

II. Overview of the Problem



- What a careful reading of the studies shows is that they by no means prove that synthetic turf fields are safe.
- On the contrary, many studies show that the fields are not safe; analysis reveals how limited some of the actual studies are; and some studies recommend that further research be done.

Leaching from synthetic turf fields containing crumb rubber

- A number of the studies relate to the leaching capabilities of crumb rubber. In all the studies about leaching, zinc levels were high enough to pose risks to aquatic life, and many showed zinc levels above the EPA safety levels for fresh water.
- A number of the leaching studies showed that the smaller the rubber particle size the greater the amounts of chemicals and metals leached from the material. Crumb rubber is very small in size.

What a careful reading of the studies shows is that they by no means prove that synthetic turf fields are safe.



Fourteen of the 22 studies tested for lead—and in all of them, lead was found.

Lead was found in all fields when looked for

- Fourteen of the 22 studies tested for lead—and in all of them, lead was found. Lead was also found in the virgin rubber (EPDM) sample.
- The studies showed that lead levels varied greatly among fields. For instance, one field showed lead concentrations 500 to 1000 times higher than the other fields tested.
- According to the U.S. Centers for Disease Control and Prevention, no safe blood lead level in children has been identified.

Health risks indicated in the indoor field study

- The Connecticut Study showed that the indoor field that was tested had high levels of chemicals and metals. The air in the indoor field was only sampled for 25 minutes, yet the study found high levels of toxins in the air.
- The study found indoor fields to be worrisome, recommended a more strongly worded warning, and called for specific instructions on how to avoid inhalation exposures on indoor fields that contain crumb rubber.
- This important part of the study was not highlighted. Today, few people are aware of the recommendations on potential health risks associated with indoor synthetic turf fields.

Chemicals found in the testing of synthetic turf with crumb rubber

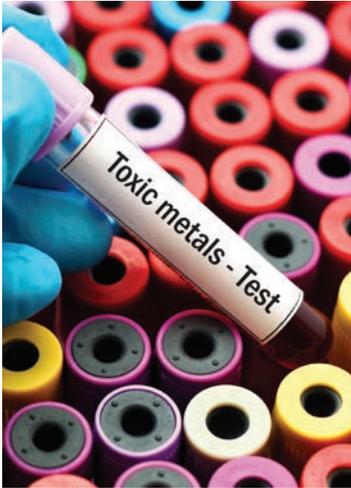
- Studies found that the samples contained chemicals that were carcinogenic.

VERSUS THE SCIENCE



- The Connecticut Study found 27 chemicals of concern and 13 carcinogens. Although the study claimed that cancer risks were small, they concluded they were slightly higher for children 12 years and older.
- Another study found 11 volatile compounds and nine metals leaching and outgassing from 17 crumb rubber samples.
- One study found polycyclic aromatic hydrocarbons (PAHs) in one soccer player's urine.
- The total concentration of metals and chemicals varied widely among the samples, even within each field tested.
- Although numerous studies found many chemicals—including carcinogens—in the sampling, industry claimed that the levels of each were low, and did not pose a health issue. The researchers did not take into consideration the synergistic effect of exposing players to so many chemicals at the same time.

Studies have shown that exposures to many carcinogens at the same time can cause cancer, even when individual levels of each carcinogen are low.



Many of the chemicals found in crumb rubber have had no toxicity testing by the federal government, and therefore their toxic effects are unknown.

- Studies have shown that exposures to many carcinogens at the same time can cause cancer, even when individual levels of each carcinogen are low.
- Many of the chemicals found in crumb rubber have had no toxicity testing by the federal government, and therefore their toxic effects are unknown.

Exposure studies

- Many of the studies considered inhalation, dermal and ingestion exposures to contaminants emitted into the air by crumb rubber, but then failed to examine the cumulative effect of exposures through all three routes simultaneously for children playing on the fields.
- The effects of the chemicals and metals found in many of the studies were not considered with respect to children with asthma, allergies and other respiratory issues. For instance, there was no investigation of synthetic turf fields or crumb rubber infill for concentrations of latex or for the impact of exposures to the fields on children and adults with latex allergies.

Toddler and small children's playgrounds

- Many government agencies and non-profits have recommended rubber tire mulch as the surfacing material for our smallest children's playgrounds, despite its toxicity.
- Waste tire rubber mulch is shredded up using the same waste tires that crumb rubber is made from and therefore contains the same carcinogens and irritants as crumb rubber.
- The National Recreation and Park Association (NRPA) is the leading non-profit organization dedicated to the advancement of public parks, recreation and conservation—and yet they recommend crumb rubber infill.

VERSUS THE SCIENCE



- When the Obamas moved into the White House with their two small children in 2008, the National Recreation and Park Association (NRPA) advised them to install rubber mulch in their children's playground, thus placing toxic material at the White House.
- Although the Consumer Product Safety Commission (CPSC) recommends wood chips as surfacing material for toddler playgrounds, they also recommend rubber mulch, which is made from waste rubber tires.¹
- The studies analyzed in this report show that waste tires, whether shredded into crumb rubber or into mulch for playgrounds, contain many carcinogens, irritants and heavy metals.
- Many of these studies also show that these toxins outgas. Our smallest children should not be playing on such a toxic material.

The studies analyzed in this report show that waste tires, whether shredded into crumb rubber or into mulch for playgrounds, contain many carcinogens, irritants and heavy metals.

¹ <https://www.cpsc.gov/PageFiles/122149/325.pdf>