

Health Policy Brief:

Coal Tar & Coal-Tar Pitch

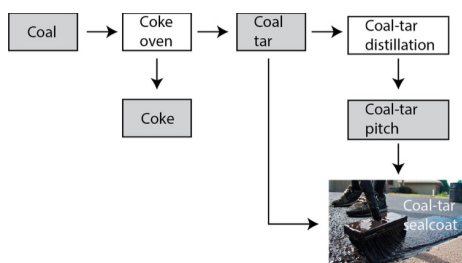
Coal Tar & Coal-Tar Pitch

What are coal tar and coal-tar pitch?

Coal tar is the byproduct of the high-temperature treatment of coal, which makes the energy fuels coke and natural gas. Coal-tar pitch is a coal tar product produced from this byproduct. Both coal tar and coal-tar pitch are usually thick, black or dark brown liquids or semi-solids with a smoky or aromatic odor.^[1]

Where do they come from?

Coal tar is a byproduct of coke production, a solid fuel that contains mostly carbon and coal gas. Coal-tar pitch, however, is produced through the distillation or heat treatment of coal tar. Though related, coal tar and coal-tar pitch are distinct. A chart demonstrating the process of how coal tar becomes coal-tar pitch is below.^[2]



Where are coal tar and coal-tar pitch found?

Coal tar and coal-tar pitch can be found in products utilized by trades workers and personal care products, textiles, and food.^[3] They are found in pavement tar, roofing tar, coal-tar paints, coal-tar enamels, other coal-tar coatings, and refractory bricks. Products used to treat eczema, psoriasis, and dandruff may also contain coal tar.

How are people exposed to coal tar and coal-tar pitch?

The primary routes of human exposure to coal tar and coal-tar products are inhalation, ingestion, and absorption through the skin. Products like coal-tar

sealcoat off gases dangerous chemical compounds called polycyclic aromatic hydrocarbons (PAHs).^[4] Exposure to coal tars and coal-tar pitches may occur at foundries and during coke production, coal gasification, and aluminum production. The application of consumer products containing coal tar onto the body is another pathway of exposure.

What are the health effects from exposure to coal tar and coal-tar pitch?

Dermatological use of coal tar increases the risk of skin cancer. Additionally, coal tar may cause skin irritation or skin rash.^[5] Inhalation of PAHs from coal-tar-sealcoated pavement, especially at a young age, increases the risk of lung, skin, bladder, and respiratory cancers.^[6]

Occupational exposure to coal tar increases the risk of:

- Rash or severe irritation of the skin
- Chemical burns of the surfaces of the eye
- Convulsions
- Mental confusion
- Unconsciousness^[7]
- Skin cancer
- Lung cancer
- Bladder cancer
- Kidney cancer
- Digestive tract cancer^[8]

Who is most at risk?

Individuals who work at foundries, coke production sites, coal gasification sites, and aluminum production sites are most at risk of exposure. Occupational exposure is likely for those who may work with pavement tar, roofing tar, coal-tar paints, coal tar enamels, refractory bricks, and other coal-tar coatings.



Individuals with skin conditions, such as eczema or dandruff, also have a higher risk of exposure as they are likely to utilize coal-tar products.

All the occupational settings listed as high risk are found in Allegheny County. The largest American coke oven, U.S. Steel's Clairton Coke Works, is located in the Mon Valley.

Are coal tar and coal-tar pitch especially unsafe for children?

Several studies indicate that children, especially those between three and five years of age, living near coal tar-sealed parking lots and driveways ingest twice as many of polycyclic aromatic hydrocarbons (PAHs) from household dust than from their food, which is typically the largest source of children's coal tar intake.^[9] This exposure can lead to developmental problems.

Additionally, coal-tar-based pavement sealant—a product applied to many parking lots, driveways, and even playgrounds primarily in the central, southern, and eastern U.S.—has PAH concentrations 100–1,000 times greater than most other PAH sources.^[10] Recent reports found that PAH concentrations in house dust

in residences adjacent to parking lots with coal-tar-based sealant were 25 times higher than in places adjacent to unsealed asphalt parking lots.^[11]

Are coal tar and coal-tar pitch carcinogens?

Coal-tar pitch and coal tars are classified as Group 1 carcinogens, meaning they are confirmed carcinogenic to humans. The processes of coal-tar distillation, coke production, and coal gasification, as well as the occupation of “paving and roofing with coal-tar pitch,” are also in this highest class of carcinogenicity.^[12]

Are coal tar and coal-tar pitch disruptive to reproductive health?

Presently, there is no scientific evidence that coal tar disrupts someone's reproductive health.

Current Coal Tar And Coal-Tar Pitch Regulations

Federal Laws

According to the FDA, any drug products containing coal tar at levels of 0.5% to 5% (the level deemed effective and safe) must specify on a label the concentration of coal tar. Hair dye and certain skin products must display a warning label if they contain coal tar and must indicate specific precautions for that product.^[13]

Additionally, OSHA has not yet established a substance-specific standard for occupational exposure to coal tar pitch volatiles (CTPVs); however, OSHA's air contaminants standard for general industry, maritime, and construction regulate exposures.^[14]

While the United States does not have any robust federal policy that mitigates coal tar use, the European Union bans coal tar in cosmetics.

State Laws

Presently, there are no coal tar laws in Pennsylvania. However, other states have introduced and/or implemented bans and restrictions on coal tar sales.

- **Minnesota:** In 2009, Minnesota restricted state agencies from purchasing undiluted coal tar-based sealants and directed its Pollution Control Agency to study the environmental effects of coal tar-based sealants and develop management guidelines.^[15] In 2013, the Minnesota Legislature banned the sale and use of coal tar-based sealants per the study's findings.
- **Washington:** Washington state became the first state in the nation to ban coal tar asphalt sealants in 2012.^[16]

Local Policy

Locally, Fox Chapel unanimously approved a ban on coal tar-based pavement sealants on April 20, 2020.^[17] The municipality notified contractors of the ban and encouraged the use of asphalt-based sealers as a safer alternative. Other examples of municipal coal tar laws are listed below:

- **Austin, Texas:** Austin banned the sale and use of coal-tar-containing pavement sealants in 2005.^[18]
- **The District of Columbia:** The District of Columbia banned the sale and use of coal-tar sealcoat in 2009.^[19]

Policy Recommendations

A federal ban on coal tar production and coal-tar pitch in any commercial product would be the most health-protective and efficient policy solution. Alternatively, states and localities can ban the sale or use of cosmetics and industrial products containing coal tar and coal-tar pitch. Municipalities may also prohibit the use of coal tar or coal-tar-pitch-based sealants.

Endnotes

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4. Phillips, Richard D. (2005) Coal Tar Encyclopedia of Toxicology <https://www.sciencedirect.com/topics/medicine-and-dentistry/coal-tar>
5. Mayo Clinic (June 2020) Coal Tar (Topical Route) <https://www.mayoclinic.org/drugs-supplements/coal-tar-topical-route/side-effects/drg-20068614?p=1>
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16. Washington State House Democrats (May 2011) Washington becomes the first state to ban toxic coal-tar pavement sealants <https://housedemocrats.wa.gov/blog/2011/05/05/washington-becomes-the-first-state-to-ban-toxic-coal-tar-pavement-sealants/>
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18. City of Austin (July 2005) PAHs in Austin, Texas: Sediments and Coal-Tar Based Pavement Sealants Polycyclic Aromatic Hyrdocarbons <https://www.austintexas.gov/department/coal-tar>
19. DC.gov (2021) Coal Tar & High-PAH Pavement Sealant Ban <https://doee.dc.gov/coaltar>