

# DEET in Drinking Water

*N,N-Diethyl-m-toluamide (DEET) 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 DEET in drinking water and, based on this value, does not expect levels of DEET in drinking water to harm Minnesotans.*

## What is DEET?

DEET is a chemical that is added to insect repellents and is very effective at repelling mosquitoes and ticks. It is important in reducing the risk of diseases such as West Nile Virus and Lyme disease. MDH recommends the use of insect repellents containing up to 30% DEET to minimize risk of exposure to these diseases. DEET was originally developed in 1946 by the US Army following World War II.

## How much DEET is in Minnesota drinking water?

DEET was found at one of six drinking water monitoring sites at a concentration of 0.061 parts per billion (ppb).<sup>1</sup>

## Has DEET been found in other waters in Minnesota?

The United States Geological Survey (USGS) found DEET in Minnesota wastewater and surface water at maximum concentrations of 47 ppb.<sup>1</sup> DEET was found in about 24 percent of all water samples in this study.

## What is the MDH guidance value for DEET in drinking water?

The MDH guidance value for DEET is 200 ppb.<sup>2</sup> If you drink water containing up to 200 ppb DEET for up to a lifetime there is little to no health risk.

## How can I safely use products containing DEET?

The best way to use products with DEET safely is to follow the use directions on the label. Following the use directions can protect against illnesses while avoiding unnecessary exposure and releases to the environment.

## Can DEET in drinking water affect my health?

DEET found in Minnesota drinking water poses little to no health risk. DEET has been found in drinking water in Minnesota at concentrations that are about 3,000 times lower than MDH's guidance value.

## At a Glance

### DEET is...

- A chemical that is often added to insect repellents.

### DEET enters your body from...

- Using insect repellents that contain DEET.

### Your exposure to DEET can be reduced by....

- Using insect repellents containing the least amount of DEET for the desired level of protection (typically 30 percent or less).
- Following label directions.
- Following MDH recommendations for preventing [mosquito-borne illnesses](#)<sup>6</sup> and [tick-borne illnesses](#).<sup>7</sup>
- Following the [Agency for Toxic Substances and Disease Registry](#)<sup>8</sup> recommendations to reduce DEET exposure.

### DEET in drinking water is safe if...

The level is lower than the MDH guidance value of 200 ppb.

### How does DEET get into the environment?

DEET based insect repellents are applied to skin or clothing, then washed into drains and mix with wastewater when people bathe or wash clothes. Even though wastewater is treated, some DEET can remain in wastewater that can move into sources of drinking water. DEET can also get into water when people who have used insect repellents with DEET go into lakes and rivers.

### How long does DEET stay in the environment?

Once DEET is in the environment it tends to stay in the environment, especially in water. DEET is not likely to build up in fish or other animals in the food chain.<sup>3, 4</sup> This means DEET will not get into your body from eating fish.

### What are the potential environmental impacts of DEET?

DEET is slightly toxic to birds, fish and aquatic invertebrates but is not expected to harm these animals in the environment.<sup>5</sup> DEET is mainly applied to human skin and clothing, cats, dogs, pet living areas, and household/domestic areas. Using DEET in these ways is not expected to cause harmful effects to wildlife.

### The Contaminants of Emerging Concern (CEC) Program...

Evaluates health risks from contaminants in drinking water.

#### References

1. USGS. Presence and Distribution of Organic Wastewater Compounds in Wastewater, Surface, Ground, and Drinking Waters, Minnesota, 2000-02. Scientific Investigation Report 2004-5138. <http://pubs.usgs.gov/sir/2004/5138/#pdf>
2. <https://www.health.state.mn.us/communities/environment/risk/docs/guidance/gw/deet.pdf>
3. Hazardous Substances Databank, SRC, April 2011.
4. Franke C et al, 1994. Chemosphere 29: 1501-14.
5. U.S. EPA. Pesticide Reregistration Eligibility Decisions (REDS) Database on DEET (134-62-3). USEPA-738/R-98-010.
6. <https://www.health.state.mn.us/diseases/mosquitoborne/prevention.html>
7. <https://www.health.state.mn.us/diseases/tickborne/prevention.html>
8. [www.cdc.gov/ncidod/dvbid/westnile/resources/deetgen.pdf](http://www.cdc.gov/ncidod/dvbid/westnile/resources/deetgen.pdf)



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