Health Consultation

Private Well Sampling Results Collected March, 1999

UNIVERSITY OF CONNECTICUT LANDFILL

MANSFIELD, TOLLAND COUNTY, CONNECTICUT

NOVEMBER 26, 1999

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

Private Well Sampling Results Collected March, 1999

UNIVERSITY OF CONNECTICUT LANDFILL

MANSFIELD, TOLLAND COUNTY, CONNECTICUT

Prepared by:

Connecticut Department of Public Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

The conclusions and recommendations in this health consultation are based on the data and information made available to the Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry. The Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry will incorporate additional information when received. The incorporation of any additional data could change the conclusions and recommendations listed in this document.

BACKGROUND AND STATEMENT OF ISSUES

Citizens living near the University of Connecticut landfill have expressed concern about the impact of this site on public health. In December, 1998 the Director of the Eastern Highland's Health District requested the assistance of the Connecticut Department of Public Health (CT DPH) in responding to public health concerns around the landfill and other peripheral sites.[1] The CT DPH has a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), part of the U.S. Public Health Service, to evaluate the public health issues associated with actual or potential exposure to hazardous substances. Health Consultations are used to provide information on a specific public health issue.

The purpose of this health consultation is to summarize the results of the most recent round of private well sampling collected beginning in March, 1999 and determine if there is any health risk associated with using water from these wells. This is the third round of sampling conducted to address citizens' concerns about the safety of their private well water.

The findings of this Health Consultation were presented at a public meeting on June 8, 1999, at which time the public comment period was announced. The public comment period was also announced in the August issue of Update, a newsletter developed by the University of Connecticut to keep people informed about the landfill remediation project. No public comments were received.

In an effort to address citizen's concerns about the current safety of their drinking water, the Eastern Highlands Health District and the Connecticut Department of Environmental Protection (CT DEP) initiated the first round of private well water testing in June and July, 1998 at which time 88 private wells were sampled. This sampling included nearly all active private wells located on roads in "areas of concern" as identified by the local health department and the CT DEP. The results of this sampling were summarized by the Eastern Highland Health District.[2] With the exception of four wells: one contaminated with methyl tert butyl ether; two with elevated levels of nitrates; and one with elevated levels of lead and copper, it was concluded that the remaining wells were providing water that was safe to drink and use.

A second round of sampling was conducted during a several week period beginning in late November, 1998. Because of concern regarding the types of contamination disposed of at the landfill and chemical pits, this round of sampling included tests for pesticides and semivolatile

organic compounds. The 65 private wells retested in this round of sampling were selected because they are closest to the landfill. Wells were found to be providing water that was safe to drink and use.

The University of Connecticut landfill is located in the northwest corner of the University of Connecticut campus, east of Hunting Lodge Road and north of North Eagleville Road.

The landfill operated from 1966 to 1989 and covers approximately 15 acres. While the majority of the material disposed of at the landfill was paper waste, digested sewage sludge and bulky metal wastes were also stored near the southwestern corner of the landfill. Waste filter sand from a wastewater treatment plant was also stored near the southeastern corner of the landfill.[4]

Chemical waste pits were used adjacent to the landfill to dispose of chemical wastes including acids, ethers, peroxides, cyanide, arsenic, solvents, herbicides and pesticides. The first chemical pit was dug approximately 75 feet west of the landfill and was used from 1966 until 1973. In 1973, a second pit was excavated and used until 1978. These pits were approximately 17 feet by eight feet and six feet deep. Two smaller chemical pits also existed in this same area. In 1987 the chemical pits were formally closed. This closure included the excavation of materials from the pits and off-site disposal.

During preliminary construction activities in 1998, solid waste material was identified at F Lot in the northwest portion of campus. Historical information suggests that this area was used to dispose of incinerator ash from approximately 1965 to 1970 when the area was turned into a parking lot.

The landfill, as well as the former chemical pits and F Lot are currently the focus of a hydrogeologic investigation to determine the likely direction and flow of contaminants from the site. This investigation is being required by the CT DEP to fulfill conditions of a June, 1998 Consent Order signed by the University of Connecticut.[3]

DISCUSSION

Forty-four private wells located in the vicinity of the University of Connecticut landfill were sampled by the CT DEP in March and April, 1999. In order to provide quality assurance, the Environmental Protection Agency collected samples from five of the 44 wells and analyzed the samples at their laboratory. This is the third round of private well sampling conducted in the area near the UConn landfill. These 44 wells are a subset of the initial 88 wells sampled. Continued sampling is focusing on those wells closest to the landfill area. The purpose of this sampling is to address citizen's concerns about the safety of their private well water. This round of sampling included four wells on Hillyndale, one well on Little Lane, two wells on Lynnwood, one well on Hunting Lodge, 13 wells on Meadowood, four wells on North Eagleville, one well on Northwood, eight wells on Separatist and five wells on Southwood. A map in Appendix A provides an overview of the locations of the private wells sampled.

All wells were sampled for physical parameters, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs) and pesticides. A complete list of sampling parameters is included in Appendix B.

Low levels of volatile organic compounds were detected in twenty-one of the wells. Twelve wells had one VOC detected, seven wells had two VOCs detected and one well had three VOCs detected. No SVOCs or pesticides were detected in any of the wells. For the five wells that EPA performed analyses on, results for VOCs and SVOCs were consistent with the DEP results. Table 1 provides a summary of the volatile organic compounds detected and the highest concentration identified in any of the wells. Any relevant drinking water action levels or standards are reported for comparison.

