

**TOXICOLOGICAL PROFILE FOR
WOOD CREOSOTE, COAL TAR CREOSOTE, COAL TAR,
COAL TAR PITCH, AND COAL TAR PITCH VOLATILES**

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry**

September 2002

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UPDATE STATEMENT

Toxicological profiles are revised and republished as necessary, but no less than once every three years. For information regarding the update status of previously released profiles, contact ATSDR at:

Agency for Toxic Substances and Disease Registry
Division of Toxicology/Toxicology Information Branch
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FOREWORD

This toxicological profile is prepared in accordance with guidelines* developed by the Agency for Toxic Substances and Disease Registry (ATSDR) and the Environmental Protection Agency (EPA). The original guidelines were published in the *Federal Register* on April 17, 1987. Each profile will be revised and republished as necessary.

The ATSDR toxicological profile succinctly characterizes the toxicologic and adverse health effects information for the hazardous substance described therein. Each peer-reviewed profile identifies and reviews the key literature that describes a hazardous substance's toxicologic properties. Other pertinent literature is also presented, but is described in less detail than the key studies. The profile is not intended to be an exhaustive document; however, more comprehensive sources of specialty information are referenced.

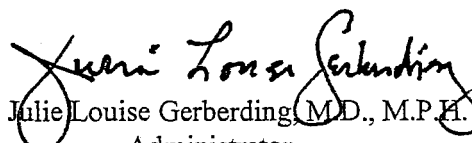
The focus of the profiles is on health and toxicologic information; therefore, each toxicological profile begins with a public health statement that describes, in nontechnical language, a substance's relevant toxicological properties. Following the public health statement is information concerning levels of significant human exposure and, where known, significant health effects. The adequacy of information to determine a substance's health effects is described in a health effects summary. Data needs that are of significance to protection of public health are identified by ATSDR and EPA.

Each profile includes the following:

- (A) The examination, summary, and interpretation of available toxicologic information and epidemiologic evaluations on a hazardous substance to ascertain the levels of significant human exposure for the substance and the associated acute, subacute, and chronic health effects;
- (B) A determination of whether adequate information on the health effects of each substance is available or in the process of development to determine levels of exposure that present a significant risk to human health of acute, subacute, and chronic health effects; and
- (C) Where appropriate, identification of toxicologic testing needed to identify the types or levels of exposure that may present significant risk of adverse health effects in humans.

The principal audiences for the toxicological profiles are health professionals at the federal, state, and local levels; interested private sector organizations and groups; and members of the public.

This profile reflects ATSDR's assessment of all relevant toxicologic testing and information that has been peer-reviewed. Staff of the Centers for Disease Control and Prevention and other federal scientists have also reviewed the profile. In addition, this profile has been peer-reviewed by a nongovernmental panel and was made available for public review. Final responsibility for the contents and views expressed in this toxicological profile resides with ATSDR.


Julie Louise Gerberding, M.D., M.P.H.
Administrator
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*Legislative Background

The toxicological profiles are developed in response to the Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499) which amended the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund). This public law directed ATSDR to prepare toxicological profiles for hazardous substances most commonly found at facilities on the CERCLA National Priorities List and that pose the most significant potential threat to human health, as determined by ATSDR and the EPA. The availability of the revised priority list of 275 hazardous substances was announced in the *Federal Register* on October 25, 2001 (66 FR 54014). For prior versions of the list of substances, see *Federal Register* notices dated April 17, 1987 (52 FR 12866); October 20, 1988 (53 FR 41280); October 26, 1989 (54 FR 43619); October 17, 1990 (55 FR 42067); October 17, 1991 (56 FR 52166); October 28, 1992 (57 FR 48801); February 28, 1994 (59 FR 9486); April 29, 1996 (61 FR 18744); November 17, 1997 (62 FR 61332); and October 21, 1999 (64 FR 56792). Section 104(i)(3) of CERCLA, as amended, directs the Administrator of ATSDR to prepare a toxicological profile for each substance on the list.

QUICK REFERENCE FOR HEALTH CARE PROVIDERS

Toxicological Profiles are a unique compilation of toxicological information on a given hazardous substance. Each profile reflects a comprehensive and extensive evaluation, summary, and interpretation of available toxicologic and epidemiologic information on a substance. Health care providers treating patients potentially exposed to hazardous substances will find the following information helpful for fast answers to often-asked questions.

