

## Communication from Public

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**Date Submitted:** 06/28/2024 06:11 PM

**Council File No:** 24-0602

**Comments for Public Posting:** Dear Council Members, Please see attached letter requesting a ban on artificial turf.

**Dear Council Members,  
Please ban any new or replacement installations of artificial turf.**

There are *many* issues of concern with artificial turf, any one of them alone giving ample reason to ban it outright and choose real turf for functional purposes or any number of natural alternatives for non-functional (ornamental) purposes. But one issue I want to primarily focus on here is PFAS.

The PFAS situation as a whole is extremely complicated but when it comes to artificial turf it's not complicated at all. The artificial turf blades are manufactured with PFAS, simple. (PFAS is required for the extrusion machinery to stop the plastic gunging up.)<sup>1</sup> On top of that, other artificial turf field components are also testing positive for PFAS. The only way to keep these PFAS (and microplastics) in artificial turf systems from entering our environment and our children and to avoid any subsequent astronomical investigation, remediation and litigation costs is to not install artificial turf in the first place. The following broadly addresses some of the main issues with regard to PFAS.

### **What Are PFAS?**

PFAS (per- and polyfluoroalkyl substances) are sometimes referred to as “forever chemicals” because of their persistence in the environment.<sup>2</sup> Some may take more than 1,000 years to break down.<sup>3</sup> Many PFAS are Persistent Bioaccumulative Toxic substances (PBTs) meaning they persist in the environment and they bioaccumulate in the human body and other living beings. So every time artificial turf is installed or replaced, the level of PFAS in the environment increases along with human exposure. PFAS are known to be detrimental to human health and some of those detrimental health effects according to the EPA are:<sup>45</sup>

- Reproductive effects such as decreased fertility or increased high blood pressure in pregnant women.
- Developmental effects or delays in children, including low birth weight, accelerated puberty, bone variations, or behavioral changes.
- Increased risk of some cancers, including prostate, kidney, and testicular cancers.
- Reduced ability of the body's immune system to fight infections, including reduced vaccine response.
- Interference with the body's natural hormones.
- Increased cholesterol levels and/or risk of obesity.

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<sup>1</sup> <https://www.newmoa.org/wp-content/uploads/2023/02/PFAS-in-Artificial-Turf.pdf>

<sup>2</sup> <https://www.turi.org/content/download/12963/201149/file/TURI+fact+sheet+-+PFAS+in+artificial+turf.pdf>

<sup>3</sup> <https://magazine.nd.edu/stories/having-coffee-with-graham-peaslee/>

<sup>4</sup> <https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas>

<sup>5</sup>

<https://www.ewg.org/news-insights/news/2024/04/what-do-new-federal-pfas-drinking-water-standards-mean>

With regard to male fertility specifically, a meta-analysis of over 40,000 men from 1973 to 2011 (covering North America, Europe, Australia, NZ) noted a lowering of sperm count by 59%.<sup>6</sup> Staying on that trajectory, half the men in these Western countries would be infertile by 2045. That's half of today's male youth population. One of the factors tied to this decline in sperm count is exposure to certain chemicals common in plastic including PFAS compounds.<sup>7</sup> A more recent analysis incorporating another 7 years of data lowered the sperm count even further to 62.3%.<sup>8</sup> <sup>9</sup>A statistic like this should be reason enough to at least think very carefully about what we are *unnecessarily* exposing our children to.

Unfortunately the general public are very much unaware of what PFAS are, what the potential health risks associated with them are or that PFAS are in artificial turf systems. The EPA recently uploaded a *very* basic PFAS explainer as part of their effort to educate the public.<sup>10</sup> But it seems lacking. The Explainer states that “*Very little* of the PFAS in water can get into your body through your skin”. What is this definition of “very little”? Very little amounts over a long period is exactly the pathway for chronic toxins which PFAS are.<sup>11</sup>

### Children More Vulnerable to Toxins

Children are more susceptible to environmental pollution exposures than adults because of their size (they are closer to the ground) and play habits (hand to mouth) and the length of time they spend playing. And, because of their developing systems, children and youth are uniquely vulnerable to the effects of that exposure.<sup>12</sup> Children also breathe more air, drink more water, and eat more food per kilogram of body weight than adults. This results in greater exposures per kilogram of body weight to any contaminants in the air, water, or food compared with adults.<sup>13</sup> Vulnerability to chemicals

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<https://pubmed.ncbi.nlm.nih.gov/28981654/#:~:text=Wider%20implications%3A%20This%20comprehensive%20meta.Europe%2C%20Australia%20and%20New%20Zealand.>

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[https://www.epw.senate.gov/public/\\_cache/files/e/a/eea0ad70-3006-409e-ae2e-1e45ac629da0/02FACAE8F235E3FF7AA2E3C45043C2DD.12-15-2022-myers-testimony.pdf?fbclid=IwZXh0bgNhZW0CMTEAAR386gee0xb-Ko3WuolcYqp8hgJmWdButAnOpP9PdvZv5cm6i6a6KFpooSM\\_aem\\_ZmFrZWR1bW15MTZieXRlcw](https://www.epw.senate.gov/public/_cache/files/e/a/eea0ad70-3006-409e-ae2e-1e45ac629da0/02FACAE8F235E3FF7AA2E3C45043C2DD.12-15-2022-myers-testimony.pdf?fbclid=IwZXh0bgNhZW0CMTEAAR386gee0xb-Ko3WuolcYqp8hgJmWdButAnOpP9PdvZv5cm6i6a6KFpooSM_aem_ZmFrZWR1bW15MTZieXRlcw)

<sup>8</sup> <https://academic.oup.com/humupd/article/29/2/157/6824414?login=false>

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[https://nypost.com/2022/11/15/sperm-counts-worldwide-have-plunged-62-in-under-50-years-study/?fbclid=IwZXh0bgNhZW0CMTEAAR0XEgEZt\\_egEzyqZLtFF4w\\_Y3101GT2Yf24odP\\_7EmanjObzj1tfOn9MQA\\_aem\\_AUorSHp6s6u\\_10DIFPH3WV08aXxcUq7eoYSdOISe68LQPNcIkEkhM\\_-eFV5vTu1KwjaZCsjwmDZHuySYvdgVaR](https://nypost.com/2022/11/15/sperm-counts-worldwide-have-plunged-62-in-under-50-years-study/?fbclid=IwZXh0bgNhZW0CMTEAAR0XEgEZt_egEzyqZLtFF4w_Y3101GT2Yf24odP_7EmanjObzj1tfOn9MQA_aem_AUorSHp6s6u_10DIFPH3WV08aXxcUq7eoYSdOISe68LQPNcIkEkhM_-eFV5vTu1KwjaZCsjwmDZHuySYvdgVaR)

<sup>10</sup> <https://www.epa.gov/system/files/documents/2023-10/final-virtual-pfas-explainer-508.pdf>

<sup>11</sup> <https://magazine.nd.edu/stories/having-coffee-with-graham-peaslee/>

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[https://www.atsdr.cdc.gov/csem/pediatric-environmental-health/why\\_children.html#:~:text=Increased%20vulnerability%20results%20from%20children's.especially%20susceptible%20to%20toxic%20insults.](https://www.atsdr.cdc.gov/csem/pediatric-environmental-health/why_children.html#:~:text=Increased%20vulnerability%20results%20from%20children's.especially%20susceptible%20to%20toxic%20insults.)

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<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6982419/#:~:text=Infants%20and%20children%20are%20at.their%20boundless%20curiosity%20and%20oral>

persists through the teen years as the reproductive and nervous systems continue to develop beyond the first two decades of life. Lastly, children have more future years of life over which chronic diseases linked to the chemicals in artificial turf develop.<sup>14</sup>

Environmental pollution damage caused to children can be subtle, devastating and/or permanent, and the latency period for certain effects can be decades. It's not yet known if a mixture of chemicals could be additive or synergistic, multiplying each other's potential effects on children.

