

This article is part of a "Water Quality FAQ," series produced by the MSU Extension Water Quality Program. (Montana State University)

Often gardeners have the decision to make of what to use in their landscapes to build beds (ornamental or edibles). We have received questions on the use of railroad ties.

What is Creosote?

Creosote is the black glee that railroad ties are treated with. You may have noticed the same stuff on the bottom of utility poles, and in fact it is one of the most common wood preservatives used in the United States.

The most common type of creosote is created when coal is heated to produce coke (a cleaner burning form of coal) or natural gas. This process produces coal tar creosote, coal tar, and coal tar pitch, which are all mixtures of similar compounds and are referred to simply as creosote.

What Health Risks does Creosote pose?

Because creosote is a general name for a mixture of different chemicals, and limited research on health effects has been done, it is difficult to quantify the risks. Creosote has been classified by the Environmental Protection Agency (EPA) as a probable carcinogen. Studies have shown increased risk of cancer and respiratory problems in plant workers repeatedly exposed to creosote. Exposure to creosote on the skin has been shown to cause rash and irritation and in an extreme case, cancer. Direct skin contact with creosote poses the most likely health risks to people outside industrial applications.

Precautions with Railroad Ties in Landscaping:

Knowing the potential health risks of creosote, homeowners considering landscaping with railroad ties should consider the following safety measures.

Handling:

When handling creosote treated wood, wear gloves and long sleeves and try to minimize time spent working with ties. Work in well-ventilated areas and avoid working in hot conditions when vapors are most potent.



Children:

If children play on or around the ties they may get creosote on their skin and clothing and could subsequently ingest small amounts. Exposure to skin can cause irritation and rashes. Ingestion in small amounts while not life threatening is a health concern.

Gardens:

Plants have shown only limited potential to take up creosote but some compounds have been shown to attach to roots, which could lead to elevated creosote levels on tuber vegetables. For this reason, it is advisable not to landscape with railroad ties directly in contact with vegetable gardens.

Water Table:

Some components of creosote are very sticky and not water-soluble and will stay on the ties; however, other chemicals are water-soluble and will dissolve and move with water. In areas where moisture levels are moderate, these chemicals may wash into surrounding soil with rain, but will likely decompose with time. However, in areas where the water table is very shallow or where a lot of surface water is present, there is more potential for transport of the chemicals into groundwater. For this reason, it is advisable to avoid using railroad ties for landscaping in very wet or shallow ground water areas.

Disposal and Fire:

Creosote treated wood should not be burned, since burning volatilizes hazardous chemicals in the smoke. One currently suggested disposal method for treated wood is in sanitary landfills. However, check with your landfill first to inquire about local policies. Another currently suggested method for disposal is burial. However, if this option is chosen it is critical to consider surface and ground water movement in your location to minimize the possibility of creosote getting into water supplies.