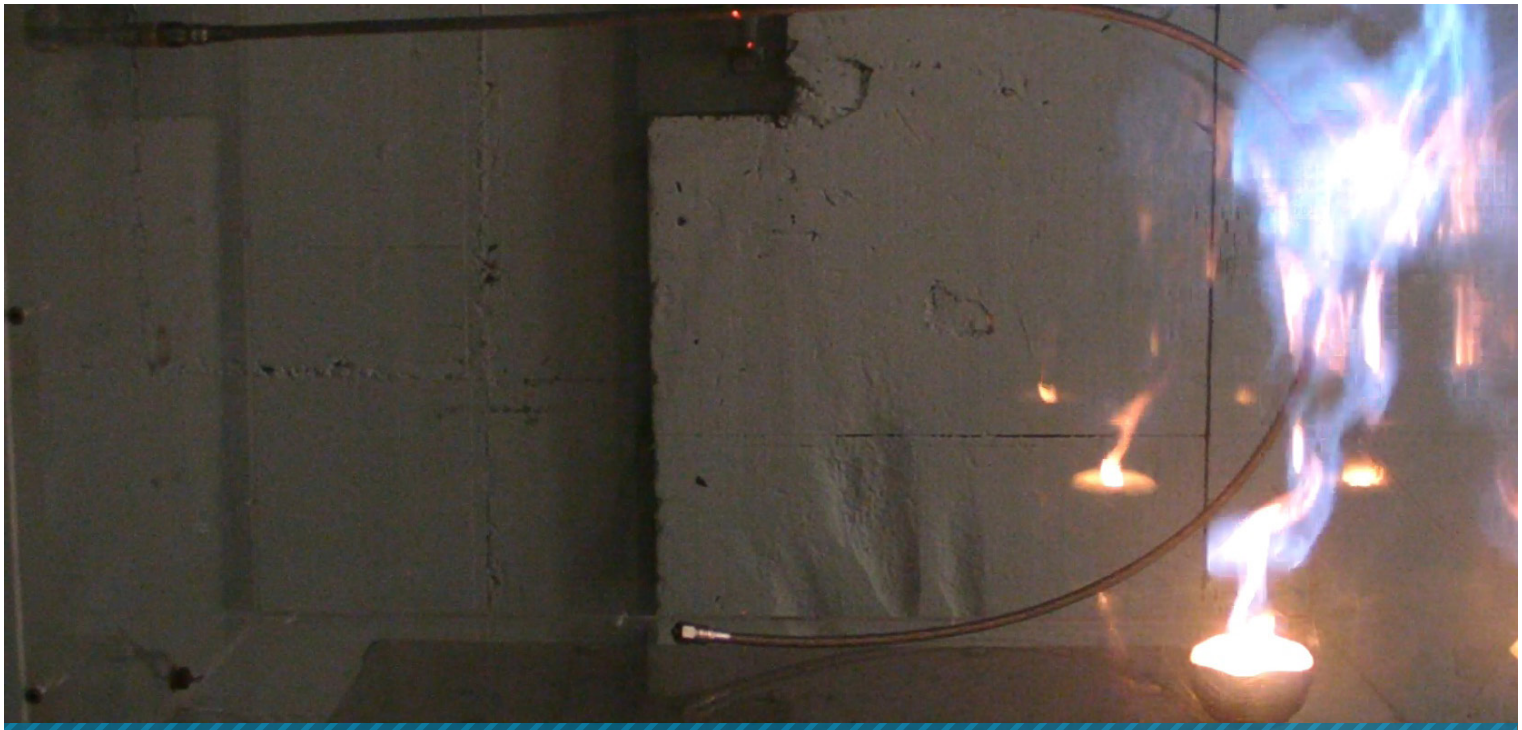

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European JRC report on R1234yf ignores fire incidents

Für Mensch & Umwelt

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European JRC report on R1234yf ignores fire incidents

The European Commission commissioned the Joint Research Centre (JRC) to evaluate a report by the German Federal Motor Transport Authority (Kraftfahrt-Bundesamt, KBA) on the refrigerant R1234yf. UBA believes that the JRC report published in March 2014 does not deliver any substantial new contribution to current scientific and technical knowledge in regard to the refrigerant 1234yf.

On 31 October 2013 the German Government sent the KBA report on trials with cars using the new refrigerant R1234yf in their mobile air conditioning systems, to the European Commission (COM). (KBA Report see also link to the EU-working group 1st meeting document 5.2: "Report on flammability and HF exposure trials with vehicle air conditioning systems using R1234yf" of 20 November 2013). Refrigerants flammability and HF exposure were examined. R1234yf (chemical name 2,3,3,3 tetrafluoropropene), ignited in several trials and toxic hydrofluorine acid was formed. In its report, the German Federal Motor Transport Authority (KBA) strongly recommended further investigations to study the use of the refrigerant R1234yf in mobile air conditioning.

The European Commission submitted the KBA report for evaluation to its Joint Research Centre (JRC).

