Letter Health Consultation

Ithaca Gasoline Release

BEACON & BRIDGE MARKET # 17

ITHACA, MICHIGAN

Prepared by
Michigan Department of Community Health

FEBRUARY 1, 2012

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners 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.

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LETTER HEALTH CONSULTATION

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Under Cooperative Agreement with
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry (ATSDR)

STATE OF MICHIGAN
DEPARTMENT OF COMMUNITY HEALTH
LANSING

RICK SNYDER
GOVERNOR

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February 2, 2012

Chelsey A. Foster
City Manager
City of Ithaca
129 W. Emerson St.
Ithaca, MI 48847

Mr. Foster:

This letter is in regards to the gasoline odors and gasoline-related chemicals in houses and businesses resulting from the recent gasoline leak from the Beacon and Bridge Market #17 located at 205 East Center Street, Ithaca, Michigan.

Background

On October 8, 2011, the first complaint of gasoline odors in a home was called in to the City of Ithaca Fire Chief. Ten days later, on October 18, 2011, gasoline odors and sheen on the water in a catch basin were identified in the sewer near the corner of Emerson and North Main Street[1].

Beacon and Bridge Markets reported, to the Michigan Department of Environmental Quality (MDEQ), that a release from an underground storage tank occurred on October 21, 2011. A damaged leak line detector was identified on an underground storage tank at the Beacon & Bridge Market #17 at 205 East Center Street. There are two underground storage tanks at this location that can each hold 10,000 gallons of gasoline[2]. Gasoline from the leak migrated into the fill material around the utility lines and into the City of Ithaca sewer line[3].

By mid-November, gasoline odors were identified in approximately 10 homes and two businesses. The City of Ithaca retained NTH Consultants, Ltd. (NTH) to assist with this issue. On November 21, 2011 NTH, contacted the Michigan Department of Community Health (MDCH) regarding the benzene levels measured during real-time monitoring. MDCH notified the National Response Center of the release and contacted the Emergency Response Branch of the Region V U.S. Environmental Protection Agency (EPA) that day.

The EPA collected air samples for laboratory analysis in three locations later that week. Since this initial sampling, August Mack Environmental, Inc. (August Mack), environmental contractor for Beacon & Bridge Markets has been collecting air samples at additional locations. The results from the air sampling are discussed below.

[1] Dave Nelson, Fire Chief City of Ithaca. Timeline of events – October 8, 2011 to November 18, 2011.
[2] Michigan Department of Environmental Quality. Storage Tank Information Database. Accessed: December 21, 2011. http://www.deq.state.mi.us/sid-web/Tank_Detail.aspx?mod=lust&Site_ID=00002196.
[3] August Mack Environmental, Inc. Update Summary of Indoor Air Screening and Sampling for Beacon & Bridge Market #17. December 20, 2011.

Discussion

Locations with odors were initially screened with real-time monitoring instruments, including an UltraRAE set up for benzene-specific measurements. An UltraRAE can measure volatile organic chemicals (VOCs) in the air instantaneously. For benzene, the detection limit is 50 parts per billion (ppb). While benzene and other VOCs were detected in sanitary sewer cleanouts located in basements, benzene was not detected in most living spaces and basements in the houses screened. However, since the 50 ppb detection limit for benzene is higher than the health-based screening levels (Table 1), 24-hour Summa canister air samples were collected and sent to a laboratory for VOC analysis. The EPA initially collected air samples in Summa canisters in the living space of three homes the week of November 21. August Mack later collected Summa canister samples at 16 additional locations during the month of December. The results of all air samples were compared to health-based screening levels.

Health-based screening levels

The health-based screening levels are attached in Table 1. As the length of time people may have been exposed to the gasoline-related chemicals was over two weeks but less than a year, the screening levels selected first were the Agency for Toxic Substances and Disease Registry(ATSDR) Intermediate Inhalation Minimal Risk Levels (MRLs). These screening levels are considered protective of people's health for up to a year of exposure. They are applicable for everyone, including individuals that may be more sensitive (children, the elderly, or those with chronic health conditions). If Intermediate MRLs were not available, then screening levels for a lifetime of exposure (chronic) were used.

