

**TOXICOLOGICAL PROFILE FOR
TRICHLOROETHYLENE**

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

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DISCLAIMER

The use of company or product name(s) is for identification only and does not imply endorsement by the Agency for Toxic Substances and Disease Registry.

UPDATE STATEMENT

An update Toxicological Profile for Trichloroethylene was released in April 1993. This edition supersedes any previously released draft or final profile.

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:

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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.



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The toxicological profiles are developed in response to the Super-fund 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 April 29, 1996 (61 FR 18744). 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); and February 28, 1994 (59 FR 9486). Section 104(i)(3) of CERCLA, as amended, directs the Administrator of ATSDR to prepare a toxicological profile for each substance on the list.

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The Chemical Manager and Authors acknowledge the contribution of Dr. Ted W. Simon, U.S. EPA, in applying physiologically-based pharmacokinetic modeling to the development of minimal risk levels for trichloroethylene.

THE PROFILE HAS UNDERGONE THE FOLLOWING ATSDR INTERNAL REVIEWS:

1. Green Border Review. Green Border review assures consistency with ATSDR policy.
2. 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.
3. 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.

PEER REVIEW

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

1. Herbert Cornish, Ph.D., Private Consultant, Ypsilanti, MI
2. James Klaunig, Ph.D., Indiana University School of Medicine, Indianapolis, IN
3. Norbert Page, Ph.D., Private Consultant, Gaithersburg, MD

These experts collectively have knowledge of trichloroethylene'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.

FOREWORD	v
CONTRIBUTORS	vii
PEER REVIEW	ix
LIST OF FIGURES	xv
LIST OF TABLES	xvii
1. PUBLIC HEALTH STATEMENT	1
1.1 WHAT IS TRICHLOROETHYLENE?	1
1.2 WHAT HAPPENS TO TRICHLOROETHYLENE WHEN IT ENTERS THE ENVIRONMENT?	2
1.3 HOW MIGHT I BE EXPOSED TO TRICHLOROETHYLENE?	2
1.4 HOW CAN TRICHLOROETHYLENE ENTER AND LEAVE MY BODY?	3
1.5 HOW CAN TRICHLOROETHYLENE AFFECT MY HEALTH?	4
1.6 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO TRICHLOROETHYLENE?	6
1.7 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?	6
1.8 WHERE CAN I GET MORE INFORMATION?	7
2. HEALTH EFFECTS	9
2.1 INTRODUCTION	9
2.2 DISCUSSION OF HEALTH EFFECTS BY ROUTE OF EXPOSURE	9
2.2.1 Inhalation Exposure	11
2.2.1.1 Death	11
2.2.1.2 Systemic Effects	12
2.2.1.3 Immunological and Lymphoreticular Effects	35
2.2.1.4 Neurological Effects	35
2.2.1.5 Reproductive Effects	42
2.2.1.6 Developmental Effects	43
2.2.1.7 Genotoxic Effects	44
2.2.1.8 Cancer	45
2.2.2 Oral Exposure	49
2.2.2.1 Death	49
2.2.2.2 Systemic Effects	50
2.2.2.3 Immunological and Lymphoreticular Effects	80
2.2.2.4 Neurological Effects	81
2.2.2.5 Reproductive Effects	83
2.2.2.6 Developmental Effects	84
2.2.2.7 Genotoxic Effects	89
2.2.2.8 Cancer	90

2.2.3	Dermal Exposure	93
2.2.3.1	Death	93
2.2.3.2	Systemic Effects	94
2.2.3.3	Immunological and Lymphoreticular Effects	95
2.2.3.4	Neurological Effects	95
2.2.3.5	Reproductive Effects	96
2.2.3.6	Developmental Effects	96
2.2.3.7	Genotoxic Effects	96
2.2.3.8	Cancer	96
2.3	TOXICOKINETICS	96
2.3.1	Absorption	97
2.3.1.1	Inhalation Exposure	97
2.3.1.2	Oral Exposure	98
2.3.1.3	Dermal Exposure	99
2.3.2	Distribution	100
2.3.2.1	Inhalation Exposure	101
2.3.2.2	Oral Exposure	102
2.3.2.3	Dermal Exposure	102
2.3.3	Metabolism	102
2.3.4	Elimination and Excretion	108
2.3.4.1	Inhalation Exposure	108
2.3.4.2	Oral Exposure	109
2.3.4.3	Dermal Exposure	110
2.3.5	Physiologically Based Pharmacokinetic (PBPK)/Pharmacodynamic (PD) Models	110
2.4	MECHANISMS OF ACTION	118
2.4.1	Pharmacokinetic Mechanisms	118
2.4.2	Mechanisms of Toxicity	120
2.4.3	Animal-to-Human Extrapolations	125
2.5	RELEVANCE TO PUBLIC HEALTH	126
2.6	BIOMARKERS OF EXPOSURE AND EFFECT	153
2.6.1	Biomarkers Used to Identify or Quantify Exposure to Trichloroethylene	154
2.6.2	Biomarkers Used to Characterize Effects Caused by Trichloroethylene	157
2.7	INTERACTIONS WITH OTHER SUBSTANCES	158
2.8	POPULATIONS THAT ARE UNUSUALLY SUSCEPTIBLE	161
2.9	METHODS FOR REDUCING TOXIC EFFECTS	162
2.9.1	Reducing Peak Absorption Following Exposure	162
2.9.2	Reducing Body Burden	163
2.9.3	Interfering with the Mechanism of Action for Toxic Effects	164
2.10	ADEQUACY OF THE DATABASE	165
2.10.1	Existing Information on Health Effects of Trichloroethylene	165
2.10.2	Identification of Data Needs	167
2.10.3	On-going Studies	179
3.	CHEMICAL AND PHYSICAL INFORMATION	181
3.1	CHEMICAL IDENTITY	181
3.2	PHYSICAL AND CHEMICAL PROPERTIES	181

