Water Technologies & Solutions

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Dear Madam or Sir,

Suez Water Technologies and Solutions (WTS) is a provider of ultrafiltration membranes made of fluoropolymer (PVDF), as well as Polyether Sulfone (PES). We supply our technologies to Water and Wastewater plant constructors and operators in Europe and the rest the world, who are like us, committed to healthier potable water, and water resource protection and sustainability through direct reuse for irrigation, industrial usages, and replenishment of our surface and ground waters.

Suez WTS has also developed and introduced a range of removal and remediation technologies and services to address contamination of PFAS for industrial, military, and municipal sites as described in the Appendix A. This offer is unmatched in ability to be tailored to specific situations at the lowest possible capital and operating expenditure.

We made the decision to contact you directly through this letter in order to provide an explanation of the criticality of both PES and PVDF filtration membranes for water and wastewater treatment which are both essential to our society. WTS manufactures membranes at our factory located in Europe (Hungary) and we are able to provide solutions for different applications and achieve the highest finished water purification, including eliminating pathogens (parasites, bacteria and viruses), micropollutants (such as pesticides, pharmaceuticals, personal care products (PCPs), endocrine disruptors (EDCs)) and microplastics. The WTS PES membrane is used for potable or industrial water production where source water contains low levels of solids and dissolved organic matter (e.g., ground water sources or low turbidity surface water). The WTS PVDF membrane is used for treating municipal sewage and industrial wastewaters and, increasingly, surface water bodies subject to runoff due to Climate Change. These impacted surface waters contain high levels of turbidity and pollutants. PVDF membranes have superior properties that allow them to be used in these challenging applications, whereas PES membranes are not suitable. For this reason, the water and wastewater industry relies on PVDF membranes for these critical applications and considers this polymer to be essential to sustaining a substantial install base of existing water and wastewater treatment plants and to meet the growing need for this advanced treatment solution across Europe and the rest of the world.

Our PVDF membrane characteristics and applications are described in more details in the Appendix B. Our list of references can be found in the Appendix C, detailed by country and essential uses for water and wastewater treatments.

WTS is aware of the concerns raised over certain PFAS compounds. For this reason, it is important for us to highlight the significant differences in the properties between PVDF which belongs to the "polymeric PFAS" group of compounds and the "non polymeric PFAS" type of compounds (e.g., PFOA and PFOS). PVDF has high molecular weight, is insoluble in water and is not able to penetrate human and animal cells. WTS is not aware of any issues raised in regard to the break-down of our PVDF membranes or PFAS compounds leaching from our PVDF membranes throughout our extensive installations of water and wastewater treatment plants. In summary, we see no risks associated with PVDF and to the contrary we see PVDF as necessary in the industrial use of membranes for water and wastewater treatment which is critical to public health and to protecting the environment.
We attached in Appendix D and E two position papers that illustrate more in details the impact of both categories of PFAS and the distinction that should be made between the "Polymeric" and the "Non Polymeric".

We are at your disposal for any questions that you may have before completing your evaluation on PFAS. You can contact:

- Peter Ohle, UF Commercial Leader in Europe, peter.ohle@suez.com
- Nick Adams, UF and RO Global Technology Leader, nick.adams@suez.com
- Eric Landais, Chief Technology Officer, eric.landais@suez.com

Best regards,

Greg Brickett
Vice President
Global ZeeWeed Business Line

Attached Appendices:

- Appendix A: WTS brochure for PFAS remediation and removal,
- Appendix B: Information on WTS PVDF membrane applications, critical properties and impact of transitioning to a non-fluoropolymer alternative,
- Appendix C: WTS installed base in Europe of PVDF membranes,
- Appendix D: A critical review of the Application of Polymer of Low Concerns (Author: Barbara Henry – 30 January 2018),
- Appendix E: A critical review of the Application of Polymer of Low Concerns II (Author S.H Korzeniowski– 5 June 2022).