Abstract

Per- and polyfluoroalkyl substances (PFAS) are synthetically manufactured compounds that are associated with negative effects on human health and environmental persistence. This work focuses on textile garments treated with PFAS chemicals and explores potential environmentally friendly alternatives. It has been demonstrated that PFAS chemicals still dominate the market for water-resistant material treatments. However, there are numerous alternatives that could potentially replace PFAS with similar effectiveness and be more sustainable for future generations. Identifying PFAS in textile products is difficult for consumers, complicating efforts to avoid these substances when purchasing clothing. Current methods of disposing of textile garments treated with PFAS, such as landfilling and thermal disposal, have proven problematic and may be ineffective in completely removing these chemicals. The presence of PFAS in clothing poses various challenges not only in terms of circular economy but also in ensuring the safe disposal of these materials. This work recommends the necessary ban of all PFAS substances as a first step towards addressing the entire issue.

Keywords: PFAS, persistent substances, micropollutants, textile, clothing, toxicity, outdoor