

Coal Tar FREE AMERICA

First Guide to Asphalt Sealer Test Results

There hasn't been a central location for information about the chemical concentrations of asphalt sealcoating products which don't contain coal tar...until now.

We didn't think we needed to. In general we thought asphalt-based products neatly fit into a category with low concentrations of toxins called polycyclic aromatic hydrocarbons or "PAHs." Coal tar sealers on the other hand, exceeded those concentrations by a thousand times, so it wasn't that important to differentiate between the non-coal tar products.



Now We Need a Guide

In 2015 a new line of non-coal tar products was introduced which challenged that thinking. We wrote about it in an article entitled, "[New Sealer Alternatives Aren't All They're Cracked Up to Be.](#)"

Initial tests and product literature indicated these new products have PAH concentrations more akin to coal tar than asphalt. The comparison figure below illustrates this point. The height of known structures can be compared to the concentrations of products. Before, most asphalt-based products were in the range of a small dollhouse with low concentration of PAH's and coal tar products loomed tall with large concentrations like the One World

Trade Center depicted.

Along comes a new class of products, tall and imposing, and more like a superstructure than a dollhouse: sealers with steam cracked asphalt or heavy pyrolyzed oil (HPO). While we have but one data sampling for these products, we know from literature that HPO has plenty of PAHs. Back in 1999 and again in 2010, the EPA said this product has "considerable PAHs." Requests have been made to other sealer companies using this ingredient, but test data has not been supplied.

New Regulations

Given this new information, communities have begun to ban high PAH sealers. The first was Van Buren Township, Michigan. Others have followed and as of this writing, there is a bill pending in the Michigan legislature that would ban all coal tar products and those with a PAH value over 0.1% in the entire State.

Re-examination of Existing Products

A closer look at the ingredients of many asphalt-based products yields a level of uncertainty in their ingredients. Do they too have HPO in the mix or is this just a newly added ingredient? Sometimes it is unclear.

That is why when this first came to light, we asked (December 2015) the industry to step forward and have your products tested.

Industry Challenge

We celebrate with Michigan and the [Huron River Watershed Council](#) with this new ban, but at the same time we issue this challenge to the makers of all pavement sealers: clearly test and notify the public of the PAH values in your products. Some of you don't want to know, but the public deserves to know. So send in your certified lab results for publishing here.

Many of you heeded that request; and many, perhaps more did not. We also compiled relevant results from studies by the USGS, University of

Washington, and the City of Austin. Only products that are commercially available today are included.

What the Testing Doesn't Reveal

The hope is that this is a beginning of a conversation not the end. We know that lab results are a snapshot in time and that these numbers may change over time. Sometimes labs make mistakes. So do engineers and scientists. If you see a discrepancy in our reporting vs. your results, then send me an email at coaltarfreeamerica@gmail.com.

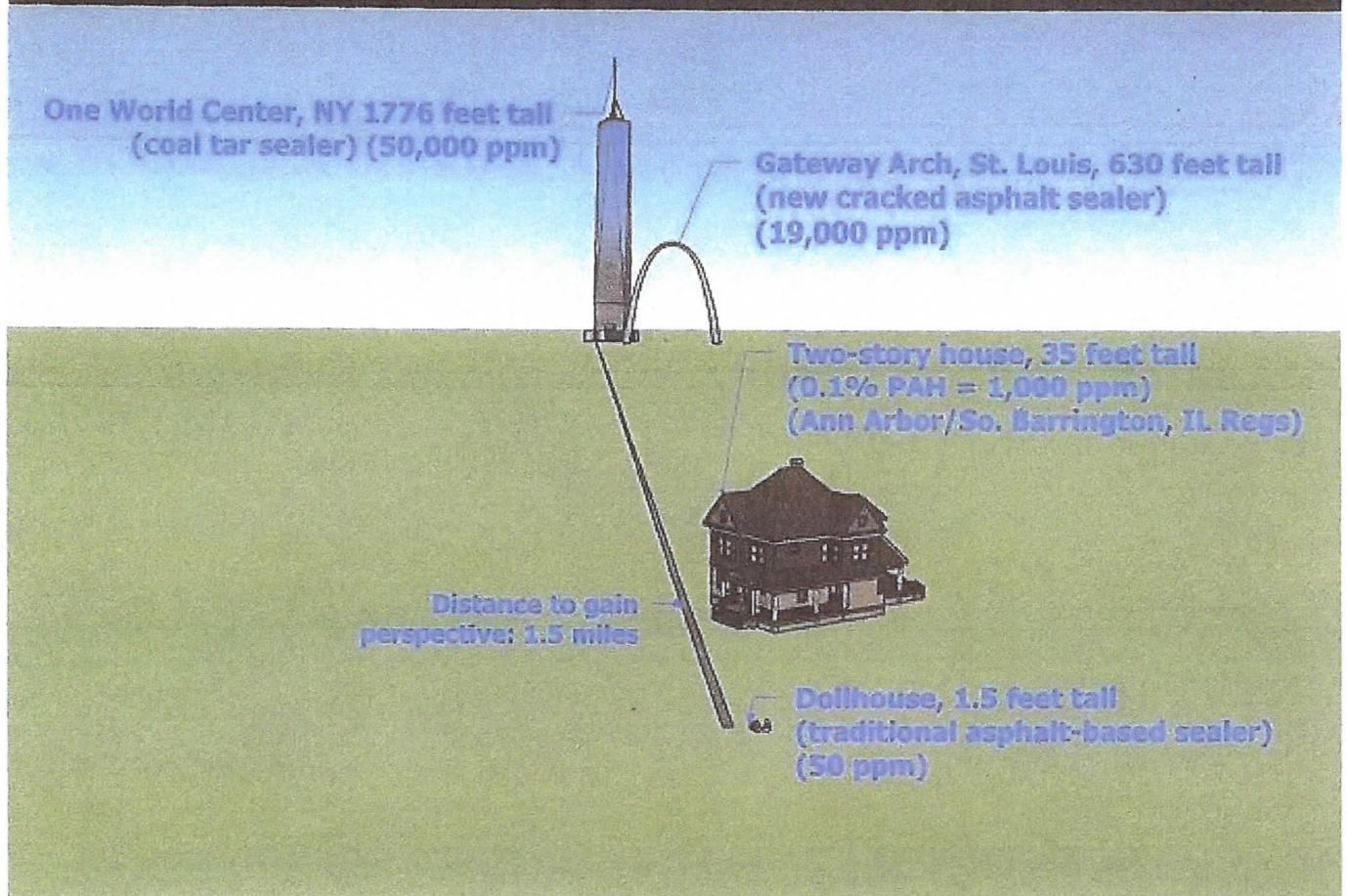
These numbers do NOT reveal the performance of a product to do the job of pavement sealing. It won't show how black it is or how fuel resistant it is either. We need Consumer Reports for that!

