

- An Evaluation of Potential Exposures to Lead and Other Metals as the Result of Aerosolized Particulate Matter from Artificial Turf Playing Fields Submitted to: Alan Stern, Dr.P.H. New Jersey Department of Environmental Protection Submitted by: Stuart L. Shalat, Sc.D. (July 14, 2011)  
**IMPORTANT STUDY ON INHALATION HAZARD POTENTIAL OF ARTIFICIAL TURF!**  
<http://www.nj.gov/dep/dsr/publications/artificial-turf-report.pdf>
- Lead Limits Needed on Tire Crumb Playgrounds: CPSC Ruling on Artificial Play-Areas as Children's Products Sought  
Public Employees for Environmental Responsibility: News Release –  
[www.peer.org/news/news-releases/2012/07/12/lead-limits-needed-on-tire-crumb-playgrounds](http://www.peer.org/news/news-releases/2012/07/12/lead-limits-needed-on-tire-crumb-playgrounds)
- Hazardous organic chemicals in rubber recycled tire playgrounds and pavers Review Article;  
Chemosphere, 22 August 2012 Maria Llompарт et al.

**Abstract:** In this study, the presence of hazardous organic chemicals in surfaces containing recycled rubber tires is investigated. The analysis confirmed the presence of a large number of hazardous substances including PAHs, phthalates, antioxidants (e.g. BHT, phenols), benzothiazole and derivatives, among other ...toxic chemicals in these recycled materials. The concentration of PAHs in the commercial pavers was extremely high, reaching values up to 1%. In addition, SPME studies of the vapor phase above the samples confirm the volatilization of many of those organic compounds. **Uses of recycled rubber tires, especially those targeting play areas and other facilities for children, should be a matter of regulatory concern.**

[Http://www.sciencedirect.com/science/article/pii/S0045653512009848](http://www.sciencedirect.com/science/article/pii/S0045653512009848)

- **Automobile Tires a Potential Source of Highly Carcinogenic Dibenzopyrenes to the Environment** Environ. Sci. Technol. Feb 21, 2012, 46, 3326–3334; Ioannis Sadiktsis, et al. "...Through the release of PAHs from stockpiled scrap tires, PAH emissions from pyrolysis of scrap tires or leaching of PAHs from recycled tire rubber material, **tires are a source of environmental pollution of PAHs throughout their entire lifecycle.**"  
<http://pubs.acs.org/doi/abs/10.1021/es204257d>
- **Interview with Emeritus Toxicologist Dr. David Brown** who has extensively reviewed the studies on the potential and known toxicity of tire crumb fields and explains that, "... tire crumb off-gases 24 harmful materials. We know the off-gassing yield increases as the tire crumb heats. Carbon black, which makes up 30% of black tires, is carcinogenic and breaks down into very small particles. Those small carbon black particles adsorb (attach) onto the surface of the gases, which then provide ....a pathway to the deep lung, as the child breathes in during exercise. These gas/particle mixtures are 10-20 times more toxic than the materials alone. We know from air pollution studies that looked at these mixtures that they cause serious disease at much more dilute levels than what might be expected from 30,000 pulverized tires in close proximity." video at: [www.tirecrumbfields.com](http://www.tirecrumbfields.com)
- Public Employees for Environmental Responsibility: News Release – **Artificial Turf Field Heat Dangers Require Safeguards: Synthetic Turf Temps as High as 200 Degrees Pose Particular Peril to Children** (September 6, 2012)  
[www.peer.org/news/news-releases/2012/09/06/artificial-turf-field-heat-dangers-require-safeguards](http://www.peer.org/news/news-releases/2012/09/06/artificial-turf-field-heat-dangers-require-safeguards)

Recent short videos released by SFPARKS re: artificial turf;

- ["Synthetic Turf Fires"](#)
- ["Athletes & Artificial Turf Injuries"](#) – (not for the squeamish)
- ["The Truth about Synthetic Sports Turf"](#) – (music montage, "Mad World")