

Danger underfoot?

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Recent tests have found lead in the artificial turf at West Salem High School.

It's hard to determine the extent of the problem because national standards are unclear. And turf companies insist — and some tests show — that the lead is sealed in the turf blades and therefore is not a risk to players on a field.

The local tests highlight a nationwide controversy that began in April when New Jersey health officials publicized results from the testing of artificial turf for lead. Officials recommended that one field be closed because the lead levels were so high.

Their results prompted a study by the Consumer Product Safety Commission released in July, an advisory from the Centers for Disease Control and Prevention about how to test and be safe on artificial turf, and a not-yet-released report from the Environmental Protection Agency.

In the midst of the nationwide controversy, the Statesman Journal had turf fibers tested from West Salem, Sprague and South Salem high schools, the only schools in the Salem-Keizer area with artificial turf sports fields. South's field was installed this month.

The Salem-Keizer School District subsequently tested West Salem and Sprague's fields.

The results show that the Sprague and South fields are free of lead. West Salem High School's artificial turf field contains lead in levels much higher than the standard for lead in paint.

But it's unclear whether the lead in the West Salem field is breaking down into dust and being ingested by youths. The Statesman Journal has ordered wipe tests to determine the potential exposure. The results of those tests are not yet available.

Consumer advocates say they are worried that lead-containing turf could release lead as it ages, putting at risk players or others who could ingest the lead-containing dust.

Researchers say that scientific studies continue to show that smaller and smaller concentrations of lead in the blood can lead to neurological and developmental problems in children.

The state of California is expected to decide by the end of August whether it will sue artificial turf manufacturers under its one-of-a-kind law, which sets stringent standards for products that may expose people to lead.

"The main thing that we would want them to do is clean it up," said California deputy Attorney



Timothy j. gonzalez | Statesman Journal
Mitch Moreman with Pro Turf Solutions of Durango, Colo., carries a glue tray while installing artificial turf Aug. 7 on Bennett Field at South Salem High School. Recent testing found lead in West Salem High's turf, but not in South Salem High's. West, South and Sprague are the only Salem-Keizer District schools with artificial turf.

Link

New Jersey's health department information:

<http://nj.gov/health/artificialturf/index.shtml>

General Dennis Ragen. "There is no reason new turf should have this much lead in it. Why put lead in products that kids are going to play on?"

Testing lead

Lead inside the turf fibers isn't a public-health problem unless the fibers degrade. In that case, lead could be released as dust or fine particles, finding its way to the bottoms of athletes' shoes or the palms of their hands, where it could be ingested.

The amount of lead that someone could ingest depends not only on how much lead is in the turf, but also how much lead could be released from the turf. That likely would depend on the age of the turf, the activity level on the field, and the material and strength of the seal around the lead.

Results from the July Consumer Product Safety Commission report indicate that older fields are more likely to release lead than newer fields, even if the newer field contains more lead.

"The lead is imbedded in plastic, but exposure to UV light and weathering makes (the lead) become available," said Ken Kauffman, an environmental health specialist in the Public Health Division of the Oregon Department of Human Services. "So it is a question of how much will come out, get picked up on hands or released into dust to be breathed in. That is the challenge."

Wipe samples from a turf field installed in 1999 that contained a lead level of 5,000 parts per million showed that a person could ingest an average of 6.5 micrograms of lead per day, according to the Consumer Product Safety Commission report.

Commission staffers suggest that people ingest no more than 15 micrograms of lead per day in order to stay below the federal lead level of concern. That level is 10 micrograms per deciliter of blood.

Test results

The Center for Environmental Health, a nonprofit consumer watchdog in Oakland, Calif., used an X-ray fluorescence analyzer for the Statesman Journal's samples. The tests found that turf fibers from West High's field contained 1.7 percent lead, or 17,000 parts per million. A second test with the same equipment confirmed that result.

An X-ray analyzer is helpful in finding the presence of lead, but it is not reliable for determining possible lead exposure.

The school district used a different kind of analysis: Technicians put the turf fibers in an acid solution and measured how much lead comes out. This test, too, is not reliable in determining possible lead exposure.

Three separate tests conducted for the school district at the end of July found lead at 2,315 parts per million, 6,371 parts per million and 3,125 parts per million.

There is no standard for the amount of lead in artificial turf. For comparison, the federal standard for lead in paint is 600 parts per million. But health officials caution against direct comparisons between paint and artificial turf because it is unclear how much lead would be released when lead-containing turf breaks down.

California's standard

California's law addresses the potential impact of lead at low levels: Products that might

expose people to more than 1/2-microgram of lead per day must have a warning. That's 30 times more stringent than the CPSC's standard.