Table 1.
Volatile Organic Compounds Identified in Private Wells
Third Round Sampling Results

CONTAMINANT	NUMBER OF WELLS DETECTED	HIGHEST CONCENTRATION DETECTED in micrograms/liter (μg/L)	DRINKING WATER ACTION LEVEL AND/OR STANDARD
1,2 dichlorobenzene	1	<0.5	600 MCL[1]
1,1 dichloroethane	1	<0.5	5 MCL CA/ME/MA[a]
chloroform	7	2.9	6 CREG[2] 80 MCL for THM[b] 5 MCL MA
methyl tert butyl ether (MTBE)	12	1.1	70 state action level[3]
methylene chloride	5	.7	5 CREG 5 MCL
tetrachloroethylene	1	<0.5	.7 CREG 5 MCL
trichloroethylene	3	0.5	3 CREG 5 MCL

1. MCL: Maximum Contaminant Level.
2. CREG: Cancer Risk Evaluation Guideline established by ATSDR.
3. state action level: Actions levels established under 22a-471 of the General Statutes by the CT DPH for determination of potability of private drinking water wells.
a. While EPA does not have an MCL for 1,1 dichloroethane, the states of California, Maine and Massachusetts have established an MCL of 5 μg/L.
b. EPA has established an MCL of 80 μg/L for total trihalomethanes (THMs). Chloroform is one of many THMs.
a value reported as <0.5 means compound was identified below the detection limit

In order to evaluate the health implications of contamination identified in private wells, we compare the levels with the lowest drinking water standard and/or action level. All contaminants were below the action levels and/or standards, therefore the water is safe for

drinking and all other uses. Action levels and standards are concentrations of a contaminant in water determined to be the level at which adverse health effects are not likely. These values include Maximum Contaminant Levels (MCLs), state action levels and Cancer Risk Evaluation Guidelines (CREGs). A CREG is the concentration of a chemical that would result in one excess cancer in a million people similarly exposed over a lifetime. MCLs are set by EPA and represent the maximum allowable level of a contaminant in public drinking water supplies. When establishing an MCL, EPA may take into account the feasibility of treatment as well as laboratory detection limits. State action levels represent the concentration of a chemical in private drinking water wells below which adverse health effects are not likely.

The most commonly identified contaminant was the gasoline additive, MTBE followed by chloroform and methylene chloride. Fact sheets on each of the contaminants identified in the private wells can be found in Appendix C.

In addition to the volatile organic compounds, eight of the wells sampled had elevated levels of iron, manganese, color and/or turbidity (particles in the water). These do not present a public health concern but may affect the way the water looks and tastes. In addition, elevated levels of iron and manganese can stain plumbing and clothes. There are filtering systems that can be used to address these problems.

Lead was identified above the state action level in the first draw water sample at one well. First draw water samples are collected early in the day prior to any household water use. Because lead found in drinking water is almost always associated with lead solder and plumbing fixtures, it is standard practice to draw a flush sample, or a sample taken after the water has run for approximately 15 minutes. The flush sample taken from this well had lead below the state action level. The EPA also collected first and flush samples from two residential wells and performed analysis for total metals. The results of one well were consistent with CT DEP sampling, one well had elevated levels of lead following the flush sample and is being resampled.

One well had sodium above the CT DPH notification level. This may present a health concern only for individuals that are on a salt restricted diet. The residents have been informed of the sodium level.

CONCLUSIONS

While low levels of some volatile organic compounds were identified in 21 of the private wells sampled, none of the compounds were identified at levels that would present any public health concern from either long or short term exposure. One well was identified with elevated lead levels following the flush sample. This resident has been informed of the results and the well is being resampled. One well had sodium above the state notification level, the resident has been informed of the results. With the exception of these two wells, all of the private wells that were

tested are providing water that is safe to drink and use and present no apparent public health hazard at this time.

RECOMMENDATIONS

The quarterly private well sampling program should be continued pending the results of the hydrogeologic investigation to provide residents with information regarding the quality and safety of their drinking water.

PUBLIC HEALTH ACTION PLAN

Actions Taken:

1. The findings of this Health Consultation were presented to the public during a public meeting on June 8, 1999.

2. A public comment period for the document was announced on June 8, 1999 at the public meeting.

3. An article summarizing the findings of this Health Consultation and soliciting public comments was published in Update, the newsletter issued exclusively to provide information to the public on the University of Connecticut Landfill Remediation Project.

Actions Planned:

1. The CT Department of Public Health will review the next round of private well sampling results and write a Health Consultation summarizing those results.

2. The CT Department of Public Health will work with the CT Department of Environmental Protections to respond to any questions regarding private well sampling results.

3. The CT DPH will continue to evaluate the results of private well testing and assist residents in understanding their well sampling results and the health implications of the results.

REFERENCES

1. Letter dated December, 14, 1998 to Dr. Mary Lou Fleissner from Robert L Miller, MPH, RS, RE: Public Health Assessment Request.

2. Eastern Highlands Health District report entitled "Private Water Supply Well Screening Program for Residential Wells Around the University of Connecticut Landfill-Final Report" dated November 20, 1998.

3. Connecticut Department of Environmental Protection, State of Connecticut V. University of Connecticut Consent Order, Order No. SRD-101, signed, June 26, 1998.

4. Connecticut Department of Environmental Protection, Permitting, Enforcement & Remediation Division, Bureau of Water Management report entitled "Final Site Inspection, University of Connecticut Landfill/Waste Pits" dated September 29, 1993.

CERTIFICATION

The Health Consultation for private well sampling conducted around the University of Connecticut landfill was prepared by the Connecticut Department of Public Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was initiated.

Gregory V. Ulirsch

Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation(DHAC), ATSDR, has reviewed this Health Consultation and concurs with its findings.

Richard Gillig

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APPENDIX A

University of Connecticut Landfill

Department of Environmental Protection
Residential Well Sampling: Third Round

Residential Well Sampling Locations
- Non-Detect
- Detect Below Action Level
- Detect Above Action Level
- Landfill

N

0.4 0 0.4 0.8 Miles

State of Connecticut
Department of Public Health
Environmental Epidemiology & Occupational Health

Well sampling data obtained from the Connecticut Department of Environmental Protection.

