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EFCTC welcomes additional science on HFC and HFO breakdown products

EFCTC welcomes the new paper by Prof. Cora Young and her team recently published in Geophysical Research Letters. The paper adds to, and reinforces, the extensive scientific work that has been carried out over the past decade on the breakdown products from CFC replacements and, in particular, TFA.

“Various studies have confirmed that TFA (and its salts) occur naturally in oceans, rivers and lakes in excess of 200 million tonnes. Estimates made using the paper would indicate that they have identified a deposition of TFA of a total of approximately 3,000 tonnes over a ten-year period.” noted Dr Nick Campbell, Chairman of EFCTC. “The 2018 Assessment Report of the Montreal Protocol Environmental Effects and Interactions of Stratospheric Ozone Depletion, UV Radiation, and Climate Change stated that there is no new evidence that contradicts the conclusion of our previous Assessments that exposure to current and projected concentrations of salts of TFA in surface waters present a minimal risk to the health of humans and the environment. This paper does not change these conclusions”.

“It must also be noted that only a few species of the CFC-replacements degrade to TFA and in varying proportions” Dr. Campbell added.

The paper notes that very short-lived CFC replacements (HFOs) have a very short atmospheric lifetime and, to the extent that some of them degrade to some extent to TFA, this will be deposited close to the source of emissions, i.e. at lower latitudes. Therefore, it is not possible to directly attribute any TFA identified in the Arctic ice cap to these substance. Furthermore, recent research suggests that TFA is subject to further atmospheric degradation in the presence of Criegee radicals (smog precursors) especially in conurbations, thereby reducing the quantities of TFA associated with the breakdown of CFC replacements.

“It is important to note that previous scientific studies have shown that TFA and its salts present negligible risk to organisms higher on the food chain, including humans,” stated Nick Campbell, “They do not bio-concentrate in aquatic organisms, and do not bio-magnify in the food chain. This paper is an important addition to the scientific knowledge on TFA and the breakdown products of CFC replacements and it essential that its results are taken in context with previous work.”

About EFCTC

The European FluoroCarbons Technical Committee is a Cefic Sector Group that monitors legislation related to HFCs (hydrofluorocarbons), and HFOs (hydrofluoro-olefins) in the EU and at global level. Fluorocarbons are used as feedstock, as refrigerants, as solvents and as blowing agents for insulation plastic foams.

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