4. PRODUCTION, IMPORT/EXPORT, USE, AND DISPOSAL	185
4.1 PRODUCTION	185
4.2 IMPORT/EXPORT	185
4.3 USE	188
4.4 DISPOSAL	189
5. POTENTIAL FOR HUMAN EXPOSURE	191
5.1 OVERVIEW	191
5.2 RELEASES TO THE ENVIRONMENT	193
5.2.1 Air	193
5.2.2 Water	196
5.2.3 Soil	196
5.3 ENVIRONMENTAL FATE	197
5.3.1 Transport and Partitioning	197
5.3.2 Transformation and Degradation	200
5.3.2.1 Air	200
5.3.2.2 Water	201
5.3.2.3 Sediment and Soil	202
5.4 LEVELS MONITORED OR ESTIMATED IN THE ENVIRONMENT	204
5.4.1 Air	204
5.4.2 Water	206
5.4.3 Sediment and Soil	208
5.4.4 Other Environmental Media	209
5.5 GENERAL POPULATION AND OCCUPATIONAL EXPOSURE	210
5.6 POPULATIONS WITH POTENTIALLY HIGH EXPOSURES	212
5.7 ADEQUACY OF THE DATABASE	213
5.7.1 Identification of Data Needs	214
5.7.2 On-going Studies	216
6. ANALYTICAL METHODS	219
6.1 BIOLOGICAL MATERIALS	219
6.2 ENVIRONMENTAL SAMPLES	223
6.3 ADEQUACY OF THE DATABASE	230
6.3.1 Identification of Data Needs	230
6.3.2 On-going Studies	232
7. REGULATIONS AND ADVISORIES	233
8. REFERENCES	241
9. GLOSSARY	295

APPENDICES

A. MINIMAL RISK LEVEL A-1

B. USER'S GUIDE B-1

C. ACRONYMS, ABBREVIATIONS, AND SYMBOLS C-1

LIST OF FIGURES

2-1	Levels of Significant Exposure to Trichloroethylene - Inhalation	24
2-2	Levels of Significant Exposure to Trichloroethylene - Oral	68
2-3	Metabolic Pathways of Trichloroethylene	104
2-4	Conceptual Representation of a Physiologically Based Pharmacokinetic (PBPK) Model for a Hypothetical Chemical Substance	112
2-5	Existing Information on Health Effects of Trichloroethylene	166
5-1	Frequency of NPL Sites with Trichloroethylene Contamination	192

LIST OF TABLES

2-1	Levels of Significant Exposure to Trichloroethylene - Inhalation	13
2-2	Levels of Significant Exposure to Trichloroethylene - Oral	51
2-3	Parameters Used in Two Human PBPK Models	114
2-4	Genotoxicity of Trichloroethylene <i>In Vivo</i>	144
2-5	Genotoxicity of Trichloroethylene <i>In Vitro</i>	148
3-1	Chemical Identity of Trichloroethylene	182
3-2	Physical and Chemical Properties of Trichloroethylene	184
4-1	Facilities That Manufacture or Process Trichloroethylene	186
5-1	Releases to the Environment from Facilities That Manufacture or Process Trichloroethylene	194
6-1	Analytical Methods for Determining Trichloroethylene in Biological Materials	220
6-2	Analytical Methods for Determining Trichloroethylene in Environmental Samples	225
7-1	Regulations and Guidelines Applicable to Trichloroethylene	234