June 7, 1999

APPENDIX B

PHYSICAL PARAMETERS

**
APPARENT COLOR
TRUE COLOR
ODOR
TURBIDITY
PH
AMMONIA

ALKALINITY
HARDNESS
CHLORIDE
NITRATE
NITRITE
SOLIDS, DISSOLVED
CADMIUM
CHROMIUM
COPPER
NICKEL
LEAD
ZINC
IRON
MANGANESE
COD
SODIUM, DIRECT
SULFATES, COMPLEX
POTASSIUM, DIRECT

VOLATILE ORGANIC COMPOUNDS

BENZENE
BROMOBENZENE
BROMOCHLOROMETHANE
BROMODICHLOROMETHANE
BROMOFORM
BROMOMETHANE
N-BUTYLBENZENE
SEC-BUTYLBENZENE
TERT-BUTYLBENZENE
CARBON TETRACHLORIDE
CHLOROBENZENE
CHLOROETHANE
CHLOROFORM
CHLOROMETHANE
2-CHLOROTOLUENE
4-CHLOROTOLUENE
DIBROMOCHLOROMETHANE
1,2-DIBROMO-3-CHLOROPROPANE
1,2-DIBROMOETHANE
DIBROMOMETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE
DICHLORODIFLUOROMETHANE
1,1-DICHLOROETHANE
1,2-DICHLOROETHANE

1,1-DICHLOROETHENE
CIS-1,2-DICHLOROETHENE
TRANS-1,2-DICHLOROETHENE
1,2-DICHLOROPROPANE
1,3-DICHLOROPROPANE
2,2-DICHLOROPROPANE
1,1-DICHLOROPROPENE
CIS-1,3-DICHLOROPROPENE
TRANS-1,3-DICHLOROPROPENE
ETHYLBENZENE
HEXACHLOROBUTADIENE
ISOPROPYLBENZENE
4-ISOPROPYLTOLUENE
METHYLENE CHLORIDE
METHYL T-BUTYL ETHER
NAPHTHALENE
PROPYLBENZENE
STYRENE
1,1,1,2-TETRACHLOROETHANE
1,1,2,2-TETRACHLOROETHANE
TETRACHLOROETHENE
TOLUENE
1,2,3-TRICHLOROBENZENE
1,2,4-TRICHLOROBENZENE
1,1,1-TRICHLOROETHANE
1,1,2-TRICHLOROETHANE
TRICHLOROETHENE
TRICHLOROFLUOROMETHANE
1,2,3-TRICHLOROPROPANE
1,2,4-TRIMETHYLBENZENE
1,3,5-TRIMETHYLBENZENE
VINYL CHLORIDE
M,O,P-XYLENES (TOTAL)

SEMIVOLATILE ORGANIC COMPOUNDS

Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(ghi)perylene
Benzo(a)pyrene
Bis(2-ethylhexyl)phthalate
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene
Di-n-butyl phthalate
Diethyl phthalate
Dimethyl phthalate
Butyl benzyl phthalate
Fluorene
Hexachlorobenzene
Hexachlorocyclopentadiene
Indeno(1,2,3-cd)pyrene
Naphthalene
Pentachlorophenol
Phenanthrene
Pyrene
Aramite
Hexachlorophene
Kepone
Methapyrilene
Phenol
Parathion
Bis(2-ethylhexyl)adipate
2-Methyl-4,6-Dinitrophenol
Bis(2-chloroethyl)ether
p-(Dimethylamino)azobenzene
p-Phenylenediamine
Pronamide
4-Nitroquinoline 1-oxide

PESTICIDES

ALDRIN
ALACHLOR
ATRAZINE
ALPHA CHLORDANE
GAMMA CHLORDANE
CHLORDANE (TECHNICAL)
DIELDRIN
ENDRIN
HEPTACHLOR
HEPTACHLOR EPOXIDE
HEXACHLOROBENZENE
HEXACHLOROCYCLOPENTADIENE
LINDANE
METHOXYCHLOR
CIS-NONACHLOR
TRANS-NONACHLOR
SIMAZINE
TOXAPHENE
AROCLOR 1016
AROCLOR 1221
AROCLOR 1232
AROCLOR 1242
AROCLOR 1248
AROCLOR 1254
AROLCOR 1260

BUTACHLOR
PROPACHLOR
METOLACHLOR
METRIBUZIN
P,P'-DDE
P,P'-DDD
P,P'-DDT

APPENDIX C

ATSDR

METHYLENE CHLORIDE

Agency for Toxic Substances and Disease Registry April 1993

This fact sheet answers the most frequently asked health questions about methylene chloride. For more information, you may call 404-639-6000. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to methylene chloride happens mostly from breathing air in the workplace were it is used. In people, direct skin contact causes intense burning and mild skin redness. This substance has been found in at least 746 of 1,300 National Priorities List sites identified by the Environmental Protection Agency.

What is methylene chloride?

(Pronounced meth″ i̇ - lēn klo′ rīd)

Methylene chloride is a colorless liquid with a mild, sweet odor. Another name for it is dichloromethane.

It does not occur naturally in the environment. It's made from methane gas or wood alcohol. It's widely used as a solvent in paint strippers, as a propellant in aerosols, and as a process solvent in the manufacturing of drugs. It's also used as a metal cleaning and finishing solvent.

Most methylene chloride gets in the environment from its use in industry and from home use of aerosols and paint removers. Because of concern over the health effects, its use in aerosols has declined.

Methylene chloride is approved as an extraction solvent for spices and hops. It used to be popular for removing caffeine from coffee, but most coffee producers no longer use it.

What happens to methylene chloride when it enters the environment?

