

Provisional Peer-Reviewed Toxicity Values for

1,2,3-Trimethyl-4-Propenylnaphthalene
(CASRN 26137-53-1)

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TABLE OF CONTENTS

| | |
|---|----|
| COMMONLY USED ABBREVIATIONS | iv |
| BACKGROUND | 1 |
| DISCLAIMERS | 1 |
| QUESTIONS REGARDING PPRTVS | 1 |
| INTRODUCTION | 2 |
| REVIEW OF POTENTIALLY RELEVANT DATA (CANCER AND NONCANCER)..... | 3 |
| DERIVATION OF PROVISIONAL VALUES | 3 |
| CANCER WEIGHT-OF-EVIDENCE (WOE) DESCRIPTOR..... | 3 |
| MODE-OF-ACTION (MOA) DISCUSSION | 4 |
| REFERENCES | 4 |

COMMONLY USED ABBREVIATIONS

| | |
|----------------------|---|
| BMC | benchmark concentration |
| BMD | benchmark dose |
| BMCL | benchmark concentration lower bound 95% confidence interval |
| BMDL | benchmark dose lower bound 95% confidence interval |
| HEC | human equivalent concentration |
| HED | human equivalent dose |
| IUR | inhalation unit risk |
| LOAEL | lowest-observed-adverse-effect level |
| LOAEL _{ADJ} | LOAEL adjusted to continuous exposure duration |
| LOAEL _{HEC} | LOAEL adjusted for dosimetric differences across species to a human |
| NOAEL | no-observed-adverse-effect level |
| NOAEL _{ADJ} | NOAEL adjusted to continuous exposure duration |
| NOAEL _{HEC} | NOAEL adjusted for dosimetric differences across species to a human |
| NOEL | no-observed-effect level |
| OSF | oral slope factor |
| p-IUR | provisional inhalation unit risk |
| p-OSF | provisional oral slope factor |
| p-RfC | provisional reference concentration (inhalation) |
| p-RfD | provisional reference dose (oral) |
| POD | point of departure |
| RfC | reference concentration (inhalation) |
| RfD | reference dose (oral) |
| UF | uncertainty factor |
| UF _A | animal-to-human uncertainty factor |
| UF _C | composite uncertainty factor |
| UF _D | incomplete-to-complete database uncertainty factor |
| UF _H | interhuman uncertainty factor |
| UF _L | LOAEL-to-NOAEL uncertainty factor |
| UF _S | subchronic-to-chronic uncertainty factor |
| WOE | weight of evidence |

PROVISIONAL PEER-REVIEWED TOXICITY VALUES FOR 1,2,3-TRIMETHYL-4-PROPENYLNAPHTHALENE (CASRN 26137-53-1)

BACKGROUND

A Provisional Peer-Reviewed Toxicity Value (PPRTV) is defined as a toxicity value derived for use in the Superfund Program. PPRTVs are derived after a review of the relevant scientific literature using established Agency guidance on human health toxicity value derivations. All PPRTV assessments receive internal review by a standing panel of National Center for Environment Assessment (NCEA) scientists and an independent external peer review by three scientific experts.

The purpose of this document is to provide support for the hazard and dose-response assessment pertaining to chronic and subchronic exposures to substances of concern, to present the major conclusions reached in the hazard identification and derivation of the PPRTVs, and to characterize the overall confidence in these conclusions and toxicity values. It is not intended to be a comprehensive treatise on the chemical or toxicological nature of this substance.

The PPRTV review process provides needed toxicity values in a quick turnaround timeframe while maintaining scientific quality. PPRTV assessments are updated approximately on a 5-year cycle for new data or methodologies that might impact the toxicity values or characterization of potential for adverse human health effects and are revised as appropriate. It is important to utilize the PPRTV database (<http://hhpprtv.ornl.gov>) to obtain the current information available. When a final Integrated Risk Information System (IRIS) assessment is made publicly available on the Internet (www.epa.gov/iris), the respective PPRTVs are removed from the database.

DISCLAIMERS

The PPRTV document provides toxicity values and information about the adverse effects of the chemical and the evidence on which the value is based, including the strengths and limitations of the data. All users are advised to review the information provided in this document to ensure that the PPRTV used is appropriate for the types of exposures and circumstances at the site in question and the risk management decision that would be supported by the risk assessment.

Other U.S. Environmental Protection Agency (EPA) programs or external parties who may choose to use PPRTVs are advised that Superfund resources will not generally be used to respond to challenges, if any, of PPRTVs used in a context outside of the Superfund program.

QUESTIONS REGARDING PPRTVS

Questions regarding the contents and appropriate use of this PPRTV assessment should be directed to the EPA Office of Research and Development's National Center for Environmental Assessment, Superfund Health Risk Technical Support Center (513-569-7300).