Initial sampling results

Summa canisters sampled for 24 hours, representing average chemical levels in the home for the entire day. The air samples were analyzed using the EPA's TO-15 method.

The summary of the results indoor air sampling from the initial three locations follows:

- For the first location (business), all chemicals were below the health-based screening levels.

- The second location (residential) had 1,2,4-trimethylbenzene (110 parts per billion by volume [ppbv][4]), 1,3,5-trimethylbenzene (46 ppbv), and benzene (44 ppbv) levels higher than health-based screening values.

  The benzene was about seven times higher than the 6.0 ppb screening level. The benzene screening level, an Intermediate MRL, is considered health-protective for up to a year of exposure. This MRL is based on changes in immune system functioning[5]. Long-term exposure to this level of benzene (44 ppbv) could cause health effects.

[4] For the purposes of this document, parts per billion (ppb) and parts per billion by volume (ppbv) are comparable.

[5] Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological profile for Benzene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

The screening levels for the other two chemicals, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene, were for a lifetime of exposure. The level of 1,2,4-trimethylbenzene was about 70 times higher than the screening level. The screening level is an EPA provisional reference concentration based on a study in rats. The health endpoint was decreased blood clotting time in female rats. There is limited information available on this chemical and a human study, with exposed workers, indicated a higher level of exposure before any potential health effects. Because of the limited information about the toxicity of this chemical, it is not known whether health effects could result from people breathing in these levels.

The level of 1,3,5-trimethylbenzene was roughly equivalent to the screening level. It is not expected that health effects would result from exposure to this chemical.

- The third location (residential) had only 1,2,4-trimethylbenzene levels (3.6 ppbv) over health-based screening levels.

  The level of 1,2,4-trimethylbenzene was about two times higher than the screening level. As stated above, the screening level for 1,2,4-trimethylbenzene is based on a provisional reference concentration. Based on the limited information about this chemical, health effects from this exposure are not expected.

Additional sampling results

Since the beginning of December 2011, 16 additional locations had air samples collected and analyzed for VOCs using the EPA's TO-15 method. While a few locations had detectable levels of benzene, only two samples from one location had benzene levels over the screening level (as of December 26, 2011). See Table 2 (attached) for a summary of the detected chemicals.

Communication with the community

MDCH attended an Ithaca City Council Meeting in early December and answered questions that members of the public had regarding the odors and chemicals present in the air. The MDEQ and EPA also attended the meeting and addressed residents' concerns. Benzene fact sheets and the ATSDR automotive gasoline ToxFAQs were provided to the City for any interested residents or property owners (attached).

MDCH talked to individuals living or working in locations with benzene levels over the screening level and provided contact information to all property owners or residents that had air sampling in their homes or businesses if they had additional health-related questions.

Conclusions

People living in locations with indoor benzene levels above 6 ppb could develop health effects if exposure were to continue.

Recommendations

- Occupants in houses with indoor benzene levels over 6 ppb should leave the house until the levels can be reduced.
- In work locations (indoors), people should not use areas with levels of benzene over 6.0 ppb until these levels can be mitigated.

Public Health Action Plan

- Beacon and Bridge Markets (August Mack) will have a vapor mitigation system installed in the locations with benzene levels higher than the 6 ppb screening level. Other means of reducing chemical levels may be necessary, depending on the characteristics of the structure.
- Beacon and Bridge Markets (August Mack) will collect air samples with Summa canisters in all locations with odor complaints. Air samples are also necessary in properties adjacent to benzene detections to define the extent of contaminant migration.
- Beacon and Bridge Markets (August Mack) will measure lower explosive limits (%LEL) in locations with odors or benzene detections to ensure that levels of total VOCs do not pose a risk of explosion.
- MDCH will be available to evaluate additional data and answer future questions.

Please contact me (grayj@michigan.gov or 517-373-7672) if you have any questions.

