



DIOXINS

ENVIRONMENTAL HEALTH – CONTAMINANTS FACT SHEETS

WHAT DO WE KNOW ABOUT DIOXINS?

Dioxin is the name used to describe a group of chemically related persistent organic pollutants (POPs). This group includes dioxins and other chemicals that behave similarly to dioxins. These other chemicals are called furans and PCBs.

Dioxins (true dioxins and furans) are not used for anything and they are not formed intentionally. They are by-products that are made during smelting, chlorine bleaching of paper pulp and the manufacturing of some herbicides and pesticides. They can also be produced when garbage is burned. Small amounts of dioxins occur naturally and can be released into the environment during volcanic eruptions and forest fires.

Dioxins are very stable and last a long time in the environment. They can travel long distances when they are carried in the air, a transport method called Long Range Atmospheric Transport (*see Contaminants Overview fact sheet – <http://www.hss.gov.nt.ca>*). This is how dioxins can

be carried from other parts of the world and land in the NWT; however some dioxins come from local sources.

POPs (such as dioxins) can build up in animal tissues over time through a process called bioaccumulation (*see Contaminants Overview fact sheet – <http://www.hss.gov.nt.ca>*). This means that older animals tend to have higher levels of POPs than younger animals. POPs tend to be found at higher levels in animals that eat other animals and in smaller amounts in animals that eat plants. This is due to a process called biomagnification (*see Contaminants Overview fact sheet – <http://www.hss.gov.nt.ca>*). Marine mammals tend to have the highest levels of POPs.

POPs do not dissolve very well in water. When POPs enter water, they will stick to sediments instead. This means that water contains very low levels of POPs and we do not need to be concerned about POPs in the water.

HOW DO DIOXINS AFFECT HUMAN HEALTH?

If a person is exposed to POPs, many factors will determine whether any 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, gender, nutritional status, family traits, life-style, and state of health.

Most human exposure to dioxins is through consuming foods that contain these chemicals. A person can also be exposed by breathing contaminated air or by drinking contaminated water; however these routes of exposure are minimal.

Dioxins can cause a variety of problems. Short term exposure can lead to skin lesions (damage) and changes in liver function. Human health effects from long term exposure of dioxins are not certain, although links have been made with effects on reproduction, development, hormones and the immune system. The International Agency for Research on Cancer has classified TCDD (a highly toxic type of dioxin) as a “known human carcinogen” (a cancer-causing substance).



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ARE TRADITIONAL FOODS SAFE TO EAT?

Traditional foods provide many essential nutrients that can lower the risk of chronic diseases. Marine mammals tend to have the highest levels of POPs, particularly in the fatty tissues. However, most people do not need to be concerned about contaminated-related effects from traditional food consumption. Generally, the benefits of eating traditional foods outweigh the risks from contaminant exposure.

To avoid dioxin exposure, avoid smoking cigarettes and breathing in smoke from burning garbage.