The routes of exposure for chemical absorption on an artificial turf field are ingestion, inhalation, ophthalmic absorption and dermal absorption. A recent study highlighted how PFAS on childrens' hands increased after playing on an artificial turf field.<sup>15 16</sup> This study was very small but should be cause for concern and act as a catalyst for much bigger studies.

### **Dr Graham Peaslee on PFAS - "it's all toxic"**

The extent and urgency of the PFAS problem is emphasized by Dr Graham Peaslee, Concurrent Professor of Chemistry & Biochemistry at University of Notre Dame and leading researcher of PFAS in consumer products, who describes PFAS as all "bioaccumulative" and all "persistent," and "as much as we can study, it's all toxic ... so there's no such thing as a good PFAS at this point." Dr Peaslee also said PFAS are "probably" the largest pollution problem facing the U.S. He said the cost associated with cleaning up pollutants like asbestos and dioxin are likely to "pale in comparison." Let's consider that cost a little more. It's not just the financial cost to actually clean up the water, soil and air contamination. There will be medical costs which likely will lead to litigation costs. Ethen Ostroff Law is just one law firm that is waiting in the wings ready to jump on that litigation band wagon.<sup>17</sup> All those costs stem from one thing, the human health cost. The potential "costs" of PFAS pollution from artificial turf are immeasurable.

Another point Dr Peaslee makes is that PFAS are not acute toxins. They are chronic toxins, meaning that the effects of them are from long term exposures.<sup>18</sup> This means that the effects on children playing on artificial turf for years on end may not be realized for some time after (years or even decades).

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<sup>14</sup>

<https://www.tapinto.net/towns/scotch-plains-slash-fanwood/articles/the-children-s-environmental-health-center-of-the-icahn-school-of-medicine-at-mount-sinai-strongly-discourages-the-installation-of-artificial-turf>

<sup>15</sup> [https://peer.org/wp-content/uploads/2024/03/3\\_6\\_2024-Dermal-absorption-PFAS-AT.pdf](https://peer.org/wp-content/uploads/2024/03/3_6_2024-Dermal-absorption-PFAS-AT.pdf)

<sup>16</sup> <https://www.theguardian.com/environment/2024/mar/15/athletes-higher-pfas-levels-artificial-turf>

<sup>17</sup>

<https://ethenostrofflaw.com/artificial-turf-cancer-lawsuit/#:~:text=The%20artificial%20turf%20cancer%20lawsuit,a%20potential%20link%20to%20cancer>

<sup>18</sup> <https://magazine.nd.edu/stories/having-coffee-with-graham-peaslee/>

According to the EPA there are now almost 15,000 PFAS.<sup>19</sup> This number is increasing rapidly as more are discovered. (Consider that in 2020 the EPA had identified 12,039 PFAS). Along with a rise in identified PFAS, health concerns are also rising as more PFAS are studied and toxicities are realized.<sup>20</sup>

### **PFAS Strategic Roadmap: EPA's Commitments to Action (2021-2024)<sup>21</sup>**

The EPA recognises PFAS are huge problem and states in their roadmap : "Every level of government - federal, Tribal, state, and local - needs to exercise increased and sustained leadership to accelerate progress to clean up PFAS contamination, **prevent new contamination**, and make game-changing breakthroughs in the scientific understanding of PFAS". The Earthquakes are in partnership with the local government hence it should be your combined duty to lead the way in this respect. Let's not forget that any PFAS are in the environment as a result of adults' creation. It is our responsibility, as adults, to essentially turn off the tap and clean up this catastrophic mess, not contribute to it more.

The EPA's PFAS Strategic Roadmap goes on to stipulate that textile manufacturing and landfills are two of the six leading contributors to PFAS discharges. Artificial turf *is* a textile and the great majority of it *is* landfilled at the end of its useful "life".<sup>22</sup>

As part of the Roadmap, on February 8, 2024, the EPA proposed adding nine PFAS (PFOA, PFOS, PFBS, GenX, PFNA, PFHxS, PFDA, PFHxA, PFBA) as **hazardous constituents** under the Resource Conservation and Recovery Act (RCRA). "To be listed as a hazardous constituent under RCRA, scientific studies must show that the chemical has toxic, carcinogenic, mutagenic, or teratogenic effects on humans or other life forms. EPA evaluated toxicity and epidemiology data for these chemicals and determined that these nine PFAS compounds meet the criteria for listing as a RCRA hazardous constituent."<sup>23</sup>

Furthermore, on April 10, 2024 the EPA finalized legally enforceable National Primary Drinking Water Regulations for the following PFAS, PFOA, PFOS, PFHxS, PFNA, HFO-DA (GenX) and PFBS (all of which have been found in various artificial turf components) by setting Maximum Contaminant Levels.<sup>24</sup>

<sup>19</sup> <https://www.niehs.nih.gov/health/topics/agents/pfc>

<sup>20</sup> <https://factor.niehs.nih.gov/2020/8/papers/pfas>

<sup>21</sup> [https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap\\_final-508.pdf](https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf)

<sup>22</sup> <https://peer.org/artificial-turfs-big-lie-old-fields-not-recycled/>

<sup>23</sup> <https://www.epa.gov/hw/proposal-list-nine-and-polyfluoroalkyl-compounds-resource-conservation-and-recovery-act>

<sup>24</sup> [https://www.epa.gov/system/files/documents/2024-04/pfas-npdwr\\_fact-sheet\\_general\\_4.9.24v1.pdf](https://www.epa.gov/system/files/documents/2024-04/pfas-npdwr_fact-sheet_general_4.9.24v1.pdf)

In summary, the new enforceable PFAS MCLs and MCLGs are as follows:

PFAS	MCL Goal	MCL	Health Based Water Concentration (HBWC)
PFOS	Zero	4.0 ppt	-
PFOA	Zero	4.0 ppt	-
GenX (HFPO-DA)	10 ppt	10 ppt	10 ppt
PFNA	10 ppt	10 ppt	10 ppt
PFHxS	10 ppt	10 ppt	10 ppt
PFBS	-	-	2,000 ppt
Mixtures Containing Two or More of Gen X, PFNA, PFHxS, and PFBS	Hazard Index of 1	Hazard Index of 1	-

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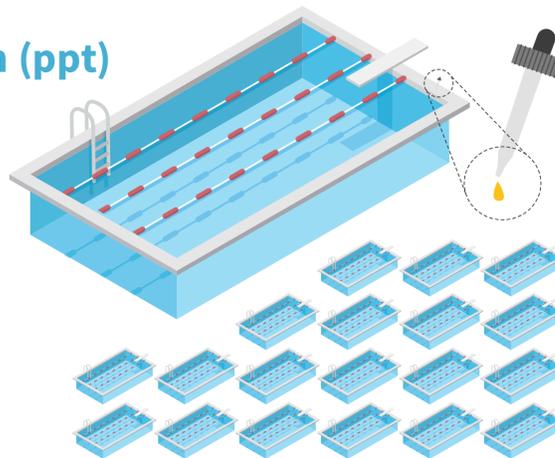
To give parts per trillion some context:

- 4 parts per trillion is equivalent to 0.000004 parts per million
- Texas has 7 trillion square feet. 4 parts per trillion would therefore equal 28 square feet in the entire state of Texas.<sup>26</sup>
- 4 parts per trillion is the equivalent of four drops of water in 20 olympic sized swimming pools.<sup>27</sup>

### 1 part per trillion (ppt)

IS EQUIVALENT TO A SINGLE DROP OF WATER IN

20 olympic-sized swimming pools



<sup>25</sup> <https://www.lathropgpm.com/newsroom-alerts-72747.html>

<sup>26</sup>

<https://www.ewg.org/news-insights/news/2024/04/what-do-new-federal-pfas-drinking-water-standards-mean>

<sup>27</sup>

<https://www.michigan.gov/-/media/Project/Websites/PFAS-Response/Images/PPT-Swimming-Pool.pdf?rev=5104c6f80cc74cf79fcb5e2add3c9088>

Also in April, the EPA designated PFOA and PFOS as hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).<sup>28</sup> (If you've never heard of PFOA, then the Docu-movie "Dark Waters", which follows the true story of lawyer Rob Bilott taking on Dupont, may help with some understanding of the toxicity of this PFAS and industry deception.)