INTRODUCTION

1,2,3-Trimethyl-4-propenylnaphthalene (CAS No. 26137-53-1) is an aromatic, organic chemical that has been found in ash as a byproduct of combustion. There is little information available in the scientific literature about this compound. A physical description or listing of industrial uses for 1,2,3-trimethyl-4-propenylnaphthalene could not be located. Table 1 provides the available physicochemical properties of 1,2,3-trimethyl-4-propenylnaphthalene.

| Table 1. Physicochemical Properties Table for 1,2,3-Trimethyl-4-propenylnaphthalene (CASRN 26137-53-1)^a | |
|---|---------|
| Property (unit) | Value |
| Boiling point (°C) | 345.3 |
| Melting point (°C) | No data |
| Density (g/cm ³) | 0.985 |
| Vapor pressure (hPa at 25°C) | No data |
| pH (unitless) | No data |
| Solubility in water (mg/L at 20°C) | No data |
| Relative vapor density (air = 1) | No data |
| Molecular weight (g/mol) | 210.314 |
| Flash point (°C) | 173.1 |

^aLookChem (2011) and Pubchem (2011)

No Reference Dose (RfD), Reference Concentration (RfC), or cancer assessment for 1,2,3-trimethyl-4-propenylnaphthalene is included in the IRIS (U.S. EPA, 2010) or on the Drinking Water Standards and Health Advisories List (U.S. EPA, 2009). No RfD or RfC values are reported in the HEAST (U.S. EPA, 2003). The Chemical Assessments and Related Activities (CARA) list does not include a Health and Environmental Effects Profile (HEEP) for 1,2,3-trimethyl-4-propenylnaphthalene (U.S. EPA, 1994). The toxicity of 1,2,3-trimethyl-4-propenylnaphthalene has not been reviewed by the ATSDR (2010) or the World Health Organization (WHO, 2010). CalEPA (2008, 2009) has not derived toxicity values for exposure to 1,2,3-trimethyl-4-propenylnaphthalene. No occupational exposure limits for 1,2,3-trimethyl-4-propenylnaphthalene have been derived by the American Conference of Governmental Industrial Hygienists (ACGIH, 2010), the National Institute of Occupational Safety and Health (NIOSH, 2005), or the Occupational Safety and Health Administration (OSHA, 2010).

The HEAST (U.S. EPA, 2003) does not report a U.S. EPA (1986) cancer weight-of-evidence (WOE) descriptor or an oral slope factor (OSF). The International Agency for Research on Cancer (IARC, 2010) has not reviewed the carcinogenic potential of 1,2,3-trimethyl-4-propenylnaphthalene. 1,2,3-Trimethyl-4-propenylnaphthalene is not included in the *11th Report on Carcinogens* (NTP, 2005). CalEPA (2008) has not prepared a quantitative estimate of carcinogenic potential for 1,2,3-trimethyl-4-propenylnaphthalene.

In the absence of any toxicity or metabolism data on 1,2,3-trimethyl-4-propenyl-naphthalene, a surrogate approach for developing provisional toxicity values is not deemed appropriate.

Literature searches were conducted on sources published from 1900 through February 4, 2011 for studies relevant to the derivation of provisional toxicity values for 1,2,3-trimethyl-4-propenyl-naphthalene (CAS No. 26137-53-1). Literature searches were conducted using EPA's Health and Environmental Research Online (HERO) database of scientific literature. HERO searches the following databases: AGRICOLA; American Chemical Society; BioOne; Cochrane Library; DOE: Energy Information Administration, Information Bridge, and Energy Citations Database; EBSCO: Academic Search Complete; GeoRef Preview; GPO: Government Printing Office; Informaworld; IngentaConnect; J-STAGE: Japan Science & Technology; JSTOR: Mathematics & Statistics and Life Sciences; NSCEP/NEPIS (EPA publications available through the National Service Center for Environmental Publications [NSCEP] and National Environmental Publications Internet Site [NEPIS] database); PubMed: MEDLINE and CANCERLIT databases; SAGE; Science Direct; Scirus; Scitopia; SpringerLink; TOXNET (Toxicology Data Network): ANEUP, CCRIS, ChemIDplus, CIS, CRISP, DART, EMIC, EPIDEM, ETICBACK, FEDRIP, GENE-TOX, HAPAB, HEEP, HMTC, HSDB, IRIS, ITER, LactMed, Multi-Database Search, NIOSH, NTIS, PESTAB, PPBIB, RISKLINE, TRI; and TSCATS; Virtual Health Library; Web of Science (searches Current Content database among others); World Health Organization; and Worldwide Science. The following databases outside of HERO were searched for risk assessment values: ACGIH, ATSDR, CalEPA, EPA IRIS, EPA HEAST, EPA HEEP, EPA OW, EPA TSCATS/TSCATS2, NIOSH, NTP, OSHA, and RTECS.

REVIEW OF POTENTIALLY RELEVANT DATA (CANCER AND NONCANCER)

The literature search revealed no human or animal studies (i.e., acute-, short-term-, or chronic-duration) for 1,2,3-trimethyl-4-propenyl-naphthalene.

DERIVATION OF PROVISIONAL VALUES

Limitations in the available data preclude development of both cancer and noncancer toxicity values.

CANCER WEIGHT-OF-EVIDENCE (WOE) DESCRIPTOR

Limitations in the available data preclude development of a WOE descriptor.

MODE-OF-ACTION (MOA) DISCUSSION

Limitations in the available data preclude determination of a MOA discussion.

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