

***Synthetic Turf & Lead
Explained***

Seven Conclusions

- CDC Lead Prevention Program identifies no risk from Synthetic Turf.
- Lead does not leach from synthetic turf.
- Bioavailability of lead from pigment is extremely low.
- Lead from dust at Ironbound (NJ) is not a inhalation hazard.
- Ironbound (NJ) children with regular exposure test normal for lead.
- Worker exposed to turf and particles for 30 years tests normal.
- Even assuming 50% bioavailability, the amount of ingested turf required to pose a risk is absurdly unrealistic.

Scientific References:

Federal Agencies
Testing Laboratories and Consultants
Peer-Reviewed Scientific Literature

1

FILAMENT CROSS SECTION

1/64"




pigment
particles
in each
blade

2

THE PIGMENT PARTICLE

Each particle - which is $1/32,000$ of an inch - is chemically sealed to encapsulate the pigment.

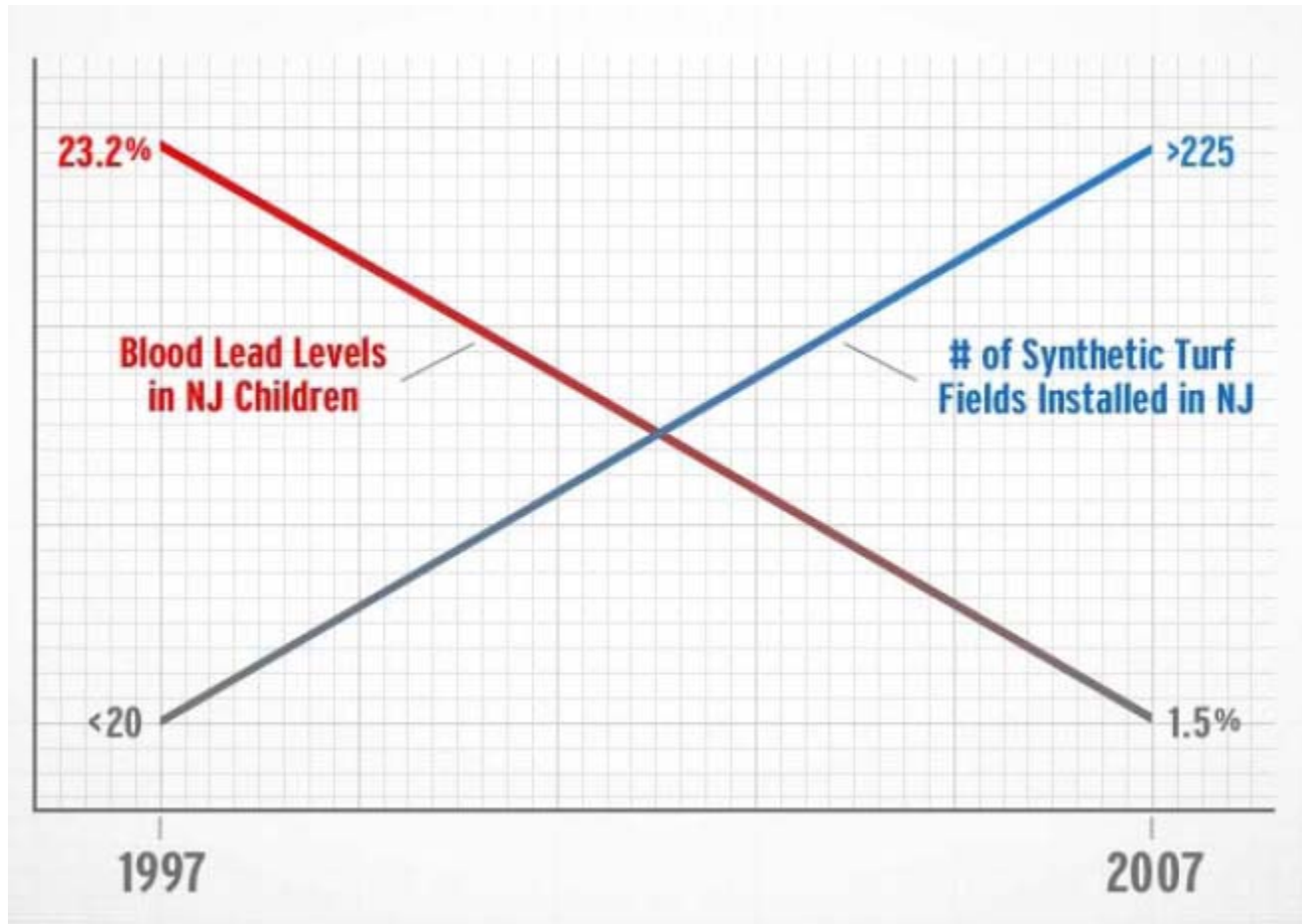