As you can see, the EPA is taking this matter extremely seriously. However, it admitted in the Strategic Roadmap that regulatory efforts do not extend to the other approximately 600 PFAS currently in commerce in the US which gives cause for concern, especially given that scientists are stating the more study that is done, the more harm that is found.<sup>29</sup>

Given that there are around 15,000 PFAS, it would take hundreds, if not thousands, of years to assess risk for all of them which is why an international group of scientists said PFAS are so similar that they should be treated and regulated as a single chemical class, instead of individually, a proposal that could increase the efficiency and effectiveness of efforts to reduce the chemicals' harm to human health and the environment.<sup>30</sup> An example of the cost of not doing this is when PFOA was replaced with GenX (another PFAS) which has proved to be at least as bad, if not worse, than PFOA.<sup>31</sup> We cannot simply replace one PFAS with another unstudied PFAS with unknown risks. The fact that PFAS can change is also reason to treat and regulate PFAS as a group.

### California Proposition 65<sup>32</sup>

The negative effects of a few PFAS have only been proven relatively recently. The PFAS on the CA Prop 65 list (last updated December 2023) are:

Specific PFAS	Type of toxicity	Date listed
● PFOA (Perfluorooctanoic acid)	developmental -	November 10, 2017
● PFOS (Perfluorooctane sulfonate)	developmental -	November 10, 2017
● PFOS (Perfluorooctane sulfonic acid) and its salts and degradation precursors	cancer -	December 24, 2021
● PFNA (Perfluorononanoic acid) and its salts	male reproductive-	December 31, 2021
● PFOA(Perfluorooctanoic acid)	cancer -	February 25, 2022

<sup>28</sup> <https://www.epa.gov/pfas/key-epa-actions-address-pfas>

<sup>29</sup> <https://factor.niehs.nih.gov/2020/8/papers/pfas>

<sup>30</sup> <https://factor.niehs.nih.gov/2020/8/papers/pfas>

<sup>31</sup>

<https://ncnewsline.com/2021/10/26/epa-genx-far-more-toxic-that-originally-thought-could-prompt-nc-to-significantly-reduce-health-advisory-goal/#:~:text=Chemours%20and%20the%20chemical%20industry,many%20other%20types%20of%20PFAS.>

<sup>32</sup> <https://oehha.ca.gov/media/downloads/proposition-65//p65chemicalslist.pdf>

These PFAS have already been found in various artificial turf components. In fact, on May 10, 2024, the Center for Environmental Health (CEH) served Home Depot and Lowes a 60 day notice for violating CA Proposition 65 regarding PFOS in several of their artificial turf products.<sup>33</sup>

More PFAS will inevitably be added. What happens when these PFAS are added and any artificial turf fields are found to contain those PFAS? We “may” get a free pass legally for any fields that are already installed, but does that give you a free pass with our children’s health? Or, will any sports or playfields be like some schools were in New Jersey in 2012, when extremely unsafe levels of lead were found in artificial turf fields. At that time only 5 of 50 schools allowed their fields to even be tested for lead.<sup>34</sup> 45 refused. Basically, it seemed school funds took priority over children’s health. We can’t have this happening again with any type of PFAS (and remember, there are thousands) or any other chemical for that matter.

### **Synergistic Effects**

When PFAS themselves are combined or mixed with microplastics, lead and any other chemicals found in artificial turf systems there are added human health concerns due to the potential synergistic effects of toxins when they are mixed together. Any effects can be exacerbated by years of cumulative exposures. (Recall Dr Peaslee states PFAS are chronic toxins.) The Environment & Human Health Inc. (EHHI) states in a report that: “Chemicals can sometimes act together to cause cancer, even when low-level exposures to individual chemicals might not be cancer causing, or carcinogenic.” This finding was the result of an international task force of 170 cancer scientists known as the Halifax Project.<sup>35</sup> So, even if individual chemicals are below required limits or are even deemed negligible in artificial turf, what happens when different “acceptable” and/or “negligible” chemical amounts are put together? This has yet to be studied and until it is, artificial turf cannot be deemed safe. Add to this the fact that developing children are also much more vulnerable to any of these potential chemical interactions and toxic effects and there is even greater cause for concern. The synergistic effect of exposure to multiple PFAS and other chemicals will likely take years or even decades to be realized. We can’t allow another “lead”, “asbestos” or “smoking” scenario at the expense of our children’s health.

### **PFAS in Artificial Turf**

PVDF HFP (a PFAS) has been named as the PFAS used in the manufacturing of artificial turf.<sup>36</sup> It’s also worth noting that Dr Peaslee has stated that in order to make PVDF HFP other PFAS are used.<sup>37</sup> PVDF HFP, and any other PFAS present, has the potential to leach

<sup>33</sup> <https://oag.ca.gov/system/files/prop65/notices/2024-01833.pdf>

<sup>34</sup> <https://peer.org/lead-limits-needed-on-tire-crumb-playgrounds/>

<sup>35</sup> <https://www.ehhi.org/newturf-release.php>

<sup>36</sup> <https://oakbluffsma.gov/DocumentCenter/View/7715/Kyla-Bennett--Dec-29-2021>

<sup>37</sup> <https://oakbluffsma.gov/DocumentCenter/View/7715/Kyla-Bennett--Dec-29-2021>

off the artificial field components for the rest of the field's useful and unuseful life, exposing the environment and players to their toxicity even if in the most minute amounts (more on minute amounts later). As the situation stands right now, the only way to guarantee no health risk or environmental pollution risk from artificial turf is to not install it. It's really that simple. PFAS are a huge environmental concern and by extension a human health concern.

I've heard it said that the EPA doesn't deem the PFAS (PVDF HFP) used in the manufacturing process as a PFAS. I have found no verification of this. What I have heard some say is that PVDF HFP is not a PFAS of "concern". But, as with many PFAS, PVDF HFP is perhaps not a PFAS of concern *yet*, because research is scant. The grave issues with certain PFAS have only come to light in recent years and it seems the more scientists learn the more complicated and concerning it gets. Relating this specifically to artificial turf, there is suspicion that PVDF HFP, under certain conditions, may break down to form PFOS (a *very* toxic PFAS).<sup>38</sup> In fact one PVDF-HFP Safety Data Sheet dated 09/14/21 states PVDF HFP is stable **at room temperature**. (Even cork infilled fields easily reach 170F nevermind tire crumb rubber or other polymer based infills). The SDS also stated "to the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated". *There was also no ecological information*.<sup>39</sup>

The artificial turf industry then claims that PVDF HFP is not a PFAS of concern since it is used in the likes of cardiac stents. Is a continually degrading 80,000 square feet artificial turf field system with an approximately 40,000 lb plastic carpet<sup>40</sup> laced in PVDF HFP smothering soil and leaching into the ground and storm water and the greater environment the equivalent of extremely small life saving stents that are contained in a person's body? This is beyond comparing apples to oranges.

However, PVDF HFP is not the only PFAS of concern when it comes to artificial turf. To date, a list compiled by Safe Healthy Playing Fields Inc, with information obtained from public records, has found the following PFAS present in various artificial turf components and plant based infill:

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<sup>38</sup> <https://www.eenews.net/articles/our-community-has-been-deceived-turf-wars-mount-over-pfas/>

<sup>39</sup> <https://nontoxicdovernh.wordpress.com/2021/12/11/artificial-turf-producers-admit-using-pfas/>

<sup>40</sup> <https://peer.org/artificial-turfs-big-lie-old-fields-not-recycled/>

- D2-N-EtFOSAA
- D3-EtFOSA
- D9-EtFOSE
- 6:2 FTS
- 6:2 FTSA
- 7:3 FTCA
- 8:2 FTOH
- 12C2-4:2 FTS
- 13C2-6:2 FTS
- 13C2-8:2 FTS
- GenX
- D3-MeFOSA
- D3-N-MeFOSAA
- D7-N-MeFOSE
- MTP
- PFBA
- PFBS
- PFDA
- PFHpA
- PFHxA
- PFHxS
- PFNA
- PFOA
- PFOS
- PFPeA
- PFPrA
- PFTTrDA
- PMPA
- PPF acid
- PTFE
- PVDF
- R-EVE

The PFAS that are in artificial turf systems are leaching off these fields for their entire existence from manufacture, throughout use to site of disposal. If you question whether this is an issue on a field, consider that a typical warranty specifies that 50% blade loss over the warranty period (generally 8 years) is acceptable. Where do those PFAS laced micro and nano plastic blade pieces go? Given the sheer size of sports fields (around 2 acres), that is a lot of disintegrating microplastics and PFAS that end up in the environment somewhere and potentially in our children.

