

## TRIFLUOROACETIC ACID

Unlike CFCs, the alternative fluorocarbons (HCFCs and HFCs) will break down readily in the lower atmosphere [10] to form simple inorganic species already present in the environment. However, a few of the HCFCs and HFCs can be expected to form trifluoroacetic acid, a substance apparently resistant to further degradation.

In 1991, the fluorocarbon industry instigated a research programme to ascertain basic environmental and toxicological data. The risk from the future environmental levels of trifluoroacetic acid from future emissions of HCFCs and HFCs has now been assessed, with the conclusion that "they do not pose a threat to the environment"[11]. In the same assessment, the toxicity of trifluoroacetic acid to algae, higher plants, fish, animals and humans was evaluated. It was found to be of very low toxicity to all of these organisms.

There is a very large quantity of trifluoroacetic acid in the sea [12, 13, 14 and 15]; significant concentrations have been found in both coastal and deep-ocean seawater. The amount implied from these measurements (approximately 100 to 200 million tonnes) suggests a long term source that has continued for at least 100 years (possibly 1000). Thus, trifluoroacetate is a natural component of seawater [14 and 15].

Trifluoroacetic acid is also found in rain, river and lake water [16 and 17]. The rainwater concentration has been sampled most frequently in Germany and western USA and the concentrations measured are far in excess of those that could occur as a result of atmospheric oxidation of man-made fluorocarbons.

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