Sincerely,

Jennifer Gray, Ph.D.

CC: Linda Dykema, Ph.D., Manager, Toxicology and Response Section, Michigan Department of Community Health
David LaBrecque, Project Manager, Remediation Division – Lansing District, Michigan Department of Environmental Quality
Jeff Kimble, On-Scene Coordinator, U.S. Environmental Protection Agency, Region 5
Curtis Chapman, Project Manager, August Mack Environmental

Table 1: Volatile Organic Chemical screening levels (in parts per billion [ppb]) for up to one year of exposure.

Chemical	CAS	Screening Level (ppb)	Source
1,1,1-trichloroethane	71-55-6	700	ATSDR Int MRL
1,1,2,2-Tetrachloroethane	79-34-5	0.006	EPA RSL
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4,000	Chronic MRL or RfC
1,1,2-Trichloroethane	79-00-5	0.03	EPA RSL
1,1-Dichloroethane	75-34-3	0.4	EPA RSL
1,1-Dichloroethene	75-35-4	20	ATSDR Int MRL
1,2,4-Trichlorobenzene	120-82-1	0.3	Chronic MRL or RfC
1,2,4-Trimethylbenzene	95-63-6	1.5	Chronic MRL or RfC
1,2-Dibromoethane	106-93-4	1	Chronic MRL or RfC
1,2-Dichloro-1,1,2,2-Tetrafluoroethane (Freon 114)	76-14-2	9,900	MDEQ
1,2-Dichlorobenzene	95-50-1	30	Chronic MRL or RfC
1,2-Dichloroethane	107-06-2	600	Chronic MRL or RfC
1,2-Dichloropropane	78-87-5	7	ATSDR Int MRL
1,3-Butadiene	106-99-0	1	Chronic MRL or RfC
1,3,5-Trimethylbenzene	108-67-8	45	MDEQ
1,3-Dichlorobenzene	541-73-1	0.5	MDEQ
1,4-Dichlorobenzene	106-46-7	200	ATSDR Int MRL
1,4-Dioxane	123-91-1	1,000	ATSDR Int MRL
2,2,4-Trimethylpentane	540-84-1	750	MDEQ
2-Propanol (Isopropyl alcohol)	67-63-0	3,000	Chronic MRL or RfC
Acetone	67-64-1	13,000	ATSDR Int MRL
Benzene	71-43-2	6	ATSDR Int MRL
4-Ethyltoluene	622-96-8	NA	
Benzyl chloride	100-44-7	0.2	Chronic MRL or RfC
Bromodichloromethane	75-27-4	0.01	EPA RSL
Bromoform	75-25-2	0.2	EPA RSL
Bromomethane	74-83-9	50	ATSDR Int MRL
Carbon disulfide	75-15-0	200	Chronic MRL or RfC
Carbon tetrachloride	56-23-5	30	ATSDR Int MRL
Chlorobenzene	108-90-7	11	Chronic MRL or RfC
Chloroethane	75-00-3	4,000	Chronic MRL or RfC
Chloroform	67-66-3	50	ATSDR Int MRL
Chloromethane	74-87-3	200	ATSDR Int MRL
cis-1,2-dichloroethene	156-59-2	9.0	MDEQ
cis-1,3-Dichloropropene*	10061-02-6	0.4	MDEQ
Cumene	98-82-8	100	Chronic MRL or RfC
Cyclohexane	110-82-7	2,000	Chronic MRL or RfC
Dibromochloromethane	124-48-1	0.01	EPA RSL
Dichlorodifluoromethane (Freon 12)	75-71-8	20	Chronic MRL or RfC
Ethanol (Ethyl Alcohol)	64-17-5	NA	

