

Creosote:

What Is It? What Are the Risks?

How can creosote affect me?

Creosote is a substance that is widely used as a wood preservative. It can be hazardous to your health if you are exposed to high levels or for a long time. This publication answers questions about creosote and what effects it can have on human health and the environment. The publication is intended for the general public, but especially for people who live and work around sites where creosote has been misused or mis-handled.

What are the risks of exposure to creosote?

Most people who are exposed to creosote are exposed to very low levels. Exposure to creosote is higher for those who work or live around a site where creosote is produced or used to treat wood. Many of these sites are located in the timber-producing areas of East Texas where wood products are made and treated. The table below shows some potential ways people are exposed to creosote.

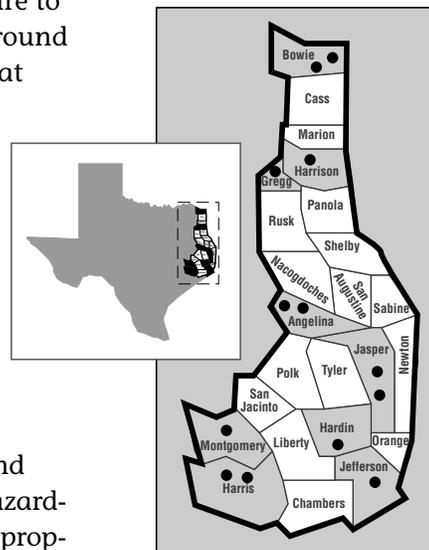
What about creosote and Superfund sites?

Creosote has been found at a number of Superfund sites in Texas (see Figure 1). Superfund sites are facilities—often abandoned—where hazardous substances have been either misused, or improperly disposed of, or both. At these sites, either the state or the federal government directs the cleanup. The primary goal of the Superfund program is to protect human health and the environment.

Table 1
Some Examples of How People May Be Exposed to Creosote

Work	<p>Working at facilities that make or use creosote.</p> <p>Handling creosote-treated wood for fences, bridges, railroad tracks, and telephone and electric poles.</p> <p>Handling railroad ties or treated poles for commercial landscaping and for use on farms and ranches.</p>
Home	<p>Living near areas contaminated with creosote, such as some Superfund sites.</p> <p>Using creosote-treated wood for fences, gardens, landscaping, decks, and playscapes.</p> <p>Living in a house or cabin built with creosote-treated wood that may cause exposure through the air or by direct contact with the wood.</p>

Note: This table does not contain all of the possible ways people may be exposed to creosote.



The Texas agency in charge of Superfund activities is the Texas Commission on Environmental Quality (TCEQ). To find out more about Superfund sites in Texas, check the TCEQ Web site, www.tceq.state.tx.us (follow the link from “Index” to “Superfund”). You can locate the Superfund sites by city, county, and alphabetical order.

Figure 1
State and Federal Superfund Sites in Texas with Creosote Contamination

The federal agency in charge of Superfund activities is the Environmental Protection Agency (EPA). The EPA Web site for Superfund sites is www.epa.gov/superfund (follow the link from “Superfund Sites” to “Locate Superfund Sites”).

Some creosote Superfund sites may be contaminated with other wood preservatives. These preservatives may include arsenic, chromium, and pentachlorophenol (PCP or penta). For more information about what contaminants are found at a particular Superfund site, please visit the Web sites previously listed.

What is creosote?

Creosote is a mixture of many different chemicals. There are several different types of creosote mixtures. The most commonly used creosote mixture is a type known as *coal tar creosote*. It is made by heating coal to high temperatures. This publication focuses on coal tar creosote. Use of the word “creosote” in this publication refers to coal tar creosote.

Creosote has been used in medicines, pesticides, and wood preservatives. Most of the creosote used today is for preserving wood for railroad ties, bridges, fence posts, an poles for telephone and electric wires. The creosote increases the life of the wood by controlling insects, fungi, and bacteria that can destroy it.

What does creosote look like?

Creosote is an oily liquid that does not dissolve easily in water. It is usually brownish-yellow to black in color. It is considered highly flammable. Creosote is often described as smelling like smoke, gasoline, or oil. It has a bitter taste that burns. You should never intentionally taste creosote or breathe its fumes.

How does creosote enter our bodies?

Creosote, as with any substance, can enter our bodies when we touch, breathe, or swallow it. These are called *routes of exposure* (see Figure 2). The amount of creosote that enters your body depends on the route of exposure, how much

creosote you are exposed to, the length of time you are exposed, and whether the creosote was in treated wood, food, soil, air, or water.