### **PFAS Concentrations and Artificial Turf**

One field is said to contain between .454 to 17 kgs of PFAS.<sup>41</sup>

Dr Graham Peaslee in a recent webinar provided a “back of the envelope” estimate (his expertise means it’s a fairly educated estimate). Taking into account the EPA regulatory limit of 4ng/kg for PFOA and PFOS, just 12 mg of PFAS leached from one soccer field per year is enough to pollute 800,000 gallons of run-off.<sup>42 43</sup> This sounds innocuous BUT consider that one teaspoon is about 5,000 mgs. Then re-consider that just 12 mgs of PFAS can contaminate 800,000 gallons of water. Then consider that PVDF HFP (used in artificial turf blade manufacturing) is suspected of changing to form the very toxic PFOS.

PFAS research is ongoing, but while it’s ongoing, we should not be using our kids as guinea pigs. The same young, impressionable eyes that can absorb toxins are also watching us. We are under their microscope. So we’ve got to set a good example for them and care for their short and long term health as well as that of their environment. We’ve got to do whatever it takes to make that happen. As adults we have a duty of care to do so.

<sup>41</sup>

<https://beyondpesticides.org/dailynewsblog/2024/03/synthetic-turf-fields-forever-chemicals-and-the-safer-alternative-organic-grass/>

<sup>42</sup> <https://www.youtube.com/watch?v=i8xlCA9M8hl>

<sup>43</sup> <https://bruceshermanforanc.org/>

## Artificial Turf Industry “PFAS Free” Claims

Be weary of artificial turf manufacturers stating their product has no PFAS which they often do. No artificial turf carpet independently tested has been found to have no PFAS. As a consumer we expect no PFAS to mean there are no PFAS in the products at all. But here’s what is often behind industries’ supposed no PFAS claims:

- Testing for only a hand full of PFAS (even though testing is available for around 80 now)<sup>44</sup>
- Using tests appropriate for water and not solids
- Not testing for Total Organic Fluorine (which indicates if any of the other thousands of PFAS are present without being able to identify which specific PFAS they are).
- Not testing to high enough concentrations (parts per million rather than parts per trillion)
- Not performing the Synthetic Precipitation Leaching Procedure to more accurately assess the release of PFAS overtime as the product degrades (as it would on the field with exposure to the elements, aging, abrasion etc.)
- Claiming there are no intentionally added PFAS even though PFAS are intentionally added to the manufacturing process and come in direct contact with the product
- Using CA Proposition 65 compliance (even though this only accounts for 3 PFAS to date)
- Claiming the chemical (PVDF HFP) used in artificial turf is not a PFAS according to the EPA
- Not testing for PVDF HFP at all (even though it is used in the manufacturing process)

If a manufacturer states they can *now* make a PFAS free artificial turf carpet (an admission in itself that PFAS is used) like Tencate did this year, ask the manufacturer to provide extensive, independent testing to substantiate this claim. Ask them to be transparent about their definition of PFAS free. And then get all the other proposed components that will be married into the artificial turf system tested bearing in mind that various infills and shockpads have also been proven to contain multiple PFAS.

Why does the above matter? Because only a handful of PFAS have been studied and right now the *great* majority of PFAS (thousands upon thousands) can not even be individually identified as no testing method has been developed for them yet. These thousands of PFAS are unknown quantities. Even many of the 80 or so that can now be identified through testing haven’t been extensively studied, Given that the PFAS that have been studied so far have been found to be detrimental in some way or another this should be reason enough to not be putting *any* PFAS in our playing fields. Especially when these are unnecessary playing surfaces due to the fact that there is a viable natural alternative, that being real turf.

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<https://www.eurofinsus.com/environment-testing/resources/webinars/pfas-forensic-tools-tof-top-assay-and-non-target-analysis-part-4/>

## **On the Subject of Chemicals**

Artificial turf proponents often hone in on the chemicals used on turf such as pesticides and fertilizers. What they fail to mention is that for a properly managed field these concerns can be avoided. What they further fail to address is that artificial turf itself IS chemicals. It's hundreds if not thousands of chemicals when you take into account the different components that make up an artificial turf field. In reality there are around 16,000 plastic chemicals of which 4,200 are deemed hazardous of which 3,600 are unregulated.<sup>45</sup> Add to that, all the chemicals that can typically be used to maintain these fields. Anything from cleaners, solvents, anti-statics, biocides, pesticides, fungicides (yes these are required at times) etc. Many of these chemicals are likely stored in fluorinated plastic containers which leach PFAS into the liquid contents providing a further pathway for more PFAS to pass through these fields into the groundwater and greater environment. Even if every component of artificial turf truly contained zero PFAS, it is still fundamentally a *petrochemical* plastic polluting product.

## **“Background Levels”**

If you hear someone referring to “background levels” of PFAS as justification for artificial turf that is not just flawed, it's dangerous. “Background level” *implies* that any PFAS that are already in the environment are there naturally. They are not. PFAS were not naturally occurring. They were created by man and therefore wherever they have ended up is as a result of that creation. Any more PFAS that are added to a location is only going to increase this so-called “background” level of PFAS.

## **PFAS and Microplastics are Everywhere?**

Artificial turf proponents argue that PFAS are everywhere. The sports fields, public and school playgrounds, commercial and residential yards that do not yet have artificial turf do not necessarily have PFAS and microplastics *yet*. Sports fields, playgrounds, school fields, front and backyards are some of the few surfaces that children are exposed to that should not, and need not, be smothered in petrochemical plastics or PFAS. And it's perhaps the most important in that it's where the young developing children exert themselves with strenuous exercise and play. Sports fields and playgrounds for children are essential but only if these surfaces are safe and healthy, otherwise it defeats the purpose. We need to keep functional surfaces real turf.

Are PFAS in many things? Absolutely. But the world is only just waking up to the PFAS issues and it's coming down to essential uses and non-essential uses. Artificial turf is a non-essential, unnecessary product. Also, many other large corporations acknowledged the issues with PFAS some time ago and have either already phased out PFAS or are being

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<sup>45</sup> [https://www.cnn.com/2024/03/14/health/toxic-unregulated-chemicals-report-wellness?cid=ios\\_app](https://www.cnn.com/2024/03/14/health/toxic-unregulated-chemicals-report-wellness?cid=ios_app)

proactive and removing PFAS from their products. Starbucks, McDonalds,<sup>46</sup> Yum Brands, Lululemon, LL Bean, Patagonia, etc.

## Infills

The great majority of fields still have tire crumb rubber infill. These are tires that are too hazardous to go into landfill and yet it's OK to grind them up and put thousands upon thousands of pounds into each sports field for children to play on. (Roughly 400,000 lbs for each regulation size soccer field). As these artificial fields degrade, children are literally playing on tire crumb and tire dust. Manufacturers have been trying to come up with alternative infills but at the end of the day there is no "good" infill. All infills either have environmental, maintenance, financial, practical or health and safety issues. Infills, including natural infills like BrockFILL, are also testing positive for PFAS.

It is mind boggling to think how much money, time and resources have been invested in developing infills and carpets in trying to make plastic turf do what real turf does easily. Plastic will never be real turf. Imagine what could have been achieved if all those resources had simply been poured into real turf playing fields for kids.

## BrockFILL

Since BrockFILL, a plant sourced infill and perhaps one of the least bad of the infill choices, is often considered as a potential infill option, I've attached a maintenance guide for this product. To achieve a comparably playable high use field, the guide indicates the amount of maintenance required will likely be similar to a turf field and notice the requirement for rinsing the field, suggesting you should also be looking at installing irrigation even if the fields are artificial turf. Brock also state there is less migration of the infill when it is hydrated.<sup>47</sup> The point is, why not just use real turf.

