



2-Methylnaphthalene and Drinking Water

2-Methylnaphthalene is a contaminant that has been found in waters that could be used as drinking water sources in Minnesota. The Minnesota Department of Health (MDH) developed a health-based guidance value for 2-methylnaphthalene in drinking water and, based on this value, does not expect levels of 2-methylnaphthalene in drinking water to harm Minnesotans.

What is 2-methylnaphthalene?

2-methylnaphthalene is found naturally in crude oil and coal¹. In the United States, 2-methylnaphthalene is used for making detergents, dyes, solvents, as well as vitamin K. 2-methylnaphthalene is also used to make some pesticides, or as an additional ingredient in some pesticides. 2-methylnaphthalene is released into the environment when wood or fossil fuels are burned or when there are spills of products containing fossil fuels. 2-methylnaphthalene can evaporate or break down quickly in soils exposed to air or containing certain microorganisms, but it could stay a year or more under other conditions in certain sediments or soils.

Has 2-methylnaphthalene been found in Minnesota waters?

State agencies have found 2-methylnaphthalene in some Minnesota waters. It is most often in water draining from landfills (called leachate) and at hazardous waste sites. Leachate concentrations range from 0.8 to 400 parts per billion (ppb), and groundwater concentrations near clean-up sites range from 0.004 to 455 ppb. The highest concentrations in groundwater were reported at former wood treatment sites. 2-methylnaphthalene has not been found in Minnesota public drinking water systems. Steps are taken to ensure people are not drinking contaminated water from a site.

What is the MDH guidance value for 2-methylnaphthalene in drinking water?

MDH developed new drinking water guidance for 2-methylnaphthalene in 2013. The new guidance value is 8 ppb. Exposure to 2-methylnaphthalene in drinking water at or below 8 ppb over a lifetime will pose little or no risk of health effects.

At a Glance

2-methylnaphthalene is...

- A chemical found in crude oil and other fossil fuels.

2-methylnaphthalene enters your body from...

- Breathing it in.
- Drinking water that contains it.

2-methylnaphthalene gets into the environment from....

- Burning wood and fossil fuels.
- Crude oil or coal tar spills.
- Use of products such as pesticides that contain 2-methylnaphthalene.
- Industrial processes.

Your exposure to 2-methylnaphthalene can be reduced by....

- Avoiding smoke from fires.
- Avoiding cigarette smoke.

2-methylnaphthalene in drinking water is safe if...

The level is at or below the MDH guidance value of 8 ppb.

Can 2-methylnaphthalene in drinking water affect my health?

There is little information about the human health effects of exposure to 2-methylnaphthalene. Animals that ate 2-methylnaphthalene in their food or had it on their skin most of their lifetime frequently developed a lung problem, which makes it harder to breathe.

How am I exposed to 2-methylnaphthalene?

Automobile engine combustion, wood burning, or cigarette smoking are activities that release 2-methylnaphthalene into the air². Because it is commonly found at low levels (0.011 ppb) in the air people breathe in the United States², Minnesotans could be exposed to a small amount of 2-methylnaphthalene by breathing it in. People could drink contaminated water containing 2-methylnaphthalene, but this is unlikely unless they live near a contaminated site.

What are the potential environmental impacts of 2-methylnaphthalene?

The potential ecological impacts of 2-methylnaphthalene are uncertain. Data suggest that 2-methylnaphthalene may harm fish embryos and may build up in fish and other aquatic animals. Limited data also show that 2-methylnaphthalene may interfere with normal immune system function in fish. However, these effects were observed in laboratory studies at higher levels of 2-methylnaphthalene than have been measured in Minnesota waters.

What Minnesotans Need to Know . . .

2-methylnaphthalene has been detected at high levels in groundwater at hazardous waste sites and some landfills in Minnesota. However, the primary way that most Minnesotans are exposed to 2-methylnaphthalene is through the air. Burning fossil fuels and wood, as well as smoking tobacco products, contribute to people's exposure. For most Minnesotans, the exposure to 2-methylnaphthalene is expected to be low.

The Health Risk Assessment Unit...

Evaluates the health risks from contaminants in groundwater. MDH works in collaboration with the Minnesota Pollution Control Agency and the Minnesota Department of Agriculture to understand the occurrence and environmental effects of contaminants in water.

References

1. Environmental Protection Agency. 2003. <http://www.epa.gov/iris/toxreviews/1006tr.pdf>
2. Agency for Toxic Substance and Disease Registry. 2005. <http://www.atsdr.cdc.gov/toxprofiles/tp67.pdf>

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