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Defending Refined Coal Tar-based Sealer Pavement Magazine, March 2010



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Editor

Following a January report of a new "dust study" attempting to link [refined](#) coal tar-based sealer to possible cancer-causing compounds, the Pavement Coatings Technology Council (PCTC) has mounted a multi-pronged defense of the sealcoating material, which has been under attack since Austin, TX, banned refined coal tar-based sealer in 2006.

Anne LeHuray, PCTC executive director, says PCTC met at National Pavement Expo to formulate a response to the dust [study](#) findings as part of its continued efforts to help public agencies, contractors, and the public understand the refined coal tar-based pavement sealing material.

Among the first steps taken, because PCTC is not versed in dust studies, was hiring a specialist who will analyze the new Austin study and a related Canadian Settled Dust Study and report back to PCTC in March about the studies' process, results, and conclusions. In addition, a PCTC follow-up study that LeHuray says refutes the 2005 Austin study that resulted in a refined coal tar-based sealer ban is in the final stages of the scientific review process.

"If you believe some of the hyperbole that has appeared in the press about these studies, then refined coal tar-based materials are the most dangerous substances on earth," LeHuray says. "PCTC member companies and contractors have safely used this product for six decades and have no reason to think there are any adverse effects when used according to manufacturers recommended specifications."

Flawed Assumptions, Unjustified Leaps

LeHuray says the new attack, which attempts to link refined coal tar-based sealer to concentrations of polycyclic aromatic hydrocarbons (PAHs) in dust collected from ground floor [apartments](#) in Austin, suffers from many of the same flaws of the initial Austin Barton Creek study, which purported to study PAH sources in water runoff.

"The assumptions underlying many of the conclusions in this 'dust [study](#)' are suspect because they rely on the same flawed logic that formed the basis of the Austin Barton Creek study," LeHuray says. "The lack of evidence of damage to organisms in Austin's Barton Creek Pool and the U.S. Public Health Service finding that there is little risk to people who swim in the pool seem to have spurred the Austin opponents of sealant use to look for other ways to create human health concerns."

In the new study, house dust from 23 ground floor apartments - 11 near parking lots sealed with [refined](#) coal tar-based sealant and 12 near parking lots either unsealed or coated with other substances - was collected and analyzed. According to the results the study found that dust in apartments next to parking lots sealed with refined coal tar-based sealant had PAH levels an average of 25 times higher than other locations. The study draws the conclusion that refined coal tar-based sealers are the source of the PAHs.

But the PCTC says that's not the wording in the study's own report. In a preliminary response to the dust study PCTC says, "The underlying premise of the dust study is the same as what it was in the first study in Austin back in 2005. What they concluded is that refined coal tar-based sealant is likely a significant source of PAHs. But if you follow the studies the initial report says 'could be' which was changed in subsequent publications from 'could be' to 'are', and that's a big difference. It's just a [language](#) change, but the change in language replaces speculation with certainty without any substantiation."

Other dust study questions include:

- The lack of "fingerprinting" of the PAH sources which results in more reliance that conclusions reached in the earlier suspect Austin studies are valid,
- The failure to normalize PAH levels to total dust collected, and
- A reliance on concentrations despite the fact EPA has indicated that using the "concentration (weight per weight) of a contaminant in settled dust is a poor indicator of risk."

Rob Vance, vice president of sales for Vance Brothers Inc., a producer of both asphalt-based and refined coal tar-based sealers, says the results and conclusions of both Austin studies are open to interpretation.

"As far as we're concerned, the studies and conclusions we're arguing about are based on interpretation," Vance says. "These people clearly attempt to single-source [refined](#) coal tar as responsible for all the PAHs they found and there's just no evidence to suggest that. We're asking our customers to contact us before jumping to any conclusions, and we're telling them to realize that PAHs are everywhere in the environment. A focus on just refined coal tar-based sealants won't reduce the amount of PAHs.

"One has to wonder whether the agenda of the people in Austin is to reduce PAHs in the environment or ban a product that, for whatever reason, they don't like," Vance says. "Maybe the agenda is that refined coal tar-based sealer is a small industry group, more easily attacked than a large industry. Like asphalt sealer, coal tar-based sealers contain PAHs - but if they can eliminate the easiest target they can claim 'Look what I've done' whether or not what they've done

addresses the problem. I think they need to take the blinders off and look at the whole picture. This product's been around a long [time](#)."

LeHuray agrees. "Look at it in the context of the body of work done in the Austin area, where all this was started and remains focused," she says. "A reasonable question to ask is whether they have an agenda. It certainly appears that their agenda is to directly identify refined coal tar as 'the source' of PAHs. Not 'a' source or 'a minor source,' as we believe it is, but 'the source' - a conclusion that is clearly not supported even by their own [data](#)."

Girish Dubey, president of Star Inc. which produces asphalt-based and refined coal tar-based sealers, says that even after concerns were raised about PAHs originating from refined coal tar sealers, the U.S. EPA and the Texas Commission on Environmental Quality have concluded that Barton Creek was safe for swimming. "It has been concluded through independent evaluations that the U.S.G.S. Austin studies are flawed and grossly extrapolated," Dubey says.

