

# Coal Tar Epoxy

Environmental and Health Hazard  
updated 25 June 2014

National Toxicology Program, Department of Health and Human  
Services

<http://ntp.niehs.nih.gov/ntp/roc/twelfth/profiles/CoalTars.pdf>

USA 2011

*Report on Carcinogens, Twelfth Edition (2011)*

## **Coal Tars and Coal-Tar Pitches**

**CAS No. 8007-45-2 (Coal Tar)**

No separate CAS No. is assigned to coal-tar pitches

Known to be human carcinogens

First listed in the *First Annual Report on Carcinogens* (1980)

### **Carcinogenicity**

Coal tars and coal-tar pitches are *known to be human carcinogens* based on sufficient evidence of carcinogenicity from studies in humans.

<http://www.nature.nps.gov/hazardssafety/toxic/coaltar.pdf>

USA 1997

**Br.Car:** Brief Summary of Carcinogenicity/Cancer Information:

Coal tar is among 31 substances classified by the Chief of the Worker Health and Safety Unit of the California Department of Food and Agriculture as having "high carcinogenic or oncogenic potential" (Dr. Keith Maddy, personal communication). There is evidence of carcinogenic effects to animals [609].

# Occupational Medicine Forum: Cancer and coal tar epoxy resins

<http://www.faqs.org/abstracts/Health-care-industry/Occupational-Medicine-Forum-Cancer-and-coal-tar-epoxy-resins.html>

## Occupational Medicine Forum: Cancer and coal tar epoxy resins

### Article Abstract:

The evidence of several past studies indicates that pipe coaters exposed on the job to coal tar epoxy resin face a greater risk of cancer. Coal tar epoxy resins are a combination of coal tar and epoxy. Coal tars and coal tar pitches vary in composition; the source of the coal tar and its processing method determine the particular composition of a coal tar and its chemical characteristics. More than 300 compounds have been identified in coal tars. Included are potent cancer-causing substances such as methylcholanthrene, 3,4-benzopyrene and 1,2:5,6-dibenzanthracene. Epoxy resins are a class of thermosetting plastics that are based on ethylene oxide or its derivatives. Fillers, such as asbestos, may be added to the resin or the coal tar, and some epoxy resin systems utilize such solvents as xylene and methyl isobutyl ketone. Workers generally use solvents such as acetone, alcohol, trichloroethylene and methyl ethyl ketone to clean up coal tar epoxy splatters and droplets. A search of the medical and scientific literature does not yield references to animal or human studies of cancer associated with epoxy resins. There is, however, substantial literature on coal tars and the formation of cancer. Documentation of skin cancer associated with coal tars dates back over 200 years. Studies of workers exposed to coal tar have suggested an association with lung, kidney, prostate, bladder, colon, stomach, esophagus, sino-nasal, oral and pancreatic cancers. Some studies have shown an association between coal tars and leukemia and multiple myeloma (a tumor growth, often leading to cancer, in bone marrow). Most of these findings have not been verified; many involve asbestos or benzene exposure that occurred simultaneously with coal tar exposure. The National Institute for Occupational Safety and Health has concluded that coal tar and coal tar pitch are carcinogenic, increasing the risk of lung and skin cancer in workers.

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[www.drcare.org](http://www.drcare.org)

Author: Anstadt, G.W.

Publisher: Lippincott Williams & Wilkins, WK Health

Publication Name: Journal of Occupational Medicine

Subject: Health care industry

ISSN: 0096-1736

Year: 1989

Analysis, Physiological aspects, Carcinogenesis, Carcinogens, Benzopyrene, Epoxy resins, Coal tar, Coal-tar

**FOR IMMEDIATE RELEASE**

November 18, 2005

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**Austin Bans Use of Coal Tar Sealants - First in Nation**

Thursday night the City of Austin became the first city in the country to ban the use of coal tar sealants. National attention is now focused on this issue as other cities are finding significant increases in PAH levels in their streams.

Council Member Lee Leffingwell's proposal to ban pavement products containing coal tar in the city limits and its ETJ (Extra Territorial Jurisdiction) was unanimously approved by the Austin City Council on November 17, 2005. The ban will take effect January 1, 2006.

Pavement sealants are surface finishes for parking lots, driveways and airport runways that can provide an attractive and protective barrier coat from weather and chemicals.

The City has banned the coal tar-based products because they are a potent source of PAHs (polycyclic aromatic hydrocarbons), an organic contaminant known to be carcinogenic and toxic to aquatic life. One of the ingredients in significant quantities is included in the U.S. Environmental Protection Agency's (EPA) list of 12 Persistent Bioaccumulative and Toxic Chemicals (PBT). According to the EPA, "PBTs are highly toxic, long-lasting substances that can build up in the food chain to levels that are harmful to human and ecosystem health." One researcher from MD Anderson Cancer Center, Dr. Robin Fuchs-Young, also spoke in favor of the ban saying, "There is no reason to put additional carcinogens into the environment if a less toxic alternative is available."

[http://www.uscg.mil/history/docs/USCG\\_M10360\\_3C\\_1997.pdf](http://www.uscg.mil/history/docs/USCG_M10360_3C_1997.pdf)

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COMDTNOTE 10360  
9 JUN 2006

**CANCELLED 9 JUN 2007**

**COMMANDANT NOTICE 10360**

Subj: CH-1 TO THE COATINGS AND COLOR MANUAL, COMDTINST M10360.3C

1. PURPOSE. This Notice publishes changes to the Coast Guard Coatings and Color Manual, COMDTINST M10360.3C.

### CHAPTER 3. ENVIRONMENTAL LAW AND POLICY

- g. Coal tar epoxies. Coal tar epoxies are specifically prohibited for any application.