With regard to PFAS in BrockFILL, a February 2021 report found several PFAS in BrockFILL along with indiscernible organic fluorine compounds.<sup>48</sup> This report went on to state that if the artificial turf field was subject to specific oxidizing conditions, precursor PFAS compounds may be present that could transform into other PFAS compounds (suggesting other PFAS compounds which cannot yet be identified may occur). The report continually states "no significant risks from PFAS can be identified based on *available data and regulatory standards*", and it concludes with this final sentence. "*However, the understanding of PFAS detection and risk are limited for the vast majority of PFAS compounds, and certainty in such as assessment is not possible at this time.*" As a parent

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<sup>46</sup>

<https://toxicfreefuture.org/mind-the-store/retailers-committing-to-phase-out-pfas-as-a-class-in-food-packaging-and-products/>

<sup>47</sup> <https://www.brockusa.com/athletes-matter-brockfill/>

<sup>48</sup>

<https://www.npsk.org/cms/lib/MA01907678/Centricity/Domain/1356/Tetra%20Tech%20Report%20MVRHS.pdf>

and consumer this brings me little comfort knowing how much progress there has been in the discovery and research of PFAS since the report was released and the negative health and environmental effects that have been exposed as a result. Recall the EPA imposed stringent PFAS limits in drinking water just this April.<sup>49</sup> Again, the point is why not just use real turf.

After realizing there is no “good” infill, some default to the more economical option of tire crumb rubber, but consider the following: Recent studies have indicated that “the risk of cancer associated with children who play over recycled tire rubber surfaces is 10 times higher than in uncovered surfaces”.<sup>50</sup> And perhaps also consider Amy Griffin’s List.

### **Amy Griffin’s List<sup>51</sup>**

In 2009, soccer coach Amy Griffin (now Associate Head Coach at Washington University) began compiling a list of young soccer players she knew who played on tire crumb fields and developed cancer. Two of the graphs (shown below) breakdown these almost 300 cancer cases into years of play and position played. Amy doesn’t claim this list is scientific. In fact, Amy herself is astounded that nothing more scientific has been done yet.<sup>52</sup> One would think this list would be reason enough for extensive research to begin and for extreme caution and precautionary measures to be taken in the meantime.

In 2017, when Amy’s list was at 53 players, the Washington State Department of Health (WSDH) released a 90 page report “debunking” this list . That WSDH report misleadingly assumed Amy Griffin’s list represented *all* sports players with cancer that had played on tire crumb. The WSDH did not consult the cancer registry or the Washington youth soccer registry to build a bigger more scientific picture, and it did not distinguish between elite and recreational soccer players who have very different amounts of time on the field. Essentially, The Washington State Department of Health’s report debunking Amy Griffin’s List was itself denounced by leading epidemiologists.<sup>53</sup>

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<sup>49</sup> [https://www.epa.gov/system/files/documents/2024-04/pfas-npdwr\\_fact-sheet\\_general\\_4.9.24v1.pdf](https://www.epa.gov/system/files/documents/2024-04/pfas-npdwr_fact-sheet_general_4.9.24v1.pdf)

<sup>50</sup> <https://www.sciencedirect.com/science/article/pii/S0048969722065846?via%3Dihub>

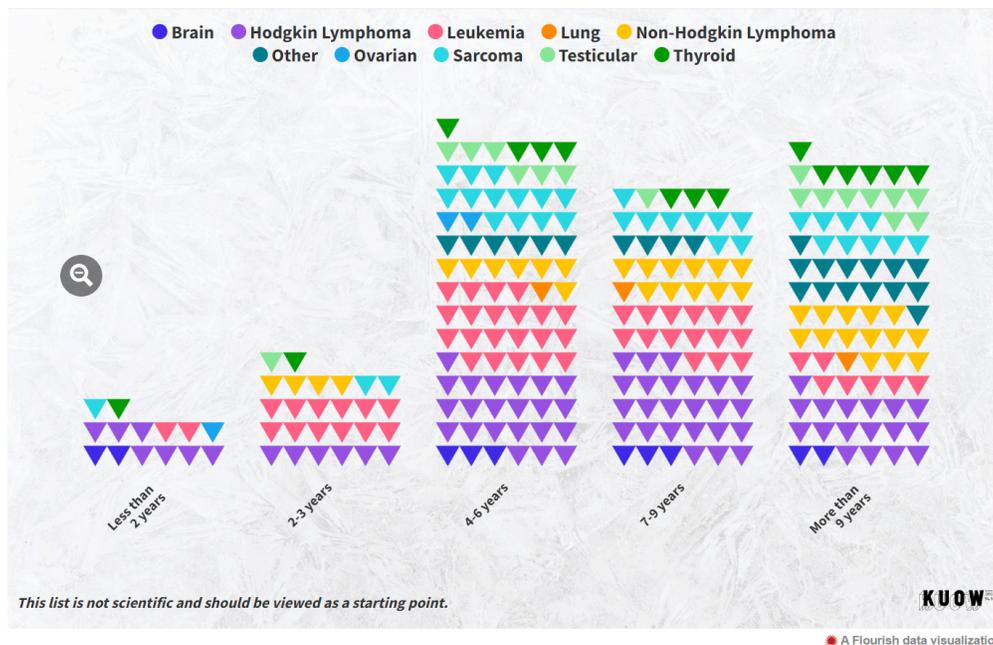
<sup>51</sup>

<https://www.kuow.org/stories/does-playing-soccer-on-artificial-turf-increase-cancer-risk-especially-in-kids>

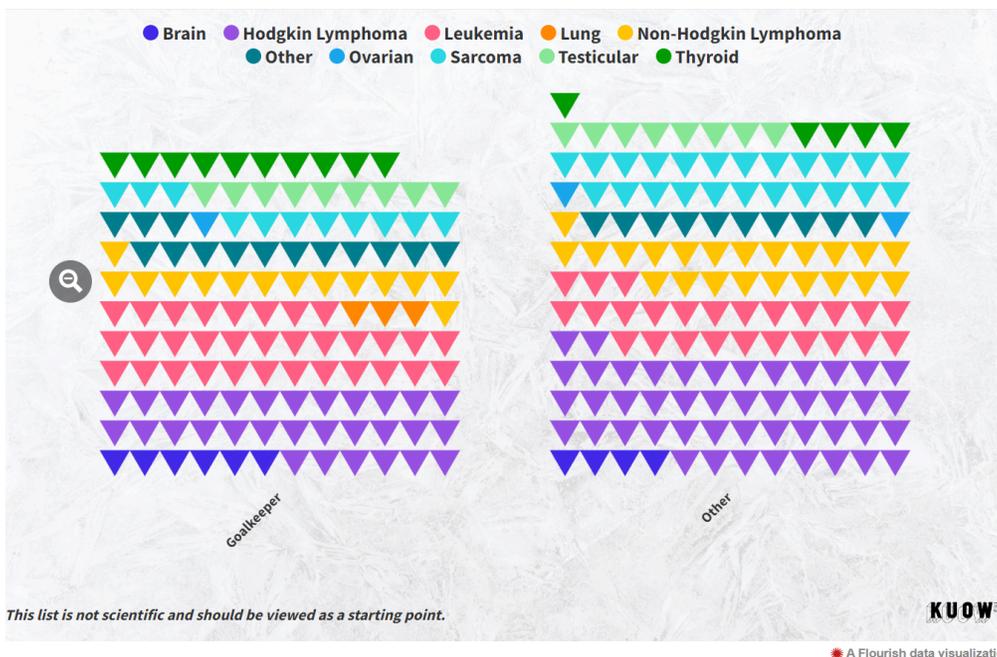
<sup>52</sup> <https://zerowasteithaca.org/artificial-turf/>

<sup>53</sup> <https://zerowasteithaca.org/artificial-turf/>

← → Players were asked to estimate **how many years** they played on crumb rubber turf.  
3 of 4



← → Players were asked what **position** they played on crumb rubber turf.  
4 of 4



Another assumption that has been made with Amy Griffin’s List is the potential cancer and tire crumb association. What if it’s not just the tire crumb? What if PFAS (or other

microplastics) are contributing? The amount of resources it would take to establish this either way is phenomenal and not likely to happen any time soon. A lead, smoking or asbestos scenario is more likely, which means it will be too late. In the meantime, our kids should not be playing on these fields and essentially being guinea pigs.

