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Researchers warn high levels of arsenic in mulch could pose hazard

By Neil Santaniello
Staff Writer
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Bare earth barely peeks anymore through South Florida's ubiquitous carpets of colorful mulch. But those decorative blankets of chipped and brightly dyed wood can hide something besides dirt and sand: arsenic.

Elevated levels of the poisonous chemical are finding their way into some types of mulch shredded from recycled lumber that has been treated to make it more resistant to insects, mold and rot, according to a Pompano Beach laboratory, a university researcher and environmental regulators.

And that ground cover is being spread across South Florida flower beds, gardens, parks and playgrounds, where it can leak arsenic into soil and groundwater and possibly pose a health hazard to people who come into contact with it, experts on the issue said.

"There's a lot of dirty mulch in this state," said Lynn Griffith, president of A&L Southern Agricultural Laboratories in Pompano Beach, which tests soils for farmers, golf courses, landscapers and others.

Griffith told a recent mulch industry meeting in Hollywood he has seen exceedingly high levels of arsenic "quite a number of times" in lab test results -- levels from 20 to almost 150 parts per million. Those results are 10 to 71 times the level in a state cleanup guideline for arsenic-tainted soil, 2.1 parts per million.

The high amounts point to pressure-treated wood as the culprit, Griffith said.

A study by a University of Miami engineering professor provides corroboration. UM researcher Helena Solo-Gabriele, in a just-completed study, said colored mulch with bits of plywood, an indicator of recycled or construction and demolition wood, showed "the highest probability of contamination with arsenic." Nearly 75 percent of that type of mulch she checked had arsenic levels exceeding state soil and groundwater cleanup targets, she reported.

"The recycling of construction and demolition [wood] is a very good thing. It should be continued," Solo-Gabriele said. "But efforts need to be put in place to assure contaminated wood is pulled out of the mulch."

No federal or state health limits exist for arsenic levels in mulch, but U.S. Environmental Protection Agency rules prohibit the grinding of pressure-treated lumber -- infused with chromated copper arsenate, or CCA -- into mulch. The wood-preserving pesticide is not registered for mulch-making purposes, making it illegal for that use, said Robert LaGasse, executive director of the Mulch & Soil Council, a trade group.

In Florida, shredding wood treated with CCA into mulch could be deemed illegal disposal of hazardous waste by allowing the arsenic-treated wood to be applied to land, said Linda Frohock, a government analyst for the state Department of Environmental Protection's waste management division. That could result in a \$27,000 fine from the state, she said.

Arsenic is a naturally occurring, odorless and colorless chemical. High doses can quickly kill people who consume or breathe it, but treated wood does not pose that short-term, acute poisoning risk, Solo-Gabriele said.

Chronic exposure -- small doses over a long term -- can cause cancer, she said. Arsenic also can harm skin, internal organs and blood vessels and impair the nervous system.

LaGasse's council last year launched a truth-in-advertising program that certifies mulches as nontoxic and rejects products with 10 parts per million or more of all three CCA components: chromium, copper and arsenic, he said.

Wood manufacturers, in an agreement with the federal EPA, stopped treating wood with CCA for residential settings by the end of 2003. Still, a lot of that wood, greenish-hued when it came off the store shelves, is still in use, particularly in outdoor settings.

The preservative, injected deeply into wood under pressure, has been applied to building materials since the 1940s and has been used during the past 35 years largely in outdoor environments, according to the EPA. It remains in play structures, decks, gazebos, docks, landscape borders, picnic tables, patios and walkways.

Concern about arsenic leaking from pressure-treated wood has prompted some Florida communities during the past half-decade to close wooden playgrounds and remove their equipment.

The Florida Department of Environmental Protection is working with manufacturers to find a way to keep treated wood out of their mulch, said Richard Tedder, a program administrator for the DEP. The department is considering taking "a harder position" and writing a prohibition into its rules perhaps by the end of this year, Tedder said.

After a few years of weathering, it is almost impossible to differentiate treated wood from untreated wood, experts said. Solo-Gabriele said her research has shown that inexpensive stains, and more expensive X-ray equipment, can identify CCA-treated wood from other wood within seconds, making it possible for mulch producers to know the difference before grinding.

Mulch is a \$400 million dollar a year industry in the United States, and Florida, a huge consumer of mulch, accounts for one-quarter of that figure, according to the mulch council.

Home Depot told suppliers it would not accept CCA-treated lumber or any recycled wood in the mulch it sells, said Don Harrison, spokesman for the company's southern division. Lowe's spokeswoman Chris Ahearn said "it's not been a problem for us because we're not using any recycled product in mulch." But many other retailers, including garden centers and landscape customers, sell mulch by the bag or from piles or bins.

Florida Mulch Inc., an Osceola manufacturer that says it sells certified mulch made from logs of cypress, pine and oak, sponsored the Hollywood arsenic awareness "clinic." Company President and CEO Willard Palmer said the word has to get out because of the public health risk of what he termed "crazy high" arsenic levels.

But he said the treated wood is giving competitors an unfair advantage by allowing them to blend in cheaper material and undercut his prices. And four hurricanes that ripped through Florida buildings and homes last summer may have unleashed a greater supply of treated wood to grind, mulch industry people said.

The problem is more pronounced in South Florida, Palmer says, because the region does not have timber to log and must turn more to recycled wood.

Neil Santaniello can be reached at nsantaniello@sun-sentinel.com or 561-243- 6625.