Primary Chapters/Sections of Interest

Chapter 1: Public Health Statement: The Public Health Statement can be a useful tool for educating patients about possible exposure to a hazardous substance. It explains a substance's relevant toxicologic properties in a nontechnical, question-and-answer format, and it includes a review of the general health effects observed following exposure.

Chapter 2: Relevance to Public Health: The Relevance to Public Health Section evaluates, interprets, and assesses the significance of toxicity data to human health.

Chapter 3: Health Effects: Specific health effects of a given hazardous compound are reported by *type of health effect* (death, systemic, immunologic, reproductive), by *route of exposure*, and by *length of exposure* (acute, intermediate, and chronic). In addition, both human and animal studies are reported in this section.

NOTE: Not all health effects reported in this section are necessarily observed in the clinical setting. Please refer to the Public Health Statement to identify general health effects observed following exposure.

Pediatrics: Four new sections have been added to each Toxicological Profile to address child health issues:

- Section 1.6** **How Can Creosote Affect Children?**
- Section 1.7** **How Can Families Reduce the Risk of Exposure to Creosote?**
- Section 3.7** **Children's Susceptibility**
- Section 6.6** **Exposures of Children**

Other Sections of Interest:

- Section 3.8** **Biomarkers of Exposure and Effect**
 - Section 3.11** **Methods for Reducing Toxic Effects**
-

ATSDR Information Center

Phone: 1-888-42-ATSDR or (404) 498-0110 **Fax:** (404) 498-0057
E-mail: atsdric@cdc.gov **Internet:** <http://www.atsdr.cdc.gov>

The following additional material can be ordered through the ATSDR Information Center:

Case Studies in Environmental Medicine: Taking an Exposure History—The importance of taking an exposure history and how to conduct one are described, and an example of a thorough exposure history is provided. Other case studies of interest include *Reproductive and Developmental Hazards*; *Skin Lesions and Environmental Exposures*; *Cholinesterase-Inhibiting Pesticide Toxicity*; and numerous chemical-specific case studies.

Managing Hazardous Materials Incidents is a three-volume set of recommendations for on-scene (prehospital) and hospital medical management of patients exposed during a hazardous materials incident. Volumes I and II are planning guides to assist first responders and hospital emergency department personnel in planning for incidents that involve hazardous materials. Volume III—*Medical Management Guidelines for Acute Chemical Exposures*—is a guide for health care professionals treating patients exposed to hazardous materials.

Fact Sheets (ToxFAQs) provide answers to frequently asked questions about toxic substances.

Other Agencies and Organizations

The National Center for Environmental Health (NCEH) focuses on preventing or controlling disease, injury, and disability related to the interactions between people and their environment outside the workplace. *Contact:* NCEH, Mailstop F-29, 4770 Buford Highway, NE, Atlanta, GA 30341-3724 • Phone: 770-488-7000 • FAX: 770-488-7015.

The National Institute for Occupational Safety and Health (NIOSH) conducts research on occupational diseases and injuries, responds to requests for assistance by investigating problems of health and safety in the workplace, recommends standards to the Occupational Safety and Health Administration (OSHA) and the Mine Safety and Health Administration (MSHA), and trains professionals in occupational safety and health. *Contact:* NIOSH, 200 Independence Avenue, SW, Washington, DC 20201 • Phone: 800-356-4674 or NIOSH Technical Information Branch, Robert A. Taft Laboratory, Mailstop C-19, 4676 Columbia Parkway, Cincinnati, OH 45226-1998 • Phone: 800-35-NIOSH.

The National Institute of Environmental Health Sciences (NIEHS) is the principal federal agency for biomedical research on the effects of chemical, physical, and biologic environmental agents on human health and well-being. *Contact:* NIEHS, PO Box 12233, 104 T.W. Alexander Drive, Research Triangle Park, NC 27709 • Phone: 919-541-3212.

