

Regarding: ANNEX XV RESTRICTION REPORT – Per- and polyfluoroalkyl substances (PFASs)

Information about the High Persistence of PFASs and a new method for Destruction of PFASs

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In the first paragraph under the subheading "Concerns" in the section "Summary" of page 1 of the Annex XV Restriction Report - Per- and Polyfluoroalkyl Substances (PFASs), the following is stated:

“The main concern for all PFASs and/or their degradation products that are in the scope of this restriction proposal is the very high persistence, exceeding the criterion for very persistent (vP) according to Annex XIII of the REACH Regulation by far. PFASs and their degradation products may persist in the environment longer than any other man-made chemical.”

So, the base of the restriction is the high persistence of the said substances.

As I know, there is a new process that can easily make the substances destructed. Herewith is some sentence from the abstract of the article:

“we develop a piezoelectric-material-assisted ball milling (PZM-BM) process built on the principle that ball collisions during milling can activate PZMs to generate ~kV potentials for PFAS destruction in the absence of solvents. Using boron nitride (BN), a typical PZM, as an example, we successfully demonstrate the complete destruction and near-quantitative (~100%) defluorination of solid PFOS and perfluorooctanoic acid (PFOA) after a 2 h treatment. This process was also used to treat PFAS-contaminated sediment. Approximately 80% of 21 targeted PFAS were destroyed after 6 h of treatment. The reaction mechanisms were determined to be a combination of piezo-electrochemical oxidation of PFAS and fluorination of BN. The PZMBM process demonstrates many potential advantages, as the degradation of diverse PFAS is independent of functional group and chain configurations and does not require caustic chemicals, heating, or pressurization. This pioneering study lays the groundwork for optimizing PZM-BM to treat various PFAS-laden solid wastes.”

The Article is “Nanyang Yang, Shasha Yang, Qingquan Ma, Claudia Beltran, Yunqiao Guan, Madison Morsey, Elizabeth Brown, Sujana Fernando, Thomas M. Holsen, Wen Zhang, and Yang Yang □ Solvent-Free Nonthermal Destruction of PFAS Chemicals and PFAS in Sediment by Piezoelectric Ball Milling, Environ. Sci. Technol. Lett. 2023, 10, 198-203
<https://doi.org/10.1021/acs.estlett.2c00902>”