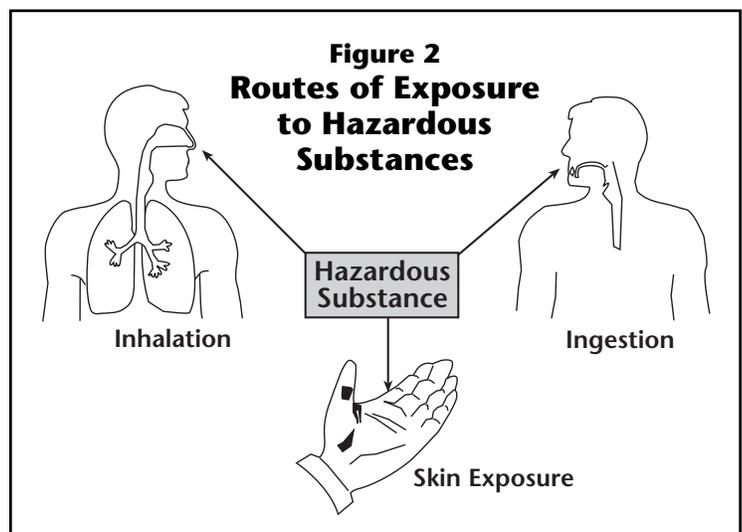
How can creosote affect my health?

The general public is not usually exposed to creosote at levels that would be expected to cause health effects. If health effects do occur following creosote exposure, they are typically very mild, short-term in length (minutes to hours), and do not require medical attention.

Severe health effects generally have been observed only in people who work with creosote as part of their job, particularly if the creosote is mishandled and protective equipment is not used. If you are concerned about potential creosote exposure, see the appropriate precautions for minimizing exposure in the section of this publication, “How can I reduce my risk of exposure to creosote?”

The *level of exposure* is just one of the important factors to consider in evaluating the possible health effects of creosote. Another important factor is the *toxicity* of the creosote, which is how poisonous it is. The toxicity of creosote varies because the makeup of creosote can differ, depending on the chemicals that are present and their concentration.

A list of possible health effects from creosote exposure follows. For examples of how people may be exposed to creosote, please refer to Table 1.



Skin

Touching creosote can cause redness, swelling, irritation, and burning of the skin. For exposure at high levels or for long periods of time, the skin may develop sores and become sensitive to sunlight.

Eyes

Exposing the eyes to creosote may cause tearing, irritation, burning, and light sensitivity. At high exposure levels, it may permanently affect eye sight. Permanent eye damage is not a typical effect.

Respiratory and digestive

Breathing creosote vapors or swallowing creosote may irritate the nose, mouth, throat, and stomach.

Poisoning

Swallowing large amounts of creosote—either accidentally or intentionally—can cause poisoning, convulsions, coma, and even death. Creosote poisoning is highly unlikely under most circumstances.

Internal organs

Long-term exposure by breathing or swallowing creosote can affect the kidneys, liver, and brain.

Cancer

Exposure to creosote may cause cancer in humans, according to both the EPA and the International Agency for Research on Cancer (IARC). Workers exposed to creosote by cleaning chimneys have shown a higher risk of skin cancer. It should be noted that the type of creosote found in chimneys is different than the type found in treated wood. There are no adequate cancer studies of workers exposed to creosote wood preservatives.

Birth defects

Studies have not shown a link between creosote and birth defects in humans. However, there are concerns that people who are exposed to creosote at high levels could have an increased chance of having children with birth defects. There are also concerns about people who are exposed to creosote for long periods of time or during certain periods of

their life—for example, pregnancy. It is always a good idea to minimize exposure to potentially toxic chemicals during pregnancy.

Is there a medical test for exposure to creosote?

There are no medical tests used specifically for determining creosote exposure. However, there are tests that can show if a person has been exposed to chemicals found in creosote and other products. The tests cannot tell whether the chemicals came from creosote or from other sources.

Also, these tests cannot predict whether you will experience health effects. Since some chemicals in creosote remain in body tissues for long periods of time, these tests may not be useful in determining when you were exposed. Testing for creosote is generally only appropriate when the exposure is at a high level or for a long period of time. The general public typically does not need to be tested for creosote exposure.

What happens to creosote in the environment?