Referrals

The Association of Occupational and Environmental Clinics (AOEC) has developed a network of clinics in the United States to provide expertise in occupational and environmental issues. *Contact:* AOEC, 1010 Vermont Avenue, NW, #513, Washington, DC 20005 • Phone: 202-347-4976 • FAX: 202-347-4950 • e-mail: AOEC@AOEC.ORG • Web Page: <http://www.aoec.org/>.

The American College of Occupational and Environmental Medicine (ACOEM) is an association of physicians and other health care providers specializing in the field of occupational and environmental medicine. *Contact:* ACOEM, 55 West Seegers Road, Arlington Heights, IL 60005 • Phone: 847-818-1800 • FAX: 847-818-9266.

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THE PROFILE HAS UNDERGONE THE FOLLOWING ATSDR INTERNAL REVIEWS:

1. Health Effects Review. The Health Effects Review Committee examines the health effects chapter of each profile for consistency and accuracy in interpreting health effects and classifying end points.
2. Minimal Risk Level Review. The Minimal Risk Level Workgroup considers issues relevant to substance-specific minimal risk levels (MRLs), reviews the health effects database of each profile, and makes recommendations for derivation of MRLs.
3. Data Needs Review. The Research Implementation Branch reviews data needs sections to assure consistency across profiles and adherence to instructions in the Guidance.

PEER REVIEW

A peer review panel was assembled for creosote. The panel consisted of the following members:

1. Dr. Gary Pascoe, EA Engineering, Science and Technology Inc., 210 Taylor Street, Room 15, Port Townsend, Washington 98368;
2. Dr. Norman Trieff, University of North Texas, Health Science Center at Fort Worth, 35 Camp Bowie Boulevard, Fort Worth, Texas 76107-2699; and
3. Dr. David Warshawsky, University of Cincinnati, Environmental Health, Kettering 137, Cincinnati, Ohio 45267-0056.

These experts collectively have knowledge of creosote's physical and chemical properties, toxicokinetics, key health end points, mechanisms of action, human and animal exposure, and quantification of risk to humans. All reviewers were selected in conformity with the conditions for peer review specified in Section 104(I)(13) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended.

Scientists from the Agency for Toxic Substances and Disease Registry (ATSDR) have reviewed the peer reviewers' comments and determined which comments will be included in the profile. A listing of the peer reviewers' comments not incorporated in the profile, with a brief explanation of the rationale for their exclusion, exists as part of the administrative record for this compound. A list of databases reviewed and a list of unpublished documents cited are also included in the administrative record.

The citation of the peer review panel should not be understood to imply its approval of the profile's final content. The responsibility for the content of this profile lies with the ATSDR.

CONTENTS

FOREWORD	v
QUICK REFERENCE FOR HEALTH CARE PROVIDERS	vii
CONTRIBUTORS	ix
PEER REVIEW	xi
LIST OF FIGURES	xvii
LIST OF TABLES	xix
1. PUBLIC HEALTH STATEMENT	1
1.1 WHAT IS CREOSOTE?	1
1.2 WHAT HAPPENS TO CREOSOTE WHEN IT ENTERS THE ENVIRONMENT?	3
1.3 HOW MIGHT I BE EXPOSED TO CREOSOTE?	5
1.4 HOW CAN CREOSOTE ENTER AND LEAVE MY BODY?	6
1.5 HOW CAN CREOSOTE AFFECT MY HEALTH?	7
1.6 HOW CAN CREOSOTE AFFECT CHILDREN?	8
1.7 HOW CAN FAMILIES REDUCE THE RISK OF EXPOSURE TO CREOSOTE?	10
1.8 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO CREOSOTE?	13
1.9 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?	14
1.10 WHERE CAN I GET MORE INFORMATION?	15
2. RELEVANCE TO PUBLIC HEALTH	17
2.1 BACKGROUND AND ENVIRONMENTAL EXPOSURES TO CREOSOTE IN THE UNITED STATES	17
2.1.1 Wood Creosotes	17
2.1.2 Coal Tar and Coal Tar Products	17
2.2 SUMMARY OF HEALTH EFFECTS	20
2.2.1 Wood Creosotes	20
2.2.2 Coal Tar and Coal Tar Products	21
2.3 MINIMAL RISK LEVELS	23
3. HEALTH EFFECTS	27
3.1 INTRODUCTION	27
3.2 DISCUSSION OF HEALTH EFFECTS BY ROUTE OF EXPOSURE	27
3.2.1 Inhalation Exposure	30
3.2.1.1 Death	42
3.2.1.2 Systemic Effects	45
3.2.1.3 Immunological and Lymphoreticular Effects	54
3.2.1.4 Neurological Effects	55
3.2.1.5 Reproductive Effects	55
3.2.1.6 Developmental Effects	56
3.2.1.7 Cancer	57
3.2.2 Oral Exposure	63