But Vance says most people in the industry are finally recognizing the importance of this issue. "This is not a coal tar issue, it's a pavement sealer issue," Vance says. "There are PAHs in refined coal tar-based sealers and there are PAHs in asphalt-based sealers. And if they start eliminating one because they can, that's the first step in eliminating the other one. This is not just a one-product specific issue we're going to be dealing with."

Surface Coatings' Lee Lewis agrees. "It needs to be understood that this is an industry-wide situation. The people who initiated the coal tar ban in Austin made it very clear that their intent was to ban asphalt next," Lewis says.

"It is hard to make a case that this has become an issue based on science when a variety of past studies, including one by the Texas Department of Transportation, have shown that the PAHs contained in products such as [refined](#) coal tar generally do not "leach" out. Therefore they are not a contamination hazard. In fact coal tar is actually considered a recycled material."

Why PAHs?

LeHuray says what makes this issue so difficult to study and explain is the nature of PAHs, which are a group of more than 100 chemical compounds commonly found in the environment in such diverse sources as [car](#) exhaust, motor oil, industrial processes, electric power generation, wood burning, charcoal grilling, and even forest fires. Considering those sources it's not surprising that research has also found that increased urbanization results in increased PAH levels.

"PAHs are ubiquitous," she says. "Many are listed as 'possible human carcinogens' but none in the U.S. are listed as 'known human carcinogens.' That's a difficult distinction to make - between 'known' and 'possible' human carcinogens - but it's an important distinction. Typically a 'known' human carcinogen has been shown to cause cancer in humans based on epidemiology studies

which review the health experience of individuals in a particular industry compared to the [general population](#). 'Possible' human carcinogens are listed that way because they cause cancer in laboratory animals exposed at high doses for about two years."

LeHuray says neither the initial Austin Barton Creek study nor the recent Austin apartment dust study take into account any other possible sources for PAHs, instead citing refined coal tar sealer as the single dominant PAH source.

In fact, a PCTC response to the initial Austin study of runoff into waterways refuted those results, noting that "retesting of this the same body of water...over two years after [refined](#) coal tar sealers were banned in Austin showed no discernible difference in either the amount or types of compounds discovered in the initial testing." So PCTC asks, "If coal tar sealers were the cause of the high PAH levels - why was there no improvement over time?"

PCTC says that research "including a scientific review of the Austin studies," found that "traffic-related emissions, not runoff from pavement sealed with refined coal tar-based sealer, is consistently identified as the primary source of PAHs in the urban environment."

Crude Coal Tar vs. Refined Coal Tar

LeHuray and others say part of the problem with the two Austin studies is their inability or unwillingness to draw a distinction between the crude coal tar by-product of steel manufacturing and the refined tar used to make refined coal tar sealer, which is a selectively distilled product that meets ASTM D 409 specifications for Road Tar (RT-12). Refined tar sealer is not made using crude coal tar as many reports allege.

RT-12, a refined coal tar material, is produced by Koppers, Tangent Rail, Ruetgers, and Coopers Creek and sold to sealer producers as the basis of refined coal tar sealer.

Refined coal tar itself is used in making FDA-approved medications such as shampoos, soaps, ointment treatments for dandruff and psoriasis, and in making acetaminophen. All these products that contain refined coal tar are sold over the counter.

"Neutrogena Corp. (a user of coal tar in dandruff controlling shampoos) published a report that crude tar did not result in any instance of skin cancer when crude tar was applied and kept for 24 hours on large parts of their bodies of 1,924 test subjects," Dubey says. "There has not been any known case of cancer with [refined](#) coal tar sealers."

LeHuray adds that it's important to realize that refined coal tar-based products including refined coal tar sealer are not regulated as hazardous waste by the EPA. "The fact that the sealcoating industry uses refined coal tar - and not crude coal tar - has a [great deal](#) of impact because of the implication in Austin studies," she says. "If you read those studies crude coal tar is often confused with refined coal tar-based sealer."

Vance agrees. "Crude coal tar and RT-12 are two different materials. Crude coal tar, which is unrefined, has very different physical properties and chemical composition compared to refined coal tar [meeting](#) RT-12 specifications," Vance says. "But the material we deal with and the material contractors buy and apply has been chemically processed - it's refined coal tar.

"The product we get from RT-12 suppliers is very different from what distillers get from steel mills as their raw feedstock material. The folks who are doing these studies are trying to lump everything together and that's not accurate. Sealer uses refined coal tar which involves an extra and selective level of processing."

Bill Maclean of The Brewer Company, which produces a refined coal tar-based sealer, adds that the sealcoating industry is committed to producing a quality, long-lasting refined coal tar product that is safe to use. "Everyone we know is trying to do the right thing," Maclean says. "No one is looking to produce a product that harms people or the environment.

"It is unfortunate that the [research](#) so far is one sided and subjective and that contradictory research is lagging. If you're going to have a debate like this you need to not cloud the issue," Maclean says. "We were probably naïve to think we didn't need research to defend ourselves and we are certainly behind the curve. But we're well along the way to changing that."