

**From:** Kathleen Michels [mailto:kathleen.michels@verizon.net]

**Sent:** Tuesday, February 05, 2013 8:34 AM

**To:** councilmember.navarro@montgomerycountymd.gov;  
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**Cc:** safe-healthy-playing-fields-coalition-@googlegroups.com; stormwaters@googlegroups.com;  
kathleen.michels@verizon.net

**Subject:** FW: For Wootton Artificial turf: Carcinogenic PAHs ARE present in and released from the tire crumb in artificial turf (similar to coal tar). Please protect our children and oppose Wootton HS supplemental appropriation

Dear County Council members,

As you vote on yet another pulverized tire infilled field for students to play on, I would like remind you of your protective and wise vote banning the use of coal tar in asphalt sealants in Montgomery County because of the carcinogenic Polycyclicaromatic hydrocarbons (PAHs) which leaches out. (You did this even though neither the federal or state governments has taken such needed action although many other localities like Montgomery around the country have.). One of you opined recently that the PAHs present in and released from the tire crumb in artificial turf (see all the references below in addition to those previously sent) are different from those present in coal tar and not as carcinogenic.

**IN FACT tires have multiple sources of highly carcinogenic PAHs (including coal tar as a filler), especially tires produced in the US.**

**FACT: The PAH mixture in tires consist of the most highly carcinogenic benzopyrene PAHs AND studies show that a mixture of different PAHs has more toxic health effects than any of the PAHs alone (see #5 below)..**

**FACT: Carcinogenic PAHs ARE released from the tires (see #2 below) and are likely released even more readily as they are pulverized and placed under the feet of our children where they likely part of the particulate cloud athletes breathe in when playing on these fields (see#1 for particulate study) .**

1) <http://www.nj.gov/dep/dsr/publications/artificial-turf-report.pdf>

**An Evaluation of Potential Exposures to Lead and Other Metals as the Result of Aerosolized Particulate Matter from Artificial Turf Playing Fields** New Jersey Department of Environmental Protection; Stuart L. Shalat, Sc.D. (July 14, 2011) **IMPORTANT STUDY ON INHALATION HAZARD POTENTIAL OF ARTIFICIAL TURF!** The testing was for heavy metals in the complex plastic and tire particulate cloud kicked up during play but as the authors note anything present in the particulate cloud would be available for athletes to breathe in while playing.

**What are some of the specific known carcinogens in tire dust?:**

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

**Hazardous organic chemicals in rubber recycled tire playgrounds and pavers Review**

**Article;** *Chemosphere*, 22 August 2012 Maria Llompart 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,....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.**

3) [http://ec.europa.eu/food/fs/sc/sct/out206\\_en.pdf](http://ec.europa.eu/food/fs/sc/sct/out206_en.pdf)

**Concludes:** It is scientifically justified to conclude that PAHs are emitted into the environment as a consequence of the abrasion of the tyre tread.

4) <http://www.greencarcongress.com/2012/03/pah-20q2.html>

**Study finds automobile tires are a potential source of carcinogenic (PAH) dibenzopyrenes to the environment**10 March 2012

5) <http://www.sciencedirect.com/science/article/pii/S0041008X12005157>

**Persistent activation of DNA damage signaling in response to complex mixtures of PAHs in air particulate matter**

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Best regards,

Kathleen Michels, PhD (neuroscience)

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**From:** Kathleen Michels

**Sent:** Tuesday, January 15, 2013 12:36 PM

**To:** [county.council@montgomerycountymd.gov](mailto:county.council@montgomerycountymd.gov); 'councilmember.navarro@montgomerycountymd.gov';

Marc Elrich--Council; Riemer, Hans; George Leventhal

**Cc:** Spielberg, Debbie (county council); kathleen.michels

**Subject:** Health and Safety Concerns about artificial turf - Wootton HS supplemental appropriation- From Safe, Healthy Playing Fields

**January 15, Public Hearing on Wootton HS Special Appropriation for partial initial cost of an artificial turf field at Wootton High School-  
CONCERN OVER HEALTH AND SAFETY RISKS**

Safe Healthy Playing Fields Coalition  
[www.safehealthyplayingfields.org](http://www.safehealthyplayingfields.org)

Dear County Council and members of the community,

Please see the memo attached and below. I would like to enter into the record the clear and present environmental, health and fiscal hazards of artificial turf. Although a private entity will pay for part of the initial cost of the Wootton Field, **the students will pay the ultimate cost in long term consequences to their health.**

There is a fiscal health cost as well. Yearly maintenance is increased the more the field is used by outside entities and the plastic degrades and tire crumb migrates from the carpet making it less safe as time goes on. In addition unlike a natural turf field artificial turf fields need to be replaced every 8 years or so at \$750,000 or so. As with Richard Montgomery there is no guarantee that the current “partner” will be there to pick up the substantial cost which will then come from the funds that should be used for educational facilities for our children, not for plastic and tire crumb carpets.

Please see below for some of the recent scientific concerns published in scientific journals and peer –reviewed (unlike most of the industry and government cited studies) which raised significant concerns over the health risks associated with these fields.

Note also that lower extremity injuries such as and especially ACL tears are at higher rates \* and are more extreme when they happen\* on artificial turf. The recent loss of FIVE University of Maryland Football players to ACL tears immediately after installing the new artificial turf field is NOT just bad luck.

Best regards,  
Kathleen Michels, PhD (neuroscience)  
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**Memo on health and safety issues for Wooten HS hearing - January 15, 2013**

**Recent Scientific Research and Supporting Documents**

Safe Healthy Playing Fields Coalition [www.safehealthyplayingfields.org](http://www.safehealthyplayingfields.org)

[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)

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/2012/07/12/lead-limits-needed-on-tire-crumb-playgrounds](http://www.peer.org/news/news-releases/2012/07/12/lead-limits-needed-on-tire-crumb-playgrounds)

Public Employees for Environmental Responsibility: News Release – **Lead Limits Needed on Tire Crumb Playgrounds: CPSC Ruling on Artificial Play-Areas as Children’s Products Sought**

<http://www.nj.gov/dep/dsr/publications/artificial-turf-report.pdf>

**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!**

What are some of the specific known carcinogens in tire dust?:

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**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.**

**Automobile Tires a Potential Source of Highly Carcinogenic Dibenzopyrenes to the Environment** <<http://pubs.acs.org/doi/abs/10.1021/es204257d>> *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.**"

Why is this important? See a video explanation at: [www.tirecrumbfields.com](http://www.tirecrumbfields.com)

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."

This is only a sampling of the information that raises concerns about artificial turf in general and tire crumb infill in particular.

FOR MORE SCIENCE AND INFORMATION Please see:

[www.safehealthyplayingfields.org](http://www.safehealthyplayingfields.org)

and specifically see: <http://www.safehealthyplayingfields.org/#!/environment/c16nf>

and [www.syturf.org](http://www.syturf.org) for a compilation of the available information overall.

and [www.ehhi.org/turf/](http://www.ehhi.org/turf/)

**Artificial Turf: Exposures to Ground Up Rubber Tires - Athletic Fields, Playgrounds**