Product Stewardship Summary
Creosote

Product Description

Coal tar creosote is a thick oily liquid that is typically black in color. It has a tar-like odor. Coal tar creosote is a distillation product of crude coke oven tar, which is itself derived from coal. Creosote is generally defined and the fraction of crude coke oven tar that distills at between 230 and 270 degrees Celsius. Because it is a distillate, the exact chemical composition of coal tar creosote varies with each batch lot, depending on the coal source and production conditions.

About 300 chemicals have been identified in coal tar creosote. However, the major components of typical samples include indene, naphthalene, biphenyl and alkylnapthalenes, in varying percentages. Only a limited number of compounds (<20) are present in coal tar creosote in percentages greater than 1%.

Uses and Applications:

Coal tar creosote is not available for sale to consumers. It is classified by USEPA as a restricted use pesticide and is only available for sale to licensed pesticide applicators for use in wood preservation. It is intended for outdoor uses and only for those applications approved by the American Wood Protection Association (AWPA) use category system as set forth in the most current edition of the AWPA Book of Standards. Coal tar creosote has been used to treat wood since the mid-19th Century and currently is the most widely-used wood preservative in the United States. It is used to extend the service life of railroad ties, bridge timbers, pilings and utility poles.

Synonyms:

Coal tar creosote; Creosote Oil; P2 Creosote-Petroleum Solution (Pressure Applications), P1/P13 Creosote-Petroleum Solution (Pressure Applications)

Health Information

Acute (Short-Term) Health Effects

Worker exposure can occur with liquid, heated, or vaporous creosote. Exposure to heated material poses dangers due to high temperatures. Heated material can cause severe heat burns, possibly resulting in loss of eyesight.

Exposure to vapor and liquid may irritate the eyes. Exposure to liquid may cause skin irritation and dermatitis, including acne. Creosote is a phototoxic substance which in the presence of ultraviolet light (sunlight), can cause a skin reaction similar to an exaggerated sunburn, frequently causing blisters. Mist or vapor can irritate the respiratory tract, and prolonged exposure to airborne concentrations significantly beyond workplace exposure limits can cause respiratory difficulty, asthma symptoms, convulsions, and possible cardiovascular collapse.

Chronic Health Effects

Long-term overexposure to creosote can cause photosensitization evidenced by repeated occurrence of a dermatic rash on exposure to sunlight.

The International Agency for Research on Cancer (IARC) has determined that coal tar creosote is probably carcinogenic to humans, based on adequate animal evidence and limited human evidence. The animal testing relied upon by IARC involved the continuous application of creosote to the shaved skin of rodents. After weeks of creosote application, the animals developed cancerous skin lesions and in one test, lesions of the lung. The United States Environmental Protection Agency has stated that coal tar creosote is a probable human carcinogen based on both human and animal studies.

A 2005 mortality study of creosote workers found no evidence supporting an increased risk of cancer death, as a result of exposure to creosote. Based on the findings of the largest mortality study to date of workers employed in creosote wood treating plants, there is no evidence that employment at creosote wood-treating plants or exposure to creosote-based preservatives was associated with any significant mortality increase from either site-specific cancers or non-malignant diseases. The study consisted of 2,179 employees at eleven plants in the United States where wood was treated with creosote preservatives. Some workers began work in the 1940s to 1950s. The observation period of the study covered 1979- 2001. The average length of employment was 12.5 years. One third of the study subjects were employed for over 15 years.

Environmental Information

Coal tar creosote is immobile and does not appreciably leach to groundwater. Low levels of creosote can be found in soils years after a release to the environment, but the levels are so low as to require no remedial action. When creosote is bound tightly to soil, it is less toxic to humans because it is not absorbed into the body upon direct human contact.

Exposure

There is no intended use of coal tar creosote in consumer products. Therefore, consumer exposure to coal tar creosote is unlikely. Worker exposure to liquid or vaporous creosote may occur in either in a coal tar distillation facility or in the various industrial or manufacturing facilities that use creosote. Worker exposure is limited by the use of enclosed processing systems, industrial hygiene controls and personal protective equipment. Each industrial facility should, however, have a thorough training program for employees and appropriate work processes, as well as safety equipment in place to limit exposure. Workers should follow the recommended safety measures in the relevant Safety Data Sheet (SDS).

Contact Information

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References

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