### **Synthetic Turf Council (STC) and the Federal Research Action Plan (FRAP) Report on Tire Crumb Rubber**

To be clear, tire crumb rubber is absolutely NOT the only issue with artificial turf as some industry proponents claim. However, on the subject of tire crumb rubber, this year in April, the EPA released Part 2 of a Federal Research Action Plan (FRAP) report which studied Recycled Tire Crumb Rubber Exposure Characterisation.

The Synthetic Turf Council (STC) jumped on this report claiming it verified that artificial turf was safe. Melanie Taylor, President and CEO of the STC, stated "We thank the EPA for the dedication and time that went into this report and are pleased to see it reaffirms what other research has shown: ***synthetic turf and its system components are safe***,"<sup>54</sup> An uninformed consumer could easily believe this blanket statement, but this statement is misleading and here are just a few reasons why:

- Both parts were a study of tire crumb rubber only (**NO other components or infills**)
- Part 1, (just the Tire Crumb Rubber Characterization part) released in July 2019, only studied tire crumb rubber to F140 degrees. (Wholly insufficient given artificial fields with tire crumb rubber easily reach F180 degrees an average day and F200 and over on a hot day.)
- Part 1 did not take into account that children have higher exposures and are uniquely vulnerable to even low levels of toxins
- The study itself stated: "*What is this report and what is it not... Part 1 provides tire crumb rubber characterization research results that provide greater insight into potential human exposure to chemicals present in the material. Neither Part 1 nor Part 2 of this study, separately or combined, will constitute a human health risk assessment of playing on synthetic turf fields with tire crumb rubber. The results of the research described in the final versions of both Part 1 and Part 2 of this study can inform future risk assessments.*"
- What Dr Kyla Bennett, PEER had to say about Part 1, "Unfortunately, this report is just the latest example of EPA abdicating its public health responsibilities."<sup>55</sup>
- Part 2, the Exposure Characterization, only studied a few chemicals

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<sup>54</sup>

<https://www.syntheticurfCouncil.org/news/670312/STC-Statement-on-EPA-Report-Reaffirming-Safety-of-Synthetic-Turf-Fields-Using-Crumb-Rubber-Infill.htm>

<sup>55</sup> <https://peer.org/epa-fumbles-artificial-turf-science/>

- Part 2 only had a very small subject pool (which I believe did not include small children).
- Jeff Gearhart of the Ecology Center stated Part 2 of the study basically admits to not doing what it set out to do. Deep within Part 2 of the study it states:  
*"the data was not adequate to support exposure modeling approaches"*  
*"there was limited or no data for some of the important parameters needed to estimate exposure for athletes using synthetic fields with tire crumb rubber"*  
*"there are a large number of chemicals substances associated with tire crumb rubber infill that have not been included in exposure assessments. Lack of certainty and identification of many of these chemicals and lack of measurements inhibit a more complete cumulative exposure assessment"*
- **NO PFAS were analyzed in either Part 1 or Part 2 of the study.** (The FRAP study itself was requested by the Obama administration in 2016 which was before PFAS were discovered in artificial turf by Jeff Gearhart and Dr Kyla Bennett in 2019. Part 1 was also released before the PFAS discovery.)

### Can Consumers Trust the Artificial Turf Industry?

Given that the STC is misrepresenting the value of the FRAP report mentioned above, how much can we trust the artificial turf industry as a whole? Here are a few points to ponder:

- The artificial turf industry is a multibillion dollar industry driven by profit and growth.
- The industry has tried to hi-jack the term "turf" to represent its fake product leaving consumers confused.<sup>56</sup> This is where the greenwashing begins. Transparency was left behind when they ditched the original brand name "ChemGrass" (short for chemical grass) which was a product of ChemStrands a subsidiary of Monsanto (yes, *that* Monsanto).<sup>57</sup> It's not hard to figure out why they rebranded but a change of name does not change the fact that the product is indeed *chemical grass*.
- FieldTurf, a major leader in artificial turf products, have sold defective products in the past but, more concerningly, continued to sell these products knowing they were defective.<sup>58,59</sup>

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<sup>56</sup>

[https://www.google.com/search?q=turf+definition&og=turf+definition++&gs\\_lcrp=EgZjaHJvbWUyCggAEFUYFhgeGDkyCAgBEEUYJxg7MggIAhBFGCcYOziHCAMQABiABDIHCAQQABiABDIHCAUQABiABDIGCAYQRRg8MgYIBxBFGEHSAQg0NTI5ajBqNKgCALACAQ&sourceid=chrome&ie=UTF-8](https://www.google.com/search?q=turf+definition&og=turf+definition++&gs_lcrp=EgZjaHJvbWUyCggAEFUYFhgeGDkyCAgBEEUYJxg7MggIAhBFGCcYOziHCAMQABiABDIHCAQQABiABDIHCAUQABiABDIGCAYQRRg8MgYIBxBFGEHSAQg0NTI5ajBqNKgCALACAQ&sourceid=chrome&ie=UTF-8)

<sup>57</sup> <https://www.sciencehistory.org/stories/magazine/turf-wars/>

<sup>58</sup>

<https://www.nj.com/middlesex/2023/08/nj-federal-judge-oks-class-action-suit-against-top-field-turf-company.html#:~:text=%E2%80%9CFrom%20the%20moment%20FieldTurf%20began,undercut%20by%20its%20Own%20testing.>

<sup>59</sup>

<https://www.nbcwashington.com/news/local/turf-company-knowingly-sold-defective-unsafe-product-lawsuit-says/176687/>

- The artificial turf industry misleads communities with PFAS free claims.<sup>60</sup> Eg. testing for only 30 without testing for the presence of others,<sup>61</sup> testing to low detection limits or not assessing how the components will leach PFAS over time with degradation.
- The artificial turf industry will argue there are no “intentionally added” PFAS in their products even though they know PFAS are intentionally added to the manufacturing process and will remain in the end product.
- The artificial turf industry is, at present, self-regulating. So, every time we simply take them at their word, they, and their products, are left unchecked. (Products that our kids are exposed to day after day, year after year.)
- Because the artificial turf industry is not regulated they can essentially hide ingredients under "confidential business information". (Which has left independent scientists and researchers having to waste consumer money, time and resources reverse discovering PFAS in artificial turf.)
- The artificial turf industry has fought regulation. The Synthetic Turf Council (STC) fought to have artificial turf removed from the CA Department of Toxic Substances Control’s 2021-23 Priority Product Work Plan for the CA DTSC’s independent study and potential regulation. The STC did not succeed, and artificial turf is currently being analyzed by the CA DTSC which is likely to lead to regulation. Will fields currently installed meet future regulations and be safe for our children and their environment?
- The consultant that the STC hired to help fight this study and regulation by the CA DTSC is the same consultant brought in by the artificial turf industry (Verde Design) to school district board meetings to allay any fears of artificial turf safety. Conflict of interest?
- The artificial turf industry denied PFAS were used in their products for the longest time<sup>62</sup> even when independent testing proved PFAS were in the plastic carpets as reported on October 8, 2019 by Dr Kyla Bennett (Director of Science Policy - Public Employees for Environmental Responsibility (PEER) and previously employed at Environmental Protection Agency (EPA)).<sup>63</sup> Eventually the industry had to admit PFAS were used as an extrusion aid in the blade manufacturing process. (More on that later.)