Chemical	CAS	Screening Level (ppb)	Source
Ethyl Acetate	141-78-6	890	MDEQ
Ethyl benzene	100-41-4	2000	ATSDR Int MRL
Heptane	142-82-5	850	MDEQ
Hexachlorobutadiene	87-68-3	0.01	EPA RSL
Hexane	110-54-3	200	Chronic MRL or RfC
m-,p-Xylenes		600	ATSDR Int MRL
Methyl butyl ketone	591-78-6	10	Chronic MRL or RfC
Methyl ethyl ketone	78-93-3	2,000	Chronic MRL or RfC
Methyl isobutyl ketone	108-10-1	700	Chronic MRL or RfC
Methyl tert-butyl ether	1634-04-4	700	ATSDR Int MRL
Methylene chloride	75-09-2	300	ATSDR Int MRL
Propene (Propylene)	115-07-1	2,000	Chronic MRL or RfC
o-Xylene		600	ATSDR Int MRL
Propylbenzene	103-65-1	200	Chronic MRL or RfC
Styrene	100-42-5	200	Chronic MRL or RfC
Tetrachloroethene	127-18-4	40	Chronic MRL or RfC
Tetrahydrofuran	109-99-9	6.0	MDEQ
Toluene	108-88-3	1,000	Chronic MRL or RfC
trans-1,2-Dichloroethene	156-60-5	200	ATSDR Int MRL
trans-1,3-Dichloropropene*	10061-01-5	0.5	MDEQ
Trichloroethene	79-01-6	100	ATSDR Int MRL
Trichlorofluoromethane (Freon 11)	75-69-4	130	Chronic MRL or RfC
Vinyl acetate	108-05-4	10	ATSDR Int MRL
Vinyl chloride	75-01-4	30	ATSDR Int MRL
Xylenes	1330-20-7	600	ATSDR Int MRL

* MDEQ provisional screening value for Dichloropropene based on a 1 in 100,000 cancer risk
NA = no screening level is available

ATSDR Int. MRL - The Agency for Toxic Substances and Disease Registry Intermediate Minimal Risk Level (MRL) is the preferred screening level. The MRL is protective of daily human inhalation exposure for up to a year, including sensitive individuals such as children, the elderly, and those with pre-existing illnesses.

ATSDR Chronic MRL or EPA RfC - If no Intermediate MRL is available, the screening level is the ATSDR Chronic MRL or the EPA Reference Concentration (RfC). The chronic MRL and the RfC are protective of daily human inhalation exposure over a lifetime, including sensitive individuals.

EPA RSL - If none of the above are available, the EPA Regional Screening Level (RSL) is the screening level. The RSLs are protective of daily human inhalation exposure over a lifetime, including sensitive individuals.

MDEQ - If none of the above are available, the Michigan MDEQ Air Quality Division, Air Toxics Screening Level is the screening level. The MDEQ screening levels are protective of daily human inhalation exposure over a lifetime, including sensitive individuals.

Table 2: Range of chemicals (in parts per billion by volume [ppbv]) detected in indoor air samples.

Chemical	Range (in ppbv)	Screening level (in ppb)	Number of detections above the screening level (23 samples total)
Benzene	ND[a] – **64**	6	2[b]
Cyclohexane	ND – 32	2,000	0
Ethylbenzene	ND – 6.2	2,000	0
4-Ethyltoluene	ND – 0.47	NA[c]	No screening level
n-Heptane	ND – 21	850	0
n-Hexane	ND – 150	200	0
Isopropanol	ND – 100	3,000	0
Propylene	ND – 7.9	2,000	0
Tetrahydrofuran	ND – **15**	6	2[d]
Toluene	ND – 200	1,000	0
1,2,4-Trimethylbenzene	ND – 1.4	1.5	0
m- & p-Xylenes	ND – 21	600	0
o-Xylenes	ND – 7.3	600	0

Bold values are over the screening level
a = ND indicates that chemicals were not detected in the sample above the reporting limit.
b = Both of the samples were taken from the same property.
c = NA indicates that a screening levels is not available.
d = Both air samples were in a house with recent PVC pipe work (products used to join plastic pipes and fittings contain tetrahydrofuran). (This chemical was not detected in a previous Summa canister sample from that location.)