2 December 2009

**Substance name:** Coal tar pitch, high temperature  
**EC number:** 266-028-2  
**CAS number:** 65996-93-2

**MEMBER STATE COMMITTEE  
SUPPORT DOCUMENT FOR IDENTIFICATION OF  
COAL TAR PITCH, HIGH TEMPERATURE  
AS A SUBSTANCE OF VERY HIGH CONCERN BECAUSE OF ITS  
PBT AND CMR PROPERTIES**

Adopted on 2 December 2009

[http://echa.europa.eu/documents/10162/13638/svhc\\_supdoc\\_pitch\\_publication\\_en.pdf](http://echa.europa.eu/documents/10162/13638/svhc_supdoc_pitch_publication_en.pdf)

# Cost effective alternatives for coal tar epoxy coatings

## Summary

Coal tar epoxy coatings used to be a world wide leading technology in protection of steel structure (partially) immersed in sea water because of low cost/high performance characteristics. Major applications include ballast tanks, offshore and harbour installations. Nevcin Polymers B.V., Westmin Talc B.V. and Cardanol Chemicals N.V. have joined forces to develop a cost effective, high solids epoxy coating system for those traditional coal tar epoxy

## Introduction

In the industry companies work closely together with customers and suppliers in order to integrate efforts to meet the requirements of a competitive market. In horizontal cooperation, where independent companies with activities in different disciplines cooperate. However, curiosity to explore the products' capabilities, willingness to share information, -specific skills, -experience and -knowledge may result in a novel approach to meet market requirements.

Because of the carcenogenic properties of coal tar, coal tar epoxies have been banned in many countries. This however is not the only factor resulting in more and more pressure on the use of coal tar in coatings. For ballast tank applica-



International Paint is part of Akzonobel, the world's largest coatings supplier.



Marine, Protective, Yacht and Aerospace Coatings



## SAFETY & HEALTH GUIDANCE NOTE 59

### **Personal Health Protection during the Application of Tar Containing Coatings**

**Version – 1.0**  
**November 2004**

#### 1. **INTRODUCTION**

**This guidance note is designed to assist in the establishment of safe working practices and environments when using coal tar based paints.**

The Marine and Protective Coatings industries have used paints modified by the incorporation of tar (coal tar, coal tar pitch, tar acids, petroleum tar, petroleum tar pitch) as anticorrosive coatings for many years.

Tars and pitches have been classified as carcinogens (cancer causing) due to the presence within the tar of Poly Aromatic Hydrocarbon (PAH) compounds. The classification is based on test results from benz- $\alpha$ -pyrene and other PAH compounds which are known human carcinogens.

<http://www.yachtpaint.com/LiteratureCentre/tar-containing-coatings-hse-usa.pdf>



Marine, Protective, Yacht and Aerospace Coatings



## SAFETY & HEALTH GUIDANCE NOTE 59

### Personal Health Protection during the Application of Tar Containing Coatings

Version – 1.0  
November 2004

#### 3. HEALTH HAZARDS

Coal tar is classified as a Group I carcinogen. This means that there is sufficient evidence to prove a definite link between exposure to coal tar and human and animal cancers. Skin cancers can be caused by contact with coal tar. It is impossible to predict a safe level of risk as there is potentially no safe level of exposure.

# Example of Coal Tar Epoxy Flooring

<http://www.fosroc.com/DownloadSite/NewDownloadSite.aspx#>

## Cicol ET Slurry



*constructive solutions*

**Solvent free coal tar epoxy resin product with mineral fillers**

### Uses

Cicol ET Slurry is used for making a flexible waterproof, lightweight anti-skid wearing course on bridge decks, platforms, loading jetties, airfield aprons, industrial floors and other high traffic areas.

The product can also be applied as a waterproofing membrane. e.g. under an asphalt layer on bridges and flyovers.

### Advantages

- Lightweight - important in design considerations
- Hard-wearing
- Flexible - excellent flexural and tensile strength
- Non-slip even when wet
- Chemical resistance



Cicol ET Slurry Application at a carpark in Hong Kong

[http://www.noblecorp.net/data/04-industrial\\_floorings/Nitoflor%20ET%20Slurry.pdf](http://www.noblecorp.net/data/04-industrial_floorings/Nitoflor%20ET%20Slurry.pdf)

## Nitoflor<sup>®</sup> ET Slurry



**Heavy duty, flow applied, lightweight anti-skid surface dressing**

# Example of Coal Tar Epoxy Flooring

## Description

Cicol ET Slurry is a solvent free three component product based on epoxy resin and special coal tar with mineral fillers.

Cicol ET Slurry is black but the final colour of the system will depend on the aggregate used as the surface dressing.

<http://www.fosroc.com/DownloadSite/NewDownloadSite.aspx#>

## Description

Nitoflor ET Slurry, a three component system is based on coal tar modified epoxy resins, amine curing agents and chemically inert, graded silica fillers which when mixed forms a fluid, homogenous slurry.

[http://www.noblecorp.net/data/04-industrial\\_floorings/Nitoflor%20ET%20Slurry.pdf](http://www.noblecorp.net/data/04-industrial_floorings/Nitoflor%20ET%20Slurry.pdf)

Note: According to Fosroc's website, Cicol and Nitoflor ET Slurry are not sold in most countries in the world, except HONG KONG, the Middle East, India and Singapore!

<http://www.fosroc.com/DownloadSite/NewDownloadSite.aspx#>