Comments about the Recent Reporting of PFAS in Synthetic Turf

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This is my response to the Ecology Center, Public Employees for Environmental Responsibility (PEER), and the Intercept. I am posting this response to provide my colleagues with information to respond to concerns regarding last week's article in the Intercept. Please contact me if you have any questions. Thanks.

Hi,

I have some comments to make regarding your recent testing and reporting of per- and polyfluoroalkyl substances (PFAS) in synthetic turf. Although I have several criticisms of your approach and conclusions, I do support the work that your organizations are doing to keep toxic chemicals out of the environment and to keep our communities healthy.

Over the past decade, I have become an expert on the environmental compatibility of synthetic turf and have developed technical specifications that vendors need to pass to in order to qualify to bid on certain capital projects. My clients include the County and City of San Francisco, the City of Berkeley, and various other field owners. I occasionally do work for manufacturers, but I not an advocate for the turf industry. After I read the Ecology Center's "Testing Carpet for Toxics", I included testing for turf for PFAS using EPA Method 537(M).

Should we be testing carpet and synthetic turf for PFAS? Absolutely. The 2018 Ecology Center report showed that Shaw Philadelphia Commercial Power Up carpet had up to 925,000,000 parts per trillion (ppt) of detected PFAS. As you probably know, most of the carpet in the US is manufactured in Dalton, GA, as is a significant percentage of the synthetic turf. What most people don't know is that the PFAS contamination of surface water in Dalton is some of the highest ever measured. This has been known for over 10 years. It's so bad that downstream utilities in Centre, AL and Gadsden, AL are currently suing Dalton Utilities. The source of the PFAS is almost certainly wastewater from the carpet plants. More information can be found here: https://archive.epa.gov/pesticides/region4/water/documents/web/html/pfcdaltonindex.html

That said, I am concerned about a couple of issues. First, sampling for PFAS is notoriously complicated as the potential for cross contamination is extremely high due to the potential presence of PFAS in personal care products, sampling materials, clothing, food wrappers, etc. Before we collected our first regulatory sample for PFAS in groundwater, we had to develop an extremely rigorous sampling and analysis plan (SAP) to eliminate potential sources of cross

Sampling for PFAS is difficult even for experienced environmental professionals working on projects with large budgets. It's not easy and the cost of screwing up can be very high. The PEER results do not reference a SAP or a quality assurance project plan (QAPP), so I assume that the samples were not collected accordingly. If there was no SAP or QAPP, then it is my opinion that the presented results are not valid and should be recollected by environmental professionals using proper methods. I am therefore concerned that there was cross contamination of the turf sample due to the magnitude of the detected concentrations of PFAS; PFAS was detected in the Shaw carpet at a concentration 1,000,000 times that PEER found in the sample referred to as "NEW ASTROTURF". If there were PFAS-containing surface treatments in the turf sample, the detected concentrations should have been orders of magnitude higher than what was found.
Secondly, the Ecology Center has been using the results of particle-induced gamma ray emission (PIGE) spectroscopy as a screening level analysis for PFAS, but as you know, PIGE detects total fluorine, not specific PFAS compounds. If the PIGE results tracked well with the EPA Method 537(M) results, then ok, but they don't (as discussed in the 2018 Ecology Center report). It is my opinion that PIGE detections should only indicate the potential for fluorine-containing compounds and not specifically for PFAS.

Finally, the Ecology Center presents patents as evidence that manufactures are including PFAS as processing agents in the manufacture of synthetic turf. It is my opinion that this is an incorrect analysis. The patents are referencing the use of polytetrafluoroethylene (PTFE; Teflon) not PFAS. Referencing these patents as such is bad science and potentially libelous.

I urge you to continue your studies, but to perform your sampling, analysis, and reporting a responsible manner.

Regards,

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3 comments

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David makes some good points. A couple of considerations: Synthetic turf is not carpet and is manufactured without exposure to water in most, if not all cases. So even though turf is manufactured in Dalton, PFAS (and PFOA) sources other than Dalton water need to be considered. David makes two important points. 1) Testing for total fluorine does not indicate the presence of PFAS contamination. 2) Testing for PFAS is extremely difficult to do. Cross contamination and background noise are highly likely. Because of this a logical pathway for the presence of PFAS in turf needs to be established before drawing too many conclusions. The presence of PFAS from outside sources needs to be considered as a strong possibility.

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Thank you for sharing your thoughts.

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