3.2.2.1	Death	64
3.2.2.2	Systemic Effects	86
3.2.2.3	Immunological and Lymphoreticular Effects	101
3.2.2.4	Neurological Effects	102
3.2.2.5	Reproductive Effects	103
3.2.2.6	Developmental Effects	105
3.2.2.7	Cancer	107
3.2.3	Dermal Exposure	111
3.2.3.1	Death	112
3.2.3.2	Systemic Effects	113
3.2.3.3	Immunological and Lymphoreticular Effects	131
3.2.3.4	Neurological Effects	132
3.2.3.5	Reproductive Effects	132
3.2.3.6	Developmental Effects	134
3.2.3.7	Cancer	135
3.4	TOXICOKINETICS	154
3.4.1	Absorption	154
3.4.1.1	Inhalation Exposure	154
3.4.1.2	Oral Exposure	157
3.4.1.3	Dermal Exposure	158
3.4.2	Distribution	161
3.4.2.1	Inhalation Exposure	162
3.4.2.2	Oral Exposure	163
3.4.2.3	Dermal Exposure	164
3.4.3	Metabolism	164
3.4.3.1	Inhalation Exposure	167
3.4.3.2	Oral Exposure	168
3.4.3.3	Dermal Exposure	169
3.4.4	Elimination and Excretion	172
3.4.4.1	Inhalation Exposure	173
3.4.4.2	Oral Exposure	175
3.4.4.3	Dermal Exposure	177
3.4.5	Physiologically Based Pharmacokinetic (PBPK)/Pharmacodynamic (PD) Models	179
3.5	MECHANISMS OF ACTION	181
3.5.1	Pharmacokinetic Mechanisms	181
3.5.2	Mechanisms of Toxicity	184
3.5.3	Animal-to-Human Extrapolations	185
3.6	TOXICITIES MEDIATED THROUGH THE NEUROENDOCRINE AXIS	185
3.7	CHILDREN'S SUSCEPTIBILITY	189
3.8	BIOMARKERS OF EXPOSURE AND EFFECT	193
3.8.1	Biomarkers Used to Identify or Quantify Exposure to Creosote	195
3.8.2	Biomarkers Used to Characterize Effects Caused by Creosote	196
3.9	INTERACTIONS WITH OTHER CHEMICALS	196
3.10	POPULATIONS THAT ARE UNUSUALLY SUSCEPTIBLE	197
3.11	METHODS FOR REDUCING TOXIC EFFECTS	199
3.11.1	Reducing Peak Absorption Following Exposure	199
3.11.2	Reducing Body Burden	200
3.11.3	Interfering with the Mechanism of Action for Toxic Effects	201
3.12	ADEQUACY OF THE DATABASE	201
3.12.1	Existing Information on Health Effects of Creosote	202