- It evaporates very easily, so it's found mostly in air.
- More than 99 percent of the methylene chloride in air comes from industry and consumer products.
- It doesn't stick to soil particles or dissolve in water, so it moves from both soil and water to air.
- Soil and water organisms break it down to simpler compounds.
- Some drinking water has been shown to contain small amounts of methylene chloride.
- Plants and aquatic organisms do not appear to store it.

How might I be exposed to methylene chloride?

- Breathing workplace air where it is used
- Breathing fumes from paint strippers that contain it (check the label)
- Breathing fumes from aerosol cans that use it (check the label)
- Breathing contaminated air near waste sites.

How can methylene chloride affect my health?

Methylene chloride harms the human central nervous system.

High levels in the air (nearly 1,000 times average levels) may affect your ability to react fast, remain steady, or perform tasks that require precise hand movements. If you continue to breathe high levels, you may get:

- dizziness
- nausea
- tingling
- numbness in the fingers and toes.

In most cases, these effects will stop shortly after exposure ends. In animals, however, very high exposures have caused unconsciousness and death.

Exposure to **lower levels** of methylene chloride in air can lead to slightly impaired hearing and vision. Many

people can smell methylene chloride at these lower levels. However, people differ in their ability to smell methylene chloride, so odors may not help you avoid an unwanted exposure.

In humans, direct skin contact with methylene chloride causes intense burning and mild redness of the skin. Direct contact with the eyes can burn the cornea. In animals that have been exposed to vapors or directly to methylene chloride, the cornea was damaged. The damage healed within a few days after the exposure ended.

How likely is methylene chloride to cause cancer?

The Department of Health and Human Services (DHHS) has determined that methylene chloride may reasonably be anticipated to be a carcinogen. Methylene chloride has not been shown to cause cancer in humans exposed to vapors in the workplace. However, breathing high concentrations of it for long periods did increase the incidence of cancer in mice.

Is there a medical test to show whether I've been exposed to methylene chloride?

Several tests measure exposure to methylene chloride. These tests are not routinely available in your doctor's office.

The most direct test measures methylene chloride in the air you breathe out. Your blood can also be tested to determine if methylene chloride is present. Since it stays in the blood a very short time, you must have these tests soon after exposure.

Doctors can also test urine for methylene chloride or for chemicals such as formic acid that are produced as methylene chloride breaks down in the body.

Has the federal government made recommendations to protect human health?

The Environmental Protection Agency (EPA) requires that releases of methylene chloride of 1,000 pounds or more be reported to the federal government. The EPA has guidelines as to how much of this chemical you may be exposed and for how long without harming your health. EPA recommends that children not drink water that contains more than 13.3 parts of methylene chloride per million parts of water (13.3 ppm) for longer than 1 day or with more than 1.5 ppm for longer than 10 days.

The Food and Drug Administration (FDA) has established limits on how much methylene chloride can remain in spice, hops extract, and decaffeinated coffee.

The Occupational Safety and Health Administration (OSHA) proposes to reduce the current occupational exposure limits to methylene chloride in air. The limit would go from 500 ppm to 25 ppm for an 8-hour workday.

The National Institute for Occupational Safety and Health (NIOSH) currently recommends a permissible limit of 75 ppm of methylene chloride in the air over a 10-hour workday in the presence of carbon monoxide concentrations less than or equal to 9.9 ppm.

Glossary

Carcinogen: Substance that can cause cancer.

PPM: Parts per million.

Cornea: The clear front part of the eye.

Propellant: The gas used in spray cans to force out the contents of the can.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1993. Toxicological profile for methylene chloride. Atlanta: U.S. Department of Health and Human Services, Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. Case studies in environmental medicine: Methylene chloride toxicity. Atlanta: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact community or state health or environmental quality departments if you have any more questions or concerns. For more information, contact: Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333, Phone: 404-639-6000.

ATSDR METHYL *TERT*-BUTYL ETHER (MTBE) CAS # 1634-04-4

This fact sheet answers the most frequently asked health questions (FAQs) about methyl *tert*-butyl ether (MTBE). For more information, call the ATSDR Information Center at 1-800-447-1544. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Methyl *tert*-butyl ether (MTBE) is a flammable liquid which is used as an additive in unleaded gasoline. Drinking or breathing MTBE may cause nausea, nose and throat irritation, and nervous system effects. MTBE has been found in at least 11 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is methyl *tert*-butyl ether?

(Pronounced měth′əl tûrt byo͞ot′l ē′thər)

Methyl *tert*-butyl ether (MTBE) is a flammable liquid with a distinctive, disagreeable odor. It is made from blending chemicals such as isobutylene and methanol, and has been used since the 1980s as an additive for unleaded gasolines to achieve more efficient burning.

MTBE is also used to dissolve gallstones. Patients treated in this way have MTBE delivered directly to their gall bladders through special tubes that are surgically inserted.

What happens to MTBE when it enters the environment?

- MTBE quickly evaporates from open containers and surface water, so it is commonly found as a vapor in the air.
- Small amounts of MTBE may dissolve in water and get into underground water.
- It remains in underground water for a long time.
- MTBE may stick to particles in water, which will cause it to eventually settle to the bottom sediment.
- MTBE may be broken down quickly in the air by sunlight.
- MTBE does not build up significantly in plants and animals.

How might I be exposed to MTBE?

- Touching the skin or breathing contaminated air while pumping gasoline
- Breathing exhaust fumes while driving a car
- Breathing air near highways or in cities
- Drinking, swimming, or showering in water that has been contaminated with MTBE
- Receiving MTBE treatment for gallstones

How can MTBE affect my health?

Breathing small amounts of MTBE for short periods may cause nose and throat irritation. Some people exposed

METHYL *TERT*-BUTYL ETHER (MTBE)
CAS # 1634-04-4

ToxFAQs Internet address via WWW is http://atsdr1.atsdr.cdc.gov:8080/ToxFAQ.html

to MTBE while pumping gasoline, driving their cars, or working in gas stations have reported having headaches, nausea, dizziness, and mental confusion. However, the actual levels of exposure in these cases are unknown. In addition, these symptoms may have been caused by exposure to other chemicals.