REPORT PREPARATION

This Health Consultation was prepared by the Michigan Department of Community Health under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with the approved agency methods, policies, procedures existing at the date of publication. Editorial review was completed by the cooperative agreement partner. ATSDR has reviewed this document and concurs with its findings based on the information presented. ATSDR's approval of this document has been captured in an electronic database, and the approving agency reviewers are listed below.

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ATSDR Reviewer
Trent LeCoultre
Technical Project Officer
Agency for Toxic Substances and Disease Registry

Touching benzene

Unless you work in a factory, it's not likely that you will ever see or touch pure benzene. However, if you live near a gas station or near a place where oil has spilled, you could find dirt and water that is contaminated with benzene. You should avoid going near areas that have been contaminated with oil and avoid touching dirt or water that has oil in it.

If you get crude oil or gasoline on your skin, wash it off as soon as possible using a mild soap. The benzene in crude oil or gas could cause a rash and dry, itchy skin.

Health effects of benzene

Short-term health effects*:

- headache
- nausea
- watery eyes
- stuffy nose
- irritated throat
- coughing
- wheezing
- sleepiness
- dizziness

Long-term health effects of benzene:

- your body won't be able to fight off germs as easily
- you could get cancer

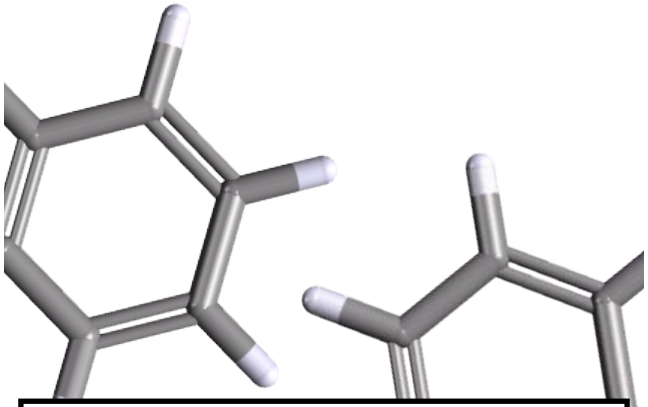
* Many chemicals, not just benzene, can cause these types of health symptoms. The symptoms are temporary and will go away when you're no longer around the chemicals.

Concerned about your health?

If you think you may have been exposed to benzene and have questions about your health, please call your doctor.

You can also call the Poison Control Center for free, 24 hours a day, at 1-800-222-1222.

If you are experiencing serious health problems, seek immediate medical care or call 911.



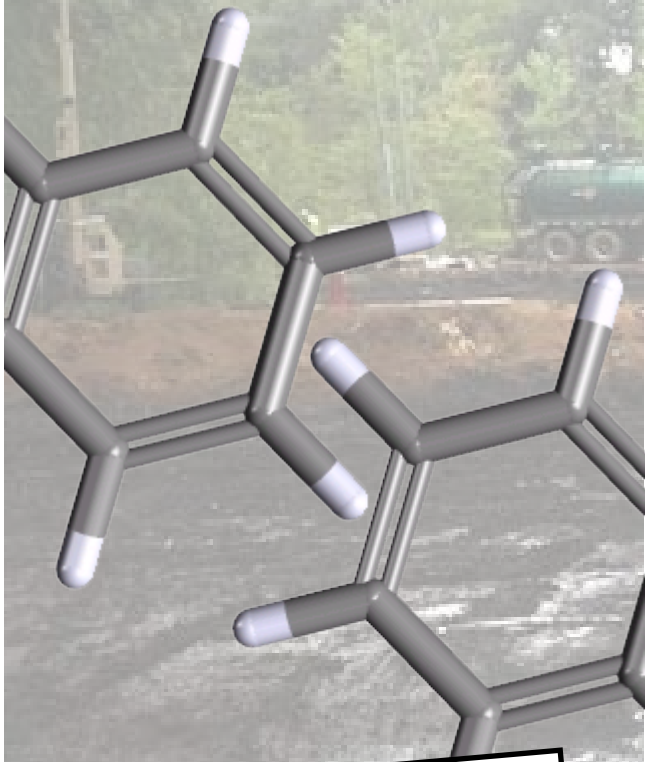
For More Information...