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<sup>60</sup>

<https://nontoxicdovernh.wordpress.com/2022/06/16/multiple-pfas-found-in-portsmouths-pfas-free-synthetic-turf-field/#:~:text=After%20the%20field%20was%20installed,their%20consultants%20rejected%20the%20evidence>

<sup>61</sup>

<https://hopnews.com/where-did-the-pfas-in-hopkintons-water-come-from/#:~:text=%E2%80%9COur%20community%20has%20been%20deceived,was%20%E2%80%9CPFAS%2Dfree.%E2%80%9D>

<sup>62</sup>

<https://www.cityofportsmouth.com/sites/default/files/2020-03/MET%20PFAS%20Statement%20Fieldturf.pdf>

<sup>63</sup> <https://peer.org/toxic-forever-chemicals-infest-artificial-turf/>

- Documents from 3M (a PFAS manufacturer) recommend up to *1,000 parts per million* of such PFAS compounds to aid in the type of processing which is used for the artificial turf blades.<sup>64</sup> (that's 1,000,000,000 parts per trillion)
- The artificial turf industry fought California Assembly Bill 1423, which would have limited PFAS in artificial turf systems and protected our children. The bill passed through legislature but was vetoed by Governor Newsom in 2023, not because he didn't agree with it but because it didn't incorporate regulatory oversight. So the matter was passed to the CA Department of TOXIC Substances Control since they are already studying artificial turf with a mind to regulation. Whether through another Bill or the CA DTSC, regulations are coming. What if products don't meet these regulations? Regulations may give presently installed fields an "out" but does that change the fact that you may potentially have fields that are deemed unsafe for our children?
- Even the artificial turf PFAS limit of 20 parts per million (ppm) proposed in AB1423 is high and equates to 20,000,000 parts per trillion (ppt). For some PFAS, harm can occur with as little as 4 ppt (0.000004 ppm) which is the amount that the EPA is now enforcing for PFOA and PFOS in drinking water.
- The artificial turf industry lobbyist, in attempting to increase the AB1423 proposed PFAS limits for artificial turf to 100 ppm, referred to "environmental" PFAS in the same way that the industry refers to "background" PFAS as a way to mislead the government members and downplay the PFAS content of artificial turf products.
- Not only was the lobbyist pushing for higher concentrations of PFAS in AB1423 but he was also trying to push the starting dates out, stating there was not time for the industry to find suitable PFAS replacements. Firstly, they've had decades to be proactive about this and secondly, that was an admission of the very PFAS content and levels that they had denied for so long.
- To defend their own use of PFAS the artificial turf industry argues that PFAS are in many things. This is not justification to pollute unnecessarily. The broader PFAS issue has only recently come to light and the hammer is coming down on all polluters. (And lawsuits are stacking up in all directions.)
- Industry falsely claims the products are recycled. There is no evidence artificial turf is truly recycled at scale. Some is repurposed but the great majority is landfilled or burnt (burning is not recycling and creates air pollution). So every installed field will release PFAS and plastic pollution throughout its hundreds of years of useless existence as well.
- Even if artificial turf was recycled, this would be recycling and potentially increasing the load of any PFAS content in the products that result from each subsequent round of manufacturing.
- An artificial turf consultant stated that the PFAS they use in manufacturing, PVDF-HFP, is harmless and stable but there is suspicion that PVDF-HFP may

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<sup>64</sup> <https://www.eenews.net/articles/our-community-has-been-deceived-turf-wars-mount-over-pfas/>

change into a harmful PFAS (PFOS) with UV exposure. And we know from the Safety Data Sheet it is only stable at room temperature.<sup>65</sup>

- A letter from FieldTurf dated October 25, 2019, promised the Portsmouth City Council that their products were “free of PFAS, PFOS and fluorine”. But, AFTER installation, it was discovered they were not. Why did FieldTurf mislead consumers and claim PFAS free when FieldTurf knew full well what consumers meant by PFAS free and they knew PFAS was used in the manufacturing process?
- On November 8, 2021, whilst one artificial turf industry hired consultant was telling the Los Gatos Union School District Board and community the PFAS issue was “not real, it’s not an issue” another on the east coast was finally admitting for the first time (maybe accidentally?) that PFAS were used in the blade manufacturing process.
- Is it a coincidence then that, after the November 8, 2021 disclosure by Dr Green, the German manufacturer released Safety Data Sheets in December 2021 confirming PVDF-HFP was used in manufacturing.<sup>66</sup> These SDS’s were actually dated 08/21/2018 and 05/28/19 (originally 07/16/18 for the latter), ie.well before the manufacturers eventual admission.
- The artificial turf industry greenwashes their own products while hinging on, and exaggerating natural grass issues of the past. Whilst artificial turf has developed over time, so have real turf types, management practices and technologies. The difference is that developments in artificial turf usually means even more chemicals.
- Once the artificial turf industry gets a foot in the door it’s nearly impossible to get it out. Consumers get trapped into replacements every 8 to 10 years at prices dictated by industry. When trying to convert back to turf, the industry will emphasize the cost, the amount of trucks required to remove everything, and the effort required to remediate the soil. All those trucks and work are required in reverse to install artificial turf in the first place and yet this is never emphasized when industry is promoting their own product. Why not just avoid all the truck loads and effort, avert worry and litigation risks and leave the soil with real turf?

Unfortunately, what seems to be consistently overlooked by artificial turf proponents and decision makers are all the environmental and health benefits that well maintained (ideally organically managed) real turf sports and play fields provide for functional applications. Properly maintained real turf:

- **Provides equitable access to healthy fields for 1000's of athletes**
- **Naturally cools environment by evapotranspiration**
- **Produces oxygen and improves air quality**
- **Reduces pollution by sequestering carbon**
- **Cleans air by trapping dust/dirt/pollen**
- **Reduces glare and light reflection**

<sup>65</sup> <https://nontoxicdovernh.wordpress.com/2021/12/11/artificial-turf-producers-admit-using-pfas/>

<sup>66</sup> <https://nontoxicdovernh.wordpress.com/2021/12/11/artificial-turf-producers-admit-using-pfas/>

- Absorbs sound
- Filters stormwater
- Reduces flooding
- Breaks down organic chemicals
- Breaks down organic matter reducing thatch
- Stabilizes soil and reduces erosion with root system
- Facilitates biodiversity over and under ground
- Reduces risk of heat, non-contact, and concussion injuries
- Promotes wellness - calms the mind, reduces stress induced muscle tension
- Builds an understanding and appreciation of nature
- Does not leach microplastics or PFAS to the environment

Dan Sawyer, CEO of Brock, the manufacturer of BrockFILL has stated “all athletes prefer natural grass” and “natural turf will always outperform, on on a pretty significant level, the safety values that you get, when you compare it to synthetic turf,”<sup>67</sup> AstroTurf, an artificial turf industry leader, also recognizes that real turf is the gold standard.<sup>68</sup> But these statements are generally meant in the context of injury and performance. What is being forgotten about is the gold standard in environmental and human health as listed above. Our kids’ health deserves this holistic gold standard.

In contrast, artificial turf pollutes water,<sup>69</sup> soil, air, humans and wildlife for its entire existence from manufacture through use to disposal site. The more artificial turf claims it can do, the more chemicals it has. This is why, when artificial turf is being considered, it is of paramount importance to ensure that the entire artificial turf system (including the carpet blades, backing, infill, base/pad, field paint etc.) is tested correctly and comprehensively to prove no PFAS are present in order to ensure our children and their environment will not be exposed to PFAS unnecessarily both now and into the future. The health of the environment and human health are intrinsically and inextricably, This fact is inescapable. And when it’s realized that there is no PFAS free artificial turf, turf should be the only choice.

### **Functional Artificial Turf and Water. A water “saver”?**

Specifically regarding water, if you hear artificial turf saves water, does it? Consider the holistic picture regarding functional applications of artificial turf:

- Responsibly managed artificial sports fields require irrigation installed for safer play (cleaning, cooling, reducing friction) and to extend life of the field.
- In heat a comparably playable artificial field requires more water than a natural turf field.<sup>70</sup> (California is hot and getting hotter!)

