

Coal-Tar Sealant & PAH FACT SHEET



CLEAN WATER *is essential*
to our HEALTH, ECONOMY,
and WAY OF LIFE.

Sebago Lake

Overview of coal-tar sealants

Coal-tar sealants are a black liquid made from coal-tar pitch or crude coal tar, that is sprayed or painted onto pavement. These products are used to maintain the black appearance of pavement, and reapplication is needed every two to five years to keep the desired look. Some believe the use of these products prolong the life of pavement, but this claim is not supported by data.

Coal-tar sealants are a threat to human health and the environment. These products contain more than 200 types of **polycyclic aromatic hydrocarbons** (PAHs), seven of which are known carcinogens.¹ PAHs are also toxic to wildlife. Stormwater runoff can carry PAHs from sealed pavement directly into rivers, streams, lakes, and the ocean, putting fish and other aquatic life in jeopardy.

Stormwater runoff and stormwater pollutants

Stormwater runoff is precipitation (rain or melted snow) that flows over land. Stormwater can pick up pollutants as it runs off the land into lakes, streams, rivers, and the ocean; this is called polluted runoff.

Storm drains collect runoff and convey it without treatment directly into water bodies. Polluted runoff affects our drinking water, health, wildlife, and property values. Common stormwater pollutants include:

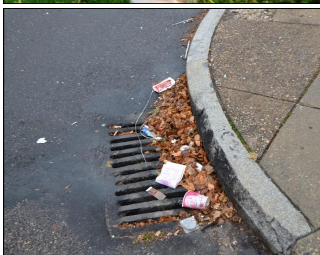
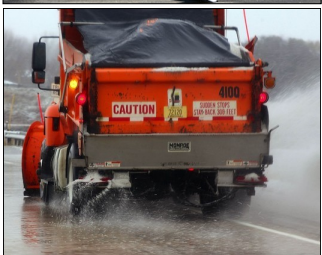


Chemicals, like pavement sealers and pesticides, are carried with runoff and can be toxic to **aquatic organisms**, which are used as an indicator of stream health in Maine. These toxic chemicals are difficult and costly to remove from stormwater runoff and the environment.

Pet waste contains bacteria that can wash into swimming areas and create health hazards, and contribute to beach closures.

Salt, which is spread on roads, sidewalks, and parking lots to melt snow and ice, dissolves in water or snowmelt. Once salt gets into our water it cannot be removed.

Debris, like plastic, cigarette butts, and other forms of litter, is unsightly and can harm wildlife.



Facts about coal-tar sealants

What are the concerns with coal-tar sealants?

- They contain more than 200 forms of **polycyclic aromatic hydrocarbons (PAHs)**, seven of which are known carcinogens.¹
- PAHs:
 - Are toxic to plants, mammals, birds, fish, frogs, and other **aquatic organisms**.
 - Are known and probable **carcinogens** that are easily transported through the environment and get ingested by animals and humans. Children are especially at risk.¹
 - Build up in wildlife tissue — this is an issue for humans when fresh water and saltwater fish are consumed.²
 - Contaminate soil and water resources and are easily transported via a number of routes, as described below.
 - Have been measured in dust from buildings adjacent to coal-tar sealed parking lots. PAH concentrations are 25 times higher under these conditions as compared to buildings without adjacent seal coated surfaces.³
- Living adjacent to coal-tar-sealed pavement (a parking lot or driveway, for example) is estimated to increase lifetime cancer risk 38 times, and much of the increased risk occurs during early childhood.⁴



Other coal-tar based sealant bans in the US

Statewide bans:

- Washington
- Minnesota

Regional bans:

- City of Austin, TX (2006)
- Dane County, WI (2007)
- Washington D.C. (2009)
- Suffolk County, NY
- Montgomery County, MD

How is coal-tar sealant transported?

- Particles are worn off by vehicle traffic or snow plows and transported by stormwater runoff, adhesion to tires, tracked on shoes, wind, and volatilization.^{5,6}
- Studies found that water running off a parking lot with coal-tar sealant had from 30 times⁷ to greater than 50 times⁸ more PAHs than water from an unsealed parking lot. This contaminated water drains into rivers, streams, lakes, and the ocean putting fish and other aquatic life in jeopardy.

Asphalt-based products are a better choice.

- Made from selectively refined fraction of crude oil (from refining petroleum).
- Less harmful and less of a skin irritant (coal-tar burns skin on contact).
- Gives the same black appearance at a similar cost.
- Good longevity with quality ingredients and proper application (lasts two to four years).
- Holds up best in lower use/traffic areas.

Long Creek

Many businesses in the Long Creek watershed (South Portland, Portland, Scarborough, and Westbrook) are legally obligated to pay into the Long Creek Watershed Management District to clean up Long Creek. Data collected in Long Creek show that PAHs from coal-tar sealants are reaching the stream.

The Maine Department of Environmental Protection bases their evaluation of stream health on the **aquatic organisms** that live in the stream, because they are sensitive to pollution. If there is too much pollution in a stream, the organisms cannot survive. One application of coal-tar sealant product has the potential to pollute the stream and kill stream life.



¹ EPA Health Hazard Information (<http://www.epa.gov/ttnatw01/hlthef/polycycl.html>).

² UK Marine Special Areas of Conservation (http://www.ukmarinesac.org.uk/activities/water-quality/wq8_40.htm).

³ Mahler, B.J., et.al., 2010. Coal-Tar-Based Parking Lot Sealcoat: An Unrecognized Source of PAH to Settled House Dust, Environ. Sci. Technol., 44 (3), pp 894–900 (<http://pubs.acs.org/doi/abs/10.1021/es902533r>).

⁴ Williams, E.S., et.al., 2013, Cancer risk from incidental ingestion exposures to PAHs associated with coal-tar-sealed pavement. Environ. Sci. Technol., 47 (2), pp 1101–1109 (<http://pubs.acs.org/doi/abs/10.1021/es303371t>).

⁵ Van Metre, P. C.; Mahler, B. J., Contribution of PAHs from Coal-Tar Pavement Sealcoat and Other Sources to 40 U.S. Lakes. Sci. of the Total Environ., 2010, v.409, 334-344 (<http://tx.usgs.gov/coring/pubs/Van%20Metre%20PAH%20sources%20TOTEN2010.pdf>).

⁶ Yang, Y., et.al., 2010, Influence of coal-tar sealcoat and other carbonaceous materials on polycyclic aromatic hydrocarbon loading in an urban watershed: Environ. Sci. Technol., v. 44, p. 1217-1223 (<http://pubs.acs.org/doi/abs/10.1021/es902657h>).

⁷ Watts, et.al., 2010. Polycyclic Aromatic Hydrocarbons in Stormwater Runoff from Sealcoated Pavements. Environ. Sci. Technol., 44 (23), pp 8849–8854 (<http://pubs.acs.org/doi/abs/10.1021/es102059r>).

⁸ Mahler, et. al., 2012, Coal-Tar-Based Pavement Sealcoat and PAHs: Implications for the Environment, Human Health, and Stormwater Management. Environ. Sci. Technol., 46 (6), pp 3039–3045 (<http://pubs.acs.org/doi/abs/10.1021/es203699x>).