Minnesota Department of Health
HEALTH RISK ASSESSMENT UNIT

Alachlor and Drinking Water

Summary

Alachlor is an herbicide used to control grasses and broadleaf weeds and has been detected in Minnesota water. All detections of alachlor in Minnesota groundwater and surface water have been below the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL) of 2 micrograms per liter (or parts per billion [ppb]). Minnesotans are not likely to experience health effects from the levels of alachlor found in the environment.

Alachlor

Alachlor is an herbicide used on crops such as corn, soybeans, and peanuts. It is also used for general weed control in areas not used for farming.[1] Large amounts of alachlor were used in the 1980s and 1990s in the corn belt.[2] Since the 1990s, alachlor use has gone down. This drop is due to other herbicides like acetochlor and glyphosate entering the market. Alachlor breaks down into two chemicals (degradates): alachlor OSA and alachlor ESA.

Alachlor in Minnesota Waters

Alachlor use in Minnesota has significantly dropped since the 1990s.[3] As the amount of alachlor used in Minnesota declines, so do the levels of alachlor detected in water. Public water systems have regularly tested for alachlor since 1993. All detections of alachlor in Minnesota public water systems have been below the EPA's MCL for alachlor. Alachlor has not been detected in Minnesota public drinking water since 2009.[4]

The Minnesota Department of Agriculture (MDA) has not detected alachlor in groundwater since 2012.[5] The highest level of alachlor detected in surface waters in 2015 was 0.295 ppb. Alachlor's degradates are detected throughout the state's groundwater and surface water.[6]

MDH Guidance Value

Based on available information, MDH developed a guidance value of 9 ppb for alachlor in drinking water. A person drinking water at or below the guidance value would have little or no risk for health effects.

Potential Health Effects

Shorter-term animal studies indicated that exposure to alachlor can damage the kidneys in developing offspring and adults. Changes to the kidney, spleen, and blood system were indicated at high doses in longer-term studies. No effects are expected at levels found in Minnesota water.

Potential Exposure to Alachlor

You may come in contact with small amounts of alachlor by eating food with alachlor residues or drinking contaminated water. The EPA regulates how much alachlor residue can be in food products and drinking water from public water systems. The amount of alachlor in food and drinking water is not likely a health risk for Minnesotans.

Alachlor may be a health risk for those who regularly handle or apply the herbicide. Alachlor can enter your body through skin contact or breathing in the herbicide during use.

Using Alachlor Safely

Alachlor is a Restricted Use Pesticide that only licensed or certified people can buy and apply. All pre-mixes and tank mixes containing alachlor are also Restricted Use Pesticides.[7]

Alachlor in the Environment

Alachlor enters the environment when it is applied as an herbicide. It is easier for alachlor to enter groundwater in areas with coarse soils and groundwater nearer to the land surface. Alachlor can also easily travel into surface water through runoff and streams.[7]

Health Risk Assessment Unit

The MDH Health Risk Assessment Unit evaluates the health risks from contaminants in groundwater. MDH works in collaboration with the Minnesota Pollution Control Agency and MDA to understand the occurrence and environmental effects of contaminants in water.

References

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