There is no data on the effects in people of drinking MTBE. Studies with rats and mice suggest that drinking MTBE may cause gastrointestinal irritation, liver and kidney damage, and nervous system effects.

How likely is MTBE to cause cancer?

There is no evidence that MTBE causes cancer in humans. One study with rats found that breathing high levels of MTBE for long periods may cause kidney cancer. Another study with mice found that breathing high levels of MTBE for long periods may cause liver cancer.

The **Department of Health and Human Services (DHHS)**, the **International Agency for Research on Cancer (IARC)**, and the **EPA** have not classified MTBE as to its carcinogenicity.

Is there a medical test to show whether I've been exposed to MTBE?

MTBE and its breakdown product, butyl alcohol, can be detected in your breath, blood, or urine for up to 1 or 2 days after exposure. These tests aren't available at most doctors' offices, but can be done at special laboratories that have the right equipment. There is no other test specific to determining MTBE exposure.

Has the federal government made recommendations to protect human health?

The **EPA** has issued guidelines recommending that, to protect children, drinking water levels of MTBE not exceed 4 milligrams per liter of water (4 mg/L) for an exposure of 1-10 days, and 3 mg/L for longer-term exposures.

Other recommendations: To protect workers, the **American Conference of Governmental Industrial Hygienists (ACGIH)** has recommended an exposure limit of 40 parts of MTBE per million parts of air (40 ppm) for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: Ability to cause cancer

CAS: Chemical Abstracts Service

Evaporate: To change into a vapor or gas

Milligram (mg): One thousandth of a gram

PPM: Parts per million

Sediment: Mud and debris that have settled to the bottom of a body of water

Source of Information

This ToxFAQs information is taken from the 1996 Toxicological Profile for Methyl *tert*-butyl ether produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-800-447-1544, FAX: 404-639-6359. ToxFAQs Internet address via WWW is http://atsdr1.atsdr.cdc.gov:8080/ToxFAQ.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR TETRACHLOROETHYLENE

CAS # 127-18-4

This fact sheet answers the most frequently asked health questions (FAQs) about tetrachloroethylene. For more information, call the ATSDR Information Center at 1-800-447-1544. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Tetrachloroethylene is a manufactured chemical used for dry cleaning and metal degreasing. Exposure to very high concentrations of tetrachloroethylene can cause dizziness, headaches, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. Tetrachloroethylene has been found in at least 771 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

'hat is tetrachloroethylene?

(Pronounced tĕt′rə-klôr′ ō-ĕth′ə-lēn′)

Tetrachloroethylene is a manufactured chemical that is widely used for dry cleaning of fabrics and for metal-degreasing. It is also used to make other chemicals and is used in some consumer products.

Other names for tetrachloroethylene include perchloroethylene, PCE, and tetrachloroethene. It is a nonflammable liquid at room temperature. It evaporates easily into the air and has a sharp, sweet odor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part tetrachloroethylene per million parts of air (1 ppm) or more, although some can smell it at even lower levels.

What happens to tetrachloroethylene when it enters the environment?

- Much of the tetrachloroethylene that gets into water or soil evaporates into the air.
- Microorganisms can break down some of the tetrachloroethylene in soil or underground water.
- In the air, it is broken down by sunlight into other chemicals or brought back to the soil and water by rain.
- It does not appear to collect in fish or other animals that live in water.

How might I be exposed to tetrachloroethylene?

- When you bring clothes from the dry cleaners, they will release small amounts of tetrachloroethylene into the air.
- When you drink water containing tetrachloroethylene, you are exposed to it.

How can tetrachloroethylene affect my health?

High concentrations of tetrachloroethylene (particularly in closed, poorly ventilated areas) can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death.

Irritation may result from repeated or extended skin contact with it. These symptoms occur almost entirely in work (or hobby) environments when people have been accidentally exposed to high concentrations or have intentionally used tetrachloroethylene to get a "high."

In industry, most workers are exposed to levels lower than those causing obvious nervous system effects. The health effects of breathing in air or drinking water with low levels of tetrachloroethylene are not known.

Results from some studies suggest that women who work in dry cleaning industries where exposures to tetrachloroethylene can be quite high may have more menstrual problems and

spontaneous abortions than women who are not exposed. However, it is not known if tetrachloroethylene was responsible for these problems because other possible causes were not considered.

Results of animal studies, conducted with amounts much higher than those that most people are exposed to, show that tetrachloroethylene can cause liver and kidney damage. Exposure to very high levels of tetrachloroethylene can be toxic to the unborn pups of pregnant rats and mice. Changes in behavior were observed in the offspring of rats that breathed high levels of the chemical while they were pregnant.

How likely is tetrachloroethylene to cause cancer?

The **Department of Health and Human Services (DHHS)** has determined that tetrachloroethylene may reasonably be anticipated to be a carcinogen. Tetrachloroethylene has been shown to cause liver tumors in mice and kidney tumors in male rats.

Is there a medical test to show whether I've been exposed to tetrachloroethylene?

One way of testing for tetrachloroethylene exposure is to measure the amount of the chemical in the breath, much the same way breath-alcohol measurements are used to determine the amount of alcohol in the blood.

Because it is stored in the body's fat and slowly released into the bloodstream, tetrachloroethylene can be detected in the breath for weeks following a heavy exposure.

Tetrachloroethylene and trichloroacetic acid (TCA), a breakdown product of tetrachloroethylene, can be detected in the blood. These tests are relatively simple to perform. These tests aren't available at most doctors' offices, but can be performed at special laboratories that have the right equipment.

Because exposure to other chemicals can produce the same breakdown products in the urine and blood, the tests for breakdown products cannot determine if you have been exposed to tetrachloroethylene or the other chemicals.