For other questions about benzene, contact:
MDCH Division of Environmental Health
1-800-648-6942

Michigan Department of Community Health

MDCH

Benzene



What is benzene?

- Benzene is a chemical used to make plastics, nylon, dyes, glues, and paint.
- Benzene can be found in gasoline and crude oil.
- Benzene is harmful to the health of people and animals.

How could I be exposed to benzene?

There are three ways you could come into contact with benzene:

- by breathing it in
- eating or drinking it
- touching it

Breathing benzene

Many things can add benzene to the air you breathe.

Outdoors, people can be exposed to low levels of benzene in areas where there is traffic, near gas stations, and from cigarette smoke.

Forest fires and other burning materials can put small amounts into the air, too.

Even the air inside your home can contain benzene, especially if you smoke cigarettes indoors, have recently painted, or have purchased items that had been put together with certain types of glue.

If you're near a crude oil spill or work in a factory that uses benzene, you might be exposed to high levels that can be very dangerous.

Benzene smells sweet. However, benzene is often mixed with other chemicals. You will most likely smell the other chemicals before you will smell benzene.

Scientists use special equipment to test the air where benzene might be problem. This equipment can detect harmful chemicals, like benzene, at levels that are too low to smell.

Eating or drinking benzene

You can be exposed to benzene by drinking or using water that has been contaminated by underground fuel storage tanks, oil spills or nearby hazardous waste sites.

City Water
Municipal (city) water is tested often for many types of contaminants. Benzene would be found quickly if it ended up in city water.

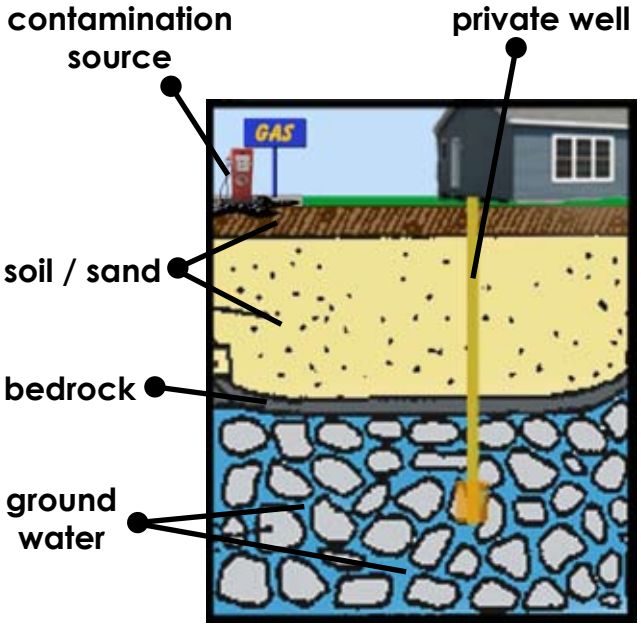
Well Water
Private wells need to be tested by the homeowner. The U.S. CDC suggests that people who have wells test their water once a year for things like coliform bacteria, nitrates, total dissolved solids, and pH levels.

Homes with wells that are near a hazardous waste site, gas station, a factory, or an area where oil has spilled, may want to test their water more often and for more things, including chemicals like benzene.

Your local health department can help you find out what you should be testing for, and how often.

If a crude oil spill or fuel tank leak occurs, the type of soil and rock around your well will determine whether or not chemicals end up in your well water and how long it will take them to get there.

Groundwater Model



ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

AUTOMOTIVE GASOLINE
CAS # 8006-61-9

Agency for Toxic Substances and Disease Registry ToxFAQs **September 1996**

This fact sheet answers the most frequently asked health questions (FAQs) about automobile gasoline. For more information, call the ATSDR Information Center at 1-888-422-8737. 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 automotive gasoline most likely occurs from breathing its vapor at a service station while filling a car's fuel tank. At high levels, automotive gasoline is irritating to the lungs when breathed in and irritating to the lining of the stomach when swallowed. Exposure to high levels may also cause harmful effects to the nervous system. Automotive gasoline has been found in at least 23 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is automotive gasoline?