The impact of California's law has often been the redesign of a product to eliminate the lead, said Ragen, the deputy attorney general.

The Center for Environmental Health, an environmental nonprofit, has tested about 150 turf samples. They've done full lab analyses for about 30 of those samples and wipe tests on several other samples.

Every sample that had high concentrations of lead also had some lead come off on a wipe, said Caroline Cox, a research scientist with the center.

"What we find is that there is enough lead coming off to be a violation of California law," she said.

Lead's use

Lead is used in artificial turf to create certain colors and keep the fibers color-fast throughout a field's years in use. Lead is used in 10 percent of the colored fibers.

The turf industry says that the lead is contained, or encapsulated, inside the turf fibers.

"There could only potentially be a health risk if lead is leaving the field and leaving the field in amounts that are detrimental to kids," said Darren Brandt, a spokesperson for FieldTurf, which installed West Salem's field. "And the CPSC found that the amount of lead that would need to be ingested is absurd."

Even though the CPSC report called artificial turf "safe" for kids to play on, the Synthetic Turf Council responded to the report by saying it would voluntarily reduce lead levels in turf pigments to 300 parts per million or less by 2010 and to 100 parts per million or less by 2012.

These are the lead restrictions for children's products passed recently by Congress.

Understanding the risks of lead has grown more urgent as the use of synthetic turf rises. Such sports fields have been installed at a rate of more than 800 annually in recent years, said Rick Doyle, president of the Synthetic Turf Council. This year, turf installers are on track to put in about 1,000 fields, he said.

One reason for their growing popularity is that money-strapped school districts are looking to reduce field maintenance costs.

What's next

West Salem's field was installed in 2002 — the first in Salem-Keizer School District. The same company — FieldTurf — installed Sprague High School's field in 2005. South Salem's synthetic turf field was installed this month.

West Salem's field has an eight-year warranty from FieldTurf. Like most school districts, Salem-Keizer hopes to get as much life out of the field as possible.

The turf fields at West Salem, Sprague and South Salem cost \$800,000 to \$900,000 each. Replacements aren't nearly as costly — an estimated \$320,000 — because all of the underlying structure doesn't need to be replaced.

"None of our turf fields is on a replacement schedule at this time," said Jay Remy, director of

communications for the Salem-Keizer School District. "Our district is working on a comprehensive replacement cycle for facilities and equipment in the future, but that work is yet to be completed. We hope to get 10, 12 or even 15 years of use out of the turf before replacing it, but that depends on how well it holds up through the years."

The issue with lead at West Salem's field is being reviewed by state health officials, Remy said.

The state Public Health Division plans to release recommendations for testing and using artificial turf fields by today.

If the lead is contained, similar to undisturbed asbestos found in schools, there is little to no risk to students. But the district would monitor the fields if there was an exposure risk, Remy said.

The district, with the help of the health division, is trying to determine whether more testing is needed.

"Safety is our No. 1 priority when it comes to our facilities," Remy said. "It is not just the students that use our facilities, it's the staff and community members. There is organized and unorganized use of the fields. So we are concerned about the safety. We need to know if there is an exposure risk or is the lead there contained. If there is exposure, is it at a risky level?"

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Lead's dangers lie in small doses.

That's why public health officials warn new parents about dust in old homes.

Lead from chipped paint on windowsills or baseboards can accumulate in the dust bunnies in the corners of rooms. A toddler picking up that dust daily has a higher chance of having learning problems, hyperactivity, deficits in fine motor function, hand-eye coordination, and reaction time, according to the National Institute of Environmental Health Sciences.

The Centers for Disease Control and Prevention, the U.S. Public Health Service and the Environmental Protection Agency have said that there is no safe level of lead exposure for children. The CDC has long recommended the elimination of all nonessential uses of lead.

"The primary concerns about lead are neurological and especially developmental," Kauffman said. "It really impairs development in rapidly developing neurological systems and developing brains. The more it is studied, the lower the levels at which we are able to document impairments."

For adults, chronic lead exposure can result in increased blood pressure, decreased fertility, cataracts, nerve disorders, muscle and joint pain and memory or concentration problems, according to the national institute.

The Consumer Product Safety Commission recognizes 10 micrograms of lead per deciliter of blood as a level of concern. But researchers are concerned that levels as low as 2 micrograms of lead per deciliter of blood could be a problem.

A study in the peer-reviewed Environmental Health Perspectives in February showed that children's intellectual functioning at 6 years of age is impaired by blood-lead concentrations well below 10 micrograms per deciliter.

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