Has the federal government made recommendations to protect human health?

The **EPA** maximum contaminant level for the amount of tetrachloroethylene that can be in drinking water is 0.005 milligrams tetrachloroethylene per liter of water (0.005 mg/L).

The **Occupational Safety and Health Administration (OSHA)** has set a limit of 100 ppm for an 8-hour workday over a 40-hour workweek.

The **National Institute for Occupational Safety and Health (NIOSH)** recommends that tetrachloroethylene be handled as a potential carcinogen and recommends that levels in workplace air should be as low as possible.

Glossary

Carcinogen: A substance with the ability to cause cancer

CAS: Chemical Abstracts Service

Milligram (mg): One thousandth of a gram

Nonflammable: Will not burn

Source of Information

This ToxFAQs information is taken from the 1997 Toxicological Profile for Tetrachloroethylene (update) produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-800-447-1544, FAX: 404-639-6359. ToxFAQs Internet address via WWW is http://atsdr1.atsdr.cdc.gov:8080/ToxFAQ.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

TRICHLOROETHYLENE

CAS # 79-01-6

Agency for Toxic Substances and Disease Registry ToxFAQs September 1997

This fact sheet answers the most frequently asked health questions (FAQs) about trichloroethylene. For more information, call the ATSDR Information Center at 1-800-447-1544. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Trichloroethylene is a colorless liquid which is used as a solvent for cleaning metal parts. Drinking or breathing high levels of trichloroethylene may cause nervous system effects, liver and lung damage, abnormal heartbeat, coma, and possibly death. Trichloroethylene has been found in at least 852 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is trichloroethylene?

(Pronounced trī-klôr′ō-ĕth′ə-lēn′)

Trichloroethylene (TCE) is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers.

Trichloroethylene is not thought to occur naturally in the environment. However, it has been found in underground water sources and many surface waters as a result of the manufacture, use, and disposal of the chemical.

What happens to trichloroethylene when it enters the environment?

- Trichloroethylene dissolves a little in water, but it can remain in ground water for a long time.
- Trichloroethylene quickly evaporates from surface water, so it is commonly found as a vapor in the air.
- Trichloroethylene evaporates less easily from the soil than from surface water. It may stick to particles and remain for a long time.
- Trichloroethylene may stick to particles in water, which will cause it to eventually settle to the bottom sediment.
- Trichloroethylene does not build up significantly in plants and animals.

How might I be exposed to trichloroethylene?

- Breathing air in and around the home which has been contaminated with trichloroethylene vapors from shower water or household products such as spot removers and typewriter correction fluid
- Drinking, swimming, or showering in water that has been contaminated with trichloroethylene
- Contact with soil contaminated with trichloroethylene, such as near a hazardous waste site
- Contact with the skin or breathing contaminated air while manufacturing trichloroethylene or using it at work to wash paint or grease from skin or equipment

How can trichloroethylene affect my health?

Breathing small amounts may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating.

Breathing large amounts of trichloroethylene may cause impaired heart function, unconsciousness, and death. Breathing it for long periods may cause nerve, kidney, and liver damage.

Drinking large amounts of trichloroethylene may cause nausea, liver damage, unconsciousness, impaired heart function, or death.

ToxFAQs Internet address via WWW is http://atsdr1.atsdr.cdc.gov:8080/ToxFAQ.html

Drinking small amounts of trichloroethylene for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women, although the extent of some of these effects is not yet clear.

Skin contact with trichloroethylene for short periods may cause skin rashes.

How likely is trichloroethylene to cause cancer?

Some studies with mice and rats have suggested that high levels of trichloroethylene may cause liver or lung cancer. Some studies of people exposed over long periods to high levels of trichloroethylene in drinking water or in workplace air have found evidence of increased cancer. However, these results are inconclusive because the cancer could have been caused by other chemicals.

The **International Agency for Research on Cancer (IARC)** has determined that trichloroethylene is probably carcinogenic to humans.

Is there a medical test to show whether I've been exposed to trichloroethylene?

If you have recently been exposed to trichloroethylene, it can be detected in your breath, blood, or urine. The breath test, if it is performed soon after exposure, can tell if you have been exposed to even a small amount of trichloroethylene.

Exposure to larger amounts is assessed by blood and urine tests, which can detect trichloroethylene and many of its breakdown products for up to a week after exposure. However, exposure to other similar chemicals can produce the same breakdown products, so their detection is not absolute proof of exposure to trichloroethylene. This test isn't available at most doctors' offices, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The **EPA** has set a maximum contaminant level for trichloroethylene in drinking water at 0.005 milligrams per liter (0.005 mg/L) or 5 parts of TCE per billion parts water.

The **EPA** has also developed regulations for the handling and disposal of trichloroethylene.

The **Occupational Safety and Health Administration (OSHA)** has set an exposure limit of 100 parts of trichloroethylene per million parts of air (100 ppm) for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: The ability of a substance to cause cancer

CAS: Chemical Abstracts Service

Evaporate: To change into a vapor or gas

Milligram (mg): One thousandth of a gram

Nonflammable: Will not burn

PPM: Parts per million

Sediment: Mud and debris that have settled to the bottom of a body of water

Solvent: A chemical that dissolves other substances

Source of Information

This ToxFAQs information is taken from the 1997 Toxicological Profile for Trichloroethylene (update) produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

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ATSDR
Public Health Statement

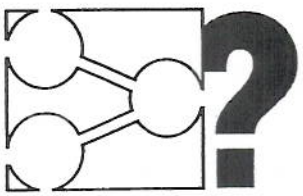
1,1-Dichloroethane

This Statement was prepared to give you information about 1,1-dichloroethane and to emphasize the human health effects that may result from exposure to it. The Environmental Protection Agency (EPA) has identified 1,177 sites on its National Priorities List (NPL). 1,1,-Dichloroethane has been found at 189 of these sites. However, we do not know how many of the 1,177 NPL sites have been evaluated for 1,1-dichloroethane. As EPA evaluates more sites, the number of sites at which 1,1-dichloroethane is found may change. The information is important for you because 1,1-dichloroethane may cause harmful health effects and because these sites are potential or actual sources of human exposure to 1,1-dichloroethane.

