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European Chemical Agency
ECHA
RAC 65

Ford-Werke GmbH
Henry-Ford-Str. 1

50725 Köln

To:
[redacted]@echa.europa.eu and [redacted]@echa.europa.eu

Dr. Wulf-Peter Schmidt
Mail: D-NY/S-340

Email: [redacted]@ford.com

Dear Madam and Sir

We appreciate the opportunity to comment on the PFAS restriction proposal and raise a specific question regarding PFAS related to mobile air conditioning systems. This comment of Ford-Werke GmbH (Germany) fully supports the ACEA contribution on mobile air conditioning and makes an important additional comment on the refrigerant R-1234yf, based on the United Nations Environmental Program (UNEP Trifluoroacetic - TFA) Study, please see reference at the end of this submission.

This additional comment is related to the "PFAS" defined chemical refrigerant R-1234yf which is widely used for air conditioning systems in the automotive industry for mobile air conditioning as replacement for R-134a to address global warming concerns. R-134a has a high Global Warming Potential of GWP 1430. R-1234yf is a common replacement with the recently described GWP of 0.5 CO₂eq (IPCC 6th Assessment Report). This means R-1234yf has only the half of the impact on climate compared to CO₂ itself. This favorable property of R-1234yf is a side aspect also worth considering in a holistic assessment.

We want to point to the global UNEP TFA reputable and reliable study to constructively support your PFAS investigation. This scientific study released recently by UNEP related to R-1234yf is identifying its quick atmospheric degradation to form TFA and is assessing risks as very minimal. Not comparable to risks of other PFAS Substances.

The UNEP EEAP study provides a detailed review of the literature relating to TFA and concludes: *"However, it does not interact with biological molecules and, due to its high solubility in water, it does not bioaccumulate. It is unlikely to cause adverse effects in terrestrial and aquatic organisms"* [p. 5].

RECOMMENDATION

We like to ask ECHA - specifically RAC and SEAC - to review this UNEP study's findings on TFA and consider it in respective assessments for use of R-1234yf and for proper scientific-based regulatory advice. We think, this UNEP study's findings on TFA will add valuable input to your risk assessment and socio-economic analysis and recommend a deeper analysis with respect to future R-1234yf use.

Furthermore, we strongly believe this study, result and conclusion is of general interest, and we recommend making ECHA (RAC & SEAC) perspective made public, e. g. as a Q&A. We trust this will happen and would very much appreciate this input to a well-considered scientific-based discussion and decision-making process.

Thank you very much

Wulf-Peter Schmidt

Dr. Wulf-Peter Schmidt
Director Sustainability, Advanced Regulations and Product Conformity
Environmental & Safety Compliance
Ford-Werke GmbH

Attachment

SCIENTIFIC REFERENCE

UN environment program - Environmental Effects of Stratospheric Ozone Depletion, UV Radiation, and Interactions with Climate Change 2022 Assessment Report, March 2023 – therein: Environmental effect of R-1234yf and TFA

<https://ozone.unep.org/system/files/documents/EEAP-2022-Assessment-Report-May2023.pdf>

EXTRACT:

Chapter 6 “CHANGES IN TROPOSPHERIC AIR QUALITY RELATED TO THE PROTECTION OF STRATOSPHERIC OZONE IN A CHANGING CLIMATE”

Subchapter 3, “Trifluoroacetic acid in the global environment with relevance to the Montreal Protocol”

3.8 Conclusions and uncertainties:

“... One source of TFA in the environment is the degradation of replacements for chemicals that contribute to the destruction of stratospheric O3. These are the HCFCs, HFCs, and HFOs, all of which are replacements for chemicals that fall under the purview of the Montreal Protocol. Some of these products are greenhouse gases and contribute to global climate change. Because of this, there is a trend to replace long-lived HCFCs and HFCs with HFOs, which have very short atmospheric lifespans and do not contribute to climate change. The use of these replacements is monitored under the auspices of the Montreal Protocol and estimates of current and future releases of TFA are regularly assessed. These releases will add to the existing load of TFA in the environment but predicted amounts are well below the threshold for concern with respect to human and environmental health.” ... “Current and projected (to 2100) concentrations of TFA in the oceans provide a very large margin of exposure (thousand-fold) when compared to thresholds of toxicity and risks to the environment and human health are de minimis.”

➔ UNEP suggests a negligible risk of TFA / R-1234yf

[p 278]:

“More recently, a majority of a panel of experts agreed that “all PFAS should not be grouped together, persistence alone is not sufficient for grouping PFAS for the purposes of assessing human health risk, and that the definition of appropriate subgroups can only be defined on a case-by-case manner.” [184]. In addition, the majority opinion with respect to toxicology was that “it is inappropriate to assume equal toxicity/potency across the diverse class of PFAS”.

➔ Maybe there is an opportunity to at least group PFAS substances according their “Group risks”.

For example, besides R-1234yf, Polyvinylidene difluoride (PVDF) plays a crucial role in the manufacturing of lithium-ion batteries used in electric vehicles (EVs), where it is used as the cathode electrode binder without any suitable alternatives beyond lab-scale R&D. Both (R-1234yf & PVDF) deserve an individual risk assessment.