$1/32,000$
of an inch

CDC Lead Prevention Program ***identifies no risk from Synthetic Turf***

- Ten-year investigation ('97-'06) of 763,216 childhood exposures to lead identified no risks from synthetic turf.
- Of the nearly 40,000 cases of high blood lead concentrations in children reported in 2006, none are attributed to exposure to synthetic turf.
- In 2006, an average of 1.21% of children tested in 48 states had elevated blood lead levels. Among the four states with the greatest density of synthetic turf, all were below the national average with the exception of New Jersey (1.52%).
- During the 10-year investigation, while the number of synthetic fields installed in New Jersey increased over 1000%, the blood lead levels in children tested fell from 23.22% to 1.52%.

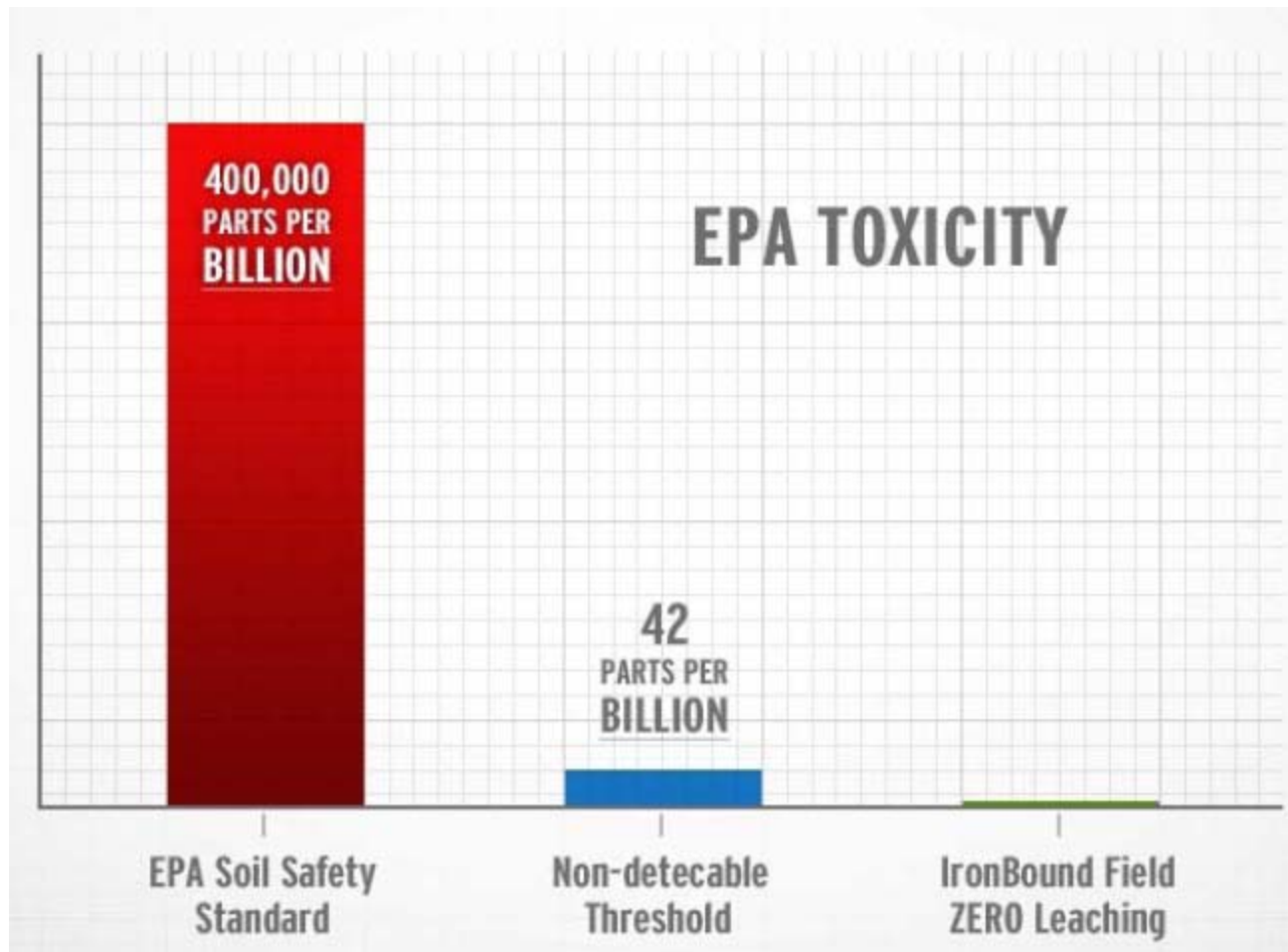
No Correlation between Lead Levels in NJ Children & Synthetic Turf