When a chemical is released from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment as a chemical emission. This emission, which is also called a release, does not always lead to exposure. You can be exposed to a chemical only when you come into contact with the chemical. You may be exposed to it in the environment by breathing, eating, or drinking substances containing the chemical or from skin contact with it.

If you are exposed to a hazardous substance such as 1,1-dichloroethane several factors will determine whether harmful health effects will occur and what the type and severity of those health effects will be. These factors include the dose (how much), the duration (how long), the route or pathway by which you are exposed (breathing, eating, drinking, or skin contact), the other chemicals to which you are exposed, and your individual characteristics such as age, sex, nutritional status, family traits, life style, and state of health.

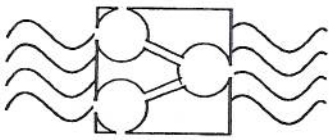
What is 1,1-dichloroethane?



1,1-Dichloroethane is a colorless, oily, man-made liquid. It evaporates quickly at room temperature and has an odor like ether. 1,1-Dichloroethane burns easily. When 1,1-dichloroethane is released to the environment, it usually exists as a vapor rather than a liquid. It is used primarily to make 1,1,1-trichloroethane and a number of other chemicals. It is also used to dissolve other substances such as paint, varnish and finish removers, and to remove grease. 1,1-Dichloroethane was used as a surgical anesthetic, but is no longer.

Almost all of the 1,1-dichloroethane from industrial sources that is released goes into the air. 1,1-Dichloroethane can also be found in the environment as a breakdown product of 1,1,1-trichloroethane in landfills where no air comes in contact with the 1,1,1-trichloroethane. 1,1-Dichloroethane does not dissolve easily in water. The small amounts released to water can evaporate easily into the air. 1,1-Dichloroethane remains as a vapor in the air for about 2 months and dissolves in water for about 5 days. The vapor in air can be washed out by rain or broken down by sunlight. 1,1-Dichloroethane in water will evaporate. Small amounts of 1,1-dichloroethane released to soil can also evaporate into the air or move through the soil to enter groundwater. It is not known how long 1,1-dichloroethane remains in the soil. Although it does not dissolve easily in water, low levels can be found in water.

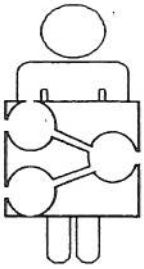
How might I be exposed to 1,1-dichloroethane?



You can be exposed to 1,1-dichloroethane by breathing air containing its vapors in the outdoor air or in your workplace, or by drinking water contaminated with it. Releases from industrial processes are the main source of this chemical in the air. Some members of the general population may be exposed to low levels of 1,1-dichloroethane from this source (0.08-0.14 parts per billion [1 part 1,1-dichloroethane per 1 billion parts of air, or ppb]). Levels in this range have been measured around industrial plants in Magna, Utah (0.082 ppb); Deer Park, Texas (0.14 ppb); Iberville (0.12 ppb); and Geismary, Louisiana (0.14 ppb). You may be part of a much smaller population of workers who could be exposed to higher levels of 1,1-dichloroethane in your workplace, if you are employed in the chemical, rubber and plastic, electrical, or oil and gas industries. However, since current levels of production and use are not known, it is difficult to predict how often exposure might occur from these sources of 1,1-dichloroethane. Exposure can also occur near sites where the chemical was improperly disposed of or spilled on the ground.

The average concentration of 1,1-dichloroethane in the air across the United States is reported to be 55 parts of 1,1-dichloroethane per one trillion parts of air (55 ppt). These ambient levels may be from chlorinated water or building materials. The air levels of 1,1-dichloroethane are usually lower in rural areas and higher in industrialized areas. Higher levels have been found in the air around some small sources of release, such as hazardous waste sites. 1,1-Dichloroethane has been found in drinking water (that is, water that has usually been treated and that comes out of your tap) in the United States at levels that range from trace amounts to 4.8 parts of 1,1-dichloroethane per one billion parts of water (4.8 ppb). 1,1-Dichloroethane has not been detected in any surface water samples from rivers, lakes, or ponds. No information is available on background levels of 1,1-dichloroethane in soil or food.

How can 1,1-dichloroethane enter and leave my body?

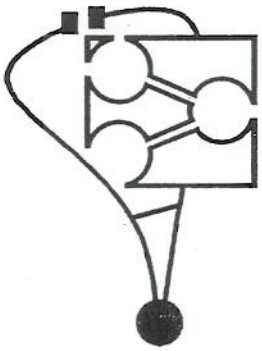


1,1-Dichloroethane can enter your body if you breathe contaminated air or drink contaminated water. 1,1-Dichloroethane is believed to rapidly enter your body when it is breathed or swallowed. It is not known what factors affect how quickly 1,1-dichloroethane enters your body. Studies in animals show that it is likely that 1,1-dichloroethane can also enter your body through your skin.

The most common way you could be exposed to 1,1-dichloroethane released from hazardous waste sites would be by breathing contaminated air around the site. Soil and water in and around hazardous waste sites are not likely to contain high concentrations of 1,1-dichloroethane because it escapes quickly into the air. Therefore, though this route of exposure cannot be ruled out completely, exposure of the skin from soil or water contaminated with 1,1-dichloroethane is much less likely.