<sup>67</sup> [https://www.youtube.com/watch?v=zpm0w\\_qTUVU&t=77s](https://www.youtube.com/watch?v=zpm0w_qTUVU&t=77s) (15:47) (5:13)

<sup>68</sup> <https://astroturf.com/astroturf-the-story-behind-the-product-that-revolutionized-sports-surfaces/>

<sup>69</sup> <https://calmatters.org/environment/2023/10/california-synthetic-turf-pfas/>

<sup>70</sup> [https://www.researchgate.net/publication/343639132\\_Water\\_Requirements\\_for\\_Cooling\\_Artificial\\_Turf](https://www.researchgate.net/publication/343639132_Water_Requirements_for_Cooling_Artificial_Turf)

- The amount of water used just to produce a regular sized soccer field is estimated to be \$7.5 million gallons.<sup>71</sup>
- Plastic turf requires potable water
- Any water involved in the manufacture, use or final disposal place (generally landfill) of plastic turf gets contaminated with microplastics and PFAS. (Remember, A typical soccer field is estimated to leach 12mg of PFAS per year which is enough to contaminate 800,000 gallons of water (based on the EPA regulations of 4ng/kg for PFOS and PFOA.)

**Does this bigger picture suggest a water “saving”? Artificial turf uses and requires water and what it does use it pollutes. This is just one more reason why artificial turf should be banned. We must protect our water in order to protect our children and future generations.**

### **Mitigation? (Our kids are the filters!)**

Various mitigation measures have been proposed over the years including filters but to date there is no viable way to deal with PFAS contamination from artificial turf. But one filter the industry has overlooked is our children. Not only are our children’s minds sponges but so are their bodies. They absorb everything through their lungs, digestive tract, skin and eyes. Our kids are also uniquely vulnerable to these chemical exposures. Installing artificial turf is intentionally making our children potential vectors for and victims of this toxic pollution.

In conclusion, the presence of PFAS in artificial turf systems is only one chemical issue. The whole system itself is still a petrochemical plastic product with the potential to cause a whole array of environmental and human health issues. We can’t forget the thousands of unregulated chemicals and the fact that the artificial turf industry is allowed to hide ingredients as “confidential business information”. So, PFAS, though a massive concern on their own, are not the only concern with artificial turf. Our children shouldn’t be filters for all these contaminants. Any future worry and consequences stemming from the use of artificial turf can be averted by simply choosing properly maintained (ideally organically), drought tolerant, real turf fields for functional requirements and any number of natural alternatives available for non-functional, ornamental spaces. There is *no need* for artificial turf at all AND there are myriad reasons to not use it including the heat it generates in our ever warming climate which is a whole separate topic of its own.

Please simply ban artificial turf.

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<sup>71</sup> <https://www.waterwise.org.uk/save-water/>

## Communication from Public

**Name:** Kreigh Hampel

**Date Submitted:** 06/27/2024 05:12 PM

**Council File No:** 24-0602

**Comments for Public Posting:** I support Council Member Bob Blumenfield's artificial turf restrictions. With all the research and reporting on plastics in water, air, farmland, food, animals, and humans, there is no justification in expanding plastic turf. We have plenty of plastic to clean up in the next 1,000 years. We are gifting an inheritance of toxics. Lets focus on the living/breathing world and get something REAL done! Something life affirming!

## Communication from Public

**Name:**

**Date Submitted:** 06/27/2024 05:26 PM

**Council File No:** 24-0602

**Comments for Public Posting:** Artificial turf is a problem for public health and the safety of the community. Los Angeles, with a tradition of being a leader in the legislation to protect the community, should approve a motion to limit the continued use of artificial turf in our area. It will allow nature to flourish in those areas that otherwise might lose that, as well as protect our future generations from the chemicals and radiating heat that comes with the placement of turf.

## Communication from Public

**Name:** Birgit De La Torre

**Date Submitted:** 06/27/2024 06:00 PM

**Council File No:** 24-0602

**Comments for Public Posting:** As the aptly named Environment Committee surely is aware of the many negatives associated with artificial grass, you cannot in good conscience give in to the industry. Please, support Councilman Blumenthal's motion.

## Communication from Public

**Name:** Magida Abolhosn

**Date Submitted:** 06/28/2024 01:45 PM

**Council File No:** 24-0602

**Comments for Public Posting:** THE CITY COUNCIL MEETING WILL TAKE PLACE ON TUESDAY JULY 2ND, AT 10:00 AM. AS ISRAEL AND THE UNITED STATES CONTINUE THEIR GENOCIDAL CAMPAIGN AGAINST PALESTINIANS IN OUR HOMELAND, AND THE IMPERIALIST WAR MACHINE WORKS TO SILENCE ALL THOSE WHO OPPOSE IT, IS ALL PEOPLE OF CONSCIENCE continue TO MOBILIZE AND ORGANIZE, to SHOW THE LOS ANGELES CITY COUNCIL THAT WE, THE PEOPLE, WILL NOT ALLOW OUR MONEY TO PROVIDE SUPPORT FOR ZIONIST AND IMPERIALIST EFFORTS TO SILENCE, POLICE, AND DELEGITIMIZE US AND THE STRUGGLE FOR PALESTINIAN LIBERATION. LOS ANGELES CITY COUNCIL HAS FAST TRACKED A MOTION TO BE HEARD ON TUESDAY, JULY 2ND, ALLOCATING ONE MILLION DOLLARS OF PUBLIC MONEY TOWARDS PRO-ISRAEL DEFENSE TRAINING THROUGH THE JEWISH NATIONAL FUND LA. THE MOTION EXPLOITs AND WEAPONIZes THE WIDELY DOCUMENTED VIOLENT ATTACKS BY PRO-ISRAEL AGITATORS TO DE-LEGITIMIZE PRO-PALESTINE PROTESTORS WHO HAVE BEEN VIOLENTLY BRUTALIZED BY POLICE FORCES AND ZIONIST MOBS FOR OPPOSING GENOCIDE AND ILLEGAL LAND Theft . THE MOTION, WHICH WAS FAST TRACKED THROUGH ALL STANDARD BUDGET AND FINANCE COMMITTEE PROTOCOLS, WOULD PROVIDE \$1 MILLION TO FUND ARMED ZIONIST SECURITY FORCES IN LOS ANGELES UNDER THE PRETEXT OF "COMMUNITY SECURITY" AND "COMMUNITY SAFETY" FOR JEWISH COMMUNITIES. \$350,000 OF THIS WILL BE ALLOCATED TO MAGEN AM. MAGEN AM IS A PRIVATE ARMED SECURITY GROUP THAT RECRUITS VETERANS FROM THE ISRAEL OCCUPATION FORCE. THEIR ARMED SECURITY GUARDS PATROL AREAS OF LA AND HARASS PRO-PALESTINIAN MOVEMENT EVENTS WITH TACTICS THEY'VE LEARNED IN THE IOF. THE ACTION TAKEN BY THE LOS ANGELES CITY COUNCIL IS A CLEAR EXAMPLE OF THE GLARING EXCEPTIONALISM OF ZIONIST VIOLENCE BY THE CITY OF LOS ANGELES,

AND THE SHARED GOALS OF PUBLIC AND PRIVATE POLICING FORCES TO REPRESS AND CONTROL, AS STATED BY STOP LAPD SPYING COALITION. IT IS NO COINCIDENCE THIS FUNDING WILL BE FUNNELED THROUGH THE JEWISH NATIONAL FUND LA, AS THEY HOLD A 120+ YEAR HISTORY OF DISPOSSESSION & THEFT OF PALESTINIAN LANDS, ETHNIC CLEANSING, AND ENTRENCHING ISRAELI APARTHEID. The JNF was instrumental in the ethnic cleansing of Palestine in the 1948 Nakba, and continues to play a central role in maintaining Israel's regime of apartheid and continued dispossession and displacement of Palestinians. I oppose this transfer of our money for the support of criminal occupation and slaughter of our Palestinian people indigenous to the land of Palestine. This million dollars is desperately needed in LA to tackle a variety of issues the city council is unwilling to address: housing and food security, health care, education, preschool, drugs, employment and taking care of our youth. Stop this criminal transfer of our money to foreign entities who care nothing about the people of Los Angeles other than lining their own pockets.