What the Testing Does Reveal

These tests do show whether products meet the new regulations in places like South Barrington, IL or Ann Arbor Michigan. In case you were wondering, the standards in these communities mirror the European definition of a hazardous pavement at 1,000 parts per million (ppm) or at a concentration of 0.1%.

By the way only the Henry product is available in a 5 gallon bucket at retail stores.

Comparison of Sealer Types & Standards to Building Heights



Apples to Apples Comparisons

Some have reported their results as "wet weight," while others have done so on a dry weight basis. The conversion is simple enough until you recognize that others actually applied the sealer to a surface and let it dry for 2 to 3 days and then scraped it off and sent it to a lab as a dry sample.

When researchers in Canada did this they found a 70% decrease in PAH's in those first few days. The upper levels of coal tar sealers they tested were 120,000 ppm wet and 32,000 ppm for dry for the very same product. This represents a 70% decrease in PAH levels during drying. How this would affect HPO sealers is uncertain but could have a similar effect. All figures have been adjusted to reflect a dry weight basis, but there has been no allowance for the loss of PAH's during drying and its effects.

At extremely low levels of PAH this distinction doesn't matter, but for a product that is on the fence with a local regulation it might. Communities must decide if their ordinances apply to dry, wet or both. If by curing there is a loss of PAH's, then these volatilizing PAH's may be contributing to air quality problems. A reasonable way forward would be that if a sealer exceeded the standard in either wet or dry state, then it is unacceptable.

None of the products tested so far are that close to the standard.

Future Testing

Technically the test is EPA Method 8270C for 16 primary PAH's. If a wet sample is sent, have the lab measure the moisture content and the total PAH value. This would then be converted to a dry weight basis. Additional results will be compiled and listed on a individual tab on this website until a more formal process is developed for testing and verification of the ingredients in these products.

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Asphalt Sealer	PAH Conc. (ppm)(dry wt.)	% PAH
TuffSeal/Acrypave	Non-detect	0
Bio-Seal/Aexcel Corp	Non-detect	0
Eco-Seal/ Rochester, NY	Non-detect	0
Carbonplex /EcoStar Science	Non-detect	0
GuardTop	Non-detect	0
<u>Pitch Black</u>	<u>Non-detect</u>	<u>0</u>
Crack Stopper/Gardner Gibson	12	0.001%
CMS-1P/QB/Western Colloid	59	0.006%
SafeSeal Michigan	40	0.004%
Henry Seal 532, Henry Company	50	0.005%
GSB 88 Gilsonite/ ASI	215	0.0215%
Paveshield/ NEYRA Industries	694	0.0694%

Common Regulatory Limit	1,000	0.100%
Jennite AE/NEYRA Industries	1,168	0.117%
Master Seal/Sealmaster	2,867	0.287%
Liquid Road/Sealmaster	16,272	1.627%
Black Diamond/ GemSeal	19,064	1.906%
Average Coal Tar Sealer	50,000	5.00%

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