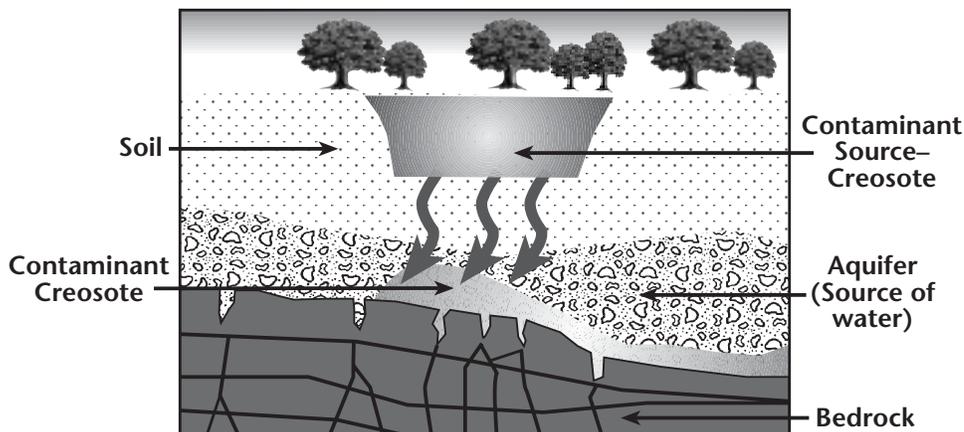
Creosote in the environment generally results from human activities and products. Creosote may be released into the environment from facilities making creosote, from wood-treating sites, and from treated wood.

After they are released, the chemicals that make up creosote will separate into different locations of the environment. Some of the creosote will evaporate into the air from treated wood, from contaminated soil, and from water. Creosote remaining in the soil is broken down by fungi, bacteria, and other soil organisms such as worms. However, it may take from months to years for creosote to completely break down.

Creosote may pose a risk to groundwater, particularly at sites where there is highly contaminated soil and a shallow source of water (see Figure 3). Some of the chemicals in creosote are more likely to move into groundwater than other chemicals in creosote. Once in groundwater, these chemicals may remain there for a long time.

Because it does not dissolve easily in water, creosote will separate as it moves through our rivers, streams, and lakes. The less dense chemicals

**Figure 3
Contamination of Groundwater**



found in creosote will be found on the water surface, and the heavier chemicals will be on the bottom of the water body.

Plants and animals can absorb creosote present in the environment. The impact of creosote on plants and animals, like humans, depends on the level of exposure.

How can I reduce my risk of exposure to creosote?

Now that you know where creosote is found, how it gets there, and a little about its toxicity, you can take these steps to reduce your risk of exposure to creosote, if you think you might be at risk:

- Wash your hands and clothes when you use or touch any chemicals, including creosote.
- When handling creosote, creosote-treated wood, or materials contaminated with creosote (for example, soil), avoid frequent or prolonged skin and eye exposure. Wear long-sleeved shirts, long pants, and protective gloves and eye ware.
- Avoid prolonged exposure to creosote vapors. Always work with creosote-treated wood outdoors or in well-ventilated buildings.
- Avoid use of creosote-treated wood inside homes and in other places where it will be in contact with bare skin (chairs, counter tops, cutting boards, playscapes).
- To avoid direct contact with creosote-treated wood, use a sealer such as urethane, epoxy, or shellac.
- Never burn creosote-treated wood in open fires, fireplaces, or stoves.

- Avoid use of creosote-treated wood inside farm buildings where animals are kept.
- Avoid use of creosote-treated wood where it may come into contact with drinking water for humans, domestic animals, and livestock (except for occasional contact on docks or bridges).
- Report spills or accidental releases into the environment of one pound or more of creosote to the EPA (see the following section, "Where can I learn more?").

Where can I learn more?

Texas Commission on Environmental Quality (TCEQ)

Texas Superfund Hot Line & Superfund Community Relations ... 1-800-633-9363
 Texas Spill Reporting Hot Line 1-800-832-8224
 Toxicology and Risk Assessment 512/239-1795
 Office of Public Assistance 1-800-687-4040
 Small Business & Environmental Assistance 1-800-447-2827
 TCEQ Web site: www.tceq.state.tx.us
 Follow the link from "Index" to "Superfund" or other programs.

Texas Department of Health (TDH)

Environmental Epidemiology & Toxicology Division 1-800-588-1248 or 512/458-7269
 TDH Web site: www.tdh.state.tx.us/epitox

Texas Poison Center 1-800-764-7661
..... (1-800-POISON 1)
Web sites:
Central www.sw.org/poison/ctpc.htm
Southeast www.utmb.edu/setpc
North www.utsouthwestern.edu/parkland

**Agency for Toxic Substances and
Disease Registry (ATSDR)** 1-888-422-8737
ATSDR Web site: www.atsdr.cdc.gov

U.S. Environmental Protection Agency (EPA)
EPA Superfund Hot Line
(for EPA Region 6—
NM, LA, OK, AR, TX) 1-800-533-3508
EPA Region 6 Environmental
Emergencies 1-800-372-7745

U. S. EPA National Pesticide
Information Center 1-800-858-7378
NPIC Web site: www.npic.orst.edu
EPA Web site: www.epa.gov/pesticides

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