Germany had suggested asking JRC to provide a comprehensive assessment of all available scientific and technical information in regard to the ignition behaviour of the refrigerant R1234yf. A series of trials had already been performed in the laboratory and on cars. In 2009, the German Federal Environment Agency (Umweltbundesamt, UBA) initiated investigations into the ignition behaviour of the refrigerant tetrafluoropropene (R1234yf). The European Commission did not, however, commission JRC to carry out a comprehensive assessment of the refrigerant topic.

JRC Report

Following a public consultation in a European Commission working group the JRC report "JRC technical and scientific support to the research on safety aspects of the use of refrigerant R1234yf on MAC systems" was published by the European Commission on 7 March 2014 (Corrigendum on 5 September 2014).

As scientific-technical elements the JRC report basically contains the description of the tests of the German Federal Motor Transport Authority (Kraftfahrt-Bundesamt, KBA) and comments by JRC on them. JRC did not perform own tests with the refrigerant R1234yf. The current state of scientific and technical knowledge of the flammability behaviour of the refrigerant R1234yf was not described.

In the opinion of the Federal Environment Agency (UBA), the JRC report does not deliver a substantial new contribution to the current knowledge in regard to the refrigerant 1234yf. From a scientific point of view, the JRC's conclusion that for R1234yf "there is no evidence of a serious risk under normal and foreseeable conditions of use" cannot be shared. In their assessment, JRC did not take into consideration results from further studies with the refrigerant R1234yf in the laboratory and on cars, which resulted in ignitions events, as (BAM report "Ignition behaviour of HFO1234yf" of 10 June 2010, findings from Daimler AG (see documents of the of the EU-working group 2nd meeting document 2: "Daimler's Observations on Risk Assessments of R1234yf" of 11 December 2013 and 3rd meeting document 2.4 "Daimler Comments on the Draft JRC Report" of 24 January 2014), from VDA and environmental NGOs.

In late March 2014, the President of the German Federal Environment Agency (UBA) informed the General Director of the Joint Research Center (JRC) of UBA's assessment of the JRC report.

Further comments by UBA on the JRC Report

The German Federal Motor Transport Authority (Kraftfahrt-Bundesamt, KBA) limited the range of its tests in line with its function as product safety authority. The KBA only tested four vehicles with R1234yf that were already on the market in spring 2013. On these cars individual refrigerant release scenarios were performed based on specific crash damages. However, the JRC report gives the impression that the KBA test was a comprehensive study of the safety of the use of R1234yf, which is however not the case.

JRC did not perform own tests with the refrigerant R1234yf but changed the KBA's conclusion so as to indicate that there is no evidence of a serious risk.

In 2013, KBA submitted to the European Commission and the JRC a series of questions arising from their own and further trials (see documents of the EU-working group 3rd meeting document 2.6 (KBA): Examination of MAC with R1234yf in Motor Vehicles of 24. January 2014, page 5 word document). The questions covered topics like the conditions of HF formation, other possible accident scenarios, and risks in tunnels and garages. In its report, JRC did not answer the questions raised by KBA.

JRC only acknowledged the results of the levels 1 and 2 trials of the German Federal Motor Transport Authority (Kraftfahrt-Bundesamt, KBA) as probable scenarios. The KBA level 1 and 2 trials did not, however, aim to describe an overall "worst case" scenario as assumed in the JRC report, but a probable case according to the accident statistics.

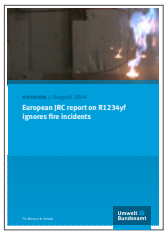
JRC considers the KBA's level 3 trials, in which the refrigerant ignited and / or large amounts of hydrogen fluoride (HF) formed, as irrelevant, even though JRC regards the corresponding scenarios, like very fast or aggressive driving or driving with a trailer, as plausible. In the JRC working group, KBA and other stakeholders provided additional information in support of the fact that level 3 incidents represent probable cases.

The JRC report does not address the results obtained in car manufacturers' tests which resulted in R1234yf being classified as too unsafe for some products. Further tests exploring refrigerant releases which resulted in ignition of the refrigerant and / or formation of HF were not mentioned and not evaluated. Some individual results were mentioned only in relation to the KBA results.

The JRC report does not include any statements in regard to further aspects of refrigerant use, like different crash scenarios, R1234yf ignition conditions, aging effects, higher speeds, refrigerant release in accidents, in underground car parks or tunnels, fires, accidents involving more than one car and handling of R1234yf by first responders or in a garage.

The JRC did not examine the mitigation strategies mentioned in its report for their applicability, effectiveness and limits of use. The bodies cited in the report mentioned some of these measures only as generic ideas without experience with implementing and testing them in cars.

In its report the German Federal Motor Transport Authority (KBA) pointed out very clearly that producers remain responsible for the safety of their products. It is not clear from the JRC report to what extent JRC's interpretations of product law are intended to be comprehensive and how they were legally reviewed.



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