

# Healthy Legacy

Healthy people,  
a clean environment  
and a thriving economy

## Moratorium on Use of Waste Tires in Playgrounds & Athletic Fields (SF 1172 Housley / HF 1502 Smith)

Healthy Legacy supports a policy to prevent potential adverse health effects to children and athletes from exposure to shredded waste tire mulch in playgrounds and athletic fields.

SF 1172 / HF 1502 will:

- Establish a moratorium on the use of public funds for new playgrounds and athletic fields using shredded tire mulch or crumb rubber infill until July 2020.
- Requires the Minnesota Department of Health to review and evaluate a report to be issued by the California Office of Environmental Health Hazard Assessment<sup>1</sup> and report back to the Minnesota legislature on potential health risks to children and athletes of continued use of waste tires for playgrounds and athletic fields.
- Require signage to caution users of existing playgrounds and athletic fields of potential exposure and ways to reduce exposure to toxins in waste tire material.



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**This bill is an important step in  
addressing potentially harmful  
exposures of children and  
athletes to known toxic chemicals  
while they are at play.**  
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### Safer Playground and Synthetic Turf Materials

#### Playground Alternative

Engineered wood fiber (EWF) is a safer and less expensive alternative to shredded tire mulch for use on playgrounds, with comparable fall protection. EWF is made from 100% virgin wood fiber and is not chemically treated in any way.

#### Synthetic Turf Alternative, Natural Grass Turf

## Recycling of Waste Tires

Nearly 300 million car and truck tires are discarded every year, about one for every person. To address the problem of tire stockpiles emitting hazardous compounds into the environment, since 1995 the U.S. EPA has been encouraging the recycling of waste tires into playground mulch and synthetic turf athletic field infill. Although waste tires meet the Resource Conservation and Recovery Act's criteria for hazardous waste, they have received a special exemption for these uses.

Waste tires are ground up into pieces for use as playground mulch and processed into smaller pieces known as "crumb rubber" for use as synthetic turf infill. Use of recycled waste tires has grown over the last two decades. Thousands of playgrounds across the U.S. use shredded tire mulch as cushioning under outdoor play equipment. Ninety-five percent of the over 13,000 synthetic turf fields in the U.S. use crumb rubber infill.<sup>2</sup>

To leave a healthy legacy, Minnesota  
needs safe products and safe ways to make them.

## Toxic Chemicals Detected in Recycled Waste Tire Materials

According to a chemical analysis conducted by Yale University,<sup>3</sup> 96 chemicals were found in samples of shredded rubber tire playground mulch, including carcinogens, neurotoxins, respiratory/eye/skin irritants and reproductive and developmental toxins. For half of these chemicals, there is no government testing – so whether they are safe for human health is unknown.

- Chemicals detected include the brain toxins styrene, lead, cadmium, as well as carcinogens, arsenic, pyrene, carbon black, polycyclic hydrocarbons (PAHs), and butadiene.
- Another study confirms the presence of hazardous chemicals in tire mulch, including PAH's as high as 1% and that many of these chemicals are released through volatilization and can be inhaled. The authors caution, "Uses of recycled rubber tires, especially those targeting play areas and other facilities for children, should be a matter of regulatory concern."<sup>4</sup>
- Synthetic turf fields were measured at 86.5 degrees F higher than natural turf.<sup>5</sup>
- When synthetic turf gets hot, it can increase the chances that volatile organic compounds (VOCs) are released into the air, exposing athletes to chronic toxicity from PAHs, known carcinogens.<sup>6</sup>
- Synthetic turf can deteriorate to form dust containing levels of lead that exceed Consumer Product Safety Commission (CPSC) standards for lead in children's products and the U.S. EPA's lead-dust hazard standard of 40 micrograms/square foot.<sup>7</sup> Exposure through lead ingestion and consequent risk level increase as the particle size of crumb rubber gets smaller.<sup>8</sup>
- There is concern that soccer players, especially goalies, with chronic exposure to crumb rubber on synthetic turf fields may be at higher risk for lymphoma and leukemia cancers.<sup>9</sup>

*"Children go to playgrounds almost daily, and gifted athletes are on the soccer field almost every day. That sort of cumulative exposure results in a buildup in their body of these toxic chemicals, and can result in a buildup of cellular damage that's caused by these chemicals, that can then result in disease years or decades late. Little children should not be put in a situation where they're forced to be in intimate contact with carcinogenic chemicals."*

**Dr. Philip Landrigan**

Dean of Global Health at Mount Sinai Medical Center and leading expert on the effects of chemicals on children.

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### Citations

- <sup>1</sup>Office of Environmental Health Hazard Assessment (OEHHA) California Environmental Protection Agency <http://oehha.ca.gov/risk/SyntheticTurfStudies.html>
- <sup>2</sup>Synthetic Turf Council, [http://c.ycmdn.com/sites/www.syntheticurfCouncil.org/resource/resmgr/Files/CRUMB\\_RUBBER\\_FAQs.pdf](http://c.ycmdn.com/sites/www.syntheticurfCouncil.org/resource/resmgr/Files/CRUMB_RUBBER_FAQs.pdf)
- <sup>3</sup>Environment & Human Health, Inc., 2007 [http://www.ehhi.org/turf/metal\\_analysis2016.shtml](http://www.ehhi.org/turf/metal_analysis2016.shtml)
- <sup>4</sup>Llompert M, Sanchez-Prado L, Lamas JP, Garcia-Jares c et al. Hazardous organic chemicals in rubber recycled tire playgrounds and pavers. *Chemosphere* 2013;90:423-31.
- <sup>5</sup>Williams FC and Pulley GE. Synthetic surface heat studies. <http://aces.nmsu.edu/programs/turf/documents/brigham-young-study.pdf>.
- <sup>6</sup>Marsili L, Coppola D, Bianchi N, Maltese S et al. release of polycyclic aromatic hydrocarbons and heavy metals from rubber crumb in synthetic turf fields: preliminary hazard assessment for athletes. *Environmental & Analytical Toxicology* 2014;5(2):265.
- <sup>7</sup>Van Ulirsch, Gleason K, Gerstenberger S, Moffett DB et al. Evaluating and regulating lead in synthetic turf. *Environ Health Perspectives*. 2010;118(10):1345-49.
- <sup>8</sup>Kim S, Yang, JY, Kim HH, Yeo IY et al. Health risk assessment of lead ingestion exposure by particle sizes in crumb rubber on artificial turf considering bioavailability. *Environ Health & Technol*. 2012;27:1-10
- <sup>9</sup>NBC News Investigation, used with permission of Dr. Landrigan <http://www.nbcnews.com/news/investigations/rubber-mulch-safe-surface-your-childs-playground-n258586>