3.12.2	Identification of Data Needs	204
3.12.3	Ongoing Studies	213
4.	CHEMICAL AND PHYSICAL INFORMATION	216
4.1	CHEMICAL IDENTITY	216
4.2	PHYSICAL AND CHEMICAL PROPERTIES	216
4.2.1	Wood Creosote	216
4.2.2	Coal Tar Creosote, Coal Tar, and Coal Tar Pitch	220
5.	PRODUCTION, IMPORT/EXPORT, USE, AND DISPOSAL	232
5.1	PRODUCTION	232
5.2	IMPORT/EXPORT	233
5.3	USE	233
5.4	DISPOSAL	237
6.	POTENTIAL FOR HUMAN EXPOSURE	240
6.1	OVERVIEW	240
6.2	RELEASES TO THE ENVIRONMENT	242
6.2.1	Air	246
6.2.2	Water	247
6.2.3	Soil	248
6.3	ENVIRONMENTAL FATE	249
6.3.1	Transport and Partitioning	250
6.3.2	Transformation and Degradation	252
6.3.2.1	Air	252
6.3.2.2	Water	253
6.3.2.3	Sediment and Soil	255
6.3.2.4	Other Media	257
6.4	LEVELS MONITORED OR ESTIMATED IN THE ENVIRONMENT	257
6.4.1	Air	257
6.4.2	Water	257
6.4.3	Sediment and Soil	258
6.4.4	Other Environmental Media	260
6.5	GENERAL POPULATION AND OCCUPATIONAL EXPOSURE	261
6.6	EXPOSURES OF CHILDREN	269
6.7	POPULATIONS WITH POTENTIALLY HIGH EXPOSURES	272
6.8	ADEQUACY OF THE DATABASE	274
6.8.1	Identification of Data Needs	274
6.8.2	Ongoing Studies	279
7.	ANALYTICAL METHODS	282
7.1	BIOLOGICAL MATERIALS	282
7.2	ENVIRONMENTAL SAMPLES	286
7.3	ADEQUACY OF THE DATABASE	294
7.3.1	Identification of Data Needs	294
7.3.2	Ongoing Studies	296
8.	REGULATIONS AND ADVISORIES	298
9.	REFERENCES	302

10. GLOSSARY 348

APPENDICES

D. ATSDR MINIMAL RISK LEVELS AND WORKSHEETS A-1

E. USER'S GUIDE B-1

F. ACRONYMS, ABBREVIATIONS, AND SYMBOLS C-1

G. INDEX D-1

LIST OF FIGURES

2-1	Origin of Wood Creosotes and Coal Tar Products	18
3-1	Levels of Significant Exposure to Creosote—Inhalation	38
3-2	Levels of Significant Exposure to Creosote—Oral	71
3-3	Levels of Significant Exposure to Wood Creosote—Oral	82
3-4	Proposed Metabolic Scheme for Benzo[a]pyrene	165
3-5	Conceptual Representation of a Physiologically Based Pharmacokinetic (PBPK) Model for a Hypothetical Chemical Substance	182
3-6	Existing Information on Health Effects of Creosote	203
6-1	Frequency of NPL Sites with Creosote Contamination	241

LIST OF TABLES

3-1	Levels of Significant Exposure to Creosote—Inhalation	31
3-2	Levels of Significant Exposure to Creosote—Oral	65
3-3	Levels of Significant Exposure to Wood Creosote—Oral	75
3-4	Levels of Significant Exposure to Creosote—Dermal	114
3-5	Levels of Significant Exposure to Wood Creosote—Dermal	119
3-6	Genotoxicity of Coal Tar Creosote, Coal Tar, Coal Tar Pitch, or Coal Tar Pitch Volatiles <i>In Vivo</i>	150
3-7	Genotoxicity of Coal Tar Creosote, Coal Tar, Coal Tar Pitch, or Coal Tar Pitch Volatiles <i>In Vitro</i>	152
4-1	Chemical Identity of Wood Creosote	217
4-2	Chemical Identity of Coal Tar Creosote	218
4-3	Chemical Identity of Coal Tar	219
4-4	Identity of Major Components of Wood Creosote	221
4-5	Physical and Chemical Properties of Wood Creosote	222
4-6	Identity of PAH Components of Coal Tar Pitch	224
4-7	Physical and Chemical Properties of Coal Tar Creosote	225
4-8	Physical and Chemical Properties of Coal Tar	230
5-1	Facilities that Produce, Process, or Use Coal Tar Creosote	234
5-2	Import/Export Volumes for Creosote	236
6-1	Releases to the Environment from Facilities that Produce, Process, or Use Coal Tar Creosote	244
7-1	Analytical Methods for Determining Creosote/Coal Tar-Derived PAH Components in Biological Samples	284
7-2	Analytical Methods for Determining Creosote/Coal Tar-Derived PAH Components in Environmental Samples	287
8-1	Regulations and Guidelines Applicable to Coal Tar Creosote, Coal Tar, Coal Tar Pitch, and Coal Tar Pitch Volatiles	299