Lead does not leach from synthetic turf

- Tests from three different, independent labs using EPA-approved testing protocols have shown that lead chromate does not leach from synthetic turf. Two of these tests were from the old Ironbound turf
- Tests used the EPA Toxicity Characteristic Leaching Procedure.
- The City of Newark conducted one of the tests.
- Testing does not detect lead below 42 parts per billion (ppb). EPA Soil Safety Standard is 400,000 ppb.
- All tests confirmed that lead does not leach from the fibers.

Lead Does Not Leach from Synthetic Turf Fibers



Bioavailability of lead from pigment is extremely low

- The potential for hazard is determined by several factors, including bioavailability, the proportion of a chemical that is actually absorbed.
- In nylon synthetic turf, pigment particles (lead chromate) are encapsulated to improve performance characteristics and reduce toxicity.
- Tests on laboratory rats fed encapsulated lead chromate showed low blood lead levels similar to the negative control group that was fed baby powder. The positive control group that was fed unencapsulated lead chromate understandably showed much higher lead levels.
- The conclusion is that encapsulated pigment by itself does not represent a risk because of its low bioavailability. This encapsulation, combined with a second encapsulation within the extruded nylon, provides adequate protection to render synthetic turf extremely safe.

Lead from dust at Ironbound *is not an inhalation hazard*

- The City of Newark hired a hazard assessment firm to evaluate risk from inhalation of dust.
- Workers wore inhalation masks to gather airborne particulate; contents analyzed for lead.
- The process occurred during removal of the field, creating a worst-case scenario for dust.
- Upon inspection, the site was deemed a ‘non-hazardous worksite’ under OSHA guidelines and workers were informed that no special protective clothing was needed to complete the field removal.
- In conclusion, no lead was detected.

Children with ongoing exposure to the Ironbound field tested normal for lead

- The City of Newark made blood lead testing available to children who played on the field.
- According to State of New Jersey Deputy Commissioner and State Epidemiologist Dr. Eddy Bresnitz, results concluded that the children had blood lead levels equal to or less than those tested in other areas of New Jersey who had not been exposed to other synthetic turf fields.
- Therefore, the Ironbound field did not result in elevated lead levels in the children from the Ironbound neighborhood.

Worker exposed to turf and particles for 30+ years tests normal

- Joyce Eason, a 34-year veteran of synthetic turf factories – who has spent her career working in a factory environment operating and managing a nylon knitting machine - and who worked daily with turf and turf particles, was tested for lead in April 2008.
- Joyce has worked 10 hours per day, 5 days per week since 1974 constantly handling and cutting nylon fibers and knitted nylon, and thus being exposed to particulate matter.
- Joyce's blood lead level registered at 1, a nearly non-detectable level especially when measured against the maximum allowable limit for children of 10.
- Joyce is living proof that daily contact - even over an extended period of time - with nylon fibers is safe.

Amount of ingested turf required to pose a risk is absurdly unrealistic

- The voluntary minimum standard used by the U.S. toy industry for migratory lead (dose) is 90 parts per million (ppm). U.S. government caps the lead limit for paint on children's toys at 600 ppm.
- Based on the concentration of lead in lead chromate and assuming 50% bioavailability, a 50-pound child would have to ingest 10.8 square feet of synthetic turf to get a 90 ppm dose of lead. The same child would have to ingest 71.1 square feet of turf to get a 600 ppm dose, the U.S. federal limit.

“The available science clearly supports the safety of synthetic turf, including old and new, and nylon and polyethylene fibers”.