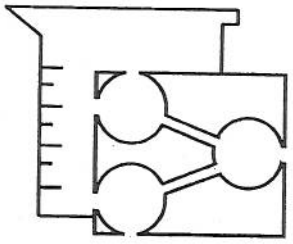
Experiments in animals indicate that the 1,1-dichloroethane that is inhaled or swallowed may go to many organs of the body, depending on the amount taken in. However, most of the 1,1-dichloroethane taken in is usually removed unchanged from the body in the breath within 2 days. A small part of the 1,1-dichloroethane taken in is broken down, and these breakdown products are quickly removed in the breath or urine.

How can 1,1-dichloroethane affect my health?



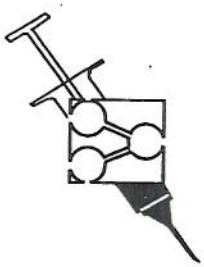
Reliable information on how 1,1-dichloroethane affects the health of humans is not available. Because brief exposures to 1,1-dichloroethane in the air at very high levels have caused death in animals (16,000 ppm), it is likely that exposure to such high levels of 1,1-dichloroethane in the air can also cause death in humans. Some studies in animals have shown that 1,1-dichloroethane can cause kidney disease after long-term, high-level exposure in the air. 1,1-Dichloroethane caused cancer in animals given very high doses (over 3,000 mg/kg/day) by mouth for a lifetime. Delayed growth was observed in the offspring of animals who breathed high concentrations of 1,1-dichloroethane during pregnancy. The severity of these effects may increase when people or animals are exposed to increased levels of 1,1-dichloroethane. Since these effects were seen in animals at high doses, it is also possible that they could occur in humans exposed to high levels of 1,1-dichloroethane. However, we have no information to indicate that these effects do occur in humans.

What levels of exposure have resulted in harmful health effects?



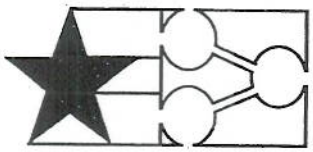
There is no reliable information on what levels of exposure to 1,1-dichloroethane have resulted in harmful health effects in humans. 1,1-Dichloroethane is deadly to animals if large enough quantities are breathed or swallowed. Tables 1-1 through 1-4 show the relationship between exposure to 1,1-dichloroethane and known health effects in humans and animals. 1,1-Dichloroethane can be smelled when it is present in the air at levels of 120 to 200 parts of 1,1-dichloroethane per one million parts of air (ppm).

Is there a medical test to determine whether I have been exposed to 1,1-dichloroethane?



Tests are available that measure 1,1-dichloroethane in urine, blood, breath and body tissues. Because urine, blood, and breath samples are easily obtained, these samples are examined to determine if a person has been exposed to 1,1-dichloroethane. These tests are not routinely available at a doctor's office and would require special equipment for sampling and detection of the compound. Since most of the 1,1-dichloroethane that is taken into the body leaves within two days, these tests must be done soon after exposure occurs. Although these tests can confirm that a person has been exposed to 1,1-dichloroethane, it is not yet possible to use the test results to predict the type or severity of any health effects that might occur or the level of exposure that may have occurred. Because exposure to 1,1-dichloroethane at hazardous waste sites is likely to include exposure to other similar chemicals at the same time, levels of 1,1-dichloroethane measured through these types of medical tests may not reflect exposure to 1,1-dichloroethane alone.

What recommendations has the federal government made to protect human health?



There are no regulatory standards or advisories for 1,1-dichloroethane in drinking water and food. The Environmental Protection Agency (EPA) has determined that any release to the environment in excess of 1,000 pounds should be reported.

Rules and regulations have been developed to protect individuals from the potential health effects of 1,1-dichloroethane in air. The American Conference of Governmental Industrial Hygienists (ACGIH) has set a threshold limit value (TLV) of 810 mg/m^3 (200 ppm) 1,1-dichloroethane in workroom air to protect workers during an 8-hour shift over a 40-hour workweek. The Occupational Safety and Health Administration (OSHA) has issued a permissible exposure limit (PEL) of 400 mg/m^3 (98.9 ppm).

Health Effects Review for

1,2-Dichlorobenzene (CAS# 95-50-1)

What is 1,2-dichlorobenzene?

1,2-Dichlorobenzene is a colorless to pale yellow liquid with a pleasant, aromatic odor. It evaporates readily so that an open container will lead to some of the chemical getting into the air.

The major use of 1,2-dichlorobenzene is as an industrial intermediate in the production of other chemicals. It is also used as an industrial solvent/degreasing agent, as a deodorant for garbage and sewage, as an engine cleaner, and as an insecticide. Due to these various uses, trace levels of 1,2-dichlorobenzene may contaminate water and air.

How Might I Be Exposed to 1,2-Dichlorobenzene?

- Drinking water from a source that has been contaminated by this chemical.
- Bathing or showering in water containing this chemical (inhalation and dermal exposure). Other household water uses (e.g., dishwashing) may also lead to exposure.
- Inhalation of indoor and outdoor air in areas affected by 1,2-dichlorobenzene sources.

How Might 1,2-Dichlorobenzene Affect My Health?

High concentrations of 1,2-dichlorobenzene in air or water would be noticeable due to the chemical's odor. If you were exposed to air or water so affected you might experience dizziness, headache, fatigue, and eye and throat irritation (if air exposure). These effects would wear off rapidly after exposure ended. Exposure to high levels for prolonged periods (days to months) may produce toxic effects in the kidney, liver and lymphatic system. However, exposure to such levels of 1,2-dichlorobenzene would be unlikely due to the noticeable odor caused by these levels.

1,2-Dichlorobenzene is not a developmental toxicant (does not selectively harm the fetus) and so pregnant women do not appear to be at greater risk. Animal studies indicate that 1,2-dichlorobenzene is not carcinogenic. It does not have the ability to damage genetic material (DNA) or cause mutations.

Where Can I Get More Information?

You can contact the Connecticut Department of Public Health at 860-509-7742 if you have questions about 1,2-dichlorobenzene.