(Pronounced ô′tə-mō′tĭv găs′ə-lēn′)

The gasoline discussed in this fact sheet is automotive used as a fuel for engines in cars. Gasoline is a colorless, pale brown, or pink liquid, and is very flammable.

Gasoline is a manufactured mixture that does not exist naturally in the environment. Gasoline is produced from petroleum in the refining process.

Typically, gasoline contains more than 150 chemicals, including small amounts of benzene, toluene, xylene, and sometimes lead. How the gasoline is made determines which chemicals are present in the gasoline mixture and how much of each is present. The actual composition varies with the source of the crude petroleum, the manufacturer, and the time of year.

What happens to automotive gasoline when it enters the environment?

- Small amounts of the chemicals present in gasoline evaporate into the air when you fill the gas tank in your car or when gasoline is accidentally spilled onto surfaces and soils or into surface waters.
- Other chemicals in gasoline dissolve in water after spills to surface waters or underground storage tank leaks into the groundwater.
- In surface releases, most chemicals in gasoline will probably evaporate; others may dissolve and be carried away by water; a few will probably stick to soil.
- The chemicals that evaporate are broken down by sunlight and other chemicals in the air.
- The chemicals that dissolve in water also break down quickly by natural processes.

How might I be exposed to automotive gasoline?

- Breathing vapors at a service station when filling the car's fuel tank is the most likely way to be exposed.
- Working at a service station.
- Using equipment that runs on gasoline, such as a lawn mower.
- Drinking contaminated water.
- Being close to a spot where gasoline has spilled or leaked into the soil.

How can automotive gasoline affect my health?

Many of the harmful effects seen after exposure to gasoline are due to the individual chemicals in the gasoline mix-

ture, such as benzene and lead. Inhaling or swallowing large amounts of gasoline can cause death.

Inhaling high concentrations of gasoline is irritating to the lungs when breathed in and irritating to the lining of the stomach when swallowed. Gasoline is also a skin irritant. Breathing in high levels of gasoline for short periods or swallowing large amounts of gasoline may also cause harmful effects on the nervous system.

Serious nervous system effects include coma and the inability to breathe, while less serious effects include dizziness and headaches.

There is not enough information available to determine if gasoline causes birth defects or affects reproduction.

How likely is automotive gasoline to cause cancer?

The Department of Health and Human Services (DHHS) and the International Agency for Research on Cancer (IARC) have not classified automotive gasoline for carcinogenicity. Automotive gasoline is currently undergoing review by the EPA for cancer classification.

Some laboratory animals that breathed high concentrations of unleaded gasoline vapors continuously for 2 years developed liver and kidney tumors. However, there is no evidence that exposure to gasoline causes cancer in humans.

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

Laboratory tests are available that can measure elevated blood or urine levels of lead (as an indication of exposure to leaded gasoline only), benzene, or other substances that may result from exposure to gasoline or other sources. These methods are sensitive enough to measure background levels and levels where health effects may occur. These tests aren't available in 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 established many regulations to control air pollution. These are designed to protect the public from the possible harmful health effects of gasoline.

The American Conference of Governmental Industrial Hygienists (ACGIH) set a maximum level of 890 milligrams of gasoline per cubic meter of air (890 mg/m^3) for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: Ability to cause cancer.

CAS: Chemical Abstracts Service.

Crude petroleum: Petroleum that has not been processed.

Dissolve: To disappear gradually.

Evaporate: To change into a vapor or a gas.

Irritant: A substance that causes an abnormal reaction.

Mixture: A combination of two or more components.

Refining process: The process by which petroleum is purified to form gasoline.

Tumor: An abnormal mass of tissue.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for automotive gasoline. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

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 F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/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.