PFAS □□□

Content:

Request for exemption

Org. name:

Zhejiang Juhua Hanzheng New Materials Co., Ltd.

General Comments:

Our company is a manufacturer of fluorinated fine chemicals, and we would like to greet the five countries that have proposed the ECHA and PFAS control draft. Our company has always made unremitting efforts to comply with domestic and international regulations, and continuously conducts strict self review of the compliance of products exported to the European Union. For a long time, our company has supported EU proposals aimed at reducing the risks caused by toxic and harmful substances, and has taken practical measures to meet EU chemical regulatory requirements, including REACH.

Our company is a manufacturer of fluorinated fine chemicals, involving the production and manufacturing of hexafluoroepoxy propane series products, mainly including hexafluoroepoxy propane and oligomers, hexafluoroacetone and hydrates, hexafluoroisopropanol, bisphenol AF, etc., which are supplied as raw materials to downstream enterprises for the synthesis of perfluoropolyether, emulsifier, crosslinking agent, liquid crystal materials, drug intermediates, etc. The company strictly follows environmental requirements for production activities, and the PFAS substances involved will not be discharged into the environment.

In downstream applications, many products with the same effect cannot be found as substitutes, especially as pharmaceutical raw materials that cannot be replaced.

Regarding the persistence of PFAS, William R. Dichtel from Northwestern University and K N. Academician Houk and Xue Xiaosong from the Shanghai Institute of Organic Sciences of the Chinese Academy of Sciences have collaborated to discover that by selecting the correct solvents (DMSO, sodium hydroxide aqueous solution), perfluoroalkyl carboxylic acids (PFCAs) can be mineralized through sodium hydroxide mediated defluorination pathways. Perfluoroalkyl carboxylic acids (PFCAs) will spontaneously decompose into good inorganic fluoride ions and simple oxidized organic molecules. This work is published in Science under the title "Low performance mineralization of perfluorocarboxic acids".

By decarboxylation in dipolar non proton solvents, PFCA easily generates perfluoroalkyl carbon negative ions. In a DMSO and H2O solution at 120 ° C, PFOA decarboxylates to form perfluorinated 1H heptane 2, which is separated into oil from the solution. When the same PFOA solution in DMSO/H2O undergoes decarboxylation conditions but NaOH (30 equiv) is present, PFOA instead degrades into a mixture of fluoride, trifluoroacetate ions, and carbon containing by-products. For branched perfluoroalkyl ether carboxylic acid PFAS pollutants, experiments have shown that these compounds can also be degraded and mineralized by perfluoroalkyl anion intermediates.

Through laboratory verification, the HFPO polymer carboxylic acid undergoes a rapid decarboxylation reaction in an aqueous solution of DMSO at 80 ℃, and is completely transformed to obtain the 1H-HFPO polymer product. If alkaline solution is used, a mixture of olefins and short chains is generated. The above literature and validation tests have

demonstrated the degradability of branched perfluoroalkyl ether carboxylic acids.

Therefore, low-temperature mineralization and degradation of perfluoroalkyl carboxylic acids can be extended to degrade other perfluorinated and polyfluoroalkyl substances, with a fast degradation rate, which is a fundamental solution to the environmental problems of fluorinated substances under mild conditions. The thermal decomposition mechanisms of perfluoroalkyl ether carboxylic acid and short chain perfluoroalkyl carboxylic acid demonstrate the effectiveness of pyrolysis degradation of PFAS. With the advancement of technology, new PFSA degradation methods are constantly innovating, and the durability of PFAS involved in the proposal is no longer an issue.