Scrap Tire Mulch Concerns and Replacement Ideas

Duluth Parents for Healthy Playgrounds

Precautionary Principle

"In the case of serious or irreversible threats to the health of humans or the ecosystem, acknowledged scientific uncertainty should not be used as a reason to postpone preventive measures."
(World Health Organization, 2004)

There are numerous toxic substances in scrap tires.

- Phthalates are plasticizers that can affect hormones.
- Polycyclic aromatic hydrocarbons (PAHs) contain several known carcinogenic compounds.
- Volatile organic compounds (VOCs), in sufficient quantities, can cause eye, nose, and throat irritations, headaches, dizziness, visual disorders, and memory impairment. Some VOCs are suspected of or known to cause cancer.
- Benzene, lead, mercury, and arsenic are known or suspected to cause adverse health effects. Metals such as lead and arsenic can cause harm to developing nervous systems.
- Carbon black is a filler and reinforcing agent that may be manufactured with nanoparticles, including carbon nanotubes. Carbon nanotubes can behave like asbestos fibers.
- Rubberific mulch – the brand used at Lester Park Elementary – contained at least 12 "Chemicals of High Concern" listed by the Minnesota Department of Health. Four of the PAHs tested at levels higher than European Union regulations would allow.

Kids do more than simply run around on top of playground tire mulch.

- They bury each other in it, stuff it inside their clothes in "fat suit" games, and put it in their mouths during "rubber chip challenges".
- Many parents notice the fine, gray dust on kids' clothes, skin, and even inside their nostrils when they come home from school.
- The substances in the mulch are inhaled, ingested, and absorbed through kids' skin.
- The Material Safety Data Sheet (MSDS) for the mulch states that protective gloves are recommended, as is "frequent washing with soap and water of exposed areas, remove and clean soiled clothing".

Kids' higher risk to toxins is the subject of ongoing science and incomplete regulation.

- "Children are much more likely to be harmed by exposure to chemicals in their environment than adults because they are smaller (so the exposure is greater) and because their bodies are still developing." (Dr. Nydra Booker, National Center for Health Research).
- Combinations of chemicals, even in small doses, may have synergistic effects that cause harm. Chemical mixture testing is not required yet by U.S. regulators (Harris-Lovett, 2015).
- One of the goals of a 2014 symposium hosted by the California Office of Environmental Health Hazard Assessment was "to get" regulatory scientists thinking about "how to incorporate complex interactions into risk assessment, particularly for early life exposures".
- A federal joint action plan to study key environmental human health questions of scrap tire crumb and mulch was recently initiated by multiple U.S. federal agencies.
- Because of clear evidence of marketing toward kids, the Consumer Product Safety Commission (CPSC) has been petitioned to regulate the mulch as a "children's product" – a label would carry strict lead exposure limits.

Suitable, affordable alternatives for playground surface cover are available now.

- For playgrounds with equipment fall heights greater than 10 feet, wood chips and engineered wood fiber (EWF) meet standards in the CPSC Public Playground Safety Handbook. Poured-in-place surfacing might also be a possible alternative to loose material.
- EWF is not chemically treated. With proper drainage, molds go away once EWF dries out. EWF tends to give or move upon contact so splinters are not a problem (IPEMA FAQ sheet).
- It also appears that mold and slivers have not been a significant issue at Minnesota schools. Of 79 districts that responded, 42 playgrounds use wood chips and/or EWF. None reported student absences due to mold (respiratory issues) or slivers (infections). Only 6 districts reported any mold on the playgrounds, and only 2 reported minor slivers.
- Other MN school districts are switching to EWF to save money. Paul Bourgeois, Executive Director of Finance & Operations for Minnetonka ISD 276 wrote:
    - "Right now our elementary schools use either rubber mulch or engineered wood chips, but in summer we are transitioning to all engineered wood chips. Rubber mulch is expensive and we are not going to spend further dollars for something that does not add value when something works just as well for much less cost. We are getting rid of the rubber mulch because of wanting to lower our costs and stretch scarce dollars."

Cost of removal and replacement could be lowered through community contributions.

- Business owners have expressed willingness to donate labor and equipment for mulch removal and excavation.
- Instead of disposal, road-surfacing companies have expressed interest in reusing tire mulch.
- Parents have volunteered for manual labor like spreading wood chips or EWF.
- Local wood chip donations could add volume before toping off playgrounds with EWF.
- Parents have expressed willingness to fundraise and also explore grant possibilities from environmental and health foundations to help offset cost.

Get around the uncertainties, create peace of mind, and bring people together around keeping kids healthy.

While research and assessment efforts recently initiated by the Environmental Protection Agency and other federal and state agencies are laudable, U.S. regulatory frameworks have a long way to go to satisfactorily incorporate the precautionary principle. The uncertainties regarding the complex interactions of multiple toxic chemicals in the developing bodies of young children suggest years of research to come, let alone incorporation into regulatory analyses and policies.

The immediate availability of suitable alternatives and potential support from parents and the business community can enable removal of the scrap tire mulch now. While the Minnesota legislature is considering a bill (SF 3108) to require warning signs be posted on playgrounds with tire mulch, ISD 709 could take real, preventative action now to help reduce children's exposure to toxic chemicals. By coordinating and creatively planning with parents, businesses, and other concerned members of the Duluth community, the financial impact of tire mulch removal and replacement can be minimized.