FAMU-FSU Engineering

FAMU - FSU COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING

Technical Awareness Group (TAG) Meeting No. 2

Monday, August 26, 2024, 2:00 – 3:15 pm Eastern Time
Meeting location: Zoom

Project Title #1: Fate and Transport of PFASs in the Landfill – Impact of the Perfluoroalkyl Chain Length

Project Title #2: Fate and Transport of Volatile PFAS in Bench-Scale Municipal Solid Waste Landfills

TAG Members: Bruce Marvin (Geosyntec Consultants), Chao Zhou (Geosyntec Consultants), Kevin Warner (Geosyntec Consultants), Gary Williams (Florida Rural Water Association), Paul E. Seaver (Palm Beach Springs Water Company Inc.), Sterling Carroll (Florida Rural Water Association), Owete S. Owete (WSP USA), Natalia Soares Quinete (Florida International University), Joseph Dertien (Florida Department of Environmental Protection), Shanin Speas-Frost (Florida Department of Environmental Protection), Walsta Jean-Baptiste (Florida Department of Environmental Protection)

Principle Investigator for Project Title #1: Gang Chen and Scott Washman

Principle Investigator for Project Title #2: Youneng Tang

In Attendance:
Gary Williams, Paul Seaver, Natalia Soares Quinete, Joseph Dertien, Walsta Jean-Baptiste, Owete Owete, Chao Zhou, Bruce Marvin, Kevin Warner, Steven Laux, Dennis Ssekimpi, Mojtaba Nouri Goukeh, Liz Foeller, Youneng Tang, Lin Qi, Gang Chen, and Benhur Asefaw

Project Presentation
The TAG meeting for the two projects started at 2:00 PM. Dr. Chen briefly introduced the background for combining TAG meetings for the two projects. Lin Qi, PhD candidate in Dr. Chen group, presented the research progress and results of project #1. He briefed PFAS background and classification, followed by the research of PFAS fate and transport under saturated and unsaturated conditions. In the presentation, he described PFAS partition to the air-water interface. He noted that solution chemistry, water saturation, PFAS chain length, and PFAS functional groups had impacts on PFAS transport.

Mojtaba Nouri Goukeh, a PhD candidate, presented the second project. He briefed the background about fluorotelomer alcohols (FTOHs), the dominant group of volatile PFAS in environmental settings. For the first task, he studied three categories of volatile PFASs with a focus on 4:2 fluorotelomer alcohol (4:2 FTOH), 6:2 fluorotelomer alcohol (6:2 FTOH), 8:2 fluorotelomer alcohol (8:2 FTOH), and 10:2 fluorotelomer alcohol (10:2 FTOH). He explained 6:2 FTOH was the most detected volatile PFAS in consumer products. For task 2, he discussed PFAS leaching to

gas emissions. For task 3, he discussed the PFAS release mechanisms. He also noted they detected FTOH precursors in textiles, food packaging papers and liquid and semi-liquid products.

Group Discussion

Major comments and suggestions from the TAG members and responses from the research team are as follows:

- One of the TAG members asked the question for project 2: What is the fiber used for 4:2 FTOH measurement? What is the 4:2 FTOH recovery, and What is the detection limit for 4:2 FTOH?

  The research team explained that they used 5-μm Carboxen/Polydimethylsiloxane (CAR/PDMS) fiber (Sigma Aldrich) for the detection of FTOHs. Also, they explained the recovery of 4:2 FTOH was comparable with other FTOHs. The research team explained the detection limit ranged from 10 ng/g to 50 ng/g for volatile PFASs.

- Another TAG member asked the question for project 1: What is the impact of water saturation on PFAS retention and transport?
  The research team explained that owing to the surfactant function of PFASs, PFASs tended to attach to the air-water interface. With the decrease of water saturation, the air-water interface increased accordingly, thus enhancing PFAS retention in the porous media.

- The team members discussed the PFAS detection methods using LC/MS/MS and GC/MS/MS. Owing to the more strict EPA regulations, more advanced detection methods are needed to accurately quantify PFASs in both aqueous phase and gas phase.

The meeting was adjourned at 3:15 PM, minutes taken and submitted by Lin Qi.